

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM 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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM132076
2. Name of Operator CAZA OPERATING LLC		6. If Indian, Allottee or Tribe Name
3a. Address 200 NORTH LORRAINE SUITE 1550 MIDLAND, TX 79701		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 403-923-9750		8. Well Name and No. DESERT ROSE 17 8 FEDERAL COM 1H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 17 T20S R35E SWSW 190FSL 467FWL		9. API Well No. 30-025-42972-00-X1
		10. Field and Pool or Exploratory Area WC-025 G08 S203517M
		11. County or Parish, State LEA 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 recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

12/15/2018 - Drilled 12.25" hole to depth 5612'MD. Ran 9.625" 40# HCL-80 LTC casing to depth 5612'MD. DV tool with ECP placed at 3906'MD.

Stage 1 Cement - Lead 153bbbs of Class C 12.9ppg, 1.72 yield. Tail 59bbbs of 14.8ppg, 1.33 yield. Drop plug and open DV tool. Circulate 11bbbs of cement to surface.

Stage 2 Cement - 349bbbs of Class C 12.9ppg, 1.72 yield. Circulate 90bbbs of cement to surface.

Wait on cement 9.5hrs.

01/09/2019 - Drilled 8.75" hole to depth 19,215'MD. Ran 5.5" 20# P-110 BUTT casing to depth

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

**Electronic Submission #450353 verified by the BLM Well Information System
For CAZA OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 01/28/2019 (19PP0767SE)**

Name (Printed/Typed) STEVE MORRIS	Title CONTRACT ENGINEER
Signature (Electronic Submission)	Date 01/12/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____	Title _____	Date _____
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.		/s/ Jonathon Shepard
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.		Office _____

(Instructions on page 2)

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

Additional data for EC transaction #450353 that would not fit on the form

32. Additional remarks, continued

19,215' MD.

Cement with Lead 1335sx, 11.5ppg, 2.74 yield 50% Poz F, 50% Class H, 10% Bentonite, 0.2% KCFP-6, 0.1% KCR-3, 0.4% KCXP-3, 1.5% KCA-2, 0.3% KCR-20D, 5% KCA-5.

Tail: 267 bbls 14.5pg, 1.21 yield, 5.31 gal/sk, 50% Poz F, 50% Class H, 0.5% FL-20, 0.3% KCFR-13, 0.2% KCFP-6, 0.1% KCA-2, 0.1% KCXP-3, 5% KCA-5.

No Cement to surface. Will conduct CBL and submit after completed.

Wait on cement 8.5hrs.

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DIRECTIONAL SURVEY REPORT



Report Date: 1/14/2019	Job Start Date: 10/10/2018	Time Zone: GMT -05:00	North Reference: GridNorth
Operator: Chisholm Energy	Map System: US State Plane 1983	Reference Datum: RotaryTable	Vertical Section Az (deg): 180
Well Name: Mink Fed Com 3 BS 5101 7H	Map Ellipsoid: North American Datum 1983	Survey Calc. Method: Minimum Curvature	Magnetic Model: HDGM
Rlg: Nabors M 55	Map Datum: North American Datum 1983	Ground Elevation (ft.): 3721	Calc. Date: 481223.5
Job Number: FD1018DRPM185	Map Zone: New Mexico Eastern Zone	RKB Above MSL (ft.): 22	Field Strength (nT): 60.42
Status: NM	Well Latitude: 32° 31' 18.984" N	Non Mag Above (ft.): 0	Dip Angle (deg): 6.77
County: Lea	Well Longitude: 103° 37' 26.4" W	Non Mag Below (ft.): 0	Grid Convergence (deg): 0.38
Field: Lea Co, NM	Well Northings:		Total Correction (deg): 6.39
Survey Correction Co.: Gyrodata Inc.	Well Eastings:		

