

State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

David Martin  
Cabinet Secretary

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

David R. Catanach 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: 6-18-15

Well information;

Operator Bridgecreek, Well Name and Number Buffalo # 14

API# 30-045-35738, Section 33, Township 31 N/S, Range 15 E/W

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
  - Hold C-104 for NSL, NSP, DHC
  - 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
- ☒ 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.

Charles Kern  
NMOCD Approved by Signature

11-30-2015  
Date KC



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OIL CONS. DIV DIST. 3

NOV 18 2015

FORM APPROVED  
OMB No. 1004-0136  
Expires July 31, 2010UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

JUN 18 2015

BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone2. Name of Operator  
BRIDGECREEK RESOURCES CO. LLC  
Contact: CHRISTINE CAMPBELL  
Email: ccampbell@bridgecreekresources.com5. Lease Serial No.  
7511410386. If Indian, Allottee or Tribe Name  
UTE MOUNTAIN UTE

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

8. Lease Name and Well No.  
BUFFALO 33-149. API Well No.  
30-045-357383a. Address  
405 URBAN STREET, SUITE 400  
LAKEWOOD, CO 802283b. Phone No. (include area code)  
Ph: 303-945-264210. Field and Pool, or Exploratory  
VERDE GALLUP

4. Location of Well (Report location clearly and in accordance with any State requirements.)\*

At surface SESW 792FSL 1575FWL 36.852390 N Lat, 108.426396 W Lon

At proposed prod. zone SESW 661FSL 1989FWL 36.852048 N Lat, 108.424981 W Lon

11. Sec., T., R., M., or Blk. and Survey or Area

Sec 33 T31N R15W Mer NMP  
SME: BIA14. Distance in miles and direction from nearest town or post office\*  
20.2 MILES NORTHWEST OF KIRTLAND, NM12. County or Parish  
SAN JUAN13. State  
NM15. Distance from proposed location to nearest property or  
lease line, ft. (Also to nearest drig. unit line, if any)  
660'16. No. of Acres in Lease  
8915.9817. Spacing Unit dedicated to this well  
40.0018. Distance from proposed location to nearest well, drilling,  
completed, applied for, on this lease, ft.  
183 FEET FROM NEAREST APPLIED FOR WELL19. Proposed Depth  
3772 MD  
3738 TVD20. BLM/BIA Bond No. on file  
B00891821. Elevations (Show whether DF, KB, RT, GL, etc.)  
5506 GL22. Approximate date work will start  
08/01/2015

23. Estimated duration

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the  
SUPO shall 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).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the  
authorized officer.

25. Signature  
(Electronic Submission)Name (Printed/Typed)  
CHRISTINE CAMPBELL Ph: 303-945-2642Date  
06/18/2015Title  
REGULATORY LEADAPPROVED FOR A PERIOD  
NOT TO EXCEED 2 YEARSApproved by (Signature) *TS/ Connie Clementson*Name (Printed/Typed) *TS/ Connie Clementson*Date  
NOV 13 2015Title  
Field ManagerOffice  
TRES RIOS FIELD OFFICEApplication approval does not warrant or certify 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.

## Additional Operator Remarks (see next page)

SEE ATTACHED  
CONDITIONS OF APPROVAL

Electronic Submission #305508 verified by the BLM Well Information System

For BRIDGECREEK RESOURCES COLO LLC, sent to the Durango

Committed to AFMSS for processing by BARBARA TELECKY on 06/19/2015 (15BDT0301AE)

Approval of this agreement does not  
warrant or certify that the operator  
thereof and other holders of operating  
rights hold legal or equitable title  
to those rights in the subject lease  
which are committed hereto...

NMOCD

Venting / Flaring approved for 30 days  
per NTL-4A

\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\*



NOV 23 2015

**DISTRICT I**  
1625 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) 476-3460 Fax: (505) 476-3462

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

*API Number 30-045-35738	*Pool Code 62510	*Pool Name Verde Gallup
*Property Code 315082	*Property Name BUFFALO 33	*Well Number 14
*OGRM No. 310262	*Operator Name BRIDGECREEK RESOURCES (COLORADO), LLC	*Elevation 5506

## 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
N	33	31 N	15 W	LOT 2	792	SOUTH	1575	WEST	SAN JUAN

## 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
N	33	31 N	15 W	LOT 2	661	SOUTH	1989	WEST	SAN JUAN

*Dedicated Acres	*Joint or Infill	*Consolidation Code	*Order No.
39.84			

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

16	WEST (R)	5280' (R)	17 OPERATOR CERTIFICATION
2640' (R)	LEGEND: ○ = SURFACE LOCATION ● = BOTTOM HOLE LOCATION ① = FOUND 1985 B.L.M. BRASS CAP ② = FOUND 1986 B.L.M. BRASS CAP ③ = FOUND 1986 B.L.M. BRASS CAP (CC) (R) = RECORD		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. 11/20/15 Signature: <i>Christine Campbell</i> Date: <i>11/20/15</i> Printed Name: <i>Christine Campbell</i> E-mail Address: <i>ccampbell@bridg creek resources.com</i>
S 00°03' E (R)	SECTION 33		18 SURVEYOR CERTIFICATION
N 00°19'27" E 2652.81'	SURFACE LAT: 36.8523987° N LONG: 108.4263964° W NAD 83 LAT: 36.8523991° N LONG: 108.4257583° W NAD 27	BOTTOM HOLE LAT: 36.8520484° N LONG: 108.4249811° W NAD 83 LAT: 36.8520488° N LONG: 108.4243431° W NAD 27	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. 04/29/15 Date of Survey Signature and Seal: <i>Marshall W. Lindeen</i> 17078 7-10-15 17078 Certificate Number
1575'	1989'	LOT 1 (40.82) N 89°49'42" E 2638.57'	
792'	661'	LOT 2 (39.84)	
		LOT 3 (39.70)	
		LOT 4 (39.87) S 89°25'14" E 2638.03'	

Attachment I--Drilling Plan

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**Attachment to Application for Permit to Drill  
Drilling Plan**

Bridgecreek Resources (Colorado), LLC  
405 Urban St, Suite 400  
Lakewood, CO 80228

**BUFFALO 33-14**

Surface Location: 792' FSL – 1575' FWL  
Section 33, T31N, R15W, N.M.P.M.  
Latitude = 36.8523987° N  
Longitude = 108.4263964°W  
Ungraded GL Elev. = 5506'  
Graded GL Elev. = 5506'

Proposed Bottom Hole Location: 661' FSL – 1989' FWL  
Section 33, T31N, R15W, N.M.P.M.  
Latitude = 36.8520484° N  
Longitude = 108.4249811° W

SAN JUAN COUNTY, NEW MEXICO

*Drilling Program written in compliance with Onshore Oil and Gas Order No. 1 (OOI III.D.3, effective May 7, 2007) and Onshore Order No. 2, Dated November 18, 1988*

Drilling Plan:

The BUFFALO 33-14 well is intended to be drilled as primarily a vertical well with limited directional guidance to the Graneros formation. After a 16" conductor is preset at a depth of 40' below ground level, the location will be prepared for operations, including all prudent storm water controls. This well will be drilled using a closed-loop mud system without the use of an earthen reserve pit.

