Carlsbad Field Office
OCD Hobbs

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Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM129267	
6. If Indian, Allotee or Tribe Name	
7. If Unit or CA Agreement, Name and No.	
8. Lease Name and Well No. (317301) WEST GRAMA RIDGE 8-5 FED 10H	
9. API Well No. 30-025-44845	
10. Field and Pool, or Exploratory (98281) WOLFCAMP / WOLFCAMP	
11. Sec., T. R. M. or Blk. and Survey or Area SEC 8 / T22S / R34E / NMP	
12. County or Parish LEA	13. State NM

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

2. Name of Operator CIMAREX ENERGY COMPANY (215099)

3a. Address 202 S. Cheyenne Ave., Ste 1000 Tulsa OK 74

3b. Phone No. *(include area code)* (432)620-1936

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SWSW / 397 FSL / 730 FWL / LAT 32.400063 / LONG -103.498226
At proposed prod. zone LOT 4 / 330 FNL / 1260 FWL / LAT 32.427141 / LONG -103.496446

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

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 397 feet	16. No. of acres in lease 1078.3	17. Spacing Unit dedicated to this well 641.06
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 20 feet	19. Proposed Depth 11870 feet / 21799 feet	20. BLM/BIA Bond No. on file FED: NMB001188
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3525 feet	22. Approximate date work will start* 06/01/2018	23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 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 required by the BLM.

25. Signature (Electronic Submission)	Name *(Printed/Typed)* Aricka Easterling / Ph: (918)560-7060	Date 12/22/2017
Title Regulatory Analyst		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 05/01/2018
Title Supervisor Multiple Resources	Office 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.

(Continued on page 2)

*(Instructions on page 2)

Rec GCP 5/23/18

APPROVED WITH CONDITIONS
Approval Date: 05/01/2018

KZ 05/30/18

Requires NSL

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** WEST GRAMA RIDGE 8-5 FED COM **Number:** W2W2

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

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 20 Miles **Distance to nearest well:** 20 FT **Distance to lease line:** 397 FT

Reservoir well spacing assigned acres Measurement: 641.06 Acres

Well plat: West_Grama_Ridge_8_5_Federal_Com_10H_C102_Plat_20180110112655.pdf

Well work start Date: 06/01/2018 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

	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	397	FSL	730	FWL	22S	34E	8	Aliquot SWSW	32.400063	-103.498226	LEA	NEW MEXICO	NEW MEXICO	S	STATE	3525	0	0
KOP Leg #1	65	FSL	1260	FWL	22S	34E	8	Aliquot SWSW	32.3991361	-103.4965111	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-7775	11335	11300
PPP Leg #1	188	FSL	1260	FWL	22S	34E	8	Aliquot SWSW	32.399475	-103.4965111	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8095	11685	11620

APD ID: 10400025290 **Submission Date:** 12/22/2017

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Well Type: CONVENTIONAL GAS 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	3525	1580	1580		USEABLE WATER	No
2	SALADO	1795	1730	1730		NONE	No
3	BASE OF SALT	-265	3790	3790		NONE	No
4	CAPITAN REEF	-765	4290	4290		NATURAL GAS,OIL	No
5	DELAWARE SAND	-1685	5210	5210		NATURAL GAS,OIL	No
6	BONE SPRING	-5155	8680	8680		NATURAL GAS,OIL	No
7	BONE SPRING 1ST	-6245	9770	9770		NATURAL GAS,OIL	No
8	BONE SPRING 2ND	-6755	10280	10280		NATURAL GAS,OIL	No
9	BONE SPRING 3RD	-7195	10720	10720		NATURAL GAS,OIL	No
10	WOLFCAMP	-8095	11620	11620		NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 2M **Rating Depth:** 1630

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only..
Testing Procedure: A multi-bowl wellhead system will be utilized. After running the 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be

a third-party welder while being monitored by the wellhead vendor representative. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_Choke_2M3M_20171222103129.pdf

BOP Diagram Attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_BOP_2M_20171222103137.pdf

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Pressure Rating (PSI): 3M **Rating Depth:** 5190

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.
Testing Procedure: A multi-bowl wellhead system will be utilized. After running the 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_Choke_2M3M_20171222103157.pdf

BOP Diagram Attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_BOP_3M_20171222103208.pdf

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Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Pressure Rating (PSI): 5M **Rating Depth:** 11335

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.

Testing Procedure: A multi-bowl wellhead system will be utilized. After running the 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_Choke_5M_20171222103232.pdf

BOP Diagram Attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_BOP_5M_20171222103239.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	SURFACE	17.5	13.375	NEW	API	N	0	1630	0	1630	0	1630	1630	J-55	54.5	STC	1.52	3.67	BUOY	5.79	BUOY	5.79
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5190	0	5190	0	5190	5190	J-55	40	LTC	1.22	1.43	BUOY	2.5	BUOY	2.5
3	PRODUCTION	8.75	7.0	NEW	API	N	0	11335	0	11335	0	11335	11335	L-80	29	LTC	1.32	1.54	BUOY	1.71	BUOY	1.71
4	PRODUCTION	8.75	7.0	NEW	API	N	11335	11960	11335	11960	11335	11960	625	L-80	29	BUTT	1.26	1.47	BUOY	43.57	BUOY	43.57

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

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
5	COMPLETION SYSTEM	6	4.5	NEW	API	N	11335	21799	11335	21799	11335	21799	10464	P-110	13.5	BUTT	1.44	1.68	BUOY	58.43	BUOY	58.43

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

West_Grama_Ridge_8_5_Federal_Com_10H_Casing_Assumptions_20171222103335.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

West_Grama_Ridge_8_5_Federal_Com_10H_Casing_Assumptions_20171222103409.pdf

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Casing Attachments

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

West_Grama_Ridge_8_5_Federal_Com_10H_Casing_Assumptions_20171222103442.pdf

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

West_Grama_Ridge_8_5_Federal_Com_10H_Casing_Assumptions_20171222103533.pdf

Casing ID: 5 **String Type:** COMPLETION SYSTEM

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

West_Grama_Ridge_8_5_Federal_Com_10H_Casing_Assumptions_20171222103646.pdf

Section 4 - Cement

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1630	790	1.72	13.5	1358	50	Class C	Bentonite
SURFACE	Tail		0	1630	212	1.34	14.8	283	25	Class C	LCM
INTERMEDIATE	Lead		0	5190	1044	1.72	13.5	1794	50	Class C	Bentonite
INTERMEDIATE	Tail		0	5190	292	1.34	14.8	391	25	Class C	LCM
PRODUCTION	Lead		0	11335	327	3.64	10.3	1187	25	Tuned Light	LCM
PRODUCTION	Tail		0	11335	80	1.3	14.2	104	10	50:50 (Poz:H)	Salt, Bentonite, Fluid Loss, Dispersant, SMS
PRODUCTION	Lead		11335	11960	327	3.64	10.3	1187	25	Tuned Light	LCM
PRODUCTION	Tail		11335	11960	80	1.3	14.2	104	10	50:50 (Poz:H)	Salt, Bentonite, Fluid Loss, Dispersant, SMS
COMPLETION SYSTEM	Lead		11335	21799	715	1.3	14.2	929	10	50:50 (Poz:H)	Salt Bentonite, Fluid Loss, Dispersant, SMS

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 materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.
Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

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	1630	SPUD MUD	8.3	8.8							
1630	5190	SALT SATURATED	9.7	10.2							
11960	21799	OIL-BASED MUD	11.5	12							
5190	11960	OTHER : FW/Cut Brine	8.5	9							

Section 6 - Test, Logging, Coring

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

No DST Planned

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

CNL,DS,GR

Coring operation description for the well:

n/a

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7406 **Anticipated Surface Pressure:** 4794.6

Anticipated Bottom Hole Temperature(F): 187

Anticipated abnormal pressures, temperatures, or potential geologic hazards? YES

Describe:

Lost circulation may be encountered in the Delaware mountain group. Abnormal pressure as well as hole stability issues may be encountered in the Wolfcamp.

Contingency Plans geoharzards description:

Lost circulation material will be available, as well as additional drilling fluid along with the fluid volume in the drilling rig pit system. Drilling fluid can be mixed on location or mixed in vendor mud plant and trucked to location if needed. Sufficient barite will be available to maintain appropriate mud weight for the Wolfcamp interval.

