

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.

Carlsbad Field Office
OCD Artesia

Serial No. 13944
If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
COTTONWOOD 29-32 FED COM WCA 9H

2. Name of Operator

CHISHOLM ENERGY OPERATING LLC

Contact: JENNIFER ELROD

Email: JELROD@CHISHOLMENERGY.COM

9. API Well No.

30-015-44919-00-X1

3a. Address

801 CHERRY STREET
FORT WORTH, TX 76012

3b. Phone No. (include area code)

Ph: 817-953-3728
Fx: 817-601-7551

10. Field and Pool or Exploratory Area
PURPLE SAGE-WOLFCAMP (GAS)

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

Sec 29 T26S R26E 100FNL 1205FWL
32.020229 N Lat, 104.319679 W Lon

11. County or Parish, State

EDDY COUNTY, NM

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

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

COMPLETIONS SUNDRY

07/03/2018-RUN CBL; EST TOC @ SURFACE

07/04/2018-PRESSURE TEST CSG 9800 PSI, 30 MIN, GOOD TEST; PERFORATE 1ST STAGE 14785'-14605'

07/23-07/29/2018-COMPLETIONS OPERATIONS-PERFORATE STAGE 2-31, 14575'-8305'; FRACTURE ALL STAGES
W/810 BBLs HCI + 182932 BBLs SW W/6248971 # 100 MESH + 354634# 20/40 SAND

RECEIVED

07/30-07/31/2018-DRILL OUT

08/01-08/02/2018-INSTALL PROD. EQUIPMENT

08/06/2018-TURN WELL TO FLOWBACK

AUG 17 2018

DISTRICT II-ARTESIA O.C.D.

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

Electronic Submission #430313 verified by the BLM Well Information System

For CHISHOLM ENERGY OPERATING LLC, sent to the Carlsbad

Committed to AFMSS for processing by PRISCILLA PEREZ on 08/09/2018 (18PP2434SE)

Name (Printed/Typed) JENNIFER ELROD

Title SR REGULATORY TECH

Signature (Electronic Submission)

Date 08/08/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

ACCEPTED FOR RECORD

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.

Office

AUG 10 2018

/s/ Jonathon Shepar

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

(Instructions on page 2)

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

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
AS DRILLED

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-44919	² Pool Code 98220	³ Pool Name PURPLE SAGE; WOLFCAMP
⁴ Property Code 319571	⁵ Property Name COTTONWOOD 29-32 FED COM WCA	⁶ Well Number 9H
⁷ OGRID No. 372137	⁸ Operator Name CHISHOLM ENERGY OPERATING, LLC	⁹ Elevation 3433'

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
D	29	26S	26E		100	NORTH	1205	WEST	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
LOT 4	32	26S	26E		328	SOUTH	1307	WEST	EDDY

¹² Dedicated Acres 892.20	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-14561
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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. <u>Jennifer Elrod</u> 8/6/18 Signature Date JENNIFER ELROD Printed Name jelrod@chisholmenergy.com E-mail Address 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 Signature and Seal of Professional Surveyor: Certificate Number
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Chisholm Energy Holdings

GE 3433 + 22' KB @ 3455.00usft (22' KB)

Ground Level: 3433.00

Project: Eddy County, NM (NAD 83)

