

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**Michelle Lujan Grisham**  
Governor

**Sarah Cottrell Propst**  
Cabinet Secretary

**Todd E. Leahy, JD, PhD**  
Deputy Secretary

**Adrienne Sandoval**, Division Director  
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

**Operator Signature Date:** 7/23/2020

**Operator:** Coleman Oil & Gas **Well Name and Number:** Carson 32-5-21 #1

**API#:** 30-039-31399 , **Section:** 21 **Township:** 32N, **Range:** 5 W

Conditions of Approval: (See the below checked and handwritten conditions)

☒ Notify appropriate OCD district office 24hrs prior to casing & cement.

☒ If cement doesn't circulate on any casing string or stage tool a CBL will be required. Contact the regulatory agencies prior to proceeding.

☒ Hold C-104 for directional survey & "As Drilled" Plat

☒ Hold C-104 for: ☐ NSL, ☐ NSP, ☐ DHC, ☒ 5.9 Compliance

☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned

☒ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:

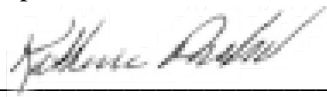
- A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
- A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
- A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C

☒ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the freshwater zone or zones and shall immediately set in cement the water protection string

☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

  
\_\_\_\_\_  
NMOCD Approved by Signature

11/2/2020

\_\_\_\_\_  
Date

Coleman Oil and Gas is out of compliance with NMAC 19.15.5.9 Financial assurance please contact the NMOCD Compliance Bureau (Daniel Sanchez) in the Santa Fe office.

**\*\*FILE A SUNDRY FOR NAME CHANGE ADDING THE LETTER H AFTER THE WELL #.**

9/30/20

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No. <b>NMNM130342</b> 6. If Indian, Allottee or Tribe Name  7. If Unit or CA Agreement, Name and No.  8. Lease Name and Well No.  <b>CARSON 32-5-21</b> <b>1 H</b> 9. API Well No. <b>30-039-31399</b>
2. Name of Operator <b>COLEMAN OIL &amp; GAS INCORPORATED</b> 3a. Address <b>PO BOX 3337, FARMINGTON, NM 87499</b> 3b. Phone No. (include area code) <b>(505) 330-2903</b>		10. Field and Pool, or Exploratory <b>BASIN FRUITLAND COAL/FRUITLAND C</b> 11. Sec., T. R. M. or Blk. and Survey or Area <b>SEC 21/T32N/R5W/NMP</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface <b>SESW / 933 FSL / 1524 FWL / LAT 36.9610825 / LONG -107.3715676</b> At proposed prod. zone <b>NENW / 660 FNL / 1369 FWL / LAT 36.9711979 / LONG -107.3721303</b>		12. County or Parish <b>RIO ARRIBA</b> 13. State <b>NM</b>
14. Distance in miles and direction from nearest town or post office* <b>17 miles</b>		15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>209 feet</b> 16. No of acres in lease <b>160</b> 17. Spacing Unit dedicated to this well <b>320.0</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>362 feet</b> 19. Proposed Depth <b>3590 feet / 7598 feet</b> 20. BLM/BIA Bond No. in file <b>FED: NMB001509</b>		21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>6982 feet</b> 22. Approximate date work will start* <b>10/01/2020</b> 23. Estimated duration <b>90 days</b>
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |   |   |
|---|---|
| 1. Well plat certified by a registered surveyor.<br>2. A Drilling Plan.<br>3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).<br>5. Operator certification.<br>6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature (Electronic Submission)	Name (Printed/Typed) <b>BRIAN WOOD / Ph: (505) 330-2903</b>	Date <b>07/23/2020</b>
Title <b>President</b>		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) <b>Dave Mankiewicz / Ph: (505) 564-7761</b>	Date <b>09/22/2020</b>
Title <b>AFM-Minerals</b>		

Application approval 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.  
Conditions of approval, if any, are attached.

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.



DISTRICT I  
1825 N. French Dr., Hobbs, N.M. 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, N.M. 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III  
1000 Rio Brazos Rd., Aztec, N.M. 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, N.M. 87505  
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico  
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, N.M. 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-039-31399</b>	<sup>2</sup> Pool Code <b>71629</b>	<sup>3</sup> Pool Name <b>BASIN FRUITLAND COAL</b>
<sup>4</sup> Property Code <b>329781</b>	<sup>5</sup> Property Name <b>CARSON 32-5-21</b>	<sup>6</sup> Well Number <b>I H</b>
<sup>7</sup> OGRID No. <b>4838</b>	<sup>8</sup> Operator Name <b>COLEMAN OIL &amp; GAS, INC.</b>	<sup>9</sup> Elevation <b>6982</b>

<sup>10</sup> Surface Location

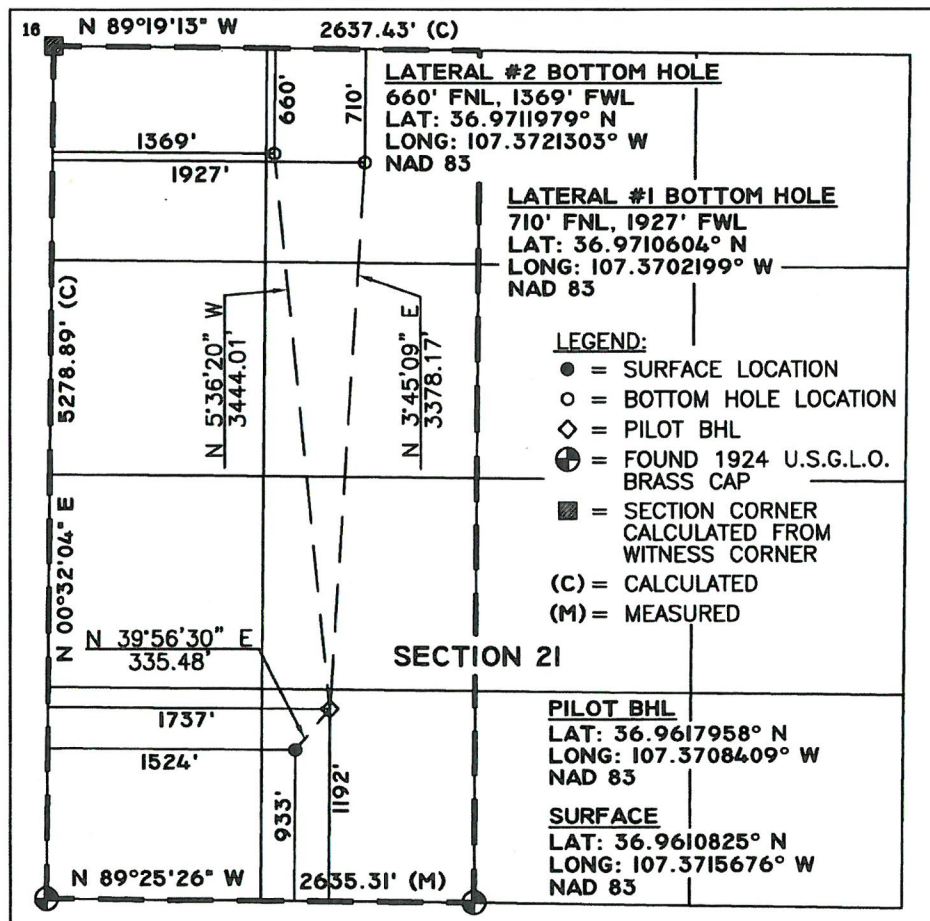
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	21	32 N	5 W		933	SOUTH	1524	WEST	RIO ARriba

<sup>11</sup> 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
N	21	32 N	5 W		1192	SOUTH	1737	WEST	RIO ARriba
C	21	32 N	5 W		710	NORTH	1927	WEST	RIO ARriba
C	21	32 N	5 W		660	NORTH	1369	WEST	RIO ARriba

<sup>12</sup> Dedicated Acres <b>320 (W/2)</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> 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 Michael J. Hanson Date 11/2/2020  
Printed Name Michael J. Hanson  
E-mail Address mhanson@ecog-law.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.

05/17/19

Date of Survey  
Plat Revised: 10/05/20  
Signature and Seal of Professional Surveyor

MICHAEL W. LINDEN  
NEW MEXICO  
17078  
10-5-20  
PROFESSIONAL SURVEYOR  
17078  
Certificate Number  
United Field Services, Inc. / Proj-#10022



# Application for Permit to Drill Drilling Plan

## COLEMAN OIL & GAS

### Carson 32-5-21 1H

Vertical Pilot Hole

Surface Hole Location: 933' FSL & 1524' FWL

Section 21, T32N, R5W

Proposed GL Elevation = 6982'

Lat. = 36.9610825° N

Long. = 107.3715676° W

NAD 83

Rio Arriba, New Mexico

Proposed Top of Production Location (Pilot): 988' FSL – 1703' FWL

Proposed Bottom Hole Location (Pilot): 1192' FSL – 1737' FWL

Proposed KOP (Lateral #1): 809' FSL – 1672' FWL

Proposed Landing (Lateral #1) 1143' FSL – 1804' FWL

Proposed Bottom Hole Location (Lateral #1): 710' FNL – 1927' FWL

Proposed KOP (Lateral #2): 799' FSL – 1670' FWL

Proposed Landing (Lateral #2) 1147' FSL – 1585' FWL

Proposed Bottom Hole Location (Lateral #2): 660' FNL – 1369' FWL

Section 21, T32N, R5W

Rio Arriba, New Mexico

Drilling program written in compliance with onshore Oil and Gas Order No. 1  
(III.D.3, effective May 2007) and Onshore Order No. 2 Dated November 18, 1988

#### A. Names and estimated tops of all geologic groups, formations, members or zones.

APD	Top MD (KB)	Top TVD (KB)	Top Subsea TVD	Thickness (FT)	Rock Type	Drilling Notes
San Jose	Surface	Surface	6996	1120	Unconsolidated Gravels	Boulders, Water, Lost Circulation
Nacimiento	1159	1120	5876	1780	Nonmarine shale, siltstone and sandstones	Water, Lost Circulation
Ojo Alamo	3046	2900	4096	120	Conglomerate sandstone, sandstone, siltstone and	Water, Possible Gas, Lost Circulation
Kirtland	3180	3020	3976	530	Claystone and white and brown sandstones	Clay, Water
Fruitland	3848	3550	3446	85	Mudstone, siltstone, sandstones, carbonaceous shales and coals	Gas Water
Main Fruitland Coal	3959	3635	3361	77	Target Coal 25' Top 3635	HZ Lateral
Bottom Coal	4060	3712	3284	8	Coal	Gas Water
Pictured Cliffs	4070	3720	3276	181	Shoreface sandstone	Gas Water
TD	4288	3901	3095	3901	TD Designed From Base of Bottom Coal Seam with 130 ft rathole +	

#### B. Estimated depth and thickness of formations, members or zones potentially containing useable water, oil, gas or prospectively valuable deposits of other minerals that the operator expects to encounter, and the operator's plans for protecting such resources.