The well will be spud with using a 12 1/4" bit and fresh water-based mud to a depth of 641' MD. At a minimum, wireline directional surveys will be run at intervals not exceeding 500'. At a depth of +/- 641' MD (to be adjusted according to KB of rig selected), 9-5/8" 36#/ft. J-55 STC surface casing will be run and cemented into place. Surface casing will be set at 641' MD or 50' into the Top Menefee, whichever is deeper. Top Menefee will be determined by mudlogger. If, for some reason the cement is not circulated to surface, or if cement falls further than 10' from ground level, the 9-5/8" x 12-1/4" annulus will be filled to the surface from the top of cement using 1" tubing.

The surface casing will be drilled out using an 8-3/4" bit, performance BHA and water based mud to a total depth (TD) of 3,772' MD. Upon reaching TD, we will utilize open hole logs to evaluate prospective interval(s) from the Mancos marker to the top of the Greenhorn formation in which to perforate for stimulation. Planned logs to be run include Dipole/GR/DIL/DEN/NEU/ML from TD to surface casing. Optional percussion sidewall core from TD to surface casing.



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Depending on geologic conditions observed through mud logger analysis and results from open hole logs, Bridgecreek may elect to run and cement 5 1/2" 17#/ft. N-80 LTC casing and cement into place

### 1. Estimated Tops for Important Geological Formations

Formation	Est/ MD	TVD	Comments
Lewis	0'	0'	Aquifer (Water)
Cliffhouse	421'	421'	Aquifer (Water)
Menefee	591'	591'	Deepest Coal
Point Lookout	1,442'	1,439'	None
Upper Mancos	1,934'	1,924'	None
MRZ	2,182'	2,170'	Possible Pay (Oil/Gas)
ElVado	2,902'	2,879'	Possible Pay (Oil/Gas)
Tocito	3,165'	3,139'	Possible Pay (Oil/Gas)
Juana Lopez	3,340'	3,312'	Possible Pay (Oil/Gas)
Greenhorn	3,700'	3,667'	Possible Pay (Oil/Gas)
Graneros	3,767'	3,733'	None

### 2. Anticipated Depths of Prospective Oil, Gas and Other Hydrocarbons

Primary objectives are productive zones within the Mancos (Top Mancos is anticipated at approximately 1,924' TVD) through the Greenhorn (Top Greenhorn is anticipated at approximately 3,667' TVD).

### 3. Minimum Specifications For Pressure Control Equipment Complies with Onshore Order #2.A.1

The working pressure of all BOP 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.

Bottom Hole pressure = 3,738' TVD x 0.45 psi/ft = 1682.1 psi (based on measured offset bottom hole pressures, see plan point 8 for details).

Maximum Surface Pressure = 1682 psi - (3,738' TVD x .22 psi/ft)  
 = 1682 psi - 822 psi  
 = 860 psi (less than 3000 psi working pressure.)

Therefore 3000 psi BOP system required.

#### A. Wellhead Equipment 3,000 PSI System (See Exhibit A)

1. 9 5/8" slip-on / welded x 11" 3,000 psi casing head.
2. One (1) 11" x 3,000 psi WP single-ram preventer with one (1) set of pipe rams, complete with hand wheels and extension arms.
3. One (1) 11" 3,000 psi WP drilling spool with side outlets for 2" kill line and minimum 3" choke line
4. One 11" 3,000 psi WP double-ram preventer with one (1) set of blind rams on bottom & one (1) set of pipe rams on top complete with hand wheels and extension arms.
5. One 11" x 3,000 psi WP Hydril GK (or equivalent) annular preventer.



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6. Accumulator - Four Station Koomey (or equivalent) 120 gallon closing unit with remote, backup. The accumulator shall have sufficient capacity to open the hydraulically-controlled gate valve and close all rams plus the annular preventer, with a 50% safety factor and retain a minimum of 200 psi above the pre-charge on the closing manifold without the use of the closing unit pumps. The reservoir capacity shall be double the usable accumulator capacity, and the fluid level shall be maintained at the manufacturer's recommendations.
7. The BOP system shall have two (2) independent power sources (electric and air) available for powering the closing unit pumps. Sufficient nitrogen bottles are suitable as a backup power source only, and shall be recharged when the pressure falls below manufacturer's specification.
8. A valve shall be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

All BOP equipment will be hydraulically operated with controls accessible both on the rig floor and on the ground.

**B. Auxiliary Equipment To Be Used – Minimum 3,000 PSI System (See Exhibit B)**

1. Upper & lower kelly cock valve with handles available.
2. Safety valve and subs to fit drill pipe, on rig floor.
3. Choke manifold for 3,000 psi system with 2 chokes (pressure gauge on manifold).
4. Two (2) kill lines (2" minimum, one remote to end of substructure) both with 2" kill line full open valves, plus a check valve for each line.
5. Minimum 3" choke line.
6. Two choke line gate valves, 3" minimum, with one choke line gate valve being hydraulically operated.
7. Two chokes (1 remote, 1 manual) on choke manifold
8. Fill-up line above the uppermost preventer.
9. Wear Bushing or Bowl Protector in the casing head.
10. Inside BOP or (float sub) available
11. All BOPE connections subjected to well pressure shall be flanged, welded or clamped.
12. Choke line shall be straight lines unless turns use tee blocks or are targeted with running tees, and shall be anchored to prevent whip and reduce vibration.