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (°/ft.)	E/W (°/ft.)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC			Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)	Gravity Total (g)						
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
152.00	0.34	253.01	0.22	152.00	-0.13	-0.43	0.13													Oil	External	1	1	
239.00	0.54	202.16	0.48	239.00	-0.59	-0.83	0.59													Oil	External	2	1	
298.00	0.41	202.88	0.22	297.99	-1.04	-1.02	1.04													Oil	External	3	1	
356.00	0.37	210.23	0.11	355.99	-1.39	-1.19	1.39													Oil	External	4	1	
414.00	0.72	205.50	0.61	413.99	-1.88	-1.45	1.88													Oil	External	5	1	
473.00	0.28	233.56	0.83	472.99	-2.30	-1.72	2.30													Oil	External	6	1	
532.00	0.21	219.80	0.15	531.99	-2.47	-1.91	2.47													Oil	External	7	1	
596.00	0.42	196.33	0.38	595.99	-2.79	-2.05	2.79													Oil	External	8	1	
657.00	0.65	205.95	0.40	656.98	-3.31	-2.26	3.31													Oil	External	9	1	
785.00	0.57	209.11	0.07	784.98	-4.52	-2.89	4.52													Oil	External	10	1	
880.00	0.67	209.69	0.11	879.97	-5.42	-3.39	5.42													Oil	External	11	1	
975.00	0.62	227.56	0.22	974.97	-6.25	-4.05	6.25													Oil	External	12	1	
1070.00	0.62	236.11	0.10	1069.96	-6.88	-4.85	6.88													Oil	External	13	1	
1164.00	0.41	209.95	0.33	1163.96	-7.45	-5.44	7.45													Oil	External	14	1	
1258.00	0.65	211.36	0.26	1257.95	-8.20	-5.89	8.20													Oil	External	15	1	
1353.00	0.59	214.70	0.07	1352.95	-9.06	-6.45	9.06													Oil	External	16	1	
1447.00	0.47	219.21	0.14	1446.94	-9.76	-6.97	9.76													Oil	External	17	1	
1484.00	0.48	256.91	0.83	1483.94	-9.91	-7.22	9.91													Oil	External	18	1	
1571.00	0.25	333.88	0.56	1570.94	-9.83	-7.65	9.83													Oil	External	19	1	
1634.00	0.51	345.34	0.43	1633.94	-9.43	-7.79	9.43													Oil	External	20	1	
1728.00	0.69	56.99	0.76	1727.93	-8.72	-7.42	8.72													Oil	External	21	1	
1823.00	0.78	64.51	0.14	1822.93	-8.13	-6.35	8.13													Oil	External	22	1	
1918.00	0.96	61.51	0.20	1917.92	-7.47	-5.07	7.47													Oil	External	23	1	
2012.00	1.39	44.62	0.58	2011.90	-6.28	-3.58	6.28													Oil	External	24	1	
2107.00	1.61	31.45	0.43	2106.86	-4.32	-2.07	4.32													Oil	External	25	1	
2202.00	2.41	20.93	0.92	2201.80	-1.32	-0.66	1.32													Oil	External	26	1	
2297.00	3.45	21.67	1.10	2296.68	3.20	1.11	-3.20													Oil	External	27	1	
2392.00	4.06	10.49	1.00	2391.48	9.17	2.78	-9.17													Oil	External	28	1	
2486.00	4.33	7.25	0.38	2485.22	15.96	3.83	-15.96													Oil	External	29	1	
2581.00	4.43	1.14	0.50	2579.95	23.18	4.35	-23.18													Oil	External	30	1	
2676.00	4.92	9.06	0.85	2674.63	30.88	5.07	-30.88													Oil	External	31	1	
2771.00	4.56	8.55	0.38	2769.31	38.63	6.27	-38.63													Oil	External	32	1	
2866.00	4.20	352.73	1.32	2864.03	45.82	6.39	-45.82													Oil	External	33	1	
2961.00	4.35	343.08	0.77	2958.77	52.72	4.90	-52.72													Oil	External	34	1	
3056.00	3.37	330.69	1.35	3053.55	58.60	2.49	-58.60													Oil	External	35	1	
3151.00	3.30	314.69	0.98	3148.40	62.96	-0.82	-62.96													Oil	External	36	1	
3245.00	3.82	307.76	0.72	3242.21	66.78	-5.22	-66.78													Oil	External	37	1	
3339.00	3.35	298.47	0.79	3336.03	70.00	-10.11	-70.00													Oil	External	38	1	
3434.00	1.72	287.55	1.78	3430.94	71.76	-13.91	-71.76													Oil	External	39	1	
3528.00	1.38	264.06	0.76	3524.90	72.06	-16.38	-72.06													Oil	External	40	1	
3623.00	2.12	271.57	0.81	3619.86	71.99	-19.28	-71.99													Oil	External	41	1	
3718.00	2.07	276.05	0.18	3714.79	72.22	-22.74	-72.22													Oil	External	42	1	
3813.00	2.45	271.82	0.44	3809.72	72.47	-26.47	-72.47													Oil	External	43	1	
3908.00	2.66	273.57	0.24	3904.63	72.67	-30.70	-72.67													Oil	External	44	1	
4003.00	2.86	277.76	0.30	3999.51	73.13	-35.25	-73.13													Oil	External	45	1	
4098.00	3.15	273.41	0.39	4094.38	73.60	-40.21	-73.60													Oil	External	46	1	
4193.00	3.18	281.66	0.48	4189.24	74.29	-45.39	-74.29													Oil	External	47	1	
4288.00	2.93	293.59	0.72	4284.11	75.79	-50.20	-75.79													Oil	External	48	1	
4383.00	2.04	305.64	1.08	4379.02	77.75	-53.80	-77.75													Oil	External	49	1	
4478.00	1.88	306.54	0.17	4473.96	79.66	-56.42	-79.66													Oil	External	50	1	
4573.00	2.51	315.32	0.75	4568.89	82.07	-59.14	-82.07													Oil	External	51	1	
4667.00	2.97	321.86	0.59	4662.78	85.45	-62.09	-85.45													Oil	External	52	1	
4762.00	2.56	322.85	0.43	4757.67	89.08	-64.89	-89.08													Oil	External	53	1	
4857.00	3.04	327.94	0.57	4852.56	92.90	-67.51	-92.90													Oil	External	54	1	

DIRECTIONAL SURVEY REPORT



Report Date: 1/14/2019	Job Start Date: 10/10/2018	Time Zone: GMT -06:00	North Reference: GridNorth
Operator: Chisholm Energy	Map System: US State Plane 1983	Reference Datum: RotaryTable	Vertical Section Az (deg): 180
Well Name: Minis Fed Com 3 BS ST01 7H	Map Ellipsoid: North American Datum 1983	Survey Calc. Method: Minimum Curvature	Magnetic Model: HOGM
Rig: Nabors M 55	Map Zone: New Mexico Eastern Zone	Ground Elevation (ft.): 3771	Calc. Date: 48223.5
Job Number: FD1018DRPM185	Map Date: 32° 31' 18.984" N	RKB Above MSL (ft.): 22	Field Strength (nT): 60.42
Status: NM	Well Longitude: 103° 37' 28.4" W	Non Mag Above (ft.): 0	Dip Angle (deg): 6.77
Country: Lee Co, NM	Well Northings: 103° 37' 28.4" W	Non Mag Below (ft.): 0	Mag. Declination (deg): 0.38
Field: Gyrodata Inc.	Well Eastings:		Grid Convergence (deg): 6.39
Survey Correction Co.:			Total Correction (deg):