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

West_Grama_Ridge_8_5_Federal_Com_10H_H2S_Plan_20171222104244.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

West_Grama_Ridge_8_5_Federal_Com_10H_Directional_Plan_20171222104258.pdf

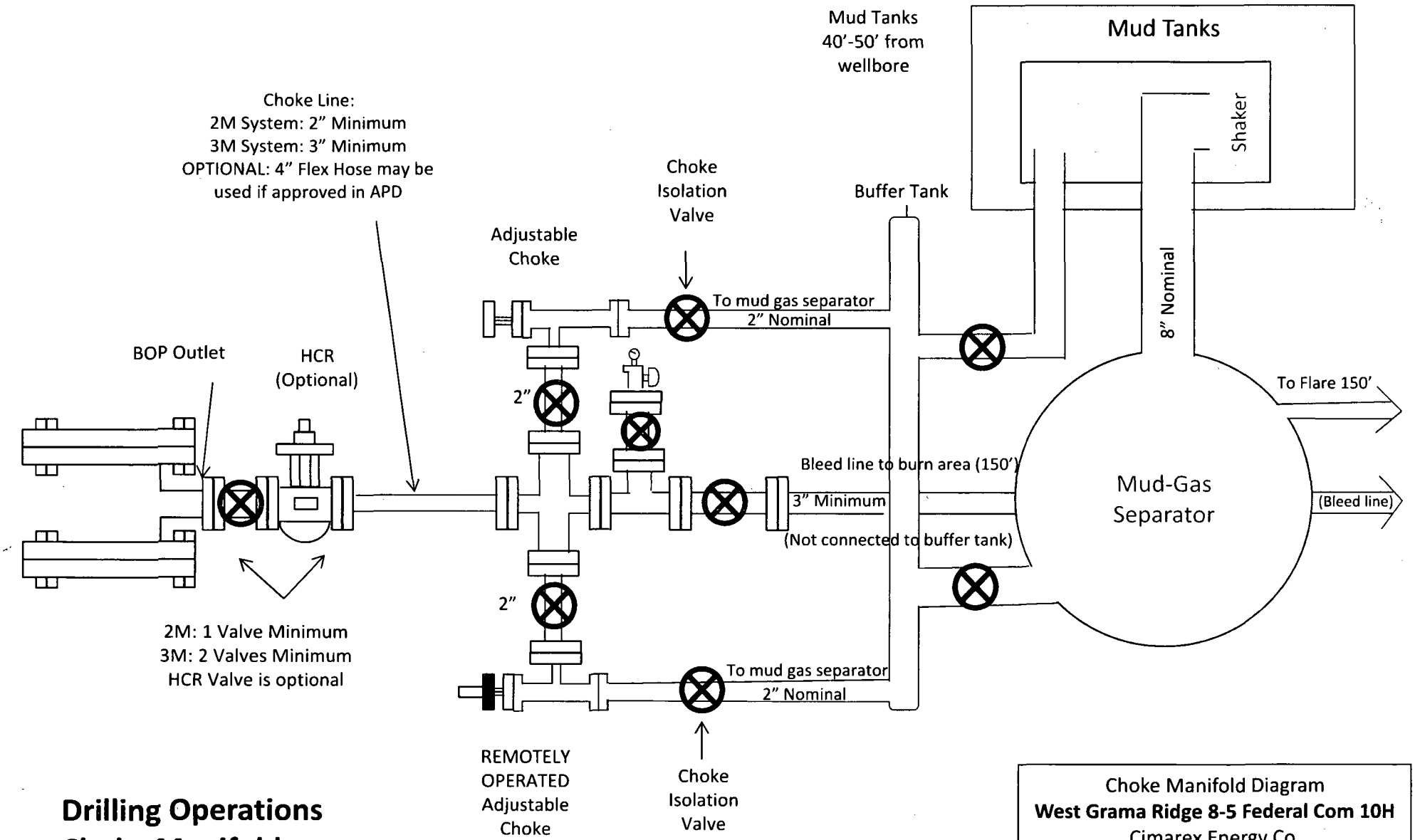
Other proposed operations facets description:

Other proposed operations facets attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_Drilling_Plan_20171222104309.pdf
West_Grama_Ridge_8_5_Federal_Com_10H_Anti_Collision_Report_20171222104308.pdf
West_Grama_Ridge_8_5_Federal_Com_10H_Gas_Capture_Plan_20171222104313.pdf
West_Grama_Ridge_8_5_Federal_Com_10H_Flex_Hosepdf_20171222104312.pdf

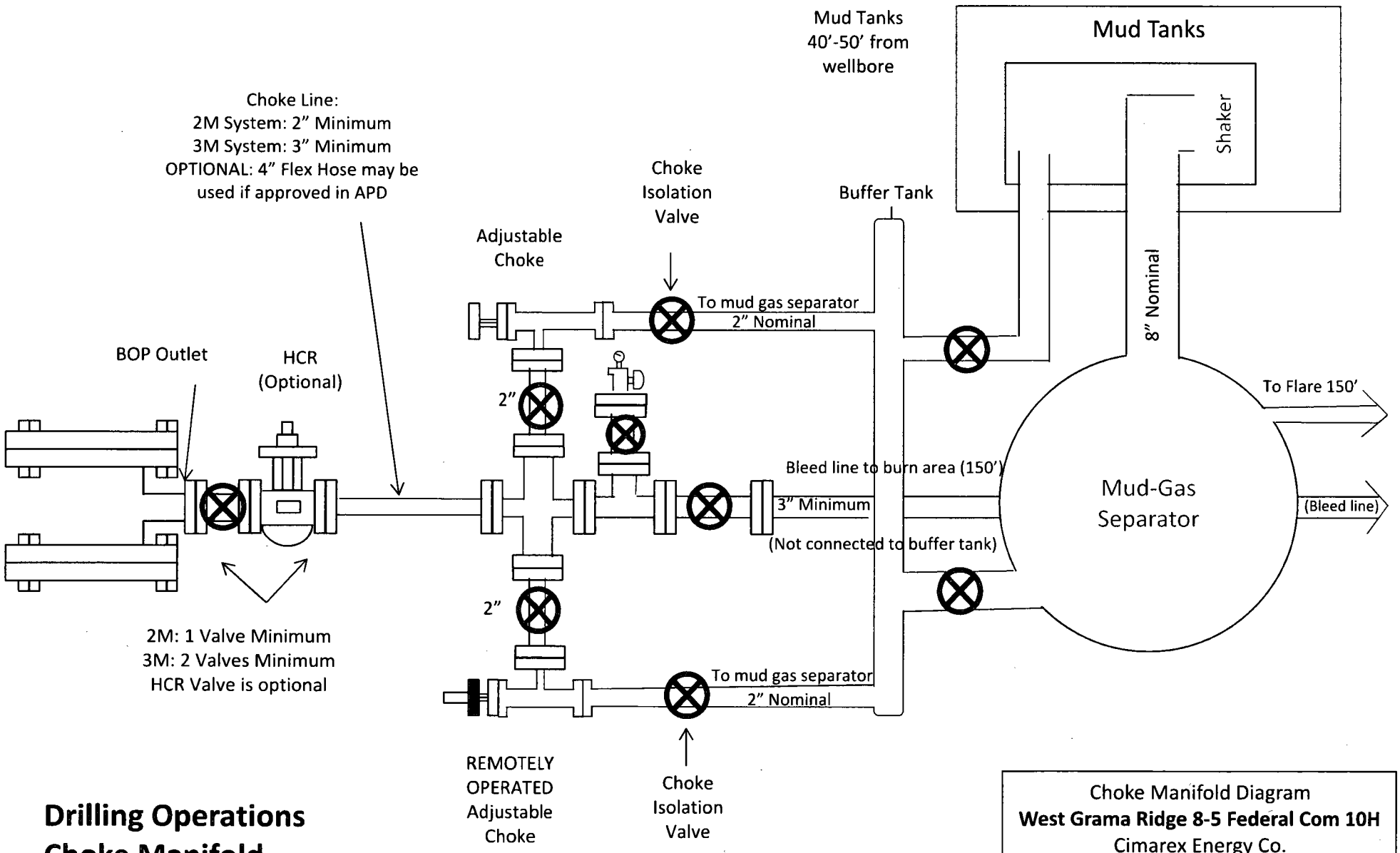
Other Variance attachment:

West_Grama_Ridge_8_5_Federal_Com_10H_Multibowl_Wellhead_Diagram_20180418074530.pdf