The wellhead BOP equipment will be nipped-up on the 9-5/8" x 11" 3,000 psi casing head prior to drilling out from under surface casing. All ram preventers and related equipment will be tested to 250 psi for 10 minutes then 3,000 psi for 10 minutes. Annular preventers will be tested to 50% of rated working pressure for 10 minutes. Surface casing will be tested to 70% of internal yield pressure. All preventers and surface casing will be tested before drilling out of surface casing. BOP equipment will be tested every 14 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe rams will be activated daily and blind rams shall be activated each trip or at least weekly. The Bureau of Land Management, the Bureau of Indian Affairs and Ute Mountain Ute Tribe will be notified 24 hours in advance of testing of BOPE.

**4. Proposed Bit and Casing Program**

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A. Bit Program

12 1/4" Surface Hole = Surface to 641' TVD

8 3/4" Production = 641' TVD to TD (approximately 3,772' MD)

B. Casing Program – all casing strings are new casing

Casing & Hole Size	Weight	Grade	Coupling	Setting Depth (MD)	Comments
16" Conductor				0' - 40-ft BGL	New casing.
9-5/8" (12-1/4")	36 ppf	J-55	ST&C	0' - 641' TVD	New casing. Cement to surface.
5-1/2" (8-3/4")	17 ppf	N-80	LT&C	0'-3772' MD	New casing. Cement to surface.

Casing strings below the conductor casing will be tested to .22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield.

Minimum casing design factors used: Collapse - 1.0  
Burst - 1.1  
Jt. Strength - 1.3

Surface casing shall have a minimum of 1 centralizer per joint on the bottom three (3) joints, starting with the shoe joint for a total of (4) minimum centralizers. Centralizers will be placed 10' above the shoe on the shoe joint, on the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> casing collars.

The production casing will be centralized using 1 centralizer the first 6 jts and then spaced +/- 1 centralizer / 4 jts through the remainder of the cement column.

5. Proposed Cementing ProgramSurface Casing Single Stage Job – (0-641' MD/TVD):Excess – 100% over gauge hole – 12-1/4" hole and 9-5/8" casing (0.3132 ft<sup>3</sup>/ft)

Top of Cement - Surface

Yield – 2.21 ft<sup>3</sup>/sx

Water requirement – 12.6 gal/sx

Total sacks of cement pumped = 190sxProduction Casing Single Stage Job – (0-3,772' MD):Excess – 25% over gauge hole – 8-3/4" hole and 5-1/2" casing (0.3157 ft<sup>3</sup>/ft)

Top of Cement – Surface

Yield – 1.21 ft<sup>3</sup>/sx

Water requirement – 5.68 gal/sx

Total sacks of cement pumped = 990sx6. Characteristics for Drilling Fluids (all depths are MD)



Depth (MD)	Hole Size (in)	Type	Fluid Density (ppg)	PV (cP)	YP (lb/100 ft <sup>2</sup> )	API (mL)	pH	MBT (ppb)	Salinity (PPM)	Remarks
0 - 641'	12-1/4"	FW/Gel	8.4 - 8.8	2 - 8	12	N/C	8.5 - 9.5	< 15	< 500	spud mud
641 - 3,772'	8-3/4"	WBM	8.4 - 8.8	8 - 14	7-8	< 6	8.5 - 9.5	< 15	< 1,000	LSND

Sufficient weighting material will be on hand to weight mud up to 11.0 PPG, if required.

The formula for weight up with barite is listed below:

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

Where; W1 = current mud weight

W2 = new mud weight

$$\text{Sacks} = 1470 \times (11.0 - 8.6) / (35 - 11.0) = 147 \times 20 \text{ (2000bbls minimum)} = 2940 \times$$

Pason Pit Volume Totalizer (PVT) equipment will be on each pit to monitor pit levels. A closed-loop mud system will be utilized while drilling. Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations. All necessary spill prevention and remediation materials and procedures will be utilized to control any potential discharges on the surface. A steel tank will be used to collect all of the cuttings. The cuttings will be disposed of onsite in an approved lined cuttings disposal trench, in accordance with the rules and regulations of the BLM and New Mexico Oil Conservation Division.

## 7. Testing, Logging, Coring and Completion Program

A. Drill-Stem Testing Program: None

B. Logging Program:

The following logs (Dipole/GR/DIL/DEN/NEU/ML) will be run in 8-3/4" hole from TD (~3730') to the surface casing shoe (~641').

Submission of digital logging data shall be in Log ASCII Standard (LAS) file format.

BLM shall be provided with a final survey to establish the location of the bottom hole location. If reduced data are provided, the algorithm, datum, and projection should also be provided.

C. Mud Logging

Geologist & a manned mud-logging unit will be operational @ +/-400' on the main hole to TD. Samples will be caught every 30 feet during drilling, with the exception of possible pay zones, where samples will be caught every 5 feet.

D. Coring: Optional percussion sidewall cores from surface casing to TD.

E. Cement Bond Log: 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. If either of these two data points were not

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satisfactory per BLM, State and standard procedure, remedial cement work, if required, will be performed after consultation and approval of a plan from both the BLM and State agencies.

- F. Drilling and Stimulation: Drilling is expected to take 7 days. Completion (if the well is deemed productive) is estimated to take 2 days. The duration of flowback/testing operations is 3 days. We are planning a 4 stage nitrogen foam frac for this well. Based on frac modeling work, we anticipate an average frac length away from the wellbore to be ~400 feet in the horizontal direction. Estimated fresh water usage per stage during completion is ~476 bbls. A total of ~1,540 bbls of sand/nitrogen/water mix will be injected during the completion. A total of ~3,700 lb of premium white 40/70 sand and a total of ~70,300 lb of premium white 20/70 sand will be injected during the completion. A hydraulic fracture treatment will be designed for the completion of this well based on open hole log analysis and surface shows. If a hydraulic fracture treatment is warranted, The drill site, as approved, will be sufficient size to accommodate all completion activities.

8. **Expected Bottom Hole Pressure and any Anticipated Abnormal Pressures, Temperatures or Other Potential Hazards**

- A. Based on offset information the expected bottom-hole pressure at the Graneros is 0.45 psi x 3,738' TVD = 1682 psi.