APD	Top MD (KB)	Top TVD (KB)	Top Subsea TVD	Thickness (FT)	Rock Type	Drilling Notes
San Jose	Surface	Surface	6996	1120	Unconsolidated Gravels	Boulders, Water, Lost Circulation
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Kirtland	3180	3020	3976	530	Claystone and white and brown sandstones	Clay, Water
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TD	4288	3901	3095	3901	TD Designed From Base of Bottom Coal Seam with 130 ft rathole +	

**Conductor:** No conductor casing is necessary

**Surface Casing:** Protection of shallow fresh water shall be accomplished by setting surface casing 50' below known fresh water sources and cemented to surface with 9-5/8" surface casing.

**Possible Aquifers:** San Jose, Nacimiento and Ojo Alamo

**Production Casing:** Protection for all other formations will be accomplished by setting 7" casing and cementing to surface. The 7" production casing will be matrix stimulated prior to re-entry for the lateral open hole sections. Same as Completion procedure on page 7 and Horizontal Re-Entry Procedure page 8.

Not planning on hydraulic fracture treatment – perforate with near wellbore matrix acid clean up, cement drilling fluids damage.

**Production Liners:** Will be pre-perforated, uncemented, unstimulated liners to maintain hole stability.

**C. The operator's minimum specifications for blowout prevention equipment and diverter systems to be used, including size, pressure rating, configuration and the testing procedure and frequency. Blowout prevention equipment must meet the minimum standards outlined in Order 2.**

BOP equipment and accessories will meet or exceed BLM requirements outlined in 43 CFR Part 3160.

The working pressure of all BOPE shall exceed the anticipated surface pressure to which it may be subjected, assuming a partially evacuated hole with a pressure gradient of 0.22 psi/ft.

Expected Maximum Bottom Hole pressure =  $0.433 \text{ psi/ft.} \times 3900' = 1689 \text{ psi}$ , which is less than 2,000 psi working pressure. Maximum anticipated surface pressure will be  $1689 \text{ psi} - (3900' \times 0.22 \text{ psi/ft}) = 831 \text{ psi}$ . Therefore, a 2000 psi Class 2 BOPE system is required that consists of the following:

- 2 preventers with either double ram (blind and pipe) or annular preventer and blind rams.
- Kill line (2" minimum)
- 1 Kill line valve (2" minimum)
- 1 choke line valve
- 2 chokes (refer to diagram in Attachment 1)
- Upper Kelly cock valve with handle available
- Safety valve and subs to fit all drill strings in use

- Pressure gauge on choke manifold
- 2" minimum choke manifold
- Fill-up line above the uppermost preventer

See attached diagram for the proposed BOP systems. Stack #1 will be nipped-up on the 11" 3,000 psi top flange of the wellhead A section for the pilot hole and the dual lateral re-entry. The BOP will be hydraulically operated.

All ram preventers and related equipment will be tested to 2,000 psi for 10 minutes. Annular preventers will be tested to 70% of rated working pressure for 10 minutes. Surface casing will be tested to 1500 psi. All preventers and surface casing will be tested before drilling out of surface casing. BOP equipment will be tested when initially installed, whenever any seal subject to test pressure is broken, following related repairs and at least once every 30 days. Annular preventers will be functionally operated at least once per week. Rams preventers will be activated each trip, not to exceed once per day.

- D. The operator's proposed casing program, including size, grade, weight, type of thread and coupling, the setting depth of each string, and it's condition. The operator must include the minimum design criteria, including casing loading assumptions and corresponding safety factors for burst, collapse, and tensions (body yield and joint strength). The operator must also include the lengths and setting depth of each casing when a tapered casing string is proposed. The hole size for each wellbore section of hole drilled must be included. Special casing designs such as the use of coil tubing or expandable casing may necessitate additional information.**

Casing & Hole Size	Grade	Weight	Coupling	Setting Depth (MD)	Condition
9-5/8" (12-1/4")	J-55	36 ppf	LT&C	0' - 300'	New casing.
7" (8-3/4")	J-55	26 ppf	LT&C	0' - 4288'	New casing.
4-1/2" (6-1/8") Lateral #1	J-55	11.6 ppf	LT&C	3690'-7540'	Used casing. 10' below window TD
4-1/2" (6-1/8") Lateral #2	J-55	11.6 ppf	LT&C	3675'-7593'	Used casing. 10' below window TD

The 9-5/8" surface and 7" production casing strings will be tested to .22 psi per foot of the casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield. The 4-1/2" pre-perforated production casing liners will be uncemented, unstimulated and not tested. The purpose of the 4-1/2" liner is to keep the hole from collapsing. Isolation for the 4-3/4" laterals will be maintained by the cased and cemented pilot hole with 7" casing and cement to surface.

Minimum casing design factors used:

Collapse -	1.0
Burst -	1.1
Tension -	1.4

Surface casing shall have a minimum of 1 centralizer per joint on the bottom three (3) joints, starting with the shoe joint. The 7" production casing will be centralized approximately 1 every fourth joint.

**Surface Casing Design - Evaluation/Casing Test (Collapse & Burst), 100k overpull (Tension)**

Minimum Safety Factors				Collapse	Burst	Tension			
				1.125	1.100	1.400			
Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)	Notes	
Surface	9.625	36	J-55	LT&C	2020	3520	546000	453,000	0-300'
80% of Burst					2816				
Casing Depth			MW IN	MW Out		Pres In	Pres Out	SF	
Collapse	300		0.0	15.8		0	246	8.20	Full evacuation with 15.8 ppg cement in the annulus
Burst	300		9.0	0.0		1500	0	2.35	1500 psig test
			Mud Wt	Air Weight		Bouy Wt	BW+100K		
Tension (Pipe Body)	300		9.0	10800		9316	109316	4.99	100K overpull
Tension (Connection)	300		9.0	10800		9316	109316	4.14	
BF = 1-MW/65.5= 0.84732									

**Production Casing Design - Evaluation/Casing Test (Collapse & Burst), 100k overpull (Tension)**

			Minimum Safety Factors			Collapse	Burst	Tension		
						1.125	1.100	1.400		
	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)	Notes	
Production	7	26	J-55	LT&C	4320	4980	415000	367,000	0-4288'	
80% of Burst						3984				
	Casing Depth		MW IN		MW Out		Pres In	Pres Out	SF	
Collapse	4288		0.0		13.5		0	3010	1.44	Full evacuation with 15.8 ppg cement in the annulus
Burst	4288		10.0		0.0		1500	0	3.32	1500 psig test
			Mud Wt	Air Weight		Bouy Wt	BW+100K			
Tension (Pipe Body)	4288		10.0	111488		94467	194467	2.13	100K overpull	
Tension (Connection)	4288		10.0	111488		94467	194467	1.89		
BF = 1-MW/65.5= 0.84732										

- E. The estimated amount and type(s) of cement expected to be used in the setting of each casing string. If stage cementing will be used, provide the setting depth of the stage tool(s) and the amount and type of cement including additives, to be used for each stage. Provide the yield of each cement slurry and the expected top of cement, with excess, for each cemented string or stage.**

The proposed cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. All indications of useable water shall be reported.

The 9-5/8" surface casing shall be cemented back to surface. In the event cement does not circulate to surface, remedial cementing shall be done to cement the casing back to surface. If returns are lost and/or cement is not brought to surface, a cement bond log (CBL) will be required to determine the quality of the job prior to drilling ahead (see OO2).

Top plugs shall be used to reduce contamination of cement by displacement fluid. A fluid spacer will be pumped to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

The 7" production casing will be cemented to surface. Tail cement for the 7" production casing cement job is designed to cover 500' above the Fruitland formation top, lead cement is designed to be circulate to surface. Planned excess is 30% in the open hole, excess volume approximately 33 bbls. The 4-1/2" production liners will be uncemented.

**Surface Casing Single Stage Job – (0-300' MD):****Excess – 100% over gauge hole – 12-1/4" hole and 9-5/8" casing (0.31318 ft3/ft)****Top of Tail Cement - 0'****Tail Slurry - (0' – 300' MD): 177 sx** - 15.8 ppg, conventional cement containing:

PREMIUM CEMENT – Cement – 94 lbs/sx

Calcium Chloride - 2%

Poly-E-Flake – Lost Circulation Control Agent – 0.125 lbs/sx

Yield – 1.174 ft3/sx

Water requirement – 5.13 gal/sx.

**Total sacks of cement pumped on surface job = 177 sx****Production Casing Single Stage Job – (0-4288' MD):****Excess – 30% over gauge hole – 8-3/4" hole and 7" casing (0.1503 ft3/ft)****Excess - 0% inside surface casing – 8.921" surf csg ID and 7" casing (0.1668 ft3/ft)****Top of Lead Cement - Surface****Lead Slurry - (0' – 3300' MD): 235 sx** - 12.3 ppg, conventional cement containing:

VARICEM™ CEMENT – Cement – 94.02 lbs/sx

FE-2 – Controls Gel Thickening – 0.30%

Kol-Seal – Lost Circulation Control Agent – 5 lbs/sx

Poly-E-Flake – Lost Circulation Control Agent – 0.125 lbs/sx

Yield – 2.395 ft3/sx

Water requirement – 13.29 gal/sx.

**Top of Tail Cement - 3300' MD****Tail Slurry - (3300' – 4288'): 150 sx** - 13.5 ppg, conventional cement containing:

VARICEM™ CEMENT – Cement – 94.02 lbs/sx

Super CBL - Gas Block Additive - 0.30%

FE-2 – Controls Gel Thickening – 0.30%

Kol-Seal – Lost Circulation Control Agent – 5 lbs/sx

Poly-E-Flake – Lost Circulation Control Agent – 0.125 lbs/sx

Yield – 1.844 ft3/sx

Water requirement – 9.16 gal/sx.

**Total sacks of cement pumped on production job = 385 sx**

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and COGCC requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on selected slurries.

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

- F. Type and characteristics of the proposed circulating medium or mediums proposed for the drilling of each well bore section, the quantities and types of mud and weighting material to be maintained, and the monitoring equipment to be used on the circulating system. The operator must submit the detailed information when air or gas drill is proposed.**

Interval (MD)	Hole Section	Hole Size	Type	MW (ppg)	VIS (s/qt)	FL (mL/30 min)	PV (cP)	YP (lbs/100ft <sup>2</sup> )	Max Salinity (mg/L)	pH
0'-300'	Surface	12-1/4"	FW/Gel	8.4-9.0	~100	NC	16-22	18-24	2500	8-8.9
300'-4288'	Production	8-3/4"	LSND	8.4-9.0	35-45	<10	6-21	4-27	5000	8-9.5
3690'-7540'	Lat #1	6-1/8"	Brine	8.6-9.8	28-34	NC	1	4	300000	8-9.1
3675'-7593'	Lat #2	6-1/8"	Brine	8.6-9.8	28-34	NC	1	4	300000	8-9.1

Sufficient weighting material will be on hand to weight mud up to 10.5 PPG, if required.