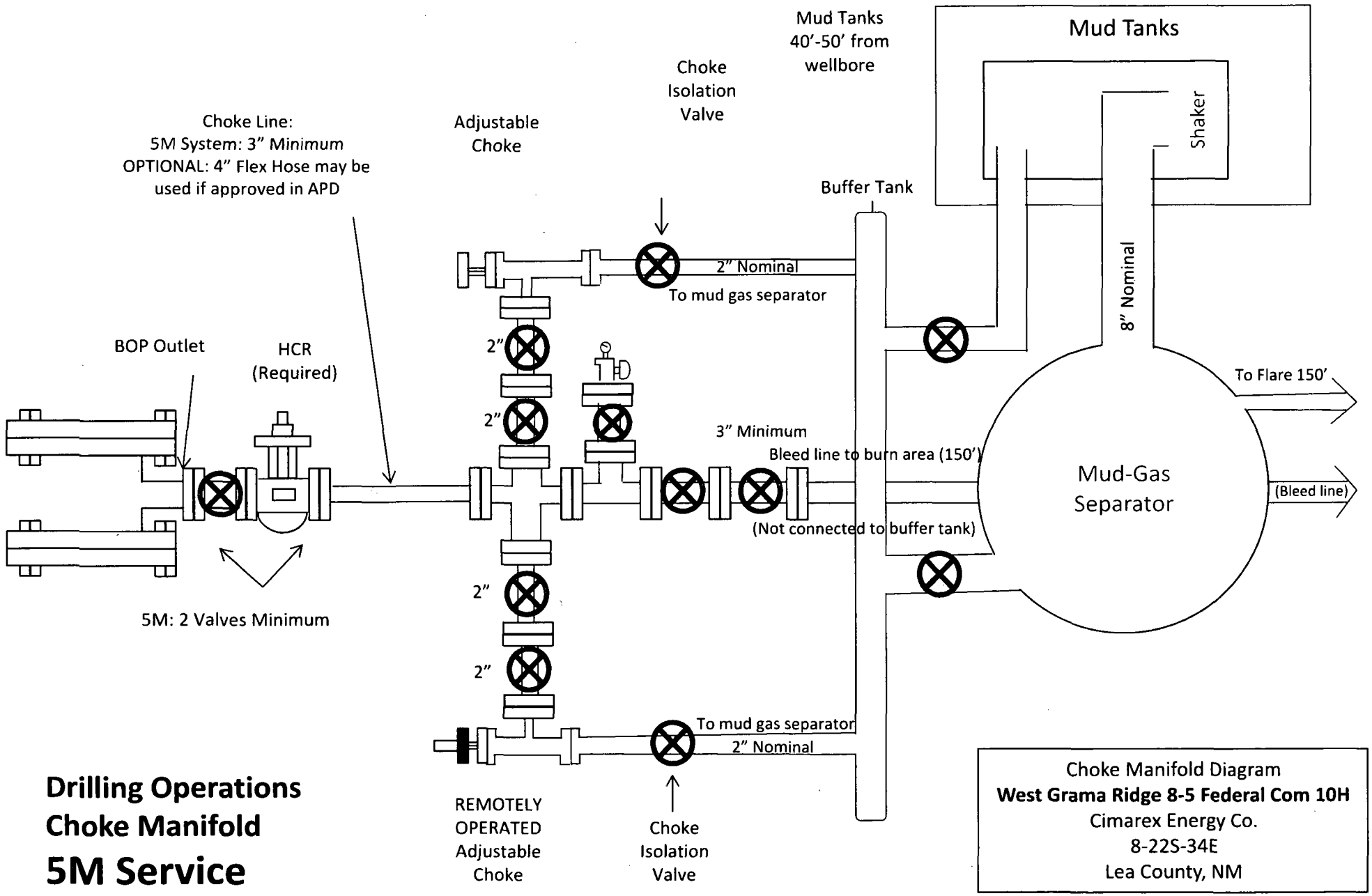
Drilling Operations
Choke Manifold
2M/3M Service

Choke Manifold Diagram
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM



Drilling Operations
Choke Manifold
2M/3M Service

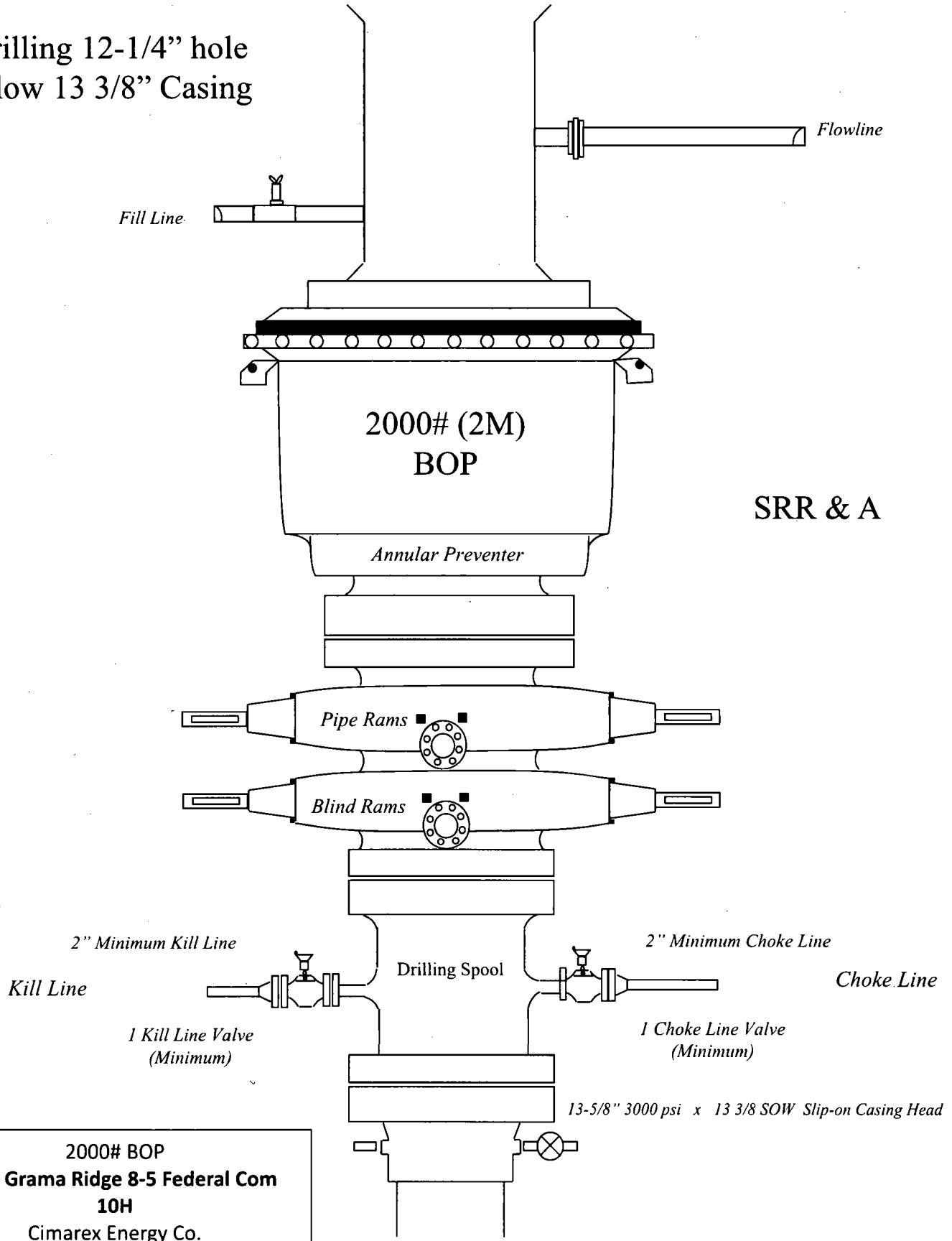
Choke Manifold Diagram
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM



Drilling Operations
Choke Manifold
5M Service

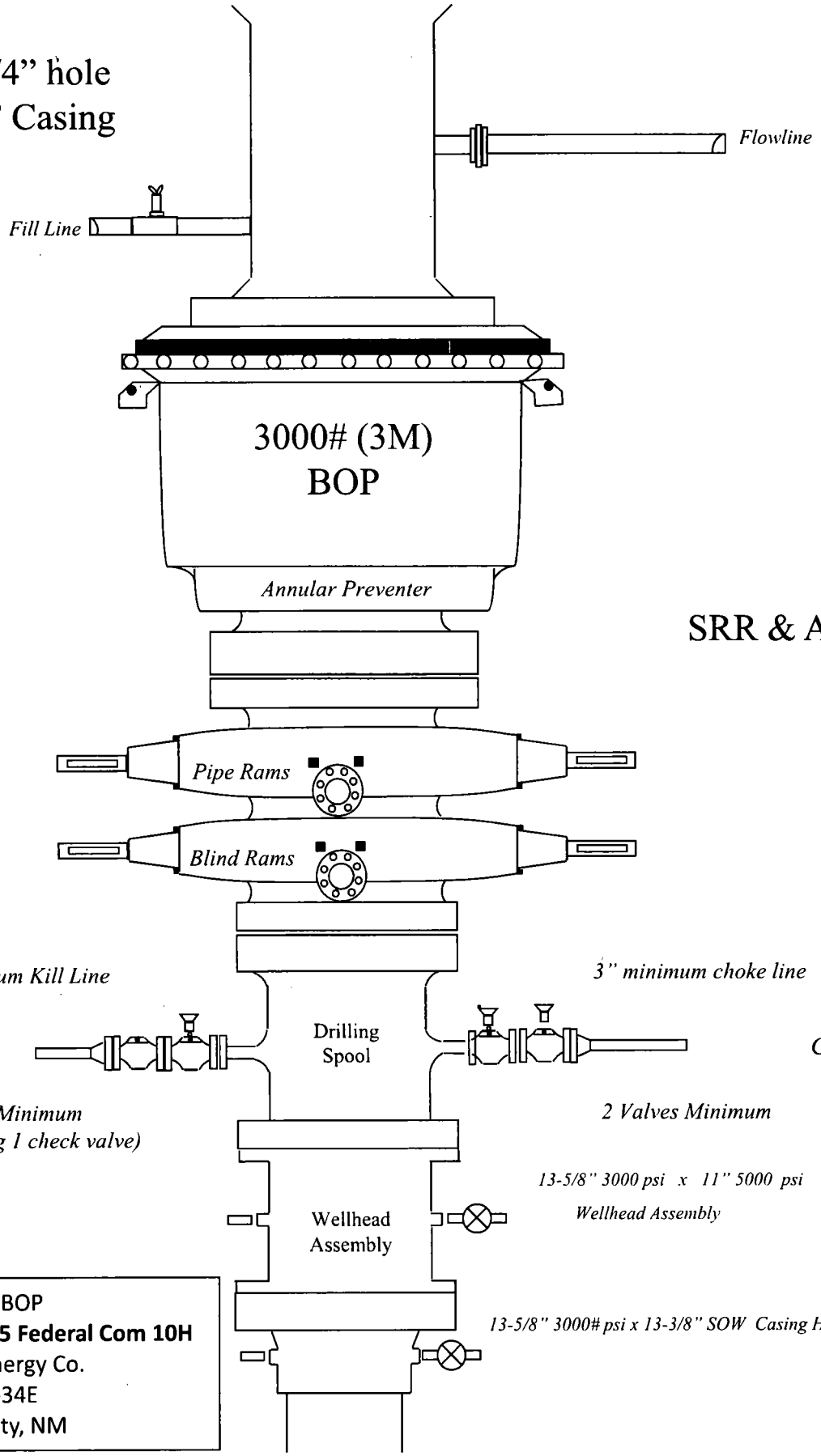
Choke Manifold Diagram
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

