Carlsbad Field Office
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Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM092199

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No. (322426)
COPPERLINE WEST 29 FEDERAL COM 8H

2. Name of Operator
CAZA OPERATING LLC (249099)

9. API Well No.
30-025-45184

3a. Address
200 N. Loraine Street, Suite 1550 Midland TX 79701

3b. Phone No. *(include area code)*
(432)682-7424

10. Field and Pool, or Exploratory
BELL LAKE / AVALON 97150

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWNW / 55 FNL / 825 FWL / LAT 32.282701 / LONG -103.497952
At proposed prod. zone SWSW / 330 FSL / 970 FWL / LAT 32.269255 / LONG -103.497461

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 29 / T23S / R34E / NMP

14. Distance in miles and direction from nearest town or post office*
18.5 miles

12. County or Parish
LEA

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
55 feet

16. No of acres in lease
560

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
50 feet

19. Proposed Depth
9060 feet / 13670 feet

20. BLM/BIA Bond No. in file
FED: NMB000471

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3651 feet

22. Approximate date work will start*
03/08/2018

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Tony B Sam / Ph: (432)682-7424	01/09/2018

Title
VP Operations

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	08/31/2018

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

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.

Rec GCP 09/12/18

APPROVED WITH CONDITIONS

KZ 09/13/18

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 08/31/2018

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: NWNW / 55 FNL / 825 FWL / TWSP: 23S / RANGE: 34E / SECTION: 29 / LAT: 32.282701 / LONG: -103.497952 (TVD: 0 feet, MD: 0 feet)
   PPP: NWNW / 155 FNL / 826 FWL / TWSP: 23S / RANGE: 34E / SECTION: 29 / LAT: 32.283249 / LONG: -103.497941 (TVD: 8811 feet, MD: 8831 feet)
   BHL: SWSW / 330 FSL / 970 FWL / TWSP: 32S / RANGE: 34E / SECTION: 29 / LAT: 32.269255 / LONG: -103.497461 (TVD: 9060 feet, MD: 13670 feet)

BLM Point of Contact

Name: Priscilla Perez
Title: Legal Instruments Examiner
Phone: 5752345934
Email: pperez@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

08/31/2018

APD ID: 10400006127 **Submission Date:** 01/09/2018

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Well Type: OIL WELL **Well Work Type:** Drill

Show Final Text

Section 1 - General

APD ID: 10400006127 **Tie to previous NOS?** **Submission Date:** 01/09/2018

BLM Office: CARLSBAD **User:** Tony B Sam **Title:** VP Operations

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM092199 **Lease Acres:** 560

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** CAZA OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: CAZA OPERATING LLC

Operator Address: 200 N. Loraine Street, Suite 1550 **Zip:** 79701

Operator PO Box:

Operator City: Midland **State:** TX

Operator Phone: (432)682-7424

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** BELL LAKE **Pool Name:** AVALON

Is the proposed well in an area containing other mineral resources? USEABLE WATER

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** YES **New surface disturbance?** Y

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** WEST COPPERLINE FEDERAL **Number:** 6H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 18.5 Miles **Distance to nearest well:** 50 FT **Distance to lease line:** 55 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: Copperline_West_29_Federal_8H_C_102_signed_20180109093013.pdf

Well work start Date: 03/08/2018 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 16.11.0556

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	55	FNL	825	FWL	23S	34E	29	Aliquot NWNW	32.282701	-103.497952	LEA	NEW MEXICO	NEW MEXICO	S	STATE	3651	0	0
KOP Leg #1	55	FNL	825	FWL	23S	34E	29	Aliquot NWNW	32.282701	-103.497952	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-5736	9387	9387
PPP Leg #1	155	FNL	826	FWL	23S	34E	29	Aliquot NWNW	32.283249	-103.497941	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-5160	8831	8811

APD ID: 10400006127 **Submission Date:** 01/09/2018

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER	2577	1001	1001		USEABLE WATER	No
2	TOP SALT	1376	1201	1201	SALT	NONE	No
3	BASE OF SALT	-2224	4801	4801	SALT	NONE	No
4	DELAWARE	-2517	5094	5094		NATURAL GAS,OIL	No
5	CHERRY CANYON	-3214	5791	5791		NATURAL GAS,OIL	No

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 15000

Equipment: Rotating head Remote kill line Mud/ Gas Separator

Requesting Variance? YES

Variance request: Variance is requested for the use of a coflex hose for the choke line to from the BOP to the choke manifold. A variance is requested to use 1502(15,000psi working pressure) hammer unions downstream of the Choke Manifold used to connect the mud/gas separator and panic line. See choke manifold diagram
Testing Procedure: Minimum Working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 13-3/8 inch casing shoe shall be 5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips the minimum wait time before cut-off is eight hours after bumping the pug. BOP/BOPE testing can begin after cut-off or once cement reaches 500PSI compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified). The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater prior to initiating the test (see casing segment as lead cement may be critical item). a. The results of the test shall be reported to the appropriate BLM office. b. All Tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office. c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Choke Diagram Attachment:

Copperline_West_29_Federal_8H_Choke_Schematic_20171222090527.pdf

BOP Diagram Attachment:

Copperline_West_29_Federal_8H_BOP_Schematic_20171222090537.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	26	20.0	NEW	API	N	0	120	0	120	3561	3441	120	H-40	94	SLH						
2	SURFACE	17.5	13.375	NEW	API	N	0	1051	0	1051	3561	2510	1051	J-55	54.5	STC	2.33	1.8	DRY	8.97	DRY	14.9
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3900	0	3900	3561	-339	3900	J-55	40	LTC	1.27	1.73	DRY	2.57	DRY	3.12
4	INTERMEDIATE	12.25	9.625	NEW	API	N	3900	5054	3900	5054	-339	-1493	1154	HCL-80	40	LTC	1.61	1.34	DRY	18.18	DRY	19.85
5	PRODUCTION	8.75	5.5	NEW	API	N	0	13670	0	9060	3561	-5474	13670	P-110	17	BUTT	1.86	2.48	DRY	3.69	DRY	3.54

Casing Attachments

Casing ID: 1 **String Type:** CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Casing Attachments

Casing ID: 2 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Copperline_West_29_Federal_8H_C_and_C_20180109110530.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Copperline_West_29_Federal_8H_C_and_C_20180109110657.pdf

Casing ID: 4 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Copperline_West_29_Federal_8H_C_and_C_20180109110826.pdf

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Casing Attachments

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Copperline_West_29_Federal_8H_C_and_C_20180109110940.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
CONDUCTOR	Lead		0	120	100	1.93	13.5	190	5	Class C	4% bwoc Bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005 gps FP- 6L
SURFACE	Lead		0	951	510	1.93	13.5	984	50	Class C	4% bwoc Bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005 gps FP- 6L
SURFACE	Tail		751	1051	166	1.34	14.8	222	50	Class C	1.5% bwoc Calcium Chloride + 0.005 lbs/sack Static Free + 0.005 gps FP-6L
INTERMEDIATE	Lead		0	3900	1170	2.13	12.6	2492	50	Class C	(35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5 lbs/sack LCM- 1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride
INTERMEDIATE	Lead		3900	4554	340	2.38	12.6	724	50	Class C	(35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5 lbs/sack LCM- 1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride
INTERMEDIATE	Tail		4554	5054	220	1.33	14.8	295	50	Class C	CaCl2
PRODUCTION	Lead		0	8811	2400	2.38	11.9	5712	50	Class H	(50:50) + Poz (Fly Ash) + 10% bwoc Bentonite II + 5% bwow Sodium Chloride + 5 lbs/sack LCM-1 + 0.005 lbs/sack Static Free + 0.005 gps FP-6L
PRODUCTION	Tail		8811	13670	800	1.62	13.2	1296	50	Clas H	(15:61:11) Poz (Fly Ash):Class H Cement:CSE-2 + 4% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 0.6% bwoc FL-25

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud will be on location to control any abnormal conditions encountered. Such as but not limited to a kick, lost circulation and hole sloughing

Describe the mud monitoring system utilized: A Pason PVT system will be rigged up prior to spudding the well. A volume monitoring system that measures, calculates, and displays readings from the mud system on the rig to alert the rig crew of impending gas kicks and lost circulation issues. Components a) PVT Pit Bull monitor: Acts as the heart of the system, containing all the controls, switches, and alarms. Typically, it is mounted near the driller's console. b) Junction box: Provides a safe, convenient place for making the wiring connections. c) Mud probes: Measure the volume of drilling fluid in each individual tank. d) Flow sensor: Measures the relative amount of mud flowing in the return line.