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (°/1)	E/W (°/1)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC			Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)	Gravity Total (g)						
4952.00	2.61	323.47	0.51	4947.44	96.78	-70.13	-96.78													Oil	External	55	1	
5047.00	2.32	328.01	0.37	5042.36	100.15	-72.44	-100.15													Oil	External	56	1	
5141.00	2.66	333.14	0.43	5136.27	103.70	-74.43	-103.70													Oil	External	57	1	
5236.00	2.31	324.92	0.52	5231.18	107.24	-76.53	-107.24													Oil	External	58	1	
5330.00	2.20	317.05	0.35	5325.10	110.11	-78.85	-110.11													Oil	External	59	1	
5425.00	1.24	323.13	1.03	5420.06	112.27	-80.71	-112.27													Oil	External	60	1	
5520.00	1.60	350.79	0.80	5515.03	114.40	-81.54	-114.40													Oil	External	61	1	
5615.00	1.57	342.26	0.25	5610.00	116.95	-82.14	-116.95													Oil	External	62	1	
5709.00	1.08	0.58	0.68	5703.97	119.06	-82.53	-119.06													Oil	External	63	1	
5746.00	1.33	4.52	0.71	5740.96	119.84	-82.49	-119.84													Oil	External	64	1	
5836.00	1.04	350.67	0.45	5830.94	121.68	-82.54	-121.68													Oil	External	65	1	
5931.00	1.18	346.24	0.17	5925.93	123.48	-82.91	-123.48													Oil	External	66	1	
6026.00	1.37	355.52	0.29	6020.90	125.57	-83.23	-125.57													Oil	External	67	1	
6120.00	1.37	354.58	0.02	6114.88	127.80	-83.43	-127.80													Oil	External	68	1	
6215.00	1.58	355.28	0.22	6209.84	130.24	-83.64	-130.24													Oil	External	69	1	
6310.00	0.44	224.96	1.99	6304.83	131.29	-84.01	-131.29													Oil	External	70	1	
6405.00	0.71	274.34	0.28	6399.83	130.61	-84.68	-130.61													Oil	External	71	1	
6500.00	0.74	222.94	0.04	6494.82	129.74	-85.51	-129.74													Oil	External	72	1	
6594.00	0.61	226.73	0.15	6588.81	128.95	-86.29	-128.95													Oil	External	73	1	
6689.00	0.90	230.82	0.31	6683.81	128.13	-87.23	-128.13													Oil	External	74	1	
6784.00	0.63	205.03	0.45	6778.80	127.19	-88.03	-127.19													Oil	External	75	1	
6878.00	0.57	224.22	0.22	6872.79	126.39	-88.58	-126.39													Oil	External	76	1	
6972.00	0.67	211.35	0.18	6966.79	125.58	-89.19	-125.58													Oil	External	77	1	
7067.00	0.57	199.08	0.17	7061.78	124.66	-89.63	-124.66													Oil	External	78	1	
7162.00	0.74	205.52	0.19	7156.78	123.66	-90.05	-123.66													Oil	External	79	1	
7256.00	0.92	188.54	0.32	7250.77	122.37	-90.42	-122.37													Oil	External	80	1	
7351.00	0.77	179.55	0.21	7345.76	120.97	-90.53	-120.97													Oil	External	81	1	
7446.00	0.90	179.89	0.14	7440.75	119.59	-90.53	-119.59													Oil	External	82	1	
7541.00	0.68	178.55	0.23	7535.74	118.28	-90.51	-118.28													Oil	External	83	1	
7636.00	0.74	186.67	0.12	7630.73	117.11	-90.57	-117.11													Oil	External	84	1	
7730.00	0.55	191.94	0.21	7724.72	116.06	-90.73	-116.06													Oil	External	85	1	
7825.00	0.53	176.51	0.15	7819.72	115.18	-90.80	-115.18													Oil	External	86	1	
7920.00	0.58	162.74	0.15	7914.71	114.28	-90.63	-114.28													Oil	External	87	1	
8014.00	0.53	159.74	0.06	8008.71	113.42	-90.34	-113.42													Oil	External	88	1	
8109.00	0.42	154.57	0.12	8103.71	112.69	-90.04	-112.69													Oil	External	89	1	
8204.00	0.33	158.44	0.10	8198.70	112.12	-89.79	-112.12													Oil	External	90	1	
8299.00	0.22	113.13	0.25	8293.70	111.80	-89.52	-111.80													Oil	External	91	1	
8394.00	0.41	125.27	0.21	8388.70	111.53	-89.07	-111.53													Oil	External	92	1	
8489.00	0.14	138.81	0.29	8483.70	111.24	-88.72	-111.24													Oil	External	93	1	
8584.00	0.39	128.95	0.27	8578.70	110.95	-88.39	-110.95													Oil	External	94	1	
8676.00	0.57	140.71	0.22	8670.70	110.40	-87.86	-110.40													Oil	External	95	1	
8771.00	0.75	136.31	0.20	8765.69	109.59	-87.13	-109.59													Oil	External	96	1	
8866.00	0.66	113.09	0.31	8860.68	108.92	-86.20	-108.92													Oil	External	97	1	
8960.00	0.82	92.55	0.33	8954.68	108.68	-85.03	-108.68													Oil	External	98	1	
9055.00	0.73	79.88	0.20	9049.67	108.76	-83.75	-108.76													Oil	External	99	1	
9149.00	0.51	70.20	0.26	9143.66	109.00	-82.77	-109.00													Oil	External	100	1	
9244.00	0.55	40.63	0.29	9238.66	109.49	-82.07	-109.49													Oil	External	101	1	
9339.00	0.73	81.75	0.51	9333.65	109.93	-81.18	-109.93													Oil	External	102	1	
9433.00	0.75	83.63	0.03	9427.64	110.08	-79.97	-110.08													Oil	External	103	1	
9527.00	1.11	61.48	0.53	9521.63	110.58	-78.56	-110.58													Oil	External	104	1	
9621.00	0.87	45.55	0.39	9615.62	111.52	-77.25	-111.52													Oil	External	105	1	
9716.00	1.08	55.02	0.28	9710.60	112.54	-76.00	-112.54													Oil	External	106	1	
9811.00	0.81	46.21	0.32	9805.59	113.51	-74.79	-113.51													Oil	External	107	1	
9906.00	0.42	78.66	0.54	9900.59	114.05	-73.96	-114.05													Oil	External	108	1	
9999.00	0.39	87.58	0.07	9993.58	114.13	-73.31	-114.13													Oil	External	109	1	

