

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

☒ 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

(Ready Date?, Perfs? PBTD?)

☐ Applicable Order (NSL, NSP, Other _____)

☐ Deviation Survey for Vertical Wells

☒ Directional Survey

☐ C-102 (As-Drilled Plat for Horizontal Well)

*Please Attach a
Gas Capture
Plan*

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 - 015-45873	⁵ Pool Name PURPLE-SAGE; WOLFCAMP (GAS)	⁶ Pool Code 98220
⁷ Property Code 324982	⁸ Property Name ROCK RIDGE FEDERAL WCXY	⁹ Well Number 006H

II. ¹⁰ Surface Location

UL or lot no. A	Section 30	Township 24S	Range 29E	Lot Idn	Feet from the 765	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. D	Section 30	Township 24S	Range 29E	Lot Idn	Feet from the 1301	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

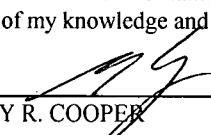
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
36785	DCP OPERATING COMPANY, LP 10 DESTA DRIVE, SUITE 600W MIDLAND, TX 79705	G
214754	ENLINK MIDSTREAM OPERATING, LP 1722 ROUTH ST. SUITE 1300 DALLAS, TX 75201	O
	NM OIL CONSERVATION ARTESIA DISTRICT OCT 29 2019 RECEIVED	

