OCD Artesia

TCS 9-25-14

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NM-22207

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

Gas Storage Well

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

7. If Unit or CA Agreement, Name and No.: Washington Ranch Gas Storage Project

8. Lease Name and Well No.: WI Federal #25 <39417>

2. Name of Operator: El Paso Natural Gas Company, L.L.C. <7046>

9. API Well No.: 30-015-42685

3a. Address: 2 N. Nevada Avenue, Colorado Springs, CO 80903

3b. Phone No. (include area code): (719) 520-4557

10. Field and Pool, or Exploratory: Washington Ranch (Morrow) (GAS) <97160>

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

At surface: 1,764' FNL & 590' FEL

At proposed prod. zone: As Above

11. Sec., T. R. M. or Blk. and Survey or Area: 33-T25S-R24E

14. Distance in miles and direction from nearest town or post office*: N/A

12. County or Parish: Eddy

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 3,576'

16. No. of acres in lease: N/A

17. Spacing Unit dedicated to this well: N/A - Gas Storage Well - NMOCD Case No. 6703 Order No. R-6175

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 1,171'

19. Proposed Depth: 7,200'

20. BLM/BIA Bond No. on file: 400JF 2507

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3753.9 GL

22. Approximate date work will start*: 09/01/2014

23. Estimated duration: 4 Months

24. Attachments

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

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

25. Signature: Anthony P. Trinko — Name (Printed/Typed): Anthony P. Trinko — Date: 05/21/2014

Title: Sr. Reservoir Engineer

Approved by (Signature): Steve Caffey — Name (Printed/Typed): — Date: SEP 23 2014

Title: FIELD MANAGER — Office: CARLSBAD FIELD OFFICE

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. APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 24 2014
RECEIVED

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

15. Operator Certification:

El Paso Natural Gas Company, L.L.C.
2 N. Nevada Avenue
Colorado Springs, CO 80903
(719)-473-2300

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.

Executed this 6th day of June, 2014.
Name: Timothy W. Griffin
Position Title: Manager, Gas Storage Engineering
Address: 2 North Nevada Avenue, Colorado Springs, CO 80903
Telephone: 719-520-4242

Timothy W. Griffin

Field Representative: Kevin W. Lively
Position Title: Supervisor, Technical Services
Address: 2 North Nevada Avenue, Colorado Springs, CO 80903
Telephone: 719-520-4287

WI Federal #25 - BLM Form 3160-3

Surface Ownership (BLM):

Well Location

Surface Owner: United States Department of the Interior, Bureau of Land Management
Legal Description: SE/4 NE/4, Section 33, T25S, R24E, NMPM, Eddy County, NM

Road

Surface Owner: United States Department of the Interior, Bureau of Land Management
Legal Description: SE/4 NE/4, Section 33, T25S, R24E, NMPM, Eddy County, NM

Pipeline

Surface Owner: United States Department of the Interior, Bureau of Land Management
Legal Description: SE/4 NE/4, Section 33, T25S, R24E, NMPM, Eddy County, NM

Surface rights are covered by the following instrument(s):

Amendment to Agreement for the Subsurface Storage of Gas in the Morrow Formation, Washington Ranch, Eddy County, NM (No. 14-08-0001-19562), between the United States of America and El Paso Natural Gas Company, dated March 23, 1982.

Agreement for the Subsurface Storage of Gas in the Morrow Formation, Washington Ranch, Eddy County, NM (No. 14-08-0001-19562), between the United States of America and El Paso Natural Gas Company, dated July 13, 1981.

Surface Ownership (John A. Ballard):

Road

Surface Owner: John A. Ballard
Legal Description: SW/4 NW/4, Section 34, T25S, R24E, NMPM, Eddy County, NM

Pipeline

Surface Owner: John A. Ballard
Legal Description: SW/4 NW/4, Section 34, T25S, R24E, NMPM, Eddy County, NM

Surface rights are covered by the following instrument(s):

Letter Agreement between John A. Ballard and Carolyn Ballard and El Paso Natural Gas Company, dated August 19, 1985.

Letter Agreement between John A. Ballard and El Paso Natural Gas Company, dated April 28, 1983.

Letter Addendum to the Gas Storage Lease Agreement between John A. Ballard and El Paso Natural Gas Company, dated June 6, 1979.

Gas Storage Lease Agreement John A. Ballard, et al. and El Paso Natural Gas Company, dated April 1, 1979.

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Frances Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-42685	87160	WASHINGTON RANCH; MORROW (GAS)

Property Code	Property Name	Well Number
3947	WASHINGTON RANCH GAS STORAGE PROJECT	WI Federal #25

OGRID No.	Operator Name	Elevation
7046	EL PASO NATURAL GAS COMPANY, L.L.C.	3753.9'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	33	25 S	24 E		1764	NORTH	590	EAST	EDDY

Bottom Hole Location If Different From Surface

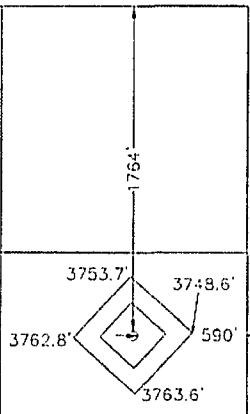
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
N/A			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

NOTE:

1) Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1983. Distances are grid values. To obtain surface values multiply distances by a factor of 0.999736101.



Plane Coordinate
LAT:32.08898'
LON:-104.49676'
X = 490,726.9
Y = 396,145.3
EL. 3753.9'

OPERATOR CERTIFICATION

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Anthony P. Trinko 5/21/14
Signature Date

ANTHONY P. TRINKO
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison and that the same is true and correct to the best of my belief.

FEBRUARY 7, 2014
Date of Survey

Signature & Seal of Professional Surveyor

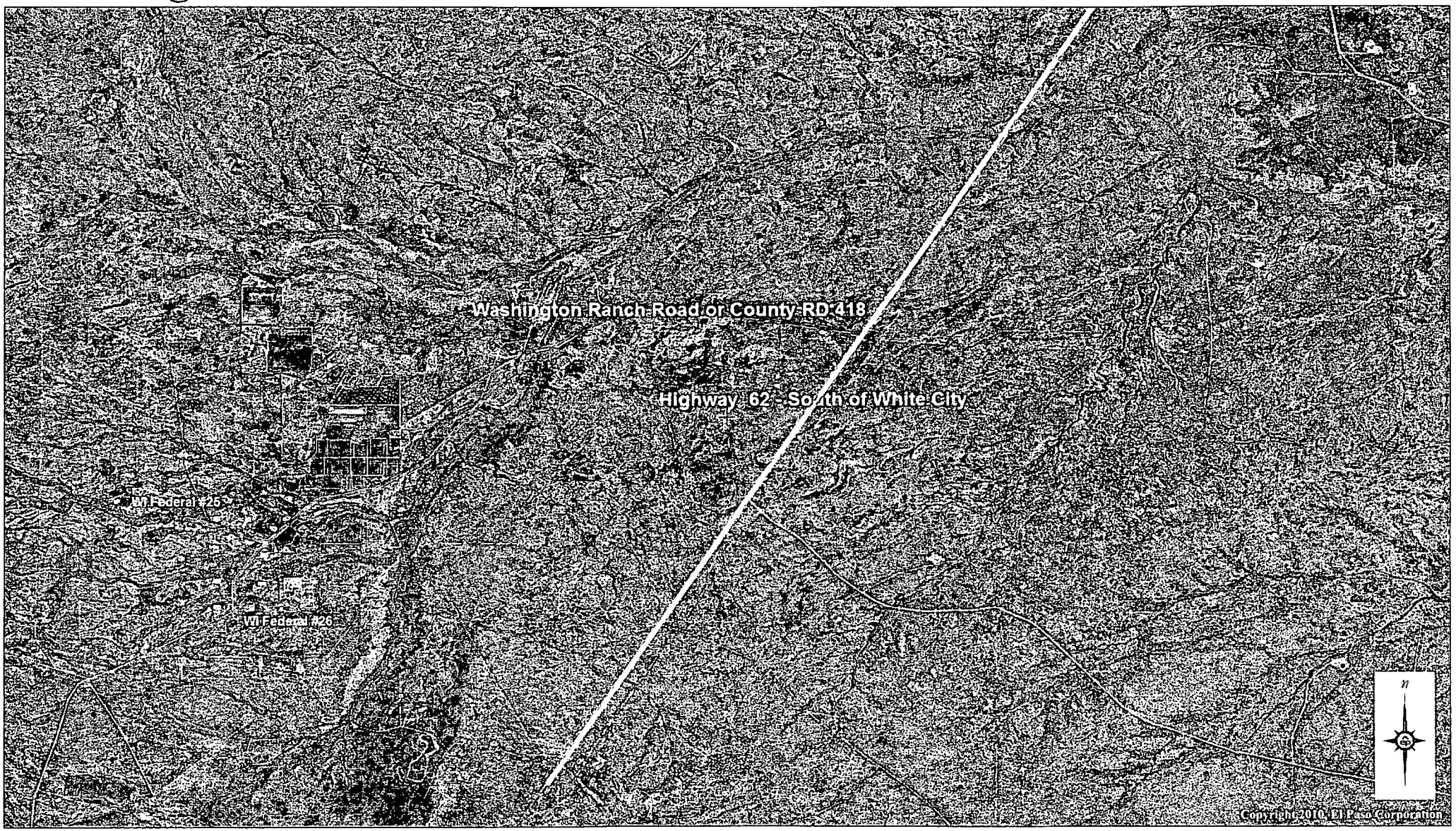
MACON McDONALD NEW MEXICO 12185 PROFESSIONAL SURVEYOR

W.O. Num. 2014-0050

Certificate No. MACON McDONALD 12185

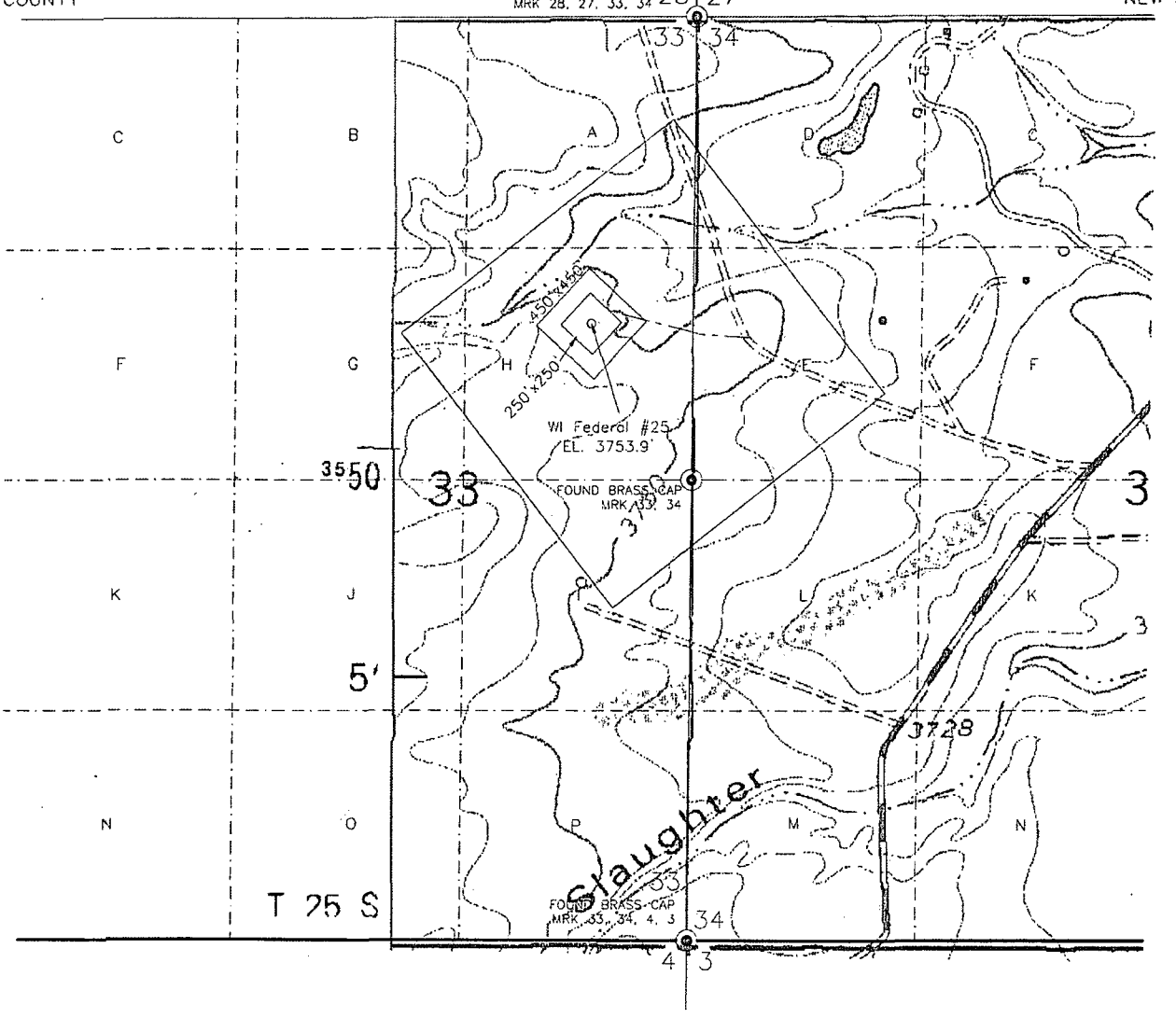
www.emnrd.state.nm.us
Current forms are available on our website and should be used when filing regulatory documents.

Washington Ranch Access Route



SECTIONS 33 & 34, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY — NEW MEXICO



TOWNSHIP 26 SOUTH, RANGE 24 EAST, N.M.P.M.

LEGEND

- ○ – DENOTES CALCULATED CORNER
- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ——·——·—— PROPOSED ROAD

1000 0 1000 2000

GRAPHIC SCALE IN FEET

SURVEY DATE: JANUARY 17–22, 2014

NOTES:

1) COMPANION PLAT T:\JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

MACON McDONALD NEW MEXICO PLS NO. 12185

NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 12185

WEST COMPANY
of Midland, LLC
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY, L.L.C.

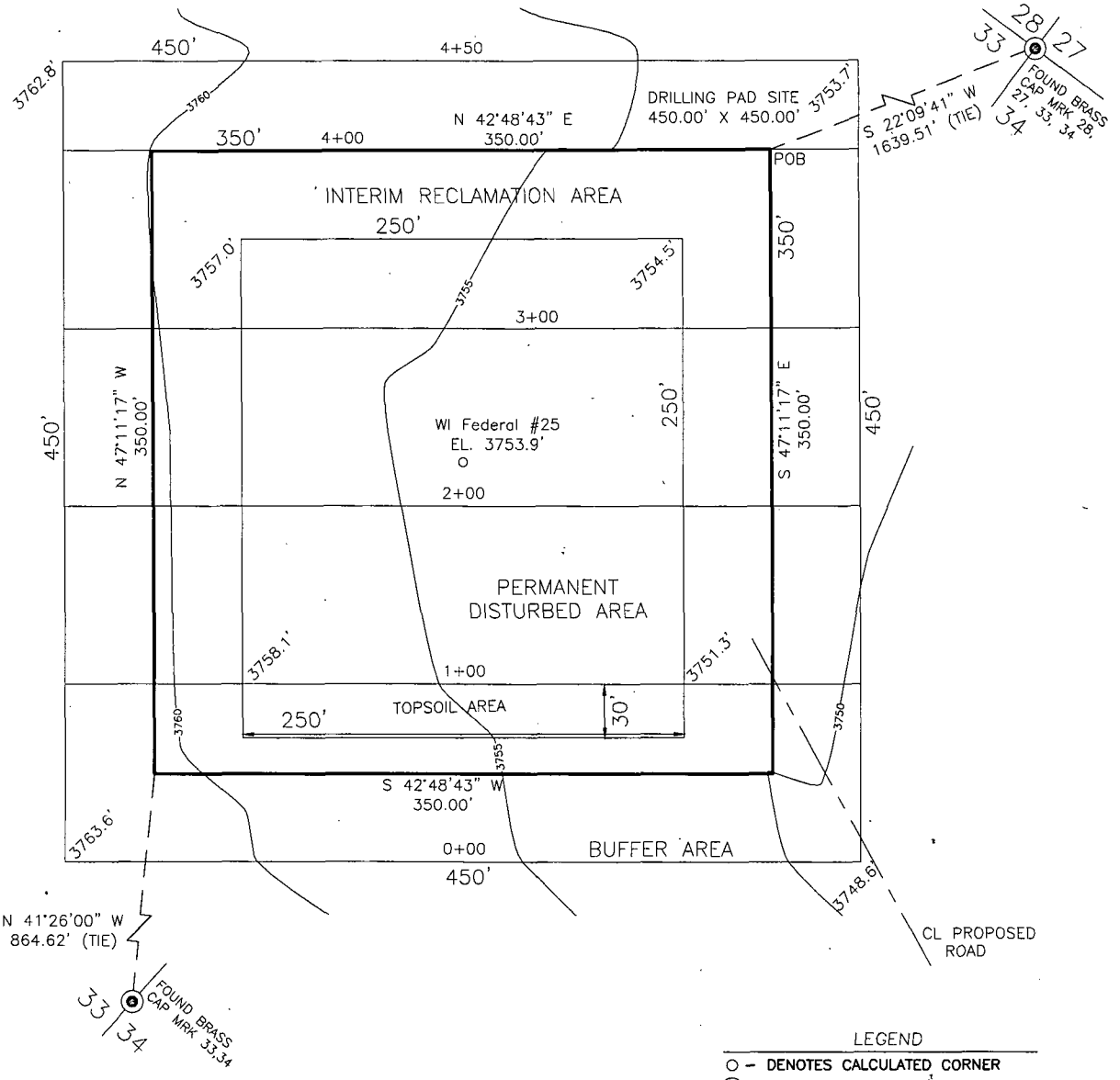
OVERVIEW PLAT

SECTIONS 33 & 34,
T25S, R24E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 11, 2014
Scale: 1"=1000'	Revised:
Sheet 1 OF 13 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg. No: I:\JENNIFER MORGAN\2014-0049-0052\2014-0049-0052.DWG

SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO



LEGEND

○ – DENOTES CALCULATED CORNER

◉ – DENOTES FOUND MONUMENT AS NOTED

—·—·—·— PROPOSED ROAD

100 0 100 200

GRAPHIC SCALE IN FEET

SURVEY DATE: JUNE 20, 2014

NOTES:

1) COMPANION PLAT T:JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736401.

MACON McDONALD NEW MEXICO PLS NO. 12185

NEW MEXICO 12185 REGISTERED PROFESSIONAL SURVEYOR

WEST COMPANY of Midland, LLC
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY, L.L.C.

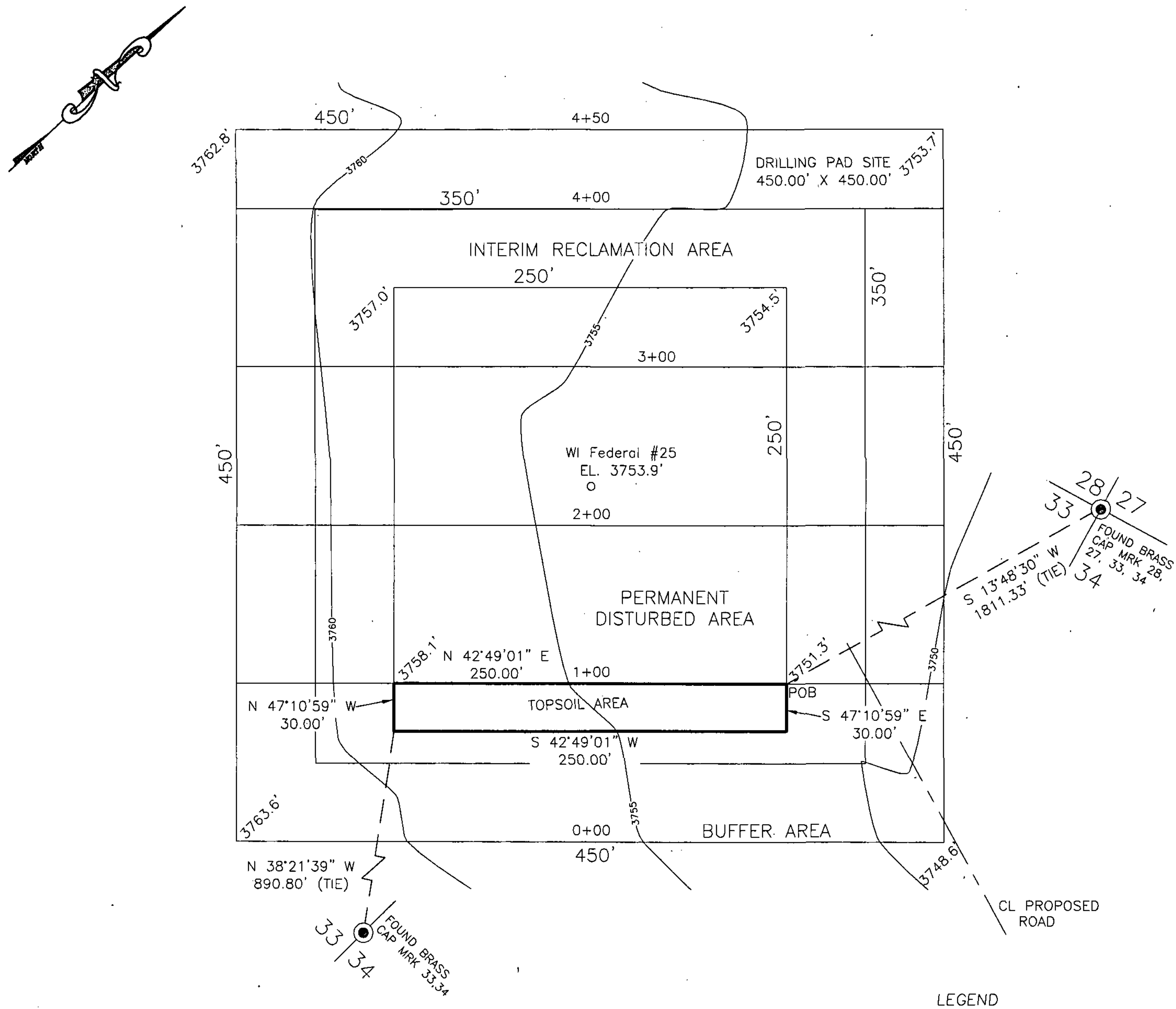
TOPOGRAPHIC MAP SITE

WI Federal #25
350.00' x 350.00' INTERIM RECLAMATION AREA
OUT OF UNIT H, SECTION 33,
T25S, R24E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: JUNE 24, 2014
Scale: 1"=100'	Revised:
Sheet 1 of 2 sheets	Field Note Book: PNR 08/19
W.O. No: 2014-0050	Dwg. No.: T:\KINDER MORGAN\2014-0049-0052\2014-0049-0052.DWG

SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY | NEW MEXICO



LEGEND

- ○ – DENOTES CALCULATED CORNER
- ◉ – DENOTES FOUND MONUMENT AS NOTED
- —·—·— PROPOSED ROAD

100 | 0 | 100 | 200

GRAPHIC SCALE IN FEET

SURVEY DATE: JUNE 20, 2014

NOTES:

1) COMPANION PLAT T:JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

MACON McDONALD, NEW MEXICO PLS NO. 12185

MACON McDONALD NEW MEXICO 12185 REGISTERED PROFESSIONAL SURVEYOR

WEST COMPANY of Midland, LLC

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY, L.L.C.