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1051	SPUD MUD	8.4	8.9	66	0.12	9.5	10	0	0	
1051	5054	SALT SATURATED	9.8	10	75	0.1	9.5	2	150000	0	
5054	13670	SALT SATURATED	8.6	9.1	71	0.4	9.5	6	125000	18	

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

no production tests

List of open and cased hole logs run in the well:

DS,GR,MWD,MUDLOG

Coring operation description for the well:

no coring

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 3000

[redacted]

Anticipated Bottom Hole Temperature(F): 149

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Copperline_West_29_Federal_8H_Directional_Plan_20180809133458.pdf

Other proposed operations facets description:

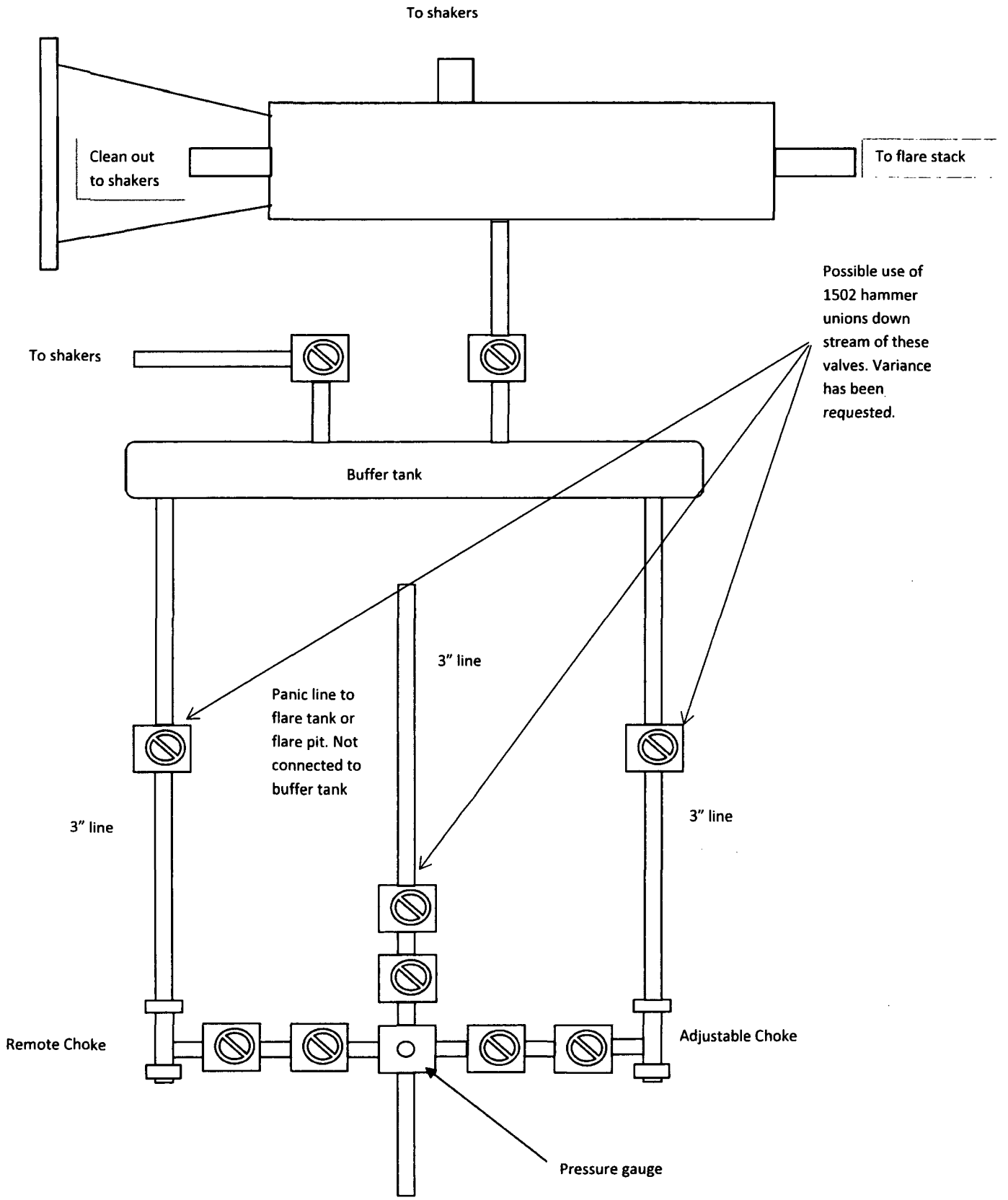
Directional Plot

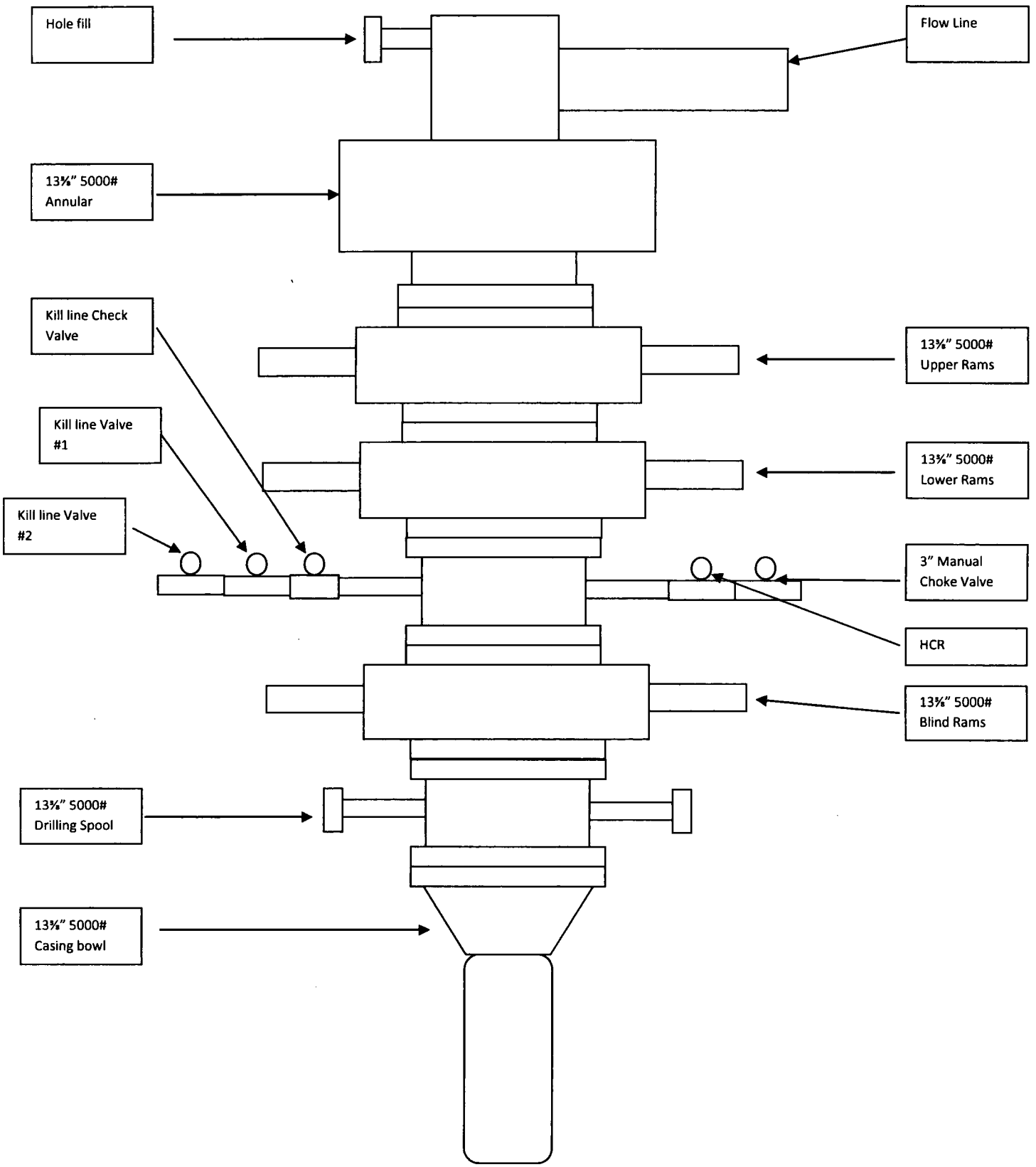
Other proposed operations facets attachment:

Copperline_West_29_Federal_8H_Plot_20180109111142.pdf

Copperline_West_29_Fed_5H_Coflex_Hose_Cert_20180809133236.pdf

Other Variance attachment:


To shakers
Clean out to shakers
To flare stack
Possible use of 1502 hammer unions down stream of these valves. Variance has been requested.
To shakers
Buffer tank
3" line
Panic line to flare tank or flare pit. Not connected to buffer tank
3" line
3" line
Remote Choke
Adjustable Choke
Pressure gauge


Hole fill
Flow Line
13⅝" 5000# Annular
Kill line Check Valve
13⅝" 5000# Upper Rams
Kill line Valve #1
13⅝" 5000# Lower Rams
Kill line Valve #2
3" Manual Choke Valve
HCR
13⅝" 5000# Blind Rams
13⅝" 5000# Drilling Spool
13⅝" 5000# Casing bowl

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a		17 1/2	inch hole.	Design Factors			SURFACE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst		Length	Weight
"A"	54.50	J 55	ST&C	8.97	2.33	1.04		1,051	57,280
"B"								**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,452	**Tail Cmt**	**does not**	**circ to sfc.**		Totals:		1,051	57,280

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**676**	1207	**804**	50	**8.90**	1514	**2M**	1.56

9 5/8	casing inside the	13 3/8			Design Factors			INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst		Length	Weight
"A"	40.00	J 55	LT&C	2.57	1.27	0.92		3,900	156,000
"B"	**40.00**	**HCL 80**	**LT&C**	18.13	**1.61**	**1.34**		**1,154**	**46,160**
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,063						Totals:	5,054	202,160

The cement volume(s) are intended to achieve a top of **0** **ft from surface or a** **1051** **overlap.**

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**1250**	2483	**1654**	50	**10.00**	2290	**3M**	0.81
							-	-	
		#VALUE!	#VALUE!						

Class 'C' tail cmt yld > 1.35

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.01, b, c, d All > 0.70, OK.

5 1/2	casing inside the	9 5/8			Design Factors			PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst		Length	Weight
"A"	17.00	P 110	BUTT	3.54	1.86	2.48		8,487	144,279
"B"	**17.00**	**P 110**	**BUTT**	7.95	**1.57**	**2.48**		**5,183**	**88,111**
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,867						Totals:	13,670	232,390
B	Segment Design Factors would be:			56.04	1.75	if it were a vertical wellbore.			

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
13670	9060	9060	8487	90	10	9387

The cement volume(s) are intended to achieve a top of **0** **ft from surface or a** **5054** **overlap.**

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.2526	**3200**	7008	**3500**	100	**9.10**			1.35

Class 'H' tail cmt yld > 1.20

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	54.50	J 55	ST&C	8.97	2.33	1.04	1,051	57,280
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,452			Tail Cmt	does not	circ to sfc.	Totals:	1,051	57,280

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**676**	1207	**804**	50	**8.90**	1514	**2M**	1.56

9 5/8	casing inside the	13 3/8		Design Factors			INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	40.00	J 55	LT&C	2.57	1.27	0.92	3,900	156,000
"B"	**40.00**	**HCL 80**	**LT&C**	18.13	**1.61**	**1.34**	**1,154**	**46,160**
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,063						Totals:	5,054	202,160

The cement volume(s) are intended to achieve a top of **0** ft from surface or a **1051** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**1250**	2483	**1654**	50	**10.00**	2290	**3M**	0.81
							-	-	
		#VALUE!	#VALUE!						

Class 'C' tail cmt yld > 1.35

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.01, b, c, d All > 0.70, OK.

5 1/2	casing inside the	9 5/8		Design Factors			PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	17.00	P 110	BUTT	3.54	1.86	2.48	8,487	144,279
"B"	**17.00**	**P 110**	**BUTT**	7.95	**1.57**	**2.48**	**5,183**	**88,111**
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,867						Totals:	13,670	232,390

B Segment Design Factors would be: 56.04 1.75 if it were a vertical wellbore.

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
13670	9060	9060	8487	90	10	9387

The cement volume(s) are intended to achieve a top of **0** ft from surface or a **5054** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.2526	**3200**	7008	**3500**	100	**9.10**			1.35

Class 'H' tail cmt yld > 1.20

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	54.50	J 55	ST&C	8.97	2.33	1.04	1,051	57,280
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,452			Tail Cmt	does not	circ to sfc.	Totals:	1,051	57,280

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**676**	1207	**804**	50	**8.90**	1514	**2M**	1.56

9 5/8	casing inside the	13 3/8		Design Factors			INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	40.00	J 55	LT&C	2.57	1.27	0.92	3,900	156,000
"B"	**40.00**	**HCL 80**	**LT&C**	18.13	**1.61**	**1.34**	**1,154**	**46,160**
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,063						Totals:	5,054	202,160

The cement volume(s) are intended to achieve a top of **0** ft from surface or a **1051** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**1250**	2483	**1654**	50	**10.00**	2290	**3M**	0.81
							-	-	
		#VALUE!	#VALUE!						

Class 'C' tail cmt yld > 1.35

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.01, b, c, d All > 0.70, OK.

5 1/2	casing inside the	9 5/8		Design Factors			PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	17.00	P 110	BUTT	3.54	1.86	2.48	8,487	144,279
"B"	**17.00**	**P 110**	**BUTT**	7.95	**1.57**	**2.48**	**5,183**	**88,111**
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,867						Totals:	13,670	232,390
B Segment Design Factors would be:				56.04	1.75	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	13670	9060	9060	8487	90	10	9387

The cement volume(s) are intended to achieve a top of **0** ft from surface or a **5054** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.2526	**3200**	7008	**3500**	100	**9.10**			1.35

Class 'H' tail cmt yld > 1.20

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a		17 1/2	inch hole.	Design Factors			SURFACE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	54.50	J 55		ST&C	8.97	2.33	1.04	1,051	57,280
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,452				Tail Cmt	does not	circ to sfc.		Totals:	1,051	57,280

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	676	1207	804	50	8.90	1514	2M	1.56

9 5/8	casing inside the		13 3/8		Design Factors			INTERMEDIATE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	40.00	J 55		LT&C	2.57	1.27	0.92	3,900	156,000
"B"	40.00	HCL 80		LT&C	18.13	1.61	1.34	1,154	46,160
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,063							Totals:	5,054	202,160

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 1051 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	1250	2483	1654	50	10.00	2290	3M	0.81
		#VALUE!	#VALUE!				-	-	

Class 'C' tail cmt yld > 1.35

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.01, b, c, d All > 0.70, OK.

5 1/2	casing inside the		9 5/8		Design Factors			PRODUCTION	
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	Weight
"A"	17.00	P 110		BUTT	3.54	1.86	2.48	8,487	144,279
"B"	17.00	P 110		BUTT	7.95	1.57	2.48	5,183	88,111
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,867							Totals:	13,670	232,390

B Segment Design Factors would be: 56.04 1.75 if it were a vertical wellbore.

