

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



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: 8/12/2020

Well information;

Operator Celomen, Well Name and Number Carson 32-5-28 1

API# 30-039-31386, Section 28, Township 32 N/S, Range 5 E/W

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

- ☒ Notify Aztec OCD 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 fresh water zone or zones and shall immediately set in cement the water protection string
 - ☐ Submit Gas Capture Plan form prior to spudding or initiating recompletion operations
- ☒ 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.

Beth Bell
NMOCD Approved by Signature

3/2/20
Date

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

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM130343
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator COLEMAN OIL & GAS INCORPORATED		8. Lease Name and Well No. CARSON 32-5-28 1
3a. Address PO BOX 3337 FARMINGTON NM 87499	3b. Phone No. (include area code) (505)330-2903	9. API Well No. 30-089-31386
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SWSE / 475 FSL / 2640 FEL / LAT 36.9453464 / LONG -107.3677562 At proposed prod. zone NENE / 660 FNL / 660 FEL / LAT 36.9567009 / LONG -107.3609879		10. Field and Pool, or Exploratory BASIN FRUITLAND COAL / FRUITLAND
11. Sec., T. R. M. or Blk. and Survey or Area SEC 28 / T32N / R5W / NMP		
14. Distance in miles and direction from nearest town or post office* 17 miles		12. County or Parish RIO ARRIBA
13. State NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1 feet	16. No of acres in lease 320	17. Spacing Unit dedicated to this well 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 2764 feet	19. Proposed Depth 3667 feet / 8084 feet	20. BLM/BIA Bond No. in file FED: NMB001509
21. Elevations (Show whether DF, KDB, RT, GL., etc.) 6951 feet	22. Approximate date work will start* 11/01/2019	23. Estimated duration 30 days
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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Brian Wood / Ph: (505)466-8120	Date 08/12/2019
Title President		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Richard Fields / Ph: (505)564-7612	Date 12/02/2019
Title Field Manager		

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.



NMOC

FEB 04 2020

DISTRICT III

*(Instructions on page 2)

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) 478-3480 Fax: (505) 478-3482

OIL CONSERVATION DIVISION

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

Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

* API Number 30-039-31386	* Pool Code 71629	* Pool Name Basin Fruitland Coal
* Property Code 327144	* Property Name CARSON 32-5-28	* Well Number 1
* OGRID No. 269469 4838	* Operator Name COLEMAN OIL & GAS, INC.	* Elevation 6951

¹⁰ Surface Location

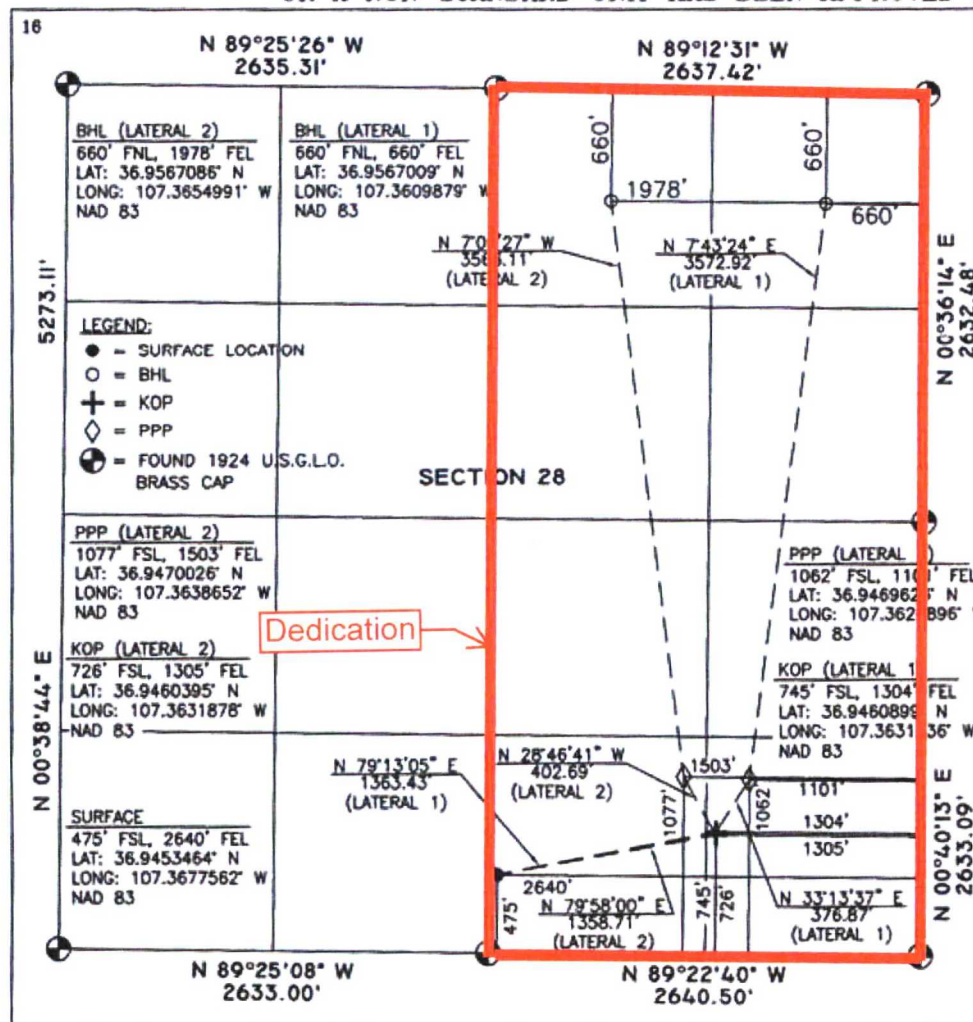
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	28	32 N	5 W		475	SOUTH	2640	EAST	RIO ARRIBA

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
A	28	32 N	5 W		660	NORTH	660	EAST	RIO ARRIBA
B	28	32 N	5 W		660	NORTH	1978	EAST	RIO ARRIBA

13 Dedicated Acres 320	14 Joint or Infill	15 Consolidation Code	16 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.

8/9/19

Signature _____ Date _____

Mike Deutsch

Printed Name **mike@permitswest.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.

1/19/18

Date of Survey _____

Signature and Seal of Professional Engineer

APR 1954

20

17079

17070

150

7-18-19

17078

11010 ~~EXTRADITIONAL SUB~~
Certificate Number

Certificate Number: 10142

Surface = Federal

**Application for Permit to Drill
Drilling Plan**

COLEMAN OIL & GAS

Carson 32-5-28#1

Vertical Pilot Hole

Surface Hole Location: 475' FSL & 2640' FEL

Section 28, T32N, R5W

Proposed GL Elevation = 6951'

Lat. = 36.9459945° N

Long. = 107.3640260° W

NAD 83

Rio Arriba, New Mexico

Proposed Top of Production Location (Pilot): 899' FSL – 1304' FEL

Proposed Bottom Hole Location (Pilot): 1037' FSL – 1306' FEL

Proposed KOP (Lateral #1): 745' FSL – 1304' FEL

Proposed Landing (Lateral #1) 1062' FSL – 1101' FEL

Proposed Bottom Hole Location (Lateral #1): 660' FNL – 660' FEL

Proposed KOP (Lateral #2): 726' FSL – 1302' FEL

Proposed Landing (Lateral #2) 1077' FSL – 1503' FEL

Proposed Bottom Hole Location (Lateral #2): 660' FNL – 1978' FEL

Section 28, 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	6972	1145	Unconsolidated Gravels	Boulders, Water, Lost Circulation
Nacimiento	1176	1145	5827	1780	Nonmarine shale, siltstone and sandstones	Water, Lost Circulation
Ojo Alamo	3293	2925	4047	120	Conglomerate sandstone, sandstone, siltstone and	Water, Possible Gas, Lost Circulation
Kirtland	3429	3045	3927	530	Claystone and white and brown sandstones	Clay, Water
Fruitland	4069	3575	3397	115	Mudstone, siltstone, sandstones, carbonaceous shales and coals	Gas Water
Main Fruitland Coal	4224	3690	3282	47	Coal	HZ Lateral
Bottom Coal	4281	3737	3235	8	Coal	Gas Water
Pictured Cliffs	4291	3745	3227	175	Shoreface sandstone	Gas Water
TD	4424	3847	3125	3920	TD Designed From Base of Bottom Coal Seam with 130 ft rat hole + 45 Ft Shoe and Complete Log Coverage Over Fruitland	

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	6972	1145	Unconsolidated Gravels	Boulders, Water, Lost Circulation
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TD	4424	3847	3125	3920	TD Designed From Base of Bottom Coal Seam with 130 ft rathole + 45 Ft Shoe and Complete Log Coverage Over Fruitland	

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 $1689 \text{ psi} - (3900' \times .22 \text{ psi/ft}) = 831 \text{ psi}$. 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' - 4424'	New casing.
4-1/2" (6-1/8") Lateral #1	J-55	11.6 ppf	LT&C	3967-8084'	Used casing. 10' below window TD
4-1/2" (6-1/8") Lateral #2	J-55	11.6 ppf	LT&C	3937'-8085'	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		Notes
					1.125		1.100		1.400		
	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)			
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)

			Collapse		Burst	Tension			
Minimum Safety Factors			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	0-4424'
					80% of Burst	3984			
Casing Depth			MW IN	MW Out		Pres In	Pres Out	SF	
Collapse	4424		0.0	13.5		0	3106	1.39	Full evacuation with 15.8 ppg cement in the annulus
Burst	4424		10.0	0.0		1500	0	3.32	1500 psig test
			Mud Wt	Air Weight		Bouy Wt	BW+100K		
Tension (Pipe Body)	4424	10.0		115024		97463	197463	2.10	100K overpull
Tension (Connection)	4424	10.0		115024		97463	197463	1.86	
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 – (0-4424' 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): 246 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' – 4424'): 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 = 396 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 ²)	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'-4424'	Production	8-3/4"	LSND	8.4-9.0	35-45	<10	6-21	4-27	5000	8-9.5
3967'-8084'	Lat #1	6-1/8"	Brine	8.6-9.8	28-34	NC	1	4	300000	8-9.1
3937'-8085'	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 of the operators plans for mitigating such hazards must be included.

Maximum expected BHP @ TD 4424' 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 4224' MD and Pictured Cliffs Sand at 4291' 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 H₂S 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 2019. 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 4224'-4283' 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 @ +/-3967' MD
- Mill window and TOOH for curve BHA.
- Planned KOP #1 @ 3967' MD / 3496' TVD.
- Drill 6-1/8" curve from 3967' MD / 3496' TVD to landing point @ 4428' MD / 3697' TVD at 90.46°.
- TOOH and PU lateral BHA.
- Drill from 4428' MD / 3697' TVD to 8084' MD / 3667' TVD.
- TOOH and run 4-1/2" pre-perforated liner from 3977' MD to TD @ 8084' MD.
- Run gyro survey, orient and set whipstock for casing exit #2 @ +/-3937' MD
- Mill window and TOOH for curve BHA.
- Planned KOP #2 @ 3937' MD / 3472' TVD.
- Drill 6-1/8" curve from 3937' MD / 3472' TVD to landing point @ 4440' MD / 3697' TVD at 90.47°.
- TOOH and PU lateral BHA.
- Drill from 4440' MD / 3697' TVD to 8085' MD / 3667' TVD.
- TOOH and run 4-1/2" pre-perforated liner from 4445' MD to TD @ 8085' 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 Pad
 Well: Carson 32-5-28 (1 WB/2 Whip)
 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



Azimuths to True North
 Magnetic North: 8.92

Magnetic Field
 Strength: 49882.6snT
 Dip Angle: 63.47
 Date: 3/4/2019
 Model: HDGM

WELL DETAILS: Carson 32-5-28 (1 WB/2 Whip)

GL 6951' @ 6951.00usft
 +N/-S 0.00 +E/-W 0.00 Northing 2165314.33 Easting 1313788.96 Latitude 36.9453464 Longitude -107.3677562

Plan: Plan #2 (Carson 32-5-28 (1 WB/2 Whip)/Lateral 1)

Created By: Janie Collins Date: 14:03, March 05 2019

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carson #1 Lat 1 BHL	3667.00	4134.29	1977.73	2169425.14	1315815.03	36.9567009	-107.3609879

