

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?/PBTD?/*
- ☐ 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 - 015-45872	⁵ Pool Name PURPLE-SAGE; WOLFCAMP (GAS)	⁶ Pool Code 98220
⁷ Property Code 324981	⁸ Property Name ROCK RIDGE FEDERAL WCXY	⁹ Well Number 005H

II. ¹⁰ Surface Location

UL or lot no. A	Section 30	Township 24S	Range 29E	Lot Idn	Feet from the 745	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 2305	North/South line NORTH	Feet from the 319	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

Sundry / Survey do not match

²¹ Spud Date 07/12/2019	²² Ready Date TBD	²³ TD 9,732' TVD 14,539' MD	²⁴ PBDT N/A	²⁵ Perforations 9,960' - 14,485'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
16	13.375	359'	355		
12.25	9.625	9,033'	3,015		
8.5	5.5	14,523'	1,615		

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

Appro:

DENIED

Title:

See Attached Cover Sheet

Approv:

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

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

ARTESIA DISTRICT

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

RECEIVED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-45872	² Pool Code 98220	³ Pool Name PURPLE SAGE; WC (GAS)
⁴ Property Code 324981	⁵ Property Name ROCK RIDGE FEDERAL WCXY	⁶ Well Number 5H
⁷ OGRID No. 15363	⁸ Operator Name MURCHISON OIL AND GAS, LLC	⁹ Elevation 2914.2

¹⁰ Surface Location

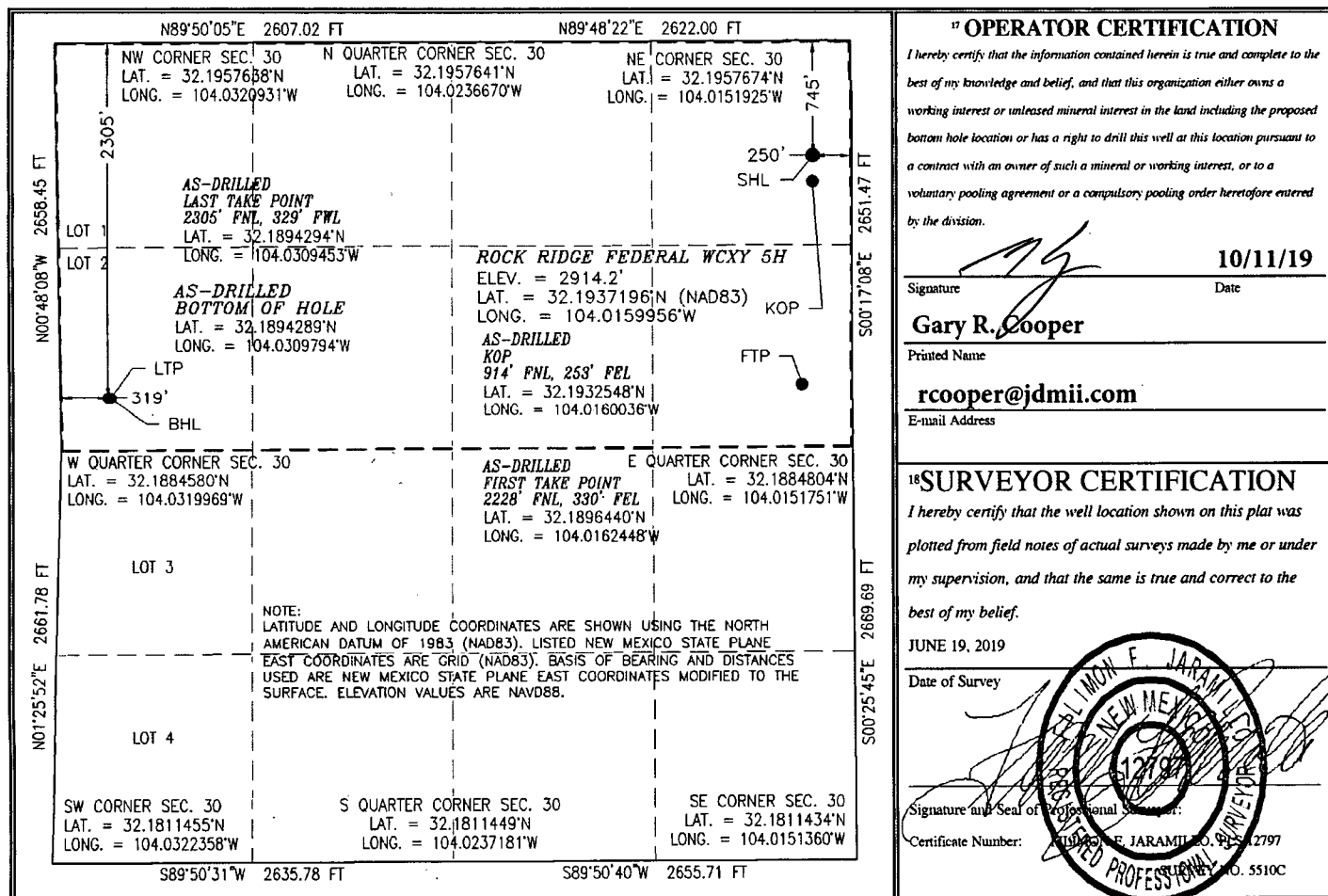
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	30	24 S	29 E		745	NORTH	250	EAST	EDDY