The formula for weight up with barite is listed below:

Sacks of Barite per 100 bbl of mud =  $1470 \times (W2 - W1) \div (35 - W2)$

Where; W1 = current mud weight, W2 = new mud weight

**Sacks =  $1470 \times (10.5 - 9.0) / (35 - 10.5) = 126 \text{ sx} \times 3 \text{ (300bbls minimum)} = 270\text{sx}$**

Mud Product	Estimated Quantity on Location
Baroid 41	270 sx
Aquagel Gold Seal	250 sx
Lime	4 sx
Caustic Soda	8 sx
EZ-Mud	20 buckets
Barazan D Plus	20 sx
Pac R	20 sx
Filter-Chek	30 sx
LCM	120 sx

Pit Volume Totalizer (PVT) equipment (or equivalent) will be on each pit to monitor pit levels. A trip tank equipped with a PVT sensor will be used to monitor trip volumes. Possible lost circulation in the Fruitland Coal and Pictured Cliffs Sand. Lost circulation has been successfully mitigated with lost circulation materials.

There will not be a reserve pit for this well. A closed-loop system will be used to recover drilling fluid and dry cuttings during both the pilot hole and laterals hole sections of the well. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. Frac tanks will be on location to store fresh water, produced water, drilling mud and brine.

**G. The testing, logging, and coring procedures proposed, including drill stem testing procedures, equipment, and safety measures.**

**Testing:** None planned.

**Open Hole Logging:** LWD gamma ray for all lateral hole sections (from casing exit to TD).

**Mud Logging:** All lateral hole sections. Samples taken every 90'.

**Coring:** None planned.

**Cased Hole Logging:** If cement is not brought to surface on the surface casing string, then a cement bond log (CBL) will be run to determine the quality of the job prior to drilling ahead. A Cement Bond Log (CBL) will be run after the drilling of the well has been completed and as the start of the completion process. The CBL will confirm the quality of the cement bond and the actual TOC. Gamma ray and density logs may be obtained with the CBL to describe the stratigraphy of the wellbore.

**H. The expected bottom-hole pressure and any anticipated abnormal pressures, temperatures, or potential hazards that the operator expects to encounter, such as lost circulation and hydrogen sulfide. A description or the operators plans for mitigating such hazards must be included.**

Maximum expected BHP @ TD 4288' MD / 3900' TVD (0.433 psi/ft): 1689 psi

Maximum expected BHT @ 3900' TVD: ~135° F

The maximum anticipated bottom hole pressure will be controlled with mud weight and BOP equipment.

Possible lost circulation in the Fruitland Coal at 4959 MD and Pictured Cliffs Sand at 4070' MD during the pilot hole drilling. Lost circulation has been successfully mitigated with lost circulation materials. 120sx of LCM materials will be located onsite to manage lost circulation as needed. Possible lost circulation during the lateral re-entry hole sections. Drilling with losses will be mitigated with additional storage tanks for produced water and brine storage.

No hydrogen sulfide gas is anticipated, however, if H<sub>2</sub>S is encountered, the guidelines in Onshore Order No. 6 will be followed.

**I. Any other facets of the proposed operation that the operator would like the BLM to considered in reviewing the application. Examples include, but are not limited to: For directional wells, proposed directional designs, plan view, and vertical section in true vertical and measured depths: Horizontal drilling; and Coil tubing Operations.**

**Timing:**

The operation is expected to start October 2020. The pilot hole drilling operations will last approximately 7 days. After the pilot hole has been perforated and acid stimulated the drilling rig will re-enter the 7" production casing, set whipstock(s), sidetrack and drill the 6-1/8" lateral hole sections. The pilot hole and laterals may be drilled in one drilling rig event. Upon completion of the drilling and completion events, the completion rig will be on location approximately two to three weeks to run tubing and set artificial lift.

**Directional Plans:**

Pilot hole, Lateral #1, Lateral #2 directional plans and proposed wellbore schematic attached.

**Completion:**

The vertical pilot hole well will be perforated, and acid stimulated to the economic coal seams, identified by cased hole logs, within the Fruitland coal interval estimated from 3959'-3984' MD. It will be cased and cementing with 7" production casing and stimulated with a small volume of acid to ensure perforations are open. The laterals will be cased with 4-1/2" pre-perforated un-cemented tubing to maintain hole stability for natural open hole completion.

**Horizontal Re-entry Procedure:**

- Drill vertical pilot hole.
- Completed with 7" production casing and cement to surface.
- Pilot hole will be perforated and may be stimulated with a light acid treatment in the Fruitland Coal.
- Run gyro survey, orient and set whipstock for casing exit #1 @ +/-3685' MD
- Mill window and TOOH for curve BHA.
- Planned KOP #1 @ 3685' MD / 3425' TVD.
- Drill 6-1/8" curve from 3685' MD / 3425' TVD to landing point @ 4097' MD / 3595' TVD at 90°.
- TOOH and PU lateral BHA.
- Drill from 4097' MD / 3595' TVD to 7545' MD / 3595' TVD.
- TOOH and run 4-1/2" pre-perforated liner from 3690' MD to TD @ 7540' MD
- Run gyro survey, orient and set whipstock for casing exit #2 @ +/-3670' MD
- Mill window and TOOH for curve BHA.
- Planned KOP #2 @ 3670' MD / 3413' TVD.
- Drill 6-1/8" curve from 3670' MD / 3413' TVD to landing point @ 4088' MD / 3590' TVD at 90°.
- TOOH and PU lateral BHA.
- Drill from 4088' MD / 3590' TVD to 7598' MD / 3590' TVD.
- TOOH and run 4-1/2" pre-perforated liner from 3675' MD to TD @ 7593' MD.
- TIH and Set Retrievable Kill Plug.
- Test Plug.
- Secure well, rig down and move off location.

NOTE: Depths and directional plans are based on estimated formation tops. Corrections for KOP and landing points will be made based on actual formation tops from logs and BHA selection.



Company: Coleman Oil & Gas Inc.  
Project: Rio Arriba County, NM  
Site: Carson 32-5-21  
Well: Carson 32-5-21 #1  
Wellbore: Lateral #1  
Design: Plan #2

PROJECT DETAILS: Rio Arriba County, NM

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



WELL DETAILS: Carson 32-5-21 #1

GL 6981' & KB 15' @ 6996.00usft  
+N/-S +E/-W Northing Easting Latitude Longitude  
0.00 0.00 2171056.61 1312742.59 36.9610825 -107.3715676

Plan: Plan #2 (Carson 32-5-21 #1/Lateral #1)

Created By: Janie Collins Date: 13:26, July 20 2020



Azimuths to True North  
Magnetic North: 8.99°

Magnetic Field  
Strength: 50062.6nT  
Dip Angle: 63.57°  
Date: 12/31/2017  
Model: BGGM2016

DESIGN TARGET DETAILS

SECTION DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carson 32-5-21 1H PBHL	3595.00	3633.01	393.88	2174684.73	1313179.20	36.9710604	-107.3702194

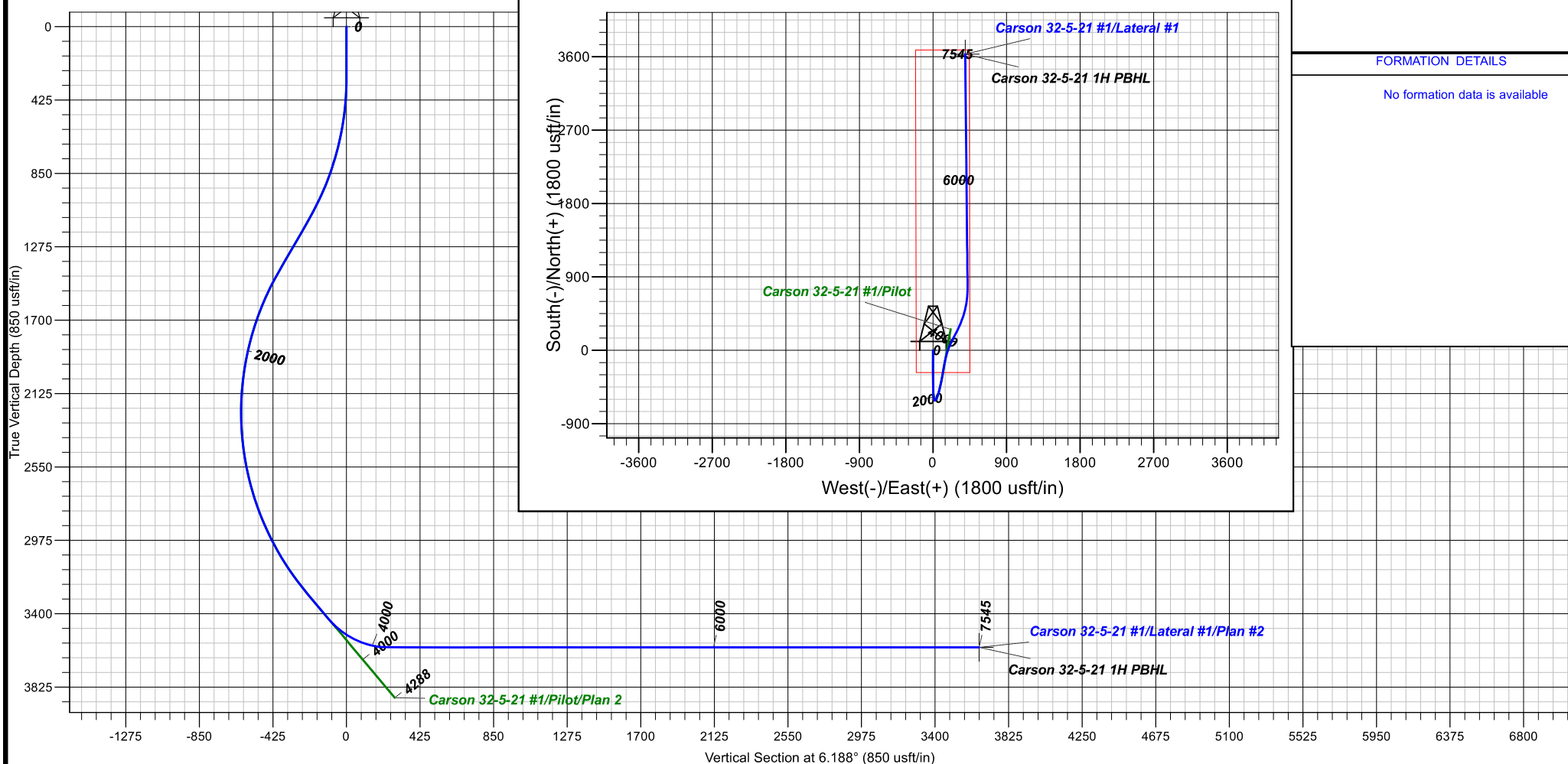
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3685.32	40.00	10.000	3425.07	-124.50	148.08	0.00	0.00	-107.82	
4097.44	90.00	28.900	3595.00	210.12	280.04	12.75	24.08	239.08	
4687.00	90.00	359.422	3595.00	775.48	422.69	5.00	-90.00	816.52	
7544.67	90.00	359.422	3595.00	3633.01	393.88	0.00	0.00	3654.30	Carson 32-5-21 1H PBHL