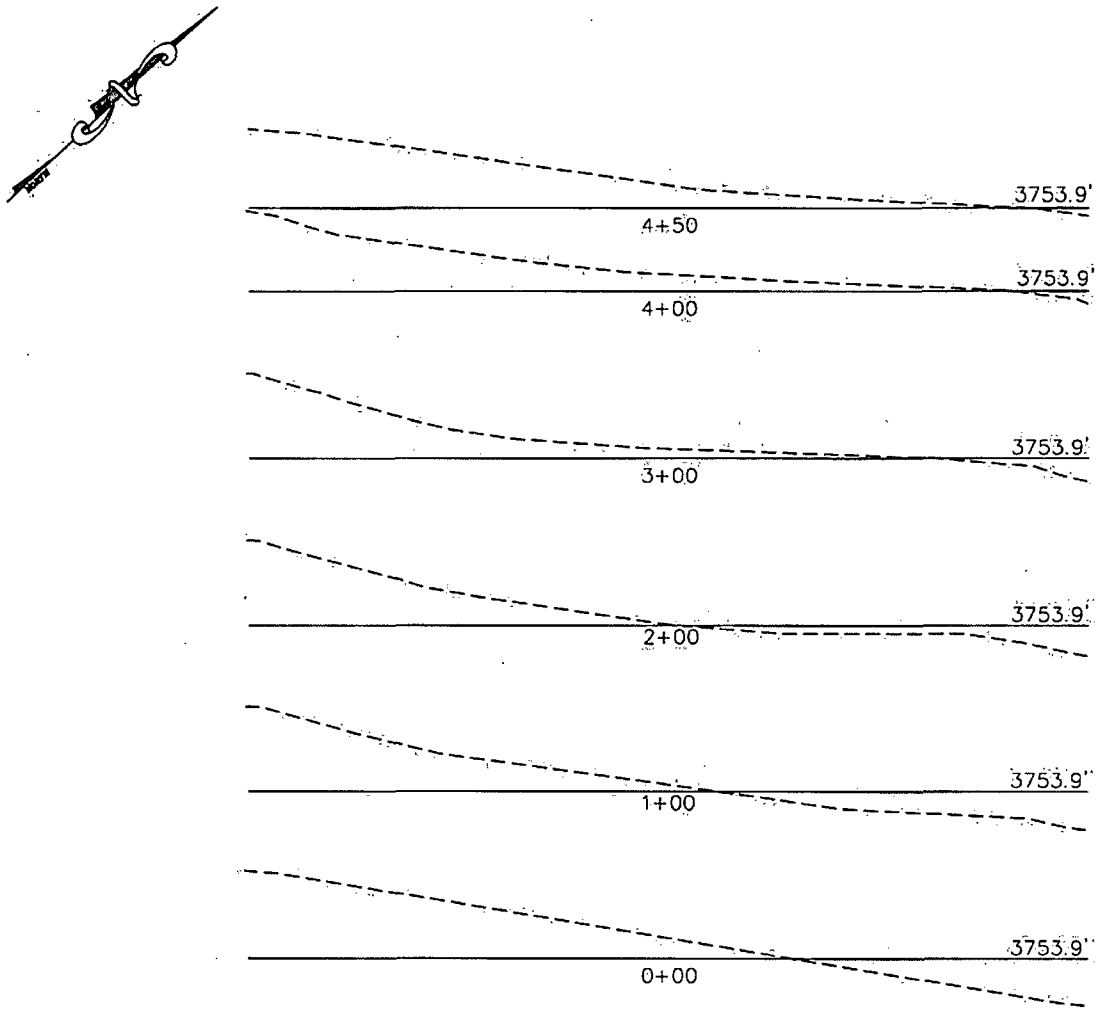
TOPOGRAPHIC MAP SITE

WI Federal #25
30.00' x 250.00' TOPSOIL AREA
OUT OF UNIT H, SECTION 33,
T25S, R24E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: JUNE 24, 2014
Scale: 1"=100'	Revised:
Sheet 1 of 2 sheets	Field Note Book: PNR 08/19
W.O. No: 2014-0050	Dwg. No.: T:\KINDER MORGAN\2014-0049-0052\2014-0049-0052.DWG

SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO



20 0 20 40
Vertical Scale in Feet

100 0 100 200
Graphic Scale in Feet

SURVEY DATE: JANUARY 17-22, 2014

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM AN ACTUAL SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

MACON McDONALD NEW MEXICO PLS NO. 12185

WEST COMPANY of Midland, LLC
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865. - (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY

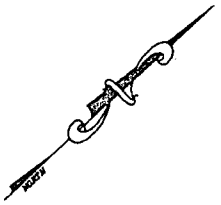
TOPOGRAPHIC MAP

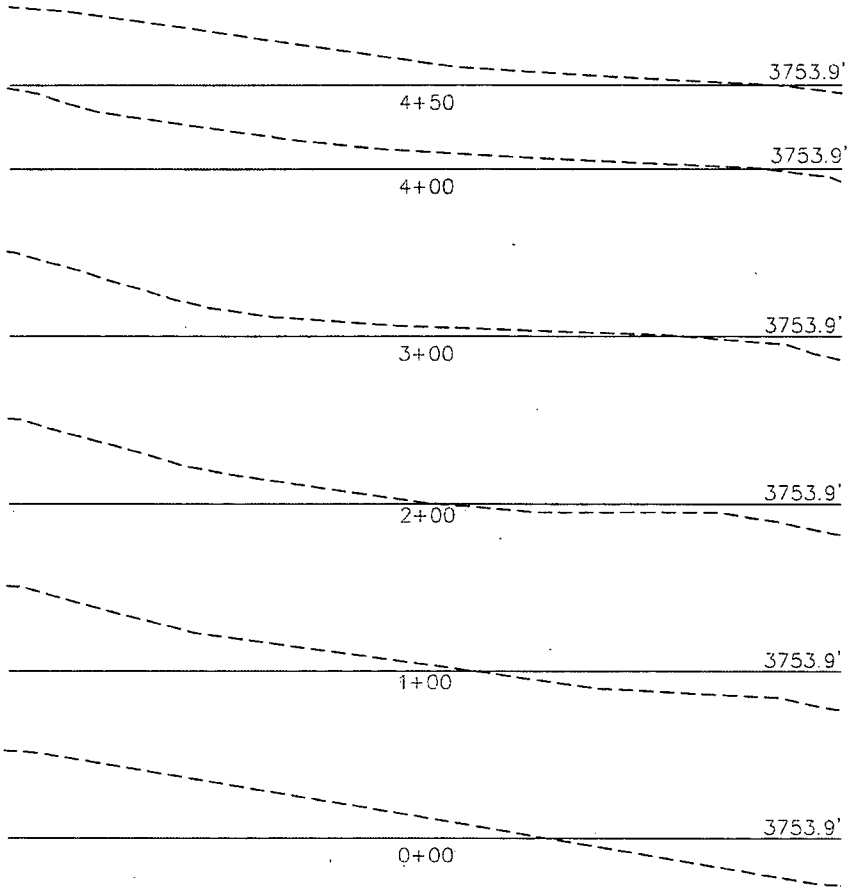
WASHINGTON RANCH #25
450.00' x 450.00 SITE OUT OF
UNIT H, SECTION 33, T25S, R24E,
N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 19, 2014
Scale: 1"=100'	Revised:
Sheet 2 OF 2 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg. No.: I:\KINDER MORGAN\2014-0049-0062\2014-0049-0062.DWG

SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO





20 0 20 40

Vertical Scale in Feet

100 0 100 200

Graphic Scale in Feet

SURVEY DATE: JANUARY 17–22, 2014

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM AN ACTUAL SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

MACON McDONALD NEW MEXICO P.L.S. NO. 12185

MACON McDONALD NEW MEXICO 12185 REGISTERED PROFESSIONAL SURVEYOR

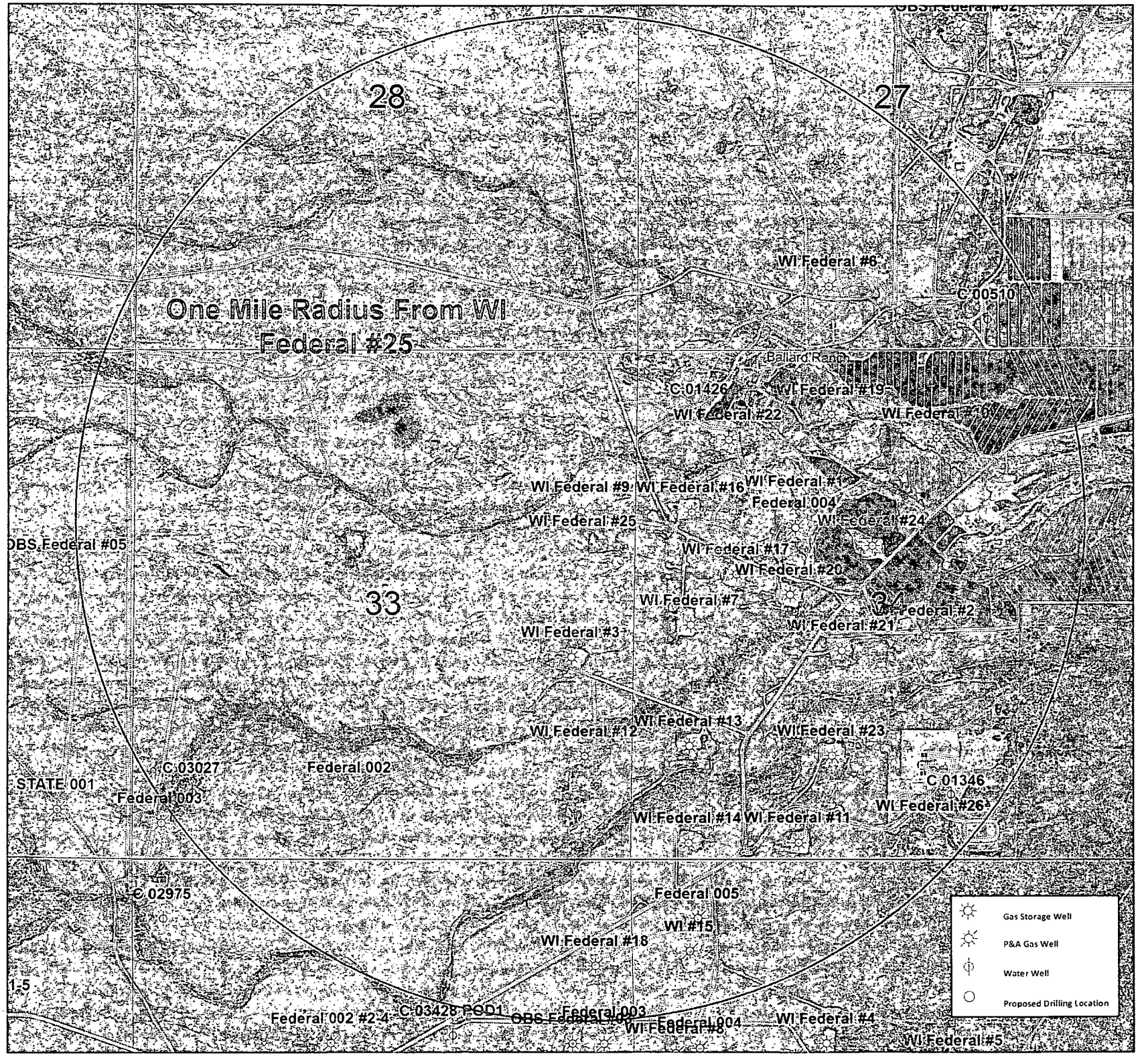
WEST COMPANY
of Midland, LLC
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

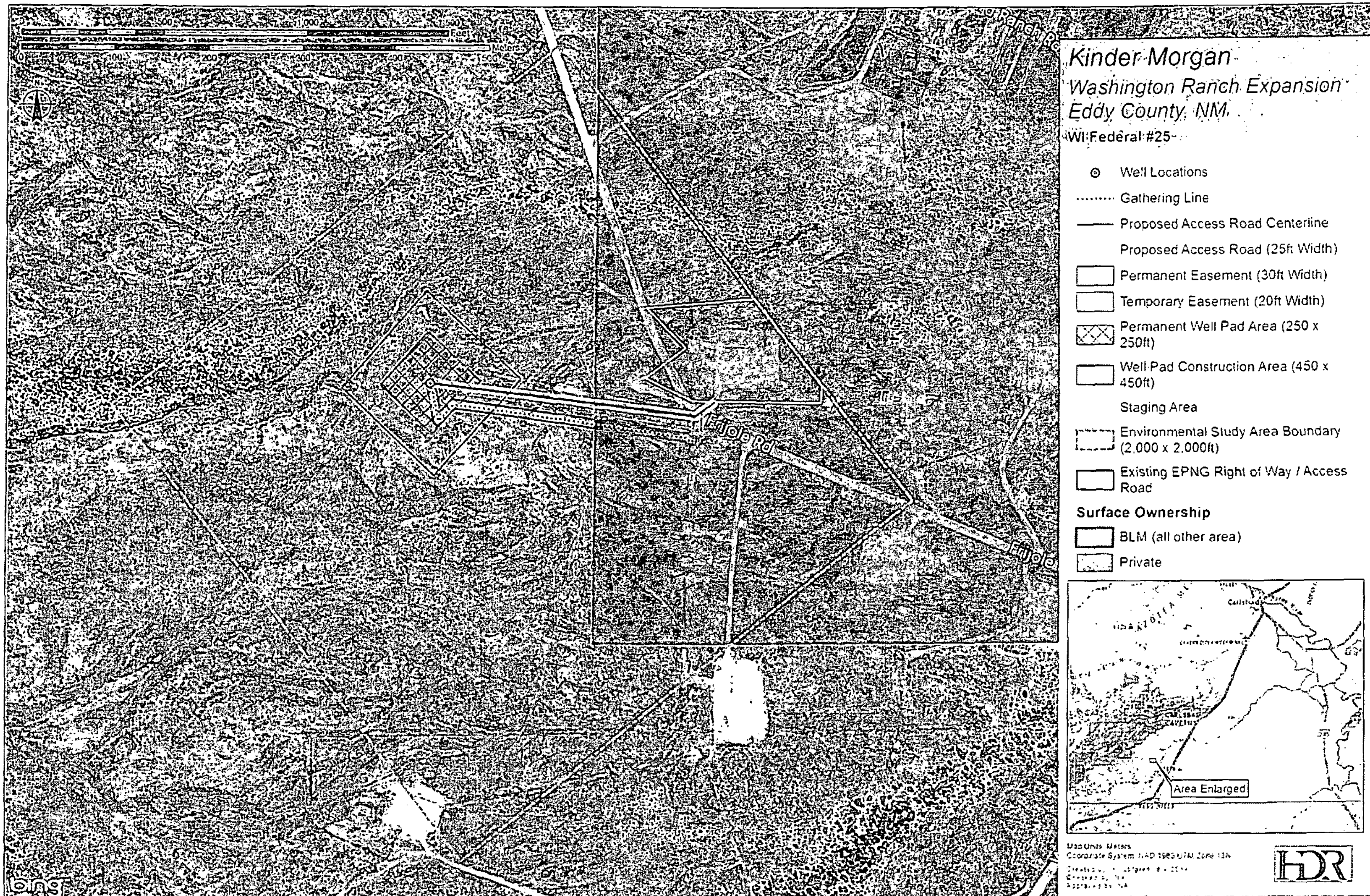
EL PASO NATURAL GAS COMPANY, L.L.C.

TOPOGRAPHIC MAP

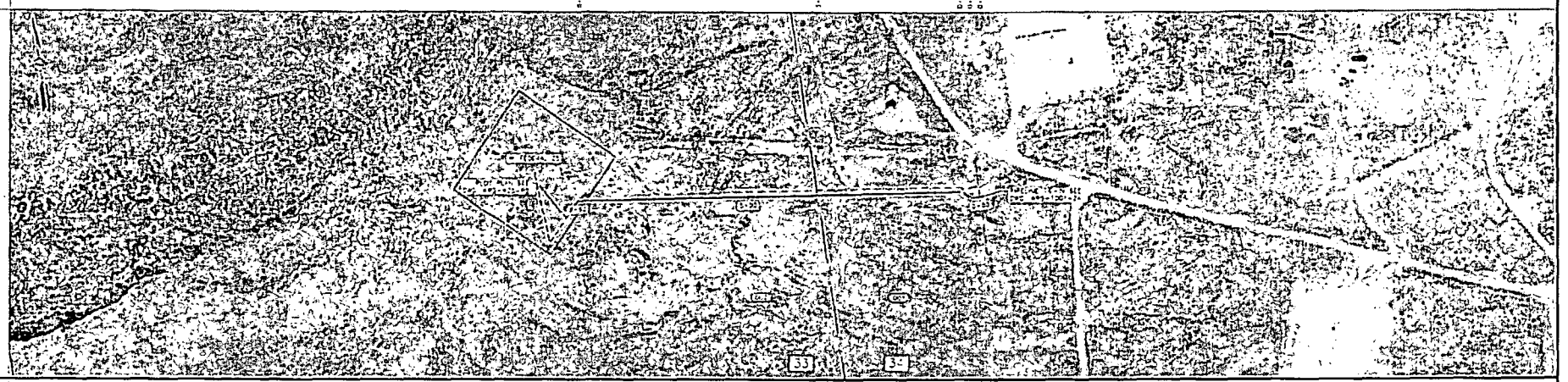
WI Federal #25
450.00' x 450.00 SITE OUT OF
UNIT H, SECTION 33, T25S, R24E,
N.M.P.M.
EDDY COUNTY, NEW MEXICO

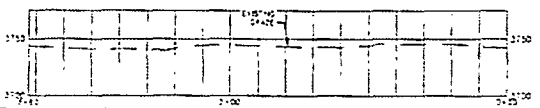
Drawn By: D.E.H.	DATE: FEBRUARY 19, 2014
Scale: 1"=100'	Revised:
Sheet 2 OF 2 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg. No.: I:\KAD\ER MORGAN\2014-0049-0052\2014-0049-0052.DWG


One Mile Radius From WI
Federal #25
28
27
33
34
Ballard Ranch
WI Federal #6
C 00510
C 01426
WI Federal #19
WI Federal #22
WI Federal #10
WI Federal #9
WI Federal #16
WI Federal #1
Federal 004
WI Federal #25
WI Federal #24
OBS Federal #05
WI Federal #17
WI Federal #20
WI Federal #7
Federal #2
WI Federal #21
WI Federal #3
WI Federal #13
WI Federal #12
WI Federal #23
C 03027
Federal 002
STATE 001
Federal 003
C 01346
WI Federal #26
WI Federal #14
WI Federal #11
C 02975
Federal 005
WI #15
WI Federal #18
Federal 002 #2-4
C 03428 POD1
OBS Federal #06
Federal 003
Federal 004
WI Federal #4
WI Federal #8
WI Federal #5
Gas Storage Well
P&A Gas Well
Water Well
Proposed Drilling Location



Kinder Morgan
Washington Ranch Expansion
Eddy County, NM
WI Federal #25
Well Locations
Gathering Line
Proposed Access Road Centerline
Proposed Access Road (25ft Width)
Permanent Easement (30ft Width)
Temporary Easement (20ft Width)
Permanent Well Pad Area (250 x 250ft)
Well Pad Construction Area (450 x 450ft)
Staging Area
Environmental Study Area Boundary (2,000 x 2,000ft)
Existing EPNG Right of Way / Access Road
Surface Ownership
BLM (all other area)
Private
Area Enlarged
Frijole Rd
HDR





ISSUED FOR CONSTRUCTION

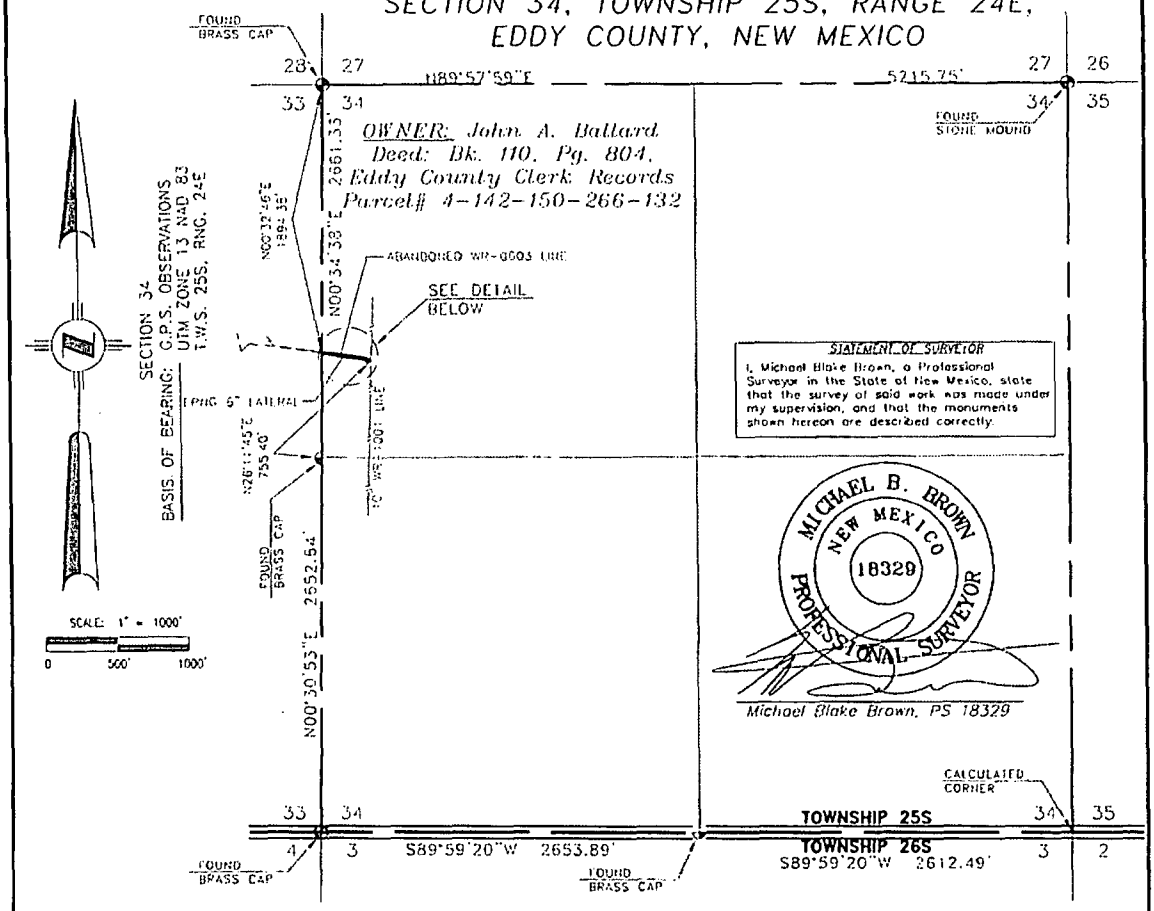
El Paso Natural Gas Company

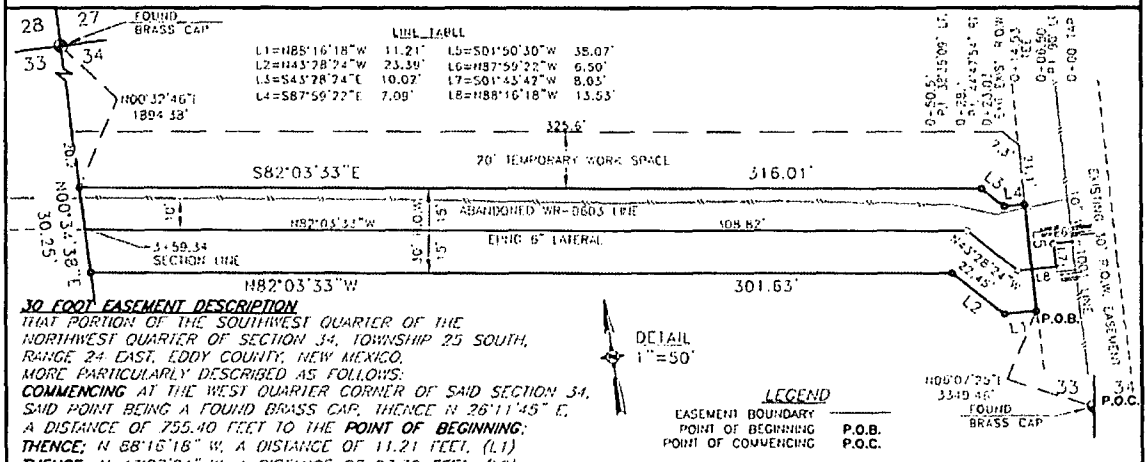
ALIGNMENT SHEET
WI FEDERAL #25
SEC. 33 & 34, T25S, R24E
0+00 TO 8+63
EDDY COUNTY
NEW MEXICO