Well	TVD (ft)	BHP (PSI)	Pressure Gradient (psi/ft)	EMW (ppg)
Harris Hawk 20-1	3578	1610	0.45	8.7
Prairie Falcon 19-1	3269	1471	0.45	8.7
<b>Estimated BHP</b>	<b>3738</b>	<b>1682</b>	<b>0.45</b>	<b>8.7</b>

- B. Expected bottom-hole temperature @ the Graneros formation is ~110 deg F.
- C. No lost circulation is anticipated.
- D. No zones of potable water are expected to be encountered during the drilling of this well.
- E. No H2S sour gas is known to exist in the formations that we will drill through.
- F. Estimated fresh water usage for drilling operations will start at ~1,000 bbls of fresh water. The mud system will dewater after a well is drilled. We can reuse the same water over and over (re-use of drilling mud on subsequent wells). Accounting for fluid loss to formation and evaporation, we estimated needing to add approximately 250 bbls of new fresh water when the mud is transported to the next well. This assumes no lost circulation events.
- G. Estimated fresh water usage for cementing operations is ~162 bbls for surface casing, and ~351 bbls for production casing. Both of these estimates include using fresh water as the displacement fluid.
- H. Estimated maximum fresh water usage for completion operations is ~3,022 bbls. This includes 25% excess water on hand per stage. This assumes a 4-stage nitrogen foam frac. The water usage for the completion activities will vary depending on the number of stages selected for stimulation and will be provided in the completion report.



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**9. Plugging and Abandonment**

No plugging and abandonment of the well would occur until after the well has been drilled, completed, hydraulically stimulated and production tested, unless extenuating circumstances arise. Full authorization will be verbally sought from the Bureau of Land Management and the New Mexico Oil Conservation Division prior to actual plugging operations being initiated with written reports submitted as a followed up.

**10. Other**

A Cultural Resource Inventory and Paleontology reconnaissance has been conducted for the well location and access route. The reports shall be submitted to the Ute Mountain Ute Tribe and the BLM upon their receipt.

Anticipated Commencement Date: Within 30 days of APD approval based on ability to source appropriate rig to complete operations

**11. Protecting Valuable deposits of fluid or solid minerals**

We will run 2 strings of casing (surface and production) and cement to surface both. Surface casing cement will have 100% returns to surface. Production casing will have 25% returns to surface. This extra cement back at surface ensures that the quality of cement downhole is good. A CBL will be run from TD to surface to ensure the cement bond is good quality. We will drill the well with the appropriate mud weight based on anticipated and encountered pressures while drilling. Fresh water, usable water and coal deposits will be protected by surface casing and production casing. Oil and gas bearing zones will be isolated from fresh water and usable water zones by the production casing. Formations will be selected for completion and perforated. This ensures we are targeting only the zones of interest for completion.



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PROSPECT/FIELD		Gallup Verde		COUNTY		San Juan	
OPERATOR		Bridgecreek Resources (Colorado), LLC		STATE		New Mexico	
LEASE & WELL NO.		Buffalo 33-14					
FORM @ TD		Graneros					
Initial Target Line		n/a					

	WELLBORE		Based on 5,518' KB				
			GEOLOGICAL TOPS:				
			Formation	Surf MD	TVD	Comments	Surface to
			Lewis	0'	0'	Aquifer (Water)	Surface to
			Cliffhouse	421'	421'	Aquifer (Water)	641' to
			Menefee	591'	591'	Deepest Coal	
			Point Lookout	1,442'	1,439'	None	
			Upper Mancos	1,934'	1,924'	None	
	9-5/8" CASING DEPTH		MRZ	2,182'	2,170'	Possible Pay (Oil/Gas)	
	MD: 641'		ElVado	2,902'	2,879'	Possible Pay (Oil/Gas)	
	TVD: 641'		Toito	3,165'	3,139'	Possible Pay (Oil/Gas)	
			Juana Lopez	3,340'	3,312'	Possible Pay (Oil/Gas)	
			Greenhorn	3,700'	3,667'	Possible Pay (Oil/Gas)	
			Graneros	3,767'	3,733'	None	Special R
			TD	3,772'	3,738'	None	
	9-5/8" CEMENT TOP TARGET						POTENTIAL D
	MD: 0'						May encounter
	TVD: 0'						
DV TOOL Placement (if required)							
MD:							
TVD:							
		Proposed TD	3,772'	3,738'	NA		
		MUD PROGRAM:					
5 1/2" CEMENT TOP TARGET:		Mud Type	Interval	Corresponding Depths			
		SPUD	Surface	0 - 641			
MD: 0'							
TVD: 0'							
KOP		LSND	Production	0 - 3772			
TVD/MD: 800'		CASING & CEMENT PROGRAM:					
			Size	Wt (ppf)	Grade	Thread	
		Surface Casing:	9.625"	36.0	J-55	LTC	
		*Note Conductor to be pre-se		16. "	42.09	Conductor to be cemented with 5 bags ready mix	
		Lead Cmt Additives	1/4 lb/sk Poly-E-Flake				
		Intermediate Casing:	n/a	n/a	n/a	n/a	
			N/A				
		Production Csg:	5.500"	17	N-80	LTC	
		Lead Cmt Additives	0.25 pps Poly-E-Flake				
		Tail Cmt Additives					

TOE / 5 1/2" LINER SETTING DEPTH:	
MD: 3,772'	TVD: 3,738'

3,772'

PILOT HOLE:		BOTTOM HOLE PRESSURE	
MD:	n/a	Formation:	Graneros
TVD:	n/a		1,682
	n/a	Prepared by:	S Geiser
		Date:	



**BRIDGECREEK** RESOURCES  
(COLORADO), LLC

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## **Bridgecreek Resources**

Buffalo 33

Section 33 T31N, R15W

Buffalo 33-14

Wellbore #1

Plan: Design #2

## **Standard Planning Report**

07 July, 2015





**NOV 18 2015**



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Buffalo 33-14
<b>Company:</b>	Bridgecreek Resources	<b>TVD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Project:</b>	Buffalo 33	<b>MD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Site:</b>	Section 33 T31N, R15W	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

Project	Buffalo 33		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site	Section 33 T31N, R15W				
Site Position:		Northing:	2,136,816.60 usft	Latitude:	36° 51' 8.635 N
From:	Lat/Long	Easting:	1,003,632.17 usft	Longitude:	108° 25' 35.027 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.31 °

Well	Buffalo 33-14, SHL: 36.8523987 -108.4263964					
Well Position	+N/-S	0.0 usft	Northing:	2,136,816.60 usft	Latitude:	36° 51' 8.635 N
	+E/-W	0.0 usft	Easting:	1,003,632.17 usft	Longitude:	108° 25' 35.027 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,518.0 usft	Ground Level:	5,506.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/7/2015	9.69	63.34	50,317

Design	Design #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE		Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	107.12

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,425.2	9.38	107.12	1,422.4	-15.0	48.8	1.50	1.50	0.00	107.12	
3,772.2	9.38	107.12	3,738.0	-127.6	414.3	0.00	0.00	0.00	0.00	Buffalo 33-14 TGT