DIRECTIONAL SURVEY REPORT

gyrodata

Report Date: 1/14/2019	Job Start Date: 10/10/2018	Time Zone: GMT-06:00	North Reference: GridNorth
Operator: Chisholm Energy	Map System: US State Plane 1983	Reference Datum: RotaryTable	Vertical Section Az (deg): 180
Well Name: Minis Fed Com 3 BS ST01 7H	Map Ellipsoid: North American Datum 1983	Survey Calc. Method: Minimum Curvature	Magnetic Model: HDGM
Rig: Nabers M55	Map Datum: North American Datum 1983	Ground Elevation (ft.): 3771	Calc. Date:
Job Number: FD3018DRPM185	Map Zone: New Mexico Eastern Zone	RKB Above MSL (ft.): 22	Field Strength (nT): 48223.5
State: NM	Well Latitude: 32° 31' 18.984" N	Non Mag Above (ft.): 0	Dip Angle (deg): 60.42
County: Lea Co, NM	Well Longitude: 103° 57' 26.4" W	Non Mag Below (ft.): 0	Mag. Declination (deg): 6.77
Field: Gyrodata Inc.	Well Northings:		Grid Convergence (deg): 0.38
Survey Correction Co.:	Well Eastings:		Total Correction (deg): 6.39

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (°/1)	E/W (°/1)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC			Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)	Gravity Total (g)						
10092.00	0.58	105.85	0.26	10086.58	114.01	-72.54	-114.01													Oil	External	110	1	
10186.00	0.27	133.37	0.39	10180.58	113.73	-71.92	-113.73													Oil	External	111	1	
10281.00	0.64	238.75	0.80	10275.58	113.30	-72.21	-113.30													Oil	External	112	1	
10376.00	0.24	300.57	0.60	10370.57	113.13	-72.84	-113.13													Oil	External	113	1	
10471.00	0.55	318.83	0.35	10465.57	113.57	-73.31	-113.57													Oil	External	114	1	
10566.00	0.38	329.35	0.20	10560.57	114.19	-73.77	-114.19													Oil	External	115	1	
10602.00	3.50	264.10	9.33	10596.54	114.18	-74.92	-114.18													Oil	External	116	1	
10634.00	0.81	203.85	9.93	10628.52	113.87	-75.99	-113.87													Oil	External	117	1	
10681.00	4.48	239.15	8.19	10675.46	112.62	-77.70	-112.62													Oil	External	118	1	
10728.00	8.85	256.11	10.10	10722.14	110.81	-82.79	-110.81													Oil	External	119	1	
10776.00	11.33	260.91	5.45	10769.39	109.18	-91.03	-109.18													Oil	External	120	1	
10823.00	15.13	266.54	8.53	10815.14	108.08	-101.71	-108.08													Oil	External	121	1	
10869.00	16.91	268.80	4.10	10859.35	107.58	-114.40	-107.58													Oil	External	122	1	
10901.00	18.51	268.44	5.01	10889.84	107.34	-124.13	-107.34													Oil	External	123	1	
10964.00	20.57	268.45	3.27	10949.20	106.77	-145.19	-106.77													Oil	External	124	1	
10996.00	22.12	269.43	4.97	10979.01	106.56	-156.83	-106.56													Oil	External	125	1	
11051.00	25.95	267.11	7.17	11029.23	105.85	-179.22	-105.85													Oil	External	126	1	
11083.00	30.13	264.20	13.74	11057.47	104.68	-194.21	-104.68													Oil	External	127	1	
11114.00	35.06	262.99	16.04	11083.58	102.81	-210.79	-102.81													Oil	External	128	1	
11146.00	39.55	263.40	14.05	11109.03	100.52	-230.05	-100.52													Oil	External	129	1	
11177.00	44.85	263.63	17.10	11131.98	98.17	-250.73	-98.17													Oil	External	130	1	
11209.00	49.73	262.06	15.67	11153.68	95.23	-274.05	-95.23													Oil	External	131	1	
11240.00	52.04	260.07	8.96	11173.24	91.48	-297.81	-91.48													Oil	External	132	1	
11272.00	53.89	257.24	9.12	11192.51	86.45	-322.84	-86.45													Oil	External	133	1	
11303.00	55.64	254.71	8.73	11210.40	80.31	-347.40	-80.31													Oil	External	134	1	
11335.00	57.66	252.48	8.59	11227.99	72.76	-373.04	-72.76													Oil	External	135	1	
11366.00	59.70	250.26	8.98	11244.11	64.29	-398.13	-64.29													Oil	External	136	1	
11397.00	61.87	248.08	9.31	11259.24	54.67	-423.41	-54.67													Oil	External	137	1	
11429.00	63.97	246.22	8.36	11273.81	43.60	-449.66	-43.60													Oil	External	138	1	
11460.00	65.92	244.07	8.89	11286.94	31.80	-475.14	-31.80													Oil	External	139	1	
11491.00	67.64	241.20	10.16	11299.16	18.70	-500.43	-18.70													Oil	External	140	1	
11523.00	69.21	238.69	8.79	11310.93	3.79	-526.19	-3.79													Oil	External	141	1	
11555.00	70.78	236.53	8.02	11321.88	-12.31	-551.57	12.31													Oil	External	142	1	
11586.00	72.69	234.86	8.01	11331.59	-28.91	-575.89	28.91													Oil	External	143	1	
11617.00	74.09	232.89	7.58	11340.45	-46.42	-599.88	46.42													Oil	External	144	1	
11649.00	75.66	229.98	10.06	11348.81	-65.68	-624.03	65.68													Oil	External	145	1	
11680.00	76.98	227.18	9.75	11356.14	-85.60	-646.61	85.60													Oil	External	146	1	
11712.00	77.98	224.42	8.98	11363.08	-107.38	-669.00	107.38													Oil	External	147	1	
11743.00	79.22	221.50	10.06	11369.21	-129.62	-689.71	129.62													Oil	External	148	1	
11774.00	79.92	218.57	9.57	11374.82	-152.96	-709.32	152.96													Oil	External	149	1	
11806.00	80.43	216.03	7.98	11380.28	-178.04	-728.42	178.04													Oil	External	150	1	
11837.00	80.97	213.65	7.77	11385.29	-203.14	-745.90	203.14													Oil	External	151	1	
11868.00	81.43	210.72	9.46	11390.03	-229.07	-762.21	229.07													Oil	External	152	1	
11900.00	82.16	208.48	7.29	11394.60	-256.61	-777.85	256.61													Oil	External	153	1	
11931.00	82.95	206.69	6.27	11398.62	-283.85	-792.09	283.85													Oil	External	154	1	
11963.00	83.99	203.55	10.28	11402.26	-312.63	-805.58	312.63													Oil	External	155	1	
11994.00	84.69	200.77	9.21	11405.32	-341.20	-817.22	341.20													Oil	External	156	1	
12026.00	85.20	198.05	8.62	11408.14	-371.26	-827.81	371.26													Oil	External	157	1	
12058.00	85.81	195.13	9.29	11410.64	-401.83	-836.91	401.83													Oil	External	158	1	
12089.00	86.12	191.81	10.73	11412.83	-431.90	-844.12	431.90													Oil	External	159	1	
12120.00	86.71	189.18	8.68	11414.77	-462.32	-849.75	462.32													Oil	External	160	1	
12152.00	86.71	186.70	7.74	11416.60	-493.96	-854.16	493.96													Oil	External	161	1	
12184.00	86.96	183.35	10.48	11418.37	-525.78	-856.96	525.78													Oil	External	162	1	
12202.00	87.07	182.14	6.74	11419.31	-543.73	-857.82	543.73													Oil	External	163	1	
12289.00	87.40	180.09	2.38	11423.50	-630.61	-859.51	630.61													Oil	External	164	1	