WR-1003

0

SECTION 34, TOWNSHIP 25S, RANGE 24E, EDDY COUNTY, NEW MEXICO





30 FOOT EASEMENT DESCRIPTION

THAT PORTION OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 34, TOWNSHIP 25 SOUTH, RANGE 24 EAST, EDDY COUNTY, NEW MEXICO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING *AT THE WEST QUARTER CORNER OF SAID SECTION 34, SAID POINT BEING A FOUND BRASS CAP, THENCE N 26°11'45" E, A DISTANCE OF 755.40 FEET TO THE* ***POINT OF BEGINNING;***
THENCE; *N 88°16'18" W, A DISTANCE OF 11.21 FEET, (L1)*
THENCE; *N 43°28'24" W, A DISTANCE OF 23.39 FEET, (L2)*
THENCE *N 82°03'33" W, A DISTANCE OF 301.63 FEET,*
THENCE *N 00°34'38" E, A DISTANCE OF 30.25 FEET,*
THENCE *S 82°03'33" E, A DISTANCE OF 316.01 FEET,*
THENCE *S 43°28'24" E, A DISTANCE OF 10.02 FEET, (L3)*
THENCE *S 87°59'22" E, A DISTANCE OF 7.09 FEET, (L4)*
THENCE *S 01°50'30" W, A DISTANCE OF 38.07 FEET, (L5)*
TO THE ***POINT OF BEGINNING***
CONTAINING: 10,114.37 SQUARE FEET OR 0.2322 ACRES MORE OR LESS.

SURVEYED AND PREPARED BY:

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
2775 PERRYTON PARKWAY, PAMPA, TX. 79065, PH. (800)656-3377

NOTES:

1.) The accompanying plat does not constitute a boundary survey.
2.) Easement centerline may not represent location of pipeline.
3.) Title research provided by El Paso Corporation Land Department.
4.) Basis of bearings = Derived from GPS observations established by OPUS solutions.
5.) Coordinates shown are relative to UTM Zone 13 North, US Survey Feet. All distances shown are grid distances.
6.) Combined surface adjustment factor: 1.0005884

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
			REVISIONS		

Division: 4	Op. Area: CARLSBAD		
State: NEW MEXICO	Co./Par.: EDDY		
Section: 34	Township: 25S	Range: 24E	
Dft: RR	Date: 4/29/14	AFE: 66586	
Chk: FM	Date: 4/29/14	Scale: AS SHOWN	
Appr: MB	Date:	Filename: 04135.01-X-007.DWG	

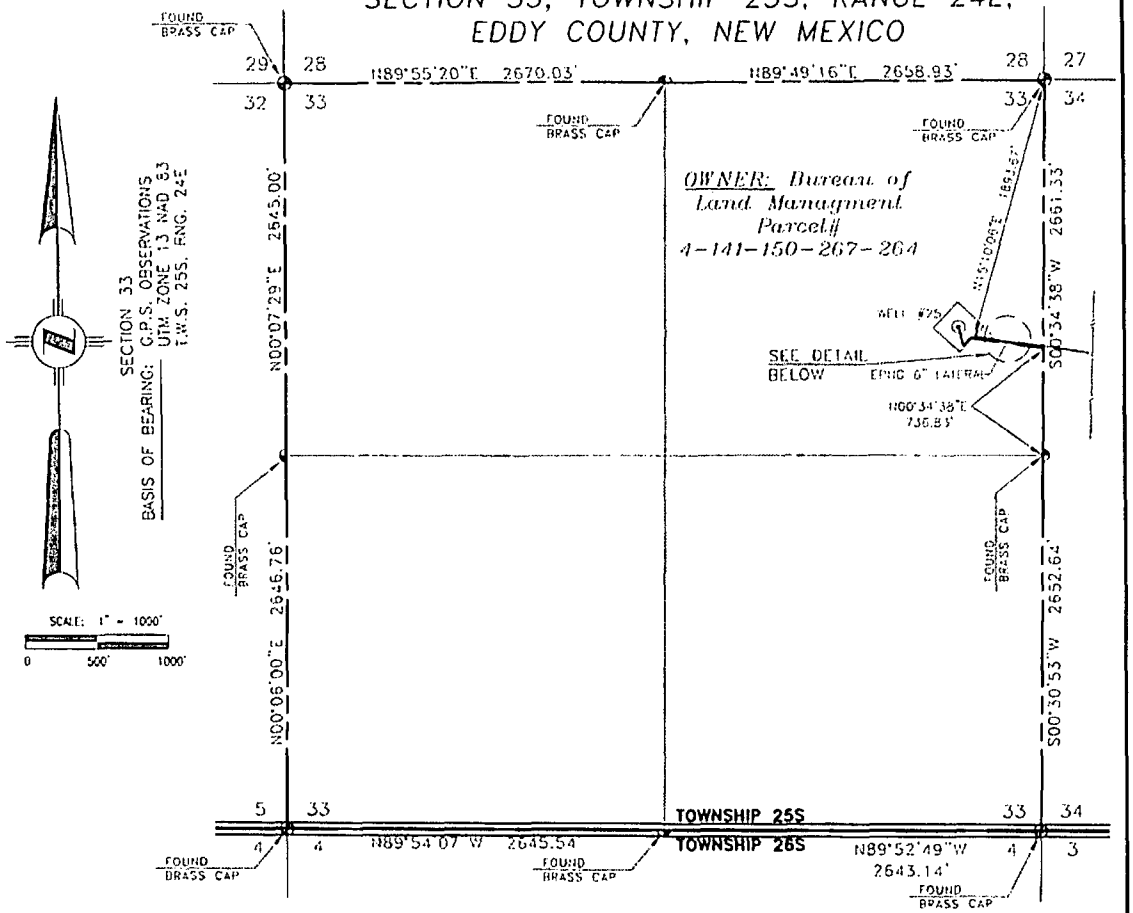
PIPELINE OVERVIEW
30' WIDE EASEMENT
FOR AN EPNG 6" LATERAL TO
WI FEDERAL #25
WASHINGTON RANCH STORAGE FACILITY

El Paso Natural Gas Company
a Kinder Morgan company

4135.1-X-7

Sheet: 1 of 1 | Rev. 0
Type: ACAD

SECTION 33, TOWNSHIP 25S, RANGE 24E, EDDY COUNTY, NEW MEXICO



NOTES:

1.) The accompanying plat does not constitute a boundary survey.
2.) Easement centerline may not represent location of pipeline.
3.) Title research provided by El Paso Corporation Land Department.
4.) Basis of bearings – Derived from GPS observations established by OPUS solutions.
5.) Coordinates shown are relative to UTM Zone 13 North, US Survey Feet. All distances shown are grid distances.
6.) Combined surface adjustment factor: 1.0005884

SEE SHEET 2 FOR EASEMENT DETAIL AND DESCRIPTION

STATEMENT OF SURVEYOR

I, Michael Blake Brown, a Professional Surveyor in the State of New Mexico, state that the survey of said work was made under my supervision, and that the monuments shown hereon are described correctly.

MICHAEL B. BROWN NEW MEXICO 18329 PROFESSIONAL SURVEYOR

Michael Blake Brown, PS 18329

SURVEYED AND PREPARED BY:

TOPOGRAPHIC LAND SURVEYING SERVICES
2225 PERRITON PARKWAY, PAMPA, TX. 79065, PH (800)658-6367

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
			REVISIONS		

Division: 4		Op. Area: CARLSBAD	
State: NEW MEXICO		Co./Par.: EDDY	
Section: 33	Township: 25S	Range: 24E	
Drt: RR	Date: 4/29/14	AFE: 66586	
Chk: FM	Date: 4/29/14	Scale: AS SHOWN	
Appr: MB	Date:	Filename: 04135.01-X-008.DWG	

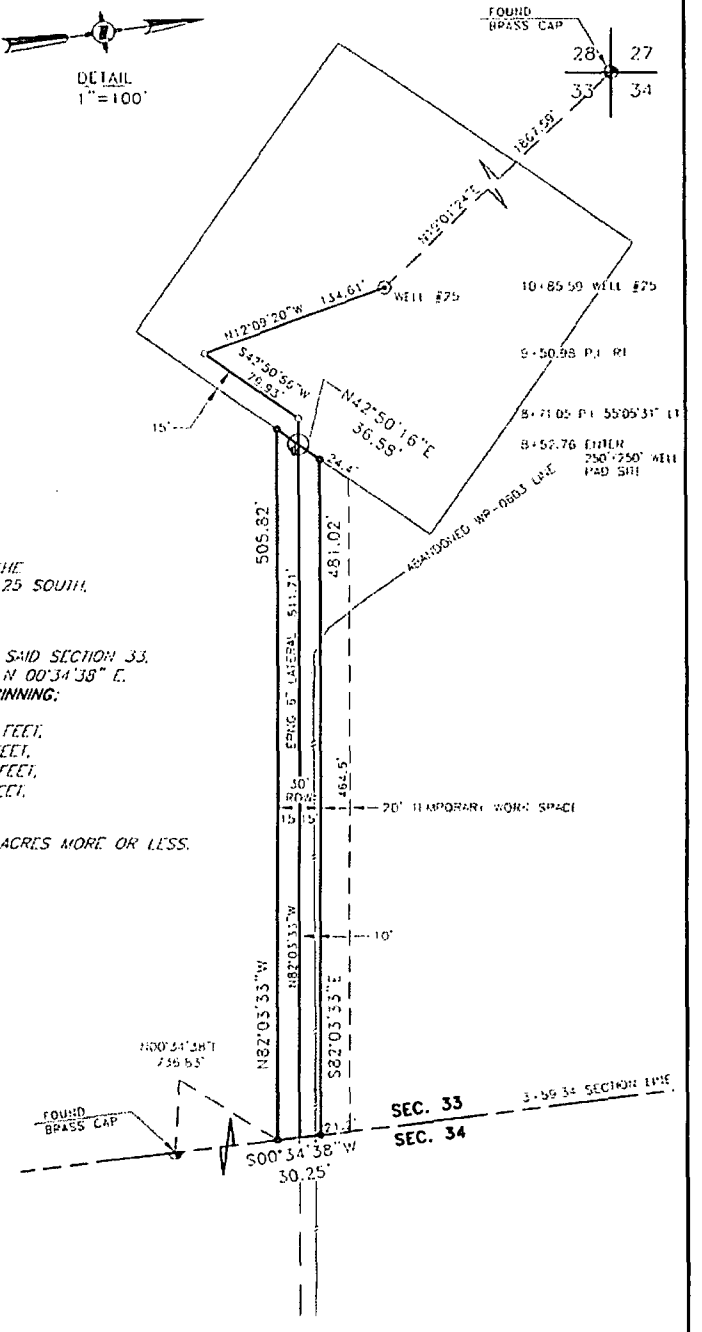
PIPELINE DETAIL
30' WIDE EASEMENT
FOR AN EPNG 6" LATERAL TO
WI FEDERAL #25
WASHINGTON RANCH STORAGE FACILITY

El Paso Natural Gas Company
A Kinder Morgan company

4135.1-X-8

Sheet: 1 of 2 | Type: ACAD | Rev. 0

SECTION 33, TOWNSHIP 25S, RANGE 24E.
EDDY COUNTY, NEW MEXICO



30 FOOT EASEMENT DESCRIPTION

THAT PORTION OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, EDDY COUNTY, NEW MEXICO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING** AT THE EAST QUARTER CORNER OF SAID SECTION 33, SAID POINT BEING A FOUND BRASS CAP THENCE N 00°34'38" E, A DISTANCE OF 736.83 FEET THE **POINT OF BEGINNING;

***THENCE;** N 82°03'33" W, A DISTANCE OF 505.82 FEET,*
***THENCE;** N 42°50'16" E, A DISTANCE OF 36.58 FEET,*
***THENCE** S 82°03'33" E, A DISTANCE OF 481.02 FEET,*
***THENCE** S 00°34'38" W, A DISTANCE OF 30.25 FEET,*
*TO THE **POINT OF BEGINNING***

CONTAINING 14,802.58 SQUARE FEET OR 0.3398 ACRES MORE OR LESS.

STATEMENT OF SURVEYOR

I, Michael Blake Brown, a Professional Surveyor in the State of New Mexico, state that the survey of said work was made under my supervision, and that the monuments shown hereon are described correctly.

MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Michael Blake Brown, PS 18329

SURVEYED AND PREPARED BY:

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
2225 PERRYTON PARKWAY, PAMPA, TX. 79065, PH. (800)658-6382

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
			REVISIONS		

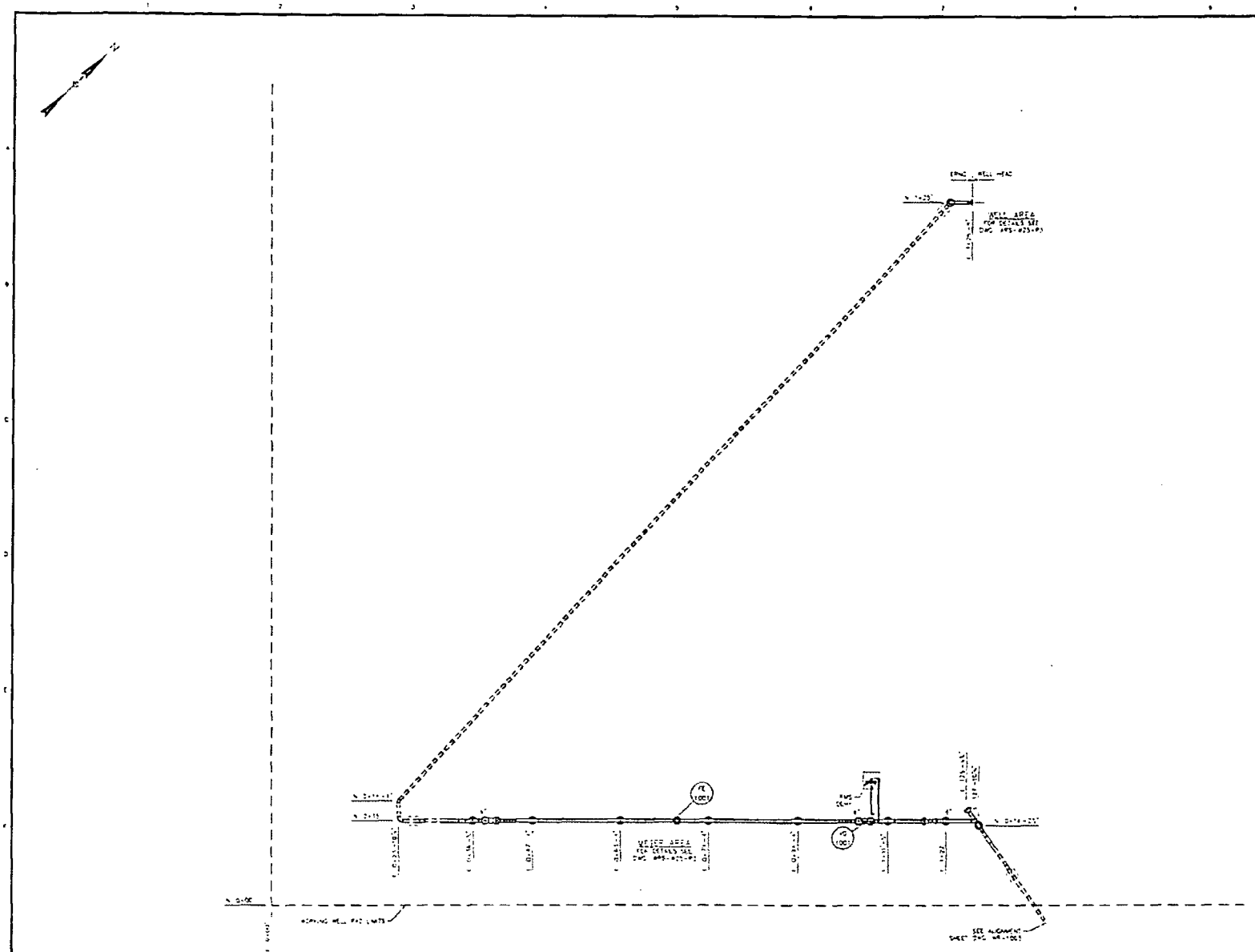
Division: 4		Op. Area: CARLSBAD	
State: NEW MEXICO		Co./Par.: EDDY	
Section: 33	Township: 25S	Range: 24E	
Drn: RR	Date: 4/29/14	AFE: 66586	
Chk: FM	Date: 4/29/14	Scale: AS SHOWN	
Appr: MB	Date:	Filename: 04135.01-X-008A	