Drilling 12-1/4" hole
below 13 3/8" Casing



2000# BOP
West Grama Ridge 8-5 Federal Com
10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

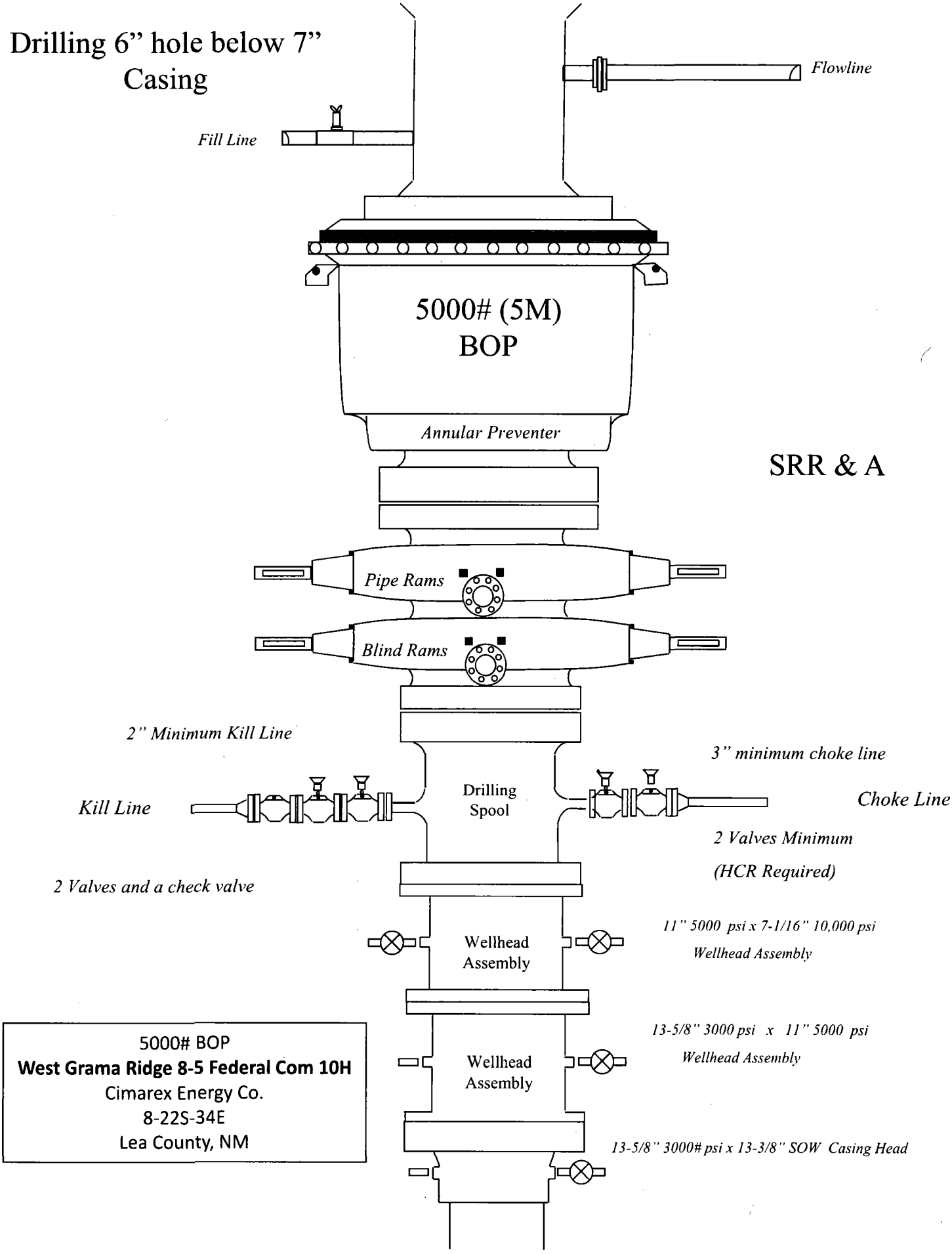
Drilling 8-3/4" hole
below 9 5/8" Casing



SRR & A

3000# BOP
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

Drilling 6" hole below 7" Casing



5000# BOP
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

West Grama Ridge 8-5 Federal Com 10H

Casing Assumptions

Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1630	13-3/8"	54.50	J-55	ST&C	1.52	3.67	5.79
12 1/4	0	5190	9-5/8"	40.00	J-55	LT&C	1.22	1.43	2.50
8 3/4	0	11335	7"	29.00	L-80	LT&C	1.32	1.54	1.71
8 3/4	11335	11960	7"	29.00	L-80	BT&C	1.26	1.47	43.57
6	11335	21799	4-1/2"	13.50	P-110	BT&C	1.44	1.68	58.43
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

TVD was used on all calculations.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

West Grama Ridge 8-5 Federal Com 10H

Casing Assumptions

Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1630	13-3/8"	54.50	J-55	ST&C	1.52	3.67	5.79
12 1/4	0	5190	9-5/8"	40.00	J-55	LT&C	1.22	1.43	2.50
8 3/4	0	11335	7"	29.00	L-80	LT&C	1.32	1.54	1.71
8 3/4	11335	11960	7"	29.00	L-80	BT&C	1.26	1.47	43.57
6	11335	21799	4-1/2"	13.50	P-110	BT&C	1.44	1.68	58.43
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

TVD was used on all calculations.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

West Grama Ridge 8-5 Federal Com 10H

Casing Assumptions

Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1630	13-3/8"	54.50	J-55	ST&C	1.52	3.67	5.79
12 1/4	0	5190	9-5/8"	40.00	J-55	LT&C	1.22	1.43	2.50
8 3/4	0	11335	7"	29.00	L-80	LT&C	1.32	1.54	1.71
8 3/4	11335	11960	7"	29.00	L-80	BT&C	1.26	1.47	43.57
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West Grama Ridge 8-5 Federal Com 10H

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TVD was used on all calculations.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft3/sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	790	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	212	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	1044	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	292	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	327	10.30	3.64	22.18		Lead: Tuned Light + LCM
	80	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	715	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

Casing String	TOC	% Excess
Surface	0	45
Intermediate	0	44
Production	4990	24
Completion System	11960	10

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other		
6	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			Pipe Ram		
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	N	Are anchors required by manufacturer?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 1630'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1630' to 5190'	Brine Water	9.70 - 10.20	30-32	N/C
5190' to 11960'	FW/Cut Brine	8.50 - 9.00	30-32	N/C
11960' to 21799'	Oil Based Mud	11.50 - 12.00	50-70	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

	Logging, Coring and Testing
X	Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

Additional Logs Planned	Interval

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	7406 psi
Abnormal Temperature	No

	Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.
X	H2S is present
X	H2S plan is attached

8. Other Facets of Operation

9. Wellhead

A multi-bowl wellhead system will be utilized.

After running the 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2.

The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office.

The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

The casing string utilizing steel body pack-off will be tested to 70% of casing burst.

If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Schlumberger

CIMAREX

Cimarex West Grama Ridge 8-5 Federal Com 10H Rev0 RM 11Dec17 Anti-Collision Summary Report

Analysis Date-24hr Time:	December 13, 2017 - 09:07	**Analysis Method:**	3D Least Distance
Client:	Cimarex	**Reference Trajectory:**	Plan)
Field:	NM Lea County (NAD 83)	**Depth Interval:**	Every 10.00 Measured Depth (ft)
Structure:	Cimarex West Grama Ridge 8-5 Federal Com 10H	**Rule Set:**	NAL Procedure: D&M AntiCollision Standard S002
Slot:	Cimarex West Grama Ridge 8-5 Federal Com 10H	**Min Pts:**	All local minima indicated.
Well:	Cimarex West Grama Ridge 8-5 Federal Com 10H	**Version / Patch:**	2.10.565.0
Borehole:	Original Borehole	**Database \ Project:**	US1153APP452.dir.slb.com\drilling-NM Lea County 2.10
Scan MD Range:	0.00ft ~ 21799.24ft		

Trajectory Error Model: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!

Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans
- All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex West Grama Ridge 8-5 Federal Com 9H Rev0 RM 11Dec17 (Non-Def Plan)													Fail Minor
	20.11	16.53	17.61	3.57	N/A	MAS = 5.04 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	20.04	16.53	17.54	3.51	N/A	MAS = 5.04 (m)	24.00	24.00				WRP	
	20.04	16.53	8.51	3.51	1.94	MAS = 5.04 (m)	1500.00	1500.00				MinPts	
	20.06	16.53	8.49	3.52	1.94	MAS = 5.04 (m)	1510.00	1510.00				MINPT-O-EOU	
	20.17	16.53	8.52	3.64	1.93	MAS = 5.04 (m)	1530.00	1530.00				MinPt-O-SF	
	49.17	16.53	37.99	32.64	5.38	MAS = 5.04 (m)	2010.00	2008.11	CtCt<=15m>15.00			Exit Alert	
	380.27	45.25	349.27	335.02	13.26	OSF1.50	6530.00	6498.97				MinPt-O-SF	
	439.70	46.78	407.68	392.92	14.81	OSF1.50	11400.00	11364.81				MinPts	
	440.23	47.03	408.05	393.20	14.75	OSF1.50	11500.00	11461.75				MinPt-O-SF	
	442.54	134.87	351.80	307.67	4.99	OSF1.50	14020.00	11820.71	OSF<5.00			Enter Alert	
	440.15	440.67	145.54	-0.52	1.50	OSF1.50	19410.00	11854.86		OSF<1.50		Enter Minor	
	439.94	565.47	62.13	-125.53	1.17	OSF1.50	21580.00	11868.61				MinPt-CtCt	
	439.95	577.90	53.85	-137.95	1.14	OSF1.50	21799.24	11870.00				MinPts	
Cimarex West Grama Ridge 8-5 Federal Com 7H Rev0 RM 11Dec17 (Non-Def Plan)													Warning Alert
	40.02	32.52	37.52	7.50	N/A	MAS = 9.91 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	40.02	32.52	37.52	7.50	168879.38	MAS = 9.91 (m)	24.00	24.00				WRP	
	40.02	32.52	28.55	7.50	4.18	MAS = 9.91 (m)	1490.00	1490.00				MinPts	
	40.02	32.52	28.49	7.50	4.15	MAS = 9.91 (m)	1500.00	1500.00				MINPT-O-EOU	
	40.05	32.52	28.50	7.53	4.15	MAS = 9.91 (m)	1510.00	1510.00				MinPt-O-SF	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	48.58	32.52	37.22	16.06	5.20	MAS = 9.91 (m)	1680.00	1679.88	CtCt<=15m>15.00			Exit Alert	
	814.48	47.99	781.65	766.49	26.77	OSF1.50	6580.00	6548.64				MinPt-O-SF	
	842.95	49.07	809.41	793.89	27.07	OSF1.50	6810.00	6777.16				MinPt-O-SF	
	879.65	52.22	844.01	827.43	26.47	OSF1.50	11410.00	11374.71				MINPT-O-EOU	
	879.66	52.23	844.01	827.43	26.46	OSF1.50	11420.00	11384.57				MinPt-O-ADP	
	879.84	52.32	844.13	827.52	26.42	OSF1.50	11500.00	11461.75				MinPt-O-SF	
	880.39	266.38	701.97	614.01	4.99	OSF1.50	16350.00	11835.47	OSF<5.00			Enter Alert	
	879.86	542.49	517.36	337.36	2.44	OSF1.50	21170.00	11866.01				MinPt-CtCt	
	879.88	578.52	493.36	301.36	2.28	OSF1.50	21799.24	11870.00				MinPts	
Cimarex West Grama Ridge 8-5 Federal Com 6H Rev0 RM 11Dec17 (Non-Def Plan)													Warning Alert
	60.05	32.81	57.55	27.25	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	60.04	32.81	57.54	27.23	N/A	MAS = 10.00 (m)	24.00	24.00				WRP	
	60.04	32.81	48.51	27.23	6.37	MAS = 10.00 (m)	1500.00	1500.00				MinPts	
	60.06	32.81	48.49	27.25	6.34	MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EOU	
	60.99	32.81	49.14	28.18	6.26	MAS = 10.00 (m)	1580.00	1579.99				MinPt-O-SF	
	87.22	32.81	67.77	54.41	5.00	MAS = 10.00 (m)	4120.00	4104.51	OSF<5.00			Enter Alert	
	87.05	32.81	66.92	54.25	4.79	MAS = 10.00 (m)	4210.00	4193.93				MinPts	
	87.87	32.81	66.20	55.06	4.45	MAS = 10.00 (m)	4400.00	4382.70				MINPT-O-EOU	
	102.19	39.67	74.91	62.52	4.02	OSF1.50	5070.00	5048.38				MinPt-O-SF	
	200.16	61.89	158.07	138.27	4.99	OSF1.50	7110.00	7075.33	OSF>5.00			Exit Alert	
	719.84	74.21	669.54	645.63	15.00	OSF1.50	11180.00	11145.01				MinPt-CtCt	
	719.93	74.46	669.46	645.47	14.96	OSF1.50	11230.00	11195.01				MINPT-O-EOU	
	719.98	74.51	669.47	645.47	14.94	OSF1.50	11240.00	11205.01				MinPt-O-ADP	
	724.97	75.81	673.60	649.16	14.78	OSF1.50	11420.00	11384.57				MinPt-O-SF	
	776.34	234.95	618.87	541.39	4.99	OSF1.50	15760.00	11831.73	OSF<5.00			Enter Alert	
	791.47	553.34	421.75	238.13	2.15	OSF1.50	21799.24	11870.00				MinPts	
Cimarex West Grama Ridge 8-5 Federal Com 5H Rev0 RM 11Dec17 (Non-Def Plan)													Warning Alert
	116.61	32.81	114.11	83.80	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	116.60	32.81	114.10	83.79	N/A	MAS = 10.00 (m)	24.00	24.00				WRP	
	116.60	32.81	105.07	83.79	12.63	MAS = 10.00 (m)	1500.00	1500.00				MinPts	
	116.61	32.81	105.07	83.80	12.62	MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EOU	
	116.88	32.81	105.30	84.07	12.59	MAS = 10.00 (m)	1560.00	1560.00				MinPt-O-SF	
	537.70	46.66	505.76	491.04	18.18	OSF1.50	6530.00	6498.97				MinPt-O-SF	
	599.64	44.45	569.18	555.19	21.35	OSF1.50	11170.00	11135.01				MinPts	
	644.07	39.48	616.91	604.58	26.02	OSF1.50	12010.00	11773.29				MinPt-O-SF	
	646.17	39.60	618.94	606.57	26.03	OSF1.50	12050.00	11781.75				MinPt-O-SF	
	665.75	201.80	530.38	463.95	4.99	OSF1.50	15590.00	11830.66	OSF<5.00			Enter Alert	
	683.92	523.65	333.98	160.27	1.96	OSF1.50	21799.24	11870.00				MinPts	

Co-Flex Hose Hydrostatic Test
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	P.O. Number:
Oderco Inc	odyd-271

HOSE SPECIFICATIONS

Type: Stainless Steel Armor Choke & Kill Hose	Hose Length: 45'ft.
I.D. 4 *INCHES*	O.D. 9 *INCHES*

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
10,000 *PSI*	15,000 *PSI*	0 *PSI*

COUPLINGS

Stem Part No.	Ferrule No.
OKC OKC	OKC OKC
Type of Coupling: Swage-It	

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
15 *MIN.*	0 *PSI*

Hose Assembly Serial Number:	Hose Serial Number:
79793	OKC

Comments:

Date:	Tested:	Approved:
3/8/2011	A. Jaime Jaime	

Midwest Hose & Specialty, Inc.

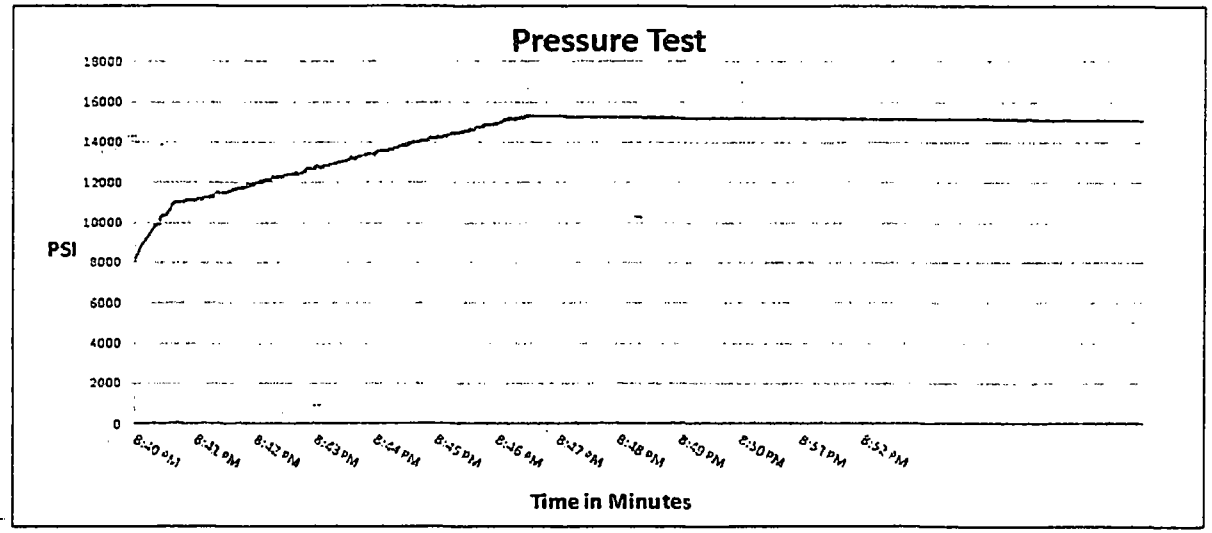
Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

Pick Ticket #: 94260

Hose Specifications		Verification	
Hose Type	**Length**	**Type of Fitting**	**Coupling Method**
C & K	45'	4 1/16 10K	Swage
I.D.	**O.D.**	**Die Size**	**Final O.D.**
4"	6.09"	6.38"	6.25"
Working Pressure	**Burst Pressure**	**Hose Serial #**	**Hose Assembly Serial #**
10000 PSI	Standard Safety Multiplier Applies	5544	79793



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	11 Minutes		15483 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Zac Mcconnell*

Approved By: *Kim Thomas*

Co-Flex Hose Hydrostatic Test
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

Co-Flex Hose
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: DEM	**PO** ODYD-271

SPECIFICATIONS

Sales Order 79793	**Dated:** 3/8/2011

We hereby cerify that the material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards

Supplier:
Midwest Hose & Specialty, Inc.
10640 Tanner Road
Houston, Texas 77041

Comments:

Approved:	**Date:** 3/8/2011

Midwest Hose & Specialty, Inc.