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		2305	NORTH	319	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.



NM OIL CONSERVATION

ARTESIA DISTRICT

OCT 29 2019

Intent ☐ As Drilled ☒

RECEIVED

API #		
Operator Name: MURCHISON OIL AND GAS, LLC	Property Name: ROCK RIDGE FEDERAL WCXY	Well Number 5H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	30	24S	29E		914	NORTH	253	EAST	EDDY
Latitude 32.1932548					Longitude 104.0160036				NAD 83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
H	30	24S	29E		2228	NORTH	330	EAST	EDDY
Latitude 32.1896440					Longitude 104.0162448				NAD 83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	30	24S	29E	2	2305	NORTH	329	WEST	EDDY
Latitude 32.1894294					Longitude 104.0309453				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 5H

Wellbore #1

Design: Surveys

Standard Survey Report

09 September, 2019

MS *Directional*

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.20usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.20usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 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		

Well	Rock Ridge Federal WCXY 5H				
Well Position	+N/-S	0.00 usft	Northing:	434,354.45 usft	Latitude: 32° 11' 37.391 N
	+E/-W	0.00 usft	Easting:	639,501.24 usft	Longitude: 104° 0' 57.584 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,914.20 usft
Grid Convergence:	0.169 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2019	7/17/2019	6.983	59.917	47,881.00
	HDGM2019	8/14/2019	6.983	59.917	47,872.60

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)	Direction (°)	
	0.00	0.00	0.00	251.13	

Survey Program	Date 9/9/2019				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
95.00	14,538.00	MS MWD (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	

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
95.00	0.50	32.90	95.00	0.35	0.23	-0.33	0.53	0.53	0.00
135.00	0.70	226.20	135.00	0.33	0.14	-0.24	2.98	0.50	-416.75
226.00	0.90	132.60	225.99	-0.54	0.27	-0.08	1.29	0.22	-102.86
316.00	1.30	119.30	315.98	-1.52	1.68	-1.10	0.52	0.44	-14.78
400.00	1.80	105.30	399.94	-2.34	3.78	-2.82	0.74	0.60	-16.67
488.00	1.80	61.70	487.91	-2.05	6.33	-5.33	1.52	0.00	-49.55
578.00	2.10	10.40	577.86	0.25	7.87	-7.53	1.90	0.33	-57.00
669.00	1.60	328.90	668.82	2.97	7.52	-8.08	1.53	-0.55	-45.60
729.00	1.60	318.10	728.79	4.32	6.53	-7.57	0.50	0.00	-18.00
789.00	1.50	315.00	788.77	5.49	5.41	-6.90	0.22	-0.17	-5.17
882.00	1.20	306.00	881.74	6.93	3.76	-5.80	0.39	-0.32	-9.68
977.00	1.50	297.60	976.72	8.09	1.86	-4.37	0.38	0.32	-8.84
1,071.00	1.80	263.80	1,070.68	8.50	-0.70	-2.09	1.07	0.32	-35.96
1,166.00	2.20	256.90	1,165.62	7.92	-3.96	1.18	0.49	0.42	-7.26