IV. Well Completion Data

²¹ Spud Date 06/28/2019	²² Ready Date TBD	²³ TD 9,726' TVD 14,458' MD ✓	²⁴ PBDT N/A	²⁵ Perforations 9,875' - 14,400'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
16	13.375	370'	355		
12.25	9.625	9,023'	3,015		
8.5	5.5	14,438'	1,595		

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: 		OIL CONSERVATION DIVISION	
Printed name: GARY R. COOPER		Approved by: DENIED	
Title: VICE PRESIDENT OPERATIONS		Title: See Attached Cover Sheet	
E-mail Address: rcooper@jdmii.com		Approval Date: _____	
Date: 10/25/2019	Phone: 972-931-0700		

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos 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

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 30-015-45873	² Pool Code 98220	³ Pool Name PURPLE SAGE; WC (GAS)
⁴ Property Code 324982	⁵ Property Name ROCK RIDGE FEDERAL WCXY	⁶ Well Number 6H
⁷ OGRID No. 15363	⁸ Operator Name MURCHISON OIL & GAS, INC.	⁹ Elevation 2914.4

¹⁰ Surface Location

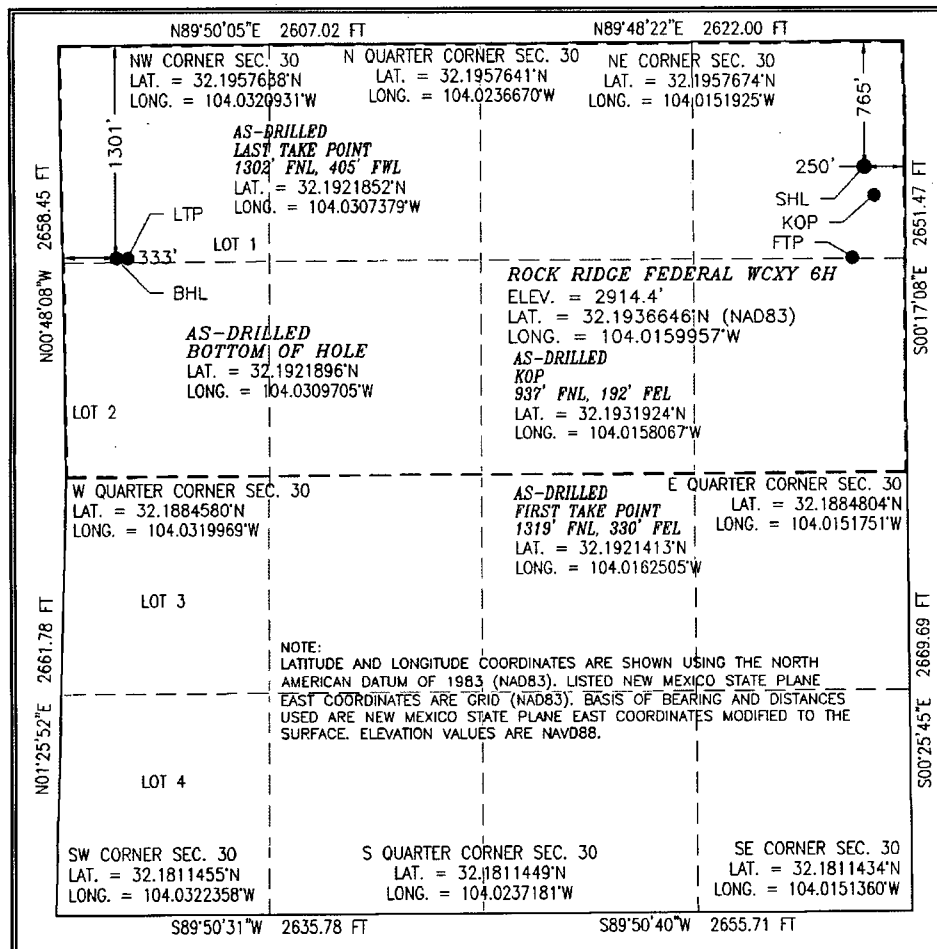
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	30	24 S	29 E		765	NORTH	250	EAST	EDDY