DIRECTIONAL SURVEY REPORT



Report Date: 1/14/2019	Job Start Date: 10/10/2018	Time Zone: GMT -06:00	North Reference: GridNorth
Operator: Chisholm Energy	Map System: US State Plane 1983	Reference Datum: Rotary Table	Vertical Section Az (deg): 180
Well Name: Mines Fed Com 3 05 S101 7H	Map Ellipsoid: North American Datum 1983	Survey Calc. Method: Minimum Curvature	Magnetic Section Az (deg): HDGM
Rig: Nabors M 55	Map Datum: North American Datum 1983	Ground Elevation (ft.): 3721	Calc. Date: 4/22/23
Job Number: FD1018DRPM185	Map Zone: New Mexico Eastern Zone	RKB Above MSL (ft.): 22	Field Strength (nT): 49223.5
State: NM	Well Latitude: 32° 31' 18.984" N	Non Mag Above (ft.): 0	Dip Angle (deg): 60.42
County: Lea	Well Longitude: 103° 57' 26.4" W	Non Mag Below (ft.): 0	Mag. Inclination (deg): 6.77
Field: Lea Co, NM	Well Northings:		Grid Convergence (deg): 0.38
Survey Correction Co.: Gyrodata Inc.	Well Eastings:		Total Correction (deg): 6.38