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.20usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.20usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 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)
1,260.00	2.50	259.50	1,259.54	7.14	-7.73	5.01	0.34	0.32	2.77
1,354.00	1.90	234.40	1,353.48	5.86	-11.02	8.53	1.19	-0.64	-26.70
1,448.00	2.10	222.40	1,447.42	3.68	-13.44	11.53	0.49	0.21	-12.77
1,543.00	2.20	233.60	1,542.35	1.31	-16.09	14.80	0.45	0.11	11.79
1,638.00	2.20	233.40	1,637.28	-0.85	-19.02	18.27	0.01	0.00	-0.21
1,731.00	2.00	226.40	1,730.22	-3.04	-21.63	21.45	0.35	-0.22	-7.53
1,825.00	3.40	208.20	1,824.12	-6.63	-24.13	24.98	1.73	1.49	-19.36
1,918.00	5.30	192.80	1,916.85	-13.25	-26.39	29.25	2.38	2.04	-16.56
2,012.00	6.70	193.20	2,010.33	-22.82	-28.60	34.44	1.49	1.49	0.43
2,107.00	8.40	184.60	2,104.51	-35.13	-30.42	40.15	2.14	1.79	-9.05
2,201.00	9.40	170.70	2,197.38	-49.55	-29.73	44.16	2.51	1.06	-14.79
2,295.00	10.80	168.20	2,289.93	-65.75	-26.69	46.52	1.56	1.49	-2.66
2,389.00	10.20	170.00	2,382.35	-82.57	-23.44	48.89	0.73	-0.64	1.91
2,483.00	9.60	168.40	2,474.95	-98.44	-20.42	51.16	0.70	-0.64	-1.70
2,577.00	9.50	167.50	2,567.65	-113.69	-17.17	53.02	0.19	-0.11	-0.96
2,671.00	8.50	164.30	2,660.49	-127.96	-13.61	54.26	1.19	-1.06	-3.40
2,765.00	8.70	163.60	2,753.43	-141.46	-9.72	54.95	0.24	0.21	-0.74
2,859.00	9.50	165.00	2,846.25	-155.78	-5.71	55.78	0.88	0.85	1.49
2,953.00	10.40	163.80	2,938.83	-171.42	-1.33	56.70	0.98	0.96	-1.28
3,047.00	11.30	163.00	3,031.15	-188.37	3.73	57.40	0.97	0.96	-0.85
3,140.00	12.40	163.30	3,122.17	-206.65	9.26	58.07	1.18	1.18	0.32
3,234.00	13.70	162.90	3,213.74	-226.96	15.44	58.80	1.39	1.38	-0.43
3,329.00	14.10	166.70	3,305.96	-248.97	21.41	60.27	1.05	0.42	4.00
3,424.00	14.40	168.70	3,398.04	-271.82	26.38	62.95	0.61	0.32	2.11
3,518.00	14.40	169.60	3,489.08	-294.77	30.78	66.21	0.24	0.00	0.96
3,612.00	13.70	171.80	3,580.27	-317.29	34.48	69.99	0.94	-0.74	2.34
3,707.00	14.00	173.00	3,672.51	-339.83	37.49	74.44	0.44	0.32	1.26
3,801.00	14.00	170.60	3,763.72	-362.33	40.73	78.65	0.62	0.00	-2.55
3,896.00	14.70	170.40	3,855.75	-385.56	44.62	82.48	0.74	0.74	-0.21
3,990.00	14.40	171.00	3,946.74	-408.86	48.43	86.40	0.36	-0.32	0.64
4,085.00	13.90	174.20	4,038.86	-431.88	51.43	91.01	0.98	-0.53	3.37
4,179.00	12.80	173.90	4,130.32	-453.47	53.68	95.87	1.17	-1.17	-0.32
4,273.00	13.30	174.20	4,221.89	-474.58	55.88	100.61	0.54	0.53	0.32
4,366.00	12.70	173.10	4,312.51	-495.37	58.19	105.15	0.70	-0.65	-1.18
4,461.00	13.10	172.40	4,405.11	-516.41	60.87	109.42	0.45	0.42	-0.74
4,555.00	14.10	172.50	4,496.47	-538.32	63.77	113.76	1.06	1.06	0.11
4,649.00	13.50	170.60	4,587.76	-560.50	67.06	117.82	0.80	-0.64	-2.02
4,743.00	13.00	170.60	4,679.25	-581.75	70.58	121.37	0.53	-0.53	0.00
4,838.00	13.60	171.10	4,771.71	-603.33	74.05	125.06	0.64	0.63	0.53
4,932.00	13.30	174.00	4,863.13	-625.00	76.89	129.38	0.79	-0.32	3.09
5,026.00	13.70	175.70	4,954.53	-646.85	78.86	134.59	0.60	0.43	1.81
5,120.00	14.70	175.90	5,045.66	-669.85	80.54	140.43	1.07	1.06	0.21
5,215.00	13.90	173.90	5,137.72	-693.22	82.62	146.03	0.99	-0.84	-2.11