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
13670	9060	9060	8487	90	10	9387

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 5054 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.2526	3200	7008	3500	100	9.10			1.35

Class 'H' tail cmt yld > 1.20

Company Information
CAZA
COPPERLINE WEST 29 FEDERAL 8H
COPPERLINE WEST 29 FEDERAL 8H
COPPERLINE WEST 29 FEDERAL 8H

Well Information
Surface Location
X = 799502.00'
Y = 467584.66'
K.B. = 3586.00'
Declination Corr.
= 6.29 TO GRID

Reference North is Grid North
Grid Convergence is 0.446 degrees East
Map System : North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone

MD (ft)	Incl.	Azim.	SSDepth (ft)	TVD (ft)	Northings (ft)	Eastings (ft)	GridNorth (ft)	GridEast (ft)	VS (ft)	DLS (-/100ft)	
0	0	0	-3586	0	0	0	467584.7	799502	0	0	
8499.98	1.298	179	4913.98	8499.98	-0.15	0	467584.5	799502	0.15	0.02	UNDEFINED (1)
8599.98	11.298	179	5013.25	8599.25	-11.1	0.19	467573.6	799502.2	11.1	10	
8699.98	21.298	179	5109.11	8695.11	-39.13	0.68	467545.5	799502.7	39.13	10	
8799.98	31.298	179	5198.65	8784.65	-83.37	1.46	467501.3	799503.5	83.38	10	
8899.98	41.298	179	5279.14	8865.14	-142.48	2.49	467442.2	799504.5	142.5	10	
8999.98	51.298	179	5348.14	8934.14	-214.67	3.75	467370	799505.7	214.71	10	
9099.98	61.298	179	5403.56	8989.56	-297.75	5.2	467286.9	799507.2	297.79	10	
9199.98	71.298	179	5443.71	9029.71	-389.18	6.79	467195.5	799508.8	389.24	10	
9299.98	81.298	179	5467.36	9053.36	-486.2	8.49	467098.5	799510.5	486.27	10	
9399.98	90	179	5473.96	9059.96	-585.85	10.23	466998.8	799512.2	585.94	8.7	
9499.98	90	179	5473.96	9059.96	-685.83	11.97	466898.8	799514	685.94	0	
9599.98	90	179	5473.96	9059.96	-785.82	13.72	466798.8	799515.7	785.94	0	
9699.98	90	179	5473.96	9059.96	-885.8	15.46	466698.9	799517.5	885.94	0	
9799.98	90	179	5473.96	9059.96	-985.79	17.21	466598.9	799519.2	985.94	0	
9899.98	90	179	5473.96	9059.96	-1085.77	18.95	466498.9	799521	1085.94	0	
9999.98	90	179	5473.96	9059.96	-1185.76	20.7	466398.9	799522.7	1185.94	0	
10099.98	90	179	5473.96	9059.96	-1285.74	22.44	466298.9	799524.4	1285.94	0	
10199.98	90	179	5473.96	9059.96	-1385.73	24.19	466198.9	799526.2	1385.94	0	
10299.98	90	179	5473.96	9059.96	-1485.71	25.93	466099	799527.9	1485.94	0	
10399.98	90	179	5473.96	9059.96	-1585.7	27.68	465999	799529.7	1585.94	0	
10499.98	90	179	5473.96	9059.96	-1685.68	29.42	465899	799531.4	1685.94	0	
10599.98	90	179	5473.96	9059.96	-1785.66	31.17	465799	799533.2	1785.94	0	
10699.98	90	179	5473.96	9059.96	-1885.65	32.91	465699	799534.9	1885.94	0	
10799.98	90	179	5473.96	9059.96	-1985.63	34.66	465599	799536.7	1985.94	0	
10899.98	90	179	5473.96	9059.96	-2085.62	36.4	465499	799538.4	2085.94	0	
10999.98	90	179	5473.96	9059.96	-2185.6	38.15	465399.1	799540.1	2185.94	0	
11099.98	90	179	5473.96	9059.96	-2285.59	39.9	465299.1	799541.9	2285.94	0	
11199.98	90	179	5473.96	9059.96	-2385.57	41.64	465199.1	799543.6	2385.94	0	
11299.98	90	179	5473.96	9059.96	-2485.56	43.39	465099.1	799545.4	2485.94	0	
11399.98	90	179	5473.96	9059.96	-2585.54	45.13	464999.1	799547.1	2585.93	0	
11499.98	90	179	5473.96	9059.96	-2685.53	46.88	464899.1	799548.9	2685.93	0	
11599.98	90	179	5473.96	9059.96	-2785.51	48.62	464799.2	799550.6	2785.93	0	
11699.98	90	179	5473.96	9059.96	-2885.49	50.37	464699.2	799552.4	2885.93	0	
11799.98	90	179	5473.96	9059.96	-2985.48	52.11	464599.2	799554.1	2985.93	0	

11899.98	90	179	5473.96	9059.96	-3085.46	53.86	464499.2	799555.9	3085.93	0
11999.98	90	179	5473.96	9059.96	-3185.45	55.6	464399.2	799557.6	3185.93	0
12099.98	90	179	5473.96	9059.96	-3285.43	57.35	464299.2	799559.3	3285.93	0
12199.98	90	179	5473.96	9059.96	-3385.42	59.09	464199.2	799561.1	3385.93	0
12299.98	90	179	5473.96	9059.96	-3485.4	60.84	464099.3	799562.8	3485.93	0
12399.98	90	179	5473.96	9059.96	-3585.39	62.58	463999.3	799564.6	3585.93	0
12499.97	90	179	5473.96	9059.96	-3685.37	64.33	463899.3	799566.3	3685.93	0
12599.97	90	179	5473.96	9059.96	-3785.36	66.07	463799.3	799568.1	3785.93	0
12699.97	90	179	5473.96	9059.96	-3885.34	67.82	463699.3	799569.8	3885.93	0
12799.97	90	179	5473.96	9059.96	-3985.33	69.56	463599.3	799571.6	3985.93	0
12899.97	90	179	5473.96	9059.96	-4085.31	71.31	463499.4	799573.3	4085.93	0
12999.97	90	179	5473.96	9059.96	-4185.29	73.05	463399.4	799575.1	4185.93	0
13099.97	90	179	5473.96	9059.96	-4285.28	74.8	463299.4	799576.8	4285.93	0
13199.97	90	179	5473.96	9059.96	-4385.26	76.55	463199.4	799578.5	4385.93	0
13299.97	90	179	5473.96	9059.96	-4485.25	78.29	463099.4	799580.3	4485.93	0
13399.97	90	179	5473.96	9059.96	-4585.23	80.04	462999.4	799582	4585.93	0
13499.97	90	179	5473.96	9059.96	-4685.22	81.78	462899.4	799583.8	4685.93	0
13599.97	90	179	5473.96	9059.96	-4785.2	83.53	462799.5	799585.5	4785.93	0
13670	90	179	5473.96	9059.96	-4855.22	84.75	462729.4	799586.7	4855.96	0

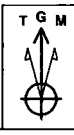
All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to WELL. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 179.000° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.
Grid Convergence at Surface is 0.446°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 13670.00ft.,
the Bottom Hole Displacement is 4855.96ft., in the Direction of 179.000° (Grid).