SECTION DETAILS

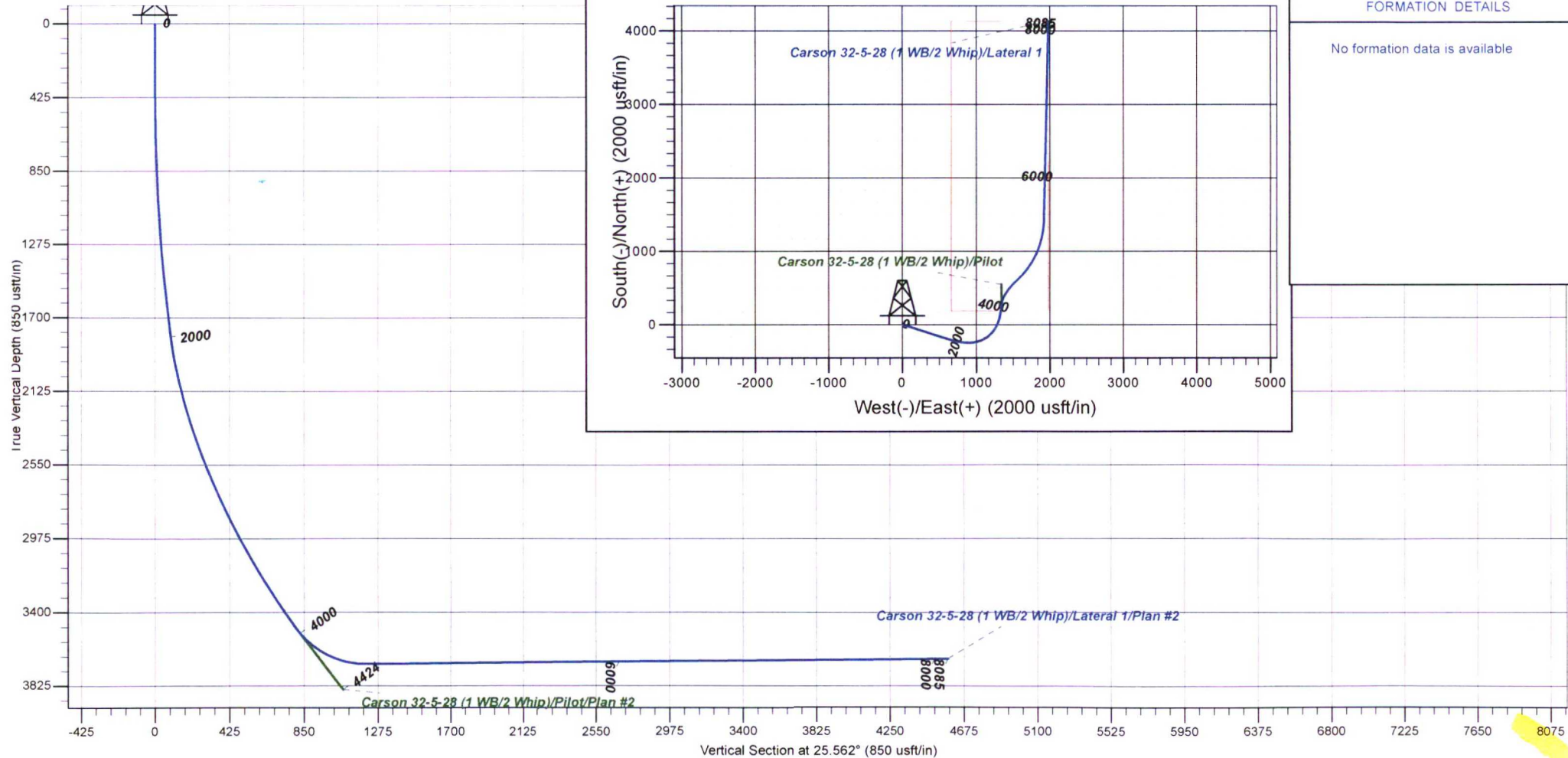
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target
3967.05	38.07	3.020	3495.64	255.05	1339.11	0.00	0.00	807.90	
4428.05	90.46	48.000	3697.00	587.10	1539.55	14.00	51.52	1193.94	
5363.03	90.46	1.249	3689.02	1413.64	1918.40	5.00	-89.80	2103.04	
8084.42	90.46	1.249	3667.00	4134.29	1977.73	0.00	0.00	4582.98	Carson #1 Lat 1 BHL

CASING DETAILS

No casing data is available

FORMATION DETAILS

No formation data is available



Coleman Oil & Gas Inc.

Rio Arriba County, NM

Carson Pad

Carson 32-5-28 (1 WB/2 Whip)

Lateral 1

Plan: Plan #2

Standard Planning Report

05 March, 2019



www.scientificdrilling.com

Database: Grand Junction District
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Site: Carson Pad
Well: Carson 32-5-28 (1 WB/2 Whip)
Wellbore: Lateral 1
Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

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

Site	Carson Pad				
Site Position:		Northing:	2,165,314.33 usft	Latitude:	36.9453464
From:	Lat/Long	Easting:	1,313,788.95 usft	Longitude:	-107.3677562
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-0.67 °

Well	Carson 32-5-28 (1 WB/2 Whip)					
Well Position	+N/-S	0.00 usft	Northing:	2,165,314.33 usft	Latitude:	36.9453464
	+E/-W	0.00 usft	Easting:	1,313,788.95 usft	Longitude:	-107.3677562
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,951.00 usft

Wellbore	Lateral 1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/4/2019	8.92	63.47	49,883

Design	Plan #2				
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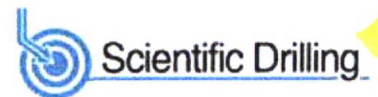
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	3,967.05

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	25.562

Plan Sections										
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
3,967.05	38.07	3.020	3,495.64	255.05	1,339.11	0.00	0.00	0.00	0.00	
4,428.05	90.46	48.000	3,697.00	587.10	1,539.55	14.00	11.36	9.76	51.52	
5,363.03	90.46	1.249	3,689.02	1,413.64	1,918.40	5.00	0.00	-5.00	-89.80	
8,084.42	90.46	1.249	3,667.00	4,134.29	1,977.73	0.00	0.00	0.00	0.00	Carson #1 Lat 1 BHL

Scientific Drilling, Intl

Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Carson 32-5-28 (1 WB/2 Whip)
Company:	Coleman Oil & Gas Inc.	TVD Reference:	GL 6951' @ 6951.00usft
Project:	Rio Arriba County, NM	MD Reference:	GL 6951' @ 6951.00usft
Site:	Carson Pad	North Reference:	True
Well:	Carson 32-5-28 (1 WB/2 Whip)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	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)
3,967.05	38.07	3.020	3,495.64	255.05	1,339.11	807.90	0.00	0.00	0.00
4,000.00	41.08	8.519	3,521.04	275.91	1,341.25	827.65	14.00	9.12	16.69
4,100.00	51.42	21.660	3,590.26	345.07	1,360.64	898.41	14.00	10.34	13.14
4,200.00	62.85	31.326	3,644.52	419.78	1,398.39	982.09	14.00	11.43	9.67
4,300.00	74.82	39.142	3,680.61	495.59	1,452.25	1,073.72	14.00	11.96	7.82
4,400.00	87.02	46.103	3,696.38	568.00	1,519.02	1,167.85	14.00	12.20	6.96
4,428.05	90.46	48.000	3,697.00	587.10	1,539.55	1,193.94	14.00	12.26	6.76
4,500.00	90.47	44.402	3,696.41	636.89	1,591.47	1,261.26	5.00	0.02	-5.00
4,600.00	90.49	39.402	3,695.58	711.29	1,658.23	1,357.19	5.00	0.01	-5.00
4,700.00	90.49	34.402	3,694.72	791.23	1,718.26	1,455.20	5.00	0.01	-5.00
4,800.00	90.50	29.402	3,693.85	876.09	1,771.08	1,554.55	5.00	0.01	-5.00
4,900.00	90.50	24.402	3,692.98	965.24	1,816.31	1,654.49	5.00	0.00	-5.00
5,000.00	90.50	19.401	3,692.10	1,057.99	1,853.60	1,754.25	5.00	0.00	-5.00
5,100.00	90.50	14.401	3,691.23	1,153.64	1,882.66	1,853.07	5.00	-0.01	-5.00
5,200.00	90.49	9.401	3,690.37	1,251.45	1,903.28	1,950.21	5.00	-0.01	-5.00
5,300.00	90.47	4.401	3,689.53	1,350.69	1,915.29	2,044.92	5.00	-0.01	-5.00
5,363.03	90.46	1.249	3,689.02	1,413.64	1,918.40	2,103.04	5.00	-0.02	-5.00
5,400.00	90.46	1.249	3,688.72	1,450.60	1,919.20	2,136.73	0.00	0.00	0.00
5,500.00	90.46	1.249	3,687.91	1,550.57	1,921.38	2,227.86	0.00	0.00	0.00
5,600.00	90.46	1.249	3,687.10	1,650.54	1,923.56	2,318.99	0.00	0.00	0.00
5,700.00	90.46	1.249	3,686.29	1,750.52	1,925.74	2,410.12	0.00	0.00	0.00
5,800.00	90.46	1.249	3,685.48	1,850.49	1,927.92	2,501.24	0.00	0.00	0.00
5,900.00	90.46	1.249	3,684.67	1,950.46	1,930.10	2,592.37	0.00	0.00	0.00
6,000.00	90.46	1.249	3,683.86	2,050.43	1,932.28	2,683.50	0.00	0.00	0.00
6,100.00	90.46	1.249	3,683.05	2,150.41	1,934.46	2,774.63	0.00	0.00	0.00
6,200.00	90.46	1.249	3,682.24	2,250.38	1,936.64	2,865.76	0.00	0.00	0.00
6,300.00	90.46	1.249	3,681.44	2,350.35	1,938.82	2,956.88	0.00	0.00	0.00
6,400.00	90.46	1.249	3,680.63	2,450.33	1,941.00	3,048.01	0.00	0.00	0.00
6,500.00	90.46	1.249	3,679.82	2,550.30	1,943.18	3,139.14	0.00	0.00	0.00
6,600.00	90.46	1.249	3,679.01	2,650.27	1,945.37	3,230.27	0.00	0.00	0.00
6,700.00	90.46	1.249	3,678.20	2,750.25	1,947.55	3,321.39	0.00	0.00	0.00
6,800.00	90.46	1.249	3,677.39	2,850.22	1,949.73	3,412.52	0.00	0.00	0.00
6,900.00	90.46	1.249	3,676.58	2,950.19	1,951.91	3,503.65	0.00	0.00	0.00
7,000.00	90.46	1.249	3,675.77	3,050.16	1,954.09	3,594.78	0.00	0.00	0.00
7,100.00	90.46	1.249	3,674.96	3,150.14	1,956.27	3,685.91	0.00	0.00	0.00
7,200.00	90.46	1.249	3,674.15	3,250.11	1,958.45	3,777.03	0.00	0.00	0.00
7,300.00	90.46	1.249	3,673.35	3,350.08	1,960.63	3,868.16	0.00	0.00	0.00
7,400.00	90.46	1.249	3,672.54	3,450.06	1,962.81	3,959.29	0.00	0.00	0.00
7,500.00	90.46	1.249	3,671.73	3,550.03	1,964.99	4,050.42	0.00	0.00	0.00
7,600.00	90.46	1.249	3,670.92	3,650.00	1,967.17	4,141.55	0.00	0.00	0.00
7,700.00	90.46	1.249	3,670.11	3,749.97	1,969.35	4,232.67	0.00	0.00	0.00
7,800.00	90.46	1.249	3,669.30	3,849.95	1,971.53	4,323.80	0.00	0.00	0.00
7,900.00	90.46	1.249	3,668.49	3,949.92	1,973.71	4,414.93	0.00	0.00	0.00
8,000.00	90.46	1.249	3,667.68	4,049.89	1,975.89	4,506.06	0.00	0.00	0.00
8,084.42	90.46	1.249	3,667.00	4,134.29	1,977.73	4,582.98	0.00	0.00	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Carson 32-5-28 (1 WB/2 Whip)
Company:	Coleman Oil & Gas Inc.	TVD Reference:	GL 6951' @ 6951.00usft
Project:	Rio Arriba County, NM	MD Reference:	GL 6951' @ 6951.00usft
Site:	Carson Pad	North Reference:	True
Well:	Carson 32-5-28 (1 WB/2 Whip)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #2		

Design Targets**Target Name**

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Carson #1 Lat 1 BHL - plan hits target center - Point	0.00	0.000	3,667.00	4,134.29	1,977.73	2,169,425.14	1,315,815.03	36.9567009	-107.3609879

Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Site: Carson Pad
Well: Carson 32-5-28 (1 WB/2 Whip)
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



Azimuths to True North
Magnetic North: 8.92

Magnetic Field
Strength: 49882.6sn
Dip Angle: 63.47
Date: 3/4/2019
Model: HDGM

WELL DETAILS: Carson 32-5-28 (1 WB/2 Whip)

GL 6951' @ 6951.00usft
+N/-S 0.00 +E/-W 0.00 Northing 2165314.33 Easting 1313788.96 Latitude 36.9453464 Longitude -107.3677562

Plan: Plan #2 (Carson 32-5-28 (1 WB/2 Whip)/Lateral 2)

Created By: Janie Collins Date: 14:07, March 05 2019

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carson #2 Lat 1 BHL	3667.00	4137.03	659.54	2169443.34	1314496.96	36.9567086	-107.3654991