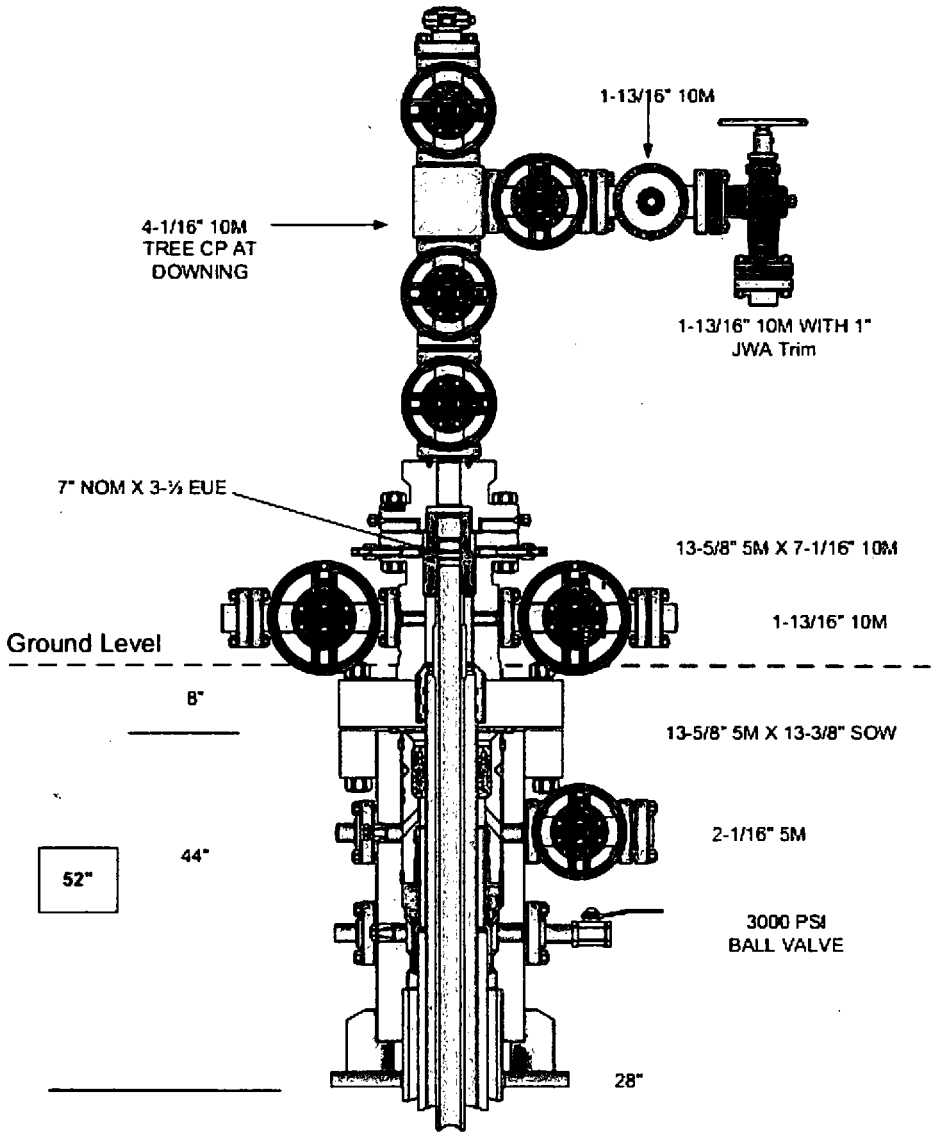
Co-Flex Hose
West Grama Ridge 8-5 Federal Com 10H
Cimarex Energy Co.
8-22S-34E
Lea County, NM

Specification Sheet
Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium componets.The reinforcement cables, inner liner and cover are made of the highest quality material to handle the tough drilling applications of today's industry. The end connections are available with API flanges, API male threads, hubs, hammer unions or other special fittings upon request. Hose assembly is manufactured to API 7K. This assembly is wrapped with fire resistant vermculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

Working Pressure:	5,000 or 10,000 psi working pressure
Test Pressure:	10,000 or 15,000 psi test pressure
Reinforcement:	Multiple steel cables
Cover:	Stainless Steel Armor
Inner Tube:	Petroleum resistant, Abrasion resistant
End Fitting:	API flanges, API male threads, threaded or butt weld hammer unions, unibolt and other special connections
Maximum Length:	110 Feet
ID:	2-1/2", 3", 3-1/2", 4"
Operating Temperature:	-22 deg F to +180 deg F (-30 deg C to +82 deg C)

P.O. Box 96558 – 1421 S.E. 29th St. Oklahoma City, OK 73143 * (405) 670-6718 * Fax: (405) 670-6816



PREPARED ON 6-1-17

APD ID: 10400025290 **Submission Date:** 12/22/2017

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? NO

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

West_Grama_Ridge_8_5_Federal_Com_Road_ROW_20171212100510.pdf

New road type: COLLECTOR

Length: 584 Feet **Width (ft.):** 30

Max slope (%): 20 **Max grade (%):** 6

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 18

New road access erosion control: The side slopes of any drainage channels or swales that are crossed will be re-contoured to original grade and compacted and mulched as necessary to avoid erosion. Where steeper slopes cannot be avoided, water bars or silt fence will be constructed, mulch/rip-rap applied, or other measures employed as necessary to control erosion. Hay bales, straw waddles or silt fence may also be installed to control erosion as needed. All disturbed areas will be seeded with a mix appropriate for the area unless specified otherwise by the landowner.

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: GRAVEL

Access topsoil source: ONSITE

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: Push off and stockpile alongside the location.

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: CULVERT,LOW WATER,OTHER

Drainage Control comments: To control and prevent potentially contaminated precipitation from leaving the pad site, a perimeter berm and settlement pond will be installed. Contaminated water will be removed from pond, stored in waste tanks, and disposed of at a state approved facility. Standing water or puddles will not be allowed. Drainage ditches would be established and maintained on the pad and along access roads to divert water away from operations. Natural drainage areas disturbed during construction would be re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured, and reclaimed to near original condition to re-establish natural drainage.

Road Drainage Control Structures (DCS) description: N/A

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

West_Grama_Ridge_8_5_Federal_Com_Road_ROW_20171212100510.pdf

New road type:

Length: **Width (ft.):**

Max slope (%): **Max grade (%):**

Army Corp of Engineers (ACOE) permit required?

ACOE Permit Number(s):

New road travel width:

New road access erosion control:

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

New road access plan or profile prepared?

New road access plan attachment:

Access road engineering design?

Access road engineering design attachment:

Access surfacing type:

Access topsoil source:

Access surfacing type description:

Access onsite topsoil source depth:

Offsite topsoil source description:

Onsite topsoil removal process:

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing:

Drainage Control comments:

Road Drainage Control Structures (DCS) description:

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

West_Grama_Ridge_8_5_Federal_Com_Road_ROW_20171212100510.pdf

New road type:

Length: **Width (ft.):**

Max slope (%): **Max grade (%):**

Army Corp of Engineers (ACOE) permit required?

ACOE Permit Number(s):

New road travel width:

New road access erosion control:

New road access plan or profile prepared?

New road access plan attachment:

Access road engineering design?