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BRIDGECREEK RESOURCES  
(COLORADO), LLCPayzone Directional  
Planning Report

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<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Buffalo 33-14
<b>Company:</b>	BridgeCreek Resources	<b>TVD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Project:</b>	Buffalo 33	<b>MD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Site:</b>	Section 33 T31N, R15W	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
0.1	0.00	0.00	0.1	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL: 36.8523987, -108.4263964</b>									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
421.0	0.00	0.00	421.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Cliffhouse</b>									
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
591.0	0.00	0.00	591.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Menefee</b>									
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Start Build 1.50</b>									
900.0	1.50	107.12	900.0	-0.4	1.3	1.3	1.50	1.50	0.00
1,000.0	3.00	107.12	999.9	-1.5	5.0	5.2	1.50	1.50	0.00
1,100.0	4.50	107.12	1,099.7	-3.5	11.3	11.8	1.50	1.50	0.00
1,200.0	6.00	107.12	1,199.3	-6.2	20.0	20.9	1.50	1.50	0.00
1,300.0	7.50	107.12	1,298.6	-9.6	31.2	32.7	1.50	1.50	0.00
1,400.0	9.00	107.12	1,397.5	-13.8	44.9	47.0	1.50	1.50	0.00
1,425.2	9.38	107.12	1,422.4	-15.0	48.8	51.1	1.50	1.50	0.00
<b>Start 2347.0 hold at 1425.2 MD</b>									
1,442.0	9.38	107.12	1,439.0	-15.8	51.4	53.8	0.00	0.00	0.00
<b>Point Lookout</b>									
1,500.0	9.38	107.12	1,496.2	-18.6	60.4	63.2	0.00	0.00	0.00
1,600.0	9.38	107.12	1,594.9	-23.4	76.0	79.5	0.00	0.00	0.00
1,700.0	9.38	107.12	1,693.5	-28.2	91.6	95.8	0.00	0.00	0.00
1,800.0	9.38	107.12	1,792.2	-33.0	107.2	112.1	0.00	0.00	0.00
1,900.0	9.38	107.12	1,890.9	-37.8	122.7	128.4	0.00	0.00	0.00
1,933.6	9.38	107.12	1,924.0	-39.4	128.0	133.9	0.00	0.00	0.00
<b>Upper Mancos</b>									
2,000.0	9.38	107.12	1,989.5	-42.6	138.3	144.7	0.00	0.00	0.00
2,100.0	9.38	107.12	2,088.2	-47.4	153.9	161.0	0.00	0.00	0.00
2,182.9	9.38	107.12	2,170.0	-51.4	166.8	174.5	0.00	0.00	0.00
<b>Mancos Res. Spike</b>									
2,200.0	9.38	107.12	2,186.9	-52.2	169.4	177.3	0.00	0.00	0.00
2,300.0	9.38	107.12	2,285.5	-57.0	185.0	193.6	0.00	0.00	0.00
2,400.0	9.38	107.12	2,384.2	-61.8	200.6	209.9	0.00	0.00	0.00
2,500.0	9.38	107.12	2,482.8	-66.6	216.2	226.2	0.00	0.00	0.00
2,600.0	9.38	107.12	2,581.5	-71.4	231.7	242.5	0.00	0.00	0.00
2,700.0	9.38	107.12	2,680.2	-76.2	247.3	258.8	0.00	0.00	0.00
2,800.0	9.38	107.12	2,778.8	-81.0	262.9	275.1	0.00	0.00	0.00
2,900.0	9.38	107.12	2,877.5	-85.8	278.4	291.4	0.00	0.00	0.00
2,901.5	9.38	107.12	2,879.0	-85.8	278.7	291.6	0.00	0.00	0.00
<b>El Vado</b>									
3,000.0	9.38	107.12	2,976.2	-90.5	294.0	307.6	0.00	0.00	0.00
3,100.0	9.38	107.12	3,074.8	-95.3	309.6	323.9	0.00	0.00	0.00
3,165.0	9.38	107.12	3,139.0	-98.5	319.7	334.5	0.00	0.00	0.00
<b>Tocito</b>									
3,200.0	9.38	107.12	3,173.5	-100.1	325.2	340.2	0.00	0.00	0.00
3,300.0	9.38	107.12	3,272.2	-104.9	340.7	356.5	0.00	0.00	0.00



**Payzone Directional**  
Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Buffalo 33-14
<b>Company:</b>	Bridgecreek Resources	<b>TVD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Project:</b>	Buffalo 33	<b>MD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Site:</b>	Section 33 T31N, R15W	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #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)
3,340.4	9.38	107.12	3,312.0	-106.9	347.0	363.1	0.00	0.00	0.00
<b>Juana Lopez</b>									
3,400.0	9.38	107.12	3,370.8	-109.7	356.3	372.8	0.00	0.00	0.00
3,500.0	9.38	107.12	3,469.5	-114.5	371.9	389.1	0.00	0.00	0.00
3,600.0	9.38	107.12	3,568.1	-119.3	387.5	405.4	0.00	0.00	0.00
3,700.0	9.38	107.12	3,666.8	-124.1	403.0	421.7	0.00	0.00	0.00
3,700.2	9.38	107.12	3,667.0	-124.1	403.1	421.7	0.00	0.00	0.00
<b>Greenhorn</b>									
3,767.1	9.38	107.12	3,733.0	-127.3	413.5	432.6	0.00	0.00	0.00
<b>Graneros</b>									
3,772.1	9.38	107.12	3,737.9	-127.6	414.3	433.5	0.00	0.00	0.00
<b>BHL: 36.85204842, -108.4249811</b>									
3,772.2	9.38	107.12	3,738.0	-127.6	414.3	433.5	0.00	0.00	0.00
<b>TD at 3772.2 - TD</b>									

**Design Targets**

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Buffalo 33-14 TGT	0.00	0.00	3,738.0	-127.6	414.3	2,136,679.61	1,004,043.42	36° 51' 7.374 N	108° 25' 29.932 W
- plan hits target center									
- Point									

**Formations**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
421.0	421.0	Cliffhouse		0.00	
591.0	591.0	Menefee		0.00	
1,442.0	1,439.0	Point Lookout		0.00	
1,933.6	1,924.0	Upper Mancos		0.00	
2,182.9	2,170.0	Mancos Res. Spike		0.00	
2,901.5	2,879.0	El Vado		0.00	
3,165.0	3,139.0	Tocito		0.00	
3,340.4	3,312.0	Juana Lopez		0.00	
3,700.2	3,667.0	Greenhorn		0.00	
3,767.1	3,733.0	Graneros		0.00	
3,772.2	3,738.0	TD		0.00	