SECTION DETAILS

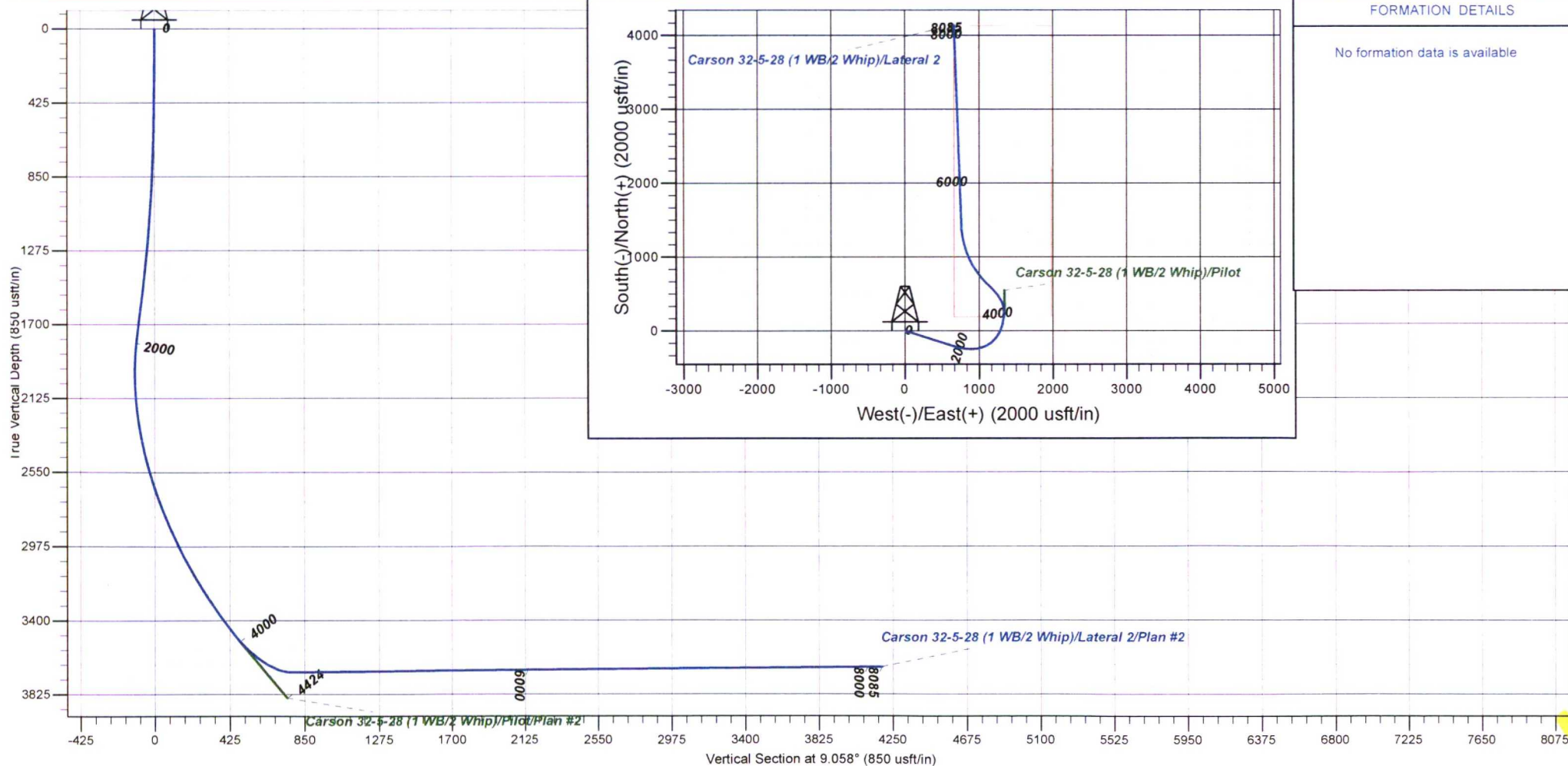
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target
3937.05	37.45	4.082	3471.92	236.71	1337.98	0.00	0.00	444.40	
4440.42	90.47	312.000	3697.12	602.35	1137.38	13.60	-58.01	773.90	
5358.57	90.47	357.909	3689.19	1412.06	759.03	5.00	89.81	1513.95	
8085.45	90.47	357.909	3667.00	4137.03	659.54	0.00	0.00	4189.27	Carson #2 Lat 1 BHL

CASING DETAILS

No casing data is available

FORMATION DETAILS

No formation data is available



Coleman Oil & Gas Inc.

Rio Arriba County, NM

Carson Pad

Carson 32-5-28 (1 WB/2 Whip)

Lateral 2

Plan: Plan #2

Standard Planning Report

05 March, 2019



www.scientificdrilling.com



Database: Grand Junction District
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Site: Carson Pad
Well: Carson 32-5-28 (1 WB/2 Whip)
Wellbore: Lateral 2
Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

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

Site Carson Pad
Site Position: Northing: 2,165,314.33 usft Latitude: 36.9453464
From: Lat/Long Easting: 1,313,788.95 usft Longitude: -107.3677562
Position Uncertainty: 0.00 usft Slot Radius: 13.20 in Grid Convergence: -0.67 °

Well Carson 32-5-28 (1 WB/2 Whip)
Well Position +N/-S 0.00 usft Northing: 2,165,314.33 usft Latitude: 36.9453464
+E/-W 0.00 usft Easting: 1,313,788.95 usft Longitude: -107.3677562
Position Uncertainty 0.00 usft Wellhead Elevation: 0.00 usft Ground Level: 6,951.00 usft

Wellbore Lateral 2

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/4/2019	8.92	63.47	49,883

Design Plan #2

Audit Notes:

Version: Phase: PLAN Tie On Depth: 3,937.05

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	9.058

Plan Sections

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
3,937.05	37.45	4.082	3,471.92	236.71	1,337.98	0.00	0.00	0.00	0.00	
4,440.42	90.47	312.000	3,697.12	602.35	1,137.38	13.60	10.53	-10.35	-58.01	
5,358.57	90.47	357.909	3,689.19	1,412.06	759.03	5.00	0.00	5.00	89.81	
8,085.45	90.47	357.909	3,667.00	4,137.03	659.54	0.00	0.00	0.00	0.00	Carson #2 Lat 1 BHL

Database: Grand Junction District
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Site: Carson Pad
Well: Carson 32-5-28 (1 WB/2 Whip)
Wellbore: Lateral 2
Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

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)
3,937.05	37.45	4.082	3,471.92	236.71	1,337.98	444.40	0.00	0.00	0.00
4,000.00	42.52	353.315	3,520.20	277.00	1,336.86	484.02	13.60	8.05	-17.10
4,100.00	52.14	340.179	3,588.06	348.04	1,319.46	551.43	13.60	9.62	-13.14
4,200.00	62.88	330.242	3,641.79	424.17	1,283.82	621.00	13.60	10.73	-9.94
4,300.00	74.18	322.101	3,678.38	501.12	1,231.93	688.82	13.60	11.31	-8.14
4,400.00	85.76	314.840	3,695.79	574.59	1,166.72	751.11	13.60	11.58	-7.26
4,440.42	90.47	312.000	3,697.12	602.35	1,137.38	773.90	13.60	11.65	-7.03
4,500.00	90.48	314.979	3,696.62	643.34	1,094.17	807.58	5.00	0.02	5.00
4,600.00	90.49	319.979	3,695.77	717.02	1,026.61	869.70	5.00	0.01	5.00
4,700.00	90.50	324.979	3,694.91	796.31	965.72	938.41	5.00	0.01	5.00
4,800.00	90.51	329.979	3,694.03	880.60	911.98	1,013.19	5.00	0.01	5.00
4,900.00	90.51	334.980	3,693.14	969.25	865.79	1,093.47	5.00	0.00	5.00
5,000.00	90.51	339.980	3,692.25	1,061.59	827.50	1,178.63	5.00	0.00	5.00
5,100.00	90.50	344.980	3,691.38	1,156.92	797.41	1,268.03	5.00	-0.01	5.00
5,200.00	90.49	349.980	3,690.51	1,254.50	775.74	1,360.99	5.00	-0.01	5.00
5,300.00	90.48	354.980	3,689.67	1,353.61	762.66	1,456.80	5.00	-0.01	5.00
5,358.57	90.47	357.909	3,689.19	1,412.06	759.03	1,513.95	5.00	-0.02	5.00
5,400.00	90.47	357.909	3,688.85	1,453.46	757.52	1,554.59	0.00	0.00	0.00
5,500.00	90.47	357.909	3,688.04	1,553.39	753.87	1,652.70	0.00	0.00	0.00
5,600.00	90.47	357.909	3,687.22	1,653.32	750.22	1,750.81	0.00	0.00	0.00
5,700.00	90.47	357.909	3,686.41	1,753.25	746.57	1,848.92	0.00	0.00	0.00
5,800.00	90.47	357.909	3,685.59	1,853.18	742.92	1,947.03	0.00	0.00	0.00
5,900.00	90.47	357.909	3,684.78	1,953.11	739.27	2,045.14	0.00	0.00	0.00
6,000.00	90.47	357.909	3,683.97	2,053.04	735.62	2,143.25	0.00	0.00	0.00
6,100.00	90.47	357.909	3,683.15	2,152.97	731.98	2,241.36	0.00	0.00	0.00
6,200.00	90.47	357.909	3,682.34	2,252.90	728.33	2,339.47	0.00	0.00	0.00
6,300.00	90.47	357.909	3,681.53	2,352.83	724.68	2,437.58	0.00	0.00	0.00
6,400.00	90.47	357.909	3,680.71	2,452.76	721.03	2,535.69	0.00	0.00	0.00
6,500.00	90.47	357.909	3,679.90	2,552.69	717.38	2,633.80	0.00	0.00	0.00
6,600.00	90.47	357.909	3,679.09	2,652.62	713.73	2,731.91	0.00	0.00	0.00
6,700.00	90.47	357.909	3,678.27	2,752.55	710.09	2,830.02	0.00	0.00	0.00
6,800.00	90.47	357.909	3,677.46	2,852.48	706.44	2,928.13	0.00	0.00	0.00
6,900.00	90.47	357.909	3,676.65	2,952.41	702.79	3,026.24	0.00	0.00	0.00
7,000.00	90.47	357.909	3,675.83	3,052.34	699.14	3,124.35	0.00	0.00	0.00
7,100.00	90.47	357.909	3,675.02	3,152.27	695.49	3,222.46	0.00	0.00	0.00
7,200.00	90.47	357.909	3,674.20	3,252.20	691.84	3,320.56	0.00	0.00	0.00
7,300.00	90.47	357.909	3,673.39	3,352.13	688.19	3,418.67	0.00	0.00	0.00
7,400.00	90.47	357.909	3,672.58	3,452.06	684.55	3,516.78	0.00	0.00	0.00
7,500.00	90.47	357.909	3,671.76	3,551.99	680.90	3,614.89	0.00	0.00	0.00
7,600.00	90.47	357.909	3,670.95	3,651.92	677.25	3,713.00	0.00	0.00	0.00
7,700.00	90.47	357.909	3,670.14	3,751.85	673.60	3,811.11	0.00	0.00	0.00
7,800.00	90.47	357.909	3,669.32	3,851.78	669.95	3,909.22	0.00	0.00	0.00
7,900.00	90.47	357.909	3,668.51	3,951.71	666.30	4,007.33	0.00	0.00	0.00
8,000.00	90.47	357.909	3,667.70	4,051.64	662.66	4,105.44	0.00	0.00	0.00
8,085.45	90.47	357.909	3,667.00	4,137.03	659.54	4,189.27	0.00	0.00	0.00

Database: Grand Junction District
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Site: Carson Pad
Well: Carson 32-5-28 (1 WB/2 Whip)
Wellbore: Lateral 2
Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Carson #2 Lat 1 BHL - plan hits target center - Point	0.00	0.000	3,667.00	4,137.03	659.54	2,169,443.34	1,314,496.96	36.9567086	-107.3654991

Coleman Oil & Gas Inc.

Rio Arriba County, NM

Carson Pad

Carson 32-5-28 (1 WB/2 Whip)

Lateral 1

Plan #2

Anticollision Report

05 March, 2019



www.scientificdrilling.com



Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 1
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Reference Plan #2

Filter type: NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method: MD + Stations Interval 100.00usft
Depth Range: Unlimited
Results Limited by: Maximum center-center distance of 15,000.00 usft
Warning Levels Evaluated at: 2.00 Sigma

Error Model: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic
Casing Method: Not applied

Survey Tool Program Date 3/5/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	3,967.05	Plan #2 (Pilot)	MWD+HDGM	OWSG MWD + HDGM
3,967.05	8,084.30	Plan #2 (Lateral 1)	MWD+HDGM	OWSG MWD + HDGM

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Carson Pad						
Carson 32-5-28 (1 WB/2 Whip) - Lateral 2 - Plan #2						
Carson 32-5-28 (1 WB/2 Whip) - Lateral 2 - Plan #2	3,937.05	3,937.05	0.00	0.00	10,000.000	Out of range CC, ES
Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2						Out of range
Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2	3,967.05	3,967.05	0.00	0.00	10,000.000	CC, ES