PIPELINE DETAIL
30' WIDE EASEMENT
FOR AN EPNG 6" LATERAL TO
WELL #25
WASHINGTON RANCH STORAGE FACILITY

El Paso Natural Gas Company
a Kinder Morgan company

4135.1-X-8A

Sheet: 2 of 2 | Type: ACAD | Rev. 0



REFERENCE DRAWINGS

GENERAL NOTES

1. ALL PIPING FABRICATED TO BE IN ACCORDANCE WITH ANSI B31.8 SPECIFICATIONS

DESIGN DATA

CODE: TITLE 49 PART 192 CFR CLASS LOCATION: 1

DESIGN FACTOR: .72

DESIGN

DESIGN PRESSURE: 3300 PSIG

MAOP: 3300 PSIG

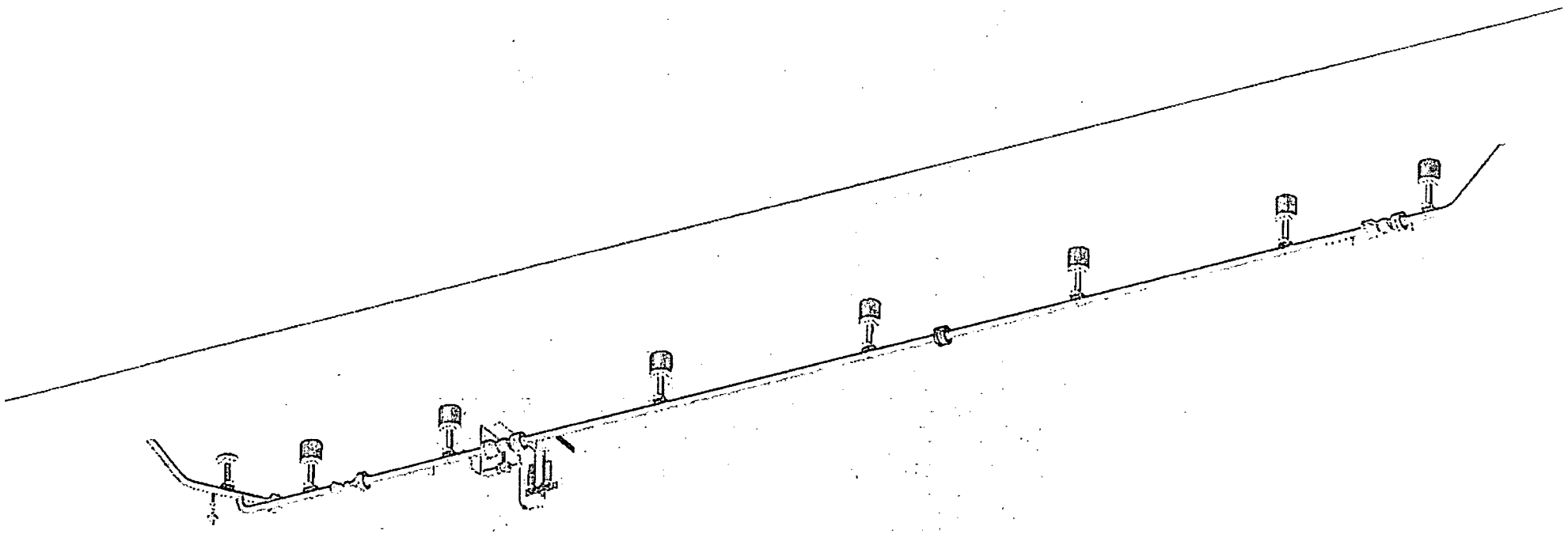
TEMPERATURE: 120 F

THIS DRAWING IS ALL NEW CONSTRUCTION

El Paso Natural Gas Company

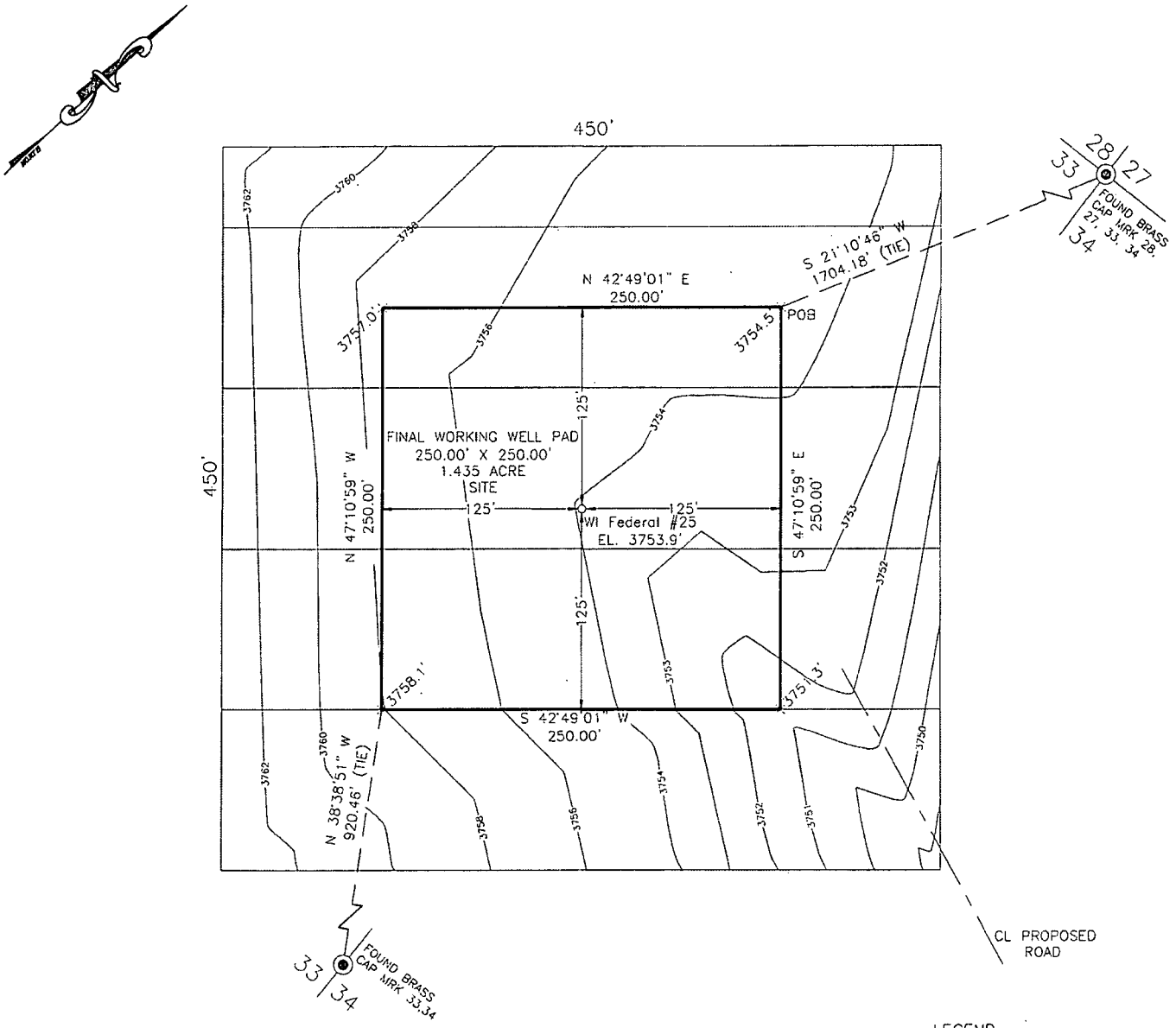
PIPING PLAN
PLOT PLAN
WI FEDERAL #29
METER STATION
LINE WR-1003

WR5-WR5-P2



SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO



SEE SHEET 7 OF 13 FOR A LEGAL DESCRIPTION OF THIS SITE

SURVEY DATE: JANUARY 17-22, 2014

NOTES:

1) COMPANION PLAT T:\JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

LEGEND

- ○ – DENOTES CALCULATED CORNER
- ◎ – DENOTES FOUND MONUMENT AS NOTED
- —·—·— PROPOSED ROAD

100 0 100 200

GRAPHIC SCALE IN FEET

MACON McDONALD NEW MEXICO PLS NO. 12185

NEW MEXICO 12185 REGISTERED PROFESSIONAL SURVEYOR

WEST COMPANY of Midland, LLC

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY, L.L.C.

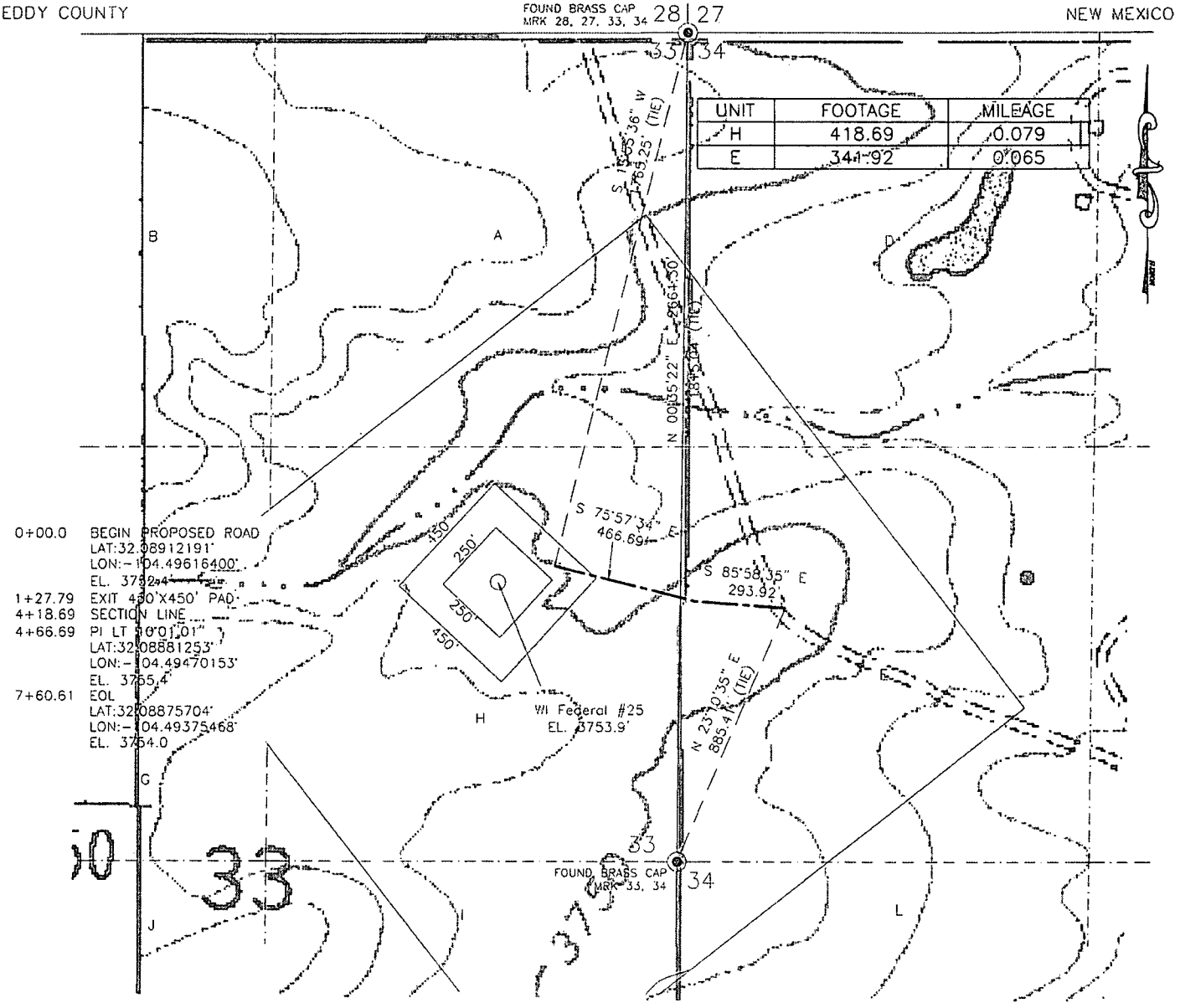
FINAL WORKING WELL PAD PLAT

250.00' X 250.00' SITE
BEING 1.435 ACRES OUT OF
UNIT H, SECTION 33, T25S, R24E,
N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 11, 2014
Scale: 1"=100'	Revised:
Sheet 6 OF 13 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg No: E:\KINDER MORGAN\2014-0049-0052\2014-0049-0052.DWG

SECTIONS 33 & 34, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY — NEW MEXICO



UNIT	FOOTAGE	MILEAGE
H	418.69	0.079
E	341.92	0.065

0+00.0 BEGIN PROPOSED ROAD
LAT:32.38912191°
LON:-104.49616400°
EL. 3752.4'

1+27.79 EXIT 450'X450' PAD

4+18.69 SECTION LINE

4+66.69 PI LT 10°01'01"
LAT:32.38881253°
LON:-104.49470153°
EL. 3755.4'

7+60.61 EOL
LAT:32.38875704°
LON:-104.49375468°
EL. 3754.0'

SEE SHEET 9 OF 13 FOR A CENTERLINE DESCRIPTION OF THIS ROAD EASEMENT

LEGEND
- ○ – DENOTES CALCULATED CORNER
- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ——— PROPOSED ROAD

500 0 500 1000
GRAPHIC SCALE IN FEET

SURVEY DATE: JANUARY 17–22, 2014

NOTES:

1) COMPANION PLAT T:JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

NEW MEXICO 12185 REGISTERED PROFESSIONAL SURVEYOR

MACON McDONALD *NEW MEXICO PLS NO. 12185*

WEST COMPANY of Midland, LLC
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY, L.L.C.

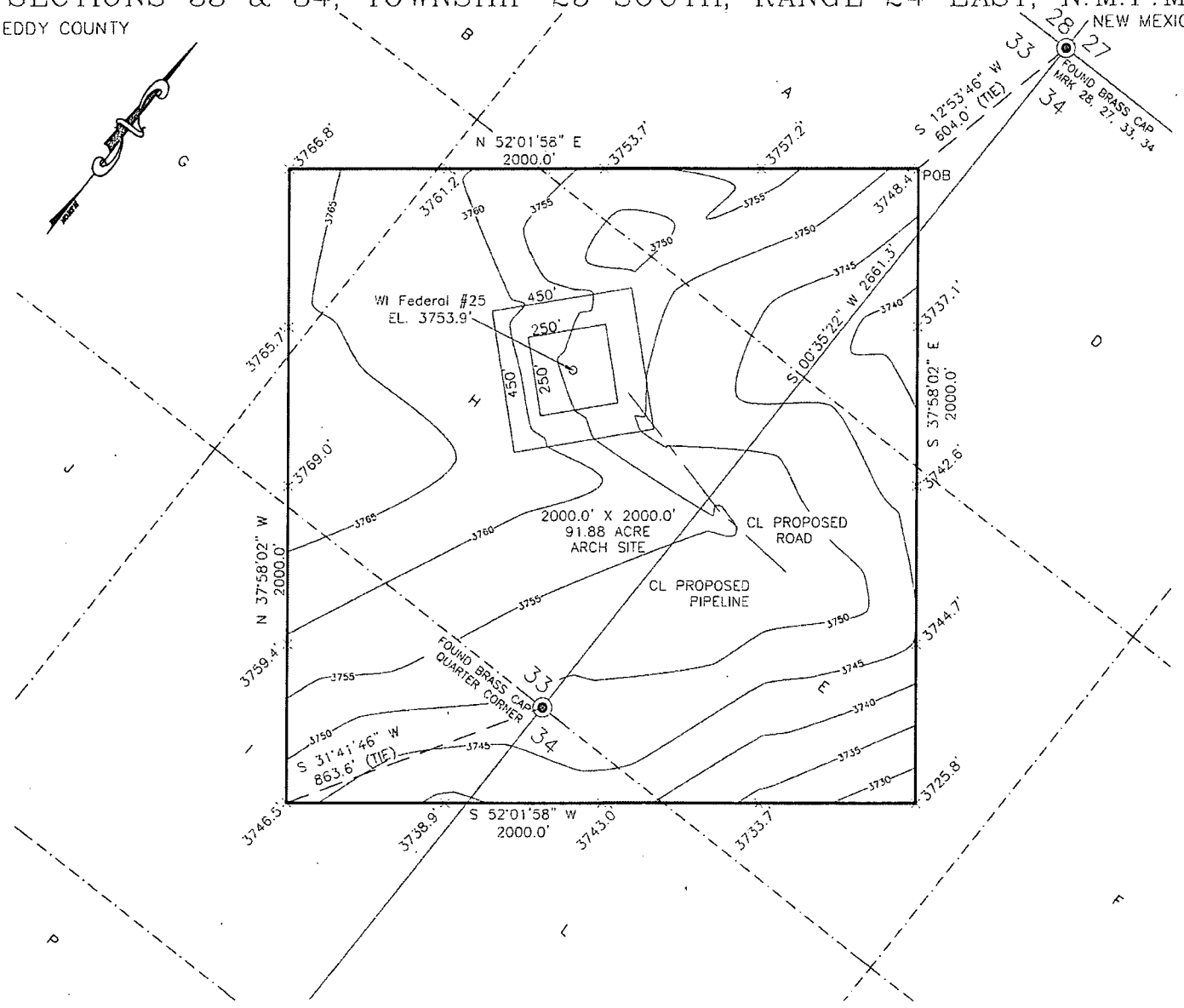
CL PROPOSED ROAD

SECTIONS 33 & 34,
T25S, R24E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 11, 2014
Scale: 1"=500'	Revised:
Sheet 8 OF 13 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg No.: I:\KINDER MORGAN\2014-0049-0052\2014-0049-0052.DWG

SECTIONS 33 & 34, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO



SEE SHEET 3 OF 13 FOR A LEGAL DESCRIPTION OF THIS SITE

LEGEND

- ○ – DENOTES CALCULATED CORNER
- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ——·——·—— PROPOSED ROAD

500 0 500 1000

GRAPHIC SCALE IN FEET

SURVEY DATE: JANUARY 17–22, 2014

NOTES:

1) COMPANION PLAT T:\JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

MACON McDONALD *NEW MEXICO PLS NO. 12185*

NEW MEXICO 12185 REGISTERED PROFESSIONAL SURVEYOR

WEST COMPANY of Midland, LLC

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY, L.L.C.

ARCH SITE PLAT

2000.0' X 2000.0' ARCH SITE
BEING 91.88 ACRES OUT OF
SECTIONS 33 & 34,
T25S, R24E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 11, 2014
Scale: 1"=500'	Revised:
Sheet 2 OF 13 sheets	Field Note Book: 573/64
W.O. No: 2014–0050	Dwg. No.: I:\KINDER MORGAN\2014-0049-0052\2014-0049-0052.DWG

Application for Permit to Drill or Reenter (BLM Form 3160-3)
Document #6 – Drilling Plan

El Paso Natural Gas Company, L.L.C.
WI Federal #25
1,764' FNL & 590' FEL
Sec. 33-T25S-R24E
Eddy County, New Mexico

1. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil, or Gas:

Geologic Name of Surface Formation: Quaternary Alluvium

Elevation: 3,753.9' GL

Formation Name / Entity	Expected Depth	Anticipated Fluid
Closest Water Well:	90' – 125'	Fresh Water (1)
Delaware Group:	528'	Potential Oil & Gas Shows
Bone Spring:	3,563'	N/A
Wolfcamp:	5,463'	N/A
Strawn:	5,696'	Potential Oil & Gas Shows
Atoka:	5,850'	N/A
Morrow Limestone:	6,528'	N/A
Morrow Clastics:	6,642'	N/A
Total Depth:	7,188'	N/A

(1) Potential water bearing sands will be isolated by up to three cemented casing strings.

2. Casing program:

Casing Type	Hole Size	Hole Interval	Casing Size	Collar Type	Wt & Grade
Surface (1)	20"	0'-~450'	16"	BTC	75# (J55)
Intermediate	13-1/2"	0'-~1,000'	10-3/4"	STC	40.5# (J55)
Production	9-7/8"	0'-~7,200'	7"	LTC	26# (N80)
Tubing String (2)	N/A	0'-~6,700'	4-1/2"	LTC	11.6# (J55)

(1) Surface casing shall be equipped with at least 3 centralizers on the bottom 3 joints of the casing (a minimum of 1 centralizer/joint, starting with the shoe joint).

(2) Equipped with Packer – Tubing Retrievable (To set within ~50' of shallow perforation.)

All installed casing will meet or exceed API standards for new casing.

See generalized wellbore diagram (Document #4 – Supporting Maps, etc.)

Design Parameter Factors:

Casing Size	Collapse Design Factor (*)	Burst Design Factor	Tension Design Factor
16" (75#, J55)	4.64	11.98	21.04
10-3/4" (40.5, J55)	3.24	6.41	10.37
7" (26#, N80)	1.54	1.93	2.77

(*) For collapse design factor, utilized 9.4#/Gal. mud exerting pressure only on the outside of the pipe to approximate the worst condition normally conceivable.

3. **Cement program:** (All cement volumes based on a minimum of 25% excess.)

16" Surface Casing @ 450'
570 sx Class C Cement + 2% bwoc Calcium Chloride + 56.4% Fresh Water
Slurry Yield: 1.34 cf/sack **Slurry Weight**: 14.8 ppg **Mix Water:** 6.36 gps
(Outside pipe cement volume based on 100% excess)
TOC @ Surface

10-3/4" Intermediate Casing @ ~1,000' (Outside pipe cement volume based on 100% excess)
Lead Slurry: 230 sacks Class C Cement + 4% bwoc Bentonite II + 2% bwoc Calcium Chloride + 81.4% Fresh Water.
Slurry Yield: 1.74 cf/sack **Slurry Weight:** 13.5 ppg **Mix Water:** 9.17 gps

Tail Slurry: 120 sacks Class C Cement + 2% bwoc Calcium Chloride + 56.4% Fresh Water
Slurry Yield: 1.34 cf/sack **Slurry Weight:** 14.8 ppg **Mix Water:** 6.36 gps
TOC @ Surface

7" Production Casing @ ~ 7,200'
Stage #1 (Float/Landing Collar Set @ 7,160')
Lead Slurry: 650 sacks (35:65) Poz (Fly Ash): Class C Cement + 6% bwoc Bentonite II + 5% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 0.3% bwoc Sodium Metasilicate + 0.5% bwoc FL-52 + 0.125 lbs/sack Cello Flake + 101.3% Fresh Water
Slurry Yield: 2.00 cf/sack **Slurry Weight:** 12.6 ppg **Mix Water:** 10.57 gps
Tail Slurry: 200 sacks (50:50) Poz (Fly Ash): Class C Cement + 2% bwoc Bentonite II + 0.4% bwoc FL-52 + 0.1% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 1% bwoc BA-58 + 55.8% Fresh Water
Slurry Yield: 1.31 cf/sack **Slurry Weight:** 14.2 ppg **Mix Water:** 5.62 gps
(Outside pipe cement volume based on 50% excess)

Stage #2 (Stage Collar set @ ~3,300')
Lead Slurry: 470 sacks (35:65) Poz (Fly Ash): Class C Cement + 6% bwoc Bentonite II + 0.5% bwoc FL-52 + 5% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 0.3% bwoc Sodium Metasilicate + 0.125 lbs/sack Cello Flake + 101.3% Fresh Water
Slurry Yield: 2.00 cf/sack **Slurry Weight:** 12.6 ppg **Mix Water:** 10.57 gps

Tail Slurry: 200 sacks Class C Cement
Slurry Yield: 1.33 cf/sack **Slurry Weight:** 14.8 ppg **Mix Water:** 6.33 gps
(Outside pipe cement volume based on 50% excess)
TOC @ Surface

Actual cement volume requirement for production casing will be adjusted based on caliper log data.

4. **Mud Program:**

INTERVAL 1- SURFACE HOLE
Bit Size: 20"
Casing: 16"
Depth, MD: 450'
Fluid System: Fresh Gel / Native / Fresh Water
Potential Problems: Hole Cleaning, Losses
Key Products: Lime / Federal Bentonite / Poly Plus / Soda Ash / LCM
Solids Control: Shakers / 518 Centrifuge

Interval Drilling Fluid Properties

Interval Depth	Mud Weight (ppg)	Plastic Viscosity (cp)	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	LGS %	pH	Pf
+-0'-450'	8.4-9.0	2 - 4	2 - 3	NC	<=5	9.0 - 9.5	Tr

INTERVAL 2- INTERMEDIATE HOLE
Bit Size: 13-1/2"
Casing: 10-3/4"
Depth, MD: 1,000'
Fluid System: Fresh Water
Potential Problems: Hole Cleaning, Seepage Losses
Key Products: Lime / Federal Bentonite / Poly Plus / Soda Ash / LCM
Solids Control: Shakers / 518 Centrifuge

Interval Drilling Fluid Properties

Interval Depth	Mud Weight (ppg)	Plastic Viscosity (cp)	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	LGS %	pH	Pf
450'-1,000'	8.4 - 8.8	1 - 3	1 - 2	NC	ALAP	9.5-10.0	Tr

INTERVAL 3- PRODUCTION HOLE
Bit Size: 9-7/8"
Casing: 7"
Depth, MD/TVD: 7,200' / 7,200'
Fluid System: Fresh Water / Gel / Pac / Barite
Potential Problems: Hole Cleaning, Solids Buildup, Hole Instability, and Mud Seepage
Key Products: Caustic / Soda Ash / Federal Bentonite / Poly Pac / LCM / Poly Plus
Solids Control: Shakers / 518 Centrifuge

Interval Section
Section Depth (MD): 1,000' – 7,200'

Mud Properties		**Products Required**
Mud Weight (ppg):	8.4 – 9.4	Fresh Water / Barite
Yield Point (cP):	10 – 16	Federal Bentonite
6 – RPM:	8 – 12	Federal Bentonite
Fluid Loss:	15 – 6	Poly Pac R
Chlorides:	<=8,000	Fresh Water
Hardness:	<=1,200	Soda Ash
pH:	9.5 – 10.0	Caustic
% LGS:	<=5	Water Dilution

Lost Circulation Control:
Monitor volumes to establish a seepage loss rate in bbl./hr. Monitor the trend and increase the frequency of sweeps and/or concentration of LCM if seepage should begin to trend higher. Will have sufficient sized LCM on rig to obtain up to 30-50 ppb concentration for sweeps. LCM additions will be based on hole size and ROP. Fiber Seal and Paper sweeps will be used when drilling the vertical section. When drilling the hole a LCM pill made with Tiger Bullets, Nut Plug Fine, and MIX II should be mixed in the slug pit and only pumped in 10 – 15 bbl sweeps if necessary to control seepage.