Site: Cottonwood 29-32 Fed

Well: WCA 9H

Wellbore: Wellbore #1

Design: Actual

Rig: 22' KB



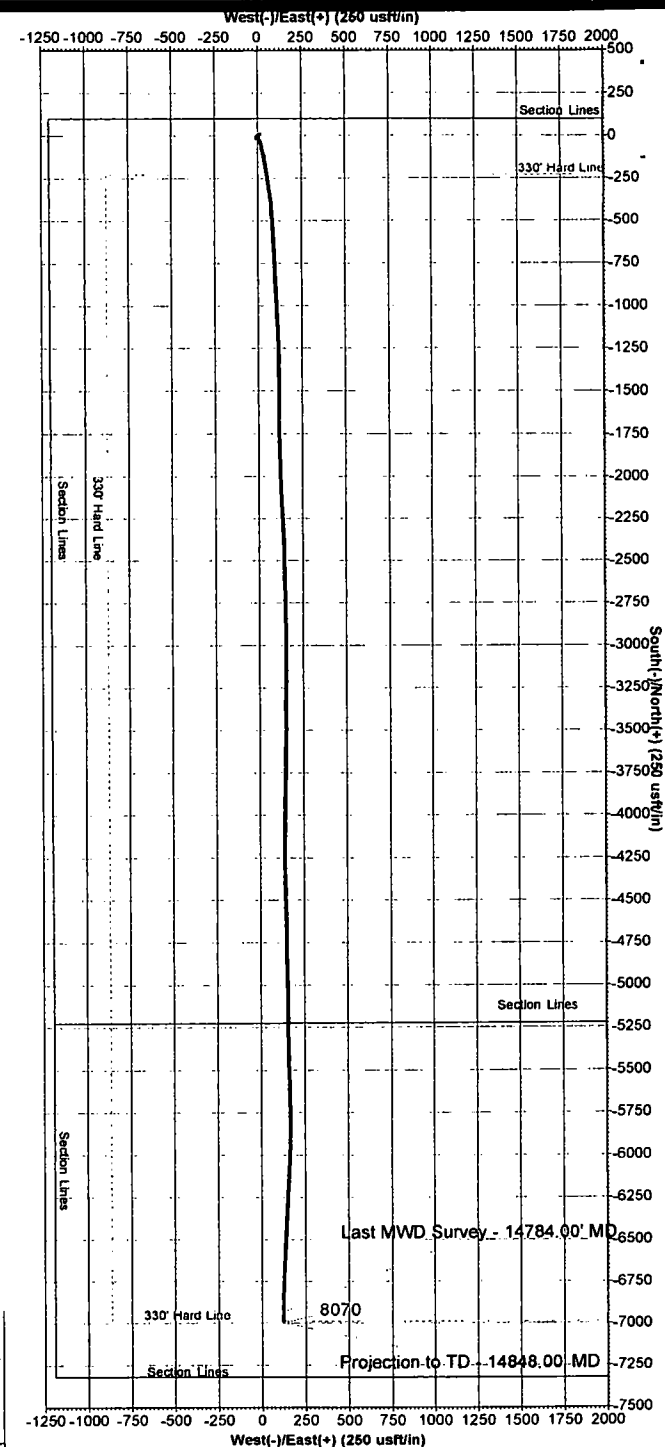
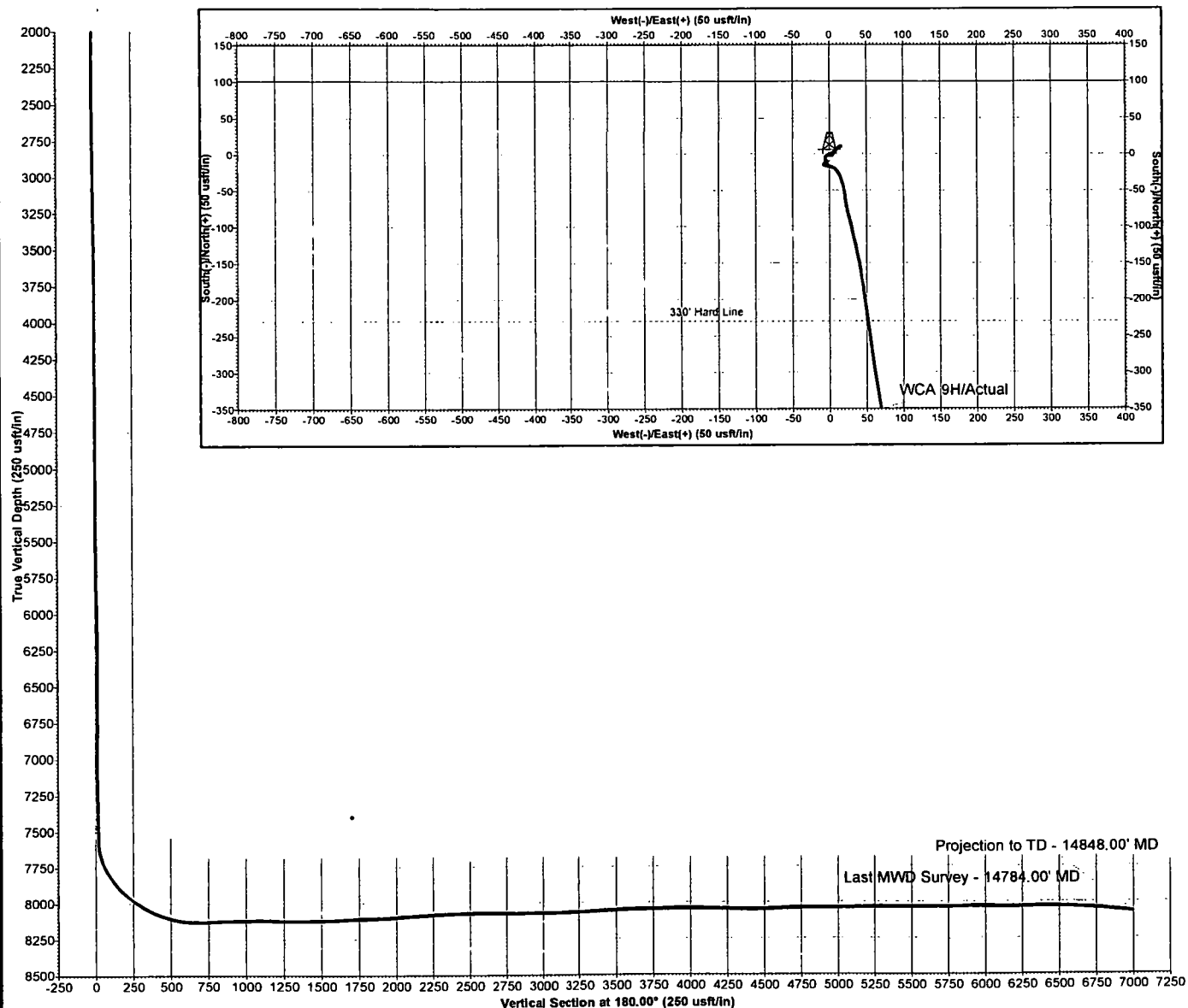
Azimuths to Grid North
True North: -0.01°
Magnetic North: 7.28°