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.20usft (Latshaw 7)
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Well:	Rock Ridge Federal WCXY 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 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)
5,309.00	14.10	172.40	5,228.92	-715.80	85.33	150.76	0.44	0.21	-1.60
5,404.00	13.40	172.70	5,321.20	-738.19	88.26	155.23	0.74	-0.74	0.32
5,498.00	13.70	172.00	5,412.58	-760.01	91.19	159.51	0.36	0.32	-0.74
5,592.00	14.30	171.30	5,503.79	-782.51	94.50	163.66	0.66	0.64	-0.74
5,686.00	13.60	171.90	5,595.02	-804.93	97.81	167.78	0.76	-0.74	0.64
5,781.00	13.90	172.40	5,687.30	-827.30	100.89	172.09	0.34	0.32	0.53
5,875.00	14.00	171.80	5,778.52	-849.74	104.01	176.41	0.19	0.11	-0.64
5,970.00	14.40	170.10	5,870.62	-872.75	107.68	180.38	0.61	0.42	-1.79
6,065.00	15.80	169.20	5,962.34	-897.10	112.13	184.03	1.49	1.47	-0.95
6,159.00	14.30	167.90	6,053.11	-921.02	116.97	187.20	1.64	-1.60	-1.38
6,254.00	13.90	166.90	6,145.25	-943.60	122.01	189.73	0.49	-0.42	-1.05
6,348.00	13.30	167.00	6,236.61	-965.14	127.00	191.97	0.64	-0.64	0.11
6,442.00	14.10	167.20	6,327.94	-986.84	131.97	194.29	0.85	0.85	0.21
6,536.00	13.80	168.60	6,419.17	-1,008.99	136.72	196.95	0.48	-0.32	1.49
6,631.00	14.10	170.80	6,511.37	-1,031.52	140.81	200.37	0.64	0.32	2.32
6,726.00	14.90	172.20	6,603.34	-1,055.05	144.32	204.66	0.92	0.84	1.47
6,820.00	14.90	171.80	6,694.18	-1,078.98	147.69	209.22	0.11	0.00	-0.43
6,914.00	14.10	170.20	6,785.18	-1,102.23	151.36	213.26	0.95	-0.85	-1.70
7,009.00	13.30	168.90	6,877.48	-1,124.35	155.43	216.56	0.90	-0.84	-1.37
7,103.00	12.90	168.50	6,969.03	-1,145.25	159.61	219.37	0.44	-0.43	-0.43
7,197.00	12.50	168.40	7,060.73	-1,165.49	163.74	222.00	0.43	-0.43	-0.11
7,290.00	12.80	167.30	7,151.48	-1,185.40	168.03	224.38	0.41	0.32	-1.18
7,385.00	12.20	167.30	7,244.22	-1,205.46	172.55	226.59	0.63	-0.63	0.00
7,480.00	12.30	169.30	7,337.06	-1,225.20	176.64	229.11	0.46	0.11	2.11
7,575.00	12.30	169.90	7,429.88	-1,245.10	180.29	232.09	0.13	0.00	0.63
7,669.00	12.90	170.30	7,521.62	-1,265.30	183.81	235.29	0.65	0.64	0.43
7,763.00	13.40	171.80	7,613.15	-1,286.42	187.14	238.98	0.64	0.53	1.60
7,857.00	13.10	174.20	7,704.65	-1,307.80	189.77	243.41	0.67	-0.32	2.55
7,951.00	12.70	174.50	7,796.28	-1,328.69	191.83	248.20	0.43	-0.43	0.32
8,045.00	13.70	175.90	7,887.79	-1,350.08	193.62	253.43	1.12	1.06	1.49
8,139.00	13.30	175.70	7,979.20	-1,371.96	195.23	258.99	0.43	-0.43	-0.21
8,233.00	11.80	169.00	8,070.95	-1,392.18	197.87	263.03	2.22	-1.60	-7.13
8,328.00	9.80	167.00	8,164.26	-1,409.59	201.54	265.18	2.14	-2.11	-2.11
8,422.00	8.00	170.80	8,257.13	-1,423.85	204.39	267.10	2.01	-1.91	4.04
8,517.00	7.10	176.60	8,351.31	-1,436.23	205.79	269.78	1.24	-0.95	6.11
8,611.00	5.60	183.70	8,444.73	-1,446.61	205.84	273.09	1.80	-1.60	7.55
8,705.00	4.00	195.00	8,538.40	-1,454.36	204.70	276.67	1.97	-1.70	12.02
8,799.00	2.30	210.10	8,632.25	-1,459.15	202.90	279.92	2.00	-1.81	16.06
8,893.00	2.10	215.60	8,726.19	-1,462.19	200.96	282.75	0.31	-0.21	5.85
8,993.00	2.80	215.80	8,826.09	-1,465.66	198.46	286.23	0.70	0.70	0.20
9,056.00	3.50	214.30	8,889.00	-1,468.49	196.48	289.03	1.12	1.11	-2.38
9,151.00	1.90	244.20	8,983.89	-1,471.58	193.42	292.91	2.19	-1.68	31.47
9,245.00	1.60	252.20	9,077.85	-1,472.65	190.77	295.77	0.41	-0.32	8.51