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<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Buffalo 33-14
<b>Company:</b>	Bridgecreek Resources	<b>TVD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Project:</b>	Buffalo 33	<b>MD Reference:</b>	Buffalo 33-14 @ 5518.0usft (PLAN KB)
<b>Site:</b>	Section 33 T31N, R15W	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.1	0.1	0.0	0.0	SHL: 36.8523987, -108.4263964
800.0	800.0	0.0	0.0	Start Build 1.50
1,425.2	1,422.4	-15.0	48.8	Start 2347.0 hold at 1425.2 MD
3,772.1	3,737.9	-127.6	414.3	BHL: 36.85204842, -108.4249811
3,772.2	3,738.0	-127.6	414.3	TD at 3772.2

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# BRIDGECREEK RESOURCES (COLORADO), LLC

Well Name: Buffalo 33-14  
Surface Location: Section 33 T31N, R15W  
North American Datum 1983 US State Plane 1983 New Mexico Central Zone  
Ground Elevation: 5506.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 2136816.60 1003632.17 36° 51' 8.635 N 108° 25' 35.027 W  
PLAN KB Buffalo 33-14 @ 5518.0usft (PLAN KB)



Azimuths to True North  
Magnetic North: 9.69°  
Magnetic Field  
Strength: 50316.6snT  
Dip Angle: 63.34°  
Date: 7/7/2015  
Model: IGRF2010

Section 33 T31N, R15W  
Buffalo 33-14, .  
Design #2  
23:35, July 07 2015

## WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Buffalo 33-14 TGT	3738.0	-127.6	414.3	2136679.61	1004043.42	36° 51' 7.374198° N	25° 29' 53.2 W	Point

## ANNOTATIONS

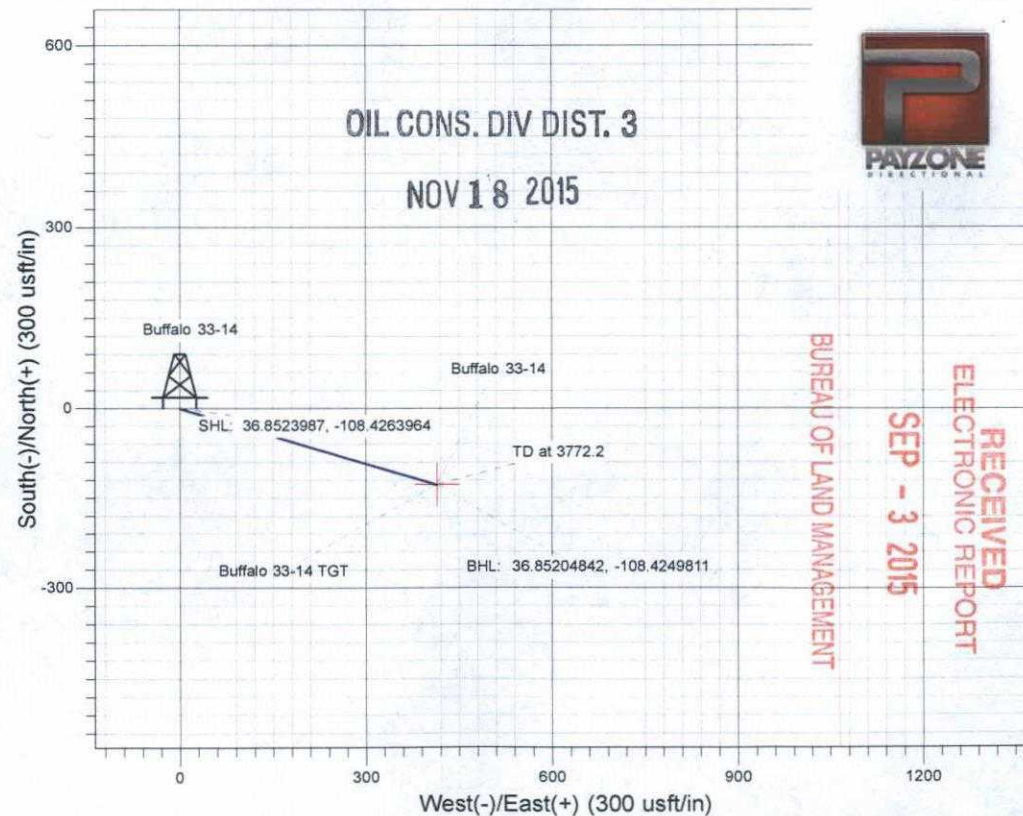
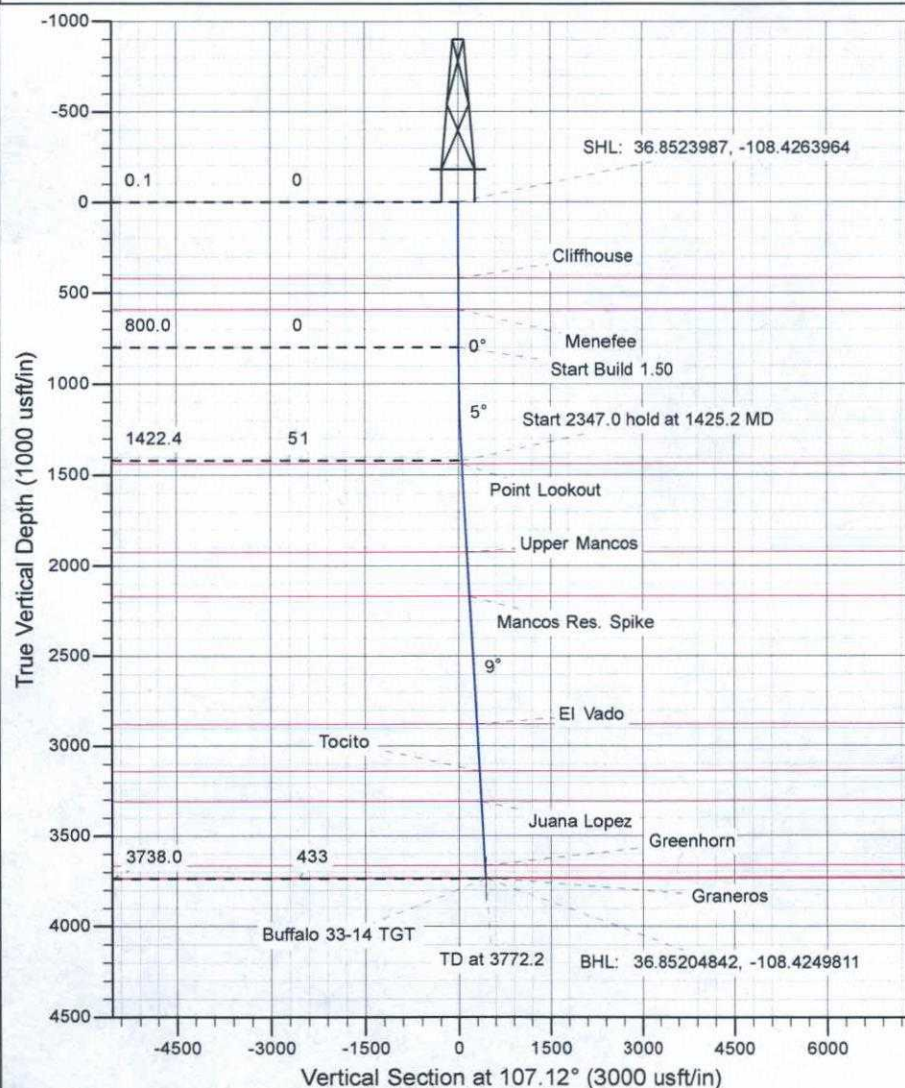
TVD	MD	Annotation
0.1	0.1	SHL: 36.8523987, -108.4263964
800.0	800.0	Start Build 1.50
1422.4	1425.2	Start 2347.0 hold at 1425.2 MD
3737.9	3772.1	BHL: 36.85204842, -108.4249811
3738.0	3772.2	TD at 3772.2