Magnetic Field
Strength: 47693.9aT
Dip Angle: 59.69°
Date: 5/1/2018
Model: BGGM2017

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone

WELL DETAILS

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude
0.00	0.00	371098.90	3433.00	545568.70	32° 1' 12.829 N	104° 19' 10.851 W



22' KB

Chisholm Energy Holdings

Eddy County, NM (NAD 83) Cottonwood 29-32 Fed

API#

WCA 9H

Wellbore #1

Design: Actual

Sperry Drilling Services Combo Report

12 June, 2018

Well Coordinates: 32° 01' 12.83" N
 104° 19' 10.85" W

North American Datum 1983
New Mexico Eastern Zone
371,098.90 N
545,568.70 E

Ground Level: 3,433.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well WCA 9H
GE 3433 + 22' KB @ 3455.00usft (22' KB)
N
Grid
API US Survey Feet

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.12

HALLIBURTON

Design Report for WCA 9H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
0.00	0.00	0.00	0.00	0.00 N	0.00 E	371,098.90	545,568.70	0.00	0.00	0.00	
136.00	0.38	187.98	136.00	0.45 S	0.06 W	371,098.45	545,568.64	0.28	0.45	187.98	
235.00	0.28	174.35	235.00	1.01 S	0.08 W	371,097.89	545,568.62	0.13	1.01	-148.55	
295.00	0.44	210.31	295.00	1.36 S	0.19 W	371,097.54	545,568.51	0.45	1.36	73.58	
369.00	0.58	182.38	368.99	1.98 S	0.35 W	371,096.92	545,568.35	0.38	1.98	-75.07	
455.00	0.04	347.16	454.99	2.38 S	0.37 W	371,096.52	545,568.33	0.72	2.38	179.03	
561.00	0.61	306.67	560.99	2.01 S	0.83 W	371,096.89	545,567.87	0.55	2.01	-43.06	
648.00	0.83	285.80	647.98	1.56 S	1.81 W	371,097.34	545,566.89	0.39	1.56	-60.76	
746.00	0.74	129.59	745.98	1.77 S	2.00 W	371,097.13	545,566.70	1.57	1.77	-168.80	
841.00	2.40	112.56	840.94	2.93 S	0.31 E	371,095.97	545,569.01	1.80	2.93	-24.32	
935.00	1.40	56.54	934.90	3.05 S	3.08 E	371,095.85	545,571.78	2.12	3.05	-144.32	
1,030.00	1.96	35.81	1,029.86	1.09 S	5.00 E	371,097.81	545,573.70	0.86	1.09	-58.02	
1,124.00	0.52	346.22	1,123.83	0.63 N	5.84 E	371,099.53	545,574.54	1.78	-0.63	-166.29	
1,219.00	0.96	17.41	1,218.82	1.81 N	5.98 E	371,100.71	545,574.68	0.61	-1.81	58.79	
1,314.00	1.84	42.81	1,313.80	3.68 N	7.25 E	371,102.58	545,575.95	1.11	-3.68	48.34	
1,409.00	1.27	50.52	1,408.76	5.47 N	9.10 E	371,104.37	545,577.80	0.64	-5.47	163.67	
1,503.00	0.83	51.14	1,502.74	6.56 N	10.43 E	371,105.46	545,579.13	0.47	-6.56	178.83	
1,598.00	0.52	49.41	1,597.74	7.27 N	11.30 E	371,106.17	545,580.00	0.33	-7.27	-177.10	
1,693.00	0.67	55.34	1,692.73	7.87 N	12.08 E	371,106.77	545,580.78	0.17	-7.87	25.30	
1,788.00	0.69	61.95	1,787.73	8.46 N	13.04 E	371,107.36	545,581.74	0.09	-8.46	79.02	
1,883.00	0.61	54.52	1,882.72	9.02 N	13.96 E	371,107.92	545,582.66	0.12	-9.02	-137.18	
1,977.00	0.34	75.46	1,976.72	9.38 N	14.64 E	371,108.28	545,583.34	0.34	-9.38	157.44	
2,073.00	0.33	53.27	2,072.72	9.62 N	15.13 E	371,108.52	545,583.83	0.13	-9.62	-105.45	
2,168.00	0.22	26.34	2,167.71	9.94 N	15.43 E	371,108.84	545,584.13	0.18	-9.94	-143.34	
2,263.00	0.50	258.97	2,262.71	10.03 N	15.11 E	371,108.93	545,583.81	0.69	-10.03	-142.80	
2,358.00	0.33	251.89	2,357.71	9.86 N	14.44 E	371,108.76	545,583.14	0.19	-9.86	-166.73	
2,453.00	0.54	236.58	2,452.71	9.53 N	13.81 E	371,108.43	545,582.51	0.25	-9.53	-36.76	
2,548.00	0.63	256.62	2,547.70	9.16 N	12.93 E	371,108.06	545,581.63	0.23	-9.16	76.49	
2,643.00	0.53	240.29	2,642.70	8.82 N	12.04 E	371,107.72	545,580.74	0.20	-8.82	-129.16	
2,716.00	0.56	222.48	2,715.69	8.39 N	11.50 E	371,107.29	545,580.20	0.23	-8.39	-88.94	
2,798.00	0.58	225.10	2,797.69	7.81 N	10.94 E	371,106.71	545,579.64	0.04	-7.81	53.81	
2,862.00	0.78	220.10	2,861.69	7.24 N	10.43 E	371,106.14	545,579.13	0.33	-7.24	-19.04	
2,957.00	0.81	221.05	2,956.68	6.24 N	9.57 E	371,105.14	545,578.27	0.03	-6.24	24.19	
3,052.00	0.83	225.68	3,051.67	5.26 N	8.64 E	371,104.16	545,577.34	0.07	-5.26	75.53	
3,146.00	0.86	220.83	3,145.66	4.25 N	7.69 E	371,103.15	545,576.39	0.08	-4.25	-69.68	
3,241.00	1.12	231.39	3,240.64	3.13 N	6.50 E	371,102.03	545,575.20	0.33	-3.13	40.41	