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Lateral 2 - Plan #2

Survey Program: 0-MWD+HDGM, 3937-MWD+HDGM
Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
3,937.05	3,471.92	3,937.05	3,471.92	0.00	0.00	0.00	236.71	1,337.98	0.00	0.00	0.00	N/A	CC, ES
3,967.05	3,495.64	3,967.01	3,495.35	1.47	0.34	-60.33	255.38	1,338.40	0.84	0.84	0.00	N/A	
3,975.00	3,501.87	3,974.92	3,501.40	0.67	0.40	-64.14	260.47	1,338.22	1.39	1.39	0.00	N/A	
4,000.00	3,521.04	3,999.55	3,519.87	1.56	1.17	-78.81	276.70	1,336.90	4.58	4.58	0.00	N/A	
4,025.00	3,539.54	4,023.53	3,537.25	2.22	1.75	-87.14	293.04	1,334.48	10.10	10.10	0.00	N/A	
4,050.00	3,557.28	4,046.59	3,553.34	2.78	2.23	-92.25	309.20	1,331.11	17.89	17.89	0.00	N/A	
4,075.00	3,574.21	4,068.47	3,568.02	3.28	2.63	-95.67	324.90	1,326.98	27.82	27.82	0.00	N/A	
4,100.00	3,590.26	4,089.01	3,581.22	3.75	2.98	-98.04	339.90	1,322.29	39.74	39.74	0.00	N/A	
4,125.00	3,605.37	4,108.06	3,592.96	4.20	3.27	-99.62	354.05	1,317.24	53.50	53.50	0.00	N/A	
4,150.00	3,619.48	4,125.00	3,602.95	4.63	3.51	-100.51	366.76	1,312.20	68.92	68.92	0.00	N/A	
4,175.00	3,632.55	4,141.52	3,612.27	5.05	3.73	-100.91	379.27	1,306.78	85.82	85.82	0.00	N/A	
4,200.00	3,644.52	4,155.90	3,620.05	5.46	3.91	-100.68	390.24	1,301.68	104.04	104.04	0.00	N/A	
4,225.00	3,655.35	4,168.77	3,626.72	5.87	4.05	-99.85	400.10	1,296.81	123.43	123.43	0.00	N/A	
4,250.00	3,665.00	4,180.17	3,632.41	6.28	4.18	-98.37	408.87	1,292.25	143.81	143.81	0.00	N/A	
4,275.00	3,673.43	4,190.17	3,637.23	6.69	4.28	-96.14	416.58	1,288.08	165.05	165.05	0.00	N/A	
4,300.00	3,680.61	4,200.00	3,641.79	7.09	4.38	-93.27	424.17	1,283.82	187.02	187.02	0.00	N/A	
4,325.00	3,686.52	4,206.30	3,644.63	7.50	4.43	-88.89	429.04	1,281.00	209.59	209.59	0.00	N/A	
4,350.00	3,691.12	4,212.57	3,647.38	7.92	4.49	-83.51	433.89	1,278.13	232.64	232.64	0.00	N/A	
4,375.00	3,694.42	4,217.75	3,649.61	8.33	4.53	-76.70	437.89	1,275.72	256.08	256.08	0.00	N/A	
4,400.00	3,696.38	4,225.00	3,652.64	8.75	4.60	-69.79	443.50	1,272.27	279.82	279.82	0.00	N/A	
4,425.00	3,697.01	4,225.00	3,652.64	9.18	4.60	-58.52	443.50	1,272.27	303.71	303.71	0.00	N/A	
4,428.05	3,697.00	4,225.00	3,652.64	9.23	4.60	-57.07	443.50	1,272.27	306.64	306.64	0.00	N/A	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Scientific Drilling, Intl
Anticollision Report



Company:	Coleman Oil & Gas Inc.	Local Co-ordinate Reference:	Well Carson 32-5-28 (1 WB/2 Whip)
Project:	Rio Arriba County, NM	TVD Reference:	GL 6951' @ 6951.00usft
Reference Site:	Carson Pad	MD Reference:	GL 6951' @ 6951.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Carson 32-5-28 (1 WB/2 Whip)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral 1	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Lateral 2 - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM, 3937-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance			Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)				Between Ellipses (usft)	
4,500.00	3,696.41	4,233.73	3,656.17	10.45	4.66	-66.74	450.25	1,268.00	375.61	375.61	0.00	N/A		
4,600.00	3,695.58	4,250.00	3,662.38	12.15	4.78	-76.17	462.81	1,259.74	470.78	470.78	0.00	N/A		
4,700.00	3,694.72	4,264.94	3,667.65	13.81	4.87	-81.27	474.32	1,251.81	564.57	564.57	0.00	N/A		
4,800.00	3,693.85	4,284.21	3,673.84	15.40	4.97	-84.69	489.10	1,241.10	656.55	656.55	0.00	N/A		
4,900.00	3,692.98	4,300.00	3,678.38	16.89	5.04	-86.57	501.12	1,231.93	746.40	746.40	0.00	N/A		
5,000.00	3,692.10	4,325.00	3,684.59	18.28	5.11	-88.13	519.98	1,216.75	833.72	833.72	0.00	N/A		
5,100.00	3,691.23	4,350.00	3,689.57	19.56	5.13	-89.07	538.56	1,200.78	918.31	918.31	0.00	N/A		
5,200.00	3,690.37	4,375.00	3,693.31	20.73	5.12	-89.63	556.78	1,184.08	999.91	999.91	0.00	N/A		
5,300.00	3,689.53	4,400.00	3,695.79	21.78	5.06	-89.95	574.59	1,166.72	1,078.30	1,078.30	0.00	N/A		
5,363.03	3,689.02	4,425.00	3,697.00	22.39	4.96	-90.09	591.92	1,148.75	1,125.90	1,125.90	0.00	N/A		
5,400.00	3,688.72	4,434.85	3,697.13	22.73	4.90	-90.10	598.61	1,141.51	1,153.59	1,153.59	0.00	N/A		
5,500.00	3,687.91	5,454.59	3,688.41	23.65	17.20	-90.00	1,508.01	755.52	1,166.64	1,166.64	0.00	N/A		
5,600.00	3,687.10	5,554.42	3,687.59	24.58	18.20	-90.00	1,607.77	751.88	1,172.46	1,172.46	0.00	N/A		
5,700.00	3,686.29	5,654.25	3,686.78	25.52	19.28	-90.00	1,707.53	748.24	1,178.29	1,178.29	0.00	N/A		
5,800.00	3,685.48	5,754.08	3,685.97	26.48	20.42	-90.00	1,807.29	744.60	1,184.11	1,184.11	0.00	N/A		
5,900.00	3,684.67	5,853.91	3,685.16	27.44	21.62	-90.00	1,907.05	740.95	1,189.94	1,189.94	0.00	N/A		
6,000.00	3,683.86	5,953.74	3,684.34	28.42	22.86	-90.00	2,006.81	737.31	1,195.77	1,195.77	0.00	N/A		
6,100.00	3,683.05	6,053.57	3,683.53	29.42	24.14	-90.00	2,106.57	733.67	1,201.59	1,201.59	0.00	N/A		
6,200.00	3,682.24	6,153.40	3,682.72	30.43	25.46	-90.00	2,206.33	730.03	1,207.42	1,207.42	0.00	N/A		
6,300.00	3,681.44	6,253.23	3,681.91	31.45	26.80	-90.00	2,306.09	726.39	1,213.25	1,213.25	0.00	N/A		
6,400.00	3,680.63	6,353.06	3,681.10	32.49	28.16	-90.00	2,405.85	722.74	1,219.07	1,219.07	0.00	N/A		
6,500.00	3,679.82	6,452.89	3,680.28	33.55	29.54	-89.99	2,505.61	719.10	1,224.90	1,224.90	0.00	N/A		
6,600.00	3,679.01	6,552.72	3,679.47	34.62	30.94	-89.99	2,605.37	715.46	1,230.73	1,230.73	0.00	N/A		
6,700.00	3,678.20	6,652.55	3,678.66	35.71	32.35	-89.99	2,705.13	711.82	1,236.55	1,236.55	0.00	N/A		
6,800.00	3,677.39	6,752.38	3,677.85	36.81	33.77	-89.99	2,804.89	708.17	1,242.38	1,242.38	0.00	N/A		
6,900.00	3,676.58	6,852.21	3,677.03	37.93	35.21	-89.99	2,904.65	704.53	1,248.20	1,248.20	0.00	N/A		
7,000.00	3,675.77	6,952.04	3,676.22	39.06	36.65	-89.99	3,004.41	700.89	1,254.03	1,254.03	0.00	N/A		
7,100.00	3,674.96	7,051.87	3,675.41	40.21	38.10	-89.99	3,104.17	697.25	1,259.86	1,259.86	0.00	N/A		
7,200.00	3,674.15	7,151.70	3,674.60	41.37	39.56	-89.99	3,203.93	693.61	1,265.68	1,265.68	0.00	N/A		
7,300.00	3,673.35	7,251.53	3,673.79	42.55	41.02	-89.99	3,303.69	689.96	1,271.51	1,271.51	0.00	N/A		
7,400.00	3,672.54	7,351.36	3,672.97	43.74	42.49	-89.99	3,403.45	686.32	1,277.34	1,277.34	0.00	N/A		
7,500.00	3,671.73	7,451.19	3,672.16	44.94	43.96	-89.99	3,503.22	682.68	1,283.16	1,283.16	0.00	N/A		
7,600.00	3,670.92	7,551.02	3,671.35	46.16	45.44	-89.99	3,602.98	679.04	1,288.99	1,288.99	0.00	N/A		
7,700.00	3,670.11	7,650.85	3,670.54	47.39	46.93	-89.99	3,702.74	675.39	1,294.82	1,294.82	0.00	N/A		
7,800.00	3,669.30	7,750.68	3,669.72	48.63	48.41	-89.99	3,802.50	671.75	1,300.64	1,300.64	0.00	N/A		
7,900.00	3,668.49	7,850.51	3,668.91	49.88	49.91	-89.99	3,902.26	668.11	1,306.47	1,306.47	0.00	N/A		
8,000.00	3,667.68	7,950.34	3,668.10	51.14	51.40	-89.99	4,002.02	664.47	1,312.30	1,312.30	0.00	N/A		
8,084.42	3,667.00	8,034.61	3,667.41	52.21	52.66	-89.99	4,086.23	661.39	1,317.21	1,317.21	0.00	N/A		
8,084.93	3,667.00	8,035.13	3,667.41	52.22	52.67	-89.99	4,086.75	661.37	1,317.24	1,317.24	0.00	N/A		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 1
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
3,967.05	3,495.64	3,967.05	3,495.64	0.00	0.00	0.00	255.05	1,339.11	0.00	0.00	0.00	N/A	CC, ES	
3,967.09	3,495.67	3,967.09	3,495.67	0.00	0.00	-116.79	255.07	1,339.11	0.00	0.00	0.00	N/A		
3,975.00	3,501.87	3,975.00	3,501.89	0.84	0.31	-117.88	259.95	1,339.36	0.08	0.08	0.00	N/A		
4,000.00	3,521.04	3,999.96	3,521.42	0.20	1.27	-121.01	275.48	1,339.99	1.39	1.39	0.00	N/A		
4,025.00	3,539.54	4,024.77	3,540.70	0.76	1.59	-123.73	291.10	1,340.39	4.30	4.30	0.00	N/A		
4,050.00	3,557.28	4,049.34	3,559.64	1.31	1.91	-126.09	306.74	1,340.57	8.78	8.78	0.00	N/A		
4,075.00	3,574.21	4,073.58	3,578.22	1.82	2.19	-128.38	322.32	1,340.58	14.81	14.81	0.00	N/A		
4,100.00	3,590.26	4,097.43	3,596.49	2.29	2.44	-130.93	337.65	1,340.58	22.28	22.28	0.00	N/A		
4,125.00	3,605.37	4,120.79	3,614.38	2.73	2.66	-133.30	352.66	1,340.58	31.18	31.18	0.00	N/A		
4,150.00	3,619.48	4,143.56	3,631.82	3.16	2.87	-135.37	367.30	1,340.58	41.47	41.47	0.00	N/A		
4,175.00	3,632.55	4,165.67	3,648.76	3.59	3.07	-137.14	381.51	1,340.58	53.13	53.13	0.00	N/A		
4,200.00	3,644.52	4,187.02	3,665.12	4.00	3.27	-138.65	395.24	1,340.58	66.10	66.10	0.00	N/A		
4,225.00	3,655.35	4,207.55	3,680.84	4.41	3.45	-139.90	408.43	1,340.58	80.34	80.34	0.00	N/A		
4,250.00	3,665.00	4,227.17	3,695.87	4.82	3.61	-140.93	421.04	1,340.58	95.81	95.81	0.00	N/A		
4,275.00	3,673.43	4,245.81	3,710.15	5.22	3.76	-141.75	433.02	1,340.58	112.45	112.45	0.00	N/A		
4,300.00	3,680.61	4,263.40	3,723.62	5.63	3.91	-142.38	444.33	1,340.58	130.19	130.19	0.00	N/A		
4,325.00	3,686.52	4,279.87	3,736.24	6.05	4.04	-142.81	454.92	1,340.58	148.96	148.96	0.00	N/A		
4,350.00	3,691.12	4,295.17	3,747.97	6.46	4.17	-143.06	464.75	1,340.58	168.71	168.71	0.00	N/A		
4,375.00	3,694.42	4,309.24	3,758.74	6.88	4.28	-143.12	473.80	1,340.58	189.35	189.35	0.00	N/A		
4,400.00	3,696.38	4,322.02	3,768.53	7.30	4.37	-142.95	482.01	1,340.58	210.81	210.81	0.00	N/A		
4,425.00	3,697.01	4,333.47	3,777.30	7.73	4.46	-142.54	489.37	1,340.58	233.01	233.01	0.00	N/A		
4,428.05	3,697.00	4,334.77	3,778.30	7.78	4.47	-142.47	490.21	1,340.58	235.77	235.77	0.00	N/A		
4,500.00	3,696.41	4,366.33	3,802.47	9.01	4.71	-138.84	510.49	1,340.58	300.29	300.29	0.00	N/A		
4,600.00	3,695.58	4,413.51	3,838.62	10.71	5.06	-135.61	540.82	1,340.58	387.85	387.85	0.00	N/A		
4,700.00	3,694.72	4,423.93	3,846.60	12.38	5.14	-130.45	547.52	1,340.58	474.45	474.45	0.00	N/A		
4,800.00	3,693.85	4,423.93	3,846.60	13.98	5.14	-124.77	547.52	1,340.58	562.70	562.70	0.00	N/A		
4,900.00	3,692.98	4,423.93	3,846.60	15.48	5.14	-119.68	547.52	1,340.58	651.47	651.47	0.00	N/A		
5,000.00	3,692.10	4,423.93	3,846.60	16.88	5.14	-115.33	547.52	1,340.58	740.03	740.03	0.00	N/A		
5,100.00	3,691.23	4,423.93	3,846.60	18.16	5.14	-111.72	547.52	1,340.58	827.87	827.87	0.00	N/A		
5,200.00	3,690.37	4,423.93	3,846.60	19.34	5.14	-108.77	547.52	1,340.58	914.64	914.64	0.00	N/A		
5,300.00	3,689.53	4,423.93	3,846.60	20.39	5.14	-106.36	547.52	1,340.58	1,000.03	1,000.03	0.00	N/A		
5,363.03	3,689.02	4,423.93	3,846.60	21.01	5.14	-105.07	547.52	1,340.58	1,053.03	1,053.03	0.00	N/A		
5,400.00	3,688.72	4,423.93	3,846.60	21.35	5.14	-105.07	547.52	1,340.58	1,084.10	1,084.10	0.00	N/A		
5,500.00	3,687.91	4,423.93	3,846.60	22.29	5.14	-105.07	547.52	1,340.58	1,169.88	1,169.88	0.00	N/A		
5,600.00	3,687.10	4,423.93	3,846.60	23.23	5.14	-105.07	547.52	1,340.58	1,257.76	1,257.76	0.00	N/A		
5,700.00	3,686.29	4,423.93	3,846.60	24.19	5.14	-105.07	547.52	1,340.58	1,347.34	1,347.34	0.00	N/A		
5,800.00	3,685.48	4,423.93	3,846.60	25.15	5.14	-105.07	547.52	1,340.58	1,438.28	1,438.28	0.00	N/A		
5,900.00	3,684.67	4,423.93	3,846.60	26.13	5.14	-105.07	547.52	1,340.58	1,530.36	1,530.36	0.00	N/A		
6,000.00	3,683.86	4,423.93	3,846.60	27.13	5.14	-105.07	547.52	1,340.58	1,623.38	1,623.38	0.00	N/A		
6,100.00	3,683.05	4,423.93	3,846.60	28.14	5.14	-105.07	547.52	1,340.58	1,717.18	1,717.18	0.00	N/A		
6,200.00	3,682.24	4,423.93	3,846.60	29.17	5.14	-105.07	547.52	1,340.58	1,811.64	1,811.64	0.00	N/A		
6,300.00	3,681.44	4,423.93	3,846.60	30.22	5.14	-105.07	547.52	1,340.58	1,906.67	1,906.67	0.00	N/A		
6,400.00	3,680.63	4,423.93	3,846.60	31.28	5.14	-105.07	547.52	1,340.58	2,002.18	2,002.18	0.00	N/A		
6,500.00	3,679.82	4,423.93	3,846.60	32.35	5.14	-105.07	547.52	1,340.58	2,098.11	2,098.11	0.00	N/A		
6,600.00	3,679.01	4,423.93	3,846.60	33.45	5.14	-105.07	547.52	1,340.58	2,194.41	2,194.41	0.00	N/A		
6,700.00	3,678.20	4,423.93	3,846.60	34.56	5.14	-105.07	547.52	1,340.58	2,291.02	2,291.02	0.00	N/A		
6,800.00	3,677.39	4,423.93	3,846.60	35.68	5.14	-105.07	547.52	1,340.58	2,387.91	2,387.91	0.00	N/A		
6,900.00	3,676.58	4,423.93	3,846.60	36.82	5.14	-105.07	547.52	1,340.58	2,485.05	2,485.05	0.00	N/A		
7,000.00	3,675.77	4,423.93	3,846.60	37.98	5.14	-105.07	547.52	1,340.58	2,582.40	2,582.40	0.00	N/A		
7,100.00	3,674.96	4,423.93	3,846.60	39.15	5.14	-105.07	547.52	1,340.58	2,679.95	2,679.95	0.00	N/A		
7,200.00	3,674.15	4,423.93	3,846.60	40.33	5.14	-105.07	547.52	1,340.58	2,777.68	2,777.68	0.00	N/A		
7,300.00	3,673.35	4,423.93	3,846.60	41.53	5.14	-105.07	547.52	1,340.58	2,875.56	2,875.56	0.00	N/A		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Scientific Drilling, Intl
Anticollision Report



Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 1
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,400.00	3,672.54	4,423.93	3,846.60	42.75	5.14	-105.07	547.52	1,340.58	2,973.58	2,973.58	0.00	N/A		
7,500.00	3,671.73	4,423.93	3,846.60	43.97	5.14	-105.07	547.52	1,340.58	3,071.73	3,071.73	0.00	N/A		
7,600.00	3,670.92	4,423.93	3,846.60	45.21	5.14	-105.07	547.52	1,340.58	3,170.00	3,170.00	0.00	N/A		
7,700.00	3,670.11	4,423.93	3,846.60	46.46	5.14	-105.07	547.52	1,340.58	3,268.37	3,268.37	0.00	N/A		
7,800.00	3,669.30	4,423.93	3,846.60	47.72	5.14	-105.07	547.52	1,340.58	3,366.83	3,366.83	0.00	N/A		
7,900.00	3,668.49	4,423.93	3,846.60	48.99	5.14	-105.07	547.52	1,340.58	3,465.39	3,465.39	0.00	N/A		
8,000.00	3,667.68	4,423.93	3,846.60	50.27	5.14	-105.07	547.52	1,340.58	3,564.02	3,564.02	0.00	N/A		
8,084.42	3,667.00	4,423.93	3,846.60	51.36	5.14	-105.07	547.52	1,340.58	3,647.34	3,647.34	0.00	N/A		
8,084.93	3,667.00	4,423.93	3,846.60	51.36	5.14	-105.07	547.52	1,340.58	3,647.86	3,647.86	0.00	N/A		

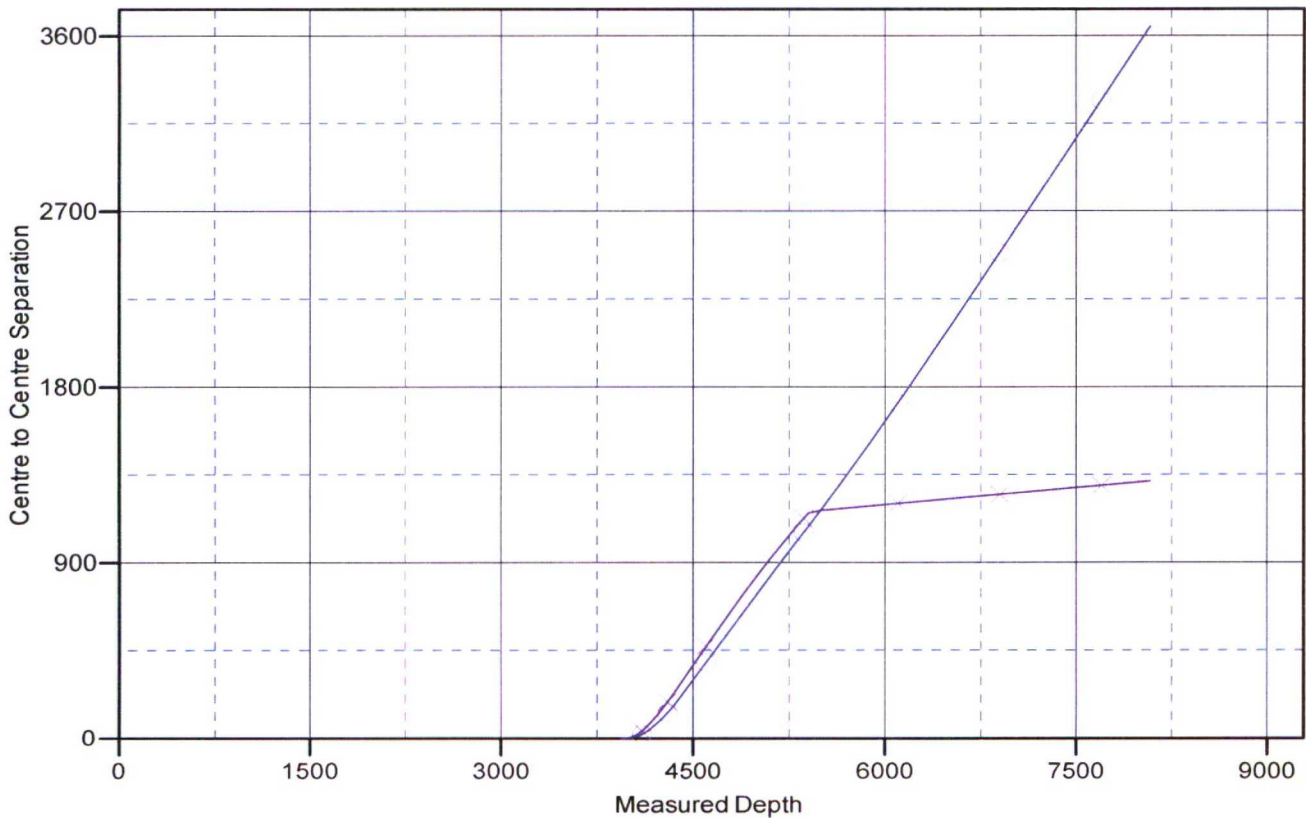
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 1
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL 6951' @ 6951.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -106.2500000

Coordinates are relative to: Carson 32-5-28 (1 WB/2 Whip)
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.67°

Ladder Plot



LEGEND

Carson 32-5-28 (1 WB/2 Whip), Pilot, Plan #2 V0

 Carson 32-5-28 (1 WB/2 Whip), Lateral 2, Plan #2 V0

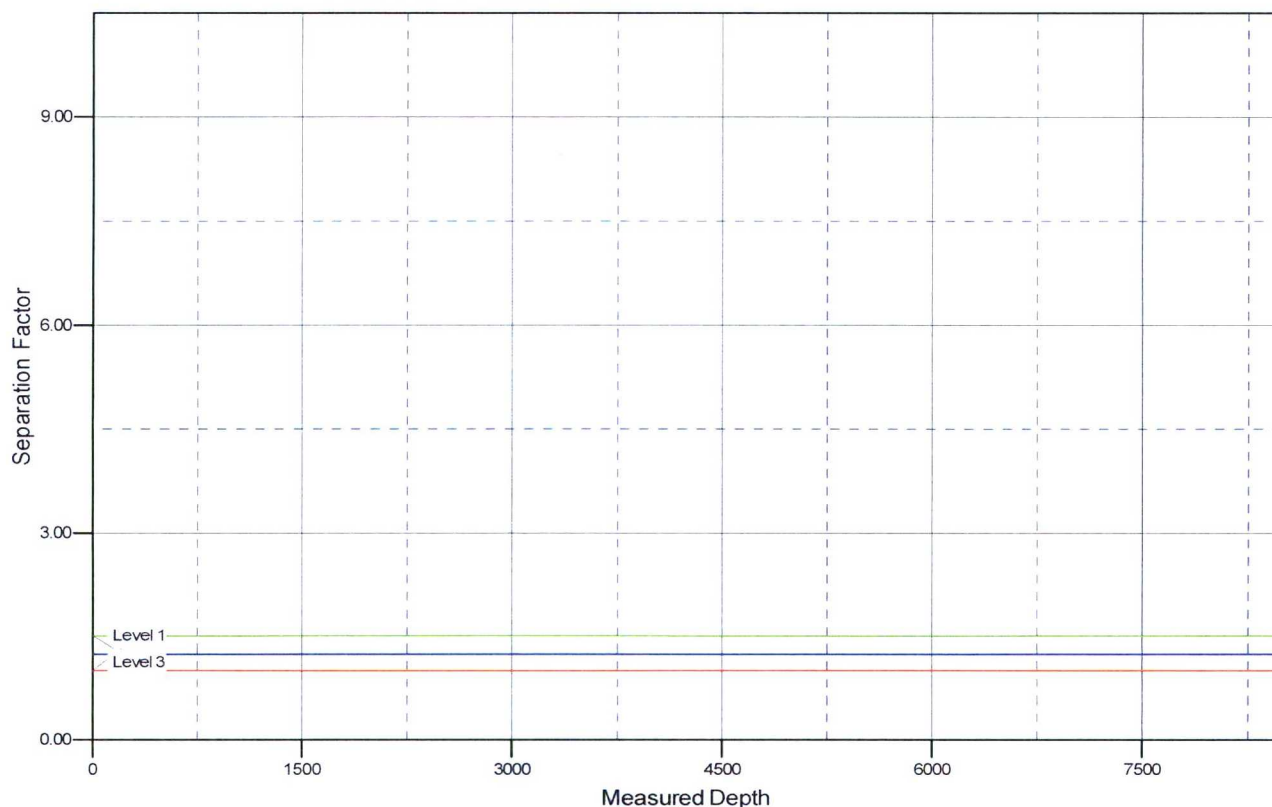
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 1
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL 6951' @ 6951.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -106.2500000

Coordinates are relative to: Carson 32-5-28 (1 WB/2 Whip)
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.67°

Separation Factor Plot



LEGEND

son 32-5-28 (1 WB/2 Whip), Pilot, Plan #2 V0

✱ Carson 32-5-28 (1 WB/2 Whip), Lateral 2, Plan #2 V0

Coleman Oil & Gas Inc.

