

oed Artesia

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB NO. 1004-0135  
Expires: July 31, 2010

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
NMNM14124

6. If Indian, Allottee or Tribe Name

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

**SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well  
 Oil Well  Gas Well  Other

8. Well Name and No.  
MARQUARDT 12 PENN FED 2

2. Name of Operator  
CIMAREX ENERGY COMPANY OF CO  
Contact: HOPE KNAULS  
E-Mail: kknauls@cimarex.com

9. API Well No.  
30-015-34329-00-C1

3a. Address  
202 S CHEYENNE AVE SUITE 1000  
TULSA, OK 74103.4346

3b. Phone No. (include area code)  
Ph: 918.585.1100

10. Field and Pool, or Exploratory  
UNKNOWN

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
Sec 12 T25S R26E SWNE 2310FNL 1330FEL

11. County or Parish, and State  
EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Cimarex Energy Co. respectfully requests approval to construct a buried gas lift pipeline from the existing pipeline located in SE4 Sec. 12, 25S, 26E, to the Marquardt 12 Penn Fed #2 (3001534329), Marquardt 12 Penn Fed #1 (3001533461) as shown on Exhibit I attached.  
Gas lift pipeline specs:  
3466.91' buried gas lift pipeline, 4" steel, MAOP: 1440 psi, Working pressure: 1100 psi.

The attached plat indicates the route for the buried pipeline which is on lease and follows existing disturbance.

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

**NM OIL CONSERVATION** MAY 6 9 2015  
ARTESIA DISTRICT

MAY 09 2016 RECEIVED

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #324934 verified by the BLM Well Information System  
For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad  
Committed to AFMSS for processing by JAMIE RHOADES on 12/09/2015 (16JLR0098SE)**

Name (Printed/Typed) HOPE KNAULS	Title REGULATORY TECHNICIAN
Signature (Electronic Submission)	Date 11/30/2015

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By  Title FIELD MANAGER Date 5/2/16

Conditions of approval, if any, are attached. Approval of this notice 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.