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
1	30	24 S	29 E	1	1301	NORTH	333	WEST	EDDY

¹² Dedicated Acres 320	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.

SEPTEMBER 21, 2019

Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: **12797** Surveyor's License No. **5511B**

OCT 29 2019

Intent ☐ As Drilled ☒

RECEIVED

API #		
Operator Name: MURCHISON OIL & GAS, INC.	Property Name: ROCK RIDGE FEDERAL WCXY	Well Number 6H

Kick Off Point (KOP)

UL A	Section 30	Township 24S	Range 29E	Lot	Feet 937	From N/S NORTH	Feet 192	From E/W EAST	County EDDY
Latitude 32.1931924					Longitude 104.0159957			NAD 83	

First Take Point (FTP)

UL A	Section 30	Township 24S	Range 29E	Lot	Feet 1319	From N/S NORTH	Feet 330	From E/W EAST	County EDDY
Latitude 32.1921413					Longitude 104.0162505			NAD 83	

Last Take Point (LTP)

UL	Section 30	Township 24S	Range 29E	Lot 1	Feet 1302	From N/S NORTH	Feet 405	From E/W WEST	County EDDY
Latitude 32.1921852					Longitude 104.0307379			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

OCT 29 2019

RECEIVED

Murchison Oil and Gas, LLC

Eddy County, New Mexico (NAD 83)

Rock Ridge Federal 5-8

Rock Ridge Federal WCXY 6H

Wellbore #1

Design: Surveys

Standard Survey Report

19 August, 2019

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 6H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.40usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.40usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 6H	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 WCXY 6H		
Well Position	+N-S	0.00 usft	Northing: 434,334.44 usft
	+E-W	0.00 usft	Easting: 639,501.27 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.169 °	Ground Level:	2,914.40 usft
		Latitude:	32° 11' 37.193 N
		Longitude:	104° 0' 57.585 W

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM2019	7/10/2019	6.983
			Dip Angle (°)
			59.917
			Field Strength (nT)
			47,883.00

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 (°)
			263.11

Survey Program	Date 8/19/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
140.00	14,438.00	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	
140.00	0.60	323.70	140.00	0.59	-0.43	0.36	0.43	0.43	0.00	
230.00	1.30	47.70	229.99	1.66	0.04	-0.24	1.53	0.78	93.33	
321.00	1.40	52.70	320.96	3.03	1.69	-2.04	0.17	0.11	5.49	
399.00	1.70	56.20	398.93	4.25	3.41	-3.89	0.40	0.38	4.49	
491.00	1.40	49.20	490.90	5.74	5.39	-6.04	0.39	-0.33	-7.61	
581.00	2.10	118.20	580.87	5.68	7.68	-8.31	2.29	0.78	76.67	
671.00	2.90	129.20	670.78	3.46	10.90	-11.23	1.03	0.89	12.22	
792.00	3.00	164.00	791.63	-1.52	14.14	-13.86	1.46	0.08	28.76	
885.00	2.90	164.40	884.51	-6.12	15.45	-14.60	0.11	-0.11	0.43	