The necessary mud products for weight addition and fluid control will be on location at all times. Visual mud monitoring equipment will be in place to detect volume changes indication loss or gain of circulating fluid volume. If abnormal pressures are encountered, electronic/mechanical mud monitoring equipment will be installed.

5. Evaluation Program:

Drill Stem Testing: None planned for this well.

Open Hole Logging:

1) SP/GR/DIL and Microlog from the well's total depth to the base of intermediate casing.
2) GR/CNL/LDT tools from well's total depth up to the surface.
3) Obtain digital (LAS, DLIS) log copies of all logs run in the well.

Coring:

Plan to core approximately 250' of the Morrow sand gas storage interval. Core analysis results to be provided to BLM when they become available.

6. Downhole Conditions:

Potential Zones of Abnormal Pressure: None anticipated.

Potential Zones of Abnormal Temperature: None anticipated.

Potential Zones of Lost Circulation: Will have sufficient sized LCM on rig to obtain up to 30-50 ppb concentration available for sweeps, if necessary. LCM additions will be based on hole size and ROP. Fiber Seal and Paper sweeps will be used when drilling the vertical section. When drilling the hole a LCM pill made with Tiger Bullets, Nut Plug Fine, and MIX II should be mixed in the slug pit and only pumped in 10 – 15 bbl sweeps if necessary to control seepage.

Prepared to perform remedial work in the event cement does not circulate on surface casing of WI Federal #25 well. Cement volume calculations for surface casing are based on a 100% excess.

Anticipated Maximum Bottom Hole Temperature: 144°F (Morrow Gas Storage Reservoir)

Anticipated Maximum Bottom Hole Pressure: 3,025 PSIA (Morrow Gas Storage Reservoir)

Hydrogen Sulfide (H_2S): Available data does not indicate the presence of H_2S while drilling the previous 29 deep (Morrow) wells in the Washington Ranch Field. Based on the drilling history in the area, H_2S in concentrations are not expected. The mud program has been designed to minimize the volume of H_2S gas (if present) from reaching the surface. Proper mud weight and safe drilling practices will be utilized. If H_2S gas is detected, H_2S scavengers will be added to the mud system as required. Since the Storage facility stores processed natural gas, no H_2S is anticipated from the gas storage formation (Morrow).

Each drilling facility shall have an H_2S detection and monitoring system, which activates audible and visible alarms before the concentration of H_2S exceeds its threshold limit value of 10 parts per million in air. This equipment shall be capable of sensing a minimum of 5 parts per million. The sensing points shall be points located at the wellhead and shale shaker and other areas where H_2S might accumulate in hazardous quantities such as mud pits, driller's stand, and living quarters. After H_2S has been initially detected by any device, periodic inspections of all areas of poor ventilation subject to accumulation of H_2S shall be made with a portable H_2S detecting instrument.

See Document No. 12 for H2S Drilling Operations Plan.

7. Anticipated Start Date:

September 2014 after receipt of approved BLM permit and FERC Notice to Proceed, assuming rig is available.

Application for Permit to Drill or Reenter (BLM Form 3160-3)
Document #8 –
BOP Schematics & Supporting Documents

El Paso Natural Gas Company, L.L.C.
WI Federal #26
275' FSL & 2,199' FEL
Sec. 34-T25S-R24E
Eddy County, New Mexico

Pressure control equipment:

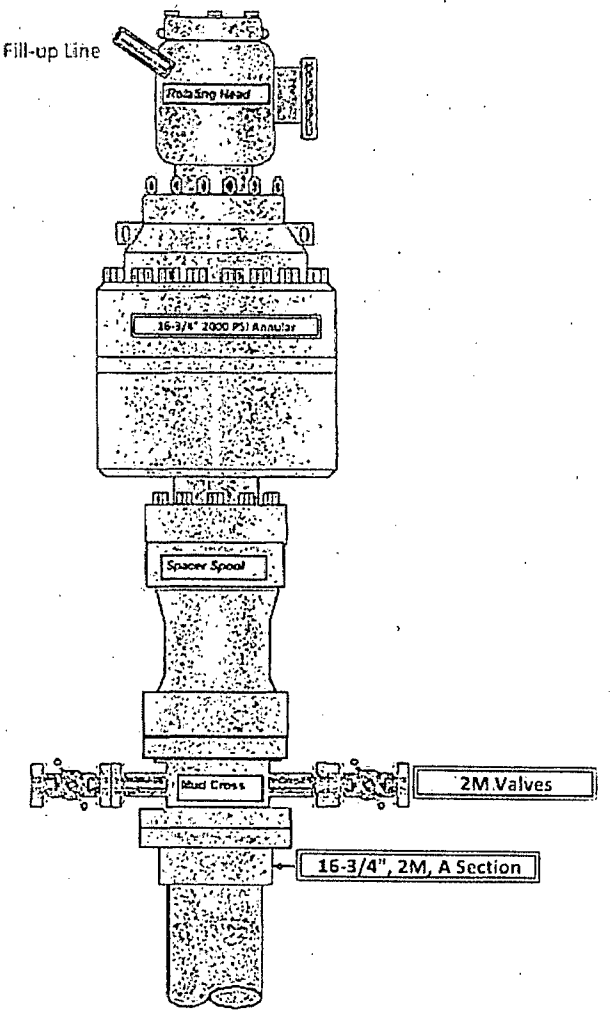
The BOP system used to drill the 13-1/2" hole will consist of a 16-3/4" 2M annular preventer. The BOP system will be tested by an independent contractor as per BLM Onshore Oil and Gas Order No. 2 as a 2M system prior to drilling out the casing shoe.

The BOP system used to drill the 9-7/8" hole will consist of an 11" 3M Double Ram (Blind & Pipe Rams) and annular preventer. The BOP system will be tested by an independent contractor as per BLM Onshore Oil and Gas Order No. 2 as a 3M system prior to drilling out the casing shoe.

The pipe rams will be operated and checked as per BLM Onshore Order No. 2. Sufficiently sized kill line and choke lines will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated to 3,000 psi WP.

If the pressure control equipment changes once EPNG determines which drilling contractor and rig will be utilized, updated schematics will be provided to the BLM with Form 3160-5 (Sundry Notices and Reports on Wells).

16-3/4" 2M Annular



*The same choke manifold will be used with all BOP's

SHELL MINIMUM BOP STACK REQUIREMENTS			
No.	Item	Min. I.D.	Min. Nominal
1	Flowline		7"
2	Fill up Line		2"
3	Drilling Nipple		
4	Annular Preventer		
5	Two single or one dual hydraulically operated rams		
6	Drilling spool with 2" and 3" min. outlets		
7	Valve Gate ☒	3-1/8"	
8	Gate Valve – Power Operated	3-1/8"	
9	Line to choke manifold		3"
10	Valves Gate ☒	2-1/16"	
11	Check Valve	2-1/16"	
13	Casing Spool		
14	Valve Gate ☒	1-13/16"	
15	Compound pressure gauge connector		
16	Kill line to rig mud pump manifold		2"

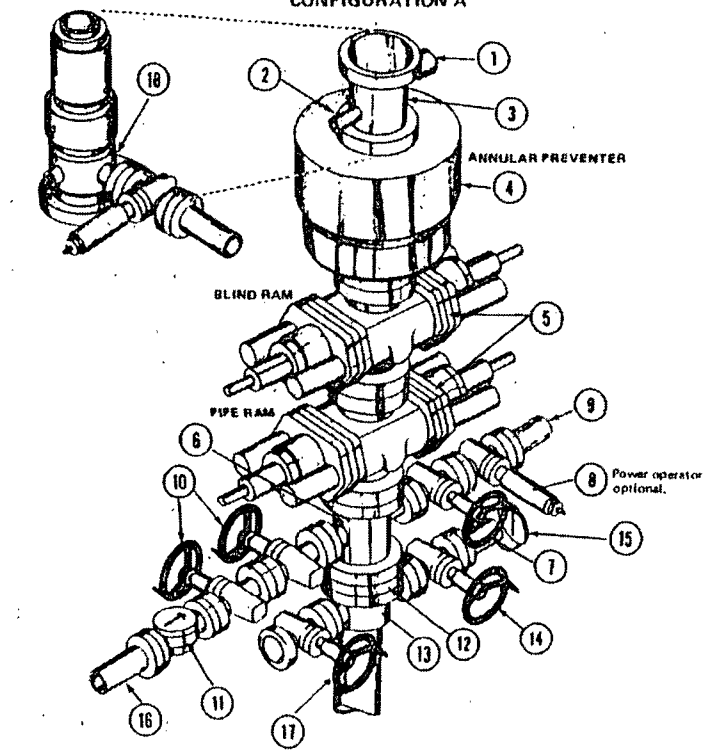
NOTE: Additional specifications for Sour Service and Air/Gas Service are given in Shell Well Control Manual, Appendix 6.17 and 6.18. A rotating head shall be provided on Air/Gas Service.

OPTIONAL			
12	Wear flange or bore protector		
17	Flanged control plug or valve	1-13/16"	
18	Rotating head		
19	Gate valve - Power operator	6"	

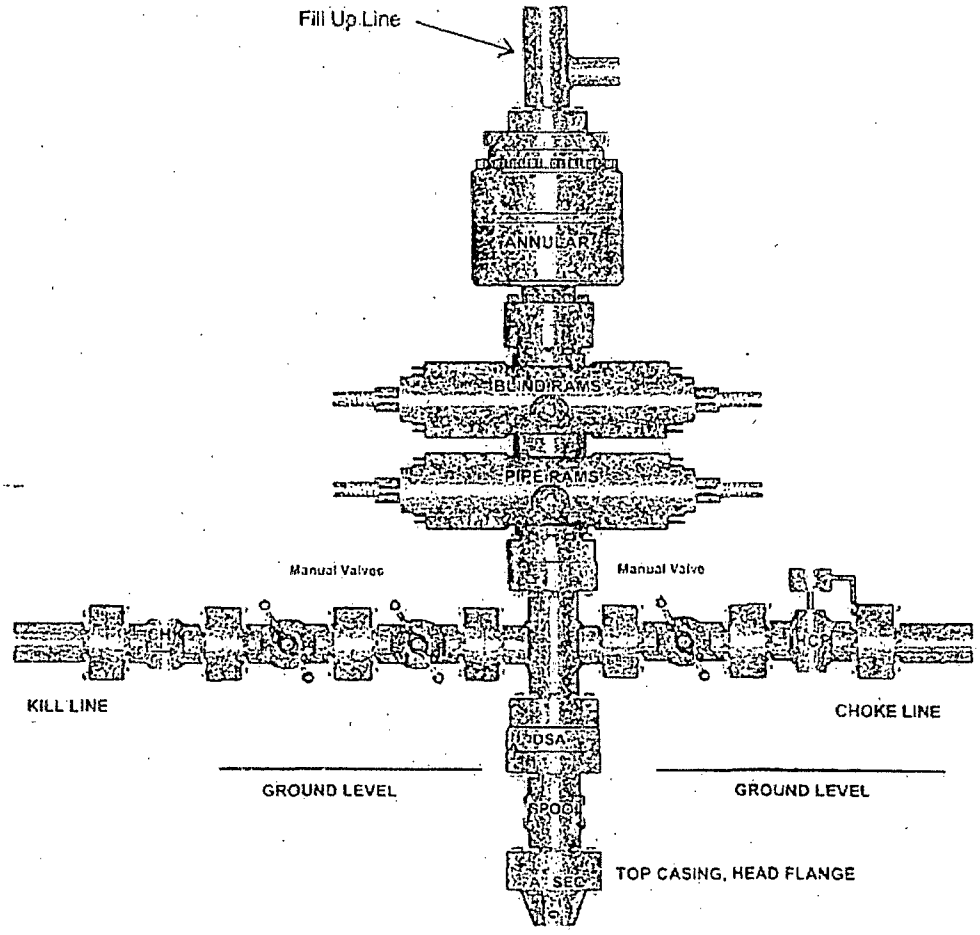
DRAWING AND CHECK LIST 103A
SHELL CLASS 3M
SURFACE INSTALLATIONS NORMAL OR SOUR AIR/GAS *

*FOR AIR/GAS DRILLING

CONFIGURATION A



11" X 3,000 psi BOP Stack



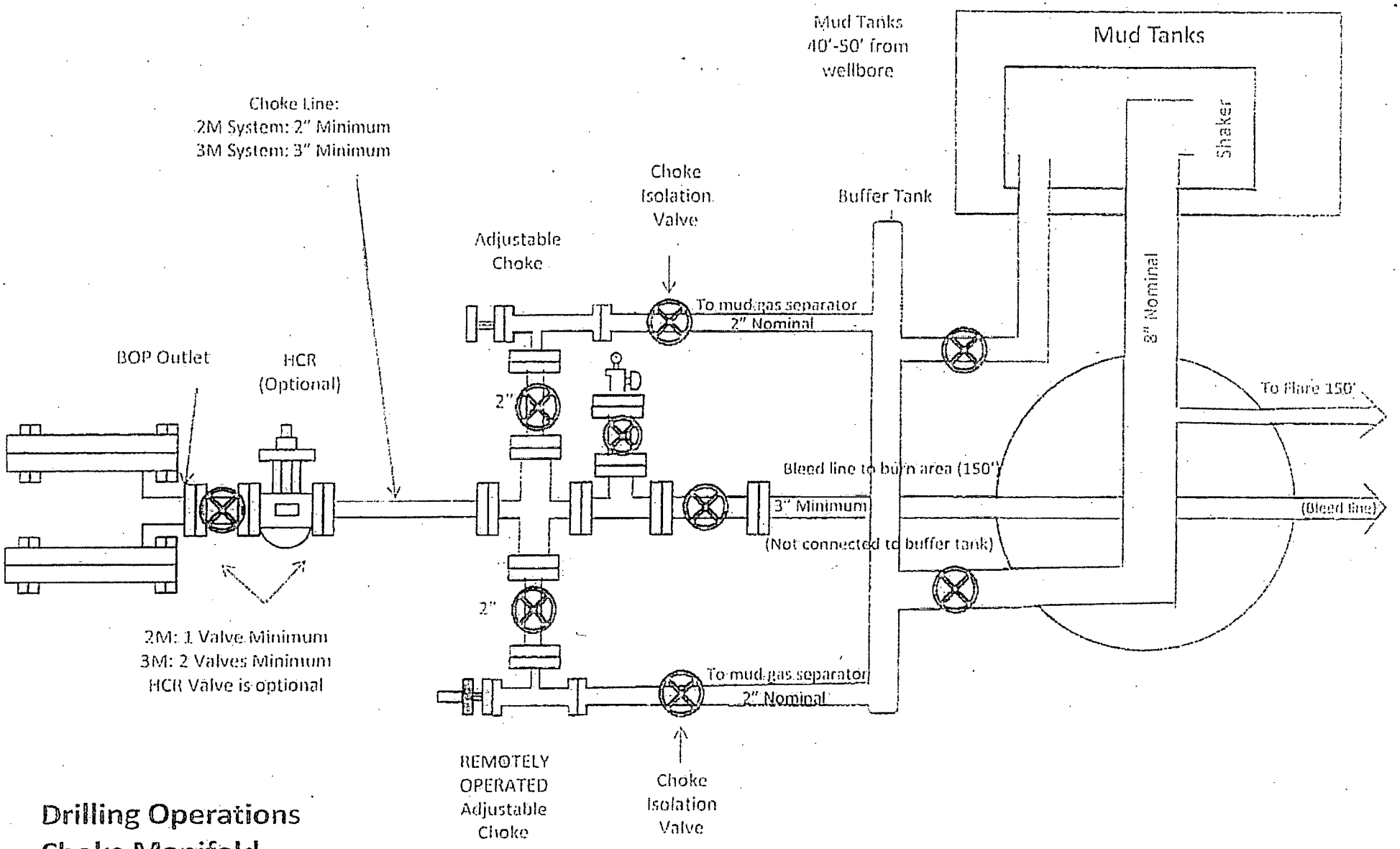
The same choke manifold will be used with all BOP's.

Application for Permit to Drill or Reenter (BLM Form 3160-3)
Document #9 –
Choke Manifold & Supporting Documents

El Paso Natural Gas Company, L.L.C.
WI Federal #26
275' FSL & 2,199' FEL
Sec. 34-T25S-R24E
Eddy County, New Mexico

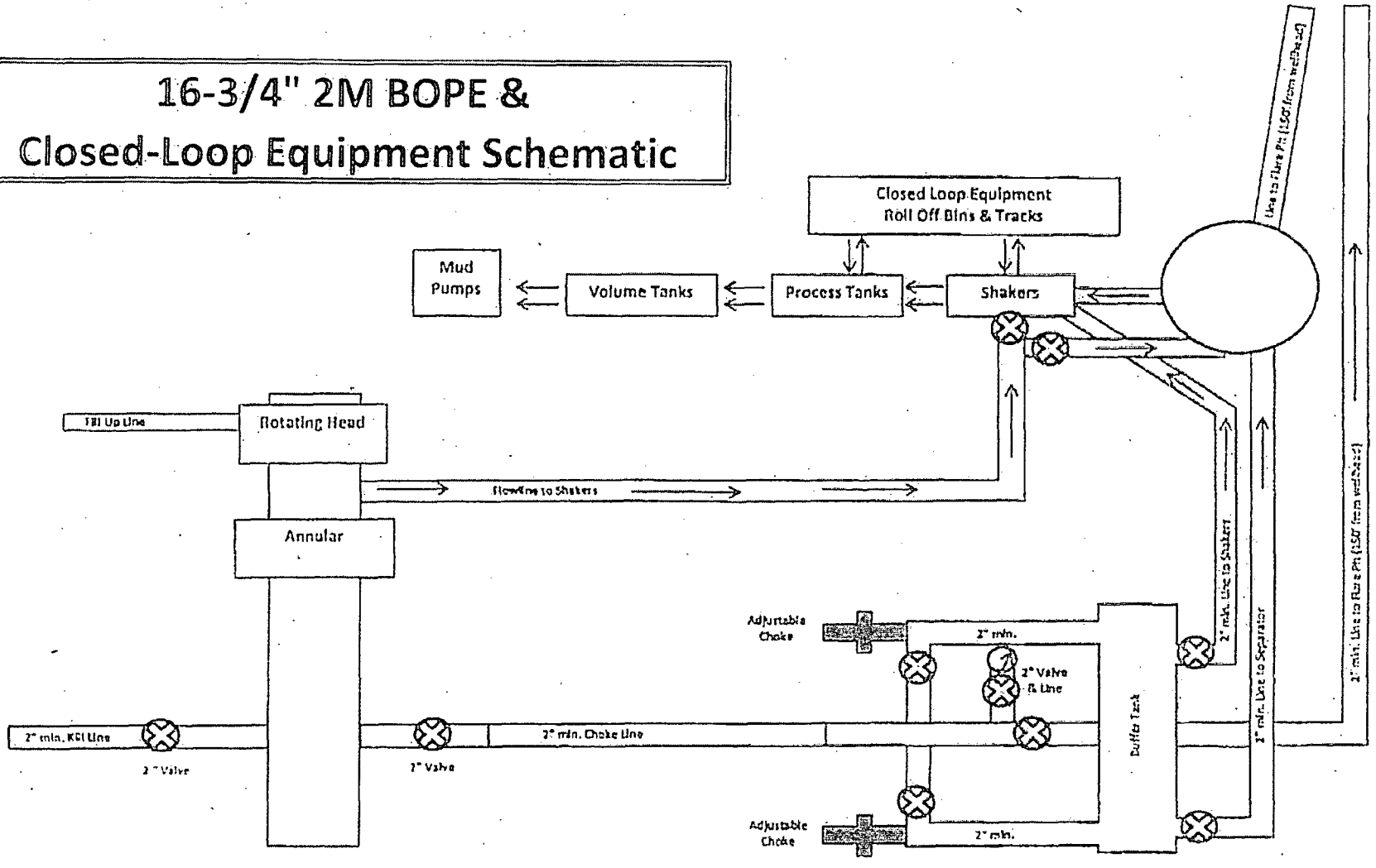
The choke manifold system utilized will comply with all requirements of Federal Onshore Order No. 2 well control requirements.

If the Choke manifold system changes once EPNG determines which drilling contractor and rig will be utilized, updated schematics will be provided to the BLM with Form 3160-5 (Sundry Notices and Reports on Wells).