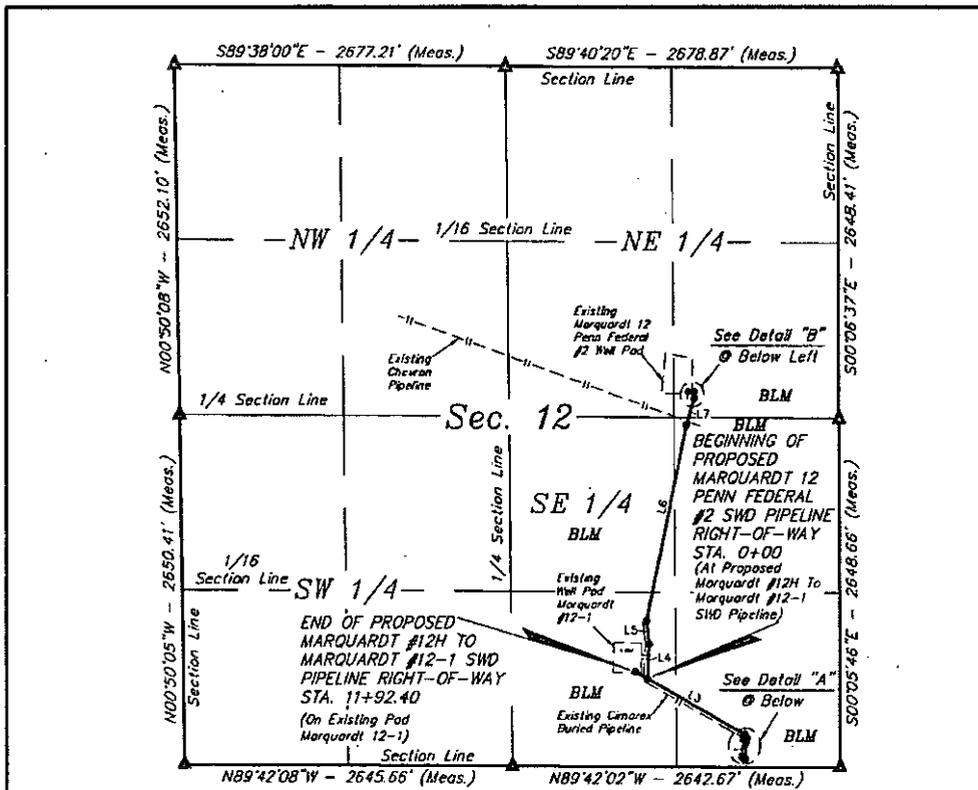
Office CARLSBAD FIELD OFFICE

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.

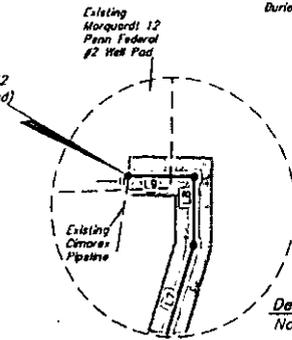
**\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\***

Accepted for record - NMOCD

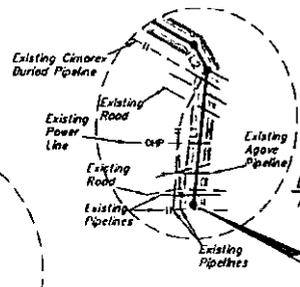
ES



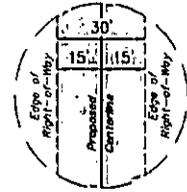
END OF PROPOSED MARQUARDT 12 PENN FEDERAL #2 SWD PIPELINE RIGHT-OF-WAY STA. 22+74.51 (At Existing Marquardt 12 Penn Federal #2 Well Pad)



Detail "B" No Scale



Detail "A" No Scale



TYPICAL RIGHT-OF-WAY DETAIL NO SCALE

BEGINNING OF PROPOSED MARQUARDT #12H TO MARQUARDT #12-1 SWD PIPELINE RIGHT-OF-WAY STA. 0+00

▲ = SECTION CORNERS LOCATED.

ACREAGE / LENGTH TABLE			
PIPELINE OWNERSHIP	FEET	RODS	ACRES
BLM SE 1/4 SEC. 12	3211.05	194.61	2.211
BLM NE 1/4 SEC. 12	255.86	15.51	0.176
TOTAL	3466.91	210.12	2.388

CERTIFICATE OF SURVEY  
 THIS IS TO CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

*Robert Marshall*  
 REGISTERED PROFESSIONAL SURVEYOR  
 REGISTRATION NO. 12445  
 STATE OF NEW MEXICO  
 11-10-15

SHEET 1 OF 3

NOTES:

CIMAREX ENERGY CO.

MARQUARDT #12H TO MARQUARDT #12-1 & MARQUARDT 12 PENN FEDERAL #2 SWD PIPELINE SECTION 12, T25S, R26E, N.M.P.M. EDDY COUNTY, NEW MEXICO



UELS, LLC  
 Corporate Office \* 85 South 200 East  
 Vernal, UT 84078 \* (435) 789-1017

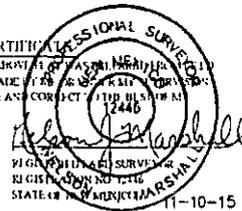
DRAWN BY: B.A. DATE DRAWN: 06-12-15  
 SCALE: 1" = 1000' REVISED: 11-10-15 S.O.