Project: Copperline West 29 Federal 8H
Site: Copperline West 29 Federal 8H
Well: Copperline West 29 Federal 8H
Wellbore: Copperline West 29 Federal 8H
Design: Copperline West 29 Federal 8H

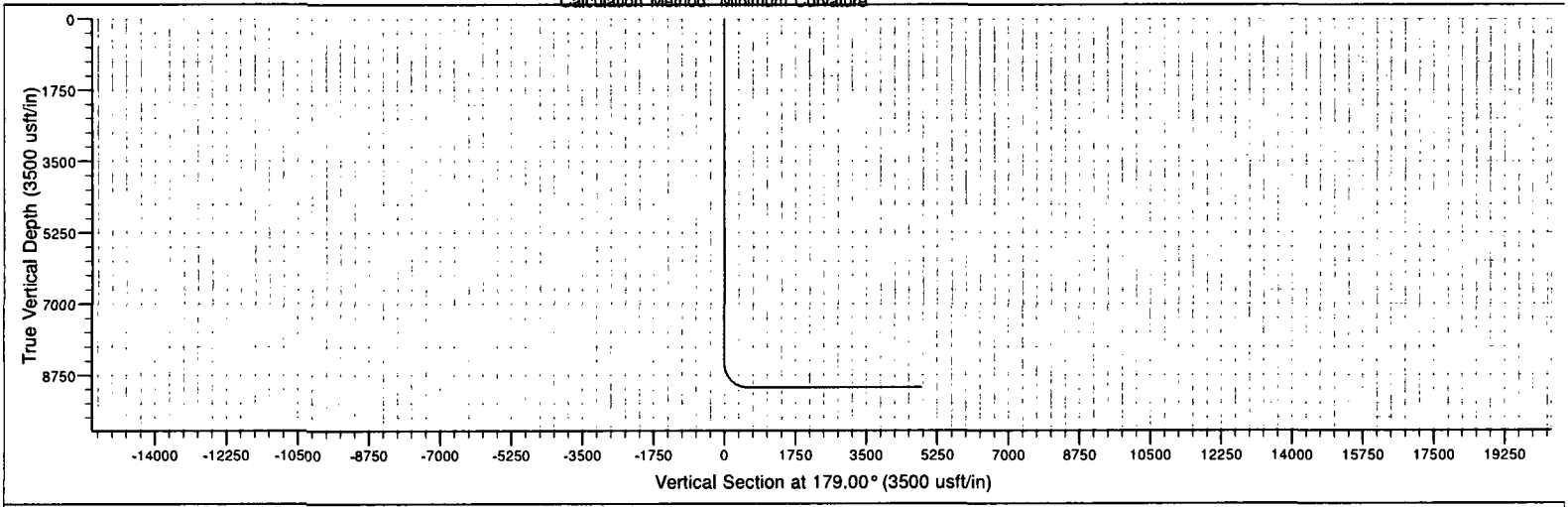


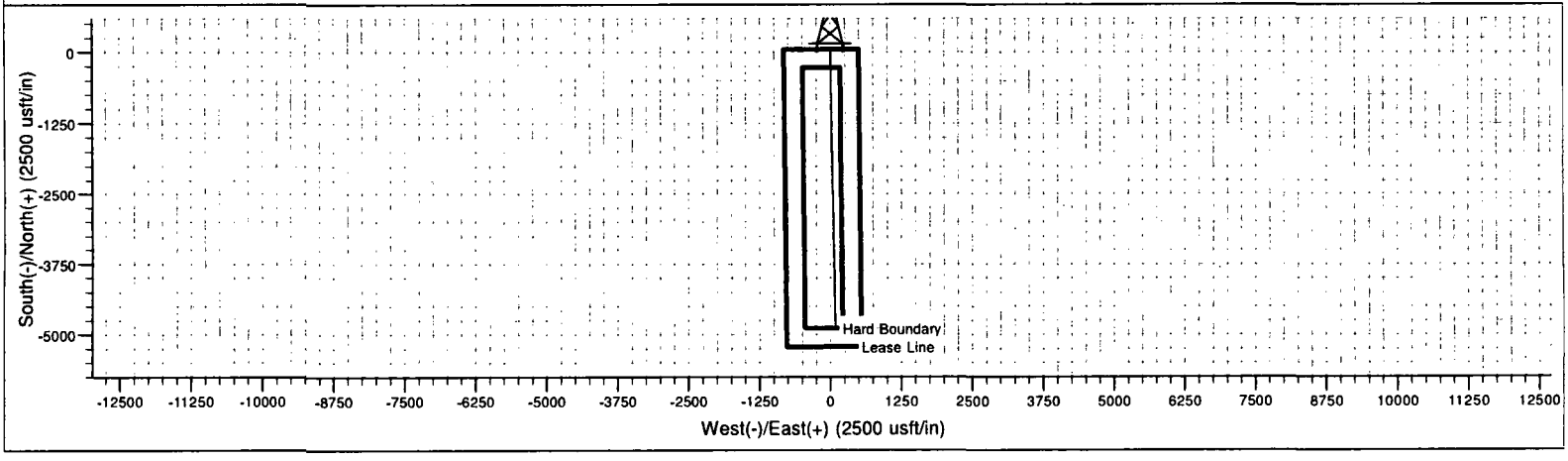
Azimuths to Grid North
True North: -0.45°
Magnetic North: 6.29°

Magnetic Field
Strength: 48000.7snT
Dip Angle: 60.08°
Date: 01/09/2018
Model: IGRF2010

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Copperline West 29 Federal 8H, Grid North
Vertical (TVD) Reference: WELL @ 3586.0usft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: WELL @ 3586.0usft (Original Well Elev)
Calculation Method: Minimum Curvature





COPPER STATE RUBBER
VISUAL INSPECTION / HYDROSTATIC TEST REPORT
CHOKE & KILL HOSE
10,000 P.S.I. W/P X 15,000 P.S.I. T/P
SPEC: 090-1915 HS
H2S SUITABLE

SHOP ORDER NO.: 16454 SIZE: 4" I.D.

SERIAL NO.: 22199 LENGTH 50 FT. IN.

CONNECTIONS: 4-1/16" 10,000 PSI API FLANGES

HT-X1840

VISUAL INSPECTION

(A) END CAPS / SLEEVE RECESS: OK
(B) EXTERIOR / COVER / BRANDING: OK
(C) INTERIOR TUBE: OK

HYDROSTATIC TEST

5 MIN. @ 10,000 PSI

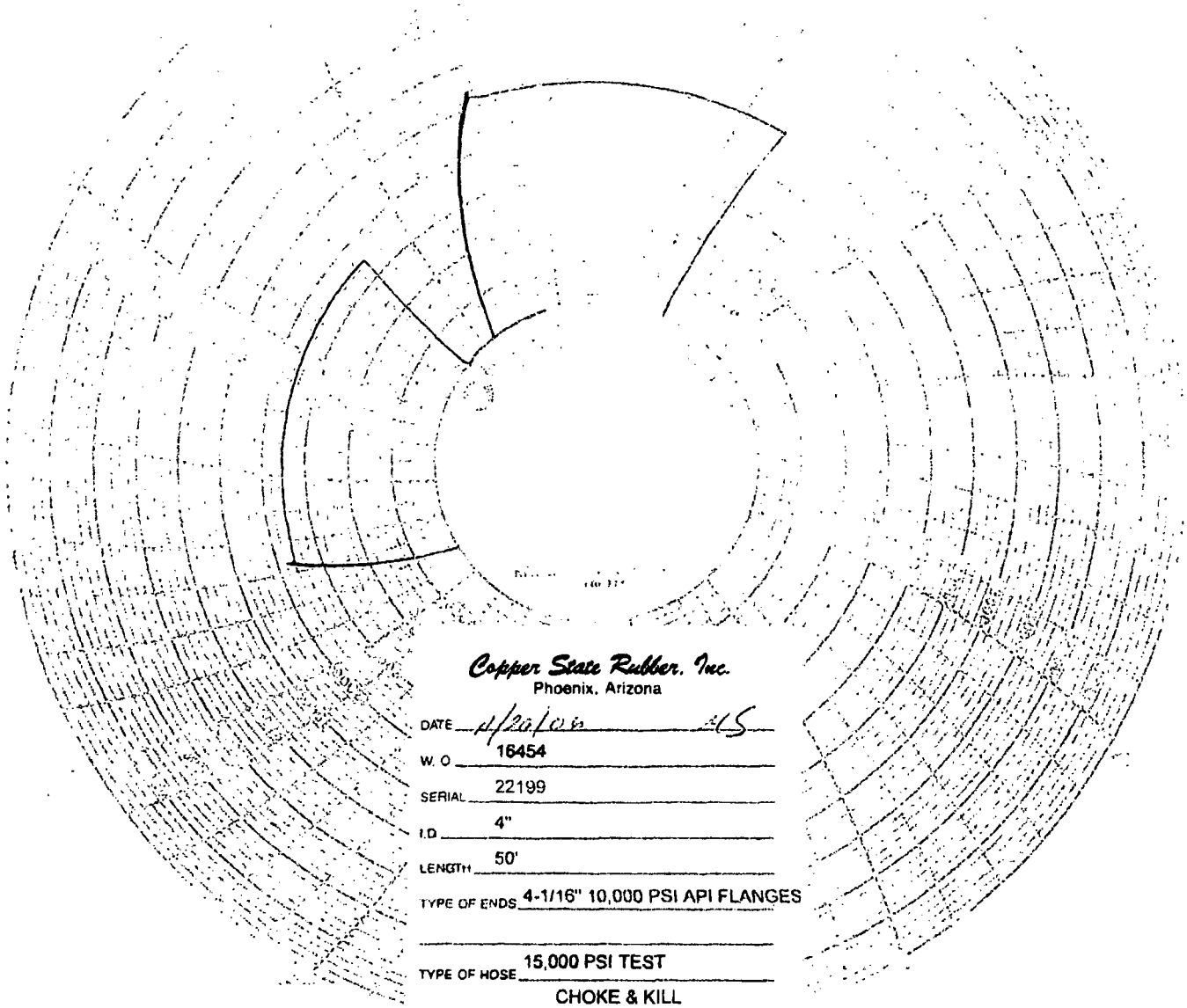
2 MIN. @ 0 PSI 51' OAL

3 MIN. @ 15,000 PSI

WITNESSED BY:

DATE November 20, 2006

FORM QA-21- REV-2
3-22-00



Copper State Rubber, Inc.
Phoenix, Arizona

DATE 4/20/05

W. O 16454

SERIAL 22199

I.D 4"

LENGTH 50'

TYPE OF ENDS 4-1/16" 10,000 PSI API FLANGES

TYPE OF HOSE 15,000 PSI TEST
CHOKE & KILL

APD ID: 10400006127 **Submission Date:** 01/09/2018

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

West_Copperline_29_Federal_8H_Well_Site_Plan_20171222090929.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** YES

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Copperline_West_29_Federal_8H_1_Mile_Circles_20171222091213.pdf

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: There is an existing production facility that is used for the Copperline West 29 Fed 1H and 3H wells. This facility and containment will be used for the 8H. Tankage and a metered 3 phase separator will be added to the existing facility.

Production Facilities map:

West_Copperline_29_Federal_8H_Production_Facility_20171222091720.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

Water source type: GW WELL

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 250000

Source volume (acre-feet): 32.223274

Source volume (gal): 10500000

Water source and transportation map:

West_Copperline_29_Federal_8H_Water_Supply_Map_20171222092112.pdf

Water source comments: Water will be supplied by the surface tenant's water well, Limestone Livestock LLC. Bill Angell Limestone Livestock, LLC 76 Angell Road Lovington, NM 88260 575-369-6303

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: caliche

Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttinga

Amount of waste: 1325000 pounds

Waste disposal frequency : Daily

Safe containment description: roll off bins

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: R360 commercial disposal facility

Waste type: DRILLING

Waste content description: Drill fluids

Amount of waste: 2500 barrels

Waste disposal frequency : Weekly

Safe containment description: mud tanks

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: Siana SWD

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

West_Copperline_29_Federal_8H_Wellsite_Layout_20180109122346.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** WEST COPPERLINE FEDERAL

Multiple Well Pad Number: 6H

Recontouring attachment:

Drainage/Erosion control construction: Per BLM instructions as identified during onsite

Drainage/Erosion control reclamation: Per BLM instructions as identified during onsite

Wellpad long term disturbance (acres): 0.459

Wellpad short term disturbance (acres): 0.459

Access road long term disturbance (acres): 0

Access road short term disturbance (acres): 0

Pipeline long term disturbance (acres): 0

Pipeline short term disturbance (acres): 0

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 0.459

Total short term disturbance: 0.459

Disturbance Comments:

Reconstruction method: Interim reclamation as identified during onsite

Topsoil redistribution: Interim reclamation as identified during onsite

Soil treatment: Interim reclamation as identified during onsite

Existing Vegetation at the well pad: Sage brush and native grasses

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Sage brush and native grasses

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Sage brush and native grasses

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Sage brush and native grasses

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary	
Seed Type	**Pounds/Acre**

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Kevin

Last Name: Garrett

Phone: (432)556-8508

Email: kgarrett@cazapetro.com

Seedbed prep: Harrow

Seed BMP: Per BLM instructions

Seed method: Broadcast followed by a drag chain

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Spray for cheat grass

Weed treatment plan attachment:

Monitoring plan description: Visual inspection in spring and late fall

Monitoring plan attachment:

Success standards: 80% coverage by 2nd growing season of native species with less than 5% invasive species

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Pit closure description: No pits to be used

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

[redacted]

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

[redacted]

Email:

Surface use plan certification document:

W_Copperline_Executed_Surface_Agmt_and_Amdt_20180809133032.pdf

[redacted]

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information:

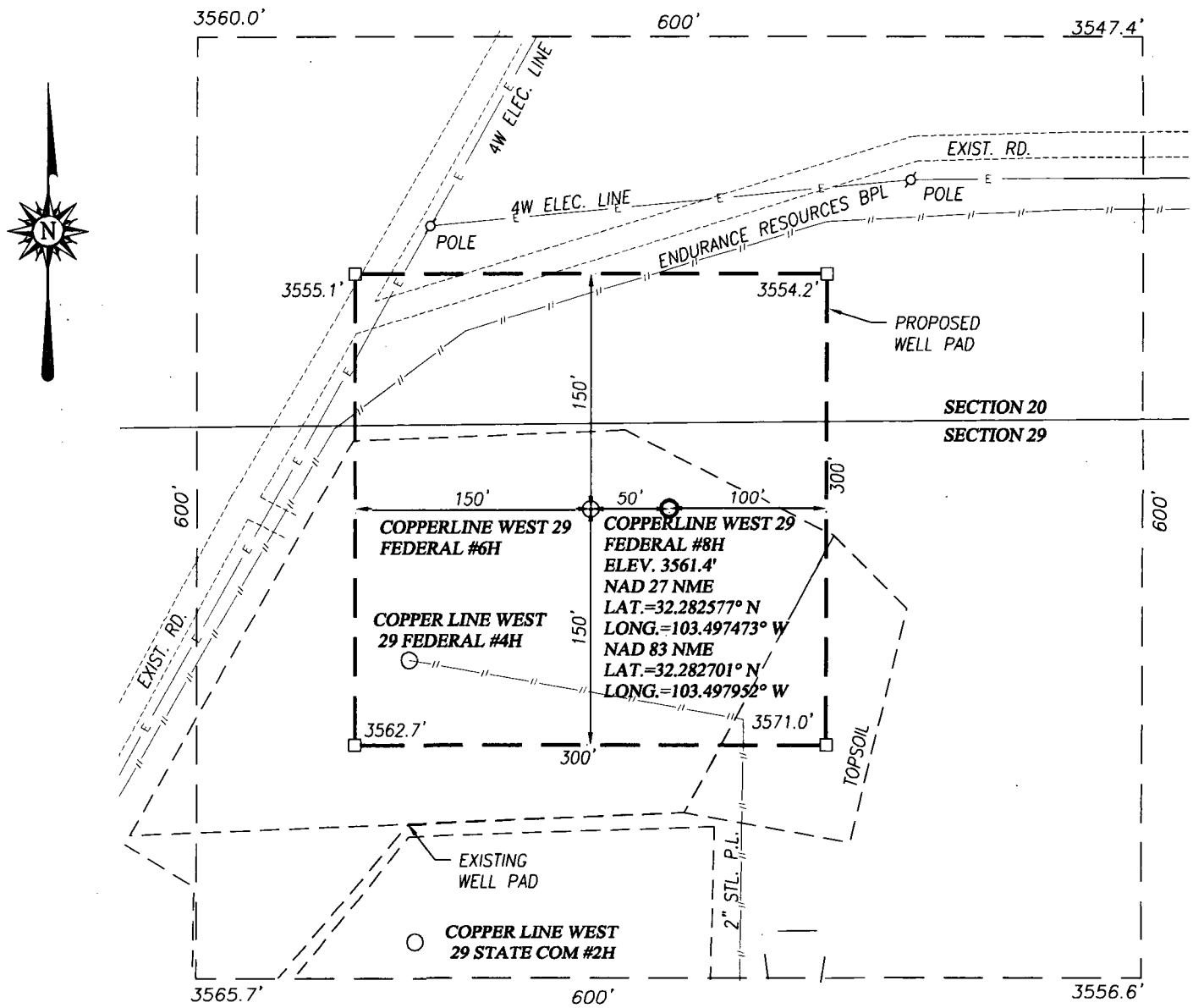
Use a previously conducted onsite? YES

Previous onsite information: Copperline West 29 Federal 6H and this APD has not been approved. Unsure of the exact date of the onsite.