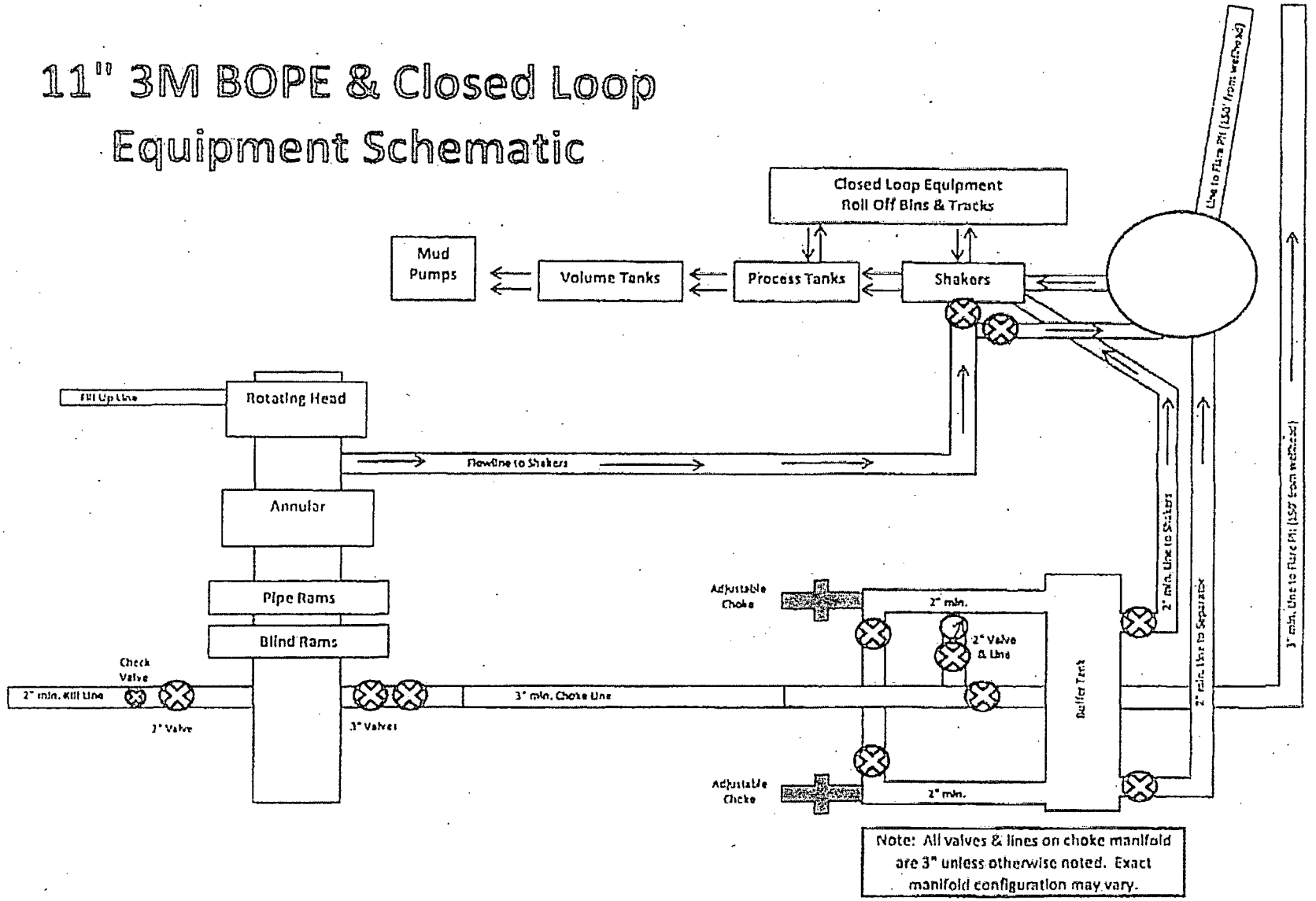


Drilling Operations
Choke Manifold
2M/3M Service

16-3/4" 2M BOPE & Closed-Loop Equipment Schematic



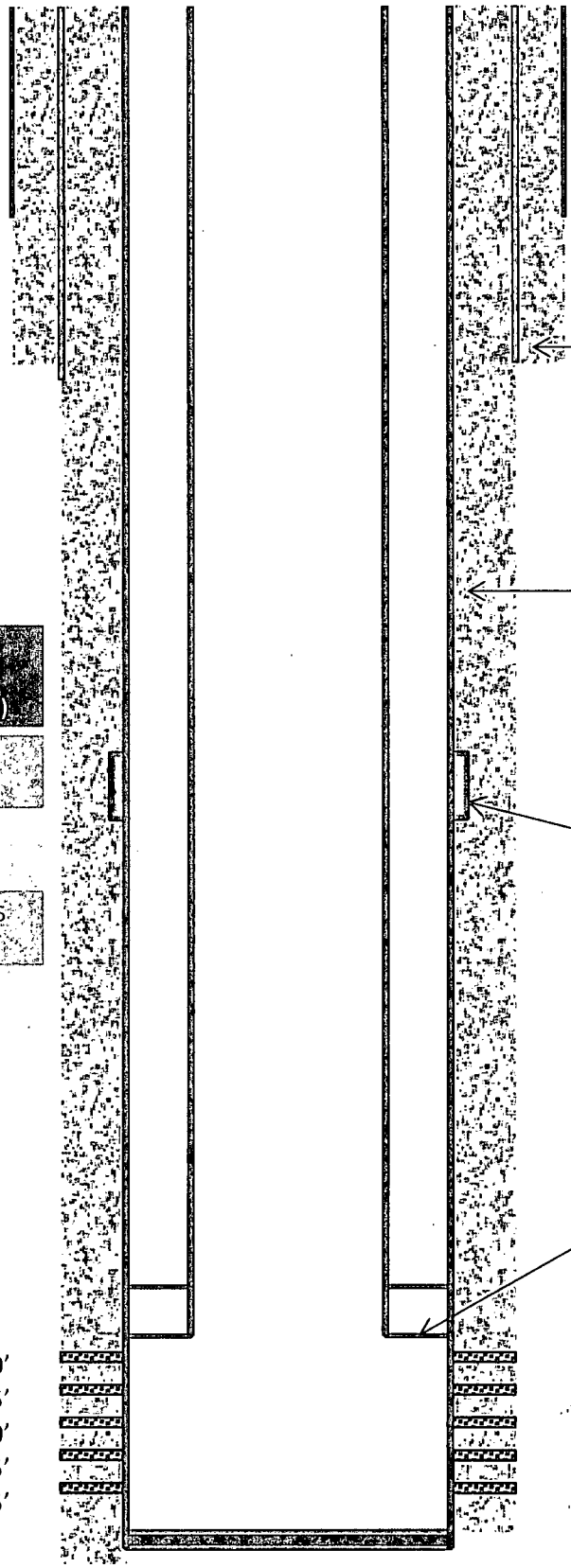
11" 3M BOPE & Closed Loop Equipment Schematic



Note: All valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.

ElPaso Natural Gas /Kinder Morgan

LEASE: Washington Ranch Proposed Well
FIELD: Washington Ranch
COUNTY: Eddy
STATE: New Mexico
LOCATION: 34 25S 24E



16" surface pipe set @ 450',cemented to surface.

Intermediate pipe - 10.75" 40.5# . Set @1000', cemented to surface

Casing string – 7" 26# Set @ 7200'. Cemented in place using two stages to surface

DV –stage tool to circulate cement to surface. Approx depth 3300'

4.5" 11.6 # LTC casing for tubing string, packer set above perforations at 6700' approx

TD of hole about 7200'

Pipe (inch)	OD (inch)	ID (inch)	Hole size (inch)
16	17	15.1	20
10.75	11.75	10.05	13.5
7	7.6	6.276	9.875
4.5	5.0	4.0	

Perforation depths approx

Morrow -1	6720' – 6730'
Morrow -2	6775' – 6785'
Morrow -3	6820' – 6830'
Morrow -4	6845' – 6855'
Morrow- 5	6885' – 6895'

Class 3M Requirements - Normal or Sour Air/Gas	
Minimum Auxiliary Equipment Requirements	
	Master control with Hydrill pressure regulating valve
	4 unit remote control
	Hydraulic BOP operating unit. See below for detail
	Upper Kelly Cock
	Kelly saver sub with protector rubber
	Inside BOP, surface type, for each size drill pipe
	Full opening ball valve for each size drill pipe in use
	Labelled crossovers for each different connection in drill string
Optional Auxiliary Equipment	
	Circulating head for each size drill pipe in use with steel pipe and Chicksan joints to reach stand pipe connection
	Lower Kelly cock
	Unit remote control
	Cup or plug type BOP tester with spare seals
Minimum Hydraulic Operating Unit Specifications	
	Accumulator volume - must deliver 1.5 times the volume to make position change on all hydraulically operated units and retain 1200 psi (200 psi above precharge) without pumps
	Pump capacity to obtain 200 psi above accumulator precharge pressure in two (2) minutes or less, while closing annular preventer and opening choke line valve.
	Power for pumps - 1 source required - Electric or air - 2 pumps required
	Lines from operating unit to BOP units: 5,000 psi Minimum Yield; 0.7" Minimum ID (pipe); Seamless Steel Lines, Seamless steel lines with Chicksan joints, or hose
	Operating unit fluids: Hydraulic oil or soluble oil
	All controls shall be clearly marked to show unit operated. Blind Ram control to have easily removed latch or guard
	Sufficient bottled nitrogen or other back-up storage system to equal accumulator capacity, manifolded to by-pass accumulatoir and close BOP directly
	Alarm or visual indicator to show when accumulator is shut off from preventers
Minimum Mud System Requirements	
	Pump stroke counters on each pump
Optional Mud System Equipment	
	Degasser
	Pit volume recorder with alarm
	Flow line monitor
	Trip tank (with 6th man)
	Flow line gas seperator
Miscellaneous Equipment Specifications and Installation Instructions	
	All connections shall be welded, studded, flanged, or Cameron clamp of comparable rating. Screwed connections cannot be used in diverter line. Bends in diverter line shall be long radius or by use of tees and bull plug
	All flanges shall be API 6B or 6BX and ring gaskets shall be API steel RX or BX. Do not re-use BX rings. Always use new rings below lower most preventer when flanges are parted
	Drilling spools shall be forged or forged and welded. Pipe spools not acceptable
	BOP stack shall be braced to subbase or suitable support by turnbuckle lines or rods. (No rigid connections)
	All gate valves shall be equiped with handwheels. Rams should have manually operated screw locking extensions (extended beyond subbase) ready for use
	For land rigs, the master control station and operating unit shall be located at ground level, a minimum of 50' from the well. If used, the remote station should be located near the driller's position. For marine rigs, the master control station and operating unit may be on the rig floor with the remote station located so that it is protected from the well area and accessible from a logical evacuation route. Hydraulic lines may be high pressure hose provided they meet requirements. Inopperable condition of remote unit is not to interfere with operation of the master control unit.
	Housing and heating should be provided for accumulator and blowout preventer where conditions warrant
	Contractor shall make no connection to casing head side outlets except by orders from Kinder Morgan
	One spare set of ram blocks for the drill pipe in use shall be kept on rig
	Any misallignment or rig should be corrected to avoid undue wear of casing
	Four way valves shall be kept open or closed, not in neutral position

Diverter Requirements - Normal	
Minimum Auxiliary Equipment Requirements	
	Master control with pressure regulating valve
	Hydraulic BOP operating unit. See below for detail
	Upper Kelly Cock
	Kelly saver sub with protector rubber
	Inside BOP, surface type, for each size drill pipe
	Full opening ball valve for each size drill pipe in use
Optional Auxiliary Equipment	
	Unit remote control
	Cup or plug type BOP tester with spare seals
Minimum Hydraulic Operating Unit Specifications	
	Accumulator volume - must deliver 1.5 times the volume to make position change on all hydraulically operated units and retain 1200 psi (200 psi above precharge) without pumps
	Pump capacity to obtain 200 psi above accumulator precharge pressure in two (2) minutes or less, while closing annular preventer and opening choke line valve.
	Power for pumps - 1 source required - Electric or air - 2 pumps required
	Lines from operating unit to BOP units: 4,000 psi Minimum Yield; 0.9" Minimum ID (pipe); Seamless Steel Lines. Seamless steel lines with Chicksan joints, or hose
	Operating unit fluids: Hydraulic oil or soluble oil
	All controls shall be clearly marked to show unit operated
	Sufficient bottled nitrogen or other back-up storage system to equal accumulator capacity, manifolded to by-pass accumulatoir and close BOP directly
	Alarm or visual indicator to show when accumulator is shut off from preventers
Minimum Mud System Requirements	
	Pump stroke counters on each pump
Optional Mud System Equipment	
	Degasser
	Pit volume recorder with alarm
	Flow line monitor
	Trip tank (with 6th man)
	Flow line gas seperator
Miscellaneous Equipment Specifications and Installation Instructions	
	All connections shall be welded, studded, flanged, or Cameron clamp of comparable rating. Screwed connections cannot be used in diverter line. Bends in diverter line shall be long radius or by use of tees and bull plug
	All flanges shall be API 6B or 6BX and ring gaskets shall be API steel RX or BX. Do not re-use BX rings. Always use new rings below lower most preventer when flanges are parted
	Drilling spools shall be forged or forged and welded. Pipe spools not acceptable
	BOP stack shall be braced to subbase or suitable support by turnbuckle lines or rods. (No rigid connections)
	All gate valves shall be equiped with handwheels
	Housing and heating should be provided for accumulator and blowout preventer where conditions warrant
	Any misallignment or rig should be corrected to avoid undue wear of casing
	Four way valves shall be kept open or closed, not in neutral position
	If hydraulic valves used, inter connect so that when annular preventer is closed at least one valve will open
	If two relief lines provided, operate the one downwind from the rig
	Relief lines shall discharge above ground or water, at a safe distance from the rig

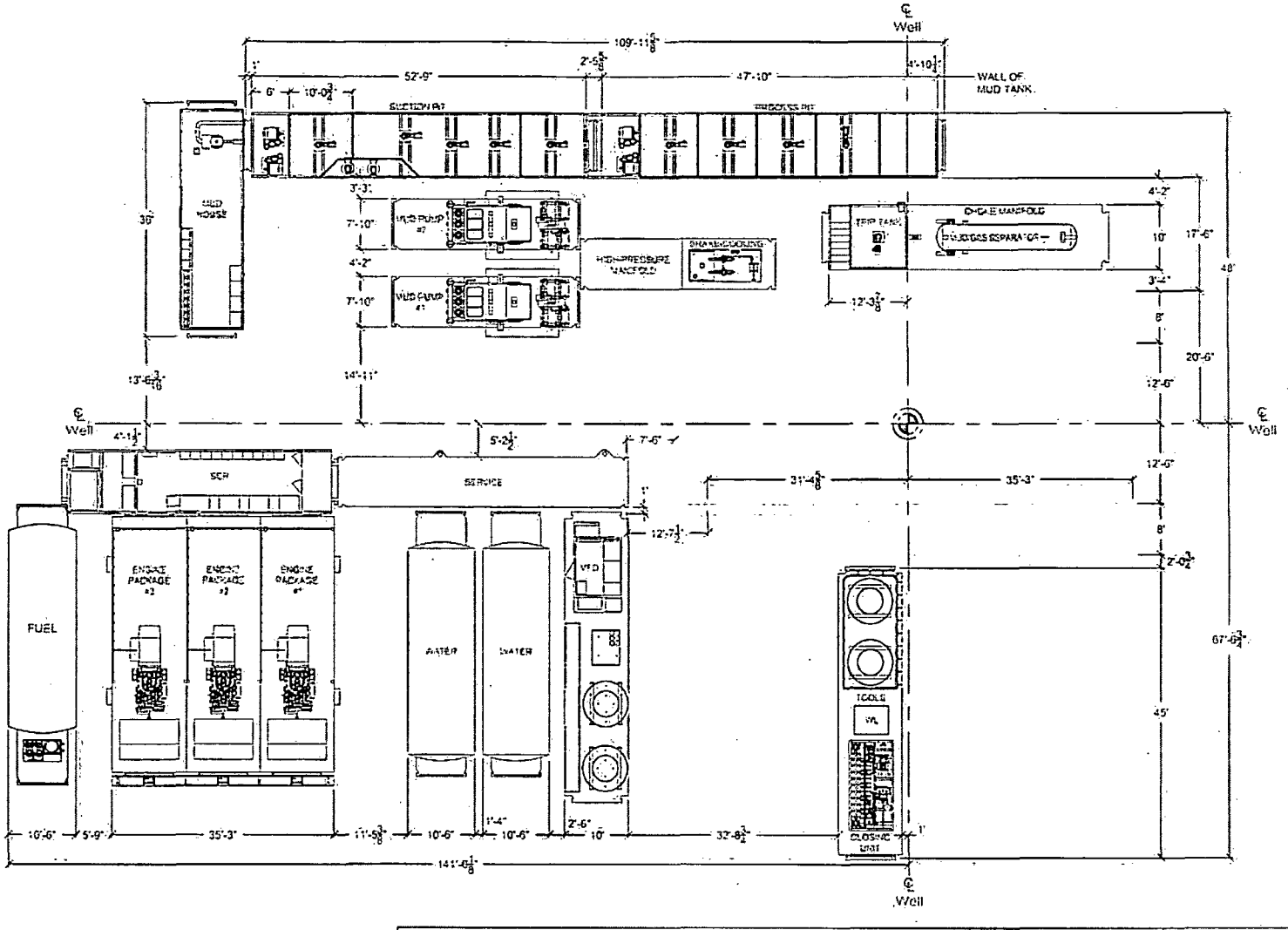
Closed Loop System Schematic –
See Document No. 11 "Rig Layout" for Closed Loop System Schematic.

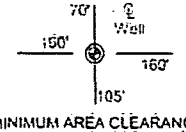
MUD SYSTEM	
Mud Pumps	(2) HongHua HHF-1600 triplex rated @ 1700 hp, each driven by (2) GE 752 DC traction motors rated @ 1000 hp
Charging Pumps	(2) 6x5x14 @ 60 hp / 1200 rpm
Process Pit	(640 bbl) five-compartment w/ (3) 10 hp mud agitators
Suction Pit	(620 bbl) four-compartment w/ (5) 10 hp mud agitators
Trip Tank	(128 bbl) one-compartment w/ (1) 10 hp mud agitator
Trip Tank Pump	4x3x13 @ 30 hp / 1200 rpm
Shale Shakers	(2) Derrick FLC-503 linear-motion
Degasser	NOV D-1000-C vacuum style
Desander	NOV 3-cone / 10"
Desander Pump	8x6x14 @ 100 hp / 1200 rpm
Desilter	NOV 20-cone / 4"
Desilter Pump	8x6x14 @ 100 hp / 1200 rpm
Mud Mixing Pumps	(2) 8x6x14 @ 100 hp / 1200 rpm

Closed Loop System Documents (i.e. OCD Closed Loop C-144 paperwork):

Closed loop systems and sumps do not require a division-issued permit or registration with the division's district office. [19.15.17.8 NMAC – Rp, 19.15.17.8 NMAC, 6/28/13]

See attached NMOCD Form C-144 (Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application) – Revised June 6, 2013.





MINIMUM AREA CLEARANCE

SCALE IN FEET (1/16"=1'-0")

SYM	DATE	REVISION	BY

TOLERANCE UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
DECIMAL DIMENSION
CONCENTRICITY
X.X ±.1 .1 F.I.R.
X.XX ±.05 .05 F.I.R.
X.XXX ±.010 .010 F.I.R.
ANGLES ± .5 DEGREES

ACAD FILE: CAC105-A-001-00-RO

CUSTOMER INFO:

FILE:

DWG BY	J.D.L.	4/7/09
CHK BY		
APP BY	J.P.S.	3/16/10

SCALE: 1/16" = 1'-0"

CACTUS Drilling Co., L.L.C.
Oklahoma City, OK, U.S.A.
Tel: 405-577-5347 Fax: 405-577-6305

TITLE: RIG 105
DRILL SITE

SIZE: B | CAC105-A001 | SHEET: 1/1

Application for Permit to Drill or Reenter (BLM Form 3160-3)
Document #12 – H_2S Plan

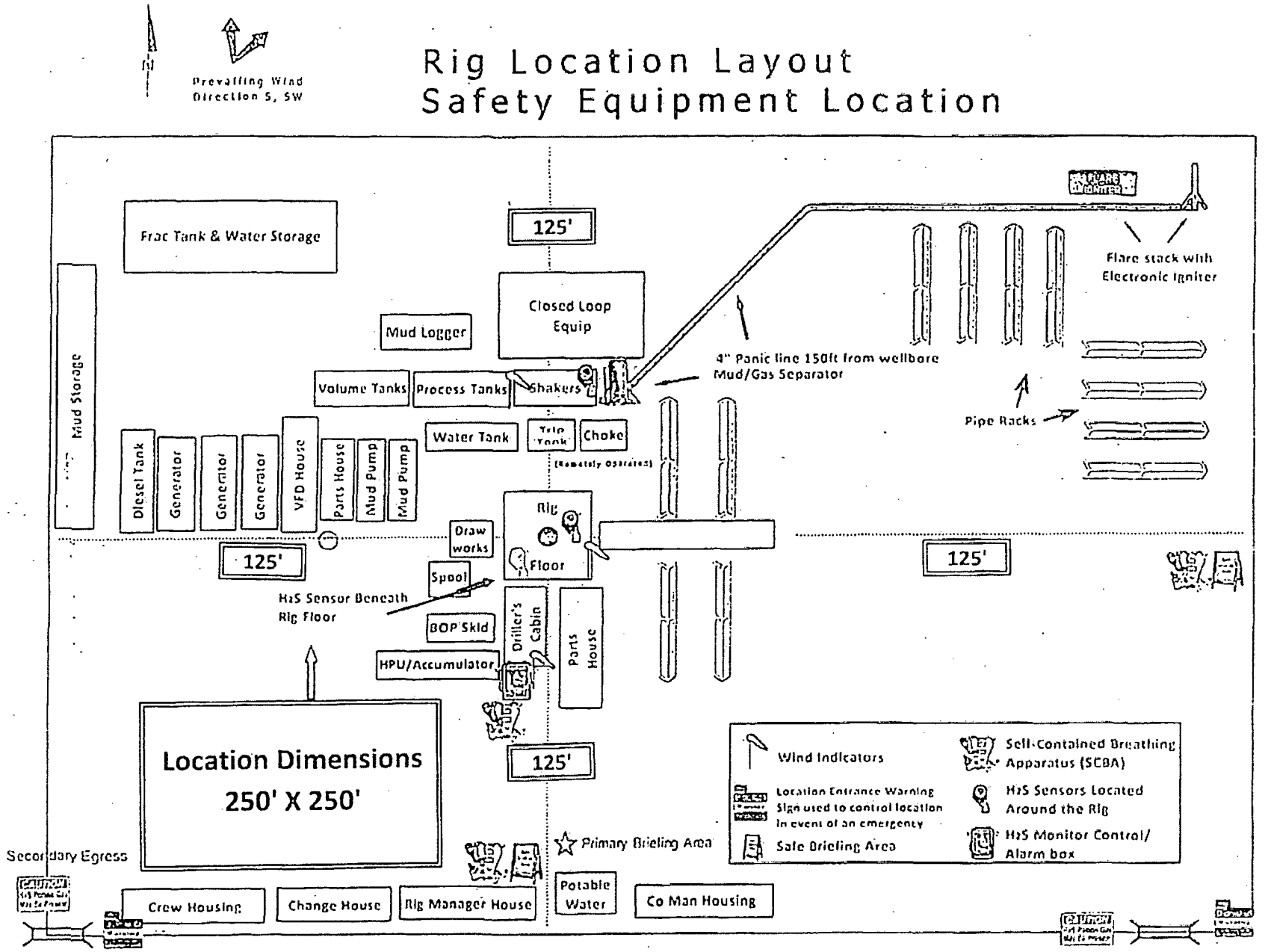
El Paso Natural Gas Company, L.L.C.
WI Federal #26
275' FSL & 2,199' FEL
Sec. 34-T25S-R24E
Eddy County, New Mexico

If the Rig Location and H2S Safety Equipment layout changes once EPNG determines which drilling contractor and rig will be utilized, updated documents will be provided to the BLM with Form 3160-5 (Sundry Notices and Reports on Wells).

As required by Onshore Order No. 6, the well site diagram of accurate scale will show the following:

1) Drill rig orientation
2) Prevailing wind direction
3) Terrain of surrounding area
4) Location of all briefing areas (designate primary briefing area)
5) Location of access road(s) (Including secondary egress)
6) Location of flare line(s) and pits
7) Location of caution and/or danger signs
8) Location of wind direction indicators

Rig Location Layout
Safety Equipment Location



El Paso Natural Gas Company, L.L.C.
a Kinder Morgan company

H_2S Drilling Operations Plan

For

WI Federal #25

Section 33-T25S-R24E
1,764' FNL & 590' FEL
Latitude: 32.08898
Longitude: -104.49676

Eddy County, NM

1. **Introduction.** H_2S is a toxic, poisonous gas that could cause death or injury. The objective of this contingency plan is to provide an organized plan of action for alerting and protecting the public from H_2S exposure in the event a potentially hazardous volume is accidently released to the atmosphere. This plan should be activated immediately if any such release occurs.

2. **Training Program.** See 3.2. Personnel Safety and Protection in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached) and 4. Training in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).