GAS LIFT PIPELINE ROW EXHIBIT I

CIMAREX MARQUARDT #12H TO #12-1 PIPELINE			
NUMBER	STATION	LATITUDE (NAD 83)	LONGITUDE (NAD 83)
BEGIN	0+00	N 32°08'14.53"	W 104°14'25.64"
1	1+60.27	N 32°08'16.10"	W 104°14'25.43"
2	1+94.12	N 32°08'16.39"	W 104°14'25.62"
END	11+92.40	N 32°08'21.07"	W 104°14'35.84"

CIMAREX MARQUARDT 12 PENN FED #2 PIPELINE			
NUMBER	STATION	LATITUDE (NAD 83)	LONGITUDE (NAD 83)
BEGIN	0+00	N 32°08'20.55"	W 104°14'34.70"
1	2+62.54	N 32°08'23.14"	W 104°14'34.55"
2	4+37.39	N 32°08'24.86"	W 104°14'34.78"
3	19+60.27	N 32°08'39.58"	W 104°14'31.01"
4	21+73.08	N 32°08'41.59"	W 104°14'30.26"
5	22+23.09	N 32°08'42.08"	W 104°14'30.25"
END	22+74.51	N 32°08'42.09"	W 104°14'30.85"

SECTION CORNER	SECTION CORNER DESC.	LATITUDE (NAD 83)	LONGITUDE (NAD 83)
NE COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°09'06.27"	W104°14'16.75"
E 1/4 COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°08'40.07"	W104°14'16.69"
SE COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°08'13.86"	W104°14'16.64"
S 1/4 COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°08'14.00"	W104°14'47.36"
SW COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°08'14.13"	W104°15'18.13"
W COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°08'40.35"	W104°15'18.58"
NW COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°09'06.59"	W104°15'19.04"
N 1/4 COR. SEC. 12, T25N, R26E, N.M.P.M.	IRON PIPE W/CAP	N32°09'06.42"	W104°14'47.90"


  
 CERTIFIED PROFESSIONAL SURVEYOR  
 THIS IS TO CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE ORIGINAL SURVEY MADE BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.  
 ROBERT J. ANSHEL  
 LICENSE NO. 2446  
 STATE OF NEW MEXICO  
 11-10-15

SHEET 3 OF 3

NOTES:

**CIMAREX ENERGY CO.**

N  
 MARQUARDT #12H TO MARQUARDT #12-1 &  
 MARQUARDT 12 PENN FEDERAL #2 PIPELINE  
 SECTION 12, T25N, R26E, N.M.P.M.  
 EDDY COUNTY, NEW MEXICO

DRAWN BY: B.A.	DATE DRAWN: 06-12-15
SCALE: N/A	REVISED: 11-10-15 S.O.

**GAS LIFT PIPELINE ROW      EXHIBIT I**



**UEIS, L.L.C.**  
 Corporate Office \* 85 South 200 East  
 Vernal, UT 84078 \* (435) 789-1017

**MARQUARDT #12H TO MARQUARDT #12-1  
GAS LIFT PIPELINE RIGHT-OF-WAY DESCRIPTION**

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE SE 1/4 SE 1/4 OF SECTION 12, T25S, R26E, N.M.P.M., WHICH BEARS N85°03'32"W 776.94' FROM THE SOUTHEAST CORNER OF SAID SECTION 12, THENCE N06°29'52"E 160.27'; THENCE N30°17'08"W 33.85'; THENCE N61°41'10"W 998.28' TO A POINT IN THE SW 1/4 SE 1/4 OF SAID SECTION 12, WHICH BEARS N66°11'26"W 1805.50' FROM THE SOUTHEAST CORNER OF SAID SECTION 12. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A G.P.S. OBSERVATION. CONTAINS 0.821 ACRES MORE OR LESS.

**MARQUARDT 12 PENN FEDERAL #2 GAS LIFT  
PIPELINE RIGHT-OF-WAY DESCRIPTION**

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE SW 1/4 SE 1/4 OF SECTION 12, T25S, R26E, N.M.P.M., WHICH BEARS N58°43'09"E 1274.76' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 12, THENCE N02°42'43"E 262.54'; THENCE N06°26'17"W 174.85'; THENCE N12°17'41"E 1522.88'; THENCE N17°39'50"E 212.81'; THENCE N00°40'50"E 50.01'; THENCE N89°19'41"W 51.42' TO A POINT IN THE SE 1/4 NE 1/4 OF SAID SECTION 12, WHICH BEARS N80°28'23"W 1234.91' FROM THE EAST 1/4 CORNER OF SAID SECTION 12. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A G.P.S. OBSERVATION. CONTAINS 1.567 ACRES MORE OR LESS.