CASING DETAILS

No casing data is available

FORMATION DETAILS

No formation data is available





# **Coleman Oil & Gas Inc.**

**Rio Arriba County, NM**

**Carson 32-5-21**

**Carson 32-5-21 #1**

**Lateral #1**

**Plan: Plan #2**

## **Standard Planning Report**

**20 July, 2020**





<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #2		

<b>Project</b>	Rio Arriba County, NM		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	Carson 32-5-21, Site Center: Carson 32-5-21 #1			
<b>Site Position:</b>		<b>Northing:</b>	2,171,056.61 usft	<b>Latitude:</b> 36.9610825
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,312,742.59 usft	<b>Longitude:</b> -107.3715676
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -0.67 °

<b>Well</b>	Carson 32-5-21 #1, 933' FSL 1524' FWL Sec 21 T32N R5W			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	2,171,056.61 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,312,742.59 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,981.00 usft

<b>Wellbore</b>	Lateral #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	12/31/2017	8.99	63.57	50,062.62361342

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	3,685.32
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	6.188

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
3,685.32	40.00	10.000	3,425.07	-124.50	148.08	0.00	0.00	0.00	0.00	
4,097.44	90.00	28.900	3,595.00	210.12	280.04	12.75	12.13	4.59	24.08	
4,687.00	90.00	359.422	3,595.00	775.48	422.69	5.00	0.00	-5.00	-90.00	
7,544.67	90.00	359.422	3,595.00	3,633.01	393.88	0.00	0.00	0.00	0.00	Carson 32-5-21 1H PI





<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #2		

Planned 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)	
3,685.32	40.00	10.000	3,425.07	-124.50	148.08	-107.82	0.00	0.00	0.00	
3,700.00	41.71	11.148	3,436.17	-115.07	149.84	-98.24	12.75	11.68	7.82	
3,800.00	53.62	17.350	3,503.43	-43.70	168.35	-25.30	12.75	11.91	6.20	
3,900.00	65.77	21.872	3,553.81	37.37	197.46	58.43	12.75	12.14	4.52	
4,000.00	78.02	25.593	3,584.84	124.15	235.74	148.84	12.75	12.25	3.72	
4,097.44	90.00	28.900	3,595.00	210.12	280.04	239.08	12.75	12.30	3.39	
4,100.00	90.00	28.772	3,595.00	212.37	281.28	241.45	5.00	0.00	-5.00	
4,200.00	90.00	23.772	3,595.00	302.01	325.53	335.33	5.00	0.00	-5.00	
4,300.00	90.00	18.772	3,595.00	395.16	361.79	431.86	5.00	0.00	-5.00	
4,400.00	90.00	13.772	3,595.00	491.13	389.81	530.28	5.00	0.00	-5.00	
4,500.00	90.00	8.772	3,595.00	589.17	409.35	629.86	5.00	0.00	-5.00	
4,600.00	90.00	3.772	3,595.00	688.54	420.27	729.83	5.00	0.00	-5.00	
4,687.00	90.00	359.422	3,595.00	775.48	422.69	816.52	5.00	0.00	-5.00	
4,700.00	90.00	359.422	3,595.00	788.48	422.56	829.43	0.00	0.00	0.00	
4,800.00	90.00	359.422	3,595.00	888.48	421.55	928.74	0.00	0.00	0.00	
4,900.00	90.00	359.422	3,595.00	988.47	420.54	1,028.04	0.00	0.00	0.00	
5,000.00	90.00	359.422	3,595.00	1,088.47	419.54	1,127.35	0.00	0.00	0.00	
5,100.00	90.00	359.422	3,595.00	1,188.46	418.53	1,226.65	0.00	0.00	0.00	
5,200.00	90.00	359.422	3,595.00	1,288.46	417.52	1,325.95	0.00	0.00	0.00	
5,300.00	90.00	359.422	3,595.00	1,388.45	416.51	1,425.26	0.00	0.00	0.00	
5,400.00	90.00	359.422	3,595.00	1,488.45	415.50	1,524.56	0.00	0.00	0.00	
5,500.00	90.00	359.422	3,595.00	1,588.44	414.49	1,623.86	0.00	0.00	0.00	
5,600.00	90.00	359.422	3,595.00	1,688.44	413.49	1,723.17	0.00	0.00	0.00	
5,700.00	90.00	359.422	3,595.00	1,788.43	412.48	1,822.47	0.00	0.00	0.00	
5,800.00	90.00	359.422	3,595.00	1,888.43	411.47	1,921.78	0.00	0.00	0.00	
5,900.00	90.00	359.422	3,595.00	1,988.42	410.46	2,021.08	0.00	0.00	0.00	
6,000.00	90.00	359.422	3,595.00	2,088.42	409.45	2,120.38	0.00	0.00	0.00	
6,100.00	90.00	359.422	3,595.00	2,188.41	408.44	2,219.69	0.00	0.00	0.00	
6,200.00	90.00	359.422	3,595.00	2,288.41	407.44	2,318.99	0.00	0.00	0.00	
6,300.00	90.00	359.422	3,595.00	2,388.40	406.43	2,418.29	0.00	0.00	0.00	
6,400.00	90.00	359.422	3,595.00	2,488.40	405.42	2,517.60	0.00	0.00	0.00	
6,500.00	90.00	359.422	3,595.00	2,588.39	404.41	2,616.90	0.00	0.00	0.00	
6,600.00	90.00	359.422	3,595.00	2,688.39	403.40	2,716.21	0.00	0.00	0.00	
6,700.00	90.00	359.422	3,595.00	2,788.38	402.39	2,815.51	0.00	0.00	0.00	
6,800.00	90.00	359.422	3,595.00	2,888.38	401.39	2,914.81	0.00	0.00	0.00	
6,900.00	90.00	359.422	3,595.00	2,988.37	400.38	3,014.12	0.00	0.00	0.00	
7,000.00	90.00	359.422	3,595.00	3,088.37	399.37	3,113.42	0.00	0.00	0.00	
7,100.00	90.00	359.422	3,595.00	3,188.36	398.36	3,212.72	0.00	0.00	0.00	
7,200.00	90.00	359.422	3,595.00	3,288.36	397.35	3,312.03	0.00	0.00	0.00	
7,300.00	90.00	359.422	3,595.00	3,388.35	396.35	3,411.33	0.00	0.00	0.00	
7,400.00	90.00	359.422	3,595.00	3,488.35	395.34	3,510.63	0.00	0.00	0.00	
7,500.00	90.00	359.422	3,595.00	3,588.34	394.33	3,609.94	0.00	0.00	0.00	
7,544.67	90.00	359.422	3,595.00	3,633.01	393.88	3,654.30	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape										
Carson 32-5-21 1H PBH	0.00	0.000	3,595.00	3,633.01	393.88	2,174,684.73	1,313,179.20	36.9710604		
- plan hits target center										
- Point										



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #2		



Company: Coleman Oil & Gas Inc.  
Project: Rio Arriba County, NM  
Site: Carson 32-5-21  
Well: Carson 32-5-21 #1  
Wellbore: Lateral #1  
Design: Plan #2

### PROJECT DETAILS: Rio Arriba County, NM

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



### WELL DETAILS: Carson 32-5-21 #1

GL 6981' & KB 15' @ 6996.00usft  
+N/-S +E/-W Northing Easting Latitude Longitude  
0.00 0.00 2171056.61 1312742.59 36.9610825 -107.3715676

Plan: Plan #2 (Carson 32-5-21 #1/Lateral #1)

Created By: Janie Collins Date: 13:26, July 20 2020



Azimuths to True North  
Magnetic North: 8.99°

Magnetic Field  
Strength: 50062.6nT  
Dip Angle: 63.57°  
Date: 12/31/2017  
Model: BGGM2016

### DESIGN TARGET DETAILS

### SECTION DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carson 32-5-21 1H PBHL	3595.00	3633.01	393.88	2174684.73	1313179.20	36.9710604	-107.3702194

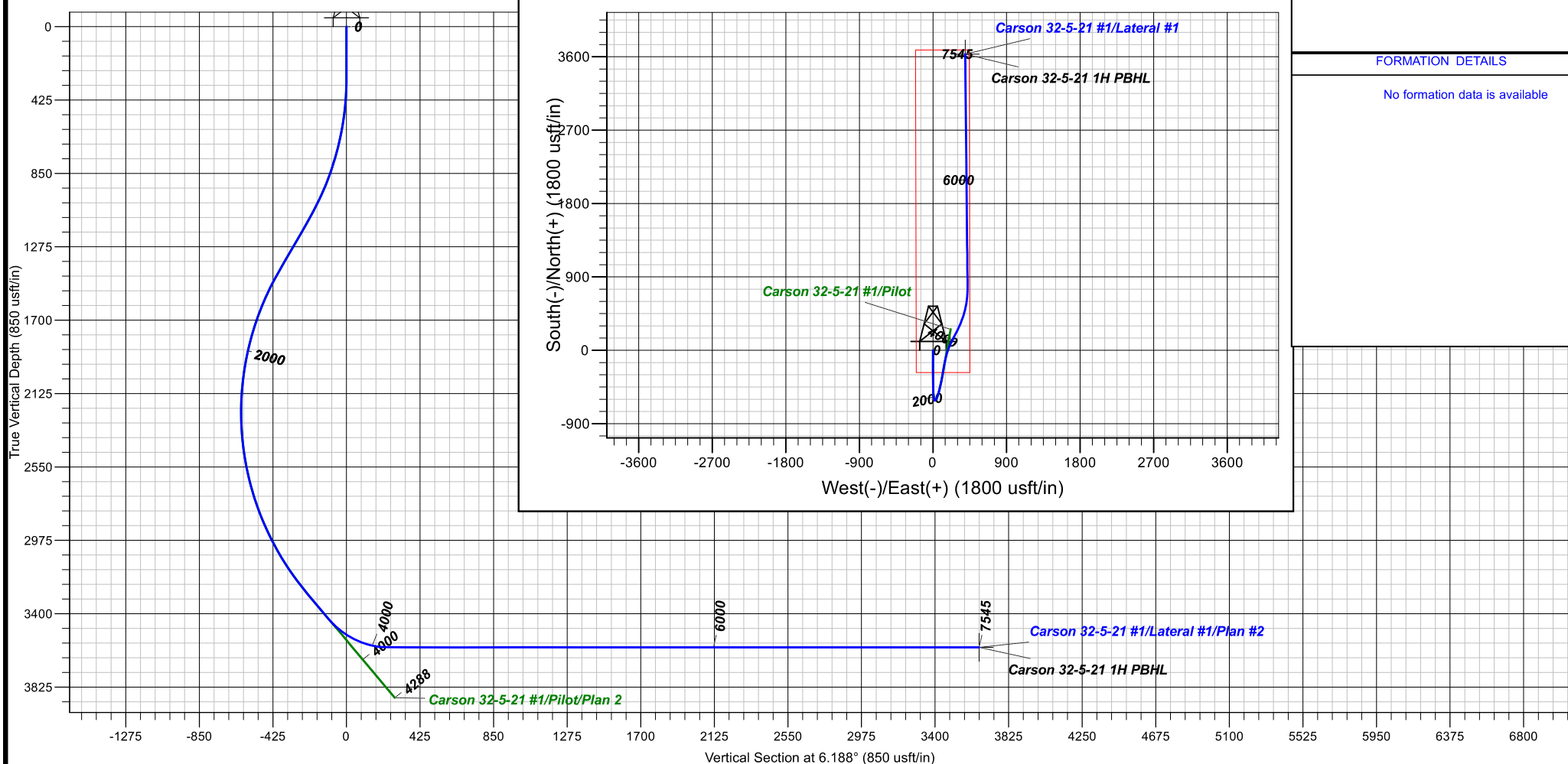
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3685.32	40.00	10.000	3425.07	-124.50	148.08	0.00	0.00	-107.82	
4097.44	90.00	28.900	3595.00	210.12	280.04	12.75	24.08	239.08	
4687.00	90.00	359.422	3595.00	775.48	422.69	5.00	-90.00	816.52	
7544.67	90.00	359.422	3595.00	3633.01	393.88	0.00	0.00	3654.30	Carson 32-5-21 1H PBHL