3. **Well Site Diagram**

   A. Well site diagram containing the information below will be provided once drilling company and/or H2S contractor are under contract:
      1. Drill rig orientation
      2. Prevailing wind direction – South
      3. Terrain of surrounding area – See Document No. 5. Supporting Map Section – plat entitled "Overview Plat".
      4. Location of all briefing areas (designate primary briefing area). The location of at least two pre-determined safe areas to assemble in the event of an emergency. These locations should be located 180 degrees to one another, and in the direction of the prevailing winds.
      5. Location of access road(s) – See Document No. 5 Supporting Map Section – plat entitled "Overview Plat".
      6. Location of flare line(s) and pit(s)
      7. Location of caution and/or danger signs. "No Smoking" signs should be strategically located around the rig and rig location by the doghouse, rig floor, substructure, lower landing of all stairs leading to the rig floor and at the shale shaker. "Poison Gas" signs should be strategically located at all entrances leading to the location, at the lower landing of all stairs leading to the rig floor and areas around the substructure including mud tanks and shale shaker. All warning signs should be black and yellow in color and be of readable size at a reasonable distance.
      8. Location of wind direction indicators. The wind direction indicators for this well will be located at: Briefing Area #1, Briefing Area #2 and the rig floor. One shall be near ground level and another shall be at treetop height and shall be visible from all principal working areas at all times.

4. **H2S Safety Equipment/Systems**

   A. Well Control Equipment:
      1. Flare line(s) and means of ignition: See 3.9. Flares in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).
      2. Remote controlled choke: See 3.3. Wellhead, Blowout Preventers, Flanges, and Pressure Control Equipment in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).
      3. Flare gun/flares: See 3.9. Flares in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).

B. Protective Equipment for Essential Personnel:
   1. Location, type, storage and maintenance of all working and escape breathing apparatus: See 3.2. Personnel Safety and Protection in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).
   2. Means of communicating when using protective breathing apparatus: Hand signals shall be utilized when audible communication is not feasible while wearing SCBA units.

C. H2S Detection and Monitoring Equipment:
   1. H_2S sensors and associated audible/visual alarm(s): H_2S detection system monitors will be located at the bell nipple, mud pits, shale shaker, rig floor and living quarters. The H_2S detection and monitoring system activates audible and visible alarms before the concentration of H_2S exceeds its threshold limit value of 10 parts per million in air. This equipment shall be capable of sensing a minimum of five parts per million in air. After H_2S has been initially detected by any device, periodic inspections of all areas of poor ventilation subject to accumulation of H_2S shall be made with a portable H_2S detecting instrument.
   2. Portable H_2S and SO_2 Monitors: Portable H2S detection instrument to be located on the rig floor.

5. Visual Warning Systems

A. Wind direction indicators:
   1. The wind direction indicators for this well will be located at: Briefing Area #1, Briefing Area #2 and the rig floor. One shall be near ground level and another shall be at treetop height and shall be visible from all principal working areas at all times.
   2. Caution/danger sign(s) and flag(s):"No Smoking" signs should be strategically located around the rig and rig location by the doghouse, rig floor, substructure, lower landing of all stairs leading to the rig floor and at the shale shaker. "Poison Gas" signs should be strategically located at all entrances leading to the location, at the lower landing of all stairs leading to the rig floor and areas around the substructure including mud tanks and shale shaker. All warning signs should be black and yellow in color and be of readable size at a reasonable distance.

6. Mud Program:

A. Mud system and additives: See 3.6. Mud Program in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).
B. Mud degassing system: Vacuum Style

7. Metallurgy:

A. Metallurgical properties of all tabular goods and well control equipment which could be exposed to H_2S: See 3.5. Casing in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached) and See 3.3. Wellhead, Blowout Preventers, Flanges, and Pressure Control Equipment in 3013 Drilling – Hydrogen Sulfide Drilling document (Attached).

8. **Means of Communication from Well Site:**

   A. Cellular Phones
   B. Land line telephone at Washington Ranch Station

9. **Individual Responsibilities.** It is the responsibility of all personnel on the location to familiarize themselves with the procedures outlined in this contingency plan.

   A. All Personnel:
      1. Responsible for his assigned safety equipment.
      2. Responsible for familiarizing himself with the location of all safety equipment.
      3. Responsible for reporting any indications of H_2S to those in the area and to a supervisor.

   B. Kinder Morgan Supervisor:
      1. Responsible for thoroughly understanding and seeing that all aspects of this contingency plan are enforced.
      2. Responsible for implementing all phased of this contingency plan.
      3. Responsible for keeping a minimum of personnel on the location during expected hazardous operations.
      4. Responsible for coordinating all well site operations and communications in the event that an emergency condition develops.
      5. Responsible for ensuring that all visitors receive an H_2S Safety Orientation. A visitor's log will be maintained as well as a list of all personnel on the location after drilling has progressed to the suspected H_2S formation.

10. **Operating Procedures.** The following operating procedures will be utilized for drilling in areas with H_2S.

   A. Plan of operating for handling gas kicks and other drilling problems. Any gas kick will be controlled by using approved well control techniques. Upon evidence that ambient H_2S concentrations have reached 10 PPM, all non-essential personnel will be evacuated to pre-determined safe areas. Personnel remaining on the rig floor will continue the well until the situation indicates the area is safe to reenter.

   B. Special Operations

      1. Drill Stem Tests. All drill stem tests must be closed chamber and conducted during daylight hours.

      2. Coring. After a core has been cut, circulate bottoms up and monitor for H_2S. If hole conditions (and/or detectors) indicate potentially hazardous conditions, put breathing equipment on 10 stands before core barrel reaches the surface. Breathing equipment will be worn by all personnel while core barrel is pulled, broken out and opened up, and until a safe atmosphere is indicated.

11. Emergency Procedures. The procedures below apply to drilling and testing operations.

A. If at any time during Condition I, the Mud Logger, Mud Engineer, or any other person detects H_2S, he will notify the Kinder Morgan Supervisor. All personnel should keep alert to the Kinder Morgan Supervisor's orders. In the event of H_2S detection he/she will:

1. Immediately begin to ascertain the cause or the source of the H_2S and take steps to reduce the H_2S to zero. This should include having the mud engineer run a sulfide and pH determination on the flow line mud if water-based mud is in use. If an oil-based mud is in use, the Mud Engineer should check the lime content of the mud.
2. Order non-essential personnel out of the potential danger area.
3. Order all personnel to check their safety equipment to see that it is working properly and in the proper location. Persons without breathing equipment will not be allowed to work in a hazard area.
4. Notify the contract Supervisor of the condition and action taken.
5. Increase gas monitoring activities with portable H_2S detectors and continue operations with caution.
6. Display the orange warning flag.

B. If the H_2S concentration exceeds 10 PPM, the following steps **will** be taken:

1. Put on breathing equipment.
2. Display the red warning flag.
3. Driller – prepare to shut the well in.
    a. Pick up pipe and get kelly out of BOP's.
    b. Close the BOP's if necessary.
4. If testing operations are in progress, the well will be shut in.
5. Help anyone who may be affected by gas.
6. Evacuate quickly to the "SAFE BRIEFING AREA" if instructed or conditions warrant.

C. In the event of potentially hazardous volume of H_2S is released into the atmosphere, the following steps must be taken to alert the public:

1. Remove all rig personnel from the danger area and assemble at a pre-determined safe area, preferably upwind from the well site.
2. Alert the drilling office, public safety personnel, regulatory agencies, and the general public of the existence and location of an H_2S release. See "Emergency Contacts" list (Attached).
3. Assign personnel to block any public road (and access road to location) at the boundary of the area of exposure. Any authorized people within the area should be informed that an emergency exists and be ordered to leave immediately.
4. Request assistance from public safety personnel to control traffic and/or evacuate people from the threatened area.

Table of Contents

1. Applicability

☒ Drilling
☒ Workovers
☒ Completions

2. Scope

This document outlines the precautions and operations that must be adhered to while operating within a zone likely to contain hydrogen sulfide. The requirements of this section shall apply to those drilling or well servicing operations where reservoirs known or expected to contain hydrogen sulfide in hazardous quantities may be encountered or have been encountered.

The term "hazardous quantities" is necessarily relative and depends upon such factors as: the type of production encountered or anticipated oil or gas, the reservoir pressure • normal or geopressured, the producing formation, well site geography and population density. Drilling wells shall be evaluated on an individual basis prior to spudding and all, or a selection, of the following measures be implemented as determined applicable and prudent for the circumstances.

The requirements of this section normally should apply to all wells in which materials are or could be subject to hydrogen sulfide concentration of 5 ppm.

3. Core Information and Requirements

3.1. General

Each drilling facility shall have an H_2S detection and monitoring system, which activates audible and visible alarms before the concentration of H_2S exceeds its threshold limit value of 10 parts per million in air. This equipment shall be capable of sensing a minimum of five parts per million in air, with sensing points located at the bell nipple and shale shaker and other areas where H_2S might accumulate in hazardous quantities such as mud pits, driller's stand and living quarters. H_2S detectors shall be available for use by all working personnel. After H_2S has been initially detected by any device, periodic inspections of all areas of poor ventilation subject to accumulation of H_2S shall be made with a portable H_2S detector instrument.

3.2. Personnel Safety and Protection

- The Kinder Morgan supervisor on location shall be responsible for the overall on-site operation including the safety and training program.
- All personnel, whether regularly assigned, contracted or employed on an unscheduled basis, shall be trained regarding the severity of hydrogen sulfide (H_2S), the use of ventilation equipment and breathing apparatus, and the execution of evacuation procedures. Visitors shall also be instructed regarding these matters.
- To promote efficient an on-site safety program, which includes a weekly drill and training session, shall be established for all crews. Records of attendance shall be maintained on the drilling facility.
- Each drilling facility should have the following equipment, and each crew member should be thoroughly familiar with the location and use of these items:
  - A first-aid kit sized for the rig complement.
  - Self contained breathing apparatus for each member of the crew trained for hazardous entry duty. A minimum of four self contained breathing apparatus must be on site. Reserve air tanks should be provided.
  - A resuscitator with auxiliary equipment capable of accommodating two persons simultaneously and at least two resuscitators should be provided.
  - A Stokes litter or equivalent.
  - Retrieval ropes with safety harnesses to retrieve incapacitated personnel from contaminated areas.

3.3. Wellhead, Blowout Preventers, Flanges, and Pressure Control Equipment

- All surface wellhead and pressure control equipment, such as, but not limited to, wellheads, blowout preventers, annulus valves, kill and choke lines, choke manifolds, safety valves, flange bolting, etc., which may come in contact with H_2S in excess of 5 ppm be designed and installed for H_2S service.
- Blowout preventer elastomers, which come in contact with sour gas at temperatures in excess of 200° F for time periods in excess of six hours, should be checked when feasible to determine if they have lost their elasticity.

3.4. Drill Pipe and Tools

- Drill strings should be designed and operated with rated minimum yield strengths not to exceed 95,000 psi

3.5. Casing

- Casing, couplings and related equipment shall be designed for H_2S service which
- generally only requires special material where tubulars could be exposed in the well to
- temperatures less than 200° F during their life.
- Field welding on casing (except conductor and surface strings) is prohibited.
- Proper handling techniques shall be emphasized to minimize tong and slip notching.

3.6. Mud Program

Either oil base or water-base muds are suitable for use in drilling formations containing hydrogen sulfide provided they can be treated on location for the most severe H_2S contamination anticipated.

- A pH of between 9.0 and 10.0 should be maintained in a water-base mud system to control

corrosion and minimize sulfide stress cracking.

- Consideration should be given to the use of hydrogen sulfide scavengers in mud systems. Oil-base mud systems will contain excess lime to react with and neutralize hydrogen sulfide.

- Sufficient quantities of additives should be maintained on location to treat mud contamination by hydrogen sulfide.

- The application of corrosion inhibitors to the drill pipe to afford a protective coating or their addition to the mud system may be used as an additional safeguard.

- Drilling mud containing hydrogen sulfide gas should be degassed at the optimum location for the particular rig configuration employed. The gases so removed shall be piped into a closed flare system and burned at a remote site.

3.7. Directional Surveys

- Conventional single-shot data should be taken, throughout the course of the well.

- Prior to running surface pipe, a conventional multishot run should be made. Additional multishot runs should be made at each of the subsequent casing setting depths if hole conditions permit. If unable to obtain conventional multishot data, a wireline gyroscopic survey should be made prior to drilling out of casing.

3.8. Wireline Equipment

- Plow steel wireline shall be used only when:
  - there is no surface pressure, or
  - the fluid in the well bore is an oil base mud.
- Wireline made of MP35N material is recommended for use when the surface pressure exceeds zero psig. MP35N can be run in the well bore without inhibitors.

3.9. Flares

- Hydrocarbons containing hydrogen sulfide shall be flared or burned in accordance
- with provisions of the regulatory agency (e.g., EPA, state) that has jurisdiction in the area where the operation occurs.

- Flares or burn pits shall be located to take advantage of prevailing winds to reduce the exposure of the rig to any flammable vent gases, hot flare exhaust gas plumes and other hydrocarbons that might escape to the atmosphere. Also, flares or burn pits shall be located at least 150 feet from the rig, test facilities and stored combustibles at land locations.

- The flare system shall be equipped with a continuous pilot and a remote igniter.

- A backup ignition system for each flare shall be provided.

4. Training

All personnel on location during operations or production that may involve hydrogen sulfide shall be current on H_2S safety training.

EMERGENCY CONTACTS

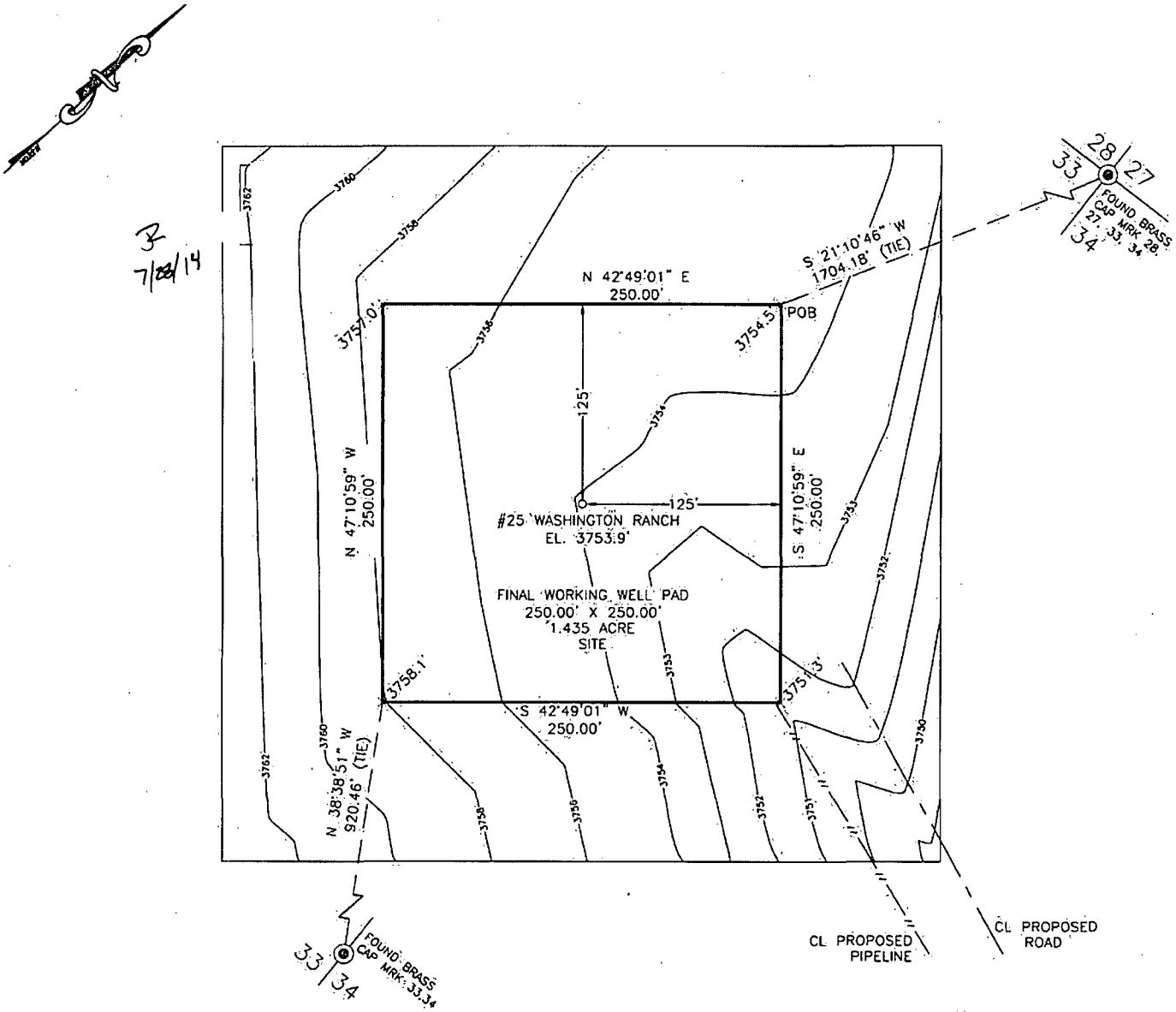
Name of Well: WI Federal #25
Latitude of Well: 32.08898
Longitude of Well: -104.49676

Agency / Contractor Call List			
Name	**City**	**State**	**Phone Number**
All Emergencies			911 or 9-911
Air Life	Lubbock	TX	911 or (800) 627-2376
Hospital	Carlsbad	NM	911 or (575) 887-4100
Hospital	Pecos	TX	911 or (432) 336-4851
Ambulance Service	Carlsbad	NM	911 or (575) 887-7551
County Sheriff	Carlsbad	NM	911 or (575) 887-7551
State Highway Patrol	Carlsbad	NM	911 or (432)283-2039
Police	Carlsbad	NM	911 or (575) 887-7551
Fire Department	Carlsbad	NM	911 or (575) 885-3125
Bureau of Land Management	Carlsbad	NM	(575) 234-5982 or (575) 200-7908 (Cell)
Halliburton (Boots & Coots)			(281) 931-8884
Cudd Pressure Control		TX	(806) 692-1331 or (806) 358-8511
Cudd Well Control			(713) 849-2769
Wild Well Control			(281) 784-4700

El Paso Natural Gas Company, L.L.C. Company Call List				
Name	**Title**	**Cell Phone**	**Office Phone**	**Home Phone**
To be determined.	Drilling Consultant	To be determined.	To be determined	To be determined
Kevin W. Lively	Supervisor, Technical Services	970-380-6011	719-520-4287	
Jaclyn J. Raskay	Reservoir Engineer II	303-709-4407	719-520-4407	
Shawn Len	Senior Geologist	630-947-9280	630-725-3824	
Jim Connors	ROW Agent	806-676-0637	806-379-2041 (Ext. 235)	
Timothy W. Griffin	Manager, Gas Storage Engineering	719-322-8503	719-520-4242	
Anthony P. Trinko	Sr. Reservoir Engineer		719-520-4557	719-473-6470
John A. Ballard	Local Resident	575-361-2488	N/A	575-785-2306

SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO



3
7/22/14

SEE SHEET 7 OF 13 FOR A LEGAL DESCRIPTION OF THIS SITE

LEGEND

- ○ – DENOTES CALCULATED CORNER
- ◉ – DENOTES FOUND MONUMENT AS NOTED
- PROPOSED PIPELINE
- PROPOSED ROAD

100 0 100 200

GRAPHIC SCALE IN FEET

SURVEY DATE: JANUARY 17–22, 2014

NOTES:

1) COMPANION PLAT T:JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

MACON McDONALD NEW MEXICO PLS NO. 12185

WEST COMPANY of Midland, LLC
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY

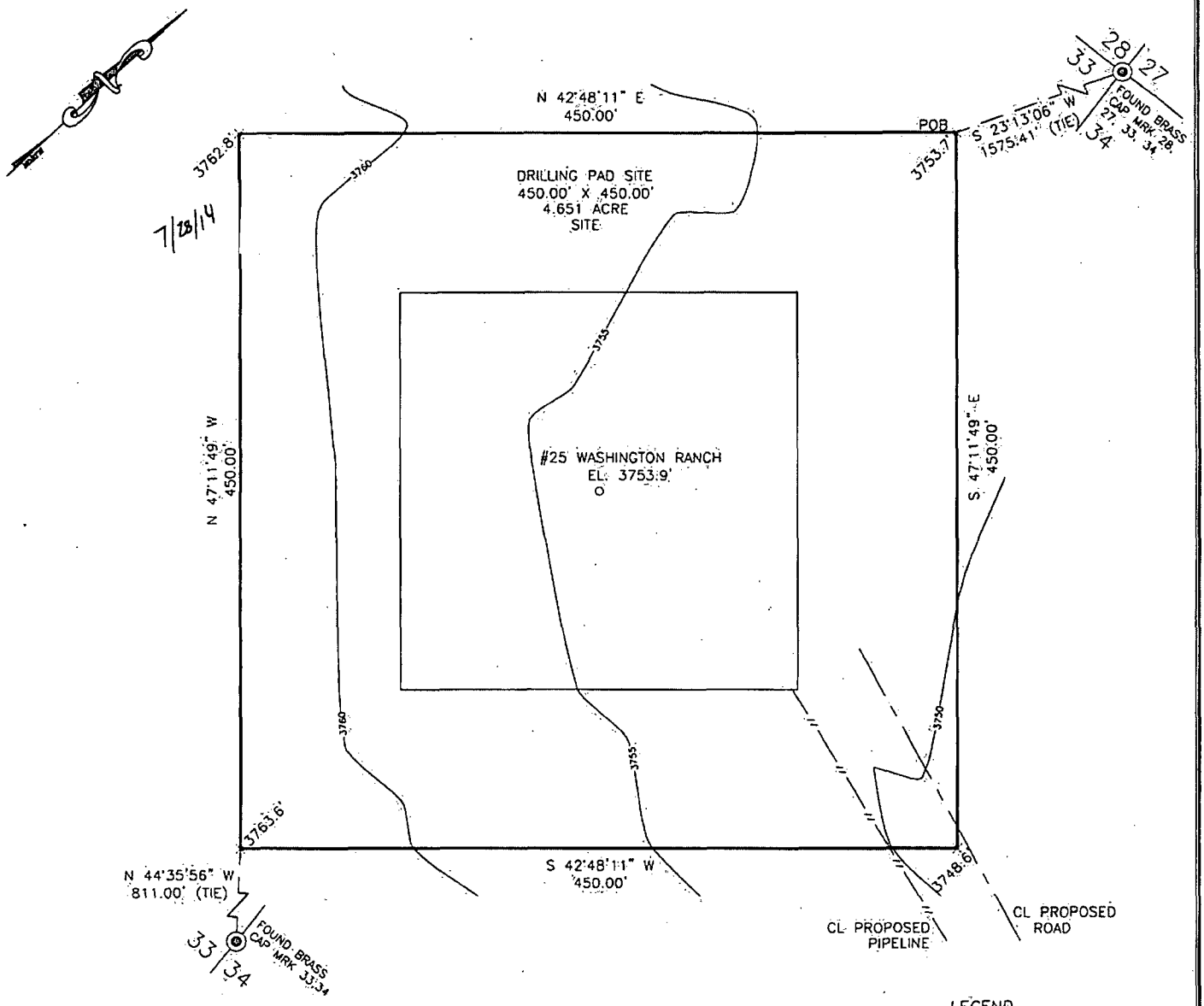
FINAL WORKING WELL PAD PLAT

250.00' X 250.00' SITE
BEING 1.435 ACRES OUT OF
UNIT H, SECTION 33, T25S, R24E,
N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 11, 2014
Scale: 1"=100'	Revised:
Sheet 6 OF 13 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg. No.: I:\MACER MORGAN\2014-0049-0052\2014-0049-0052.DWG

SECTION 33, TOWNSHIP 25 SOUTH, RANGE 24 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO



SEE SHEET 5 OF 13 FOR A LEGAL DESCRIPTION OF THIS SITE

SURVEY DATE: JANUARY 17–22, 2014

NOTES:

1) COMPANION PLAT T:\JENNIFER\COUNTIES\EDDY COUNTY NEW MEXICO\T25S R24E NAD83.DWG IS FILED IN THE OFFICE OF THIS SURVEYOR AND FURTHER DESCRIBES THE RECONSTRUCTION OF THIS SURVEY.