Other SUPO Attachment

Copperline_West_29_Federal_8H___Gas_Capture_Plan_20180809134403.pdf

WELL SITE PLAN



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO THIS LOCATION:

FROM THE INTERSECTION OF DELAWARE BASIN ROAD AND ST. 128, GO NORTH ON DELAWARE BASIN ROAD FOR 5.5 MILES, TURN RIGHT AND GO EAST 0.8 MILES,TURN LEFT AND GO NORTHEAST APPROX. 0.1 MILE, TURN RIGHT TO THE COPPER LINE WEST 29 FEDERAL #4H WELL, THE LOCATION STAKE IS ON THE NE. PORTION OF THE EXISTING PAD.

100 0 100 200 Feet

Scale: 1"=100'

CAZA OPERATING, LLC

COPPERLINE WEST 29 FEDERAL #8H WELL LOCATED 55 FEET FROM THE NORTH LINE AND 825 FEET FROM THE WEST LINE OF SECTION 29, TOWNSHIP 23 SOUTH, RANGE 34 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 7/25/16	CAD Date: 7/27/16	Drawn By: LSL	
W.O. No.: 16110556	Rev: .	Rel. W.O.:	Sheet 1 of 1

STATE OF NEW MEXICO)
:ss
COUNTY OF LEA)

SURFACE DAMAGE AGREEMENT

WHEREAS, Limestone Livestock, LLC ("Owner") P.O. Box 189, Lovington, New Mexico, 88260 owns the following surface estate ("the land"), to wit:

Cell
575-396-7942

NW/4 of Section 29, Township 23 South, Range 34 East, Lea County, NM

WHEREAS, Caza Petroleum, Inc. and it's subsidiary Caza Operating, LLC ("Company") desires to drill oil and/or gas wells on the land and has sought Owner's agreement as to surface damages:

NOW, THEREFORE, in consideration of the terms, conditions and covenants herein below expressed, the parties hereto agree as follows:

(1) Company shall pay to Owner the cash sum of $10,000.00 for each drill site location which shall represent surface damages for the reasonable use of the surface of "the land" for the drill site location, including the drill site and reserve pit. Additionally, Company shall pay the Owner the cash sum of $10,000.00 per year which shall represent surface damages for the reasonable use of the surface of "the land" for the frac pit location. Any injury or damage occurring to groundwater, lands adjacent to the drillsite location, other lands owned by Owner or injury or damage occurring to any cattle, as a result of Company's activities, is not hereby released. Company can drill more than one well on the drill site location and will pay Owner the amount of $2,724.80 per acre if it is necessary to enlarge the drill site location to accommodate additional wells on the same drill site location.

Additionally, Company agrees to purchase water supplied by Owner delivered to the well head at a competitive market price.

(2) Company shall pay to Owner the cash sum of $50.00 per rod for deeded land and $20.00 per rod for lease land for the use of existing roads or for any new roads constructed on Owner's land. Company shall pay to Owner the cash sum of $50.00 per rod for deeded land and $20.00 per rod for lease land for the installation of pipelines or power lines.

All roads ("the roads") to be built by Company on Owner's land shall be located as agreed upon by and between Owner and Company but Owner may not reasonably withhold permission to build a road on "the land" and shall be reasonable in its location. These roads shall contain speed bumps every 1,000 feet which shall be constructed and maintained by Company. If any fence is cut

Caza Petroleum

February 26, 2014

Mr. Bill Angell
Limestone Livestock LLC
P. O. Box 189
Lovington, New Mexico

Re: Amendment to Surface Damage Agreement
Section 29, T23S-R34E
W. Copperline Prospect
Lea County, New Mexico

Dear Bill:
Reference is hereby made to that certain Surface Damage Agreement ("Surface Damage Agreement) dated August 19, 2013, covering the NW/4 Section 29, T23S-R34E, Lea County, New Mexico, by and between Limestone Livestock LLC, "Owner", and Caza Petroleum, Inc., "Company".

Whereas, Owner and Company desire to amend the description in the first paragraph of the Surface Damage Agreement, Owner and Company hereby agree to the following description change, to wit:

Delete:
NW/4 of Section 29, T23S-R34E, Lea County, NM

Add:
W/2 of Section 29, T23S-R34E, Lea County, NM.

All other provisions of the Surface Damage Agreement shall remain unchanged and in full effect.

Very truly yours,
Caza Petroleum, Inc.

John E. Brown, CPL
Land Manager

I hereby agree to the foregoing description change this ___ day of February, 2014.

Limestone Livestock, LLC

By: _____
Bill Angell
Managing Partner

Caza Petroleum, Inc. • 10077 Grogan's Mill Road, Suite 200 • The Woodlands, TX 77380 • Tel:281 363-4442 • Fax:281 363-4454 • CazaPetro.com

by Company, it shall properly brace same with 3 post H brace constructed out of pipe before cutting and shall install and maintain a proper cattle guard, and at the request of Owner shall install a pipe gate across the cattle guard capable of being locked. Company shall paint all H braces, cattle guards and the like, with ranch red paint. Keys will be distributed only to those requiring access to "the land". For so long as the road is used by Company, it shall maintain the road and shall not permit or cause production vehicles (or any other vehicles) to enlarge the margin of the road. Company's use of "the road" shall be limited to the development of minerals under Owner's land.

Cattle guards shall be used by the Company during the drilling and completion stage of the well. After completion and during the production stage of the well, the cattle guards installed by Company shall be removed and metal gates shall be installed in place thereof. Each such gate shall be kept closed and locked at all times and keys distributed only to the appropriate personnel. Owner may request at Owner's option that any one or more cattle guards remain in place rather than being replaced with a metal gate, and at Owner's option may further request that a pipe gate, which can be locked, be installed across the cattle guard. Company shall be responsible for the maintenance and upkeep of each such gate and each such cattle guard that it uses.

Company shall keep all of its production equipment located on Owner's land painted BLM Tan.

(2a). Until such time the well is plugged and abandoned, Company shall pay to Owner, an annual road use fee in the amount of $1,500.00 per location pad, per year, for roads used by Company located on Owner's land. If Company uses the road to access three (3) location pads, then the annual road use payment would be $4,500.00. When Company no longer uses "the road" to access its wells, on "the land", Company shall, within six (6) months thereof, remove, "the road" and restore the surface. Upon final abandonment, "the road(s)" must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the surface owner to keep the road intact. After "the road(s)" created by the Company have been satisfactory prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful.

Seed Mixture

The "Company" shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. Thre shall be no primary or secondary noxious weeds in the seed mixture. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s).

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (Smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The "Company" shall take appropriate measures to ensure that this does not occur. Where drilling is not possible, seed will be broadcast and the areas shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established.

Species to be planted in pounds of pure live seed per acre:

Species	lb/acre
Plains Bristlegrass	5 lbs/A
Sand Bluestem	5 lbs/A
Little Bluestem	3 lbs/A
Big Bluestem	6 lbs/A
Plains Coreopsis	2 lbs/A
Sand Dropseed	1 lbs/A

*Pounds of pure live seed

Pounds of seed x percent purity x percent germination = pounds pure live seed

(2b). Company shall purchase topsoil from Owner for $6.00 per loose yard and Company shall purchase caliche from Owner for $5.00 per loose yard for its operations.

(3) All pits used by Company shall be lined with plastic material of sufficient thickness to prevent the escape of saltwater and other materials on or into "the land". If requested by Owner, Company shall fence off the entire well location, including drill site pad, reserve pit, and, if applicable, tank batteries and pumping unit, so as to prevent any livestock from coming on the drill site location at any time. If livestock enter upon the drill site location and become "oiled" or otherwise injured due to Company's negligence in fencing off the location, Company shall be liable to Owner for such damages.