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.20usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.20usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 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)
9,339.00	1.50	253.20	9,171.81	-1,473.41	188.34	298.31	0.11	-0.11	1.06
9,434.00	5.10	280.20	9,266.65	-1,473.02	183.00	303.25	4.03	3.79	28.42
9,528.00	17.20	272.50	9,358.70	-1,471.67	164.93	319.90	12.94	12.87	-8.19
9,621.00	26.00	277.20	9,445.09	-1,468.51	130.90	351.08	9.64	9.46	5.05
9,715.00	33.80	274.90	9,526.52	-1,463.69	84.34	393.59	8.39	8.30	-2.45
9,808.00	42.60	261.60	9,599.66	-1,466.08	27.22	448.41	12.91	9.46	-14.30
9,903.00	50.10	259.80	9,665.19	-1,477.25	-40.55	516.15	8.01	7.89	-1.89
9,944.70	53.17	259.34	9,691.07	-1,483.17	-72.71	548.49	7.42	7.37	-1.11
HL Crossing - 9944.70' MD									
9,998.00	57.10	258.80	9,721.53	-1,491.47	-115.64	591.79	7.42	7.37	-1.01
10,093.00	69.00	259.50	9,764.51	-1,507.35	-198.66	675.49	12.54	12.53	0.74
10,187.00	76.50	263.90	9,792.38	-1,520.23	-287.41	763.64	9.14	7.98	4.68
10,267.00	78.20	265.80	9,809.90	-1,527.23	-365.15	839.47	3.14	2.13	2.38
10,362.00	83.00	266.50	9,825.41	-1,533.52	-458.63	929.96	5.10	5.05	0.74
10,456.00	87.50	268.10	9,833.19	-1,537.93	-552.18	1,019.90	5.08	4.79	1.70
10,550.00	92.20	269.10	9,833.44	-1,540.22	-646.13	1,109.54	5.11	5.00	1.06
10,644.00	93.80	269.30	9,828.52	-1,541.53	-739.98	1,198.78	1.72	1.70	0.21
10,738.00	94.00	269.40	9,822.12	-1,542.60	-833.76	1,287.86	0.24	0.21	0.11
10,832.00	91.60	269.50	9,817.53	-1,543.50	-927.64	1,376.98	2.56	-2.55	0.11
10,926.00	90.80	269.40	9,815.56	-1,544.40	-1,021.61	1,466.20	0.86	-0.85	-0.11
11,020.00	91.30	269.30	9,813.84	-1,545.47	-1,115.59	1,555.47	0.54	0.53	-0.11
11,114.00	89.60	269.10	9,813.10	-1,546.78	-1,209.57	1,644.83	1.82	-1.81	-0.21
11,209.00	89.40	268.90	9,813.93	-1,548.44	-1,304.56	1,735.24	0.30	-0.21	-0.21
11,303.00	91.20	269.60	9,813.44	-1,549.67	-1,398.54	1,824.57	2.05	1.91	0.74
11,398.00	92.00	269.60	9,810.79	-1,550.33	-1,493.50	1,914.64	0.84	0.84	0.00
11,492.00	92.40	269.60	9,807.18	-1,550.99	-1,587.43	2,003.74	0.43	0.43	0.00
11,586.00	90.80	269.00	9,804.55	-1,552.13	-1,681.38	2,093.01	1.82	-1.70	-0.64
11,680.00	91.10	269.30	9,803.00	-1,553.53	-1,775.36	2,182.39	0.45	0.32	0.32
11,774.00	91.30	269.30	9,801.03	-1,554.68	-1,869.33	2,271.68	0.21	0.21	0.00
11,868.00	91.60	269.30	9,798.65	-1,555.82	-1,963.29	2,360.96	0.32	0.32	0.00
11,963.00	92.00	269.00	9,795.66	-1,557.23	-2,058.24	2,451.26	0.53	0.42	-0.32
12,057.00	91.30	268.30	9,792.96	-1,559.45	-2,152.17	2,540.86	1.05	-0.74	-0.74
12,152.00	92.40	268.60	9,789.89	-1,562.02	-2,247.08	2,631.50	1.20	1.16	0.32
12,244.00	92.50	270.20	9,785.96	-1,562.98	-2,338.99	2,718.78	1.74	0.11	1.74
12,339.00	91.20	270.70	9,782.89	-1,562.23	-2,433.94	2,808.39	1.47	-1.37	0.53
12,433.00	90.00	271.20	9,781.91	-1,560.67	-2,527.92	2,896.81	1.38	-1.28	0.53
12,526.00	90.40	271.20	9,781.58	-1,558.73	-2,620.90	2,984.16	0.43	0.43	0.00
12,621.00	89.90	270.70	9,781.33	-1,557.15	-2,715.88	3,073.53	0.74	-0.53	-0.53
12,715.00	93.00	270.60	9,778.96	-1,556.08	-2,809.83	3,162.09	3.30	3.30	-0.11
12,810.00	91.80	271.30	9,774.98	-1,554.51	-2,904.74	3,251.38	1.46	-1.26	0.74
12,904.00	90.30	270.50	9,773.25	-1,553.03	-2,998.71	3,339.82	1.81	-1.60	-0.85
12,998.00	90.90	270.60	9,772.27	-1,552.13	-3,092.70	3,428.47	0.65	0.64	0.11
13,092.00	90.10	269.50	9,771.45	-1,552.05	-3,186.69	3,517.39	1.45	-0.85	-1.17
13,186.00	91.60	269.00	9,770.06	-1,553.28	-3,280.67	3,606.71	1.68	1.60	-0.53