Rio Arriba County, NM

Carson Pad

Carson 32-5-28 (1 WB/2 Whip)

Lateral 2

Plan #2

Anticollision Report

05 March, 2019



Scientific Drilling

www.scientificdrilling.com



Company:	Coleman Oil & Gas Inc.	Local Co-ordinate Reference:	Well Carson 32-5-28 (1 WB/2 Whip)
Project:	Rio Arriba County, NM	TVD Reference:	GL 6951' @ 6951.00usft
Reference Site:	Carson Pad	MD Reference:	GL 6951' @ 6951.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Carson 32-5-28 (1 WB/2 Whip)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral 2	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD + Stations Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 15,000.00 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

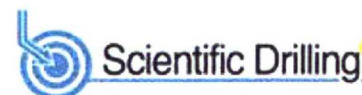
Survey Tool Program		Date	3/5/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	3,937.05	Plan #2 (Pilot)	MWD+HDGM	OWSG MWD + HDGM	
3,937.05	8,085.35	Plan #2 (Lateral 2)	MWD+HDGM	OWSG MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Carson Pad						
Carson 32-5-28 (1 WB/2 Whip) - Lateral 1 - Plan #2						Out of range
Carson 32-5-28 (1 WB/2 Whip) - Lateral 1 - Plan #2	3,937.05	3,937.05	0.00	0.00	10,000.000	CC, ES
Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2						Out of range
Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2	3,937.05	3,937.05	0.00	0.00	10,000.000	CC, ES

Offset Design	Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Lateral 1 - Plan #2											Offset Site Error:	0.00 usft
Survey Program:	0-MWD+HDGM, 3967-MWD+HDGM											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,937.05	3,471.92	3,937.05	3,471.92	0.00	0.00	0.00	236.71	1,337.98	0.00	0.00	0.00	N/A	CC, ES
3,938.47	3,473.05	3,938.47	3,473.06	0.20	0.07	119.04	237.57	1,338.04	0.00	0.00	0.00	N/A	
3,950.00	3,482.14	3,950.00	3,482.19	1.79	0.63	120.72	244.59	1,338.51	0.16	0.16	0.00	N/A	
3,975.00	3,501.46	3,974.96	3,501.84	0.41	0.67	121.32	259.95	1,339.43	1.39	1.39	0.00	N/A	
4,000.00	3,520.20	3,999.65	3,520.78	1.18	1.55	112.54	275.68	1,341.22	4.59	4.59	0.00	N/A	
4,025.00	3,538.29	4,023.74	3,538.62	1.79	2.19	109.16	291.60	1,344.11	10.13	10.13	0.00	N/A	
4,050.00	3,555.67	4,046.93	3,555.14	2.30	2.71	108.14	307.40	1,347.97	17.95	17.95	0.00	N/A	
4,075.00	3,572.28	4,068.96	3,570.19	2.75	3.16	107.97	322.81	1,352.58	27.94	27.94	0.00	N/A	
4,100.00	3,588.06	4,089.64	3,583.71	3.15	3.56	108.04	337.58	1,357.75	39.93	39.93	0.00	N/A	
4,125.00	3,602.95	4,108.83	3,595.71	3.51	3.91	108.10	351.51	1,363.26	53.78	53.78	0.00	N/A	
4,150.00	3,616.90	4,126.47	3,606.23	3.84	4.23	108.00	364.49	1,368.92	69.31	69.31	0.00	N/A	
4,175.00	3,629.86	4,142.53	3,615.37	4.13	4.50	107.65	376.42	1,374.56	86.34	86.34	0.00	N/A	
4,200.00	3,641.79	4,157.01	3,623.25	4.38	4.75	106.95	387.27	1,380.03	104.70	104.70	0.00	N/A	
4,225.00	3,652.64	4,169.96	3,630.00	4.60	4.97	105.85	397.01	1,385.23	124.24	124.24	0.00	N/A	
4,250.00	3,662.38	4,181.42	3,635.73	4.78	5.16	104.23	405.68	1,390.08	144.78	144.78	0.00	N/A	
4,275.00	3,670.97	4,191.48	3,640.57	4.93	5.32	101.99	413.31	1,394.51	166.19	166.19	0.00	N/A	
4,300.00	3,678.38	4,200.00	3,644.52	5.04	5.46	98.93	419.78	1,398.39	188.34	188.34	0.00	N/A	
4,325.00	3,684.59	4,207.68	3,647.97	5.11	5.59	94.93	425.62	1,401.99	211.09	211.09	0.00	N/A	
4,350.00	3,689.57	4,213.98	3,650.72	5.13	5.69	89.65	430.41	1,405.01	234.34	234.34	0.00	N/A	
4,375.00	3,693.31	4,219.17	3,652.93	5.12	5.78	82.79	434.36	1,407.55	257.98	257.98	0.00	N/A	
4,400.00	3,695.79	4,225.00	3,655.35	5.06	5.87	74.84	438.81	1,410.45	281.92	281.92	0.00	N/A	
4,425.00	3,697.00	4,225.00	3,655.35	4.96	5.87	62.53	438.81	1,410.45	306.05	306.05	0.00	N/A	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Scientific Drilling, Intl
Anticollision Report



Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 2
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Lateral 1 - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM, 3967-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,440.42	3,697.12	4,225.00	3,655.35	4.87	5.87	54.08	438.81	1,410.45	321.03	321.03	0.00	N/A		
4,500.00	3,696.62	4,233.81	3,658.89	4.49	6.02	64.82	445.51	1,414.94	378.75	378.75	0.00	N/A		
4,600.00	3,695.77	4,250.00	3,665.00	4.27	6.28	75.82	457.83	1,423.49	475.02	475.02	0.00	N/A		
4,700.00	3,694.91	4,261.79	3,669.13	6.05	6.47	80.94	466.78	1,429.96	569.88	569.88	0.00	N/A		
4,800.00	3,694.03	4,275.00	3,673.43	8.46	6.69	84.13	476.78	1,437.44	663.02	663.02	0.00	N/A		
4,900.00	3,693.14	4,300.00	3,680.61	10.41	7.09	86.80	495.59	1,452.25	753.95	753.95	0.00	N/A		
5,000.00	3,692.25	4,325.00	3,686.52	12.06	7.50	88.31	514.18	1,467.88	842.47	842.47	0.00	N/A		
5,100.00	3,691.38	4,350.00	3,691.12	13.50	7.92	89.19	532.50	1,484.26	928.26	928.26	0.00	N/A		
5,200.00	3,690.51	4,375.00	3,694.42	14.73	8.33	89.70	550.46	1,501.33	1,011.03	1,011.03	0.00	N/A		
5,300.00	3,689.67	4,400.00	3,696.38	15.78	8.75	89.97	568.00	1,519.02	1,090.56	1,090.56	0.00	N/A		
5,358.57	3,689.19	4,416.01	3,696.94	16.32	9.03	90.06	578.98	1,530.66	1,135.56	1,135.56	0.00	N/A		
5,400.00	3,688.85	5,377.53	3,688.90	16.69	22.52	89.98	1,428.14	1,918.71	1,161.47	1,161.47	0.00	N/A		
5,500.00	3,688.04	5,477.36	3,688.09	17.64	23.44	89.98	1,527.94	1,920.89	1,167.30	1,167.30	0.00	N/A		
5,600.00	3,687.22	5,577.19	3,687.28	18.68	24.37	89.98	1,627.74	1,923.07	1,173.13	1,173.13	0.00	N/A		
5,700.00	3,686.41	5,677.02	3,686.48	19.79	25.31	89.98	1,727.55	1,925.24	1,178.95	1,178.95	0.00	N/A		
5,800.00	3,685.59	5,776.85	3,685.67	20.96	26.26	89.98	1,827.35	1,927.42	1,184.78	1,184.78	0.00	N/A		
5,900.00	3,684.78	5,876.68	3,684.86	22.18	27.22	89.98	1,927.15	1,929.60	1,190.61	1,190.61	0.00	N/A		
6,000.00	3,683.97	5,976.51	3,684.05	23.45	28.19	89.98	2,026.96	1,931.77	1,196.43	1,196.43	0.00	N/A		
6,100.00	3,683.15	6,076.34	3,683.24	24.75	29.18	89.98	2,126.76	1,933.95	1,202.26	1,202.26	0.00	N/A		
6,200.00	3,682.34	6,176.17	3,682.44	26.08	30.18	89.98	2,226.56	1,936.12	1,208.08	1,208.08	0.00	N/A		
6,300.00	3,681.53	6,276.00	3,681.63	27.43	31.20	89.98	2,326.36	1,938.30	1,213.91	1,213.91	0.00	N/A		
6,400.00	3,680.71	6,375.83	3,680.82	28.81	32.24	89.98	2,426.17	1,940.48	1,219.74	1,219.74	0.00	N/A		
6,500.00	3,679.90	6,475.66	3,680.01	30.20	33.29	89.98	2,525.97	1,942.65	1,225.56	1,225.56	0.00	N/A		
6,600.00	3,679.09	6,575.50	3,679.21	31.61	34.36	89.98	2,625.77	1,944.83	1,231.39	1,231.39	0.00	N/A		
6,700.00	3,678.27	6,675.33	3,678.40	33.03	35.44	89.98	2,725.58	1,947.01	1,237.22	1,237.22	0.00	N/A		
6,800.00	3,677.46	6,775.16	3,677.59	34.46	36.54	89.98	2,825.38	1,949.18	1,243.04	1,243.04	0.00	N/A		
6,900.00	3,676.65	6,874.99	3,676.78	35.90	37.65	89.98	2,925.18	1,951.36	1,248.87	1,248.87	0.00	N/A		
7,000.00	3,675.83	6,974.82	3,675.98	37.34	38.78	89.98	3,024.99	1,953.54	1,254.70	1,254.70	0.00	N/A		
7,100.00	3,675.02	7,074.65	3,675.17	38.80	39.92	89.98	3,124.79	1,955.71	1,260.52	1,260.52	0.00	N/A		
7,200.00	3,674.20	7,174.48	3,674.36	40.26	41.08	89.98	3,224.59	1,957.89	1,266.35	1,266.35	0.00	N/A		
7,300.00	3,673.39	7,274.31	3,673.55	41.73	42.25	89.98	3,324.40	1,960.07	1,272.17	1,272.17	0.00	N/A		
7,400.00	3,672.58	7,374.14	3,672.75	43.21	43.43	89.98	3,424.20	1,962.24	1,278.00	1,278.00	0.00	N/A		
7,500.00	3,671.76	7,473.97	3,671.94	44.69	44.63	89.98	3,524.00	1,964.42	1,283.83	1,283.83	0.00	N/A		
7,600.00	3,670.95	7,573.80	3,671.13	46.17	45.84	89.98	3,623.81	1,966.60	1,289.65	1,289.65	0.00	N/A		
7,700.00	3,670.14	7,673.63	3,670.32	47.66	47.06	89.98	3,723.61	1,968.77	1,295.48	1,295.48	0.00	N/A		
7,800.00	3,669.32	7,773.46	3,669.52	49.15	48.30	89.98	3,823.41	1,970.95	1,301.31	1,301.31	0.00	N/A		
7,900.00	3,668.51	7,873.29	3,668.71	50.65	49.54	89.98	3,923.21	1,973.13	1,307.13	1,307.13	0.00	N/A		
8,000.00	3,667.70	7,973.12	3,667.90	52.14	50.80	89.98	4,023.02	1,975.30	1,312.96	1,312.96	0.00	N/A		
8,085.45	3,667.00	8,058.42	3,667.21	53.43	51.88	89.98	4,108.30	1,977.16	1,317.94	1,317.94	0.00	N/A		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Scientific Drilling, Intl