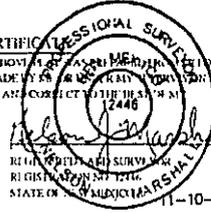
BEGINNING OF MARQUARDT 12 PENN FEDERAL SWD PIPELINE STA. 0+00 BEARS N58°43'09"E 1274.76' FROM THE SOUTH 1/4 CORNER OF SECTION 12, T25S, R26E, N.M.P.M.

END OF MARQUARDT 12 PENN FEDERAL SWD PIPELINE STA. 22+74.51 BEARS N80°28'23"W 1234.91' FROM THE EAST 1/4 CORNER OF SECTION 12, T25S, R26E, N.M.P.M.

BEGINNING OF MARQUARDT #12H TO MARQUARDT #12-1 SWD PIPELINE STA. 0+00 BEARS N85°03'32"W 776.94' FROM THE SOUTHEAST CORNER OF SECTION 12, T25S, R26E, N.M.P.M.

END OF MARQUARDT #12H TO MARQUARDT #12-1 SWD PIPELINE STA. 11+92.40 BEARS N66°11'26"W 1805.50' FROM THE SOUTHEAST CORNER OF SECTION 12, T25S, R26E, N.M.P.M.

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N06°29'52"E	160.27'
L2	N30°17'08"W	33.85'
L3	N61°41'10"W	998.28'
L4	N02°42'43"E	262.54'
L5	N06°26'17"W	174.85'
L6	N12°17'41"E	1522.88'
L7	N17°39'50"E	212.81'
L8	N00°40'50"E	50.01'
L9	N89°19'41"W	51.42'


  
 CERTIFICATE OF SURVEY  
 THIS IS TO CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE NOTES OF ACTUAL SURVEYS MADE BY SAID SURVEYOR IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF SURVEYORS AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF HIS KNOWLEDGE AND BELIEF.  
 W. J. Marshall  
 REGISTERED PROFESSIONAL SURVEYOR  
 NO. 12448  
 STATE OF NEW MEXICO  
 11-10-15

SHEET 2 OF 3

NOTES:

**CIMAREX ENERGY CO.**

N MARQUARDT #12H TO MARQUARDT #12-1 &  
 MARQUARDT 12 PENN FEDERAL #2 PIPELINE  
 SECTION 12, T25S, R26E, N.M.P.M.  
 EDDY COUNTY, NEW MEXICO

DRAWN BY: B.A.	DATE DRAWN: 06-12-15
SCALE: N/A	REVISED: 11-10-15 S.O.

**GAS LIFT PIPELINE ROW EXHIBIT I**


**UINTEAH**  
 CHIEF ENGINEER & LAND SURVEYING

**UELS, LLC**  
 Corporate Office \* 85 South 200 East  
 Vernal, UT 84078 \* (435) 789-1017

**BLM LEASE NUMBER:** NMNM14124

**COMPANY NAME:** Cimarex Energy Company

**ASSOCIATED WELL NAME:** Marquardt 12 Penn Fed 2

### BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:
  - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
  - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
  - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.
12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3          |
| <input type="checkbox"/> seed mixture 2            | <input type="checkbox"/> seed mixture 4          |
| <input type="checkbox"/> seed mixture 2/LPC        | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer. If a void is encountered alignments may be rerouted to avoid the karst feature to avoid or lessen the potential of subsidence or collapse of karst features, toxic or combustible gas buildup, or other possible impacts to cave and karst resources from the buried pipeline. Special restoration stipulations or

realignment may be required at such intersections, if any. Leak detection systems, back flow eliminators, and differential pressure shut-off valves may be required to minimize the impacts of leaking or ruptured pipelines. To eliminate these extreme possibilities, regular monitoring is needed to quickly identify leaks for their immediate and proper treatment.