Company:	Murchison Oil and Gas, LLC	Local Co-ordinate Reference:	Well Rock Ridge Federal WCXY 5H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 2939.20usft (Latshaw 7)
Site:	Rock Ridge Federal 5-8	MD Reference:	WELL @ 2939.20usft (Latshaw 7)
Well:	Rock Ridge Federal WCXY 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 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)	
13,280.00	91.20	268.20	9,767.76	-1,555.58	-3,374.61	3,696.35	0.95	-0.43	-0.85	
13,374.00	92.50	268.30	9,764.72	-1,558.45	-3,468.52	3,786.14	1.39	1.38	0.11	
13,467.00	94.20	269.30	9,759.29	-1,560.39	-3,561.33	3,874.59	2.12	1.83	1.08	
13,561.00	91.90	268.90	9,754.29	-1,561.87	-3,655.18	3,963.87	2.48	-2.45	-0.43	
13,656.00	92.20	269.10	9,750.89	-1,563.52	-3,750.11	4,054.23	0.38	0.32	0.21	
13,751.00	92.60	269.00	9,746.91	-1,565.10	-3,845.01	4,144.54	0.43	0.42	-0.11	
13,845.00	90.40	269.40	9,744.45	-1,566.41	-3,938.96	4,233.87	2.38	-2.34	0.43	
13,939.00	88.70	269.50	9,745.19	-1,567.31	-4,032.95	4,323.10	1.81	-1.81	0.11	
14,032.00	89.90	270.00	9,746.33	-1,567.72	-4,125.94	4,411.23	1.40	1.29	0.54	
14,126.00	92.80	270.10	9,744.11	-1,567.63	-4,219.90	4,500.11	3.09	3.09	0.11	
14,221.00	91.80	269.00	9,740.30	-1,568.38	-4,314.82	4,590.17	1.56	-1.05	-1.16	
14,315.00	91.60	268.80	9,737.51	-1,570.18	-4,408.76	4,679.65	0.30	-0.21	-0.21	
14,409.00	91.60	269.00	9,734.89	-1,571.99	-4,502.71	4,769.13	0.21	0.00	0.21	
14,470.00	91.30	268.80	9,733.34	-1,573.16	-4,563.68	4,827.20	0.59	-0.49	-0.33	
14,527.46	91.30	268.80	9,732.04	-1,574.36	-4,621.11	4,881.93	0.00	0.00	0.00	
HL Crossing - 14527.46' MD										
14,538.00	91.30	268.80	9,731.80	-1,574.58	-4,631.65	4,891.97	0.00	0.00	0.00	
Projection to TD-14538.00' MD										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,944.70	9,691.07	-1,483.17	-72.71	HL Crossing - 9944.70' MD
14,527.46	9,732.04	-1,574.36	-4,621.11	HL Crossing - 14527.46' MD
14,538.00	9,731.80	-1,574.58	-4,631.65	Projection to TD-14538.00' MD *

