

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



Notice of C-104 Denial and Request for Information

OCD denies your C-104 – *Request for Allowable and Authorization to Transport* because it is incomplete or conflicts with other information provided to OCD.

The sale or transport of product without a C-104 approved by OCD violates the Oil and Gas Act and the implementing rules, including 19.15.7.15 and 19.15.16.19 NMAC.

To avoid an enforcement action, you must submit the indicated information no later than 30 days after receipt of this notice.

Test Allowable, New Well and Recompleted Well

Amend C-104

Attach a G.C.P.

- ☐ C-103 (or BLM equivalent) for all casing strings
 - ☐ Spud Notice
 - ☐ Surface Casing
 - ☐ Intermediate Casing (if applicable)
 - ☐ Additional Intermediate Casing (if applicable)
 - ☐ Production Casing or Liner
 - ☒ *Tubing exception? if applicable*
- ☐ Applicable Order (NSL, NSP, Other _____)
- ☐ Deviation Survey for Vertical Wells
- ☒ Directional Survey *Certified*
 - ☒ C-102 (As-Drilled Plat for Horizontal Well)

New Well and Recompleted Well Only

- ☒ C-103 Completion Sundry (or BLM equivalent)
- ☐ C-105 Completion Report (or BLM equivalent)
- ☐ All Logs Run on Well

If you have any questions please contact the local OCD District Office

98220 District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

Form C-104
Revised August 1, 2011

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address MURCHISON OIL AND GAS, LLC 7250 DALLAS PARKWAY, STE. 1400 PLANO, TX 75024		² OGRID Number 15363
		³ Reason for Filing Code/ Effective Date RT / November 2019
⁴ API Number 30 - 015-45874	⁵ Pool Name PIERCE CROSSING; BONE SPRING, SOUTH	⁶ Pool Code 96671
⁷ Property Code 324983	⁸ Property Name ROCK RIDGE FEDERAL BSS	⁹ Well Number 008H

II. ¹⁰ Surface Location

UL or lot no. A	Section 30	Township 24S	Range 29E	Lot Idn	Feet from the 805	North/South Line NORTH	Feet from the 250	East/West line EAST	County EDDY
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¹¹ Bottom Hole Location

UL or lot no. E	Section 30	Township 24S	Range 29E	Lot Idn	Feet from the 2323	North/South line NORTH	Feet from the 333	East/West line WEST	County EDDY
¹² Lse Code F	¹³ Producing Method Code F	¹⁴ Gas Connection Date TBD	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date				

III. Oil and Gas Transporters

¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
36785	DCP OPERATING COMPANY, LP 10 DESTA DRIVE, SUITE 600W MIDLAND, TX 79705	G
214754	ENLINK MIDSTREAM OPERATING, LP 1722 ROUTH ST. SUITE 1300 DALLAS, TX 75201 NMI OIL CONSERVATION ARTESIA DISTRICT OCT 29 2019 RECEIVED	O

IV. Well Completion Data

²¹ Spud Date 06/08/2019	²² Ready Date TBD ✓	²³ TD 8,409' TVD 13,220' MD *?	²⁴ PBTB N/A	²⁵ Perforations 8,665' - 13,160'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
16	13.375 A8.0J55	370'	C 355		
12.25	9.625 31.0J55	2,771'	C 965		
8.5	5.5 20.0P110	13,194'	H 1,800		

V. Well Test Data

³¹ Date New Oil TBD	³² Gas Delivery Date TBD	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method FLOWING

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature:

Printed name: GARY R. COOPER

Title: VICE PRESIDENT OPERATIONS

E-mail Address: rcooper@jdmii.com

Date: 10/25/2019

Phone: 972-931-0700

OIL CONSERVATION DIVISION

Approved by:

DENIED

Title:

See Attached Cover Sheet

Approval Date:

* Tbg. size & class missing

District I
1625 N. Freuch Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 29 2019

RECEIVED

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-45874	² Pool Code 64450	³ Pool Name WILLOW LAKE; BONE SPRING
⁴ Property Code 324983	⁵ Property Name ROCK RIDGE FEDERAL BSS	⁶ Well Number 8H
⁷ OGRID No. 15363	⁸ Operator Name MURCHISON OIL AND GAS, LLC	⁹ Elevation 2914.5