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 6H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.40usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.40usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 6H	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)
980.00	4.40	177.40	979.31	-12.08	16.26	-14.69	1.79	1.58	13.68
1,074.00	4.90	178.40	1,073.00	-19.69	16.53	-14.05	0.54	0.53	1.06
1,168.00	5.30	177.30	1,166.63	-28.04	16.85	-13.36	0.44	0.43	-1.17
1,262.00	5.70	181.20	1,260.20	-37.05	16.96	-12.39	0.58	0.43	4.15
1,356.00	5.60	175.50	1,353.74	-46.29	17.22	-11.54	0.61	-0.11	-6.06
1,451.00	4.10	166.00	1,448.40	-54.20	18.40	-11.77	1.79	-1.58	-10.00
1,545.00	3.80	156.60	1,542.18	-60.32	20.45	-13.07	0.76	-0.32	-10.00
1,640.00	4.10	160.40	1,636.95	-66.41	22.84	-14.71	0.42	0.32	4.00
1,734.00	4.50	156.80	1,730.69	-72.97	25.42	-16.49	0.51	0.43	-3.83
1,827.00	4.70	160.20	1,823.39	-79.90	28.15	-18.36	0.36	0.22	3.66
1,921.00	5.40	162.60	1,917.02	-87.75	30.78	-20.03	0.78	0.74	2.55
2,015.00	5.70	163.00	2,010.58	-96.43	33.47	-21.66	0.32	0.32	0.43
2,109.00	6.20	164.90	2,104.08	-105.80	36.15	-23.20	0.57	0.53	2.02
2,204.00	6.00	154.80	2,198.54	-115.24	39.60	-25.49	1.15	-0.21	-10.63
2,297.00	4.80	148.80	2,291.13	-122.97	43.69	-28.62	1.42	-1.29	-6.45
2,391.00	4.70	152.30	2,384.80	-129.74	47.52	-31.61	0.33	-0.11	3.72
2,485.00	5.40	150.70	2,478.44	-137.01	51.47	-34.66	0.76	0.74	-1.70
2,580.00	4.30	165.90	2,573.10	-144.36	54.53	-36.81	1.77	-1.16	16.00
2,673.00	4.30	169.80	2,665.84	-151.18	55.99	-37.45	0.31	0.00	4.19
2,768.00	4.50	172.40	2,760.56	-158.38	57.12	-37.71	0.30	0.21	2.74
2,862.00	5.00	170.20	2,854.24	-166.07	58.30	-37.96	0.57	0.53	-2.34
2,956.00	3.30	177.50	2,947.99	-172.81	59.12	-37.96	1.89	-1.81	7.77
3,049.00	3.40	176.60	3,040.83	-178.23	59.40	-37.59	0.12	0.11	-0.97
3,142.00	3.60	178.60	3,133.65	-183.91	59.63	-37.14	0.25	0.22	2.15
3,237.00	4.00	180.00	3,228.45	-190.20	59.71	-36.46	0.43	0.42	1.47
3,332.00	4.00	188.10	3,323.22	-196.80	59.24	-35.20	0.59	0.00	8.53
3,426.00	4.70	174.20	3,416.95	-203.87	59.17	-34.28	1.34	0.74	-14.79
3,521.00	5.60	167.80	3,511.56	-212.28	60.54	-34.64	1.12	0.95	-6.74
3,615.00	4.00	159.90	3,605.23	-219.84	62.63	-35.81	1.84	-1.70	-8.40
3,710.00	3.70	158.00	3,700.02	-225.79	64.92	-37.37	0.34	-0.32	-2.00
3,804.00	3.80	160.10	3,793.82	-231.53	67.12	-38.86	0.18	0.11	2.23
3,898.00	3.90	164.40	3,887.60	-237.54	69.04	-40.04	0.32	0.11	4.57
3,993.00	5.20	157.80	3,982.30	-244.64	71.53	-41.67	1.47	1.37	-6.95
4,087.00	5.90	154.60	4,075.86	-252.95	75.22	-44.33	0.81	0.74	-3.40
4,181.00	6.10	158.00	4,169.35	-261.94	79.16	-47.16	0.43	0.21	3.62
4,276.00	6.40	159.10	4,263.78	-271.57	82.94	-49.76	0.34	0.32	1.16
4,369.00	5.10	158.80	4,356.31	-280.26	86.28	-52.04	1.40	-1.40	-0.32
4,463.00	4.90	154.30	4,449.96	-287.78	89.53	-54.37	0.47	-0.21	-4.79
4,557.00	5.30	152.90	4,543.58	-295.26	93.25	-57.16	0.45	0.43	-1.49
4,652.00	4.20	153.30	4,638.25	-302.27	96.82	-59.85	1.16	-1.16	0.42
4,746.00	4.60	152.20	4,731.98	-308.68	100.12	-62.37	0.43	0.43	-1.17
4,840.00	4.30	151.00	4,825.69	-315.10	103.59	-65.04	0.33	-0.32	-1.28
4,934.00	4.20	149.10	4,919.44	-321.14	107.06	-67.76	0.18	-0.11	-2.02