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1425.2	9.38	107.12	1422.4	-15.0	48.8	1.50	107.12	51.0	
4	3772.2	9.38	107.12	3738.0	-127.6	414.3	0.00	0.00	433.5	Buffalo 33-14 TGT

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
421.0	421.0	Cliffhouse	0.00	
591.0	591.0	Menefee	0.00	
1439.0	1442.0	Point Lookout	0.00	
1924.0	1933.6	Upper Mancos	0.00	
2170.0	2182.9	Mancos Res. Spike	0.00	
2879.0	2901.5	El Vado	0.00	
3139.0	3165.0	Tocito	0.00	
3312.0	3340.4	Juana Lopez	0.00	
3667.0	3700.2	Greenhorn	0.00	
3733.0	3767.1	Graneros	0.00	
3738.0	3772.2	TD	0.00	



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T31N-R15W-33

Buffalo 33-14, 33-9, 33-10, 33-15  
San Juan County, NM

BUREAU OF LAND MANAGEMENT

- H. The operator will utilize straw wattles around stockpiled soils, and at the base of fill slopes as necessary, to prevent sediment from leaving the construction site. Storm water conveyance diversion channels (eyebrow ditch) will be constructed above the cut slope to divert storm water around the well pad. All storm water mitigations will be in accordance with BLM Gold Book BMP construction and installation standards and practices.
- I. Attachment F depicts the slope of the cut and fill on the edge of the pad which is surrounded by a 20 foot equipment buffer that is depicted with dashed lines. The 20 foot buffer will allow for equipment to drive and avoiding any compaction of the sloped area.
- J. Other than the oil and gas production and processing facilities, no new construction activities are proposed.

## 7. METHODS OF FOR HANDLING WASTE

- A. Portable toilets will be provided by Serrano's Portable Toilets (505-632-9497) or similar commercial sanitation service. The waste will be disposed at the Farmington OMI Waste Water Treatment plant located in Farmington, NM. The toilets will be onsite during all operations.
- B. Drilling operations will utilize a closed loop water based mud system. Bridgecreek anticipates that during the flowback stage of the well there will be four (4) 300bbl tanks on location placed outside of the workover rig and rig crew equipment areas, in a designated area that be safe for all other operations on the pad.
- C. Drill cuttings (rock fragments generated during drilling) will be produced during drilling of the borehole. The operator will follow Onshore Oil and Gas Order No. 1 regarding the placement, operation and removal of the closed-loop systems. No blow pit will be used.
- D. Drill cuttings will be disposed on-site in a burial trench. The entire area designated to include one or more burial trench will not exceed the dimension of 10 feet wide x 10 feet deep x 141 feet maximum length. The operator will obtain an approved Form C-144 for each burial trench per NMOCD's Pit Rule NMAC 19.15.17 prior to on-site disposal of drill cuttings. The first well will be drilled and completed and a burial trench utilized. The remaining wells on this pad will be drilled at a later date and a subsequent burial trench(s) will be placed end-to-end within the same contiguous burial trench area shown on Attachment F.
- E. The drill cuttings will be temporarily stored in above-ground steel containment until drilling completion. Cuttings will be dried and mixed with a bonding agent or clean fill for stabilization. The drill cuttings will not be mixed greater than a 3:1 ratio. Prior to disposal, cuttings will be tested by taking at a minimum 5-point sample for the analysis of constituents under the regulations listed in the NMAC 19.15.17.13 Closure and Site Reclamation requirements, Ute Mountain Ute (UMU) Tribe's "Standards for Spill Clean-up and Chlorides Reclamation" table, and EPA SW-846 methods. These results will be submitted to the BLM via a 3160-5 Sundry Form to the Tres Rios BLM Field Office.
- F. After drilling operations and during equipment demobilization, the operator will transfer the drill cuttings into the burial trench. The cuttings trench will be lined with a minimum of 20 mil string reinforced LLDPE liner or equivalent liner and capped with a minimum of 4 feet of clean fill dirt. No trash will be placed in the cuttings trench.
- G. The cuttings burial trench will be compacted to ground level to prevent the collection of surface runoff and erosion and located on the pad as shown on the well pad layout-Attachment F. The boundaries of the trench will be designated by surface and depth markers to avoid the possibility of mixing one with another. The markers will clearly define the edge and the depth of the trench to allow for subsequent excavation without disturbing previously buried cuttings trench.



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H. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted locations or returned to the vendor for re-use, as practical. Residual fluids will be vacuumed from the storage tanks and disposed of at an appropriate waste disposal facility. Drilling fluid storage tanks will be adequately sized to ensure confinement of all fluids and will provide a minimum of 2 feet of freeboard to prevent uncontrolled releases.