¹⁰ Surface Location

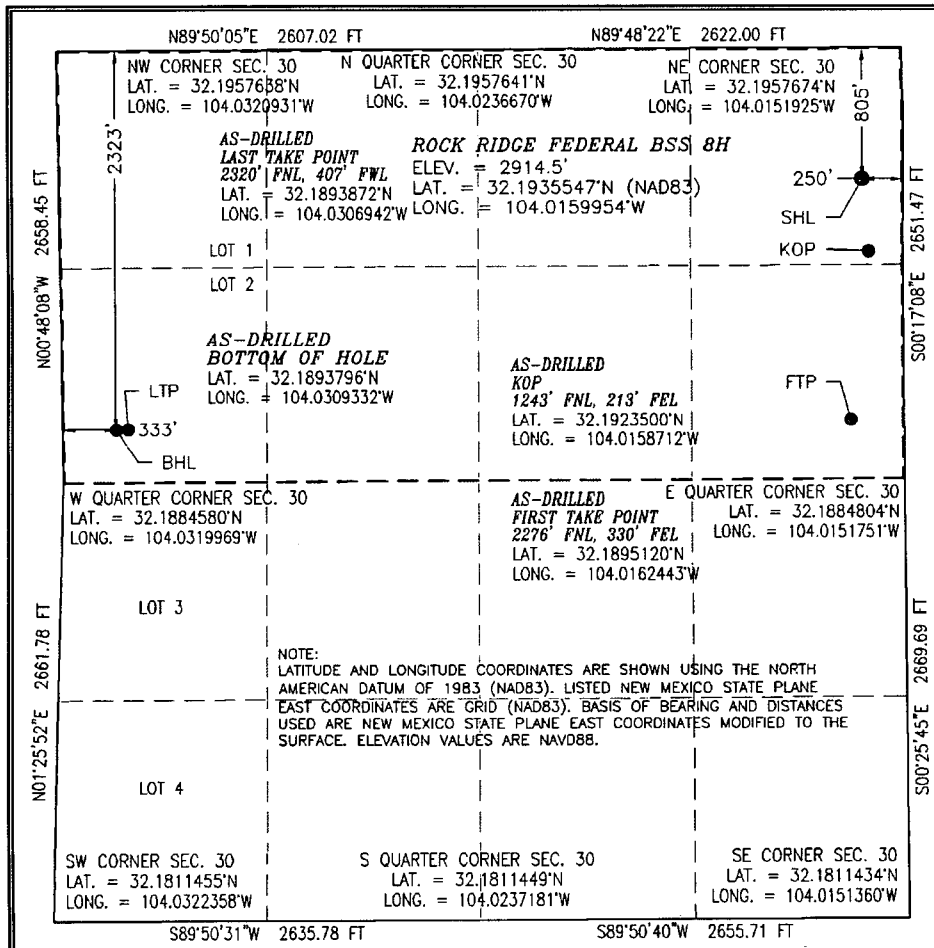
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	30	24 S	29 E		805	NORTH	250	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	30	24 S	29 E		2323	NORTH	333	WEST	EDDY

¹² Dedicated Acres 160	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *[Signature]* Date: **10/11/19**

Printed Name: **Gary R. Cooper**

E-mail Address: **rcooper@jdmii.com**

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: **JUNE 19, 2019**

Signature and Seal of Professional Surveyor: *[Signature]*

Certificate Number: **12797**

OCT 29 2019

Intent ☐ As Drilled ☒

API #

RECEIVED

Operator Name: MURCHISON OIL AND GAS, LLC	Property Name: ROCK RIDGE FEDERAL BSS	Well Number 8H
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Kick Off Point (KOP)

UL A	Section 30	Township 24S	Range 29E	Lot	Feet 1243	From N/S NORTH	Feet 213	From E/W EAST	County EDDY
Latitude 32.1923500					Longitude 104.0158712			NAD 83	

First Take Point (FTP)

UL H	Section 30	Township 24S	Range 29E	Lot	Feet 2276	From N/S NORTH	Feet 330	From E/W EAST	County EDDY
Latitude 32.1895120					Longitude 104.0162443			NAD 83	

Last Take Point (LTP)

UL	Section 30	Township 24S	Range 29E	Lot 2	Feet 2320	From N/S NORTH	Feet 407	From E/W WEST	County EDDY
Latitude 32.1893872					Longitude 104.0306942			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018



MURCHISON OIL AND GAS, LLC

NM OIL CONSERVATION

ARTESIA DISTRICT

OCT 29 2019

RECEIVED

Murchison Oil and Gas, LLC

Eddy County, New Mexico (NAD 83)