### CASING DETAILS

No casing data is available

### FORMATION DETAILS

No formation data is available





# **Coleman Oil & Gas Inc.**

**Rio Arriba County, NM**

**Carson 32-5-21**

**Carson 32-5-21 #1**

**Lateral #1**

**Plan: Plan #2**

## **Standard Planning Report**

**20 July, 2020**





<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #2		

<b>Project</b>	Rio Arriba County, NM		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	Carson 32-5-21, Site Center: Carson 32-5-21 #1			
<b>Site Position:</b>		<b>Northing:</b>	2,171,056.61 usft	<b>Latitude:</b> 36.9610825
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,312,742.59 usft	<b>Longitude:</b> -107.3715676
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -0.67 °

<b>Well</b>	Carson 32-5-21 #1, 933' FSL 1524' FWL Sec 21 T32N R5W			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	2,171,056.61 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,312,742.59 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	
			<b>Ground Level:</b>	6,981.00 usft

<b>Wellbore</b>	Lateral #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	12/31/2017	8.99	63.57	50,062.62361342

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	3,685.32
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	6.188

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
3,685.32	40.00	10.000	3,425.07	-124.50	148.08	0.00	0.00	0.00	0.00	
4,097.44	90.00	28.900	3,595.00	210.12	280.04	12.75	12.13	4.59	24.08	
4,687.00	90.00	359.422	3,595.00	775.48	422.69	5.00	0.00	-5.00	-90.00	
7,544.67	90.00	359.422	3,595.00	3,633.01	393.88	0.00	0.00	0.00	0.00	Carson 32-5-21 1H PI





<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #2		

Planned 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)	
3,685.32	40.00	10.000	3,425.07	-124.50	148.08	-107.82	0.00	0.00	0.00	
3,700.00	41.71	11.148	3,436.17	-115.07	149.84	-98.24	12.75	11.68	7.82	
3,800.00	53.62	17.350	3,503.43	-43.70	168.35	-25.30	12.75	11.91	6.20	
3,900.00	65.77	21.872	3,553.81	37.37	197.46	58.43	12.75	12.14	4.52	
4,000.00	78.02	25.593	3,584.84	124.15	235.74	148.84	12.75	12.25	3.72	
4,097.44	90.00	28.900	3,595.00	210.12	280.04	239.08	12.75	12.30	3.39	
4,100.00	90.00	28.772	3,595.00	212.37	281.28	241.45	5.00	0.00	-5.00	
4,200.00	90.00	23.772	3,595.00	302.01	325.53	335.33	5.00	0.00	-5.00	
4,300.00	90.00	18.772	3,595.00	395.16	361.79	431.86	5.00	0.00	-5.00	
4,400.00	90.00	13.772	3,595.00	491.13	389.81	530.28	5.00	0.00	-5.00	
4,500.00	90.00	8.772	3,595.00	589.17	409.35	629.86	5.00	0.00	-5.00	
4,600.00	90.00	3.772	3,595.00	688.54	420.27	729.83	5.00	0.00	-5.00	
4,687.00	90.00	359.422	3,595.00	775.48	422.69	816.52	5.00	0.00	-5.00	
4,700.00	90.00	359.422	3,595.00	788.48	422.56	829.43	0.00	0.00	0.00	
4,800.00	90.00	359.422	3,595.00	888.48	421.55	928.74	0.00	0.00	0.00	
4,900.00	90.00	359.422	3,595.00	988.47	420.54	1,028.04	0.00	0.00	0.00	
5,000.00	90.00	359.422	3,595.00	1,088.47	419.54	1,127.35	0.00	0.00	0.00	
5,100.00	90.00	359.422	3,595.00	1,188.46	418.53	1,226.65	0.00	0.00	0.00	
5,200.00	90.00	359.422	3,595.00	1,288.46	417.52	1,325.95	0.00	0.00	0.00	
5,300.00	90.00	359.422	3,595.00	1,388.45	416.51	1,425.26	0.00	0.00	0.00	
5,400.00	90.00	359.422	3,595.00	1,488.45	415.50	1,524.56	0.00	0.00	0.00	
5,500.00	90.00	359.422	3,595.00	1,588.44	414.49	1,623.86	0.00	0.00	0.00	
5,600.00	90.00	359.422	3,595.00	1,688.44	413.49	1,723.17	0.00	0.00	0.00	
5,700.00	90.00	359.422	3,595.00	1,788.43	412.48	1,822.47	0.00	0.00	0.00	
5,800.00	90.00	359.422	3,595.00	1,888.43	411.47	1,921.78	0.00	0.00	0.00	
5,900.00	90.00	359.422	3,595.00	1,988.42	410.46	2,021.08	0.00	0.00	0.00	
6,000.00	90.00	359.422	3,595.00	2,088.42	409.45	2,120.38	0.00	0.00	0.00	
6,100.00	90.00	359.422	3,595.00	2,188.41	408.44	2,219.69	0.00	0.00	0.00	
6,200.00	90.00	359.422	3,595.00	2,288.41	407.44	2,318.99	0.00	0.00	0.00	
6,300.00	90.00	359.422	3,595.00	2,388.40	406.43	2,418.29	0.00	0.00	0.00	
6,400.00	90.00	359.422	3,595.00	2,488.40	405.42	2,517.60	0.00	0.00	0.00	
6,500.00	90.00	359.422	3,595.00	2,588.39	404.41	2,616.90	0.00	0.00	0.00	
6,600.00	90.00	359.422	3,595.00	2,688.39	403.40	2,716.21	0.00	0.00	0.00	
6,700.00	90.00	359.422	3,595.00	2,788.38	402.39	2,815.51	0.00	0.00	0.00	
6,800.00	90.00	359.422	3,595.00	2,888.38	401.39	2,914.81	0.00	0.00	0.00	
6,900.00	90.00	359.422	3,595.00	2,988.37	400.38	3,014.12	0.00	0.00	0.00	
7,000.00	90.00	359.422	3,595.00	3,088.37	399.37	3,113.42	0.00	0.00	0.00	
7,100.00	90.00	359.422	3,595.00	3,188.36	398.36	3,212.72	0.00	0.00	0.00	
7,200.00	90.00	359.422	3,595.00	3,288.36	397.35	3,312.03	0.00	0.00	0.00	
7,300.00	90.00	359.422	3,595.00	3,388.35	396.35	3,411.33	0.00	0.00	0.00	
7,400.00	90.00	359.422	3,595.00	3,488.35	395.34	3,510.63	0.00	0.00	0.00	
7,500.00	90.00	359.422	3,595.00	3,588.34	394.33	3,609.94	0.00	0.00	0.00	
7,544.67	90.00	359.422	3,595.00	3,633.01	393.88	3,654.30	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape										
Carson 32-5-21 1H PBH	0.00	0.000	3,595.00	3,633.01	393.88	2,174,684.73	1,313,179.20	36.9710604		
- plan hits target center										
- Point										



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #2		



OCD Received 10/2/2020

Company: Coleman Oil & Gas Inc.  
Project: Rio Arriba County, NM  
Site: Carson 32-5-21  
Well: Carson 32-5-21 #1  
Wellbore: Lateral #2  
Design: Plan #2

PROJECT DETAILS: Rio Arriba County, NM

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



WELL DETAILS: Carson 32-5-21 #1

GL 6981' & KB 15' @ 6996.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	2171056.61	1312742.59	36.9610825	-107.3715676

Plan: Plan #2 (Carson 32-5-21 #1/Lateral #2)

Created By: Janie Collins Date: 13:38, July 20 2020

#### DESIGN TARGET DETAILS

#### SECTION DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carson 32-5-21 2H PBHL	3590.00	3683.07	-164.80	2174741.36	1312621.15	36.9711979	-107.3721317

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3670.00	40.00	10.000	3413.33	-134.20	146.37	0.00	0.00	-140.61	
4088.41	90.00	331.155	3590.02	213.83	60.84	14.33	-46.43	210.90	
5058.41	90.00	0.255	3590.01	1143.73	-176.11	3.00	90.00	1150.46	
7597.78	90.00	0.255	3590.00	3683.07	-164.80	0.00	0.00	3686.76	Carson 32-5-21 2H PBHL