* Sunday - 14,539 ft. - 8/20/19


Company: Murchison Oil and Gas, LLC
 Well: Rock Ridge Federal WCXY 5H
 County: Eddy County, New Mexico (NAD 83)
 Rig: Latshaw 7
 Wellbore: Wellbore #1
 Design: Design #5
 Created By: BSW
 Date: 15:19, September 09 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: 47872.6nT
 Dip Angle: 59.92°
 Date: 8/14/2019
 Model: HDGM2019

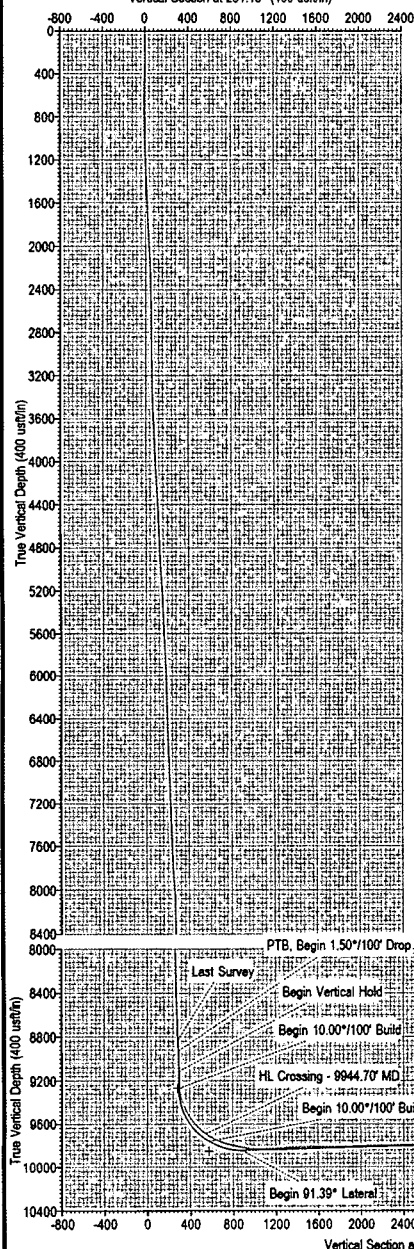
SURVEY PROGRAM

Depth From	Depth To	Survey/Plan	Tool
95.00	8993.00	MS MWD (Wellbore #1)	MWD+HRGM
8993.00	14583.75	Design #5 (Wellbore #1)	MWD+HRGM

CASING DETAILS

TVD	MD	Name	Size
350.00	350.03	13 3/8"	13-3/8"
9000.00	9167.08	9 5/8"	9-5/8"

Vertical Section at 251.15° (400 usft/in)