Design Report for WCA 9H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,335.00	1.02	231.49	3,334.63	2.03 N	5.12 E	371,100.93	545,573.82	0.11	-2.03	178.98	
3,429.00	1.05	230.99	3,428.61	0.97 N	3.80 E	371,099.87	545,572.50	0.03	-0.97	-17.00	
3,524.00	1.03	233.18	3,523.60	0.09 S	2.44 E	371,098.81	545,571.14	0.05	0.09	117.80	
3,619.00	0.96	218.34	3,618.58	1.23 S	1.26 E	371,097.67	545,569.96	0.28	1.23	-112.53	
3,713.00	1.10	223.42	3,712.57	2.50 S	0.15 E	371,096.40	545,568.85	0.18	2.50	35.67	
3,807.00	0.70	285.21	3,806.56	3.00 S	1.02 W	371,095.90	545,567.68	1.05	3.00	141.27	
3,901.00	0.44	297.12	3,900.55	2.69 S	1.90 W	371,096.21	545,566.80	0.30	2.69	161.38	
3,996.00	0.32	294.88	3,995.55	2.41 S	2.46 W	371,096.49	545,566.24	0.13	2.41	-174.06	
4,090.00	0.39	253.42	4,089.55	2.39 S	3.01 W	371,096.51	545,565.69	0.28	2.39	-96.13	
4,185.00	0.38	243.04	4,184.55	2.63 S	3.60 W	371,096.27	545,565.10	0.07	2.63	-103.33	
4,279.00	0.44	249.96	4,278.54	2.89 S	4.21 W	371,096.01	545,564.49	0.08	2.89	43.03	
4,374.00	0.42	218.43	4,373.54	3.29 S	4.77 W	371,095.61	545,563.93	0.25	3.29	-110.47	
4,467.00	0.44	217.76	4,466.54	3.84 S	5.20 W	371,095.06	545,563.50	0.02	3.84	-14.45	
4,562.00	0.29	232.16	4,561.54	4.27 S	5.62 W	371,094.63	545,563.08	0.18	4.27	155.62	
4,656.00	0.09	14.44	4,655.54	4.35 S	5.79 W	371,094.55	545,562.91	0.39	4.35	171.33	
4,750.00	0.14	76.59	4,749.54	4.25 S	5.66 W	371,094.65	545,563.04	0.13	4.25	101.24	
4,844.00	0.20	104.35	4,843.54	4.26 S	5.39 W	371,094.64	545,563.31	0.11	4.26	68.35	
4,936.00	0.17	207.09	4,935.54	4.43 S	5.29 W	371,094.47	545,563.41	0.31	4.43	145.08	
5,030.00	0.28	235.85	5,029.53	4.68 S	5.55 W	371,094.22	545,563.15	0.16	4.68	60.75	
5,127.00	0.80	226.61	5,126.53	5.28 S	6.23 W	371,093.62	545,562.47	0.54	5.28	-14.15	
5,222.00	0.98	37.61	5,221.53	5.09 S	6.22 W	371,093.81	545,562.48	1.87	5.09	175.04	
5,317.00	0.73	69.80	5,316.52	4.24 S	5.16 W	371,094.66	545,563.54	0.56	4.24	132.96	
5,411.00	0.43	179.75	5,410.51	4.38 S	4.59 W	371,094.52	545,564.11	1.03	4.38	155.25	
5,505.00	1.35	206.71	5,504.50	5.72 S	5.09 W	371,093.18	545,563.61	1.05	5.72	38.36	
5,600.00	0.31	153.62	5,599.49	6.95 S	5.48 W	371,091.95	545,563.22	1.25	6.95	-167.98	
5,695.00	0.25	148.55	5,694.49	7.36 S	5.26 W	371,091.54	545,563.44	0.07	7.36	-160.08	
5,790.00	1.19	198.43	5,789.48	8.47 S	5.46 W	371,090.43	545,563.24	1.10	8.47	60.40	
5,884.00	0.62	176.98	5,883.47	9.91 S	5.74 W	371,088.99	545,562.96	0.70	9.91	-159.70	
5,979.00	1.22	128.90	5,978.46	11.06 S	4.93 W	371,087.84	545,563.77	0.98	11.06	-77.87	
6,074.00	1.70	150.54	6,073.43	12.92 S	3.45 W	371,085.98	545,565.25	0.76	12.92	60.11	
6,169.00	1.23	193.86	6,168.40	15.14 S	3.00 W	371,083.76	545,565.70	1.23	15.14	133.65	
6,264.00	1.06	297.19	6,263.39	15.72 S	4.02 W	371,083.18	545,564.68	1.89	15.72	145.02	
6,358.00	1.70	295.58	6,357.36	14.72 S	6.05 W	371,084.18	545,562.65	0.68	14.72	-4.27	
6,453.00	0.63	15.49	6,452.34	13.61 S	7.19 W	371,085.29	545,561.51	1.80	13.61	158.68	
6,548.00	0.72	52.90	6,547.34	12.75 S	6.57 W	371,086.15	545,562.13	0.46	12.75	97.56	
6,643.00	1.05	95.63	6,642.33	12.47 S	5.23 W	371,086.43	545,563.47	0.75	12.47	85.88	
6,736.00	0.44	156.19	6,735.32	12.88 S	4.24 W	371,086.02	545,564.46	0.99	12.88	155.32	

HALLIBURTON

Design Report for WCA 9H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
6,831.00	0.65	7.50	6,830.32	12.68 S	4.02 W	371,086.22	545,564.68	1.11	12.68	-161.25	
6,925.00	0.86	39.77	6,924.31	11.61 S	3.50 W	371,087.29	545,565.20	0.50	11.61	80.46	
7,020.00	0.09	35.54	7,019.31	11.00 S	3.00 W	371,087.90	545,565.70	0.81	11.00	-179.51	
7,116.00	1.16	202.51	7,115.30	11.84 S	3.33 W	371,087.06	545,565.37	1.30	11.84	167.90	
7,211.00	1.18	221.23	7,210.28	13.47 S	4.34 W	371,085.43	545,564.36	0.40	13.47	96.39	
7,306.00	0.74	267.43	7,305.27	14.23 S	5.60 W	371,084.67	545,563.10	0.90	14.23	141.35	
7,401.00	1.41	245.40	7,400.25	14.74 S	7.27 W	371,084.16	545,561.43	0.82	14.74	-43.00	
7,453.00	0.91	229.54	7,452.24	15.28 S	8.17 W	371,083.62	545,560.53	1.13	15.28	-155.05	
7,484.00	1.81	123.89	7,483.23	15.71 S	7.95 W	371,083.19	545,560.75	7.21	15.71	-128.73	
7,516.00	5.56	103.83	7,515.16	16.36 S	6.02 W	371,082.54	545,562.68	12.22	16.36	-29.17	
7,547.00	9.76	101.12	7,545.88	17.23 S	1.99 W	371,081.67	545,566.71	13.59	17.23	-6.26	
7,579.00	9.49	109.58	7,577.43	18.64 S	3.16 E	371,080.26	545,571.86	4.50	18.64	104.96	
7,610.00	9.93	133.32	7,608.00	21.33 S	7.52 E	371,077.57	545,576.22	12.90	21.33	95.52	
7,642.00	12.79	146.05	7,639.37	26.16 S	11.50 E	371,072.74	545,580.20	11.84	26.16	47.61	
7,673.00	16.44	157.40	7,669.37	33.06 S	15.11 E	371,065.84	545,583.81	14.91	33.06	43.71	
7,705.00	19.78	165.13	7,699.79	42.48 S	18.24 E	371,056.42	545,586.94	12.84	42.48	39.45	
7,737.00	22.87	173.25	7,729.60	53.89 S	20.36 E	371,045.01	545,589.06	13.34	53.89	47.54	
7,768.00	25.84	171.81	7,757.84	66.56 S	22.03 E	371,032.34	545,590.73	9.77	66.56	-11.96	
7,800.00	30.05	166.95	7,786.10	81.28 S	24.83 E	371,017.62	545,593.53	14.95	81.28	-30.58	
7,831.00	33.83	166.12	7,812.41	97.22 S	28.66 E	371,001.68	545,597.36	12.28	97.22	-6.98	
7,863.00	35.93	167.07	7,838.66	115.02 S	32.90 E	370,983.88	545,601.60	6.78	115.02	14.90	
7,895.00	38.40	168.18	7,864.15	133.91 S	37.03 E	370,964.99	545,605.73	8.00	133.91	15.63	
7,927.00	41.33	170.13	7,888.71	154.05 S	40.88 E	370,944.85	545,609.58	9.95	154.05	23.86	
7,958.00	45.12	171.43	7,911.30	175.00 S	44.27 E	370,923.90	545,612.97	12.56	175.00	13.70	
7,990.00	47.77	172.51	7,933.35	197.96 S	47.51 E	370,900.94	545,616.21	8.63	197.96	16.83	
8,021.00	50.46	172.60	7,953.64	221.20 S	50.55 E	370,877.70	545,619.25	8.68	221.20	1.48	
8,053.00	52.25	172.11	7,973.62	245.97 S	53.87 E	370,852.93	545,622.57	5.72	245.97	-12.22	
8,084.00	54.41	172.33	7,992.13	270.60 S	57.24 E	370,828.30	545,625.94	6.99	270.60	4.74	
8,116.00	56.39	171.55	8,010.30	296.68 S	60.93 E	370,802.22	545,629.63	6.50	296.68	-18.19	
8,147.00	58.10	170.95	8,027.07	322.45 S	64.90 E	370,776.45	545,633.60	5.75	322.45	-16.60	
8,179.00	60.22	171.49	8,043.48	349.60 S	69.09 E	370,749.30	545,637.79	6.78	349.60	12.48	
8,211.00	62.83	172.92	8,058.73	377.47 S	72.90 E	370,721.43	545,641.60	9.05	377.47	26.06	
8,242.00	66.39	174.58	8,072.02	405.30 S	75.94 E	370,693.60	545,644.64	12.46	405.30	23.20	
8,274.00	70.69	175.94	8,083.73	434.97 S	78.40 E	370,663.93	545,647.10	14.01	434.97	16.66	
8,305.00	73.14	176.04	8,093.35	464.37 S	80.46 E	370,634.53	545,649.16	7.91	464.37	2.24	
8,337.00	73.83	176.21	8,102.45	494.98 S	82.53 E	370,603.92	545,651.23	2.22	494.98	13.31	
8,368.00	75.21	176.34	8,110.72	524.79 S	84.47 E	370,574.11	545,653.17	4.47	524.79	5.20	

HALLIBURTON

Design Report for WCA 9H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)								
8,400.00	79.57	176.33	8,117.71	555.94 S	86.47 E	370,542.96	545,655.17	13.63	555.94	-0.13	
8,432.00	82.65	176.86	8,122.65	587.50 S	88.35 E	370,511.40	545,657.05	9.76	587.50	9.69	
8,463.00	85.81	177.28	8,125.77	618.30 S	89.92 E	370,480.60	545,658.62	10.28	618.30	7.56	
8,495.00	88.83	177.62	8,127.26	650.23 S	91.34 E	370,448.67	545,660.04	9.50	650.23	6.43	
8,564.00	90.43	177.47	8,127.71	719.16 S	94.30 E	370,379.74	545,663.00	2.33	719.16	-5.36	
8,658.00	93.95	178.48	8,124.12	813.02 S	97.62 E	370,285.88	545,666.32	3.90	813.02	15.98	
8,752.00	90.25	177.62	8,120.67	906.88 S	100.81 E	370,192.02	545,669.51	4.04	906.88	-166.91	
8,846.00	89.75	177.30	8,120.67	1,000.79 S	104.98 E	370,098.11	545,673.68	0.63	1,000.79	-147.38	
8,941.00	91.73	177.59	8,119.45	1,095.68 S	109.22 E	370,003.22	545,677.92	2.11	1,095.68	8.33	
9,036.00	87.10	177.37	8,120.42	1,190.56 S	113.39 E	369,908.34	545,682.09	4.88	1,190.56	-177.28	
9,131.00	88.39	178.71	8,124.15	1,285.43 S	116.64 E	369,813.47	545,685.34	1.96	1,285.43	46.10	
9,225.00	91.42	180.92	8,124.31	1,379.41 S	116.94 E	369,719.49	545,685.64	3.99	1,379.41	36.11	
9,320.00	90.74	179.73	8,122.52	1,474.39 S	116.40 E	369,624.51	545,685.10	1.44	1,474.39	-119.74	
9,414.00	92.16	179.82	8,120.14	1,568.36 S	116.77 E	369,530.54	545,685.47	1.51	1,568.36	3.62	
9,509.00	94.70	180.20	8,114.46	1,663.18 S	116.75 E	369,435.72	545,685.45	2.70	1,663.18	8.48	
9,604.00	91.54	178.34	8,109.29	1,758.01 S	117.97 E	369,340.89	545,686.67	3.86	1,758.01	-149.50	
9,699.00	90.62	178.53	8,107.50	1,852.96 S	120.56 E	369,245.94	545,689.26	0.99	1,852.96	168.33	
9,793.00	94.14	178.55	8,103.59	1,946.83 S	122.95 E	369,152.07	545,691.65	3.74	1,946.83	0.32	
9,888.00	93.21	177.56	8,097.50	2,041.58 S	126.17 E	369,057.32	545,694.87	1.43	2,041.58	-133.24	
9,982.00	93.34	177.24	8,092.13	2,135.33 S	130.43 E	368,963.57	545,699.13	0.37	2,135.33	-67.85	
10,077.00	93.33	176.27	8,086.61	2,230.02 S	135.80 E	368,868.88	545,704.50	1.02	2,230.02	-90.56	
10,172.00	92.66	177.52	8,081.64	2,324.75 S	140.93 E	368,774.15	545,709.63	1.49	2,324.75	118.19	
10,267.00	91.85	179.07	8,077.91	2,419.63 S	143.76 E	368,679.27	545,712.46	1.84	2,419.63	117.58	
10,364.00	90.74	179.40	8,075.71	2,516.59 S	145.05 E	368,582.31	545,713.75	1.19	2,516.59	163.44	
10,458.00	89.94	178.81	8,075.16	2,610.58 S	146.52 E	368,488.32	545,715.22	1.06	2,610.58	-143.59	
10,553.00	89.26	178.18	8,075.82	2,705.54 S	149.02 E	368,393.36	545,717.72	0.98	2,705.54	-137.19	
10,648.00	90.31	178.72	8,076.18	2,800.50 S	151.58 E	368,298.40	545,720.28	1.24	2,800.50	27.22	
10,743.00	91.17	180.07	8,074.95	2,895.49 S	152.59 E	368,203.41	545,721.29	1.68	2,895.49	57.49	
10,836.00	90.56	179.46	8,073.54	2,988.48 S	152.97 E	368,110.42	545,721.67	0.93	2,988.48	-135.00	
10,931.00	89.51	179.90	8,073.49	3,083.47 S	153.50 E	368,015.43	545,722.20	1.20	3,083.47	157.26	
11,026.00	92.16	181.06	8,072.10	3,178.45 S	152.70 E	367,920.45	545,721.40	3.04	3,178.45	23.63	
11,118.00	93.52	181.07	8,067.54	3,270.32 S	151.00 E	367,828.58	545,719.70	1.48	3,270.32	0.42	
11,213.00	93.46	179.47	8,061.76	3,365.14 S	150.55 E	367,733.76	545,719.25	1.68	3,365.14	-92.10	
11,308.00	92.22	180.26	8,057.05	3,460.02 S	150.77 E	367,638.88	545,719.47	1.55	3,460.02	147.51	
11,403.00	93.77	181.87	8,052.09	3,554.87 S	149.01 E	367,544.03	545,717.71	2.35	3,554.87	46.01	
11,498.00	90.25	179.98	8,048.76	3,649.78 S	147.48 E	367,449.12	545,716.18	4.20	3,649.78	-151.74	

HALLIBURTON

Design Report for WCA 9H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Easting (usft)	Map Coordinates Northing (usft)	Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
11,592.00	91.30	180.24	8,047.49	3,743.77 S	147.30 E	367,355.13	545,716.00	1.15	3,743.77	13.91	
11,687.00	91.73	180.75	8,044.97	3,838.73 S	146.48 E	367,260.17	545,715.18	0.70	3,838.73	49.85	
11,782.00	90.49	181.51	8,043.13	3,933.69 S	144.61 E	367,165.21	545,713.31	1.53	3,933.69	148.49	
11,876.00	89.51	181.05	8,043.13	4,027.66 S	142.51 E	367,071.24	545,711.21	1.15	4,027.66	-154.85	
11,971.00	89.63	180.35	8,043.85	4,122.65 S	141.35 E	366,976.25	545,710.05	0.75	4,122.65	-80.27	
12,066.00	88.46	179.97	8,045.43	4,217.64 S	141.08 E	366,881.26	545,709.78	1.29	4,217.64	-162.01	
12,160.00	87.84	179.39	8,048.47	4,311.59 S	141.61 E	366,787.31	545,710.31	0.90	4,311.59	-136.93	
12,255.00	89.51	179.15	8,050.66	4,406.55 S	142.82 E	366,692.35	545,711.52	1.78	4,406.55	-8.18	
12,349.00	91.85	178.05	8,049.55	4,500.51 S	145.11 E	366,598.39	545,713.81	2.75	4,500.51	-25.17	
12,444.00	92.41	178.73	8,046.02	4,595.40 S	147.78 E	366,503.50	545,716.48	0.93	4,595.40	50.50	
12,538.00	90.99	179.30	8,043.23	4,689.35 S	149.39 E	366,409.55	545,718.09	1.63	4,689.35	158.13	
12,633.00	91.24	179.65	8,041.38	4,784.32 S	150.26 E	366,314.58	545,718.96	0.45	4,784.32	54.45	
12,728.00	89.81	178.88	8,040.51	4,879.31 S	151.48 E	366,219.59	545,720.18	1.71	4,879.31	-151.70	
12,822.00	89.69	178.76	8,040.92	4,973.29 S	153.42 E	366,125.61	545,722.12	0.18	4,973.29	-135.00	
12,917.00	90.80	179.54	8,040.51	5,068.27 S	154.83 E	366,030.63	545,723.53	1.43	5,068.27	35.09	
13,012.00	92.16	180.01	8,038.06	5,163.24 S	155.20 E	365,935.66	545,723.90	1.51	5,163.24	19.05	
13,107.00	89.69	179.15	8,036.52	5,258.22 S	155.90 E	365,840.68	545,724.60	2.75	5,258.22	-160.80	
13,202.00	89.38	179.35	8,037.30	5,353.21 S	157.14 E	365,745.69	545,725.84	0.39	5,353.21	147.17	
13,296.00	90.06	179.03	8,037.76	5,447.19 S	158.47 E	365,651.71	545,727.17	0.80	5,447.19	-25.20	
13,391.00	89.75	178.19	8,037.91	5,542.16 S	160.77 E	365,556.74	545,729.47	0.94	5,542.16	-110.26	
13,486.00	90.49	178.95	8,037.71	5,637.13 S	163.14 E	365,461.77	545,731.84	1.12	5,637.13	45.76	
13,580.00	89.94	179.09	8,037.36	5,731.12 S	164.75 E	365,367.78	545,733.45	0.60	5,731.12	165.72	
13,675.00	91.54	180.28	8,036.13	5,826.10 S	165.27 E	365,272.80	545,733.97	2.10	5,826.10	36.63	
13,769.00	91.17	180.71	8,033.91	5,920.07 S	164.46 E	365,178.83	545,733.16	0.60	5,920.07	130.71	
13,863.00	89.57	182.01	8,033.30	6,014.04 S	162.23 E	365,084.86	545,730.93	2.19	6,014.04	140.90	
13,957.00	88.89	182.85	8,034.57	6,107.95 S	158.25 E	364,990.95	545,726.95	1.15	6,107.95	129.00	
14,052.00	90.80	183.30	8,034.82	6,202.80 S	153.15 E	364,896.10	545,721.85	2.07	6,202.80	13.26	
14,146.00	91.67	183.16	8,032.80	6,296.63 S	147.86 E	364,802.27	545,716.56	0.94	6,296.63	-9.14	
14,241.00	89.81	182.94	8,031.57	6,391.49 S	142.80 E	364,707.41	545,711.50	1.97	6,391.49	-173.25	
14,336.00	89.07	182.96	8,032.50	6,486.36 S	137.91 E	364,612.54	545,706.61	0.78	6,486.36	178.45	
14,431.00	87.77	183.00	8,035.12	6,581.19 S	132.98 E	364,517.71	545,701.68	1.37	6,581.19	178.24	
14,525.00	86.42	182.75	8,039.88	6,674.95 S	128.27 E	364,423.95	545,696.97	1.46	6,674.95	-169.53	
14,620.00	85.74	181.71	8,046.38	6,769.65 S	124.58 E	364,329.25	545,693.28	1.31	6,769.65	-123.27	
14,714.00	84.00	180.13	8,054.78	6,863.26 S	123.07 E	364,235.64	545,691.77	2.50	6,863.26	-137.94	
14,784.00	83.13	179.94	8,062.63	6,932.81 S	123.03 E	364,166.09	545,691.73	1.27	6,932.81	-167.77	Last MWD Survey - 14784.00' MD
14,848.00	83.13	179.94	8,070.28	6,996.35 S	123.10 E	364,102.55	545,691.80	0.00	6,996.35	0.00	Projection to TD - 14848.00' MD

Design Report for WCA 9H - Actual

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
14,784.00	8,062.63	-6,932.81	123.03	Last MWD Survey - 14784.00' MD
14,848.00	8,070.28	-6,996.35	123.10	Projection to TD - 14848.00' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
136.00	14,784.00	HAL MWD	MWD
14,848.00	14,848.00	Projection to TD	Blind (OWSG)

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (°)	+N/-S (°)	+E/-W (°)	Northing (°)	Easting (°)	Latitude	Longitude
- hit/miss target									
- Shape									
()									

Directional Difficulty Index

Average Dogleg over Survey:	1.69 °/100usft	Maximum Dogleg over Survey:	14.95 °/100usft at 7,800.00 usft
Net Tortosity applicable to Plans:	0.25 °/100usft	Directional Difficulty Index:	6.512

Audit Info

North Reference Sheet for Cottonwood 29-32 Fed - WCA 9H - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GE 3433 + 22' KB @ 3455.00usft (22' KB). Northing and Easting are relative to WCA 9H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 104° 20' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 0° 0' 0.000 N°

False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99990911

Grid Coordinates of Well: 371,098.90 usft N, 545,568.70 usft E

Geographical Coordinates of Well: 32° 01' 12.83" N, 104° 19' 10.85" W

Grid Convergence at Surface is: 0.01°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,848.00usft
the Bottom Hole Displacement is 6,997.44usft in the Direction of 178.99° (Grid).

Magnetic Convergence at surface is: -7.28° (1 May 2018, , BGGM2017)