Azimuths to True North  
Magnetic North: 8.99°

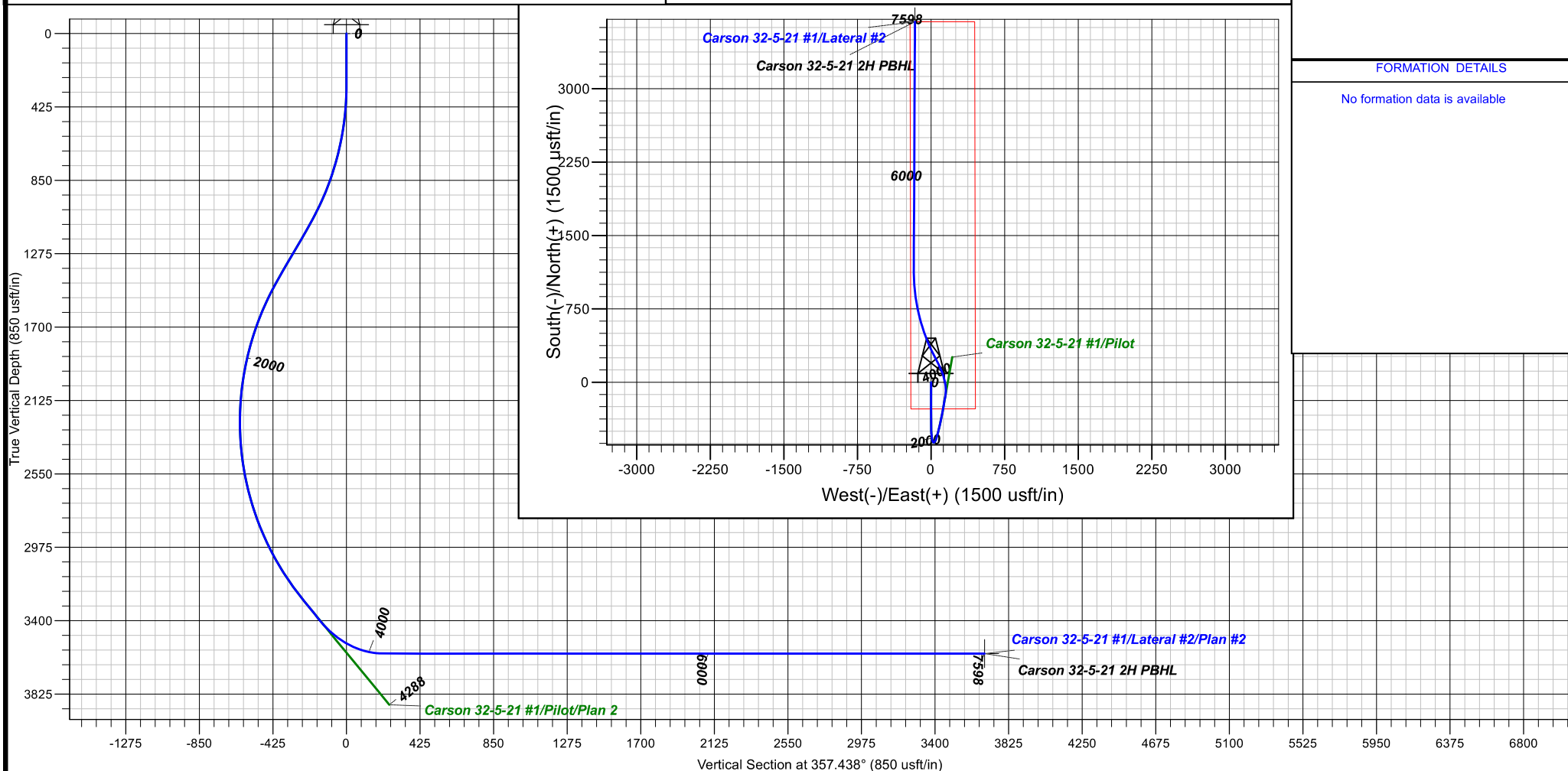
Magnetic Field  
Strength: 50062.6nT  
Dip Angle: 63.57°  
Date: 12/31/2017  
Model: BGGM2016

#### CASING DETAILS

No casing data is available

#### FORMATION DETAILS

No formation data is available





# **Coleman Oil & Gas Inc.**

**Rio Arriba County, NM**

**Carson 32-5-21**

**Carson 32-5-21 #1**

**Lateral #2**

**Plan: Plan #2**

## **Standard Planning Report**

**20 July, 2020**





<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #2		
<b>Design:</b>	Plan #2		

<b>Project</b>	Rio Arriba County, NM		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	Carson 32-5-21, Site Center: Carson 32-5-21 #1			
<b>Site Position:</b>		<b>Northing:</b>	2,171,056.61 usft	<b>Latitude:</b> 36.9610825
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,312,742.59 usft	<b>Longitude:</b> -107.3715676
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -0.67 °

<b>Well</b>	Carson 32-5-21 #1, 933' FSL 1524' FWL Sec 21 T32N R5W			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	2,171,056.61 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,312,742.59 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,981.00 usft

<b>Wellbore</b>	Lateral #2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	12/31/2017	8.99	63.57	50,062.62361342

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	3,670.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	357.438

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
3,670.00	40.00	10.000	3,413.33	-134.20	146.37	0.00	0.00	0.00	0.00	
4,088.41	90.00	331.155	3,590.02	213.83	60.84	14.33	11.95	-9.28	-46.43	
5,058.41	90.00	0.255	3,590.02	1,143.73	-176.11	3.00	0.00	3.00	90.00	
7,597.78	90.00	0.255	3,590.00	3,683.07	-164.80	0.00	0.00	0.00	0.00	Carson 32-5-21 2H PI





<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #2		
<b>Design:</b>	Plan #2		

Planned 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)	
3,670.00	40.00	10.000	3,413.33	-134.20	146.37	-140.61	0.00	0.00	0.00	
3,700.00	43.06	5.437	3,435.79	-114.50	149.01	-121.05	14.33	10.19	-15.21	
3,800.00	54.24	353.428	3,501.89	-39.82	147.59	-46.38	14.33	11.18	-12.01	
3,900.00	66.31	344.504	3,551.46	45.05	130.63	39.17	14.33	12.07	-8.92	
4,000.00	78.81	337.132	3,581.40	134.84	99.17	130.27	14.33	12.50	-7.37	
4,088.41	90.00	331.155	3,590.02	213.83	60.84	210.90	14.33	12.66	-6.76	
4,100.00	90.00	331.503	3,590.02	224.00	55.28	221.31	3.00	0.00	3.00	
4,200.00	90.00	334.503	3,590.02	313.10	9.89	312.34	3.00	0.00	3.00	
4,300.00	90.00	337.503	3,590.02	404.44	-30.78	405.41	3.00	0.00	3.00	
4,400.00	90.00	340.503	3,590.02	497.79	-66.61	500.27	3.00	0.00	3.00	
4,500.00	90.00	343.503	3,590.02	592.89	-97.50	596.65	3.00	0.00	3.00	
4,600.00	90.00	346.503	3,590.02	689.47	-123.38	694.30	3.00	0.00	3.00	
4,700.00	90.00	349.503	3,590.02	787.27	-144.16	792.93	3.00	0.00	3.00	
4,800.00	90.00	352.503	3,590.02	886.03	-159.80	892.29	3.00	0.00	3.00	
4,900.00	90.00	355.503	3,590.02	985.47	-170.24	992.10	3.00	0.00	3.00	
5,000.00	90.00	358.503	3,590.02	1,085.33	-175.47	1,092.08	3.00	0.00	3.00	
5,058.41	90.00	0.255	3,590.02	1,143.73	-176.11	1,150.46	3.00	0.00	3.00	
5,100.00	90.00	0.255	3,590.01	1,185.32	-175.92	1,192.00	0.00	0.00	0.00	
5,200.00	90.00	0.255	3,590.01	1,285.32	-175.48	1,291.88	0.00	0.00	0.00	
5,300.00	90.00	0.255	3,590.01	1,385.32	-175.03	1,391.76	0.00	0.00	0.00	
5,400.00	90.00	0.255	3,590.01	1,485.32	-174.58	1,491.64	0.00	0.00	0.00	
5,500.00	90.00	0.255	3,590.01	1,585.32	-174.14	1,591.51	0.00	0.00	0.00	
5,600.00	90.00	0.255	3,590.01	1,685.31	-173.69	1,691.39	0.00	0.00	0.00	
5,700.00	90.00	0.255	3,590.01	1,785.31	-173.25	1,791.27	0.00	0.00	0.00	
5,800.00	90.00	0.255	3,590.01	1,885.31	-172.80	1,891.15	0.00	0.00	0.00	
5,900.00	90.00	0.255	3,590.01	1,985.31	-172.36	1,991.03	0.00	0.00	0.00	
6,000.00	90.00	0.255	3,590.01	2,085.31	-171.91	2,090.91	0.00	0.00	0.00	
6,100.00	90.00	0.255	3,590.01	2,185.31	-171.47	2,190.79	0.00	0.00	0.00	
6,200.00	90.00	0.255	3,590.01	2,285.31	-171.02	2,290.67	0.00	0.00	0.00	
6,300.00	90.00	0.255	3,590.01	2,385.31	-170.58	2,390.55	0.00	0.00	0.00	
6,400.00	90.00	0.255	3,590.01	2,485.31	-170.13	2,490.43	0.00	0.00	0.00	
6,500.00	90.00	0.255	3,590.01	2,585.31	-169.69	2,590.31	0.00	0.00	0.00	
6,600.00	90.00	0.255	3,590.01	2,685.30	-169.24	2,690.19	0.00	0.00	0.00	
6,700.00	90.00	0.255	3,590.01	2,785.30	-168.80	2,790.06	0.00	0.00	0.00	
6,800.00	90.00	0.255	3,590.00	2,885.30	-168.35	2,889.94	0.00	0.00	0.00	
6,900.00	90.00	0.255	3,590.00	2,985.30	-167.91	2,989.82	0.00	0.00	0.00	
7,000.00	90.00	0.255	3,590.00	3,085.30	-167.46	3,089.70	0.00	0.00	0.00	
7,100.00	90.00	0.255	3,590.00	3,185.30	-167.02	3,189.58	0.00	0.00	0.00	
7,200.00	90.00	0.255	3,590.00	3,285.30	-166.57	3,289.46	0.00	0.00	0.00	
7,300.00	90.00	0.255	3,590.00	3,385.30	-166.13	3,389.34	0.00	0.00	0.00	
7,400.00	90.00	0.255	3,590.00	3,485.30	-165.68	3,489.22	0.00	0.00	0.00	
7,500.00	90.00	0.255	3,590.00	3,585.30	-165.23	3,589.10	0.00	0.00	0.00	
7,597.78	90.00	0.255	3,590.00	3,683.07	-164.80	3,686.76	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
Carson 32-5-21 2H PBH	0.00	0.000	3,590.00	3,683.07	-164.80	2,174,741.36	1,312,621.15	36.9711979		
- hit/miss target										
- Shape										
- plan hits target center										
- Point										



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #2		
<b>Design:</b>	Plan #2		

# **Coleman Oil & Gas Inc.**

**Rio Arriba County, NM**

**Carson 32-5-21**

**Carson 32-5-21 #1**

**Pilot**

**Plan: Plan 2**

## **Standard Planning Report**

**28 April, 2020**



**Scientific Drilling**

[www.scientificdrilling.com](http://www.scientificdrilling.com)



# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan 2		

<b>Project</b>	Rio Arriba County, NM		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	Carson 32-5-21, Site Center: Carson 32-5-21 #1			
<b>Site Position:</b>		<b>Northing:</b>	2,171,056.61 usft	<b>Latitude:</b> 36.9610825
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,312,742.59 usft	<b>Longitude:</b> -107.3715676
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -0.67 °

<b>Well</b>	Carson 32-5-21 #1, 933' FSL 1524' FWL Sec 21 T32N R5W			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	2,171,056.61 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,312,742.59 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,981.00 usft

<b>Wellbore</b>	Pilot				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	12/31/2017	8.99	63.57	50,062.62361342

<b>Design</b>	Plan 2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	39.942

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,157.14	30.00	180.000	1,118.51	-219.32	0.00	3.50	3.50	0.00	180.00	
1,507.14	30.00	180.000	1,421.62	-394.32	0.00	0.00	0.00	0.00	0.00	
3,498.63	40.00	10.000	3,282.05	-242.68	127.24	3.50	0.50	-8.54	-173.17	
4,288.33	40.00	10.000	3,887.00	257.21	215.38	0.00	0.00	0.00	0.00	

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan 2		

Planned 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	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	3.50	180.000	399.94	-3.05	0.00	-2.34	3.50	3.50	0.00
500.00	7.00	180.000	499.50	-12.20	0.00	-9.36	3.50	3.50	0.00
600.00	10.50	180.000	598.32	-27.41	0.00	-21.02	3.50	3.50	0.00
700.00	14.00	180.000	696.03	-48.63	0.00	-37.28	3.50	3.50	0.00
800.00	17.50	180.000	792.26	-75.77	0.00	-58.09	3.50	3.50	0.00
900.00	21.00	180.000	886.66	-108.73	0.00	-83.36	3.50	3.50	0.00
1,000.00	24.50	180.000	978.86	-147.40	0.00	-113.01	3.50	3.50	0.00
1,100.00	28.00	180.000	1,068.54	-191.62	0.00	-146.91	3.50	3.50	0.00
1,157.14	30.00	180.000	1,118.51	-219.32	0.00	-168.15	3.50	3.50	0.00
1,200.00	30.00	180.000	1,155.63	-240.75	0.00	-184.58	0.00	0.00	0.00
1,300.00	30.00	180.000	1,242.23	-290.75	0.00	-222.92	0.00	0.00	0.00
1,400.00	30.00	180.000	1,328.83	-340.75	0.00	-261.25	0.00	0.00	0.00
1,500.00	30.00	180.000	1,415.43	-390.75	0.00	-299.59	0.00	0.00	0.00
1,507.14	30.00	180.000	1,421.62	-394.32	0.00	-302.32	0.00	0.00	0.00
1,600.00	26.78	179.142	1,503.30	-438.46	0.31	-335.96	3.50	-3.47	-0.92
1,700.00	23.31	177.974	1,593.89	-480.77	1.35	-367.74	3.50	-3.47	-1.17
1,800.00	19.86	176.426	1,686.86	-517.50	3.11	-394.77	3.50	-3.45	-1.55
1,900.00	16.42	174.258	1,781.88	-548.53	5.58	-416.97	3.50	-3.43	-2.17
2,000.00	13.02	170.988	1,878.58	-573.73	8.76	-434.25	3.50	-3.40	-3.27
2,100.00	9.69	165.490	1,976.61	-593.01	12.64	-446.54	3.50	-3.33	-5.50
2,200.00	6.53	154.552	2,075.61	-606.29	17.19	-453.81	3.50	-3.16	-10.94
2,300.00	3.99	127.243	2,175.19	-613.54	22.41	-456.01	3.50	-2.54	-27.31
2,400.00	3.70	73.215	2,275.00	-614.71	28.27	-453.15	3.50	-0.29	-54.03
2,500.00	5.99	40.544	2,374.65	-609.81	34.75	-445.24	3.50	2.29	-32.67
2,600.00	9.09	27.810	2,473.78	-598.86	41.82	-432.29	3.50	3.10	-12.73
2,700.00	12.40	21.660	2,572.02	-581.89	49.47	-414.38	3.50	3.31	-6.15
2,800.00	15.79	18.095	2,669.00	-558.98	57.66	-391.55	3.50	3.39	-3.56
2,900.00	19.22	15.771	2,764.35	-530.19	66.37	-363.89	3.50	3.43	-2.32
3,000.00	22.67	14.131	2,857.73	-495.65	75.55	-331.51	3.50	3.45	-1.64
3,100.00	26.13	12.905	2,948.78	-455.48	85.17	-294.54	3.50	3.46	-1.23
3,200.00	29.61	11.948	3,037.17	-409.84	95.21	-253.09	3.50	3.47	-0.96
3,300.00	33.08	11.176	3,122.56	-358.88	105.62	-207.34	3.50	3.48	-0.77
3,400.00	36.56	10.536	3,204.64	-302.80	116.36	-157.46	3.50	3.48	-0.64
3,498.63	40.00	10.000	3,282.05	-242.68	127.24	-104.38	3.50	3.48	-0.54
3,500.00	40.00	10.000	3,283.10	-241.82	127.39	-103.61	0.00	0.00	0.00
3,600.00	40.00	10.000	3,359.71	-178.51	138.55	-47.92	0.00	0.00	0.00
3,700.00	40.00	10.000	3,436.31	-115.21	149.71	7.78	0.00	0.00	0.00
3,800.00	40.00	10.000	3,512.92	-51.91	160.88	63.48	0.00	0.00	0.00
3,900.00	40.00	10.000	3,589.52	11.39	172.04	119.18	0.00	0.00	0.00
4,000.00	40.00	10.000	3,666.13	74.69	183.20	174.88	0.00	0.00	0.00
4,100.00	40.00	10.000	3,742.73	138.00	194.36	230.58	0.00	0.00	0.00
4,200.00	40.00	10.000	3,819.33	201.30	205.52	286.28	0.00	0.00	0.00
4,288.33	40.00	10.000	3,887.00	257.21	215.38	335.48	0.00	0.00	0.00



# Scientific Drilling, Intl

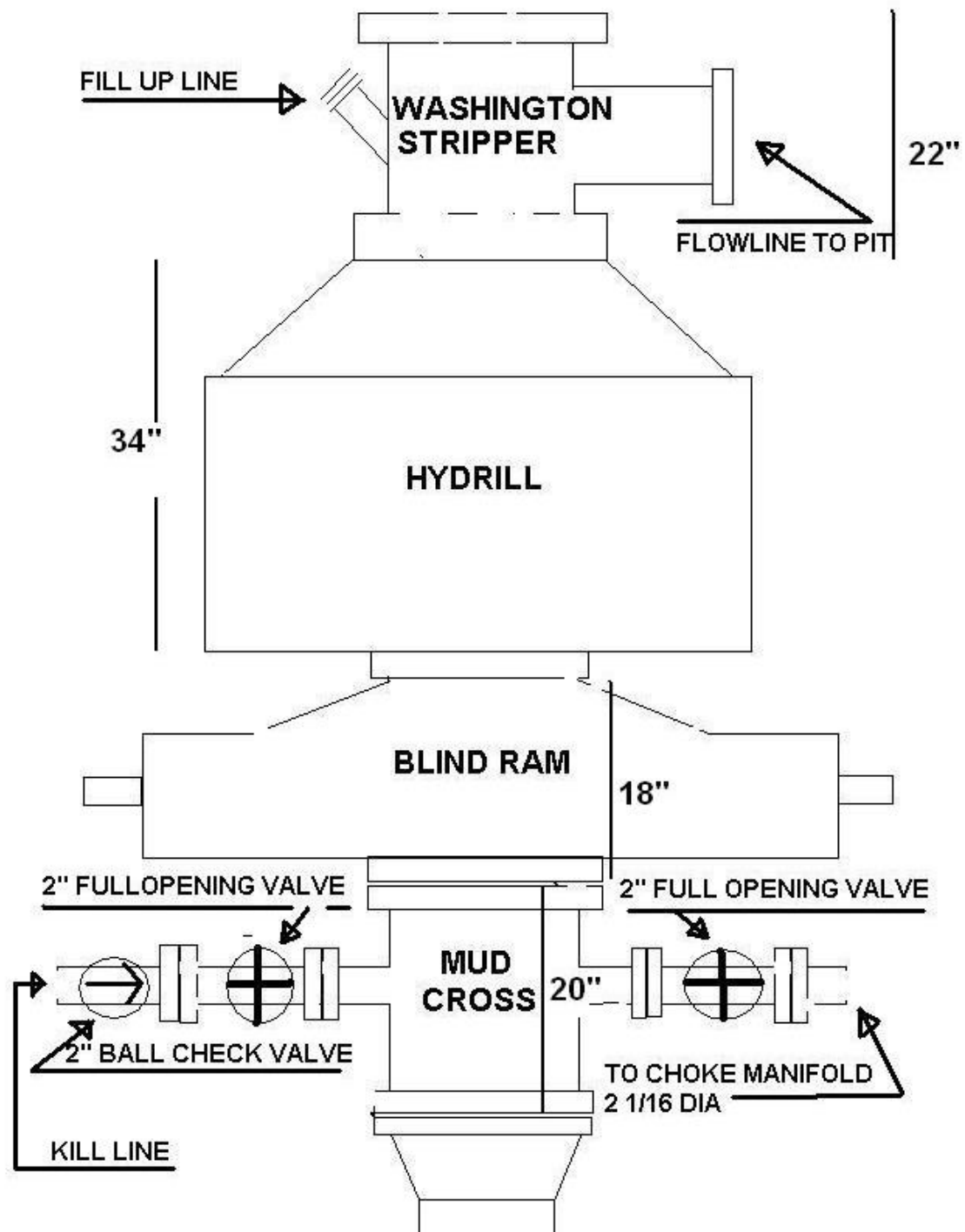
## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Carson 32-5-21 #1
<b>Company:</b>	Coleman Oil & Gas Inc.	<b>TVD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Project:</b>	Rio Arriba County, NM	<b>MD Reference:</b>	GL 6981' & KB 15' @ 6996.00usft
<b>Site:</b>	Carson 32-5-21	<b>North Reference:</b>	True
<b>Well:</b>	Carson 32-5-21 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan 2		

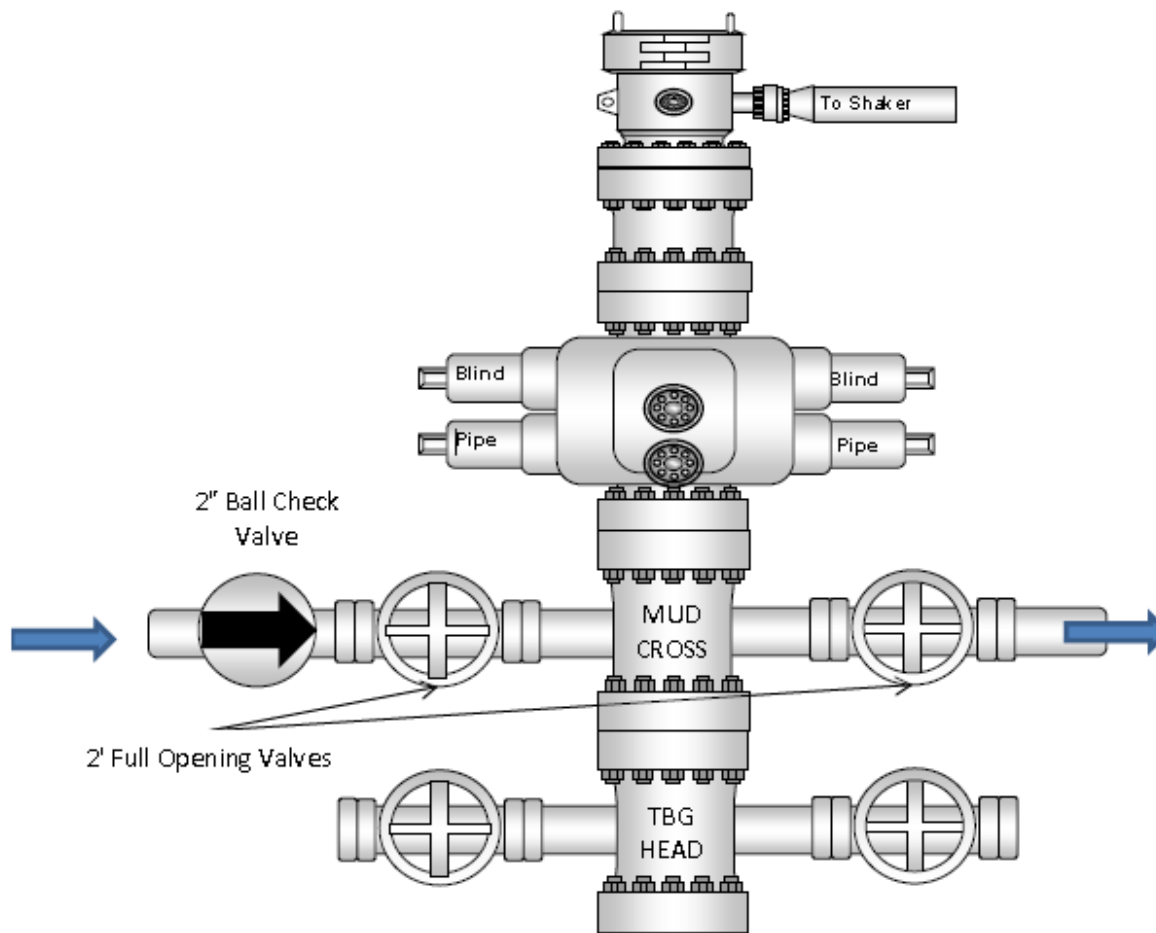
Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Carson 32-5-21 2H PBH	0.00	0.000	3,590.00	3,683.07	-164.80	2,174,741.36	1,312,621.15	36.9711979	-107.3721317
- plan misses target center by 3459.66usft at 4288.33usft MD (3887.00 TVD, 257.21 N, 215.38 E)									
- Point									
Carson 32-5-21 1H PBH	0.00	0.000	3,595.00	3,633.01	393.88	2,174,684.73	1,313,179.20	36.9710604	-107.3702194
- plan misses target center by 3393.10usft at 4288.33usft MD (3887.00 TVD, 257.21 N, 215.38 E)									
- Point									
Carson 32-5-21 2H FTP	0.00	0.000	3,635.00	-273.41	-205.94	2,170,785.64	1,312,533.45	36.9603316	-107.3722724
- plan misses target center by 436.85usft at 3712.37usft MD (3445.79 TVD, -107.38 N, 151.09 E)									
- Point									
Carson 32-5-21 1H FTP	0.00	0.000	3,635.00	-272.27	451.87	2,170,779.03	1,313,191.22	36.9603347	-107.3700211
- plan misses target center by 384.66usft at 3786.51usft MD (3502.58 TVD, -60.45 N, 159.37 E)									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,158.86	1,120.00	Nacimiento		0.00	0.000	
3,046.08	2,900.00	Ojo Alamo		0.00	0.000	
3,180.32	3,020.00	Kirtland		0.00	0.000	
3,848.41	3,550.00	Fruitland		0.00	0.000	
3,959.37	3,635.00	Main Fruitland Coal		0.00	0.000	
4,059.88	3,712.00	Bottom Coal		0.00	0.000	
4,070.33	3,720.00	Pictured Cliffs		0.00	0.000	

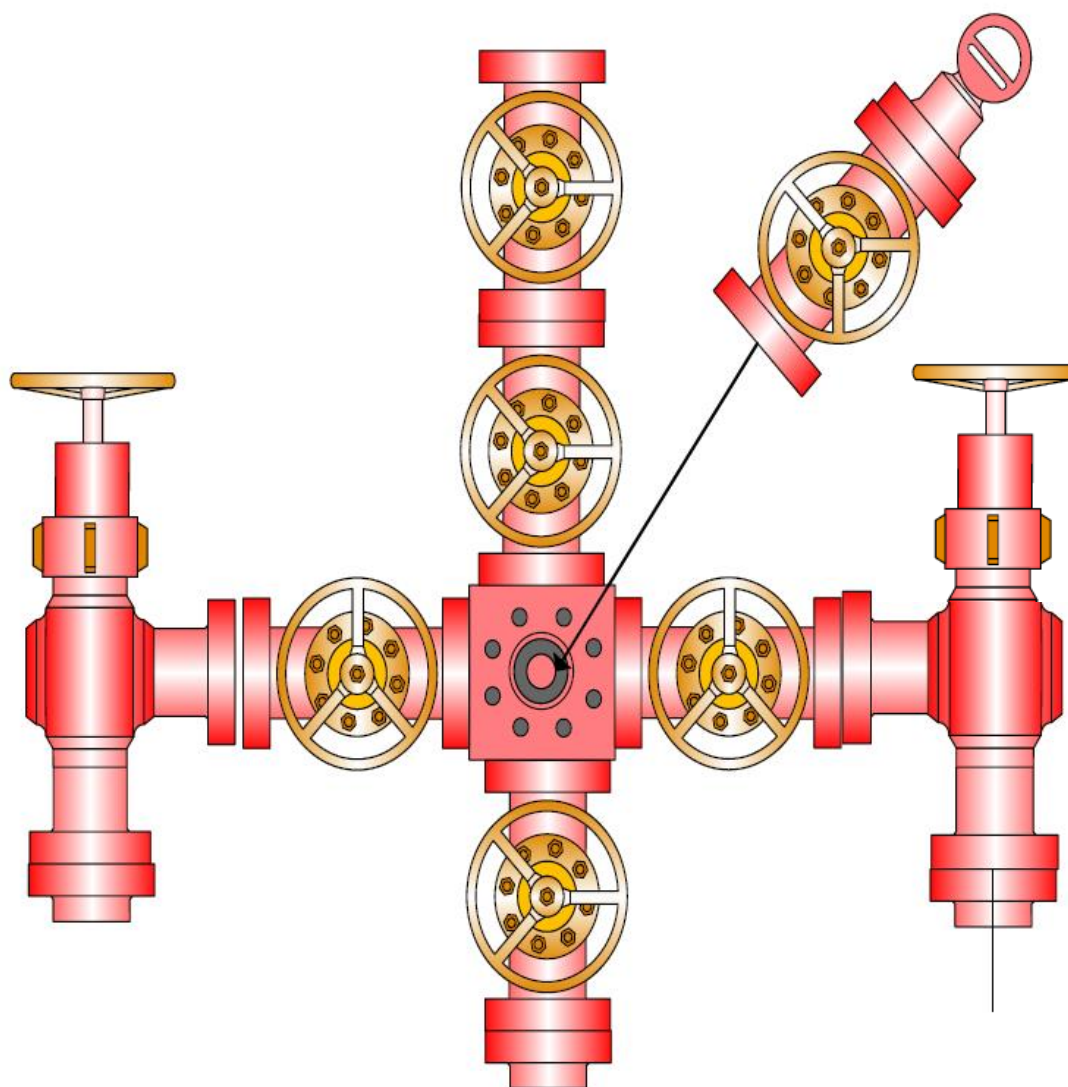
92" overall height



Proposed Class 2 BOP Stack - STACK #1 (PILOT HOLE)



**Proposed Class 2 BOP Stack - STACK #2 (LATERAL RE-ENTRY)**



(Minimum 2")

**Proposed 2,000 psi Choke Manifold Stack**

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

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit Original  
to Appropriate  
District Office

## GAS CAPTURE PLAN

Date: 07-09-20

☒ Original

Operator & OGRID No.: Coleman Oil & Gas, Inc., 4838

☐ Amended - Reason for Amendment: \_\_\_\_\_

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

*Note: A C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule 19.15.18.12.A*

### Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API (30-025)	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Carson 32-5-21 #1		N-21-32N-5W	933 FSL 1524 FWL	1000	Flared	Flare ~30 days on flowback before connecting to pipe

### Gathering System and Pipeline Notification

The Carson 32-5-21 #1 will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility will be connected to Harvest Energy low/high pressure gathering system located in B-28-32N-5W Rio Arriba County, New Mexico. It will require 3167' of pipeline to connect the Harvest Energy low/high pressure gathering system. Coleman Oil & Gas, Inc. provides (semiannually) to Harvest Energy a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. Gas from these wells will be processed at Milagro Processing Plant located in Sec. 12, Twn. 29N, Rng. 11W, San Juan County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

### Flowback Strategy

After the completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand/coal content will be monitored. When the produced fluids contain minimal sand/coal, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Harvest Energy system at that time. Based on current information, it is Coleman's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand/coal and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

### Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating natural gas engines, remainder of gas will be flared
- Wellsite Compression – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines

## **Coleman Oil & Gas, Inc.:**

### **Gas Capture Plan: Gas Transporter & Processing Plant Information**

Gas from this location will be gathered and transported by Coleman through flowline to the Harvest Energy Sales Meter.

**1. Coleman Oil & Gas, Inc.**

Gas from the wellsite / pad into the Coleman Gathering system at the site:  
Sec. 21, T32N, R5W  
Rio Arriba, New Mexico

**2. Harvest Energy**

Coleman will deliver the gas to the **Harvest System**:  
Sec 28, T32N, R5W  
Rio Arriba County, New Mexico

**3. Harvest Energy**

Harvest will deliver the gas to the **Harvest Processing Plant** located:  
Sec 12, T 29 N, R 11 W  
San Juan County, New Mexico