Rock Ridge Federal 5-8

Rock Ridge Federal BSS 8H

Wellbore #1

Design: Surveys

Standard Survey Report

27 August, 2019

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal BSS 8H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.50usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.50usft (Latshaw 7)
Well:	Rock Ridge Federal BSS 8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe 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	Rock Ridge Federal 5-8		
Site Position:		Northing:	434,354.45 usft
From:	Lat/Long	Easting:	639,501.24 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 37.391 N
		Longitude:	104° 0' 57.584 W

Well	Rock Ridge Federal BSS 8H		
Well Position	+N/-S	0.00 usft	Northing: 434,294.46 usft
	+E/-W	0.00 usft	Easting: 639,501.48 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.169 °	Ground Level:	2,914.50 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM2019	7/31/2019	6.983
			Dip Angle (°)
			59.917
			Field Strength (nT)
			47,876.80

Design	Surveys		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			251.82

Survey Program	Date 8/27/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.00	13,216.00	MS MWD (Wellbore #1)	MWD+HRGM
			Description
			OWSG MWD + HRGM

Survey										
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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	1.70	44.00	99.99	1.07	1.03	-1.31	1.70	1.70	0.00	
166.00	1.70	294.10	165.97	2.17	0.82	-1.45	4.22	0.00	-166.52	
255.00	1.70	278.60	254.93	2.91	-1.69	0.70	0.52	0.00	-17.42	
338.00	1.90	288.60	337.89	3.53	-4.21	2.90	0.45	0.24	12.05	
406.00	1.90	291.60	405.85	4.31	-6.33	4.67	0.15	0.00	4.41	
495.00	2.10	299.30	494.80	5.65	-9.13	6.91	0.38	0.22	8.65	
586.00	2.10	294.70	585.74	7.16	-12.09	9.26	0.19	0.00	-5.05	
676.00	2.40	237.70	675.68	6.84	-15.19	12.29	2.40	0.33	-63.33	
766.00	2.90	212.40	765.58	3.91	-18.00	15.88	1.40	0.56	-28.11	