Anticollision Report

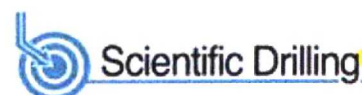


Company:	Coleman Oil & Gas Inc.	Local Co-ordinate Reference:	Well Carson 32-5-28 (1 WB/2 Whip)
Project:	Rio Arriba County, NM	TVD Reference:	GL 6951' @ 6951.00usft
Reference Site:	Carson Pad	MD Reference:	GL 6951' @ 6951.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Carson 32-5-28 (1 WB/2 Whip)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral 2	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance			Minimum Separation		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Between Centres (usft)	Between Ellipses (usft)			
3,937.05	3,471.92	3,937.05	3,471.92	0.00	0.00	0.00	236.71	1,337.98	0.00	0.00	0.00	N/A	CC, ES	
3,938.47	3,473.05	3,938.47	3,473.05	0.20	0.05	119.04	237.57	1,338.04	0.00	0.00	0.00	N/A		
3,950.00	3,482.14	3,950.00	3,482.19	1.79	0.50	120.72	244.59	1,338.51	0.16	0.16	0.00	N/A		
3,975.00	3,501.46	3,974.98	3,501.87	0.41	1.46	124.09	259.94	1,339.36	1.34	1.34	0.00	N/A		
4,000.00	3,520.20	3,999.89	3,521.37	1.18	2.42	127.08	275.44	1,339.99	3.69	3.69	0.00	N/A		
4,025.00	3,538.29	4,024.71	3,540.65	1.79	2.75	129.73	291.06	1,340.39	7.19	7.19	0.00	N/A		
4,050.00	3,555.67	4,049.39	3,559.68	2.30	3.07	132.08	306.78	1,340.57	11.85	11.85	0.00	N/A		
4,075.00	3,572.28	4,073.74	3,578.34	2.75	3.35	134.20	322.42	1,340.58	17.72	17.72	0.00	N/A		
4,100.00	3,588.06	4,097.65	3,596.66	3.15	3.60	136.21	337.79	1,340.58	25.00	25.00	0.00	N/A		
4,125.00	3,602.95	4,121.09	3,614.61	3.51	3.81	138.02	352.86	1,340.58	33.69	33.69	0.00	N/A		
4,150.00	3,616.90	4,143.97	3,632.14	3.84	4.02	139.63	367.56	1,340.58	43.75	43.75	0.00	N/A		
4,175.00	3,629.86	4,166.22	3,649.18	4.13	4.22	141.02	381.86	1,340.58	55.15	55.15	0.00	N/A		
4,200.00	3,641.79	4,187.75	3,665.67	4.38	4.42	142.23	395.70	1,340.58	67.84	67.84	0.00	N/A		
4,225.00	3,652.64	4,208.49	3,681.56	4.60	4.60	143.27	409.03	1,340.58	81.79	81.79	0.00	N/A		
4,250.00	3,662.38	4,228.36	3,696.79	4.78	4.76	144.16	421.81	1,340.58	96.95	96.95	0.00	N/A		
4,275.00	3,670.97	4,247.31	3,711.30	4.93	4.91	144.90	433.99	1,340.58	113.26	113.26	0.00	N/A		
4,300.00	3,678.38	4,265.25	3,725.04	5.04	5.05	145.50	445.52	1,340.58	130.66	130.66	0.00	N/A		
4,325.00	3,684.59	4,282.12	3,737.97	5.11	5.19	145.98	456.37	1,340.58	149.10	149.10	0.00	N/A		
4,350.00	3,689.57	4,297.88	3,750.04	5.13	5.32	146.33	466.49	1,340.58	168.50	168.50	0.00	N/A		
4,375.00	3,693.31	4,312.46	3,761.21	5.12	5.43	146.57	475.86	1,340.58	188.81	188.81	0.00	N/A		
4,400.00	3,695.79	4,325.80	3,771.43	5.06	5.52	146.68	484.44	1,340.58	209.94	209.94	0.00	N/A		
4,425.00	3,697.00	4,337.87	3,780.68	4.96	5.61	146.66	492.20	1,340.58	231.83	231.83	0.00	N/A		
4,440.42	3,697.12	4,344.66	3,785.88	4.87	5.66	146.59	496.57	1,340.58	245.67	245.67	0.00	N/A		
4,500.00	3,696.62	4,370.64	3,805.77	4.49	5.86	142.46	513.26	1,340.58	299.25	299.25	0.00	N/A		
4,600.00	3,695.77	4,417.35	3,841.56	4.27	6.20	137.99	543.29	1,340.58	387.32	387.32	0.00	N/A		
4,700.00	3,694.91	4,423.93	3,846.60	6.05	6.25	132.03	547.52	1,340.58	474.79	474.79	0.00	N/A		
4,800.00	3,694.03	4,423.93	3,846.60	8.46	6.25	125.92	547.52	1,340.58	563.84	563.84	0.00	N/A		
4,900.00	3,693.14	4,423.93	3,846.60	10.41	6.25	120.49	547.52	1,340.58	653.32	653.32	0.00	N/A		
5,000.00	3,692.25	4,423.93	3,846.60	12.06	6.25	115.89	547.52	1,340.58	742.52	742.52	0.00	N/A		
5,100.00	3,691.38	4,423.93	3,846.60	13.50	6.25	112.10	547.52	1,340.58	830.96	830.96	0.00	N/A		
5,200.00	3,690.51	4,423.93	3,846.60	14.73	6.25	109.02	547.52	1,340.58	918.28	918.28	0.00	N/A		
5,300.00	3,689.67	4,423.93	3,846.60	15.78	6.25	106.52	547.52	1,340.58	1,004.19	1,004.19	0.00	N/A		
5,358.57	3,689.19	4,423.93	3,846.60	16.32	6.25	105.29	547.52	1,340.58	1,053.76	1,053.76	0.00	N/A		
5,400.00	3,688.85	4,423.93	3,846.60	16.69	6.25	105.29	547.52	1,340.58	1,088.84	1,088.84	0.00	N/A		
5,500.00	3,688.04	4,423.93	3,846.60	17.64	6.25	105.29	547.52	1,340.58	1,175.22	1,175.22	0.00	N/A		
5,600.00	3,687.22	4,423.93	3,846.60	18.68	6.25	105.29	547.52	1,340.58	1,263.61	1,263.61	0.00	N/A		
5,700.00	3,686.41	4,423.93	3,846.60	19.79	6.25	105.29	547.52	1,340.58	1,353.62	1,353.62	0.00	N/A		
5,800.00	3,685.59	4,423.93	3,846.60	20.96	6.25	105.29	547.52	1,340.58	1,444.94	1,444.94	0.00	N/A		
5,900.00	3,684.78	4,423.93	3,846.60	22.18	6.25	105.29	547.52	1,340.58	1,537.35	1,537.35	0.00	N/A		
6,000.00	3,683.97	4,423.93	3,846.60	23.45	6.25	105.29	547.52	1,340.58	1,630.65	1,630.65	0.00	N/A		
6,100.00	3,683.15	4,423.93	3,846.60	24.75	6.25	105.29	547.52	1,340.58	1,724.70	1,724.70	0.00	N/A		
6,200.00	3,682.34	4,423.93	3,846.60	26.08	6.25	105.29	547.52	1,340.58	1,819.38	1,819.38	0.00	N/A		
6,300.00	3,681.53	4,423.93	3,846.60	27.43	6.25	105.29	547.52	1,340.58	1,914.61	1,914.61	0.00	N/A		
6,400.00	3,680.71	4,423.93	3,846.60	28.81	6.25	105.29	547.52	1,340.58	2,010.30	2,010.30	0.00	N/A		
6,500.00	3,679.90	4,423.93	3,846.60	30.20	6.25	105.29	547.52	1,340.58	2,106.39	2,106.39	0.00	N/A		
6,600.00	3,679.09	4,423.93	3,846.60	31.61	6.25	105.29	547.52	1,340.58	2,202.83	2,202.83	0.00	N/A		
6,700.00	3,678.27	4,423.93	3,846.60	33.03	6.25	105.29	547.52	1,340.58	2,299.57	2,299.57	0.00	N/A		
6,800.00	3,677.46	4,423.93	3,846.60	34.46	6.25	105.29	547.52	1,340.58	2,396.58	2,396.58	0.00	N/A		
6,900.00	3,676.65	4,423.93	3,846.60	35.90	6.25	105.29	547.52	1,340.58	2,493.83	2,493.83	0.00	N/A		
7,000.00	3,675.83	4,423.93	3,846.60	37.34	6.25	105.29	547.52	1,340.58	2,591.28	2,591.28	0.00	N/A		
7,100.00	3,675.02	4,423.93	3,846.60	38.80	6.25	105.29	547.52	1,340.58	2,688.92	2,688.92	0.00	N/A		
7,200.00	3,674.20	4,423.93	3,846.60	40.26	6.25	105.29	547.52	1,340.58	2,786.73	2,786.73	0.00	N/A		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Scientific Drilling, Intl
Anticollision Report



Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 2
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Offset Design Carson Pad - Carson 32-5-28 (1 WB/2 Whip) - Pilot - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,300.00	3,673.39	4,423.93	3,846.60	41.73	6.25	105.29	547.52	1,340.58	2,884.69	2,884.69	0.00	N/A		
7,400.00	3,672.58	4,423.93	3,846.60	43.21	6.25	105.29	547.52	1,340.58	2,982.79	2,982.79	0.00	N/A		
7,500.00	3,671.76	4,423.93	3,846.60	44.69	6.25	105.29	547.52	1,340.58	3,081.01	3,081.01	0.00	N/A		
7,600.00	3,670.95	4,423.93	3,846.60	46.17	6.25	105.29	547.52	1,340.58	3,179.34	3,179.34	0.00	N/A		
7,700.00	3,670.14	4,423.93	3,846.60	47.66	6.25	105.29	547.52	1,340.58	3,277.77	3,277.77	0.00	N/A		
7,800.00	3,669.32	4,423.93	3,846.60	49.15	6.25	105.29	547.52	1,340.58	3,376.29	3,376.29	0.00	N/A		
7,900.00	3,668.51	4,423.93	3,846.60	50.65	6.25	105.29	547.52	1,340.58	3,474.89	3,474.89	0.00	N/A		
8,000.00	3,667.70	4,423.93	3,846.60	52.14	6.25	105.29	547.52	1,340.58	3,573.58	3,573.58	0.00	N/A		
8,085.45	3,667.00	4,423.93	3,846.60	53.43	6.25	105.29	547.52	1,340.58	3,657.96	3,657.96	0.00	N/A		

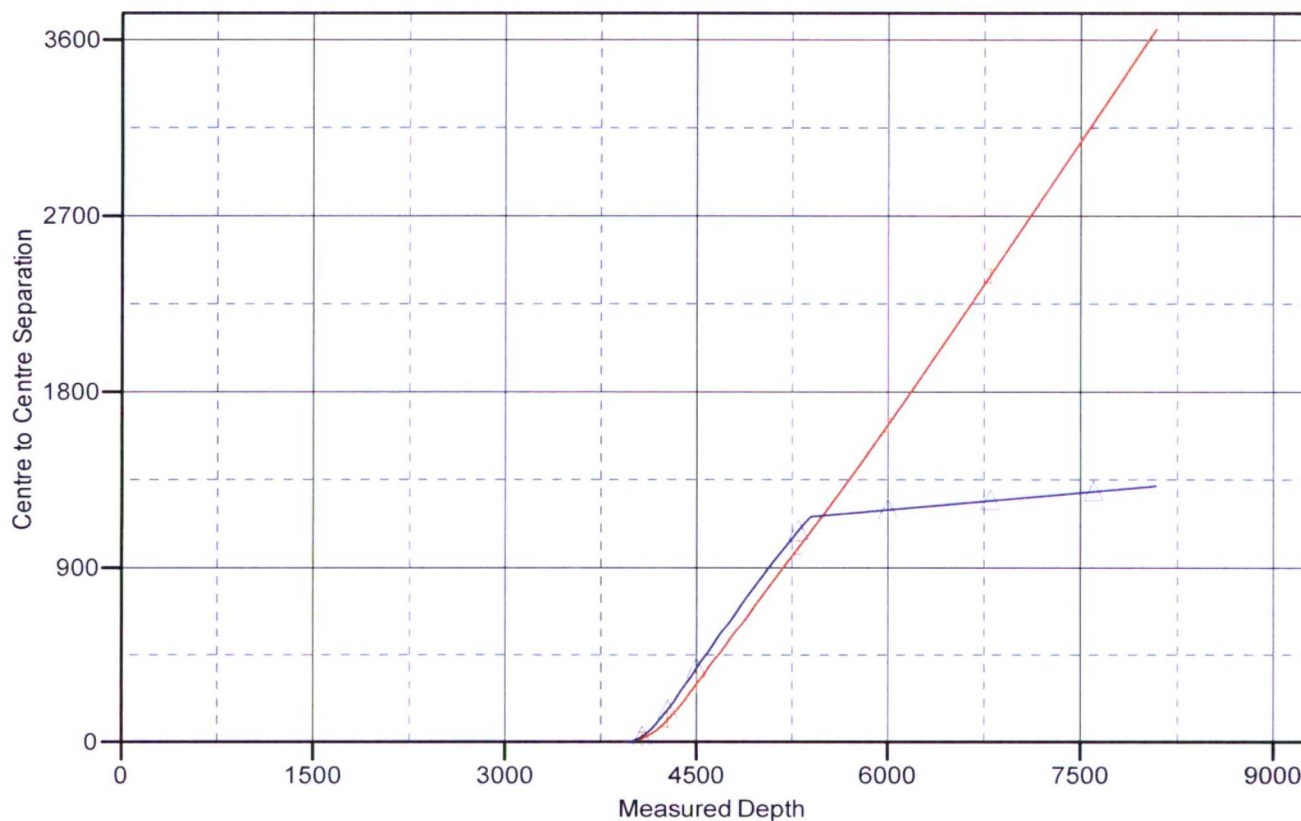
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 2
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL 6951' @ 6951.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -106.2500000

Coordinates are relative to: Carson 32-5-28 (1 WB/2 Whip)
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.67°

Ladder Plot



LEGEND

Carson 32-5-28 (1 WB/2 Whip), Pilot, Plan #2 V0

 Carson 32-5-28 (1 WB/2 Whip), Lateral 1, Plan #2 V0

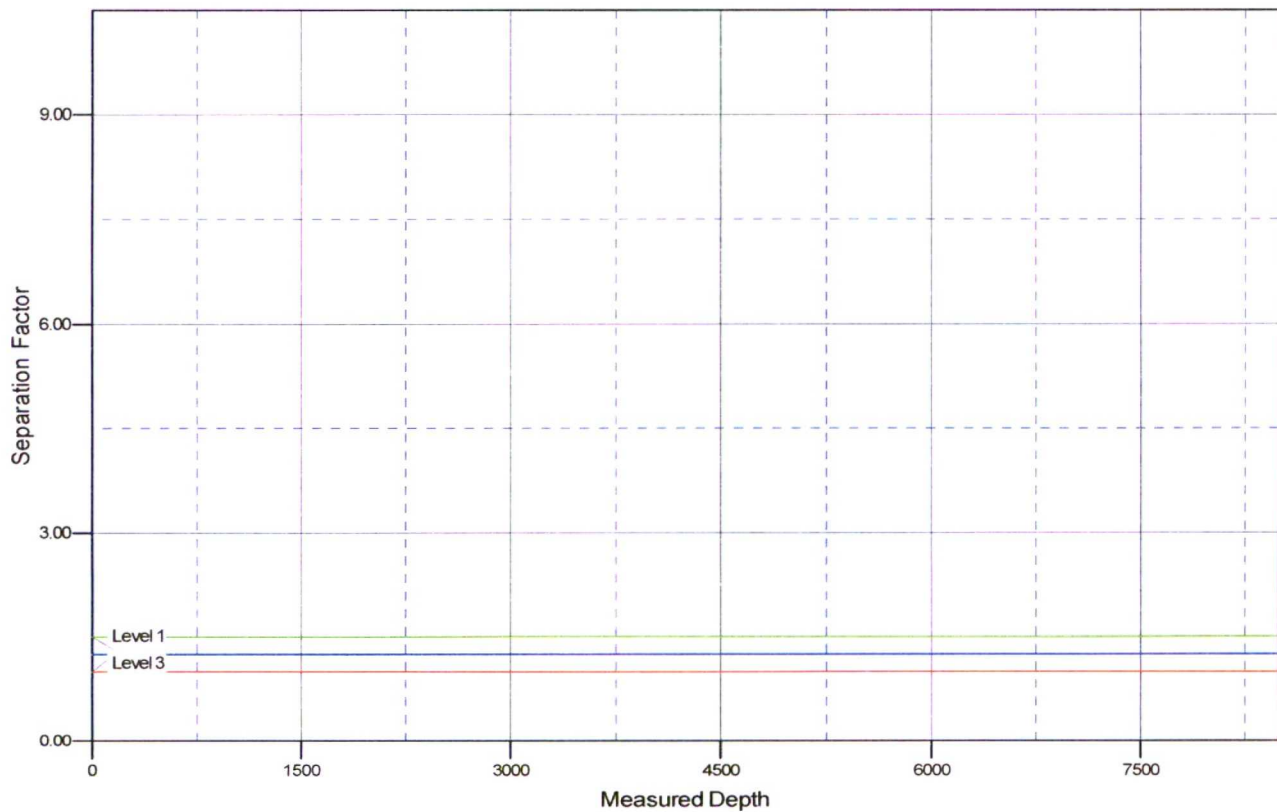
Company: Coleman Oil & Gas Inc.
Project: Rio Arriba County, NM
Reference Site: Carson Pad
Site Error: 0.00 usft
Reference Well: Carson 32-5-28 (1 WB/2 Whip)
Well Error: 0.00 usft
Reference Wellbore: Lateral 2
Reference Design: Plan #2