I. Drilling mud could be reused on subsequent drilling locations on the same pad or subsequent pads. The maximum salinity for water used for drilling mud would not exceed 1000ppm TDS.

Anticipated flowback volumes: Total Fluid estimate: ~450 bbls, Total Oil estimate: ~50 bbls, Sand content: ~12.5cups/bbl or 90% Water/10% oil/ Sand content: ~12.5cups/bbl.

It is anticipated that either Basin Disposal located at 200 Montana, Bloomfield, NM 87413 or Aqua Moss Disposal located at 3782 Provo, Bloomfield, NM 87413 will be used.

G.J. Produced water will be confined to a storage tank for a period not to exceed 90 days after initial production and will be disposed of in an approved disposal facility. All non-fresh water storage tanks, including roll-off cuttings storage tanks containing oil and hose connections, must be free of leaks. These tanks will have a minimum 40 mil impermeable liner underneath them and berms to prevent spills. The produced water will be disposed in non-hazardous disposal wells.

Hazardous and Non-hazardous waste fluids will be reused when practical or hauled to the Agua Moss LLC commercial Class I disposal well located at 345 CR 350, Farmington NM 87413. This well name is the Sunco Disposal #001 API #30-045-28653.

D.K. Bridgecreek and its contractors shall ensure that all use, production, storage, transport, and disposal of hazardous materials or hazardous wastes associated with the drilling, completion, and production of the well and project operations will be in accordance with all applicable existing or hereafter promulgated federal, state, and local government rules, regulations, and guidelines.

This will include storing chemicals in containers that discourage volatility, storage with appropriate wind abating devices such as tarps or wind blocks and having a minimum 40 mil impermeable liner underneath when on the ground to prevent soil contamination. A containment dike/berm of at least 110% will surround all non-freshwater tanks.

L. During drilling and completion operations, garbage, trash and other waste material will immediately be put in a portable, self-contained and fully enclosed metal cage or equivalent for removal to the Crouch Mesa Landfill, located at #78 County Road 3140, Aztec, NM or equivalent. No trash will be buried or burned on location. Immediately following the rig release, all debris and other waste materials not contained in the trash container will be cleaned up and removed from the well location.

During the production phase, keeping trash on site will be discouraged and attempts will be made to gather and remove trash as and when it is generated.

## 8. ANCILLARY FACILITIES

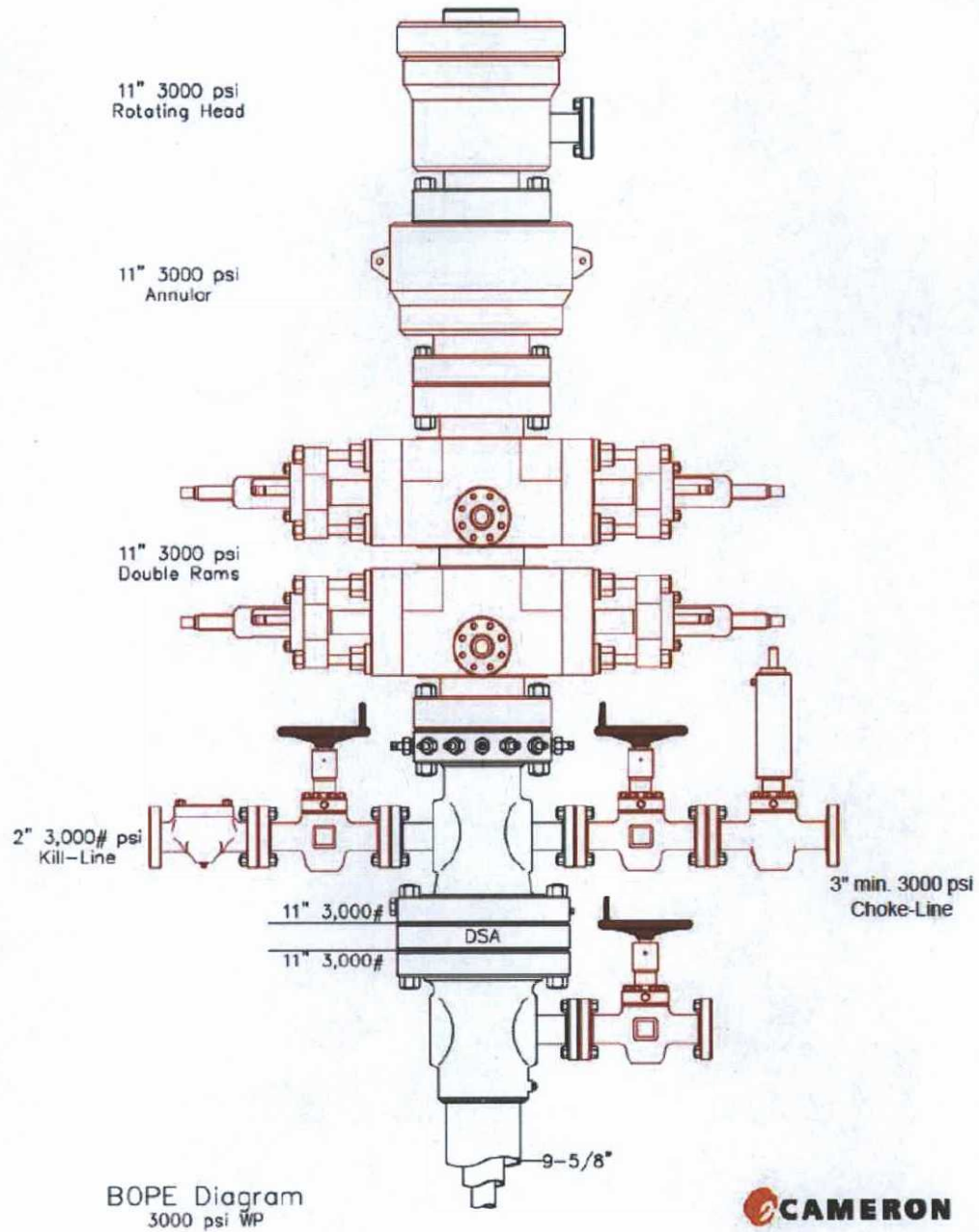
A. Standard drilling operation equipment that will be on location includes: drilling rig with associated equipment, temporary office trailers equipped with sleeping quarters for essential company personnel, toilet facilities and trash containers. No permanent living facilities are planned.



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Exhibit A: Blow Out Prevention Equipment





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Exhibit B: Choke Manifold