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (°/ft.)	E/W (°/ft.)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC		Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time	
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)							Gravity Total (g)
12384.00	87.59	179.51	0.64	11427.66	-725.52	-859.18	725.52												Oil	External	165	1		
12479.00	87.02	180.43	1.14	11432.12	-820.41	-859.13	820.41												Oil	External	166	1		
12573.00	87.83	180.64	0.89	11436.35	-914.31	-860.01	914.31												Oil	External	167	1		
12667.00	87.32	179.89	0.96	11440.32	-1008.23	-860.44	1008.23												Oil	External	168	1		
12761.00	87.56	179.32	0.66	11444.52	-1102.13	-859.80	1102.13												Oil	External	169	1		
12856.00	87.39	179.72	0.46	11448.71	-1197.03	-859.00	1197.03												Oil	External	170	1		
12938.00	86.57	180.94	1.79	11453.03	-1278.92	-859.47	1278.92	-0.762149	0.644445	0.059829	34670	-26355	-21007	60.53	48412	60.68	48352	0.99967	143.60	Oil	MWD+HRGM+AX	171	2	10/11/18 18:20
13032.00	82.38	176.22	6.70	11462.08	-1372.40	-857.17	1372.40	0.159463	0.978022	0.132601	-3059	-44890	-17821	60.47	48336	60.30	48395	0.99956	152.60	Oil	MWD+HRGM+AX	172	2	10/11/18 22:32
13127.00	90.15	176.17	8.18	11468.26	-1466.92	-850.88	1466.92	-0.92670	-0.369475	-0.002686	37454	19432	-23901	60.48	48317	60.12	48494	1.00019	156.20	Oil	MWD+HRGM+AX	173	2	10/12/18 1:41
13222.00	93.54	175.99	3.57	11465.21	-1561.64	-844.39	1561.64	-0.913065	0.402686	-0.061783	38919	-12473	-26136	60.57	48417	60.40	48511	0.99962	158.00	Oil	MWD+HRGM+AX	174	2	10/12/18 4:53
13317.00	88.87	172.88	5.91	11463.21	-1656.13	-835.18	1656.13	0.954579	-0.295238	0.019780	-42216	7234	-22692	60.47	48294	60.08	48471	0.99918	161.60	Oil	MWD+HRGM+AX	175	2	10/12/18 8:23
13411.00	86.20	178.17	6.30	11467.25	-1749.71	-827.85	1749.71	-0.196581	0.978022	0.066178	11923	-42033	-20934	60.50	48361	60.29	48448	0.99957	165.20	Oil	MWD+HRGM+AX	176	2	10/12/18 11:54
13467.00	86.40	178.43	0.58	11470.87	-1805.57	-826.20	1805.57	0.343990	-0.937010	0.062740	-18066	39648	-21948	60.48	48323	59.38	48786	0.99992	145.40	Oil	MWD+HRGM+AX	177	3	10/13/18 20:27
13562.00	87.31	178.68	0.99	11476.08	-1900.40	-823.80	1900.40	-0.541020	-0.839350	0.046880	20654	37940	-22705	60.46	48296	59.31	48801	0.99949	156.20	Oil	MWD+HRGM+AX	178	3	10/13/18 22:58
13656.00	85.87	178.96	1.56	11481.67	-1994.21	-821.87	1994.21	-0.959470	0.271240	0.072020	42847	-8911	-21533	60.48	48337	59.42	48774	0.99946	158.00	Oil	MWD+HRGM+AX	179	3	10/14/18 3:23
13751.00	87.48	178.90	1.70	11487.18	-2089.03	-820.10	2089.03	0.733890	0.677490	0.043950	-29541	-31494	-22779	60.49	48342	59.46	48797	0.99955	161.60	Oil	MWD+HRGM+AX	180	3	10/14/18 6:50
13845.00	90.84	177.50	3.87	11488.56	-2182.96	-817.15	2182.96	-0.844880	0.534910	-0.014650	37207	-19214	-75171	60.49	48331	59.45	48858	0.99953	165.20	Oil	MWD+HRGM+AX	181	3	10/14/18 8:22
13940.00	93.19	178.71	2.78	11485.22	-2277.84	-814.01	2277.84	0.777830	0.625980	-0.055660	-29663	-27954	-26953	60.47	48286	59.43	48865	0.99977	167.00	Oil	MWD+HRGM+AX	182	3	10/14/18 10:05
14035.00	92.95	178.62	0.27	11480.13	-2372.68	-811.80	2372.68	-0.450440	-0.891360	-0.051510	15503	37817	-26807	60.47	48288	59.40	48878	0.99983	168.80	Oil	MWD+HRGM+AX	183	3	10/14/18 11:58
14130.00	92.37	179.03	0.75	11475.72	-2467.55	-809.85	2467.55	0.759770	-0.647950	-0.041260	-33154	24268	-26416	60.45	48262	59.37	48846	0.99919	165.20	Oil	MWD+HRGM+AX	184	3	10/14/18 15:06
14224.00	88.15	179.43	4.49	11475.30	-2561.52	-808.34	2561.52	-0.640140	0.767090	0.032230	-29712	-30908	-23315	60.47	48303	59.37	48803	0.99941	168.80	Oil	MWD+HRGM+AX	185	3	10/14/18 17:28
