

**Carlsbad Field Office**  
**HOBBS**  
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 MAY 23 2018

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Form 312 (March 2012)  
 UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 BUREAU OF LAND MANAGEMENT

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

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM129267
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator CIMAREX ENERGY COMPANY		7. If Unit or CA Agreement, Name and No.
3a. Address 202 S. Cheyenne Ave., Ste 1000 Tulsa OK 74		8. Lease Name and Well No. (317301) WEST GRAMA RIDGE 8-5 FED C 9H
3b. Phone No. (include area code) (432)620-1936		9. API Well No. 30-025 44844
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface SWSW / 397 FSL / 710 FWL / LAT 32.400062 / LONG -103.498291 At proposed prod. zone LOT 4 / 330 FNL / 820 FWL / LAT 32.427137 / LONG -103.497872		10. Field and Pool, or Exploratory WOLFCAMP / WOLFCAMP 98281
14. Distance in miles and direction from nearest town or post office* 20 miles		11. Sec., T. R. M. or Blk. and Survey or Area SEC 8 / T22S / R34E / NMP
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	12. County or Parish LEA
17. Spacing Unit dedicated to this well 641.06	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, 20 feet applied for, on this lease, ft.	19. Proposed Depth 11870 feet / 21843 feet	20. BLM/BIA Bond No. on file FED: NMB001188
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3523 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:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- 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)  
 Rec GCP 5/23/18

\*(Instructions on page 2)

**APPROVED WITH CONDITIONS**  
 Approval Date: 05/01/2018

KA  
 05/30/18  
 Requiring NSL

## 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 1:** 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 well, 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 directionally 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.

## 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 well 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 will 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 collects this information to allow 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 Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

**Additional Operator Remarks**

**Location of Well**

- I. SHL: SWSW / 397 FSL / 710 FWL / TWSP: 22S / RANGE: 34E / SECTION: 8 / LAT: 32.400062 / LONG: -103.498291 ( TVD: 0 feet, MD: 0 feet )
- PPP: SWSW / 0 FSL / 820 FWL / TWSP: 22S / RANGE: 34E / SECTION: 5 / LAT: 32.413275 / LONG: -103.4979028 ( TVD: 11870 feet, MD: 16800 feet )
- PPP: SWSW / 132 FSL / 820 FWL / TWSP: 22S / RANGE: 34E / SECTION: 8 / LAT: 32.3993306 / LONG: -103.4979333 ( TVD: 11620 feet, MD: 11648 feet )
- BHL: LOT 4 / 330 FNL / 820 FWL / TWSP: 22S / RANGE: 34E / SECTION: 5 / LAT: 32.427137 / LONG: -103.497872 ( TVD: 11870 feet, MD: 21843 feet )

**BLM Point of Contact**

Name: Katrina Ponder  
Title: Geologist  
Phone: 5752345969  
Email: kponder@blm.gov

**CONFIDENTIAL**

## 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.

**CONFIDENTIAL**



APD ID: 10400025263

Submission Date: 12/22/2017

Highlighted data reflects the most recent changes

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

**Section 1 - General**

APD ID: 10400025263

Tie to previous NOS?

Submission Date: 12/22/2017

BLM Office: CARLSBAD

User: Aricka Easterling

Title: Regulatory Analyst

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM129267

Lease Acres: 1078.3

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: CIMAREX ENERGY COMPANY

Operator letter of designation:

**Operator Info**

Operator Organization Name: CIMAREX ENERGY COMPANY

Operator Address: 202 S. Cheyenne Ave., Ste 1000

Zip: 74103

Operator PO Box:

Operator City: Tulsa

State: OK

Operator Phone: (432)620-1936

Operator Internet Address: [tstathem@cimarex.com](mailto:tstathem@cimarex.com)

**Section 2 - Well Information**

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: WOLFCAMP

Pool Name: WOLFCAMP

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

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 Number: W2W2

Well Class: HORIZONTAL

GRAMA RIDGE 8-5 FED COM

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\_9H\_C102\_Plat\_20180111110804.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	710	FWL	22S	34E	8	Aliquot SWS W	32.400062	-103.498291	LEA	NEW MEXI CO	NEW MEXI CO	S	STATE	3523	0	0
KOP Leg #1	54	FSL	820	FWL	22S	34E	8	Aliquot SWS W	32.3991167	-103.4979361	LEA	NEW MEXI CO	NEW MEXI CO	S	STATE	-7837	11373	11360
PPP Leg #1	132	FSL	820	FWL	22S	34E	8	Aliquot SWS W	32.3993306	-103.4979333	LEA	NEW MEXI CO	FIRS T PRIN	F	NMNM 129267	-8097	11648	11620



APD ID: 10400025263

Submission Date: 12/22/2017

Highlighted data reflects the most recent changes

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

**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

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

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\_9H\_Choke\_2M3M\_20171222100614.pdf

**BOP Diagram Attachment:**

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_BOP\_2M\_20171222100622.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\_9H\_Choke\_2M3M\_20171222100641.pdf

**BOP Diagram Attachment:**

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_BOP\_3M\_20171222100649.pdf

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

Pressure Rating (PSI): 5M

Rating Depth: 11373

**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\_9H\_Choke\_5M\_20171222100734.pdf

**BOP Diagram Attachment:**

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_BOP\_5M\_20171222100747.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	11373	0	11373	0	11373	11373	L-80	29	LTC	1.32	1.53	BUOY	1.71	BUOY	1.71
4	PRODUCTION	8.75	7.0	NEW	API	N	11373	11998	11373	11998	11373	11998	625	L-80	29	BUTT	1.26	1.47	BUOY	46.9	BUOY	49.9

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

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	11373	21843	11373	21843	11373	21843	10470	P-110	13.5	BUTT	1.44	1.68	BUOY	62.9	BUOY	62.9

**Casing Attachments**

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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\_9H\_Casing\_Assumptions\_20171222100830.pdf

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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\_9H\_Casing\_Assumptions\_20171222100900.pdf

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**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

**Casing Attachments**

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**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\_9H\_Casing\_Assumptions\_20171222100940.pdf

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**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\_9H\_Casing\_Assumptions\_20171222101022.pdf

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**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\_9H\_Casing\_Assumptions\_20171222101129.pdf

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**Section 4 - Cement**

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

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	955	1.88	12.9	1794	50	35:65 (Poz:C)	Salt, Bentonite
INTERMEDIATE	Tail		0	5190	292	1.34	14.8	391	25	Class C	LCM
PRODUCTION	Lead		0	1137 3	329	3.64	10.3	1194	25	Tuned Light	LCM
PRODUCTION	Tail		0	1137 3	80	1.3	14.2	104	10	50:50 (Poz:H)	Salt, Bentonite, Fluid Loss, Dispersant, SMS
PRODUCTION	Lead		1137 3	1199 8	329	3.64	10.3	1194	25	Tuned Light	LCM
PRODUCTION	Tail		1137 3	1199 8	80	1.3	14.2	104	10	50:50 (Poz:H)	Salt, Bentonite, Fluid Loss, Dispersant, SMS
COMPLETION SYSTEM	Lead		1137 3	2184 3	716	1.3	14.2	930	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:** 9H

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							
5190	1199 8	OTHER : FW/Cut Brine	8.5	9							
1199 8	2184 3	OIL-BASED MUD	11.5	12							

### 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 geohazards 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\_9H\_H2S\_Plan\_20171222101945.pdf

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

### Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_Directional\_Plan\_20171222102000.pdf

**Other proposed operations facets description:**

**Other proposed operations facets attachment:**

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_Anti\_Collision\_Report\_20171222102018.pdf

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_Drilling\_Plan\_20171222102018.pdf

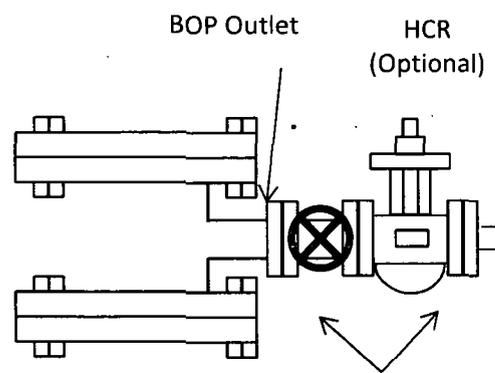
West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_Flex\_Hose\_20171222102022.pdf

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_Gas\_Capture\_Plan\_20171222102023.pdf

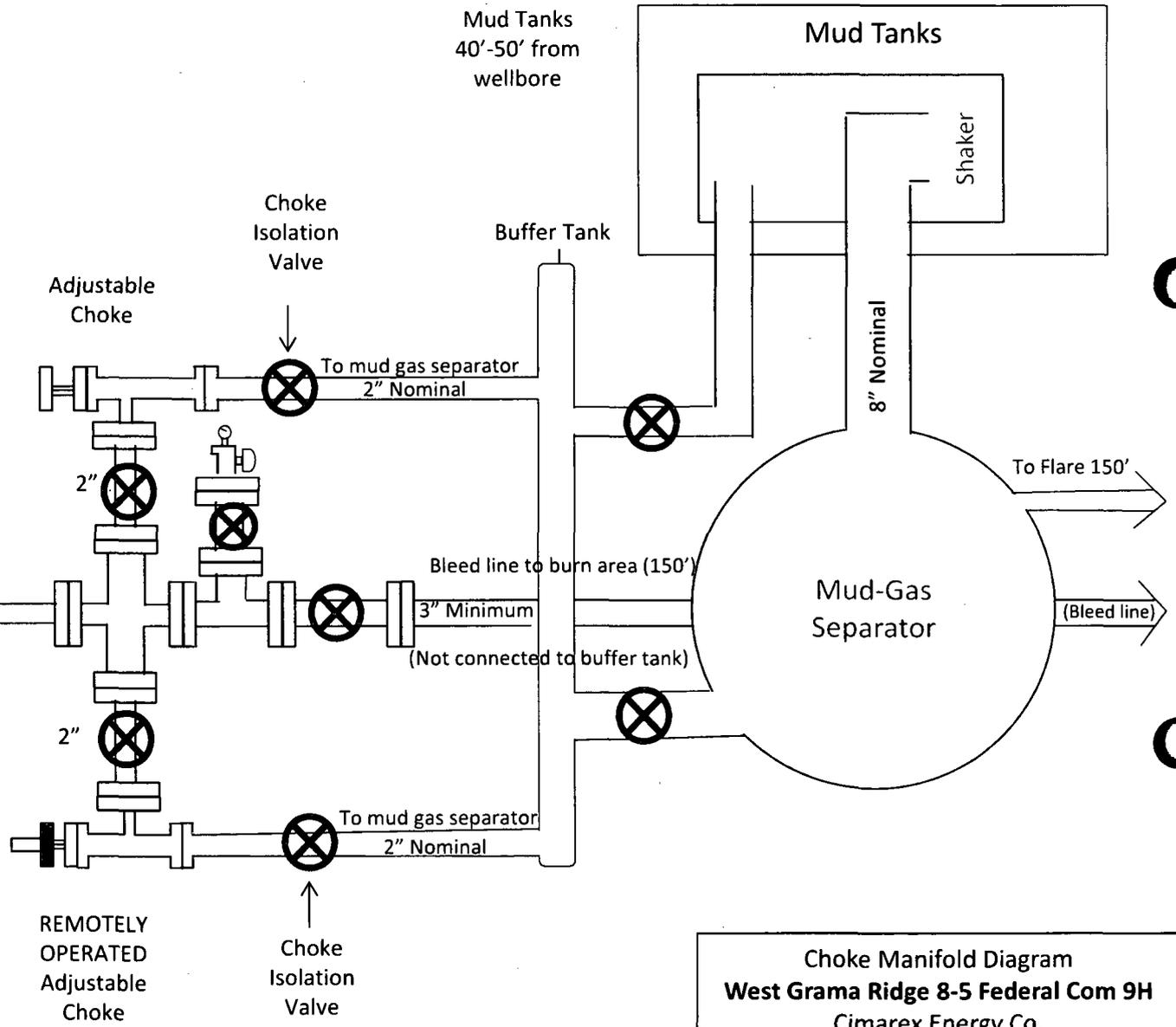
**Other Variance attachment:**

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_9H\_Multibowl\_Wellhead\_Diagram\_20180418074820.pdf

Choke Line:  
 2M System: 2" Minimum  
 3M System: 3" Minimum  
 OPTIONAL: 4" Flex Hose may be used if approved in APD

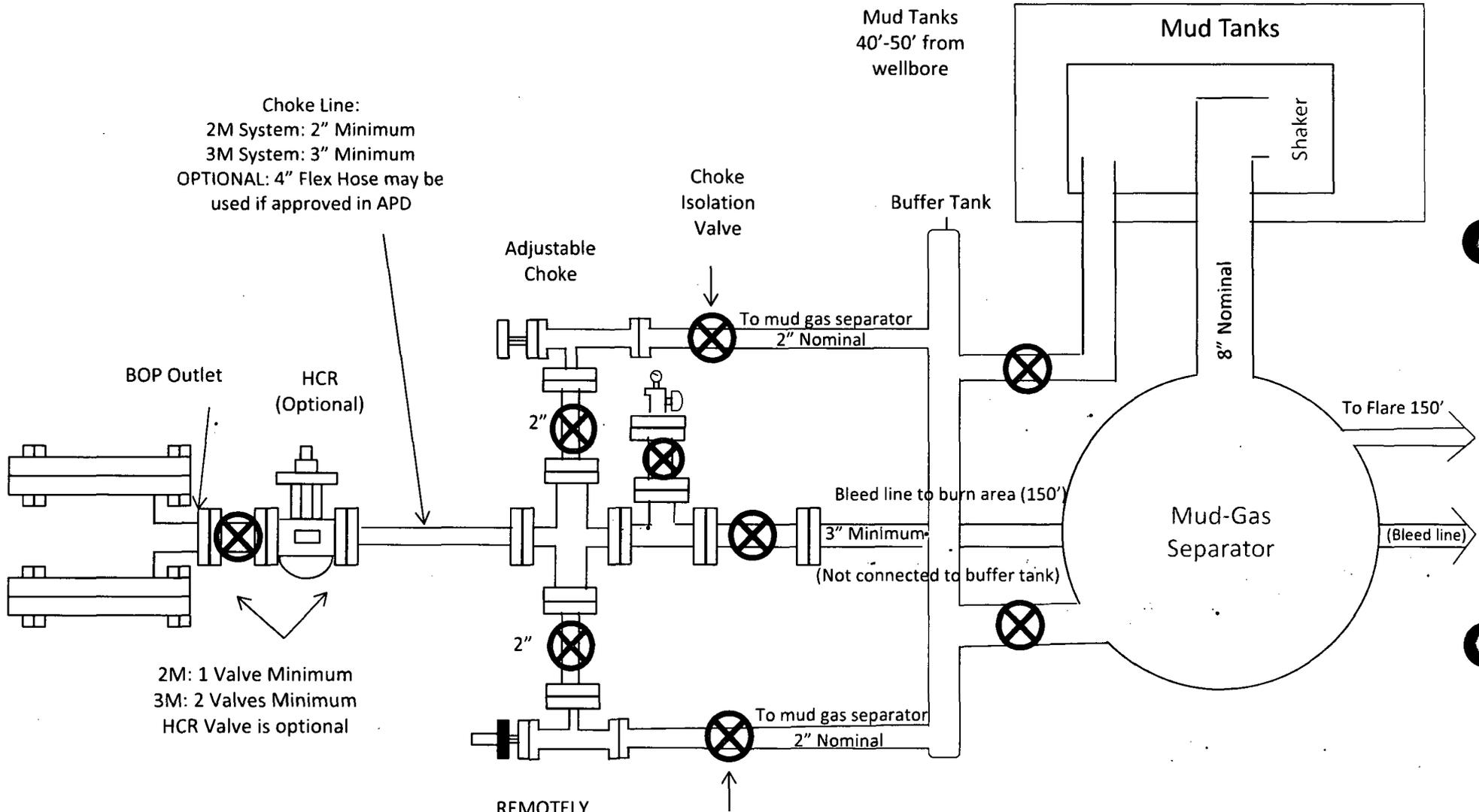


2M: 1 Valve Minimum  
 3M: 2 Valves Minimum  
 HCR Valve is optional



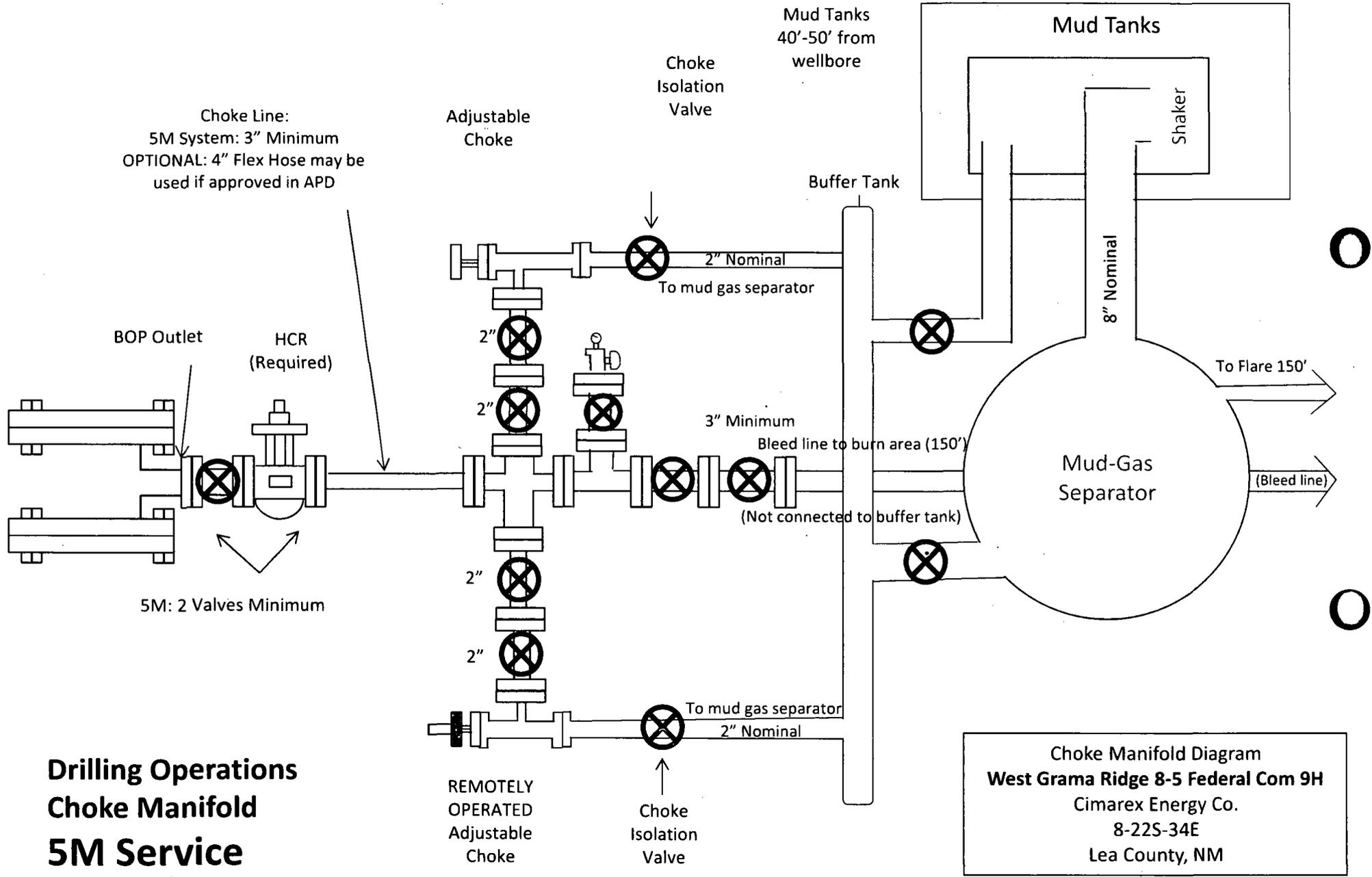
**Drilling Operations  
 Choke Manifold  
 2M/3M Service**

Choke Manifold Diagram  
 West Grama Ridge 8-5 Federal Com 9H  
 Cimarex Energy Co.  
 8-225-34E  
 Lea County, NM



**Drilling Operations  
 Choke Manifold  
 2M/3M Service**

**Choke Manifold Diagram  
 West Grama Ridge 8-5 Federal Com 9H  
 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 9H**  
 Cimarex Energy Co.  
 8-22S-34E  
 Lea County, NM

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

Fill Line

Flowline

2000# (2M)  
BOP

SRR & A

Annular Preventer

Pipe Rams

Blind Rams

Drilling Spool

2" Minimum Kill Line

2" Minimum Choke Line

Kill Line

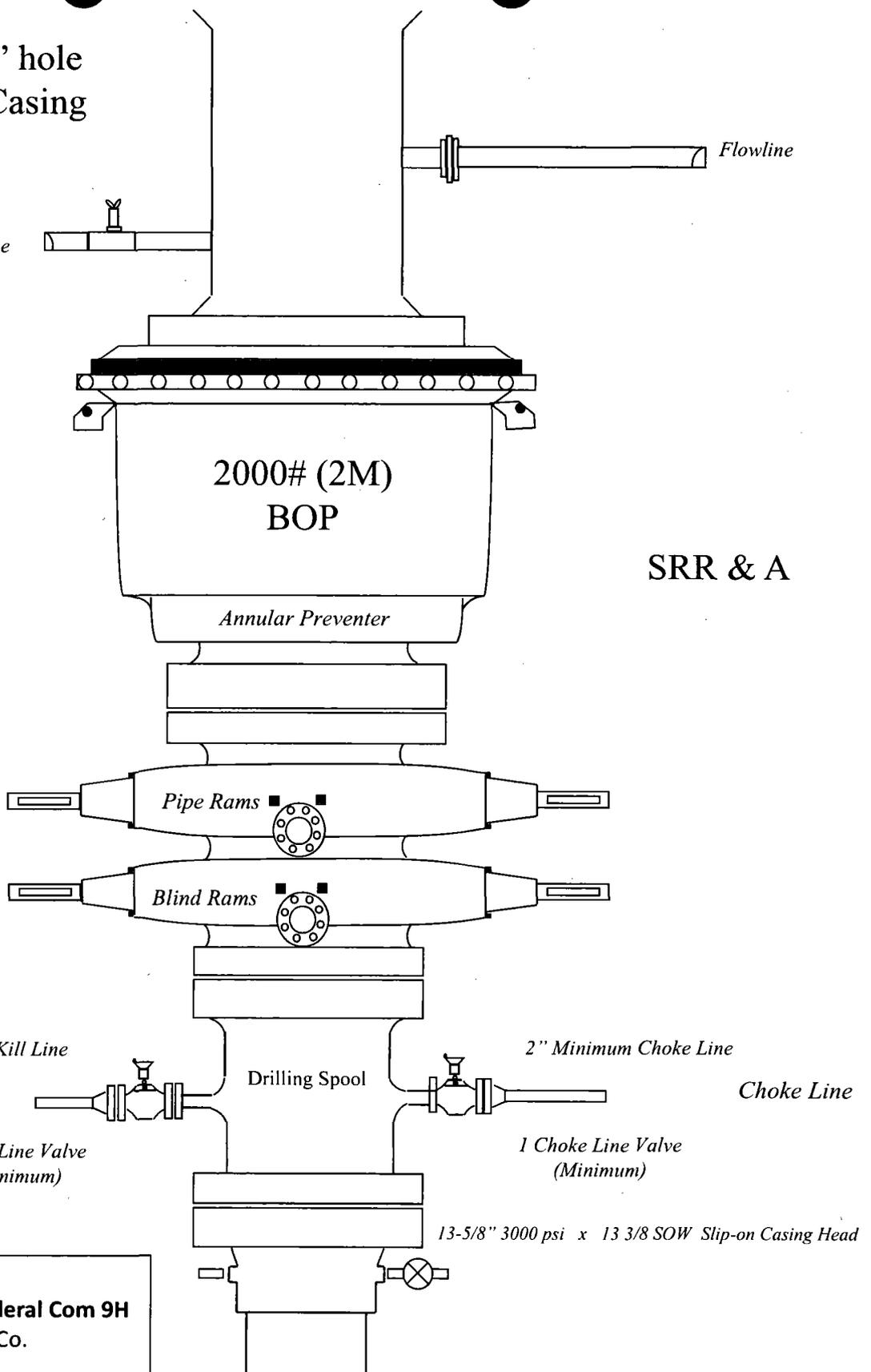
Choke Line

1 Kill Line Valve  
(Minimum)

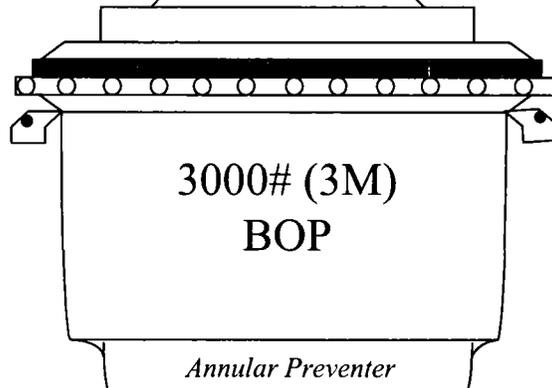
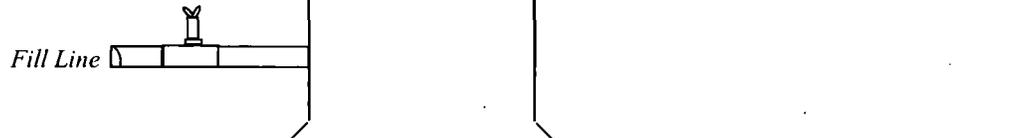
1 Choke Line Valve  
(Minimum)

13-5/8" 3000 psi x 13 3/8 SOW Slip-on Casing Head

2000# BOP  
West Grama Ridge 8-5 Federal Com 9H  
Cimarex Energy Co.  
8-22S-34E  
Lea County, NM



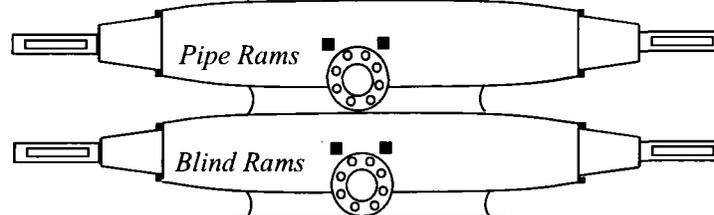
Drilling 8-3/4" hole  
below 9 5/8" Casing



3000# (3M)  
BOP

Annular Preventer

SRR & A



Pipe Rams

Blind Rams

2" Minimum Kill Line

3" minimum choke line

Kill Line

Drilling  
Spool

Choke Line

2 Valves Minimum  
(including 1 check valve)

2 Valves Minimum

Wellhead  
Assembly

13-5/8" 3000 psi x 11" 5000 psi  
Wellhead Assembly

13-5/8" 3000# psi x 13-3/8" SOW Casing Head

3000# BOP  
West Grama Ridge 8-5 Federal Com 9H  
Cimarex Energy Co.  
8-22S-34E  
Lea County, NM

Drilling 6" hole below 7" Casing

Fill Line

Flowline

5000# (5M)  
BOP

Annular Preventer

SRR & A

Pipe Rams

Blind Rams

2" Minimum Kill Line

Kill Line

2 Valves and a check valve

Drilling Spool

3" minimum choke line

Choke Line

2 Valves Minimum  
(HCR Required)

Wellhead Assembly

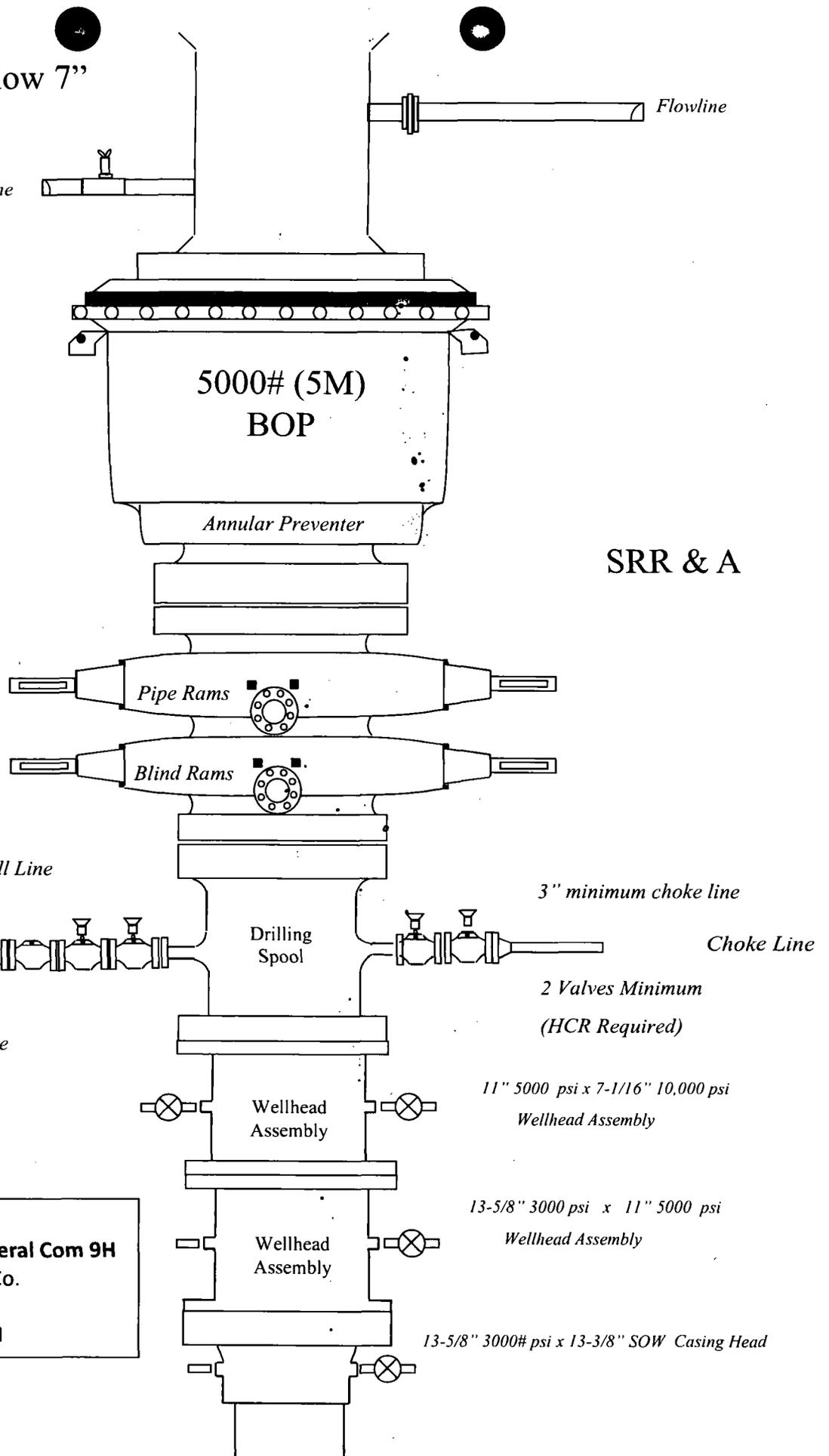
11" 5000 psi x 7-1/16" 10,000 psi  
Wellhead Assembly

Wellhead Assembly

13-5/8" 3000 psi x 11" 5000 psi  
Wellhead Assembly

13-5/8" 3000# psi x 13-3/8" SOW Casing Head

5000# BOP  
West Grama Ridge 8-5 Federal Com 9H  
Cimarex Energy Co.  
8-22S-34E  
Lea County, NM



## West Grama Ridge 8-5 Federal Com 9H 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	11373	7"	29.00	L-80	LT&C	1.32	1.53	1.71
8 3/4	11373	11998	7"	29.00	L-80	BT&C	1.26	1.47	46.90
6	11373	21843	4-1/2"	13.50	P-110	BT&C	1.44	1.68	62.90
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 9H 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
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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 9H 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	11373	7"	29.00	L-80	LT&C	1.32	1.53	1.71
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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.1h

## West Grama Ridge 8-5 Federal Com 9H 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
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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

	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 ft <sup>3</sup> /sack	H <sub>2</sub> O 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	955	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	292	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	329	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	716	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	11998	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 11998'	FW/Cut Brine	8.50 - 9.00	30-32	N/C
11998' to 21843'	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 from TD 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.

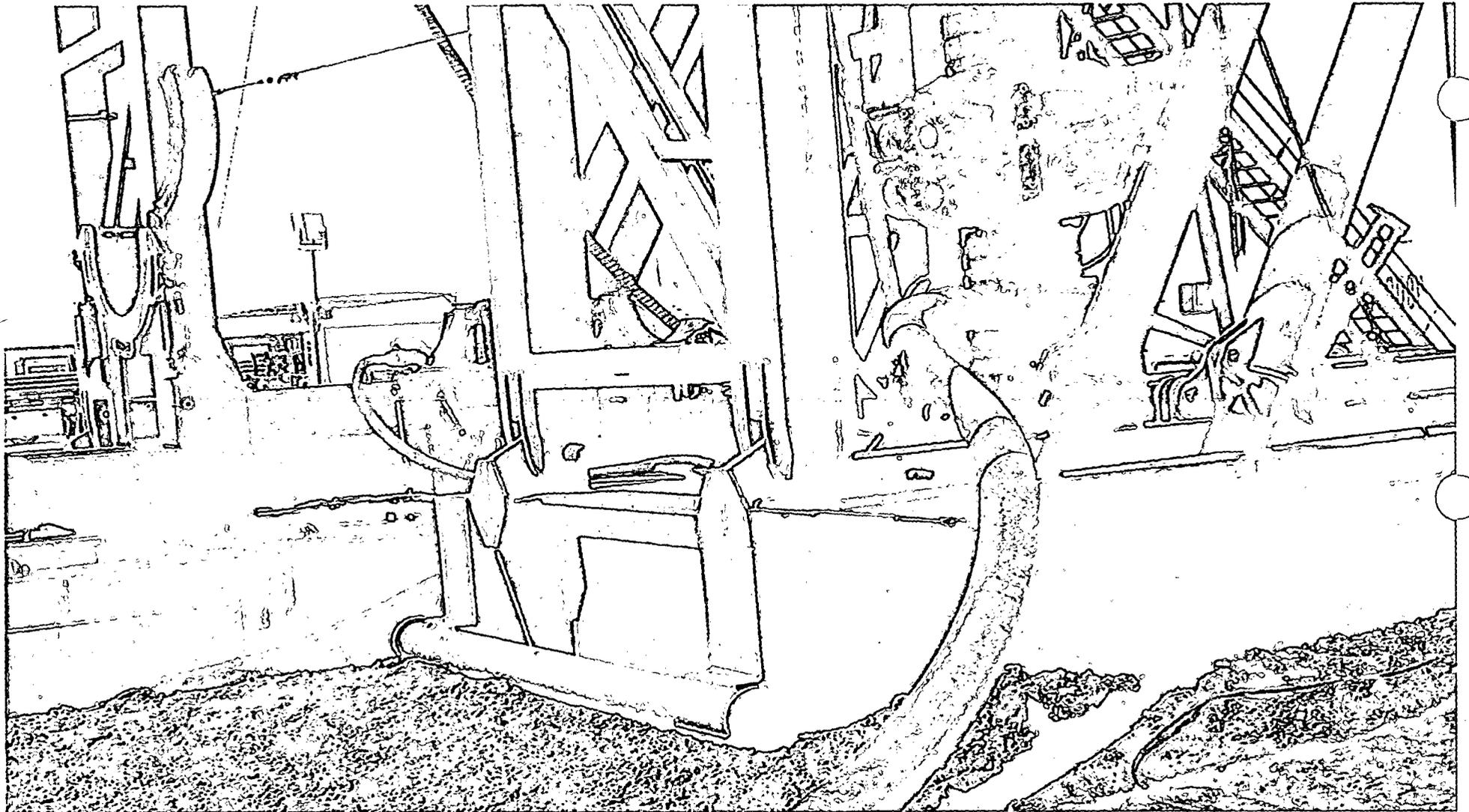
A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

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.

Co-Flex Hose  
West Grama Ridge 8-5 Federal Com 9H  
Cimarex Energy Co.  
8-22S-34E  
Lea County, NM



Co-Flex Hose Hydrostatic Test  
 West Grama Ridge 8-5 Federal Com 9H  
 Cimarex Energy Co.  
 8-22S-34E



## Midwest Hose & Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT		
Customer: Oderco Inc		P.O. Number: 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 10,000 PSI	TEST PRESSURE 15,000 PSI	BURST PRESSURE 0 PSI
COUPLINGS		
Stem Part No. OKC OKC	Ferrule No. OKC OKC	
Type of Coupling: Swage-It		
PROCEDURE		
<i>Hose assembly pressure tested with water at ambient temperature.</i>		
TIME HELD AT TEST PRESSURE 15 MIN.	ACTUAL BURST PRESSURE: 0 PSI	
Hose Assembly Serial Number: 79793	Hose Serial Number: OKC	
Comments:		
Date: 3/8/2011	Tested: <i>A. James James</i>	Approved: <i>[Signature]</i>



Midwest Hose & Specialty, Inc.

### Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

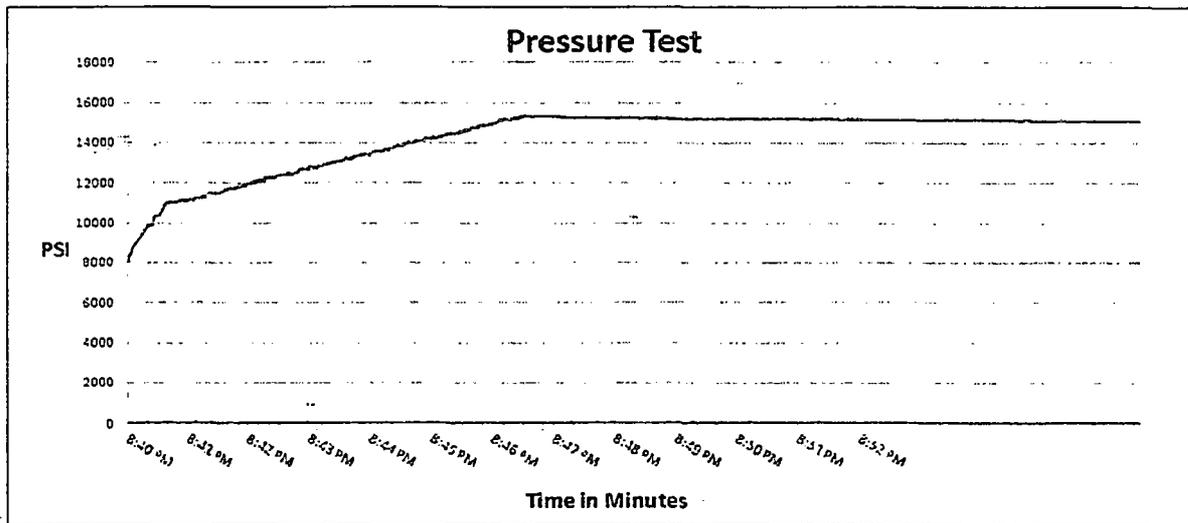
Pick Ticket #: 94260

#### Hose Specifications

<b>Hose Type</b> C S K	<b>Length</b> 45'
<b>I.D.</b> 4"	<b>O.D.</b> 6.09"
<b>Working Pressure</b> 10000 PSI	<b>Burst Pressure</b> Standard Safety Multiplier Applies

#### Verification

<b>Type of Fittings</b> 41/16 10K	<b>Coupling Method</b> Swage
<b>Dia Size</b> 6.38"	<b>Final O.D.</b> 6.25"
<b>Hose Serial #</b> 5544	<b>Hose Assembly Serial #</b> 79793



**Test Pressure**  
15000 PSI

**Time Held at Test Pressure**  
11 Minutes

**Actual Burst Pressure**

**Peak Pressure**  
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 9H  
 Cimarex Energy Co.  
 8-22S-34E  
 Lea County, NM

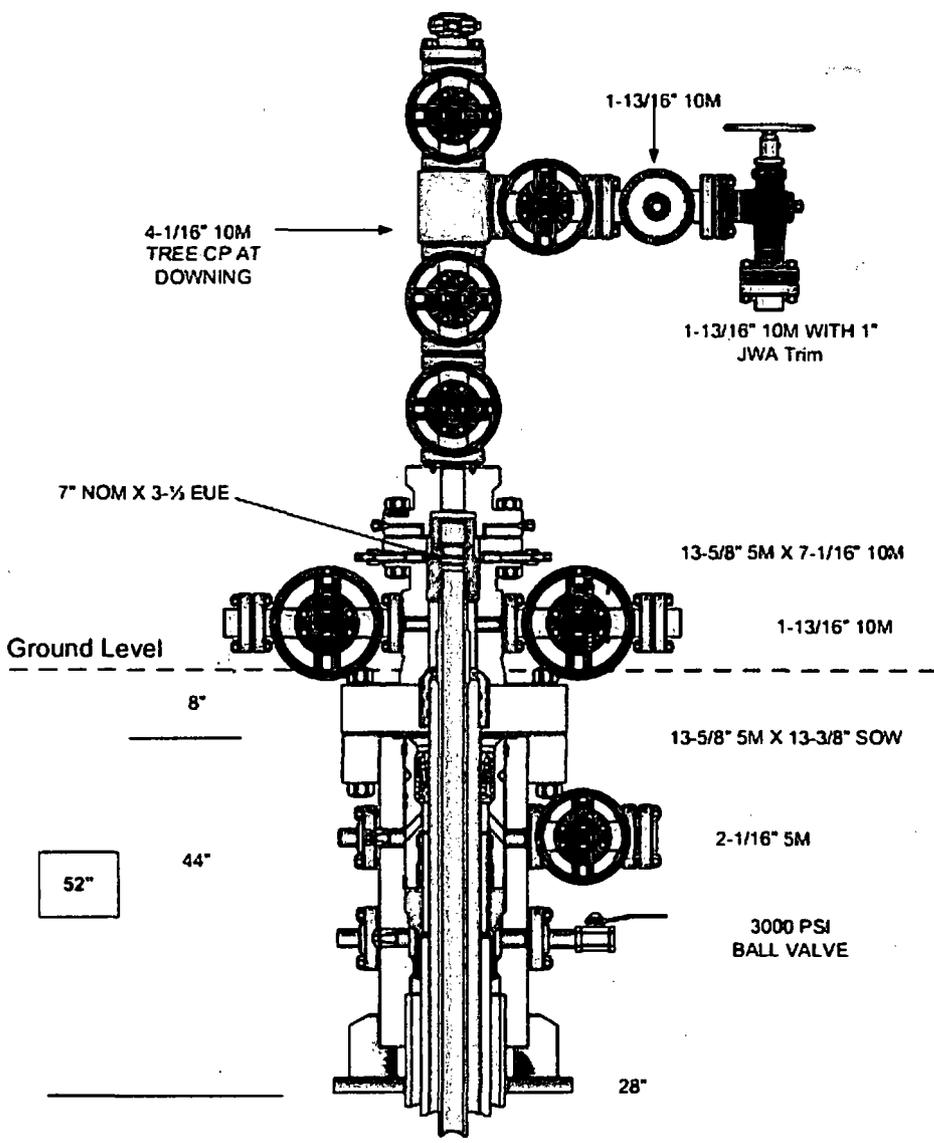
Co-Flex Hose  
West Grama Ridge 8-5 Federal Com 9H  
Cimarx Energy Co.  
8-225-34E  
Lea County, NM



## Midwest Hose & Specialty, Inc.

### Certificate of Conformity

<b>Customer:</b>		<b>PO</b>	
DEM		ODYD-271	
<b>SPECIFICATIONS</b>			
<b>Sales Order</b>		<b>Dated:</b>	
79793		3/8/2011	
<p>We hereby certify that the material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards</p> <p>Supplier: Midwest Hose &amp; Specialty, Inc. 10640 Tanner Road Houston, Texas 77041</p>			
<b>Comments:</b>			
<b>Approved:</b>		<b>Date:</b>	
<i>James Garcia</i>		3/8/2011	



PREPARED ON 6-1-17



APD ID: 10400025263

Submission Date: 12/22/2017

Highlighted data reflects the most recent changes

Operator Name: CIMAREX ENERGY COMPANY

Well Name: WEST GRAMA RIDGE 8-5 FED COM

Well Number: 9H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

**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\_20171212095945.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:** 9H

**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\_20171212095945.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:** 9H

**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\_20171212095945.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:** 9H

**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\_20171212100028.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:**

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

West\_Grama\_Ridge\_8\_5\_Federal\_Com\_Battery\_layout\_20171212100043.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\_20171212100103.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:** 9H

**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 FACILITY

**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 FACILITY

**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:** 9H

**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\_9H\_Wellsite\_Layout\_20171212100139.pdf

**Comments:**

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

### 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\_20171212100150.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.

<b>Well pad proposed disturbance (acres):</b> 6.958	<b>Well pad interim reclamation (acres):</b> 3.602	<b>Well pad long term disturbance (acres):</b> 3.356
<b>Road proposed disturbance (acres):</b> 0.402	<b>Road interim reclamation (acres):</b> 0	<b>Road long term disturbance (acres):</b> 0.402
<b>Powerline proposed disturbance (acres):</b> 0.692	<b>Powerline interim reclamation (acres):</b> 0	<b>Powerline long term disturbance (acres):</b> 0.692
<b>Pipeline proposed disturbance (acres):</b> 2.346	<b>Pipeline interim reclamation (acres):</b> 2.346	<b>Pipeline long term disturbance (acres):</b> 0
<b>Other proposed disturbance (acres):</b> 0	<b>Other interim reclamation (acres):</b> 0	<b>Other long term disturbance (acres):</b> 4.993
<b>Total proposed disturbance:</b> 10.398	<b>Total interim reclamation:</b> 5.948	<b>Total long term disturbance:</b> 9.443

**Disturbance Comments:** Flowline: 1704', Gas lift: 1704', Power: 1005', Road: 584' Temp fresh water line: 12144'

**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:** 9H

**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
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**Seed reclamation attachment:**

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

**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:**

**Operator Name:** CIMAREX ENERGY COMPANY

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

**Well Number:** 9H

### 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 Apin/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\_9H\_SUPO\_20171212100330.pdf  
West\_Grama\_Ridge\_8\_5\_Federal\_Com\_Flowline\_Gas\_lift\_ROW\_20171212100332.pdf  
West\_Grama\_Ridge\_8\_5\_Federal\_Com\_Power\_RQW\_20171212100333.pdf  
West\_Grama\_Ridge\_8\_5\_Federal\_Com\_Road\_Description\_20171212100335.pdf  
West\_Grama\_Ridge\_8\_5\_Federal\_Com\_Public\_Access\_20171212100334.pdf  
West\_Grama\_Ridge\_8\_5\_Federal\_Com\_Temp\_Water\_Route\_20171212100336.pdf



**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:

Describe 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:

Describe 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:

Assigned injection well API number?

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Injection well name:

Injection well API number:

### 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:



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

**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: 9H

	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	820	FWL	22S	34E	5	Aliquot SWS W 5	32.41327	- 103.4979 028	LEA	NEW MEXI CO	FIRS T PRIN	F	NMNM 129267	- 834 7	168 00	118 70
EXIT Leg #1	330	FNL	820	FWL	22S	34E	5	Lot 4	32.42713	- 103.4978 72	LEA	NEW MEXI CO	FIRS T PRIN	F	NMNM 129267	- 834 7	218 43	118 70
BHL Leg #1	330	FNL	820	FWL	22S	34E	5	Lot 4	32.42713	- 103.4978 72	LEA	NEW MEXI CO	FIRS T PRIN	F	NMNM 129267	- 834 7	218 43	118 70



Midwest Hose  
& Specialty, Inc.

Co-Flex Hose  
West Grama Ridge 8-5 Federal Com 9H  
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 components. 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 vermiculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

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



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

# Operator Certification Data Report

05/09/2018

## Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Aricka Easterling

**Signed on:** 12/22/2017

**Title:** Regulatory Analyst

**Street Address:** 202 S. Cheyenne Ave, Ste 1000

**City:** Tulsa

**State:** OK

**Zip:** 74103

**Phone:** (918)560-7060

**Email address:** aeasterling@cimarex.com

## Field Representative

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**