Local Co-ordinate Reference: Well Carson 32-5-28 (1 WB/2 Whip)
TVD Reference: GL 6951' @ 6951.00usft
MD Reference: GL 6951' @ 6951.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Grand Junction District
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL 6951' @ 6951.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -106.2500000

Coordinates are relative to: Carson 32-5-28 (1 WB/2 Whip)
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.67°

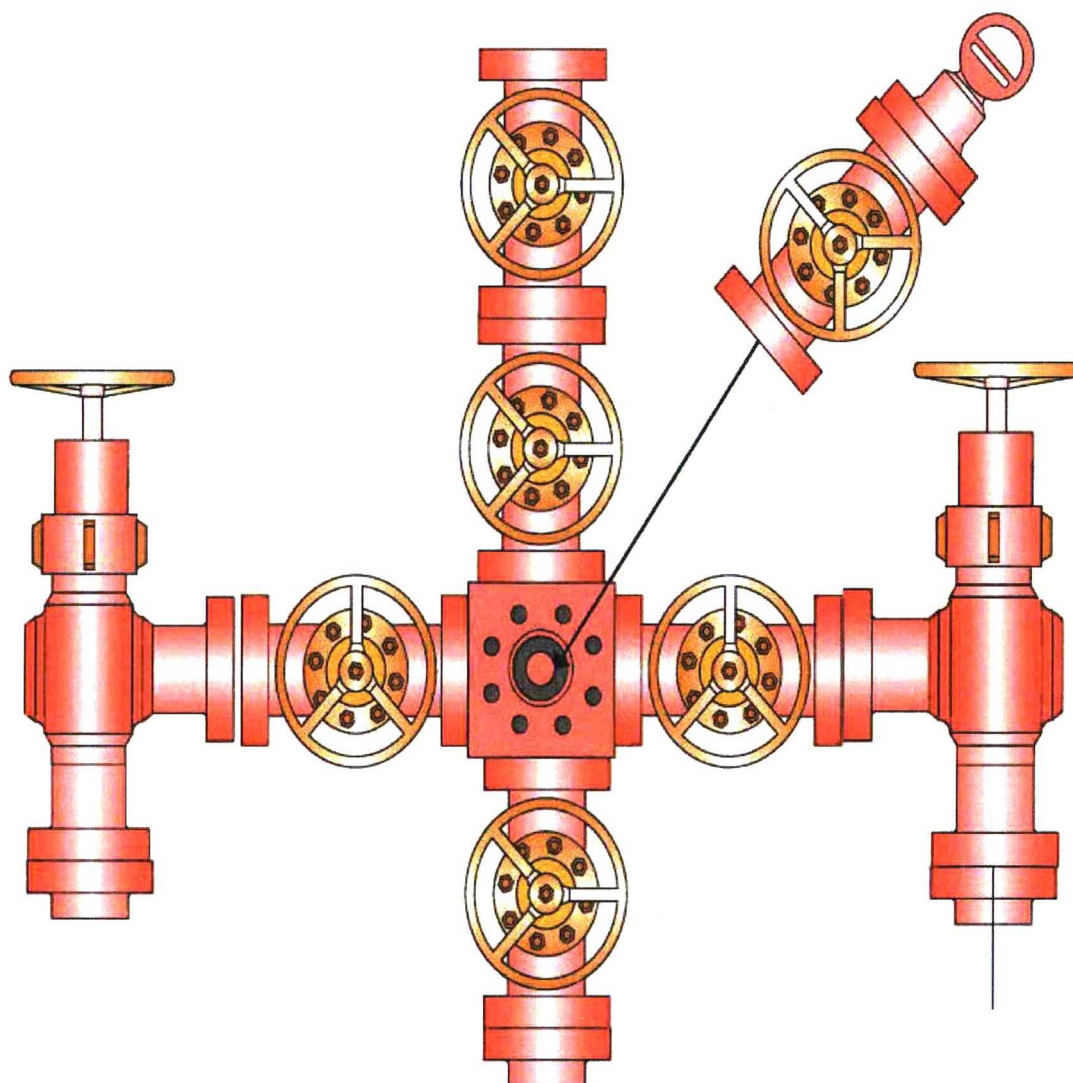
Separation Factor Plot



LEGEND

Carson 32-5-28 (1 WB/2 Whip), Pilot, Plan #2 V0

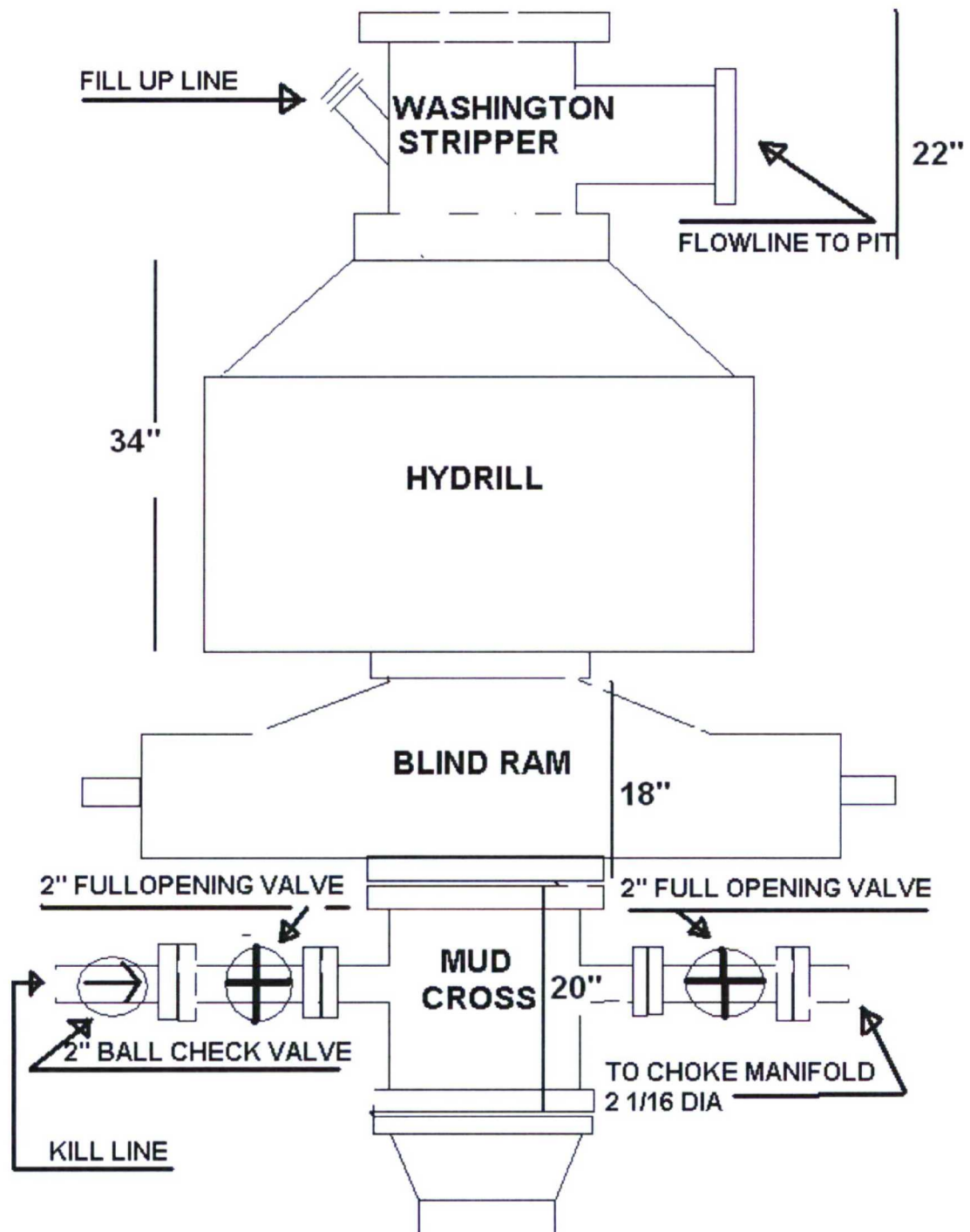
 Carson 32-5-28 (1 WB/2 Whip), Lateral 1, Plan #2 V0



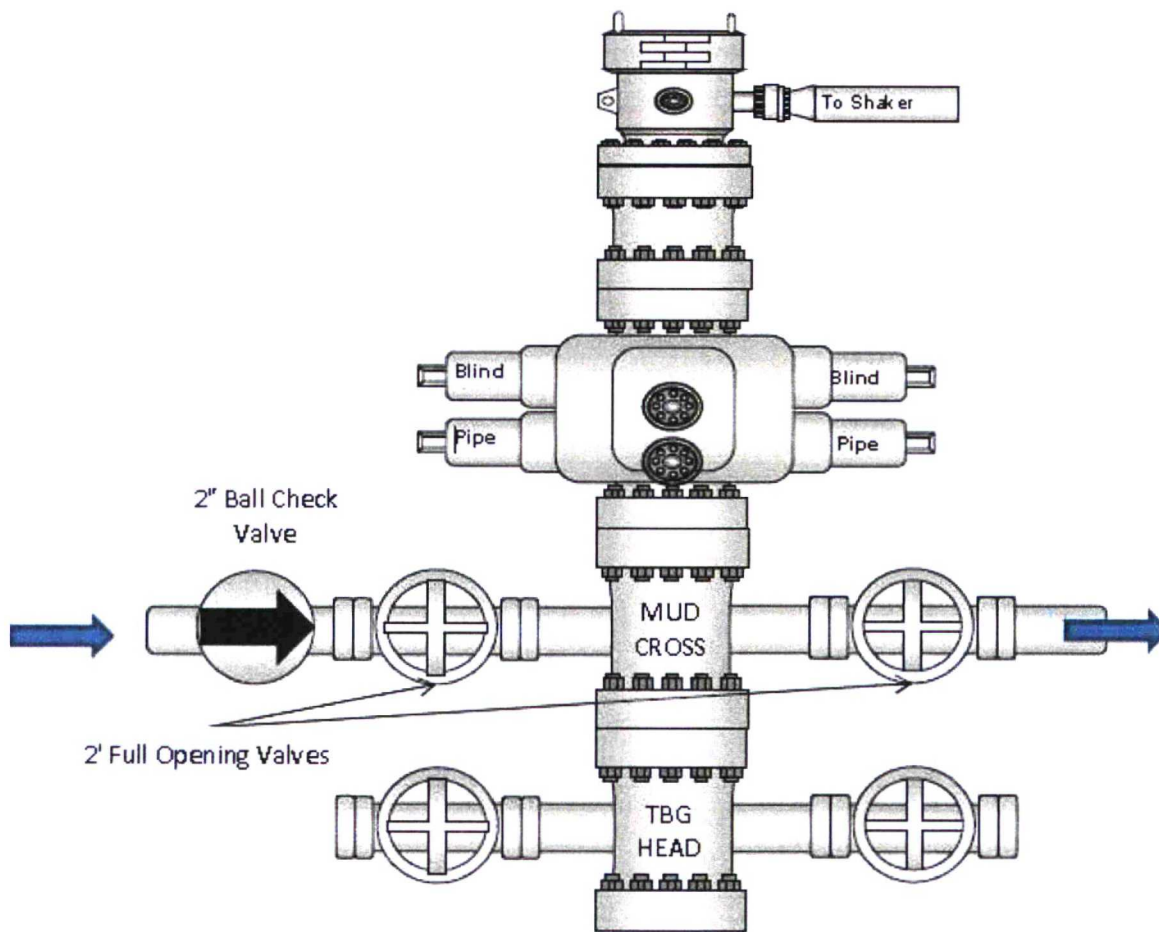
(Minimum 2")

Proposed 2,000 psi Choke Manifold Stack

92" overall height



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



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