Access road engineering design attachment:

Access surfacing type:

Access topsoil source:

Access surfacing type description:

Access onsite topsoil source depth:

Offsite topsoil source description:

Onsite topsoil removal process:

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing:

Drainage Control comments:

Road Drainage Control Structures (DCS) description:

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

West_Grama_Ridge_8_5_Federal_Com_One_Mile_Radius_Existing_Wells_20171212100524.pdf

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:

Production Facilities map:

West_Grama_Ridge_8_5_Federal_Com_Battery_layout_20171212100540.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: INTERMEDIATE/PRODUCTION CASING, SURFACE CASING
Water source type: MUNICIPAL
Describe type:
Source latitude:
Source longitude:
Source datum:
Water source permit type: WATER RIGHT,WATER RIGHT
Permit Number:
Source land ownership: STATE
Water source transport method: PIPELINE,PIPELINE,TRUCKING,TRUCKING
Source transportation land ownership: STATE
Water source volume (barrels): 5000
Source volume (acre-feet): 0.6444655
Source volume (gal): 210000

Water source and transportation map:

West_Grama_Ridge_8_5_Federal_Com_Drilling_Water_Route_20171212100555.pdf

Water source comments:

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:

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:**

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: The drilling and testing operations will be conducted on a watered and compacted native soil grade. Soft spots will be covered with scoria, free of large rocks (3" diameter). Upon completion as a commercial producer the location will be covered with scoria, free of large rocks (3" dia.) from an existing privately owned gravel pit.
Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drilling Fluids, drill cuttings, water and other waste produced from the well during drilling operations.
Amount of waste: 15000 barrels

Waste disposal frequency : Weekly

Safe containment description: n/a

Safe containmant attachment:

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

Disposal location description: Haul to R360 commercial Disposal

Waste type: GARBAGE

Waste content description: Garbage and trash produced during drilling and completion operations

Amount of waste: 32500 pounds

Waste disposal frequency : Weekly

Safe containment description: n/a

Safe containmant attachment:

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

Disposal location description: Windmill Spraying Service hauls trash to Lea County Landfill

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

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_Grama_Ridge_8_5_Federal_Com_10H_Wellsite_Layout_20171212100645.pdf

Comments:

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** WEST GRAMA RIDGE 8-5 FED COM

Multiple Well Pad Number: W2W2

Recontouring attachment:

West_Grama_Ridge_8_5_Federal_Com_Interim_Reclaim_20171212100700.pdf

Drainage/Erosion control construction: To control and prevent potentially contaminated precipitation from leaving the pad site, a perimeter berm and settlement pond will be installed. Contaminated water will be removed from pond, stored in waste tanks, and disposed of at a state approved facility. Standing water or puddles will not be allowed. Drainage ditches would be established and maintained on the pad and along access roads to divert water away from operations. Natural drainage areas disturbed during construction would be re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured to near original condition prior to construction. Erosion Control Best Management Practices would be used where necessary and consist of seeding, fiber rolls, water bars, silt fences, and temporary diversion dikes. Areas disturbed during construction that are no longer needed for operations would be obliterated, re-contoured, and reclaimed to near original condition to re-establish natural drainage.

Drainage/Erosion control reclamation: All disturbed and re-contoured areas would be reseeded according to specifications. Approved seed mixtures would be certified weed free and consist of grasses, forbs, or shrubs similar to the surrounding area. Compacted soil areas may need to be obliterated and reclaimed to near natural conditions by re-contouring all slopes to facilitate and re-establish natural drainage.

Well pad proposed disturbance (acres): 6.958
Road proposed disturbance (acres): 0.402
Powerline proposed disturbance (acres): 0.692
Pipeline proposed disturbance (acres): 2.346
Other proposed disturbance (acres): 0
Total proposed disturbance: 10.398

Well pad interim reclamation (acres): 3.602
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 2.346
Other interim reclamation (acres): 0
Total interim reclamation: 5.948

Well pad long term disturbance (acres): 3.356
Road long term disturbance (acres): 0.402
Powerline long term disturbance (acres): 0.692
Pipeline long term disturbance (acres): 0
Other long term disturbance (acres): 4.993
Total long term disturbance: 9.443

Reconstruction method: After well plugging, all disturbed areas would be returned to the original contour or a contour that blends with the surrounding landform including roads unless the surface owner requests that they be left intact. In consultation with the surface owners it will be determined if any gravel or similar materials used to reinforce an area are to be removed, buried, or left in place during final reclamation. Salvaged topsoil, if any, would be re-spread evenly over the surfaces to be re-vegetated. As necessary, the soil surface would be prepared to provide a seedbed for re-establishment of desirable vegetation. Site preparation may include gouging, scarifying, dozer track-walking, mulching, or fertilizing. Reclamation, Re-vegetation, and Drainage: All disturbed and re-contoured areas would be reseeded using techniques outlined under Phase I and II of this plan or as specified by the land owner. Approved seed mixtures would be certified weed free and consist of grasses, forbs, or shrubs similar to the surrounding area. Compacted soil areas may need to be obliterated and reclaimed to near natural conditions by re-contouring all slopes to facilitate and re-establish natural drainage.
Topsoil redistribution: Salvaged topsoil, if any, would be re-spread evenly over the surfaces to be re-vegetated.

Soil treatment: As necessary, the soil surface would be prepared to provide a seedbed for re-establishment of desirable vegetation. Site preparation may include gouging, scarifying, dozer track-walking, mulching or fertilizing.
Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used?

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project?

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation?

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

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: N/A

Weed treatment plan attachment:

Monitoring plan description: N/A

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT,BUREAU OF LAND MANAGEMENT,STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: NEW MEXICO STATE LAND OFFICE

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Section 12 - Other Information

Right of Way needed? YES **Use APD as ROW?** YES

ROW Type(s): 281001 ROW - ROADS,285003 ROW – POWER TRANS,288100 ROW – O&G Pipeline,288101 ROW – O&G Facility Sites,288103 ROW – Salt Water Disposal Pipeline/Facility,288104 ROW – Salt Water Disposal Apln/Fac-FLPMA,289001 ROW- O&G Well Pad,FLPMA (Powerline),Other

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? YES

Previous Onsite information: Onsite with BLM (Jeff Robertson) & Cimarex (Barry Hunt) on Oct 17, 2017.

Other SUPO Attachment

West_Grama_Ridge_8_5_Federal_Com_10H_SUPO_20171212100911.pdf
West_Grama_Ridge_8_5_Federal_Com_Flowline_Gas_lift_ROW_20171212100913.pdf
West_Grama_Ridge_8_5_Federal_Com_Power_ROW_20171212100914.pdf
West_Grama_Ridge_8_5_Federal_Com_Public_Access_20171212100915.pdf
West_Grama_Ridge_8_5_Federal_Com_Road_Description_20171212100916.pdf
West_Grama_Ridge_8_5_Federal_Com_Temp_Water_Route_20171212100917.pdf

Cimarex West Grama Ridge 8-5 Federal Com 10H
Surface Use Plan

Upon approval of the Application for Permit to Drill (APD) the following surface use plan of operations will be followed and carried out. The surface use plan outlines the proposed surface disturbance. If any other disturbance is needed after the APD is approved, a BLM sundry notice or right of way application will be submitted for approval prior to any additional surface disturbance.

Existing Roads

- Directions to location - Exhibit A.
- Public access route - Exhibit B.
- Existing access road for the proposed project. Please see Exhibit B and C.
- Cimarex Energy will:
    - Improve and/or maintain existing road(s) condition the same as or better than before the operations began.
    - Provide plans for improvement and /or maintenance of existing roads if requested.
    - Repair or replace damaged or deteriorated structures as needed. Including cattle guards and culverts.
    - Prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or other events.
    - Obtain written BLM approval prior to the application of surfactants, binding agents, or other dust suppression chemicals on the roadways.
- The maximum width of the driving surface will be 18'. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.

New or Reconstructed Access Roads

Cimarex Energy plans to construct a new on-lease access road. This route is also proposed in the West Grama Ridge 8-5 Federal 3H,4H, 5H, 6H, 7H, 9H, 10H APD applications.

- Length: 584'.
- Width: 30'.
- Road Plat - Exhibit D.
- Cimarex Energy will complete improvements to the driving surface as needed.
- The maximum width of the driving surface for all roads above will be 18'.
- The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface.
- The ditches will be 1' deep with 3:1 slopes.
- The driving surface will be made of 6" rolled and compacted caliche.
- Cimarex Energy will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or other events.

Well Radius Map

Please see Exhibit E for wells within one mile or proposed well SHL and BHL.

Proposed or Existing Production Facility

An existing battery will be utilized for the project if the well is productive.

- West Grama Ridge 8-5 Federal 2H
    - Battery Pad diagram - Exhibit F
    - Battery will not require an expansion in order to accommodate additional production equipment for the project.

Gas Pipeline Specifications

- No new gas pipelines are required for this project.

Salt Water Disposal Specifications

- No new SWD pipelines are required for this project.

Power Lines

- Cimarex plans to construct an on-lease power line to service the West Grama Ridge 8-5 Federal W2W2. This route is also proposed in the West Grama Ridge 8-5 Federal 3H,4H, 5H, 6H, 7H, 9H, 10H APD applications.
- Overhead power line from an existing power source located in the SW/4 of Sec 8-22S-34E.
- Length: 1,005'.
- Poles: 4
- Specifications: 480 volt, 4 wire, 3 phase.
- Please see Exhibit I for proposed route.

Cimarex West Grama Ridge 8-5 Federal Com 10H
Surface Use Plan

Well Site Location

- Proposed well pad/location layout - Exhibit J.
- Proposed Rig layout - Exhibit K
    - The rig layout, including V-door and flare line may change depending on rig availability. The pad dimensions and orientation will remain the same. No additional disturbance is anticipated if a rig layout change is necessary to accommodate the drilling rig. If additional disturbance is required a sundry notice will be submitted to the BLM for approval.
    - Mud pits in the closed circulation system will be steel pits and the cuttings will be stored in the steel containment pits.
    - Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- Archeological boundary - Exhibit L
- Multi well pad: West Grama 8-5 Federal Com 3H thru 17H
- Pad Size: 500x560
- Construction Material
    - If possible, native caliche will be obtained from the excavation of drill site. The primary way of obtaining caliche will be by "turning over" the location. This means caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2,400 cu yds is the max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel:
        - The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.
        - An approximate 120' x 120' area is used within the proposed well site to remove caliche.
        - Subsoil is removed and piled alongside the 120' x 120' area within the pad site.
        - When caliche is found, material will be stockpiled within the pad site to build the location and road.
        - Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
        - Once well is drilled, the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in Exhibit J - Layout Diagram.
        - In the event that no caliche is found onsite, caliche will be hauled in from BLM-approved caliche pit in Sec. 8-22S-34E or Sec 34-21S-34E.
    - Mud pits in the closed circulation system will be steel pits and the cuttings will be stored in steel containment pits.
- Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- If the well is a producer, those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements. Exhibit P: Interim Reclamation Diagram.
- There are no known dwellings within 1.5 miles of this location.

Flowlines and Gas Lift Pipelines

All proposed pipelines will be constructed in a 60' ROW corridor. This route is also proposed in the West Grama Ridge 8-5 Federal 3H,4H, 5H, 6H, 7H, 9H, 10H APD applications.

- Flowlines
    - Cimarex Energy plans to construct on-lease flowlines to service the well.
    - 6" HP steel for oil, gas, and water production.
    - Length: 1,704'.
    - MAOP: 1,500 psi; Anticipated working pressure: 200-300 psi.
    - Please see Exhibit M for proposed on lease route.
- Gas Lift Pipeline
    - Cimarex Energy plans to construct on-lease gas lift pipelines to service the well.
    - 6" HP steel for gas lift.
    - Length: 1,704'.
    - MAOP: 1,500 psi; Anticipated working pressure: 200-300 psi.
    - Please see Exhibit N for proposed on lease route.

Cimarex West Grama Ridge 8-5 Federal Com 10H
Surface Use Plan

Water Resources

- A temporary surface fresh water pipeline(s) will be utilized for this project.
- Cimarex plans to lay the fresh water surface pipeline(s) prior to commencement of the stimulation job.
- 10" lay-flat surface pipeline.
- The surface pipeline(s) will follow the road from a frac pit to the well.
- Length: 12,144'.
- Operating pressure: <140 psi.
- Fresh water will be purchased from a 3rd party.
- Please see Exhibit O for proposed route.

Methods of Handling Waste

- Drilling fluids, produced oil, and water from the well during drilling and completion operations will be stored safely and disposed of properly in a NMOCD approved disposal facility.
- Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around well site will be collected for disposal.
- Human waste and grey water will be contained and disposed of properly at a state approved disposal site.
- After drilling and completion operations, trash, chemicals, salts, frac sand and other waste will be removed and disposed of properly at a state approved disposal site.
- The well will be drilled utilizing a closed loop system. Drill cuttings will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

Ancillary Facilities

No camps or airstrips to be constructed.

Interim and Final Reclamation

- Rehabilitation of the location will start in a timely manner after all proposed drilling wells have been drilled from the pad or if drilling operations have ceased as outlined below:
    - No approved or pending drill permits for wells located on the drill pad
    - No drilling activity for 5 years from the drill pad
- Surfacing materials will be removed and returned to a mineral pit or recycled to repair or build roads and well pads.
- Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.
- Exhibit P illustrates the proposed Surface Reclamation plans after cessation of drilling operations as outlined above.
    - The areas of the location not essential to production facilities and operations will be reclaimed and seeded per BLM requirements.
- Operator will amend the surface reclamation plan if well is a dry hole and/or a single well pad.

Surface Ownership

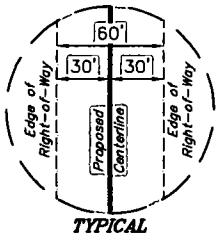
- The wellsite is on surface owned by New Mexico State Land Office.
- A copy of Surface Use Agreement has been given to the surface owner.
- The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.

Cultural Resource Survey - Archeology

- Cultural Resources Survey will be conducted for the entire project as proposed in the APD and submitted to the BLM for review and approval.

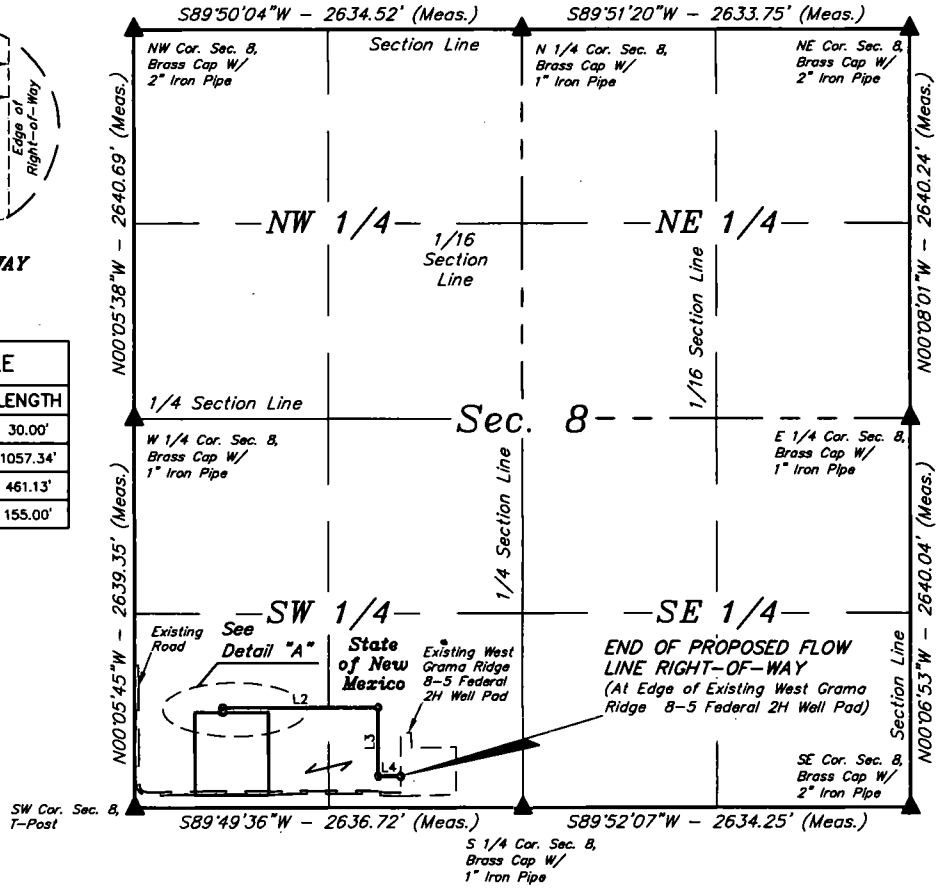
On Site Notes and Information

Onsite Date: 10/17/2017
BLM Personnel on site: Jeff Robertson
Cimarex Energy personnel on site: Barry Hunt
Pertinent information from onsite:

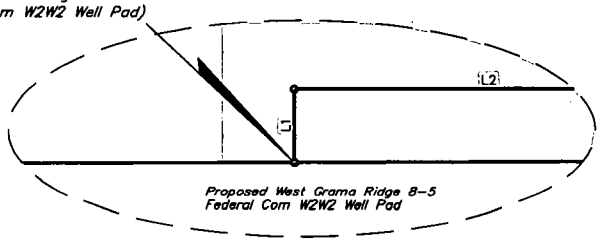


TYPICAL RIGHT-OF-WAY DETAIL
NO SCALE

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N00°14'15"W	30.00'
L2	N89°49'13"E	1057.34'
L3	S00°07'03"E	461.13'
L4	N89°53'17"E	155.00'



BEGINNING OF PROPOSED FLOW LINE RIGHT-OF-WAY
(At Edge of Proposed West Grama Ridge 8-5 Federal Com W2W2 Well Pad)



Detail "A"
No Scale

1000' 500' 0' 1000'

ACREAGE / LENGTH TABLE				
	OWNERSHIP	FEET	RODS	ACRES
SEC. 8 (SW 1/4 SW 1/4)	STATE	748.57	45.37	1.031
SEC. 8 (SE 1/4 SW 1/4)	STATE	954.90	57.87	1.315
TOTAL		1703.47	103.24	2.346

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

23782 — 11-09-17 — PROFESSIONAL SURVEYOR

FILE: 62361-A1

Sheet 1 of 2

NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

N

CIMAREX ENERGY CO.

WEST GRAMA RIDGE 8-5 FEDERAL COM W2W2
SECTION 8, T22S, R34E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., R.D.	10-17-17	SCALE
DRAWN BY	S.F.	10-27-17	1" = 1000'

FLOW LINE & GAS LIFT ROW EXHIBIT M & N

UINTAH ENGINEERING & LAND SURVEYING
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

AFMSS

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

PWD Data Report
05/02/2018

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:

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

05/02/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001188

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: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM **Well Number:** 10H

	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
PPP Leg #1	0	FSL	1260	FWL	22S	34E	5	Aliquot SWSW	32.4134	-103.4964778	LEA	NEW MEXICO	FIRST PRIN	F	NMNM 129267	-8313	16800	11838
EXIT Leg #1	330	FNL	1260	FWL	22S	34E	5	Lot 4	32.427141	-103.496446	LEA	NEW MEXICO	FIRST PRIN	F	NMNM 129267	-8345	21799	11870
BHL Leg #1	330	FNL	1260	FWL	22S	34E	5	Lot 4	32.427141	-103.496446	LEA	NEW MEXICO	FIRST PRIN	F	NMNM 129267	-8345	21799	11870

Co-Flex Hose

West Grama Ridge 8-5 Federal Com 10H

Cimarex Energy Co.

8-22S-34E

Lea County, NM