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 6H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.40usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.40usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 6H	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)	
5,029.00	4.40	147.60	5,014.17	-327.20	110.80	-70.75	0.24	0.21	-1.58	
5,123.00	4.60	147.20	5,107.88	-333.41	114.78	-73.95	0.22	0.21	-0.43	
5,218.00	4.50	145.20	5,202.58	-339.67	118.97	-77.36	0.20	-0.11	-2.11	
5,312.00	4.30	140.60	5,296.30	-345.42	123.31	-80.98	0.43	-0.21	-4.89	
5,406.00	3.90	144.20	5,390.06	-350.74	127.41	-84.42	0.51	-0.43	3.83	
5,500.00	4.10	144.40	5,483.83	-356.06	131.24	-87.58	0.21	0.21	0.21	
5,595.00	3.80	142.20	5,578.61	-361.31	135.15	-90.83	0.35	-0.32	-2.32	
5,689.00	3.70	138.80	5,672.41	-366.06	139.05	-94.14	0.26	-0.11	-3.62	
5,784.00	3.60	139.30	5,767.21	-370.62	143.02	-97.52	0.11	-0.11	0.53	
5,879.00	4.50	148.80	5,861.98	-376.07	146.89	-100.72	1.18	0.95	10.00	
5,973.00	5.60	151.30	5,955.61	-383.25	151.01	-103.94	1.19	1.17	2.66	
6,068.00	5.50	152.60	6,050.16	-391.36	155.33	-107.26	0.17	-0.11	1.37	
6,163.00	5.00	161.80	6,144.77	-399.33	158.72	-109.66	1.03	-0.53	9.68	
6,257.00	4.50	160.60	6,238.44	-406.70	161.22	-111.27	0.54	-0.53	-1.28	
6,352.00	4.70	160.00	6,333.14	-413.88	163.79	-112.96	0.22	0.21	-0.63	
6,446.00	4.50	160.50	6,426.84	-420.97	166.34	-114.63	0.22	-0.21	0.53	
6,540.00	4.50	159.40	6,520.55	-427.90	168.87	-116.31	0.09	0.00	-1.17	
6,634.00	4.50	158.40	6,614.26	-434.78	171.52	-118.12	0.08	0.00	-1.06	
6,729.00	4.80	159.10	6,708.94	-441.96	174.31	-120.03	0.32	0.32	0.74	
6,823.00	4.80	160.40	6,802.61	-449.34	177.03	-121.85	0.12	0.00	1.38	
6,917.00	4.80	161.60	6,896.28	-456.77	179.59	-123.50	0.11	0.00	1.28	
7,012.00	4.80	162.30	6,990.95	-464.33	182.06	-125.04	0.06	0.00	0.74	
7,106.00	5.00	157.20	7,084.61	-471.85	184.84	-126.90	0.51	0.21	-5.43	
7,200.00	4.90	156.30	7,178.26	-479.31	188.04	-129.18	0.13	-0.11	-0.96	
7,294.00	4.90	151.40	7,271.91	-486.51	191.58	-131.83	0.45	0.00	-5.21	
7,389.00	4.20	158.20	7,366.61	-493.30	194.81	-134.23	0.93	-0.74	7.16	
7,483.00	3.80	166.40	7,460.39	-499.52	196.82	-135.47	0.74	-0.43	8.72	
7,578.00	3.60	158.90	7,555.19	-505.37	198.63	-136.57	0.55	-0.21	-7.89	
7,672.00	3.40	163.00	7,649.01	-510.78	200.51	-137.79	0.34	-0.21	4.36	
7,766.00	3.40	163.00	7,742.85	-516.12	202.14	-138.77	0.00	0.00	0.00	
7,861.00	3.50	166.30	7,837.68	-521.63	203.65	-139.61	0.23	0.11	3.47	
7,955.00	3.10	163.80	7,931.52	-526.86	205.04	-140.36	0.45	-0.43	-2.66	
8,049.00	2.70	150.60	8,025.40	-531.23	206.84	-141.62	0.83	-0.43	-14.04	
8,142.00	2.60	158.00	8,118.30	-535.09	208.70	-143.00	0.38	-0.11	7.96	
8,237.00	2.90	163.00	8,213.19	-539.39	210.21	-143.99	0.40	0.32	5.26	
8,331.00	2.70	166.10	8,307.08	-543.81	211.44	-144.68	0.27	-0.21	3.30	
8,426.00	2.30	155.30	8,401.99	-547.71	212.77	-145.53	0.65	-0.42	-11.37	
8,520.00	1.80	151.90	8,495.93	-550.73	214.26	-146.64	0.55	-0.53	-3.62	
8,615.00	0.70	121.30	8,590.91	-552.35	215.46	-147.64	1.32	-1.16	-32.21	
8,709.00	1.30	114.70	8,684.89	-553.09	216.92	-149.00	0.65	0.64	-7.02	
8,803.00	1.20	134.70	8,778.87	-554.23	218.58	-150.52	0.47	-0.11	21.28	
8,897.00	0.50	144.70	8,872.86	-555.26	219.52	-151.32	0.76	-0.74	10.64	
8,983.00	1.00	178.40	8,958.85	-556.31	219.76	-151.43	0.75	0.58	39.19	

MS Directional Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 6H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.40usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.40usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 6H	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)
9,055.00	1.00	165.70	9,030.84	-557.55	219.93	-151.46	0.31	0.00	-17.64
9,150.00	0.90	163.30	9,125.83	-559.07	220.35	-151.69	0.11	-0.11	-2.53
9,244.00	0.80	180.20	9,219.82	-560.43	220.56	-151.74	0.29	-0.11	17.98
9,339.00	11.60	276.30	9,314.17	-560.04	211.03	-142.32	12.33	11.37	101.16
9,433.00	18.70	278.40	9,404.85	-556.80	186.70	-118.55	7.57	7.55	2.23
9,527.00	26.50	277.60	9,491.56	-551.82	150.95	-83.66	8.30	8.30	-0.85
9,621.00	33.70	270.90	9,572.86	-548.63	104.01	-37.45	8.44	7.66	-7.13
9,714.00	44.30	266.90	9,645.04	-549.99	45.61	20.70	11.71	11.40	-4.30
9,808.00	57.70	267.90	9,704.06	-553.23	-27.20	93.37	14.28	14.26	1.06
9,865.93	61.83	269.16	9,733.23	-554.50	-77.22	143.18	7.37	7.12	2.18
HL Crossing - 9865.93' MD									
9,902.00	64.40	269.90	9,749.54	-554.76	-109.39	175.15	7.37	7.14	2.04
9,997.00	71.50	268.20	9,785.18	-556.25	-197.37	262.67	7.66	7.47	-1.79
10,092.00	80.60	266.50	9,808.06	-560.54	-289.36	354.52	9.73	9.58	-1.79
10,186.00	88.50	267.90	9,816.98	-565.10	-382.75	447.78	8.53	8.40	1.49
10,281.00	89.00	269.40	9,819.06	-567.34	-477.70	542.31	1.66	0.53	1.58
10,375.00	89.90	269.50	9,819.96	-568.24	-571.69	635.73	0.96	0.96	0.11
10,469.00	89.70	269.30	9,820.29	-569.22	-665.68	729.16	0.30	-0.21	-0.21
10,564.00	92.00	270.20	9,818.88	-569.64	-760.66	823.51	2.60	2.42	0.95
10,657.00	92.80	270.80	9,814.98	-568.83	-853.58	915.65	1.07	0.86	0.65
10,752.00	91.80	271.30	9,811.17	-567.09	-948.48	1,009.66	1.18	-1.05	0.53
10,846.00	89.20	271.20	9,810.35	-565.04	-1,042.45	1,102.71	2.77	-2.77	-0.11
10,940.00	89.50	271.00	9,811.42	-563.23	-1,136.43	1,195.79	0.38	0.32	-0.21
11,033.00	92.30	272.30	9,809.96	-560.56	-1,229.37	1,287.73	3.32	3.01	1.40
11,128.00	91.10	271.20	9,807.14	-557.66	-1,324.28	1,381.61	1.71	-1.26	-1.16
11,222.00	90.80	270.90	9,805.58	-555.93	-1,418.25	1,474.70	0.45	-0.32	-0.32
11,316.00	92.60	271.60	9,802.79	-553.88	-1,512.18	1,567.70	2.05	1.91	0.74
11,411.00	89.90	269.30	9,800.72	-553.14	-1,607.14	1,661.89	3.73	-2.84	-2.42
11,506.00	91.50	269.50	9,799.56	-554.13	-1,702.12	1,756.31	1.70	1.68	0.21
11,599.00	92.60	269.80	9,796.23	-554.70	-1,795.06	1,848.64	1.23	1.18	0.32
11,693.00	92.30	269.90	9,792.21	-554.95	-1,888.97	1,941.91	0.34	-0.32	0.11
11,787.00	92.40	270.30	9,788.36	-554.78	-1,982.89	2,035.13	0.44	0.11	0.43
11,882.00	90.10	270.40	9,786.29	-554.20	-2,077.86	2,129.34	2.42	-2.42	0.11
11,976.00	90.10	270.60	9,786.12	-553.38	-2,171.86	2,222.56	0.21	0.00	0.21
12,071.00	92.20	271.70	9,784.21	-551.48	-2,266.81	2,316.60	2.50	2.21	1.16
12,165.00	90.50	270.50	9,782.00	-549.67	-2,360.77	2,409.66	2.21	-1.81	-1.28
12,258.00	92.20	271.40	9,779.81	-548.13	-2,453.72	2,501.76	2.07	1.83	0.97
12,352.00	90.80	270.90	9,777.35	-546.25	-2,547.67	2,594.80	1.58	-1.49	-0.53
12,446.00	90.10	269.30	9,776.61	-546.08	-2,641.66	2,688.10	1.86	-0.74	-1.70
12,540.00	88.10	268.90	9,778.09	-547.56	-2,735.63	2,781.57	2.17	-2.13	-0.43
12,634.00	88.10	269.00	9,781.20	-549.28	-2,829.57	2,875.03	0.11	0.00	0.11
12,729.00	92.20	269.30	9,780.95	-550.69	-2,924.54	2,969.48	4.33	4.32	0.32
12,823.00	90.40	268.30	9,778.82	-552.66	-3,018.49	3,062.99	2.19	-1.91	-1.06
12,917.00	89.50	268.10	9,778.90	-555.61	-3,112.44	3,156.61	0.98	-0.96	-0.21

MS Directional
Survey Report

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 6H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.40usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.40usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 6H	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)	
13,011.00	91.90	270.70	9,777.76	-556.60	-3,206.41	3,250.03	3.76	2.55	2.77	
13,105.00	92.10	269.00	9,774.47	-556.84	-3,300.35	3,343.32	1.82	0.21	-1.81	
13,200.00	90.70	267.70	9,772.15	-559.58	-3,395.28	3,437.89	2.01	-1.47	-1.37	
13,294.00	92.20	267.90	9,769.78	-563.18	-3,489.18	3,531.54	1.61	1.60	0.21	
13,388.00	93.50	269.70	9,765.10	-565.15	-3,583.03	3,624.96	2.36	1.38	1.91	
13,480.00	92.10	268.90	9,760.61	-566.27	-3,674.91	3,716.31	1.75	-1.52	-0.87	
13,574.00	92.30	270.20	9,757.00	-567.01	-3,768.84	3,809.64	1.40	0.21	1.38	
13,670.00	92.70	270.40	9,752.81	-566.51	-3,864.75	3,904.80	0.47	0.42	0.21	
13,764.00	95.40	270.80	9,746.17	-565.53	-3,958.50	3,997.75	2.90	2.87	0.43	
13,858.00	94.30	271.50	9,738.23	-563.65	-4,052.14	4,090.49	1.39	-1.17	0.74	
13,953.00	91.80	271.50	9,733.17	-561.16	-4,146.97	4,184.34	2.63	-2.63	0.00	
14,047.00	91.20	271.40	9,730.71	-558.79	-4,240.90	4,277.31	0.65	-0.64	-0.11	
14,142.00	91.00	271.30	9,728.89	-556.55	-4,335.86	4,371.31	0.24	-0.21	-0.11	
14,236.00	90.60	271.30	9,727.57	-554.42	-4,429.83	4,464.34	0.43	-0.43	0.00	
14,330.00	90.40	271.40	9,726.75	-552.20	-4,523.80	4,557.37	0.24	-0.21	0.11	
14,366.00	90.20	271.10	9,726.57	-551.42	-4,559.79	4,593.01	1.00	-0.56	-0.83	
✓ 14,438.00	90.20	271.10	✓ 9,726.31	-550.03	-4,631.77	4,664.31	0.00	0.00	0.00	
Projection to TD-14438.00' MD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
9,865.93	9,733.23	-554.50	-77.22	HL Crossing - 9865.93' MD	
14,438.00	9,726.31	-550.03	-4,631.77	Projection to TD-14438.00' MD *	

* Sundry: 8/17/19 K1,458

Company: Murchison Oil and Gas, LLC
Well: Rock Ridge Federal WCXY 6H
County: Eddy County, New Mexico (NAD 83)
Rig: Latshaw 7
Wellbore: Wellbore #1
Design: Design #2
Created By: DLD
Date: 15/21, August 19 2019

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

To convert a Magnetic Direction to a Grid Direction, Add 6.814°
To convert a Magnetic Direction to a True Direction, Add 6.983° East
To convert a True Direction to a Grid Direction, Subtract 0.169°



Azimuths to Grid North
True North: -0.17°
Magnetic North: 6.81°

Magnetic Field
Strength: 47883.0nT
Dip Angle: 59.92°
Date: 7/10/2019
Model: HDGM2019

SURVEY PROGRAM

Depth From	Depth To	Survey/Plan	Tool
0.00	14448.68	Design #2 (Wellbore #1)	MWD+HRGM

WELL DETAILS: Rock Ridge Federal WCXY 6H

	+N-S	+E-W	GL @ 2914.40	WELL @ 2939.40ust (Latshaw 7)	Longitude
	0.00	0.00	Northing 434334.44	Easting 639501.27	32° 11' 37.193 N 104° 0' 57.585 W

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
vert v2 - Rock Ridge Federal WCXY 6H	8490.00	-559.67	202.81	433774.77	639704.08	32° 11' 31.648 N	104° 0' 55.244 W
PBHL - Rock Ridge Federal WCXY 6H	9734.00	-559.67	-4633.30	433774.77	634867.97	32° 11' 31.786 N	104° 1' 51.524 W

CASING DETAILS

TVD	MD	Name	Size
600.00	600.00	13 3/8"	13-3/8"
9000.00	9023.15	9 5/8"	9-5/8"

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	KOP, Begin 2°/100' Build
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.000	0.00	Begin 4.00° Tangent
924.97	4.50	160.08	924.74	-8.30	3.01	2.00	160.081	-1.99	Begin 2°/100' Drop
8288.19	4.50	160.08	8265.26	-551.37	199.80	0.00	0.000	-132.24	Begin Vertical Hold
8513.15	0.00	0.00	8490.00	-559.67	202.81	2.00	180.000	-134.23	Begin 10°/100' Build
9284.36	0.00	0.00	9261.20	-559.67	202.81	0.00	0.000	-134.23	Begin 91.35° Lateral
10197.84	91.35	270.00	9834.00	-559.67	-383.63	10.00	270.000	447.98	PBHL
14448.68	91.35	270.00	9734.00	-559.67	-4633.30	0.00	0.000	4666.98	