2) BEARINGS SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE "NEW MEXICO COORDINATE SYSTEM", NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM OF 1983. DISTANCES ARE GRID VALUES. TO OBTAIN SURFACE VALUES MULTIPLY DISTANCES BY A FACTOR OF 0.999736101.

LEGEND

○ – DENOTES CALCULATED CORNER

◎ – DENOTES FOUND MONUMENT AS NOTED

———— PROPOSED PIPELINE

—·—·— PROPOSED ROAD

100 0 100 200

GRAPHIC SCALE IN FEET

MACON McDONALD NEW MEXICO PLS NO. 12185

WEST COMPANY of Midland, LLC

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 – (432) 687-0868 FAX

EL PASO NATURAL GAS COMPANY

DRILLING PAD SITE PLAT

450.00' X 450.00' SITE
BEING 4.651 ACRES OUT OF
UNIT H, SECTION 33, T25S, R24E,
N.M.P.M.
EDDY COUNTY, NEW MEXICO

Drawn By: D.E.H.	DATE: FEBRUARY 11, 2014
Scale: 1"=100'	Revised:
Sheet 4 OF 13 sheets	Field Note Book: 573/64
W.O. No: 2014-0050	Dwg. No: T:\KINDER MORGAN\2014-0049-0062\2014-0049-0062.DWG

Application for Permit to Drill or Reenter (BLM Form 3160-3)
Document #14 – Surface Use Plan of Operations

El Paso Natural Gas Company, L.L.C.
WI Federal #25
1,764' FNL & 590' FEL
Sec. 33-T25S-R24E
Eddy County, New Mexico

1. Existing Roads:

Directions to WI Federal #25 well
From White City proceed approximately 5.35 miles south to the intersection of Hwy 62 and County Road 418 (Washington Ranch Road).
Proceed west for 1.5 miles and take left fork in the road.
Go .75 mile and take left fork in road.
Go 2.23 miles to Frijole Rd (No Road Sign).
Go west .4 miles to cell tower/lease road.
Continue on lease road for 0.15 mile (700').

See aerial photograph entitled "Washington Ranch Access Route" which displays access to the well from the nearest highway (Supporting Maps, etc. – Document #4).

See plat entitled "Overview Plat" for the proposed well site, existing roads, in addition to an access route to the proposed well in relation to a locatable public access point (Supporting Maps, etc. – Document #4).

Existing roads will be maintained and kept in the same or better condition than before operations began.

2. New or Reconstructed Access:
See plat entitled "CL Proposed Road" for permanent access road to be constructed in connection with the drilling of the proposed well (Supporting Maps, etc. – Document #4). Plat depicts the distances of every segment of the road.

Length of Proposed Road: ~761'

Road Width: The maximum width of the driving surface will be 14'. The maximum width of surface disturbance needed to construct the road will be 25'.

Maximum grade: ~3.7%

Crown design: N/A

Turnouts: N/A

Drainage and ditch design: N/A

Re-vegetation of disturbed areas: Disturbed areas will be reseeded in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency.

Location and size of culverts and/or bridges: N/A

Fence cuts and/or cattle guards: N/A

Major cuts and fills: N/A

Type of surfacing materials, if any, that will be used: N/A

3. **Location of Existing Wells:**

a) There are 4 water wells within a one-mile radius.
b) There are 9 plugged and abandoned wells within a one-mile radius.
c) There are no saltwater disposal wells within a one-mile radius.
d) There is 1 proposed drill well within a one-mile radius (EPNG WI Federal #26).
e) There are no producing/recently drilled wells within a one-mile radius.
f) There are no shut-in wells within a one-mile radius.
g) There are no injection wells within a one-mile radius.
h) There are 15 gas storage wells within a one-mile radius.

See attached aerial photo with 1-mile radius circle centered on WI Federal #25 well (Supporting Maps, etc. – Document #4).

4. **Location of Existing and/or Proposed Production Facilities:**

See attached plats entitled WI Federal #25 "Pipeline Overview" and "Pipeline Detail" in addition to "Alignment Sheet" for the location of proposed pipeline to be installed and tied into an existing pipeline (Supporting Maps, etc. – Document #4).

Proposed Pipeline Specifications:

Size: 6" (0.344" Wall Thickness) Grade: X52
Length: 1,000'
Working PSI: 3,280 PSIG (MAOP)

Type: Carbon Steel
Surface or Buried: Buried
Transported Fluid: Natural Gas
Distance from existing road: 75' at tie-in location

Existing Pipeline Specifications (Tie-In):
Size: 10" (0.500" Wall Thickness) Grade X52
Working PSI: 3,280 PSIG (MAOP)
Type: Carbon Steel
Surface or Buried: Buried
Transported Fluid: Natural Gas

Proposed Surface Facilities
See attached plats entitled WI Federal #25 "Piping Plan Plot Plan" and the 3D image of the above ground surface facilities – Document #4).

EPNG will install short laterals and bi-directional wellhead flow measurement to connect the well to existing facility pipelines. Approximately 1,000' of 6" lateral pipe will connect WI Federal #25 well to existing 10" line WR-1001. A 6" bi-directional orifice meter, free standing electronic gas measurement equipment and communications will be installed at the well site.

From the wellhead, 6" piping will be routed below grade to the orifice meter. The orifice meter run will include two 6" isolation valves, a bi-directional 6" orifice meter, and associated instrumentation. The meter run above ground length will be approximately 100 feet.

A 6" lateral line will connect the well measurement to existing storage lines. Each end of the lateral will include a tee for pigging provision. At the connection to existing storage line, a weld in tee assembly will be cut into the storage line below grade. The tie-in valve and pigging provision (tee/blind flange) will be installed above ground adjacent to the existing storage line.

5. Location and Types of Water Supply:

a) Fresh water will be obtained from a local landowner's water well if permitted as a commercial source and/or from a local commercial water supply.

b) No water well will be drilled on this location.

6. **Construction Materials:**

If required, any materials needed in addition to what can be used from location and access road will be hauled in from a supplier having a permitted source of materials.

No construction materials will be taken from Federal lands without a prior approval from the appropriate Surface Management Agency.

7. **Methods of Handling Waste Material:**

a) Hazardous substances as listed as hazardous under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. 9601 et seq. and the regulations issued under CERCLA, will be disposed of in an appropriate manner.

b) Spills of any potentially hazardous material will be cleaned up and immediately removed to an approved disposal site.

c) Sewage will be disposed of according to county and state requirements in a portable chemical toilet(s). Waste will not be burned on location.

d) Garbage and trash will be contained in portable trash cages. The contents of the trash cages will be disposed of according to county and state regulations at an approved facility. Disposal of it or burning it will not be allowed on the well location.

e) After the drilling rig has moved out of the area, any scattered trash and litter will be removed from the site and be disposed at an approved facility.

f) Drill cuttings and drilling fluids will be disposed at an approved facility.

g) A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.

8. **Ancillary Facilities:**

a) The staging area for this well is outlined in yellow on the "HDR" aerial photo (Supporting Maps, etc. – Document #4). Staging areas will be used to store wellhead equipment, extra mud supplies, equipment not currently needed on well pad, casing, bulk cement trucks, etc.

b) No camps or airstrips will be constructed as a result of this well.

9. **Well Site Layout:**

a. The plat entitled "Topographic Map Site" displays the proposed 250'X250' permanent disturbed are (final drill pad), the 350'X350' temporarily disturbed area in addition to the 450'X450' drill pad layout and dimensions. The area between the 250'X250' and 350'X350' areas makes up the "Interim Reclamation Area". The space between the 350'X350' and 450'X450' areas is the "Buffer Area" in which minimal disturbance is expected.

b. The plat entitled "Final Working Well Pad Plat" displays the proposed final working pad layout and dimensions (Supporting Maps, etc. – Document #4).

c. The plat entitled "Arch Site Plat" displays the 2,000' X 2,000' arch site in relation to the well's 250'X250' final working well pad (permanent disturbed area). A Class I Existing Data Inventory covering this area was completed on January 29, 2014 while a Class III Intensive Field Inventory covering this area was completed on February 13 and 14, 2014.

d. A closed-loop system will be utilized; no reserve pit, blooie line or flare pits will be utilized during drilling activities.

e. The access road entry point and location with respect to topographic features appear on the plat entitled "CL Proposed Road" (Supporting Maps, etc. – Document #4).

f. Topographic cross section related diagrams of the drill pad appear on the plats entitled "Topographic Map Site" and "Topographic Map" (Supporting Maps, etc. – Document #4).

g. A diagram containing the drilling rig and components will be provided along with BLM Form 3160-5 (Sundry Notices and Reports on Wells) once El Paso Natural Gas Company, L.L.C. receives FERC approval and determines which drilling contractor and rig will be utilized to drill the well.

h. No dikes and ditches will be constructed related to drilling activities for this well.

i. During site preparation, if present, the top 6" of topsoil will be stockpiled in a low profile manner in order to prevent wind/water erosion. The topsoil storage area appears south of the 250'X250' permanent disturbed area on the plat entitled "Topographic Map Site" (Supporting Maps, etc. – Document #4.)

j. On-site and off-site erosion control: A storm water control berm will be constructed around the well's drill pad.

k. If required, the final well pad will be surfaced with caliche obtained from a supplier having a permitted source of materials.

l. The well pad will be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

m. The BLM shall administer compliance and monitor construction of the access road and well pad.

10. Plans for Surface Reclamation:

a. **Configuration of the reshaped topography:** All disturbed areas not needed for active support of gas storage operations will undergo interim reclamation. The portions of the cleared well site not needed for operational and safety purposes will be re-contoured to a final or intermediate contour that blends with the surrounding topography as much as possible. See plat entitled "Topographic Map Site" plat (Supporting Maps, etc. – Document #4) for the interim reclamation area lying between the 350' X 350' drilling pad site and the 250' X 250' final working pad site.

b. **Interim Reclamation:** All disturbed areas not needed for active support of gas storage operations will undergo interim reclamation. The portions of the well site not needed for operational and safety purposes will have the surfacing material removed and will be re-contoured to a final or intermediate contour that blends with the surrounding topography. The stockpiled topsoil will then be spread evenly over the re-contoured area. The topsoil will then be ripped to provide texture to improve the success of re-vegetation. The reclaimed area will be reseeded with a weed-free mixture suitable for the site. Noxious weeds will be controlled on disturbed areas within the exterior limits of the well pad. The control methods will be in accordance with guidelines established by EPA, BLM, state, and local authorities.

c. **Final Reclamation:** After gas storage operations have ceased, the entire well pad and road will be reclaimed. Surfacing material will be removed and the location will be re-contoured to match the surrounding terrain as close as possible. Topsoil will be spread over the re-contoured area. The topsoil will then be ripped to provide texture to improve the success of re-vegetation. The reclaimed area will be reseeded with a weed-free mixture suitable for the site. Noxious weeds will be controlled on disturbed areas within the exterior limits of the well pad. The control methods will be in accordance with guidelines established by EPA, BLM, state, and local authorities.

Drainage systems: N/A

Segregation of spoil materials (stockpiles): Topsoil will be segregated and stored in the designated topsoil area separately from subsurface materials to avoid mixing.

Surface disturbances: Surface disturbances are minimized by utilizing a preexisting well pad from a plugged and abandoned well.

Backfill requirements: N/A

Proposals for pit/sump closures: N/A

Redistribution of topsoil: If required, the unused portion of the site will be ripped prior to replacing the topsoil. The soil-banked material will be spread over the area.

Soil treatments: N/A

Seeding or other steps to reestablish vegetation: Interim and final disturbed areas will be reseeded in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency.

11. Surface Ownership:

Well Location
Surface Owner: United States Department of the Interior, Bureau of Land Management
Surface Owner Address: 620 E. Greene Street, Carlsbad, NM 88220
Surface Owner Phone Number: Wesley Ingram 575-234-5982
Legal Description: SE/4 NE/4, Section 33, T25S, R24E, NMPM, Eddy County, NM

Road
Surface Owner: United States Department of the Interior, Bureau of Land Management
Surface Owner Address: 620 E. Greene Street, Carlsbad, NM 88220
Surface Owner Phone Number: Wesley Ingram 575-234-5982
Legal Description: SE/4 NE/4, Section 33, T25S, R24E, NMPM, Eddy County, NM

Road
Surface Owner: John A. Ballard
Surface Owner Address: 80 Ballard Ranch Road, Carlsbad, NM 88220
Surface Owner Phone Number: 575-785-2306 (Home) / 575-361-2488 (Cell)
Legal Description: SW/4 NW/4, Section 34, T25S, R24E, NMPM, Eddy County, NM

Pipeline
Surface Owner: United States Department of the Interior, Bureau of Land Management
Surface Owner Address: 620 E. Greene Street, Carlsbad, NM 88220

Surface Owner Phone Number: Wesley Ingram 575-234-5982
Legal Description: SE/4 NE/4, Section 33, T25S, R24E, NMPM, Eddy County, NM

Pipeline
Surface Owner: John A. Ballard
Surface Owner Address: 80 Ballard Ranch Road, Carlsbad, NM 88220
Surface Owner Phone Number: 575-785-2306 (Home) / 575-361-2488 (Cell)
Legal Description: SW/4 NW/4, Section 34, T25S, R24E, NMPM, Eddy County, NM

12. Other Information:

On January 29, 2014, HDR, Inc. conducted a Class I Existing Data Inventory and a Class III Intensive Field Inventory was completed on February 13 and 14, 2014.

13. Bond Coverage:

Existing bond number indicated on BLM 3160-3 (See Item 20.)

Application for Permit to Drill or Reenter (BLM Form 3160-3)
Document #15 – Operator Certification

El Paso Natural Gas Company, L.L.C.
WI Federal #25
1,764' FNL & 590' FEL
Sec. 33-T25S-R24E
Eddy County, New Mexico

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EL PASO NATURAL GAS
LEASE NO.:	NM22207
WELL NAME & NO.:	25-WASHINGTON RANCH
SURFACE HOLE FOOTAGE:	1764' FNL & 590' FEL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 33 T. 25 S., R. 24 E., NMPM
COUNTY:	EDDY COUNTY, NEW MEXICO

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator 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 shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

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 the roads, pads, associated 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.

V. SPECIAL REQUIREMENT(S)

Staging Areas

All activity occuring at the staging area shown in diagrams in the APD must stay on existing surface disturbance. No new surface disturbance or activity occuring off existing disturbance areas is authorized without prior approval of the BLM.

Watershed Protection

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

Constructing over a Reserve Pit

El Paso Natural Gas shall not excavate any portion of the existing reserve pit area. No topsoil shall be stripped from the reserve pit area. Reclamation over the reserve pit area during interim reclamation or final reclamation must be satisfactory to the authorized officer. El Paso Natural Gas must comply with NMOCD rules when drilling over a reserve pit.

Cave/Karst Resources

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD:

- In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
- No Blasting to prevent geologic structure instabilities.
- Pad Berming to minimize effects of any spilled contaminates.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required.

- Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.

- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See Drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrain, the following Conditions of Approval will apply to this APD:

- Tank battery liners and berms to minimize the impact resulting from leaks.
- Leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of line failures used in production or drilling.

Residual and Cumulative Mitigation

- Annual pressure monitoring will be performed by the operator. If the test results indicate a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Abandonment Cementing: Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Visual Resource Management

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Shale Green from the BLM Standard Environmental Color Chart (CC-001: June 2008).

All above ground structures including but not limited to pumpjacks, storage tanks, production equipment, etc. would be shorter than 8 feet to minimize visual impacts to the natural features of the landscape.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

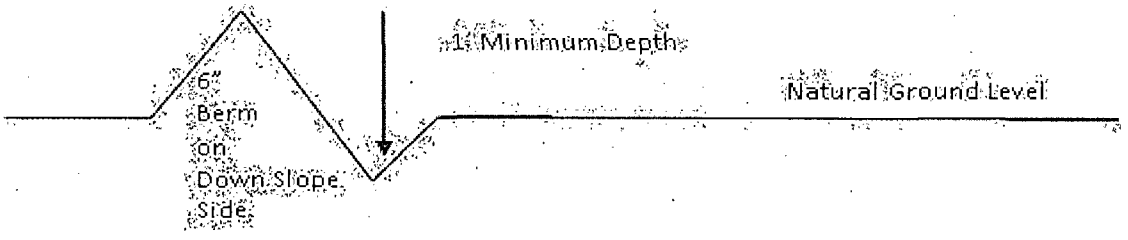
Ditching
Ditching shall be required on both sides of the road.

Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattleguards
An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement
Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

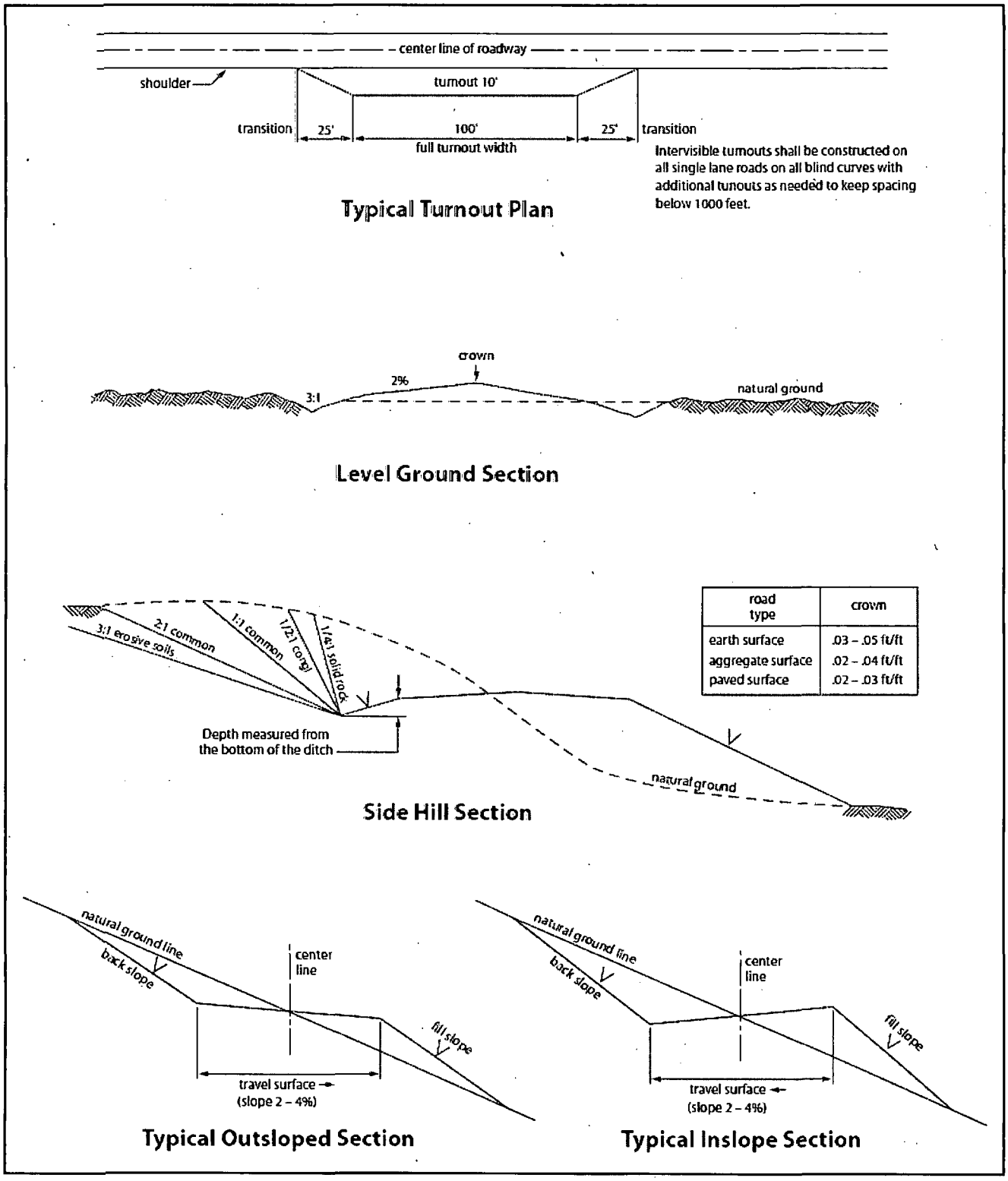


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Hydrogen Sulfide has been reported as a hazard, but no measurements have been recorded. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, report measurements and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

High Cave/Karst
Possibility of lost circulation in the Delaware

A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH.

ON A THREE STRING DESIGN; IF THE PRIMARY CEMENT JOB ON THE SURFACE CASING DOES NOT CIRCULATE, THEN THE NEXT TWO CASING STRINGS MUST BE CEMENTED TO SURFACE.

1. The **16** inch surface casing shall be set at approximately **450'** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **10 3/4** inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst..**

3. The minimum required fill of cement behind the **7** inch production casing is:

Operator has proposed DV tool at depth of 3300', Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 (2M) psi.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **10-3/4** inch intermediate casing shoe shall be **3000 (3M)** psi.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

    d. The results of the test shall be reported to the appropriate BLM office.

    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

EGF 091514

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VRM Facility Requirement
All above ground structures include but not limited to pumpjacks, storage tanks, production equipement, etc. would be shorter than 8 feet to minimize visual impacts to the natural features of the landscape.

B. PIPELINES

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.

( ) seed mixture 1	(X) seed mixture 3
( ) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) 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. Special Stipulations:

None.

C. ELECTRIC LINES (Not applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and

loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

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

Species	lb/acre
Plains Bristlegrass (*Setaria magrostachya*)	1.0
Green Spangletop (*Leptochloa dubia*)	2.0
Side oats Grama (*Bouteloua curtipendula)*	5.0

*Pounds of pure live seed:

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