WELL DETAILS: Rock Ridge Federal WCXY 5H

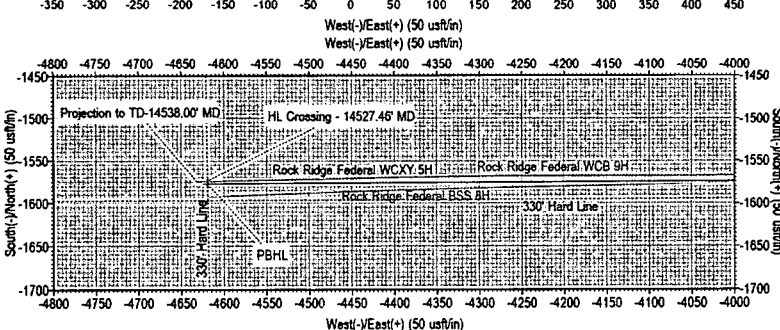
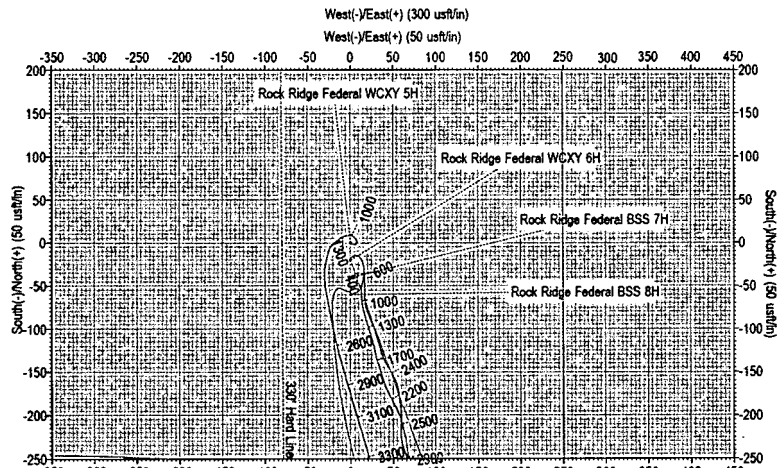
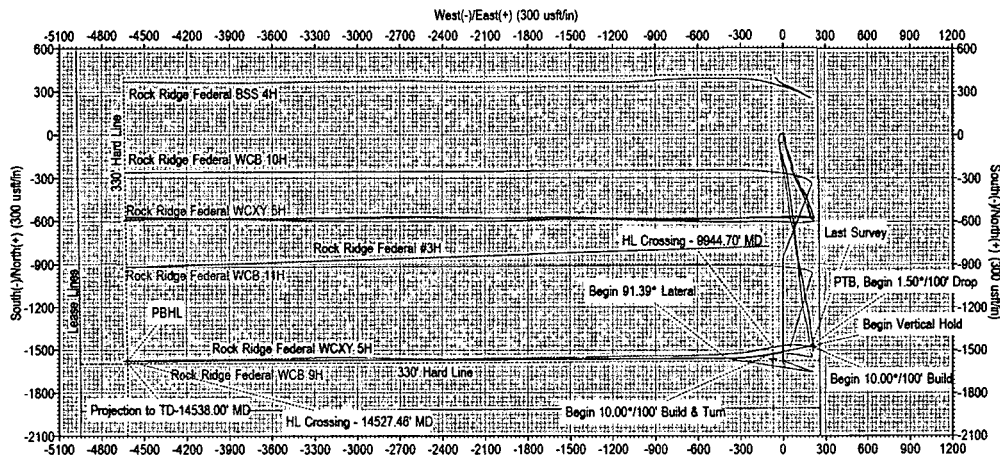
	+N/-S	+E/-W	GL @ 2914.20	WELL @ 2939.20usft (Latshaw 7)	Latitude	Longitude
	0.00	0.00	Northing	Easting	32° 11' 37.391 N	104° 0' 57.584 W
			434354.45	639501.24		

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL v4 - Rock Ridge Federal WCB 5H	9743.00	-1576.86	-4619.31	432777.59	634881.93	32° 11' 21.918 N	104° 1' 51.394 W
FTP v3 - Rock Ridge Federal WCB 5H	9853.00	-1564.89	-72.20	432769.56	639429.04	32° 11' 21.907 N	104° 0' 58.478 W
Vert v4 - Rock Ridge Federal WCB 5H	9266.50	-1479.11	207.32	432875.34	639708.56	32° 11' 22.747 N	104° 0' 55.222 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSeet	Annotation
8993.00	2.80	215.80	8826.09	-1465.86	198.46	0.00	0.000	285.66	Last Survey
9093.00	2.80	215.80	8925.97	-1469.82	195.60	0.00	0.000	289.66	PTB, Begin 1.50°/100' Drop
9279.67	0.00	0.00	9112.57	-1473.32	192.93	1.50	180.000	293.38	Begin Vertical Hold
9435.10	0.00	0.00	9268.00	-1473.32	192.93	0.00	0.000	293.38	Begin 10.00°/100' Build
10035.10	60.00	258.80	9764.20	-1528.96	-88.09	10.00	258.800	577.31	Begin 10.00°/100' Build & Turn
10365.91	91.39	269.75	9845.15	-1558.33	-402.75	10.00	20.356	884.58	Begin 91.39° Lateral
14583.75	91.39	269.75	9743.00	-1576.86	-4619.31	0.00	0.000	4881.04	PBHL



Projection to TD
 14538.00' MD 9731.80' TVD
 317.73' FWL 2303.68' FNL