14319.00	87.55	178.89	0.68	11478.86	-2656.44	-806.70	2656.44	0.894780	-0.443850	0.042730	-39917	16333	-27827	60.48	48320	59.40	48798	0.99952	168.80	Oil	MWD+HRGM+AX	186	3	10/14/18 20:03
14413.00	90.60	178.86	3.24	11480.38	-2750.40	-804.86	2750.40	-0.988040	-0.153080	-0.010500	40772	9473	-25146	60.45	48270	59.34	48830	0.99967	168.80	Oil	MWD+HRGM+AX	187	3	10/14/18 21:46
14508.00	90.53	179.03	0.19	11479.44	-2845.37	-803.11	2845.37	-0.997800	-0.065670	-0.009280	41504	5786	-25098	60.47	48290	59.36	48846	0.99979	167.00	Oil	MWD+HRGM+AX	188	3	10/15/18 0:30
14603.00	90.64	180.60	1.66	11478.47	-2940.37	-802.80	2940.37	0.007810	-0.999760	-0.011230	-2075	41773	-25244	60.47	48298	59.37	48852	0.99964	168.80	Oil	MWD+HRGM+AX	189	3	10/15/18 2:59
14697.00	91.68	181.00	1.19	11476.57	-3034.34	-804.11	3034.34	-0.999270	-0.014400	-0.029300	41260	2832	-26050	60.46	48284	59.33	48878	0.99959	167.00	Oil	MWD+HRGM+AX	190	3	10/15/18 5:43
14792.00	90.91	180.84	0.83	11474.47	-3129.30	-805.64	3129.30	-0.804440	0.593260	-0.015870	34863	-27852	-25439	60.46	48279	59.37	48834	0.99946	168.80	Oil	MWD+HRGM+AX	191	3	10/15/18 7:49
14886.00	90.94	180.87	0.05	11472.90	-3223.28	-807.04	3223.28	-0.851320	0.523930	-0.016360	36621	-19849	-25488	60.45	48263	59.33	48834	0.99955	170.60	Oil	MWD+HRGM+AX	192	3	10/15/18 10:02
14981.00	90.81	180.94	0.16	11471.45	-3318.25	-808.54	3318.25	-0.903080	0.428710	-0.014160	38599	-15820	-25366	60.45	48271	59.37	48822	0.99956	170.60	Oil	MWD+HRGM+AX	193	3	10/15/18 12:07
15076.00	90.73	181.11	0.20	11470.17	-3413.23	-810.24	3413.23	0.422120	0.906010	-0.012690	-15625	-38721	-25317	60.46	48278	59.37	48830	0.99939	170.60	Oil	MWD+HRGM+AX	194	3	10/15/18 14:39
15171.00	90.88	180.79	0.29	11468.84	-3508.21	-811.89	3508.21	0.351560	0.935790	-0.015380	-12500	-39770	-25415	60.45	48272	59.37	48824	0.99956	170.60	Oil	MWD+HRGM+AX	195	3	10/15/18 17:24
15265.00	89.52	180.83	1.45	11468.51	-3602.19	-813.29	3602.19	0.121580	-0.992430	0.008300	-7422	41602	-24438	60.46	48278	59.34	48816	0.99967	172.40	Oil	MWD+HRGM+AX	196	3	10/15/18 19:28
15359.00	89.43	180.78	0.11	11469.37	-3696.18	-814.61	3696.18	-0.239990	0.970460	0.010010	12402	-40454	-24341	60.46	48289	59.37	48814	0.99953	172.40	Oil	MWD+HRGM+AX	197	3	10/15/18 21:31
15455.00	89.36	180.77	0.07	11470.39	-3792.17	-815.91	3792.17	0.597410	0.801510	0.011230	-23389	-35278	-24268	60.46	48277	59.38	48791	0.99951	165.20	Oil	MWD+HRGM+AX	198	3	10/16/18 2:00
15549.00	90.06	181.05	0.80	11470.86	-3886.15	-817.41	3886.15	-0.908690	-0.417480	-0.000980	37207	19531	-24853	60.45	48265	59.32	48821	0.99979	170.60	Oil	MWD+HRGM+AX	199	3	10/16/18 4:06
15645.00	90.03	181.28	0.24	11470.79	-3982.13	-819.36	3982.13	-0.999760	0.009770	-0.000490	41992	1709	-24853	60.45	48264	59.31	48825	0.99960	168.80	Oil	MWD+HRGM+AX	200	3	10/16/18 6:33
15740.00	89.94	180.45	0.88	11470.81	-4077.12	-820.79	4077.12	0.924320	0.381100	0.000980	-37891	-18286	-24707	60.44	48257	59.35	48791	0.99959	172.40	Oil	MWD+HRGM+AX	201	3	10/16/18 8:41
15834.00	89.92	180.72	0.29	11470.93	-4171.11	-821.75	4171.11	0.146000	0.989260	0.001470	-3809	-41919	-24683	60.45	48269	59.38	48795	0.99977	172.40	Oil	MWD+HRGM+AX	202	3	10/16/18 10:45
15929.00	90.03	180.42	0.34	11470.97	-4266.11	-822.70	4266.11	-0.626220	-0.779540	-0.000490	24341	34253	-24829	60.43	48242	59.28	48808	0.99971	167.00	Oil	MWD+HRGM+AX	203	3	10/16/18 13:44
16023.00	89.89	180.05	0.42	11471.03	-4360.11	-823.08	4360.11	-0.925290	0.378420	0.001950	39893	-13477	-24658	60.44	48260	59.35	48796	0.99947	170.60	Oil	MWD+HRGM+AX	204	3	10/16/18 16:03
16118.00	89.37	179.19	1.06	11471.65	-4455.10	-822.45	4455.10	0.848620	0.874510	0.010990	-17871	-38403	-24243	60.45	48273	59.34	48805	0.99966	172.40	Oil	MWD+HRGM+AX	205	3	10/16

DIRECTIONAL SURVEY REPORT

gyrodata

Report Date: 1/14/2019	Job Start Date: 10/10/2018	Time Zone: GMT-06:00	North Reference: GridNorth
Operator: Chisholm Energy	Map System: US State Plane 1983	Reference Datum: RotaryTable	Vertical Section Az (deg): 180
Well Name: Mins Fed Conn 3 BS STD 17H	Map Ellipsoid: North American Datum 1983	Survey Calc. Method: Minimum Curvature	Magnetic Model: HDGM
Rig: Nabors M 55	Map Zone: New Mexico Eastern Zone	Ground Elevation (ft.): 3771	Calc. Date: 48221.5
Job Number: FD1018DRPM185	Well Latitude: 32° 31' 18.984" N	RKB Above MSL (ft.): 22	Field Strength (nT): 60.42
State: NM	Well Longitude: 105° 37' 26.4" W	Non Mag Above (ft.): 0	Dip Angle (deg): 6.77
County: Lea Co, NM	Well Northings: 105° 37' 26.4" W	Non Mag Below (ft.): 0	Grid Convergence (deg): 0.38
Field: Gyrodata Inc.	Well Eastings:		Total Correction (deg): 6.39
Survey Correction Co.:			

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (°/100)	E/W (°/100)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC			Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)	Gravity Total (g)						
17564.00	84.36	181.04	3.18	11493.75	-5900.58	-804.31	5900.58	0.010990	0.994630	0.098150	1733	-44165	-19604	60.46	48297	60.31	48351	0.99931	168.80	Oil	MWD+HRGM+AX	220	4	10/20/18 3:22
17659.00	89.96	181.58	5.92	11498.46	-5995.40	-806.48	5995.40	0.990970	0.134770	0.000730	-41382	-7642	-23828	60.47	48292	60.32	48360	0.99988	170.60	Oil	MWD+HRGM+AX	221	4	10/20/18 5:34
17753.00	90.76	178.20	3.69	11497.86	-6089.38	-806.30	6089.38	-0.839350	0.542730	-0.013180	36792	-19751	-24365	60.42	48220	60.16	48347	0.99941	172.40	Oil	MWD+HRGM+AX	222	4	10/20/18 7:50
17848.00	91.04	178.22	0.30	11496.37	-6184.32	-803.33	6184.32	0.990230	-0.137700	-0.018070	-41577	2368	-24536	60.42	48225	60.20	48335	0.99971	172.40	Oil	MWD+HRGM+AX	223	4	10/20/18 9:53
17942.00	90.80	178.68	0.55	11494.86	-6278.28	-800.79	6278.28	0.863770	0.503170	-0.013920	-34351	-23706	-24365	60.43	48231	60.23	48328	0.99953	174.20	Oil	MWD+HRGM+AX	224	4	10/20/18 12:02
18036.00	90.18	178.50	0.69	11494.06	-6372.24	-798.48	6372.24	0.574950	-0.817870	-0.003170	-26733	32349	-23999	60.41	48202	60.11	48343	0.99953	176.00	Oil	MWD+HRGM+AX	225	4	10/20/18 14:18
18131.00	91.13	178.75	1.03	11492.97	-6467.21	-796.20	6467.21	-0.924070	-0.381840	-0.019770	37085	18750	-24658	60.40	48199	60.16	48321	0.99984	176.00	Oil	MWD+HRGM+AX	226	4	10/20/18 15:49
18225.00	90.60	178.93	0.60	11491.55	-6561.18	-794.29	6561.18	0.894290	0.446290	-0.010500	-35937	-21387	-24219	60.43	48238	60.25	48326	0.99931	176.00	Oil	MWD+HRGM+AX	227	4	10/20/18 17:21
18319.00	89.68	178.92	0.98	11491.32	-6655.16	-792.53	6655.16	-0.039060	0.999020	0.005620	4736	-41919	-23584	60.42	48235	60.20	48331	0.99959	174.20	Oil	MWD+HRGM+AX	228	4	10/20/18 21:21
18414.00	90.90	179.98	1.70	11490.84	-6750.15	-791.62	6750.15	-0.183350	-0.982910	-0.015620	5005	41333	-24560	60.41	48212	60.16	48339	0.99978	177.80	Oil	MWD+HRGM+AX	229	4	10/20/18 23:11
18508.00	88.63	180.99	2.64	11491.23	-6844.14	-792.41	6844.14	0.904790	0.425050	0.023930	-37549	-20117	-22827	60.45	48264	60.30	48329	0.99973	179.60	Oil	MWD+HRGM+AX	230	4	10/21/18 1:18
18602.00	88.80	181.05	0.19	11493.34	-6938.10	-794.09	6938.10	0.578130	-0.815190	0.021000	-26367	33350	-22998	60.44	48249	60.25	48336	0.99939	181.40	Oil	MWD+HRGM+AX	231	4	10/21/18 2:59
18696.00	87.79	180.56	1.19	11496.13	-7032.05	-795.41	7032.05	-0.740970	-0.670410	0.038570	30151	30542	-22241	60.44	48249	60.23	48338	0.99978	183.20	Oil	MWD+HRGM+AX	232	4	10/21/18 4:29
18790.00	90.20	179.80	2.69	11497.78	-7126.03	-795.70	7126.03	-0.816410	0.577150	-0.003420	35742	-21924	-24048	60.41	48210	60.15	48337	0.99961	183.20	Oil	MWD+HRGM+AX	233	4	10/21/18 6:36
18884.00	88.92	181.33	2.12	11498.50	-7220.02	-796.63	7220.02	-0.394040	0.918700	0.018800	18652	-38159	-23047	60.45	48263	60.31	48324	0.99961	185.00	Oil	MWD+HRGM+AX	234	4	10/21/18 8:39
18979.00	89.10	180.85	0.54	11500.15	-7314.98	-798.44	7314.98	-0.999510	-0.036860	0.015630	42188	3857	-23218	60.42	48222	60.23	48309	1.00010	186.80	Oil	MWD+HRGM+AX	235	4	10/21/18 10:48
19073.00	89.13	181.14	0.31	11501.60	-7408.96	-800.07	7408.96	-0.481690	-0.876460	0.015140	18457	38110	-23742	60.42	48270	60.24	48303	1.00001	186.80	Oil	MWD+HRGM+AX	236	4	10/21/18 12:38
19167.00	89.15	181.01	0.14	11503.01	-7502.93	-801.83	7502.93	0.309810	0.950680	0.014890	-10986	-40918	-23193	60.43	48242	60.31	48300	0.99979	186.80	Oil	MWD+HRGM+AX	237	4	10/21/18 14:26
19206.00	88.64	180.14	2.59	11503.76	-7541.92	-802.22	7541.92	-0.796390	0.603760	0.023680	35400	-23584	-22900	60.40	48197	60.16	48309	0.99945	186.80	Oil	MWD+HRGM+AX	238	4	10/21/18 15:35
19300.00	88.64	180.14	0.00	11505.99	-7635.89	-802.45	7635.89																	