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal BSS 8H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.50usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.50usft (Latshaw 7)
Well:	Rock Ridge Federal BSS 8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey									
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)
796.00	3.40	195.20	795.54	2.41	-18.64	16.95	3.55	1.67	-57.33
890.00	3.50	195.80	889.37	-3.04	-20.15	20.09	0.11	0.11	0.64
984.00	5.40	184.60	983.08	-10.21	-21.29	23.41	2.21	2.02	-11.91
1,078.00	8.00	177.80	1,076.44	-21.16	-21.39	26.92	2.89	2.77	-7.23
1,173.00	9.30	175.50	1,170.35	-35.41	-20.53	30.56	1.42	1.37	-2.42
1,267.00	10.40	176.40	1,262.97	-51.46	-19.41	34.49	1.18	1.17	0.96
1,361.00	12.90	175.20	1,355.02	-70.38	-17.99	39.06	2.67	2.66	-1.28
1,455.00	15.10	173.00	1,446.23	-92.99	-15.62	43.86	2.41	2.34	-2.34
1,550.00	14.40	169.70	1,538.10	-116.90	-12.00	47.88	1.15	-0.74	-3.47
1,645.00	12.30	168.80	1,630.52	-138.45	-7.93	50.73	2.22	-2.21	-0.95
1,738.00	12.30	167.60	1,721.39	-157.84	-3.87	52.93	0.27	0.00	-1.29
1,832.00	13.00	166.60	1,813.11	-177.91	0.73	54.82	0.78	0.74	-1.06
1,925.00	13.90	167.10	1,903.55	-198.97	5.64	56.72	0.98	0.97	0.54
2,020.00	12.60	171.30	1,996.03	-220.34	9.76	59.47	1.70	-1.37	4.42
2,114.00	12.70	171.90	2,087.74	-240.70	12.77	62.97	0.18	0.11	0.64
2,209.00	13.70	170.80	2,180.23	-262.15	16.04	66.55	1.09	1.05	-1.16
2,302.00	13.00	171.90	2,270.72	-283.37	19.27	70.10	0.80	-0.75	1.18
2,396.00	13.00	170.30	2,362.31	-304.26	22.54	73.51	0.38	0.00	-1.70
2,490.00	14.20	169.60	2,453.67	-326.02	26.40	76.63	1.29	1.28	-0.74
2,584.00	14.30	172.10	2,544.78	-348.86	30.08	80.27	0.66	0.11	2.66
2,678.00	14.50	173.50	2,635.83	-372.05	33.01	84.72	0.43	0.21	1.49
2,733.00	14.60	174.00	2,689.07	-385.79	34.51	87.58	0.29	0.18	0.91
2,805.00	14.60	174.20	2,758.74	-403.84	36.38	91.44	0.07	0.00	0.28
2,867.00	14.30	174.90	2,818.78	-419.24	37.85	94.85	0.56	-0.48	1.13
2,960.00	16.20	173.90	2,908.50	-443.58	40.25	100.16	2.06	2.04	-1.08
3,053.00	16.30	173.30	2,997.79	-469.45	43.15	105.47	0.21	0.11	-0.65
3,148.00	16.40	173.00	3,088.94	-496.00	46.34	110.73	0.14	0.11	-0.32
3,243.00	16.30	167.90	3,180.11	-522.35	50.77	114.74	1.51	-0.11	-5.37
3,337.00	15.10	164.70	3,270.60	-547.06	56.77	116.75	1.57	-1.28	-3.40
3,432.00	10.80	163.00	3,363.16	-567.51	62.64	117.56	4.54	-4.53	-1.79
3,526.00	10.00	161.50	3,455.62	-583.67	67.80	117.69	0.90	-0.85	-1.60
3,621.00	10.70	167.20	3,549.07	-600.10	72.37	118.47	1.30	0.74	6.00
3,715.00	10.90	173.50	3,641.41	-617.44	75.31	121.09	1.27	0.21	6.70
3,810.00	12.30	174.00	3,734.47	-636.43	77.39	125.04	1.48	1.47	0.53
3,904.00	16.10	173.20	3,825.58	-659.33	79.98	129.73	4.05	4.04	-0.85
3,998.00	16.50	172.10	3,915.80	-685.50	83.35	134.68	0.54	0.43	-1.17
4,092.00	16.30	172.10	4,005.98	-711.79	87.00	139.42	0.21	-0.21	0.00
4,187.00	15.50	170.20	4,097.34	-737.50	91.00	143.65	1.00	-0.84	-2.00
4,280.00	14.10	169.40	4,187.25	-760.88	95.19	146.96	1.52	-1.51	-0.86
4,374.00	12.70	168.90	4,278.69	-782.28	99.29	149.74	1.49	-1.49	-0.53
4,469.00	14.20	174.40	4,371.09	-804.12	102.44	153.56	2.07	1.58	5.79
4,563.00	13.80	175.10	4,462.30	-826.77	104.52	158.65	0.46	-0.43	0.74
4,657.00	13.30	174.20	4,553.68	-848.70	106.57	163.54	0.58	-0.53	-0.96

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal BSS 8H
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Well:	Rock Ridge Federal BSS 8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey									
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)
4,752.00	15.50	175.00	4,645.69	-872.22	108.78	168.78	2.33	2.32	0.84
4,845.00	15.80	174.20	4,735.24	-897.19	111.14	174.33	0.40	0.32	-0.86
4,940.00	15.40	173.90	4,826.74	-922.60	113.79	179.74	0.43	-0.42	-0.32
5,034.00	13.60	172.60	4,917.74	-945.97	116.54	184.42	1.95	-1.91	-1.38
5,129.00	13.30	172.20	5,010.14	-967.88	119.46	188.48	0.33	-0.32	-0.42
5,223.00	12.50	171.30	5,101.77	-988.64	122.47	192.10	0.88	-0.85	-0.96
5,317.00	12.20	174.80	5,193.59	-1,008.59	124.91	196.01	0.86	-0.32	3.72
5,411.00	13.70	173.80	5,285.20	-1,029.55	127.01	200.55	1.61	1.60	-1.06
5,506.00	13.60	174.60	5,377.52	-1,051.85	129.28	205.36	0.22	-0.11	0.84
5,600.00	13.80	174.60	5,468.84	-1,074.02	131.37	210.28	0.21	0.21	0.00
5,694.00	12.80	175.00	5,560.32	-1,095.55	133.34	215.14	1.07	-1.06	0.43
5,789.00	14.90	172.80	5,652.55	-1,118.16	135.78	219.86	2.28	2.21	-2.32
5,883.00	14.10	171.30	5,743.56	-1,141.46	139.03	224.05	0.94	-0.85	-1.60
5,978.00	14.70	167.30	5,835.58	-1,164.66	143.43	227.11	1.22	0.63	-4.21
6,073.00	14.30	166.30	5,927.55	-1,187.82	148.86	229.18	0.50	-0.42	-1.05
6,168.00	13.70	166.00	6,019.73	-1,210.13	154.36	230.91	0.64	-0.63	-0.32
6,262.00	12.70	165.30	6,111.24	-1,230.93	159.67	232.35	1.08	-1.06	-0.74
6,356.00	13.50	168.50	6,202.80	-1,251.68	164.48	234.25	1.15	0.85	3.40
6,450.00	14.10	170.90	6,294.08	-1,273.74	168.48	237.34	0.88	0.64	2.55
6,545.00	15.30	169.10	6,385.97	-1,297.47	172.68	240.75	1.35	1.26	-1.89
6,639.00	14.20	170.00	6,476.87	-1,321.00	177.03	243.96	1.20	-1.17	0.96
6,733.00	14.10	172.90	6,568.02	-1,343.72	180.45	247.81	0.76	-0.11	3.09
6,827.00	13.40	172.50	6,659.33	-1,365.88	183.28	252.02	0.75	-0.74	-0.43
6,922.00	10.50	167.60	6,752.26	-1,385.25	186.58	254.94	3.23	-3.05	-5.16
7,016.00	8.40	168.10	6,844.98	-1,400.34	189.84	256.55	2.24	-2.23	0.53
7,110.00	7.90	173.70	6,938.03	-1,413.48	191.96	258.63	1.00	-0.53	5.96
7,204.00	7.50	179.80	7,031.19	-1,426.03	192.69	261.86	0.97	-0.43	6.49
7,299.00	9.30	172.60	7,125.17	-1,439.85	193.70	265.21	2.19	1.89	-7.58
7,394.00	6.70	167.70	7,219.24	-1,452.88	195.87	267.21	2.83	-2.74	-5.16
7,488.00	5.20	172.00	7,312.73	-1,462.45	197.63	268.52	1.66	-1.60	4.57
7,582.00	4.50	169.60	7,406.39	-1,470.30	198.89	269.78	0.78	-0.74	-2.55
7,676.00	4.40	163.40	7,500.11	-1,477.38	200.59	270.37	0.52	-0.11	-6.60
7,771.00	2.60	179.30	7,594.93	-1,483.03	201.65	271.12	2.14	-1.89	16.74
7,865.00	2.20	190.50	7,688.85	-1,486.94	201.35	272.63	0.65	-0.43	11.91
7,959.00	0.90	239.60	7,782.81	-1,489.08	200.39	274.22	1.86	-1.38	52.23
8,022.00	0.80	288.30	7,845.81	-1,489.20	199.54	275.05	1.12	-0.16	77.30
8,116.00	7.30	274.20	7,939.52	-1,488.55	192.96	281.11	6.94	6.91	-15.00
8,211.00	18.00	277.10	8,032.08	-1,486.29	172.31	300.02	11.28	11.26	3.05
8,305.00	24.40	281.10	8,119.68	-1,480.75	138.81	330.12	6.98	6.81	4.26
8,399.00	34.30	278.80	8,201.51	-1,472.94	93.47	370.76	10.60	10.53	-2.45
8,493.00	43.50	273.70	8,274.61	-1,466.79	34.87	424.51	10.36	9.79	-5.43
8,587.00	50.30	265.80	8,338.85	-1,467.35	-33.62	489.76	9.48	7.23	-8.40
8,636.87	53.51	262.94	8,369.62	-1,471.22	-72.66	528.06	7.86	6.43	-5.74

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal BSS 8H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.50usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.50usft (Latshaw 7)
Well:	Rock Ridge Federal BSS 8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey									
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)
HL Crossing - 8636.87' MD									
8,681.00	56.40	260.60	8,394.96	-1,476.40	-108.41	563.64	7.86	6.55	-5.30
8,775.00	65.50	260.90	8,440.56	-1,489.59	-189.43	644.73	9.68	9.68	0.32
8,869.00	71.20	265.50	8,475.24	-1,499.86	-276.13	730.31	7.58	6.06	4.89
8,964.00	84.00	270.00	8,495.61	-1,503.40	-368.63	819.29	14.24	13.47	4.74
9,058.00	91.90	273.00	8,498.97	-1,500.94	-462.45	907.66	8.99	8.40	3.19
9,152.00	91.90	273.40	8,495.85	-1,495.69	-556.25	995.14	0.43	0.00	0.43
9,245.00	90.90	272.20	8,493.58	-1,491.15	-649.11	1,081.95	1.68	-1.08	-1.29
9,340.00	91.30	271.90	8,491.76	-1,487.75	-744.03	1,171.07	0.53	0.42	-0.32
9,434.00	91.60	271.70	8,489.38	-1,484.80	-837.95	1,259.39	0.38	0.32	-0.21
9,528.00	91.90	270.80	8,486.51	-1,482.75	-931.89	1,347.99	1.01	0.32	-0.96
9,621.00	91.40	270.10	8,483.83	-1,482.02	-1,024.84	1,436.08	0.92	-0.54	-0.75
9,716.00	91.80	268.80	8,481.18	-1,482.93	-1,119.80	1,526.58	1.43	0.42	-1.37
9,810.00	92.50	268.90	8,477.65	-1,484.82	-1,213.71	1,616.40	0.75	0.74	0.11
9,904.00	91.10	268.30	8,474.70	-1,487.11	-1,307.64	1,706.35	1.62	-1.49	-0.64
9,998.00	91.40	268.20	8,472.65	-1,489.98	-1,401.57	1,796.49	0.34	0.32	-0.11
10,093.00	87.60	266.80	8,473.48	-1,494.13	-1,496.46	1,887.93	4.26	-4.00	-1.47
10,187.00	87.40	266.50	8,477.58	-1,499.62	-1,590.21	1,978.71	0.38	-0.21	-0.32
10,281.00	88.90	267.50	8,480.61	-1,504.53	-1,684.03	2,069.38	1.92	1.60	1.06
10,376.00	90.90	268.60	8,480.78	-1,507.76	-1,778.96	2,160.59	2.40	2.11	1.16
10,470.00	91.90	269.00	8,478.48	-1,509.73	-1,872.91	2,250.46	1.15	1.06	0.43
10,564.00	92.40	269.30	8,474.95	-1,511.13	-1,966.84	2,340.13	0.62	0.53	0.32
10,658.00	92.40	269.50	8,471.02	-1,512.11	-2,060.75	2,429.66	0.21	0.00	0.21
10,751.00	92.20	269.50	8,467.28	-1,512.92	-2,153.67	2,518.20	0.22	-0.22	0.00
10,845.00	91.50	270.30	8,464.25	-1,513.08	-2,247.62	2,607.51	1.13	-0.74	0.85
10,939.00	92.00	270.60	8,461.38	-1,512.35	-2,341.57	2,696.54	0.62	0.53	0.32
11,033.00	92.00	270.10	8,458.10	-1,511.77	-2,435.51	2,785.61	0.53	0.00	-0.53
11,127.00	92.40	269.80	8,454.49	-1,511.85	-2,529.44	2,874.88	0.53	0.43	-0.32
11,222.00	91.00	270.50	8,451.67	-1,511.61	-2,624.40	2,965.02	1.65	-1.47	0.74
11,315.00	90.90	270.50	8,450.13	-1,510.79	-2,717.38	3,053.11	0.11	-0.11	0.00
11,409.00	91.20	269.90	8,448.41	-1,510.47	-2,811.37	3,142.30	0.71	0.32	-0.64
11,504.00	91.90	269.60	8,445.84	-1,510.88	-2,906.33	3,232.65	0.80	0.74	-0.32
11,598.00	91.60	270.20	8,442.97	-1,511.04	-3,000.29	3,321.97	0.71	-0.32	0.64
11,691.00	91.60	270.40	8,440.37	-1,510.56	-3,093.25	3,410.13	0.21	0.00	0.22
11,786.00	90.50	270.00	8,438.63	-1,510.23	-3,188.23	3,500.27	1.23	-1.16	-0.42
11,880.00	91.30	270.00	8,437.15	-1,510.23	-3,282.22	3,589.57	0.85	0.85	0.00
11,974.00	91.80	270.00	8,434.61	-1,510.23	-3,376.18	3,678.84	0.53	0.53	0.00
12,068.00	90.30	269.90	8,432.89	-1,510.31	-3,470.16	3,768.16	1.60	-1.60	-0.11
12,163.00	90.60	270.00	8,432.14	-1,510.39	-3,565.16	3,858.44	0.33	0.32	0.11
12,257.00	90.80	269.70	8,430.99	-1,510.64	-3,659.15	3,947.82	0.38	0.21	-0.32
12,351.00	90.80	269.30	8,429.68	-1,511.46	-3,753.14	4,037.37	0.43	0.00	-0.43
12,444.00	91.30	268.90	8,427.98	-1,512.92	-3,846.11	4,126.15	0.69	0.54	-0.43
12,538.00	92.10	268.80	8,425.19	-1,514.80	-3,940.05	4,215.99	0.86	0.85	-0.11
12,633.00	91.60	268.90	8,422.12	-1,516.71	-4,034.98	4,306.78	0.54	-0.53	0.11

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal BSS 8H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.50usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.50usft (Latshaw 7)
Well:	Rock Ridge Federal BSS 8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey										
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)	
12,725.00	92.30	268.80	8,418.99	-1,518.55	-4,126.91	4,394.69	0.77	0.76	-0.11	
12,819.00	91.50	268.90	8,415.87	-1,520.44	-4,220.84	4,484.52	0.86	-0.85	0.11	
12,913.00	92.70	268.70	8,412.43	-1,522.41	-4,314.75	4,574.36	1.29	1.28	-0.21	
13,007.00	90.30	268.40	8,409.97	-1,524.78	-4,408.68	4,664.35	2.57	-2.55	-0.32	
13,101.00	90.20	267.80	8,409.56	-1,527.90	-4,502.63	4,754.57	0.65	-0.11	-0.64	
13,142.00	90.60	267.70	8,409.27	-1,529.51	-4,543.60	4,794.00	1.01	0.98	-0.24	
13,216.00	90.60	267.70	8,408.50	-1,532.48	-4,617.54	4,865.17	0.00	0.00	0.00	
Projection to TD-13216.00' MD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,636.87	8,369.62	-1,471.22	-72.66	HL Crossing - 8636.87' MD	
13,216.00	8,408.50	-1,532.48	-4,617.54	Projection to TD-13216.00' MD	

		GL @ 2914.50	WELL @ 2939.50usft (Latsaw 7)		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	434294.45	839501.48	32° 11' 38.787 N	104° 0' 57.583 W

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
vert v6 - Rock Ridge Federal WCB 8H	7555.00	-1495.41	207.46	432790.05	639708.64	32° 11' 21.992 N	104° 0' 55.220 W
PBHL v6 - Rock Ridge Federal WCB 8H	8412.71	-1516.87	-4619.55	432777.59	634681.83	32° 11' 21.918 N	104° 1' 51.394 W
FTP v6 - Rock Ridge Federal WCB 8H	8533.00	-1504.90	-72.43	432789.56	639429.04	32° 11' 21.907 N	104° 0' 58.478 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dipg	TFace	VSection	Annotation
338.00	1.90	288.60	337.69	3.53	-4.21	0.00	2.98		Last Survey=338.00' MD
300.00	1.90	288.60	339.86		-5.85	0.00	0.00		PTB=390.00' MD
130.00	1.90	288.60	699.69	7.35	-15.59	0.00	0.00	12.52	Begin 2000'100' Build & Turn
144.10	13.97	171.14	1439.73	-78.30	-13.42	2.00	-123.804	37.18	Hold 13.97' inc, 171.14' Azm
7038.02	13.97	171.14	6863.28	-1411.66	194.41	0.00	0.000	255.69	Begin 2000'100' Drop
7734.54	0.00	0.00	7555.00	-1495.41	207.48	2.00	180.000	269.42	Begin Vertical Hold
8112.82	0.00	0.00	7933.18	-1495.41	207.48	0.00	0.000	269.42	Begin 1000'100' Build
9025.42	91.28	269.75	8506.00	-1498.02	-378.09	0.00	269.745	826.58	Begin 91.28° Lateral
13287.95	91.28	269.75	8412.71	-1516.87	-4610.55	0.00	0.000	4862.22	PHHL

[illegible]

SURVEY PROGRAM

Depth From	Depth To	Survey/Plan	Tool
100.00	338.00	MS MWD (Wellbore #1)	MWD+HRGM
338.00	13267.85	Design #6 (Wellbore #1)	MWD+HRGM

CASING DETAILS

TVD	MD	Name	Size
600.00	600.25	13 3/8"	13-3/8
9500.00		9 5/8"	9-5/8

Projection to TD
5.00' MD 8408.50' TVD
80' FWL 2322.83' FNL