(4) No fresh water from beneath Owner's land shall ever be used for secondary recovery or repressure operations (or any like operations) by Company. Upon written request of Owner, Company agrees to bury all production lines, flow lines or injection lines (or any type "line") at least 24" beneath the surface, and to thereafter clean and level the land affected thereby (with there being no mound or rocks over the ditch line) and restore it, as nearly as practical, to its state of condition prior to the burying thereof.

(5) Company shall stockpile, adjacent to the location, the topsoil taken during the building of the drill site location. If the well is a producer, Company shall redistribute the topsoil over the reserve pit area and restore the surface, as nearly as practical, to its condition prior to drilling operations. If the well is a dry hole, Company shall pick up the caliche pad, redistribute the topsoil over the drill site location and restore the surface, as nearly as practical, to its condition prior to drilling operations.

Upon completion of the drilling operations, the reserve pit will be "cutout' and allowed to evaporate until dry, after which all plastic and contents of the pit, except cuttings, shall be removed and disposed of off-site of Owner's land. Company will wash and clean cuttings so as to remove all foreign materials from the cuttings and sun dried per new regulations, then use the cuttings on the roads on "the land". Clean margins will be established both horizontally and vertically in the removal of reserve pit contents. Company will purchase clean soil from Owner at $6.00 per yard to back fill reserve pit. The pit shall be leveled, leaving such land suitable for replanting. Rocks larger than 3" in diameter will be buried below ground level. After the above procedures are completed, the Company shall reseed the reserve pit area with native grass seed.

Company will cooperate with Owner as to the type and quantity of seed to be planted and the time of year and technique of planting grass seed until a native stand of grass has been established.

Company agrees that it will not bring topsoil and/or caliche into the ranch from a source outside of the boundaries of the ranch.

(6) Company agrees to remove the rig and its associated equipment from "the land" within thirty (30) days of completion of the well. Should, for whatever reason, the rig and equipment not be removed by that time, the Company shall owe and pay to Owner a daily rental of $60.00 per day.

Upon cessation of production, or if the well is non-commercial, Company shall within six (6) months, remove all equipment, all production lines and all other items of equipment used directly or indirectly by Company as it pertains to the well drilled by it on "the land", and restore the site to its original condition.

(7) In the event of a dry hole or upon cessation of production and the abandonment of the well, Company agrees that all caliche and all other material as may have been placed or otherwise deposited on "the land" by it shall be removed by Company within six (6) months of abandonment thereof. Company also agrees to remove and/or remediate any and all soil and water contamination resulting from the Company's operations within twenty (20) days of such occurrences.

(8) Company shall indemnify, defend and hold Owner and its Trustees, officers, employees and agents harmless from and against any and all claims, demands, causes of action, costs, expenses, and liability of any nature whatsoever, including court costs, attorney's fees, and any expenses incurred, which may result from, arise out of, be related to, or in any way be connected with Company's operations; provided, however that nothing herein shall be construed to require or obligate Company to indemnify Owner against, or hold Owner harmless from Owner's own negligent acts or omissions. Further, Company shall indemnify and save Owner and its Trustees, officers, employees and agents harmless from any and all damages, cleanup expenses, fines, or penalties, resulting from a fire or any violation of, or non-compliance with, applicable local, state, or federal laws and regulations resulting from Company's operations.

(9) The parties agree, with respect to any other matters, damages or uses which are not provided for herein, that they will diligently and in good faith negotiate same on an issue by issue basis.

THIS AGREEMENT shall be binding on Company's successors, assigns and agents and it shall be binding on Owner's heirs, successors, representatives, administrators and assigns. Company agrees to provide copies of this Surface Damage Agreement to its agents and independent contractors who will enter upon "the land" and shall require that the agents and independent contractors comply with the terms and conditions set forth therein. The covenants hereunder shall be performable in Lovington, Lea County, New Mexico.

SIGNED this 10 day of August, 2013.

OWNER: **Limestone Livestock, LLC**

By: _____
Managing Partner

COMPANY

Caza Petroleum, Inc.

By: _____

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

08/31/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000471

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

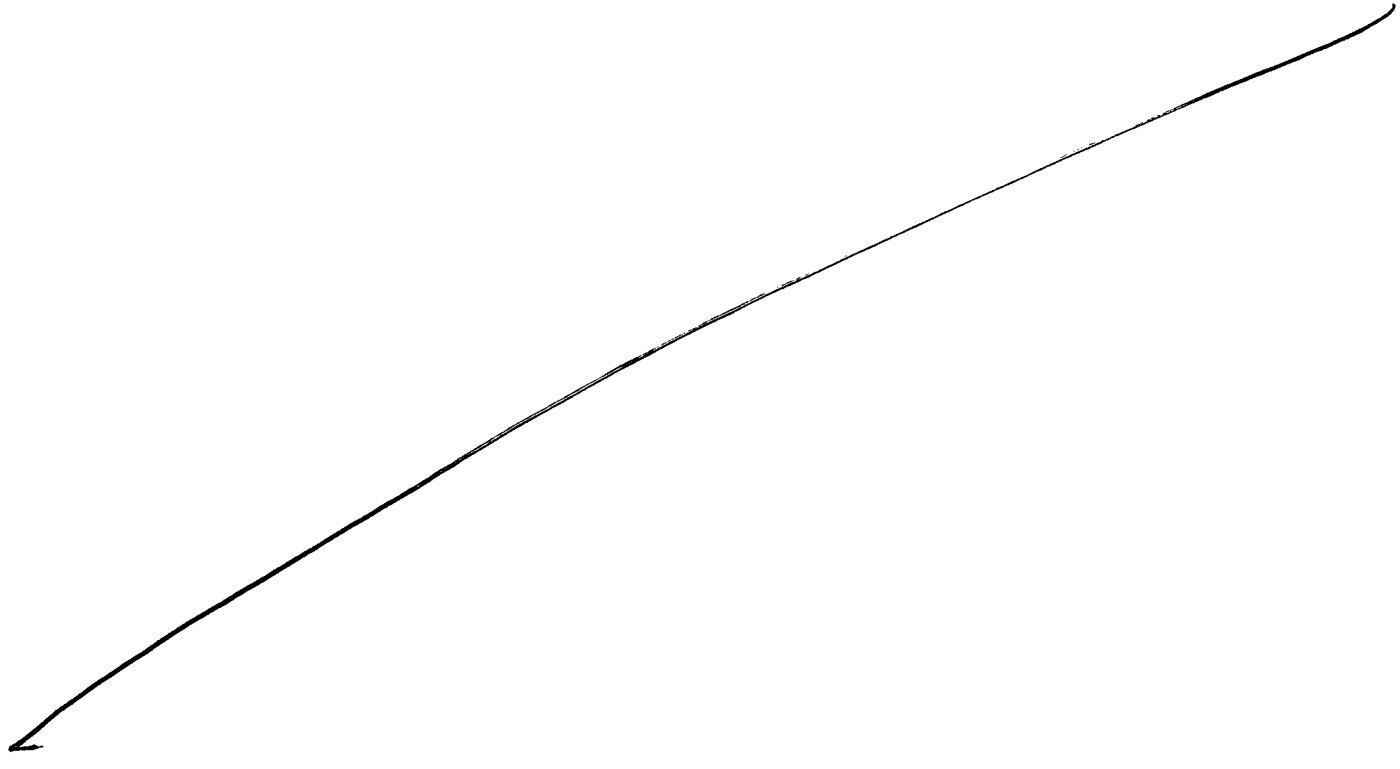
Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:



Operator Name: CAZA OPERATING LLC

Well Name: COPPERLINE WEST 29 FEDERAL **Well Number:** 8H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FSL	970	FWL	23S	34E	29	Aliquot SWSW	32.269255	-103.497461	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 092199	-5409	13670	9060
BHL Leg #1	330	FSL	970	FWL	32S	34E	29	Aliquot SWSW	32.269255	-103.497461	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 092199	-5409	13670	9060

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment: