High Cave Karst

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 15 2015
RECEIVED

ATS-14-1054

Form 3160-3
(March 2012)

SECRETARY'S POTASH

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.
SHL:NM-111959 BHL:LC-062376

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

8. Lease Name and Well No.
FREEWAY 30 FEDERAL COM 3H

2. Name of Operator CHI OPERATING, INC.

9. API Well No.
30-015-43225

3a. Address P. O. BOX 1799
MIDLAND, TEXAS 79702

3b. Phone No. *(include area code)*
(432) 685-5001 JOHN QUALLS

10. Field and Pool, or Exploratory
UNDESIGNATED BONE SPRING

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1800 FNL & 330 FWL
At proposed prod. zone 1650 FNL & 330 FEL

11. Sec., T. R. M. or Blk. and Survey or Area
SECTION 30, T. 19 S., R. 30 E.

14. Distance in miles and direction from nearest town or post office*
13 MILES NORTHEAST OF CARLSBAD, NM

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)
SHL: 330'
BHL: 330'

16. No. of acres in lease
SHL: 316.97
BHL: 1920

17. Spacing Unit dedicated to this well
~~159.62~~ 159.22

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
SHL: 1500' (#2)
BHL: 1320' (#2)

19. Proposed Depth
TVD: 8285'
MD: 12,622'

20. BLM/BIA Bond No. on file
NM-1616

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3350' GL

22. Approximate date work will start*
ASAP

23. Estimated duration
30 DAYS

24. Attachments

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

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

25. Signature
Name *(Printed/Typed)* BARRY W. HUNT
Date 8/18/14

Title
PERMIT AGENT FOR CHI OPERATING, INC.

Approved by *(Signature)* Steve Caffey
Name *(Printed/Typed)*
Date JUN 8 2015

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)

7/16/2015

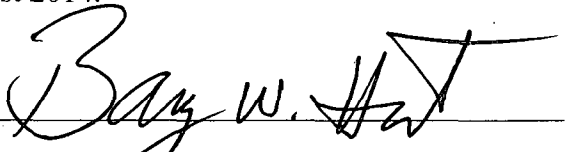
Capitan Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access road proposed herein; that I am familiar with the conditions that presently 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 CHI Operating, Inc. 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 18th day of August 2014.

Signed: 

Printed Name: Barry Hunt
Position: Agent for CHI Operating, Inc.
Address: 1403 Springs Farm Place, Carlsbad, NM 88220
Telephone: (575) 361-4078
E-mail: specialtpermitting@gmail.com

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 15 2015
RECEIVED

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1219 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

OIL CONSERVATION DIVISION

1219 South St. Francis Dr.
Santa Fe, New Mexico 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-43225	49622	~~Undesignated~~ Parkway Bone Spring

Property Code	Property Name	Well Number
315035	FREEWAY 30 FEDERAL COM	3H

OGRID No.	Operator Name	Elevation
4378	CHI ENERGY, INCORPORATED	3350

Surface Location

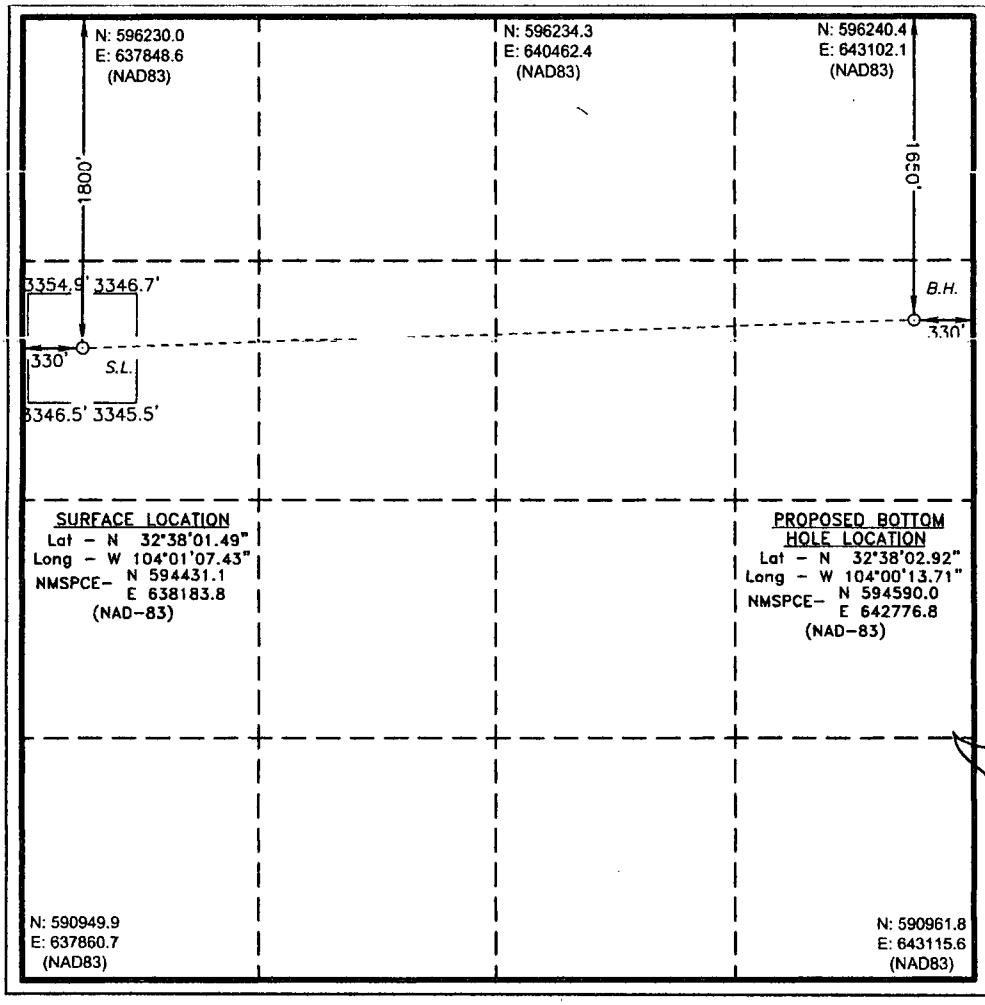
UL or lot No.	Section	Township	Range	Lot Idn	USAt from the	North/South line	USAt from the	East/West line	County
E	30	19 S	30 E		1800	NORTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	USAt from the	North/South line	USAt from the	East/West line	County
H	30	19 S	30 E		1650	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
159.22	Y		

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



OPERATOR CERTIFICATION

I hereby certify that 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.

Barry W. Hunt 8/18/14
Signature Date

Barry W. Hunt
Printed Name

Email Address

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.

JULY 2, 2014
Date Surveyed

Signature & Seal of Professional Surveyor

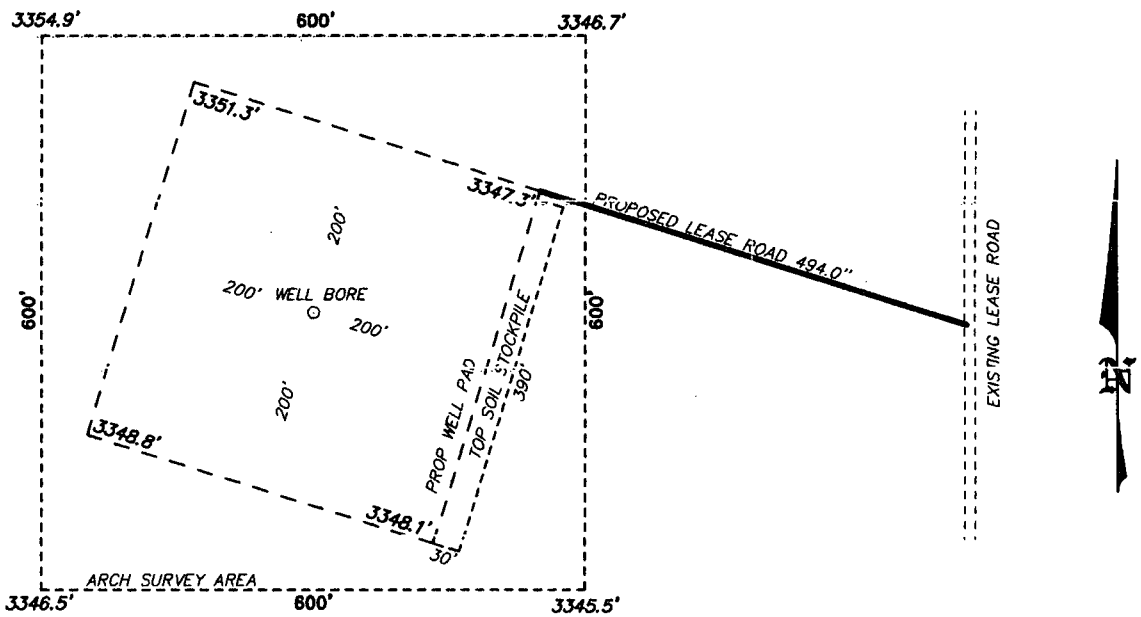
NEW MEXICO 7977

Certificate No. Gary L. Jones 7977

GARY L. JONES
NEW MEXICO
7977
BASIN SURVEYS

0' 500' 1000' 1500' 2000'
SCALE: 1" = 1000'
WO Num.: 30642

SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**



CHI ENERGY, INCORPORATED
FREEWAY 30 FEDERAL COM 3H
ELEV. - 3350'
Lat - N 32°38'01.49"
Long - W 104°01'07.43"
NMSPCE- N 594431.1
E 638183.8
(NAD-83)

CARLSBAD, NM IS ±18 MILES TO THE SOUTHEAST OF LOCATION.

200 0 200 400 FEET
SCALE: 1" = 200'

Directions to Location:

FROM SR 360 & CR 235 GO WEST ON CR 235 (CURRY COMB) 4.0 MILES TO LEASE ROAD, GO NORTH ON LEASE ROAD TO PROPOSED LEASE ROAD ON LEFT.

CHI ENERGY, INCORPORATED

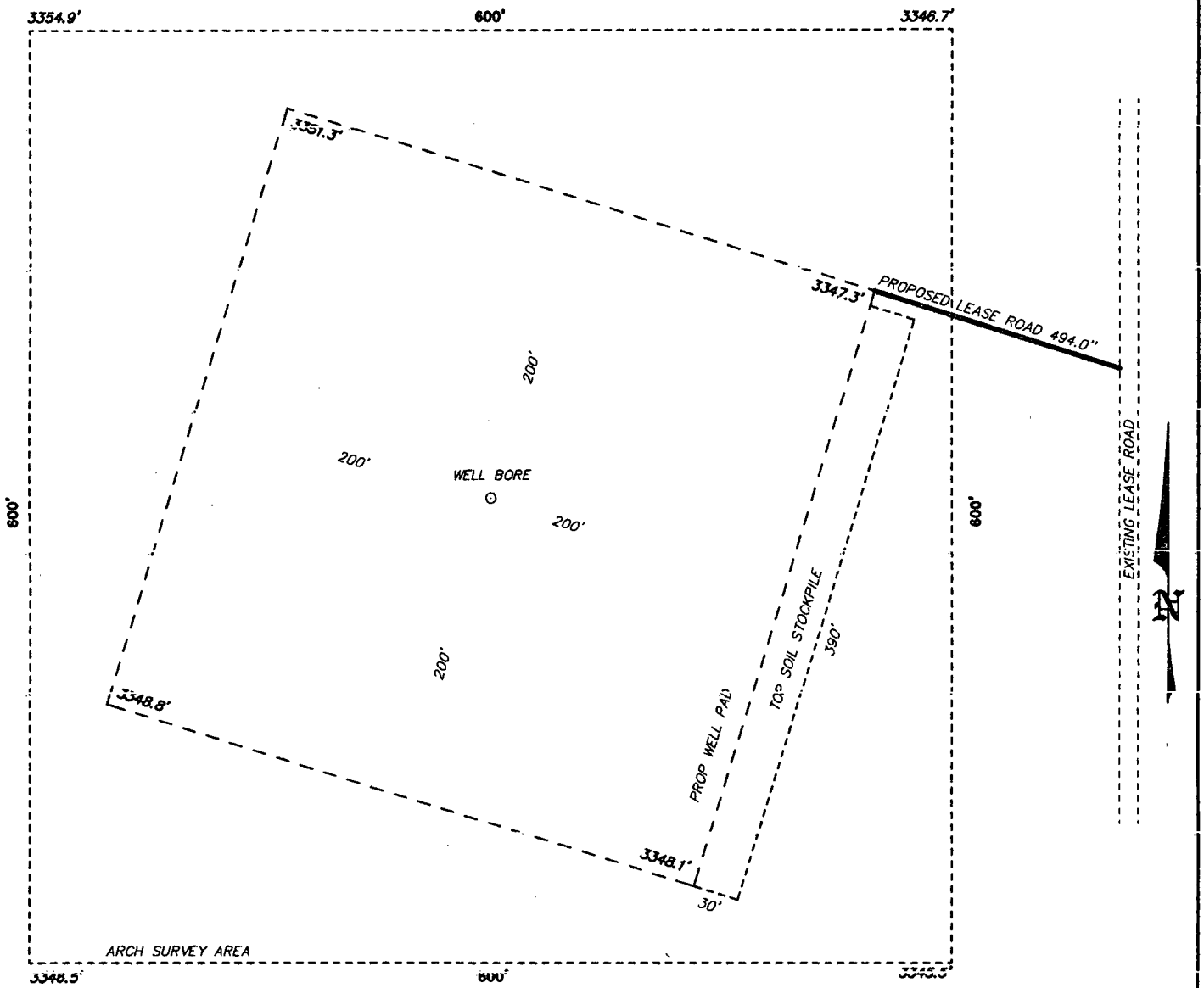
REF: FREEWAY 30 FEDERAL COM 3H / WELL PAD TOPO

THE FREEWAY 30 FEDERAL COM 3H LOCATED 1800' FROM THE NORTH LINE AND 330' FROM THE WEST LINE OF SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: 30642	Drawn By: K. NORRIS	Date: 07-22-2014	Survey Date: 07-20-2014	Sheet 1 of 1 Sheets

SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



100 0 100 200 USAT

SCALE: 1" = 100'

CHI ENERGY, INCORPORATED

REF: FREEWAY 30 FEDERAL COM 3H / WELL PAD TOPO

THE FREEWAY 30 FEDERAL COM 3H LOCATED 1800' FROM THE NORTH LINE AND 330' FROM THE WEST LINE OF SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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W.O. Number: 30642	Drawn By: K. NORRIS	Date: 07-22-2014	Survey Date: 07-20-2014	Sheet 1 of 1 Sheets

FREEWAY 30 FEDERAL COM 3H
Located 1800' FNL and 330' FWL
Section 30, Township 19 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

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(575) 392-2206 - Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

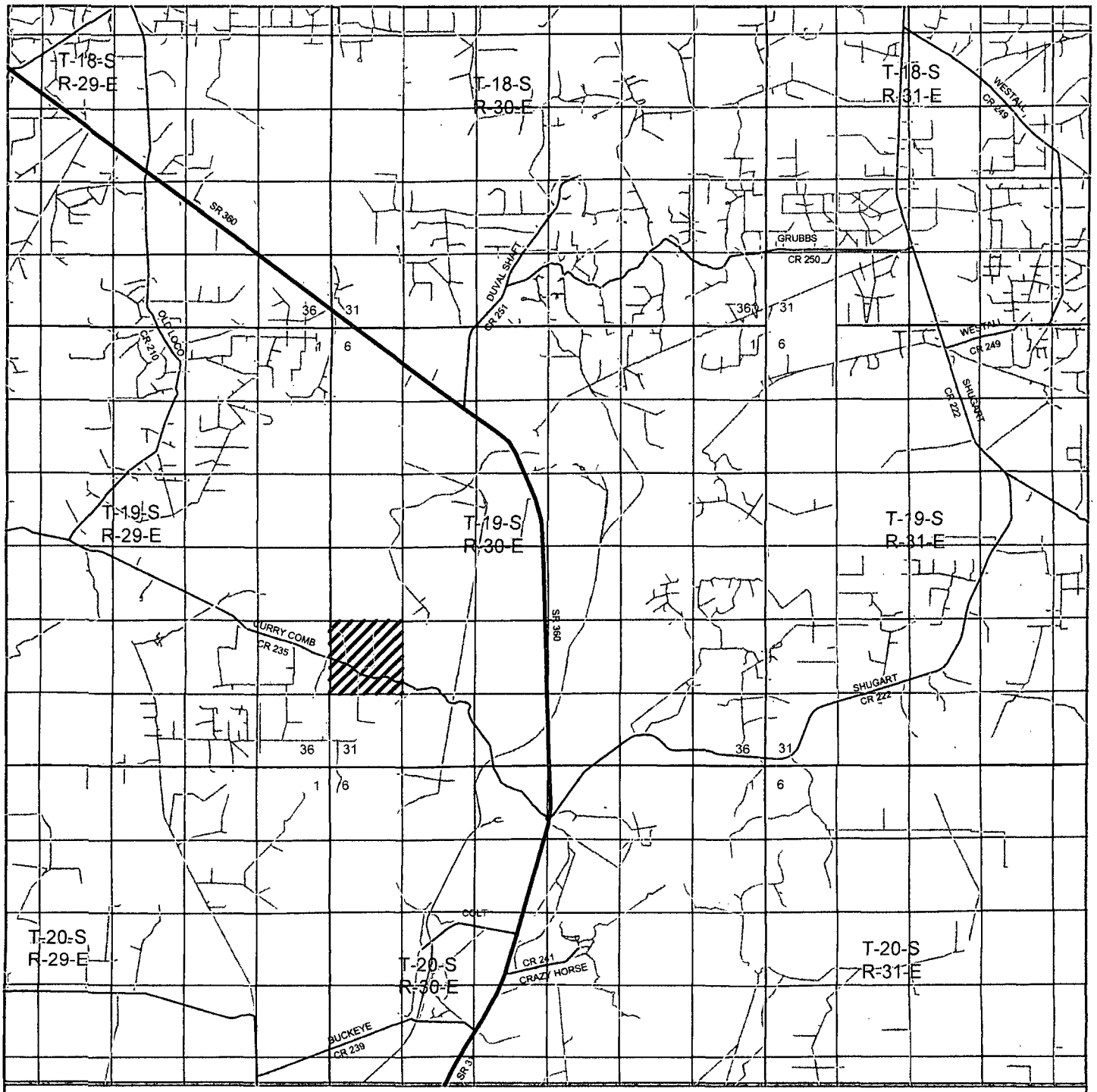
W.O. Number: KAN 30642

Survey Date: 07-20-2014

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

CHI ENERGY, INCORPORATED



FREEWAY 30 FEDERAL COM 3H

Located 1800' FNL and 330' FWL
Section 30, Township 19 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

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(575) 392-2206 - Fax
basinsurveys.com

0 1 MI 2 MI 3 MI 4 MI
SCALE: 1" = 2 MILES

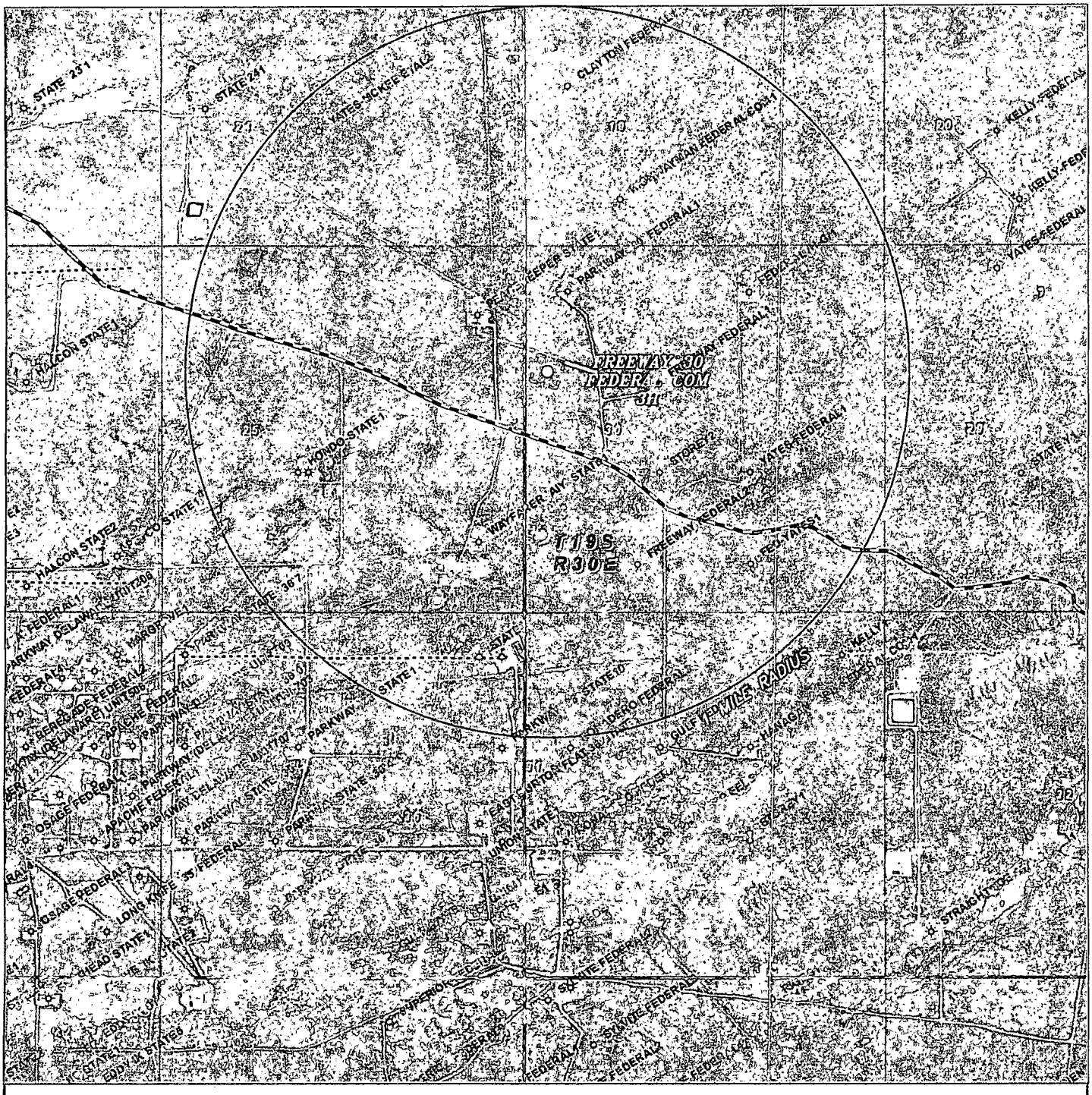
W.O. Number: KAN 30642

Survey Date: 07-20-2014

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

CHI ENERGY, INCORPORATED



FREEWAY 30 FEDERAL COM 3H
Located 1800' FNL and 330' FWL
Section 30, Township 19 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

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(575) 392-2206 - Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

W.O. Number: KAN 30642

Survey Date: 07-20-2014

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

CHI ENERGY, INCORPORATED

Exhibit A

Access

1.8" = 1 mile

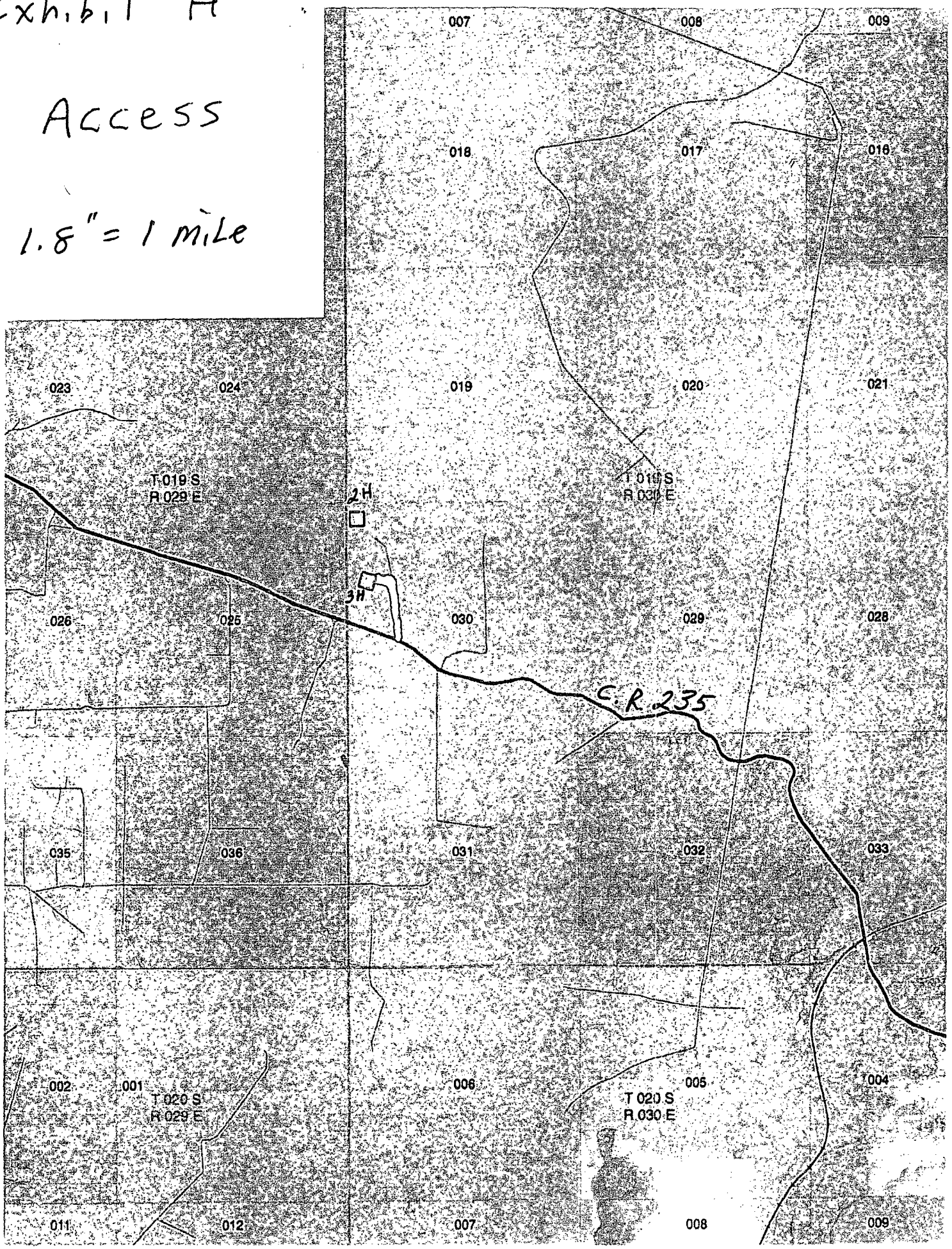


Exhibit B

Freeway Fed Com 3H
Sec. 30
T. 19S., R. 30E.
2" = 1 miles

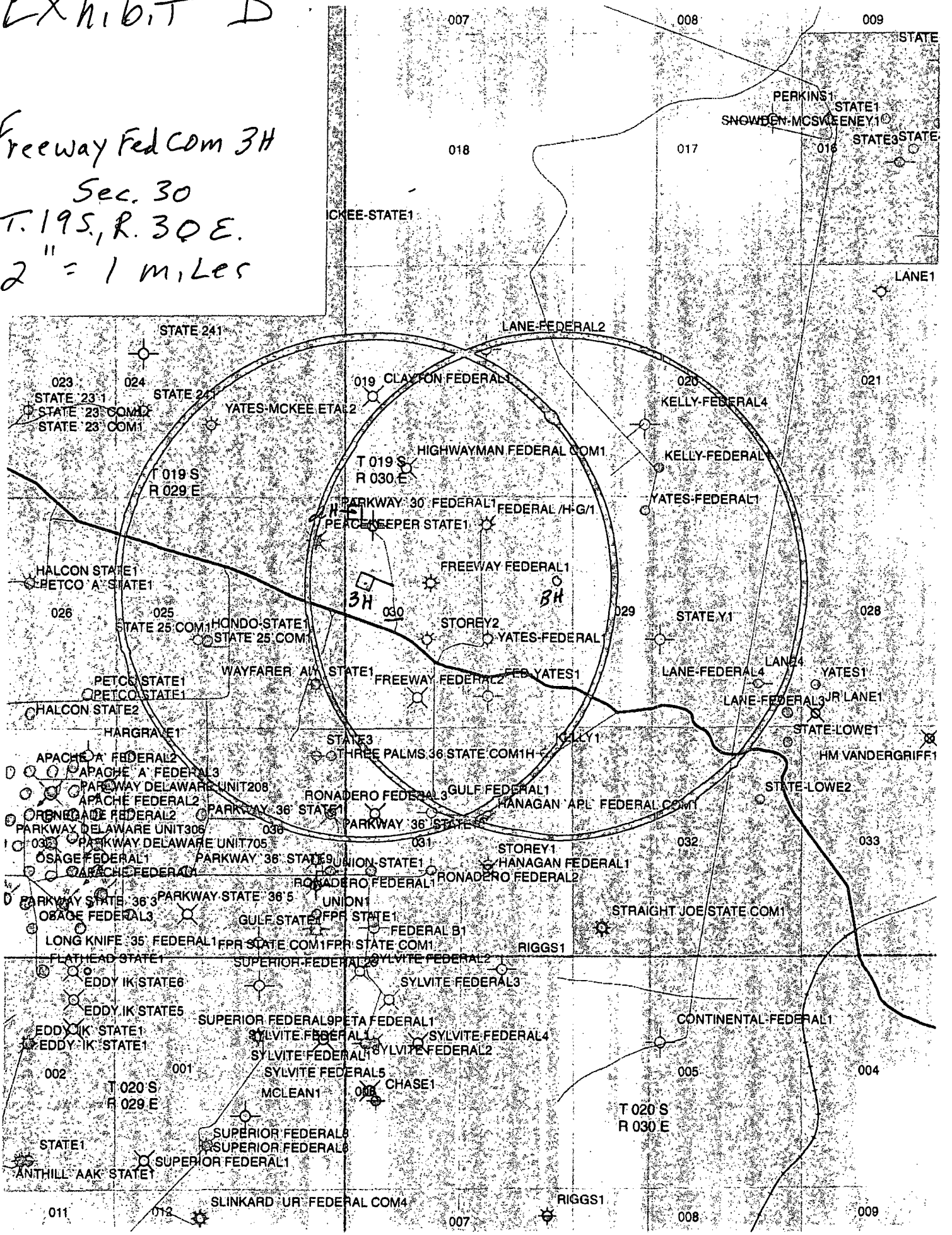
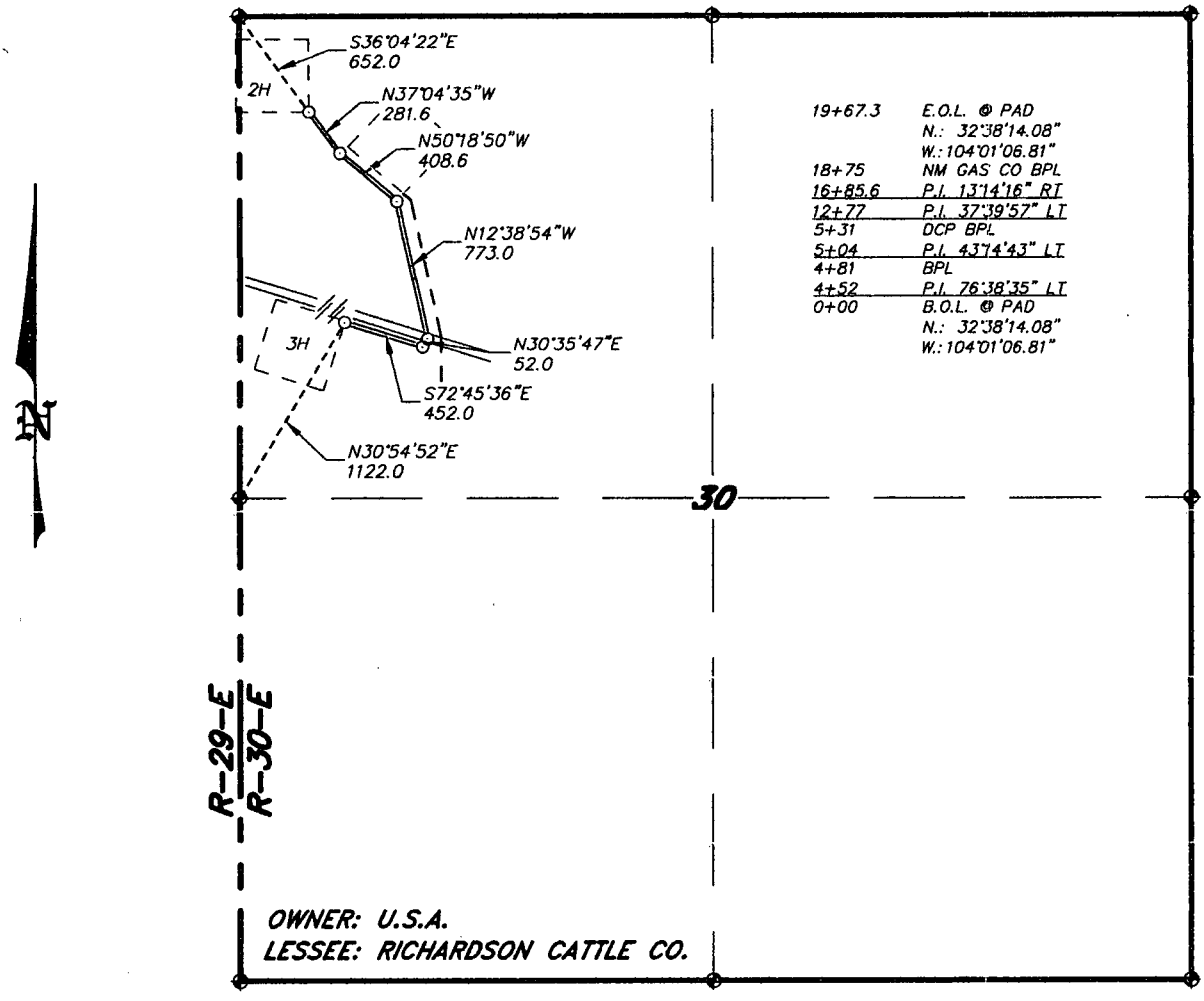


Exhibit E

SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



19+67.3	E.O.L. @ PAD N.: 32°38'14.08" W.: 104°01'06.81"
18+75	NM GAS CO BPL
16+85.6	P.I. 13°14'16" RT
12+77	P.I. 37°39'57" LT
5+31	DCP BPL
5+04	P.I. 43°14'43" LT
4+81	BPL
4+52	P.I. 76°38'35" LT
0+00	B.O.L. @ PAD N.: 32°38'14.08" W.: 104°01'06.81"

LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

SECTION 30 = 1967.3 FEET = 119.23 RODS = 0.37 MILES = 1.35 ~~FEET~~ Acres

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES, N.M.P.S. No. 7977
TEXAS R.P.L.S. No. 5074

1000 0 1000 2000 FEET

CHI ENERGY, INCORPORATED

REF: PROPOSED FLOW PIPELINE TO FREEWAY 30 FEDERAL COM 3H

A PIPELINE CROSSING USA LAND IN
SECTION 30, TOWNSHIP 19 SOUTH, RANGE 30 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

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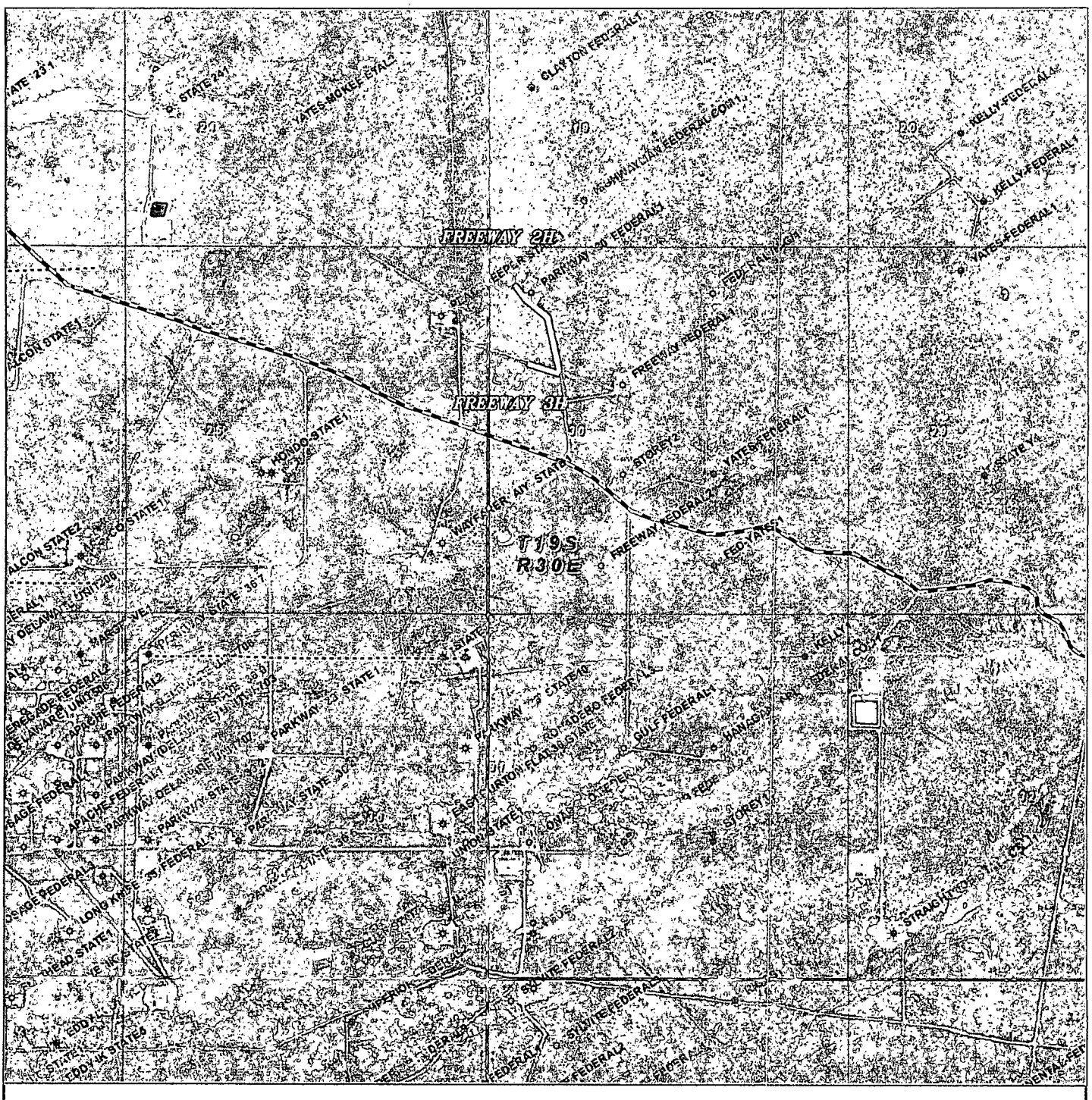
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: 30721	Drawn By: K. NORRIS	Date: 07-22-2014	Survey Date: 07-19-2014	Sheet 1 of 1 Sheets



PROPOSED FLOW PIPELINE TO FREEWAY 30 FEDERAL COM 3H

Section 30, Township 19 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

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focused on excellence in the oilfield

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1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

W.O. Number: KAN 30721

Survey Date: 07-19-2014

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

CHI ENERGY, INCORPORATED

Application to Drill
Chi Operating, Inc.
Freeway 30 Federal Com #3H
1800'FNL & 330' FWL (SHL)
1650' FNL & 330' FEL (BHL)
Sec 30-T19S-R30E
Eddy County, New Mexico

1. **The estimated tops of geological markers are as follows:**

Rustler	150'
Top Salt	310'
Base Salt	1560'
*Yates	1740'
Seven Rivers	1800'
Queen	Not Present
Top Capitan	1910'
Base Capitan	3580'
*Delaware	4300'
*Bone Springs	6020'
TVD	8285'

2. **Estimated depths of anticipated fresh water, oil, or gas:**

Water	Fresh water is anticipated at 65' and will be protected by setting surface Casing at 350' and cementing to surface.
Hydrocarbons	Oil and gas are anticipated in the above (*) formations. These zones will Be protected by casing as necessary

3. **Pressure control equipment:**

A 2M diverter will be installed after running 20'' casing. A 2000# WP Annular will be installed after running 13 3/8'' casing. A 3000# WP Double Ram BOP and 3000# WP Annular will be installed after running 9 5/8'' & 7'' casing strings. Pressure tests will be conducted prior to drilling out under all casing strings. BOP controls will be installed prior to drilling under surface casing and will remain in use until completion of drilling operations. BOPE will be inspected and operated as recommended in Onshore Order #2. A kelly cock and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position when the kelly is not in use.
will test the 7'' & 9 5/8'' BOPE and both Annular BOPs with a third party testing company before drilling below each shoe, but will test again, if needed, in 30 days from the 1st test as per BLM Onshore Oil and Gas Order #2.

CHI OPERATING REQUESTS A VARIANCE TO INSTALL A DIVERTER.

4. Chi Operating, Inc. proposes to drill a vertical wellbore to approximately 7682' & kick off to horizontal @ 8285' TVD. The well will be drilled to 12622' MD (8285' TVD). See attached directional plan.

5. **Proposed casing and cementing program:**

A. Casing Program:

Hole Size	Casing	Wt/Ft.	Grade	Depth	Jt Type
26	20'' (new)	94#	J55	0'-350'	BT&C
17 ½ ''	13 3/8'' (new)	54.5#	J55	0'-1650'	ST&C
12 ¼ ''	9 5/8'' (new)	36#	J55	0'-3658'	LT&C
8 ¾''	7'' (new)	26#	P110	0'-8400'	LT&C
6 1/8''	4 1/2'' (new)	11.6#	P110	8000' -12622' MD	LT&C

Minimum casing design factors: Collapse 1.125, Burst 1.2, Tensile strength 1.8
*Subject to availability of casing

B. **Cementing Program:**

i. Surface Casing: 350 sks Class "C" lite (35:65:4) cement w/LCM additives. Yield at 1.75cuft/sk. 13.5ppg. H20-9.16gal/sk 200 sks Class "C" cement w/2% CaCl2 additives. Yield at 1.35 cuft/sk. 14.8ppg. H20-6.34gal/sk. Cmt circulated to surface w/100% excess.

ii. 1st Intermediate Casing: 450 sks Clas "C" lite (35:65:4) cement w/salt & LCM additives. Yield at 2. 13 cuft/sk. 12.5ppg, H2O-11.17gal/sk. 200 sacks Class "C" cement w/2% CaCl2 additives. Yield at 1.34 cuft/sk. 14.8ppg. H20-6.34gal/sk. Cmt circulated to surface w/25% excess.

See COA

iii. 2nd Intermediate Casing: 500 sacks Class "C" lite (35:65:4) cement w/LCM & FL additives. Yield at 2. 12 cuft/sk. 12.5ppg. H20-11.17gal/sk. 200 sacks Class "C" cement w/1% CaCl2 additives. Yield at 1.34 cuft/sk. 14.8ppg. H20-6.34gal/sk. Cmt circulated to surface w/25% excess.

See COA

iv. Production Casing: 450 sacks Class "H" lite (35:65:4) cement w/salt, FL & LCM additives. Yield at 2. 12 cuft/sk. 12.5ppg. H20-11.12gal/sk. 400 sacks Class "H" cement w/salt & FL additives. Yield at 1.20 cuft/sk. 15.6ppg. H20-5.29gal/sk. Cmt circulated to surface w/25% excess.

See COA

v. Production Liner: This will be a Packer/Port completion from TD up inside 7" casing with packer type liner hanger.

*Referring to above of lite cement:)wt% fly ash : wt% cement : wt% bentonite of the total of the first two numbers). Generic names of additives are used since the availability of specific companies and products are unknown at this time.

6. **Mud Program:**

Interval	Type System	Weight	Viscosity	Fluid Loss
0'-350'	FW Spud Mud	8.4-8.6	28	NC
350'-1650'	Brine Water	10.0-10.2	30-32	NC
1650'-3658'	FW	8.4-8.6	28	NC
3658'-8400'	Cut Brine	8.4-9.5	30-32	NC
8000'- 12622'	Cut Brine w/Polymer	9.0-9.50	30-32	NC

The necessary mud products for weight addition and fluid loss control will be on location at all times. Electronic pit monitoring equipment will be utilized with a Pason system.

7. **Evaluation Program:**

Samples: 10' samples from surface casing to TD
Logging: GR/N & Gyro from KOP-100' (7682') to surface. GR from 8400' to TD.

8. **Downhole Conditions:**

See COA

No abnormal pressure or temperature is expected. If H2S is encountered the operator will comply with the provisions of Onshore Order No. 6. Lost circulation is not anticipated, but lost circulation material and weighting material will be on location and readily available.
Maximum bottom hole temperature: 120 degrees F
Maximum bottom hole pressure: 3645 psi.

9. **Anticipated Starting Date:**

Chi Operating, Inc. intends to drill this well as soon as possible after receiving approval with approximately 40 days involved in drilling operations and an additional 10 days involved in completions operations on the project.

Chi Energy

Freeway 30 Federal Com, Well No. 3H
Eddy County, New Mexico
Quote No.: 081214364
Rig: ?

Aim Directional Services

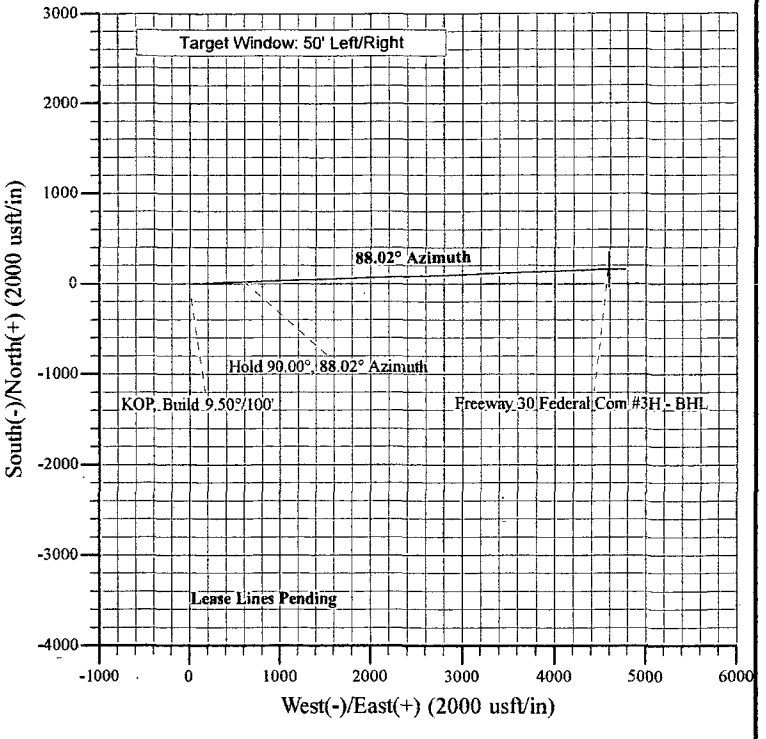
SITE DETAILS: Freeway 30 Federal Com #3H	
Site Centre Northing:	594431.10
Easting:	638183.80
Positional Uncertainity:	0.00
Convergence:	0.17
Local North:	Grid

PROJECT DETAILS: Eddy County, New Mexico	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

T G M

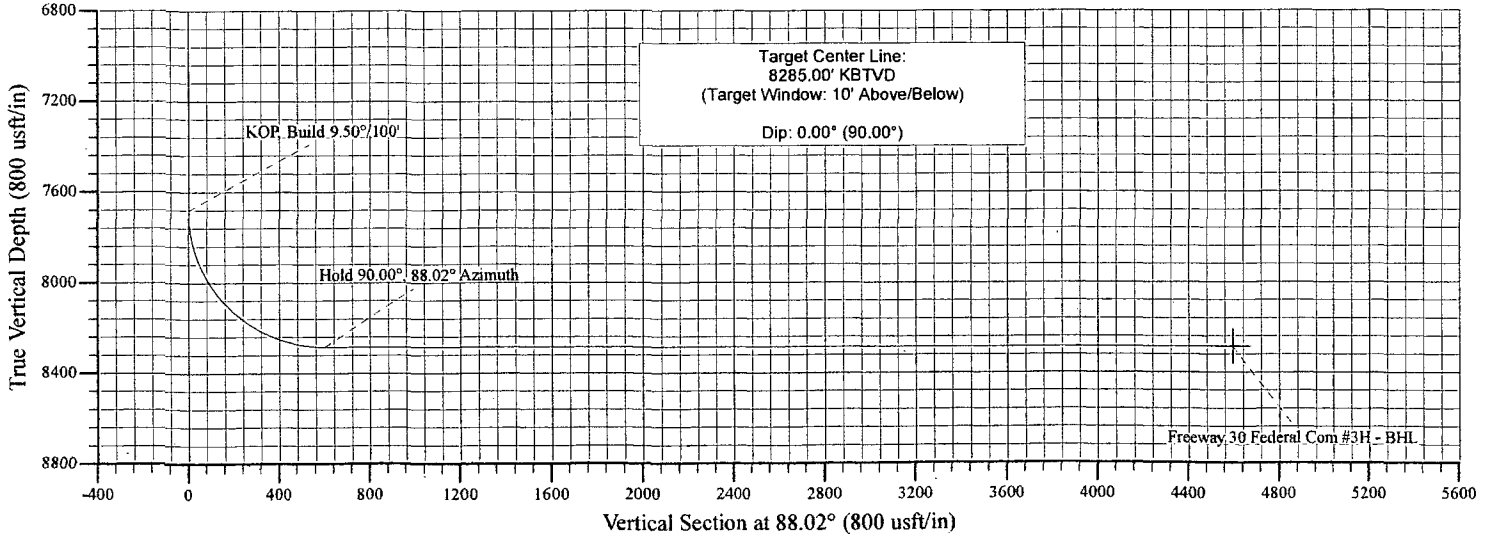
Azimuths to Grid North
True North: -0.17°
Magnetic North: 7.60°

Magnetic Field
Strength: 48522.9snT
Dip Angle: 60.55°
Date: 8/12/2014
Model: HDGM



DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Freeway 30 FC #3H - BHL	8285.00	158.90	4593.00	594590.00	642776.80	32° 38' 2.921 N	104° 0' 13.715 W	Point

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	7682.00	0.00	0.00	7682.00	0.00	0.00	0.00	0.00	0.00		KOP, Build 9.50°/100'
3	8629.39	90.00	88.02	8285.11	20.85	602.77	9.50	88.02	603.13		Hold 90.00°, 88.02° Azimuth
4	12622.00	90.00	88.02	8285.00	158.90	4593.00	0.00	0.00	4595.75	Freeway 30 Federal Com #3H - BHL	PBHL - Lateral



Drawn By: BLM
Date Created: 08/12/14
Date Revised: 08/12/14
File: Chi Energy - Freeway 30 Federal Com #3H Lateral 1r0. wpc

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #3H
Company:	Chi Energy	**TVD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Site:	Freeway 30 Federal Com #3H	**North Reference:**	Grid
Well:	#3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral 1r0		
Design:	Lateral 1r0		

Project Eddy County, New Mexico

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Freeway 30 Federal Com #3H

Site Position:		**Northing:**	594,431.10 usft	**Latitude:**	32° 38' 1.486 N
From:	Map	**Easting:**	638,183.80 usft	**Longitude:**	104° 1' 7.433 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.17 °

Well #3H

Well Position	**+N/-S**	0.00 usft	**Northing:**	594,431.10 usft	**Latitude:**	32° 38' 1.486 N
	+E/-W	0.00 usft	**Easting:**	638,183.80 usft	**Longitude:**	104° 1' 7.433 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,350.00 usft

Wellbore Lateral 1r0

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/12/2014	7.77	60.55	48,523

Design Lateral 1r0

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	88.02

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,682.00	0.00	0.00	7,682.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,629.39	90.00	88.02	8,285.11	20.85	602.77	9.50	9.50	9.29	88.02	
12,622.00	90.00	88.02	8,285.00	158.90	4,593.00	0.00	0.00	0.00	0.00	Freeway 30 Federa

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #3H
Company:	Chi Energy	**TVD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Site:	Freeway 30 Federal Com #3H	**North Reference:**	Grid
Well:	#3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral 1r0		
Design:	Lateral 1r0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #3H
Company:	Chi Energy	**TVD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Site:	Freeway 30 Federal Com #3H	**North Reference:**	Grid
Well:	#3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral 1r0		
Design:	Lateral 1r0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,682.00	0.00	0.00	7,682.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Build 9.50°/100'									
7,700.00	1.71	88.02	7,700.00	0.01	0.27	0.27	9.50	9.50	0.00
7,750.00	6.46	88.02	7,749.86	0.13	3.83	3.83	9.50	9.50	0.00
7,800.00	11.21	88.02	7,799.25	0.40	11.50	11.51	9.50	9.50	0.00
7,850.00	15.96	88.02	7,847.84	0.80	23.23	23.25	9.50	9.50	0.00
7,900.00	20.71	88.02	7,895.28	1.35	38.95	38.97	9.50	9.50	0.00
7,950.00	25.46	88.02	7,941.27	2.03	58.54	58.57	9.50	9.50	0.00
8,000.00	30.21	88.02	7,985.47	2.83	81.86	81.91	9.50	9.50	0.00
8,050.00	34.96	88.02	8,027.59	3.76	108.77	108.83	9.50	9.50	0.00
8,100.00	39.71	88.02	8,067.33	4.81	139.06	139.15	9.50	9.50	0.00
8,150.00	44.46	88.02	8,104.43	5.97	172.54	172.65	9.50	9.50	0.00
8,200.00	49.21	88.02	8,138.62	7.23	208.98	209.11	9.50	9.50	0.00
8,250.00	53.96	88.02	8,169.68	8.58	248.12	248.27	9.50	9.50	0.00
8,300.00	58.71	88.02	8,197.39	10.02	289.70	289.87	9.50	9.50	0.00
8,350.00	63.46	88.02	8,221.56	11.54	333.43	333.63	9.50	9.50	0.00
8,400.00	68.21	88.02	8,242.02	13.11	379.01	379.23	9.50	9.50	0.00
8,450.00	72.96	88.02	8,258.64	14.74	426.12	426.38	9.50	9.50	0.00
8,500.00	77.71	88.02	8,271.29	16.41	474.45	474.73	9.50	9.50	0.00
8,550.00	82.46	88.02	8,279.90	18.12	523.66	523.97	9.50	9.50	0.00
8,600.00	87.21	88.02	8,284.40	19.84	573.41	573.76	9.50	9.50	0.00
8,629.39	90.00	88.02	8,285.11	20.85	602.77	603.14	9.50	9.50	0.00
Hold 90.00°, 88.02° Azimuth									
8,700.00	90.00	88.02	8,285.11	23.30	673.34	673.75	0.00	0.00	0.00
8,800.00	90.00	88.02	8,285.11	26.75	773.28	773.75	0.00	0.00	0.00
8,900.00	90.00	88.02	8,285.11	30.21	873.22	873.75	0.00	0.00	0.00
9,000.00	90.00	88.02	8,285.10	33.67	973.16	973.75	0.00	0.00	0.00
9,100.00	90.00	88.02	8,285.10	37.13	1,073.10	1,073.75	0.00	0.00	0.00
9,200.00	90.00	88.02	8,285.10	40.58	1,173.04	1,173.75	0.00	0.00	0.00
9,300.00	90.00	88.02	8,285.09	44.04	1,272.98	1,273.75	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #3H
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Site:	Freeway 30 Federal Com #3H	**North Reference:**	Grid
Well:	#3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral 1r0		
Design:	Lateral 1r0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,400.00	90.00	88.02	8,285.09	47.50	1,372.92	1,373.75	0.00	0.00	0.00
9,500.00	90.00	88.02	8,285.09	50.96	1,472.86	1,473.75	0.00	0.00	0.00
9,600.00	90.00	88.02	8,285.09	54.41	1,572.80	1,573.75	0.00	0.00	0.00
9,700.00	90.00	88.02	8,285.08	57.87	1,672.74	1,673.75	0.00	0.00	0.00
9,800.00	90.00	88.02	8,285.08	61.33	1,772.68	1,773.75	0.00	0.00	0.00
9,900.00	90.00	88.02	8,285.08	64.79	1,872.62	1,873.75	0.00	0.00	0.00
10,000.00	90.00	88.02	8,285.07	68.24	1,972.56	1,973.75	0.00	0.00	0.00
10,100.00	90.00	88.02	8,285.07	71.70	2,072.51	2,073.75	0.00	0.00	0.00
10,200.00	90.00	88.02	8,285.07	75.16	2,172.45	2,173.75	0.00	0.00	0.00
10,300.00	90.00	88.02	8,285.07	78.62	2,272.39	2,273.75	0.00	0.00	0.00
10,400.00	90.00	88.02	8,285.06	82.07	2,372.33	2,373.75	0.00	0.00	0.00
10,500.00	90.00	88.02	8,285.06	85.53	2,472.27	2,473.75	0.00	0.00	0.00
10,600.00	90.00	88.02	8,285.06	88.99	2,572.21	2,573.75	0.00	0.00	0.00
10,700.00	90.00	88.02	8,285.05	92.45	2,672.15	2,673.75	0.00	0.00	0.00
10,800.00	90.00	88.02	8,285.05	95.90	2,772.09	2,773.75	0.00	0.00	0.00
10,900.00	90.00	88.02	8,285.05	99.36	2,872.03	2,873.75	0.00	0.00	0.00
11,000.00	90.00	88.02	8,285.05	102.82	2,971.97	2,973.75	0.00	0.00	0.00
11,100.00	90.00	88.02	8,285.04	106.28	3,071.91	3,073.75	0.00	0.00	0.00
11,200.00	90.00	88.02	8,285.04	109.73	3,171.85	3,173.75	0.00	0.00	0.00
11,300.00	90.00	88.02	8,285.04	113.19	3,271.79	3,273.75	0.00	0.00	0.00
11,400.00	90.00	88.02	8,285.03	116.65	3,371.73	3,373.75	0.00	0.00	0.00
11,500.00	90.00	88.02	8,285.03	120.11	3,471.67	3,473.75	0.00	0.00	0.00
11,600.00	90.00	88.02	8,285.03	123.56	3,571.61	3,573.75	0.00	0.00	0.00
11,700.00	90.00	88.02	8,285.03	127.02	3,671.55	3,673.75	0.00	0.00	0.00
11,800.00	90.00	88.02	8,285.02	130.48	3,771.49	3,773.75	0.00	0.00	0.00
11,900.00	90.00	88.02	8,285.02	133.94	3,871.43	3,873.75	0.00	0.00	0.00
12,000.00	90.00	88.02	8,285.02	137.39	3,971.37	3,973.75	0.00	0.00	0.00
12,100.00	90.00	88.02	8,285.02	140.85	4,071.31	4,073.75	0.00	0.00	0.00
12,200.00	90.00	88.02	8,285.01	144.31	4,171.25	4,173.75	0.00	0.00	0.00
12,300.00	90.00	88.02	8,285.01	147.77	4,271.19	4,273.75	0.00	0.00	0.00
12,400.00	90.00	88.02	8,285.01	151.22	4,371.13	4,373.75	0.00	0.00	0.00
12,500.00	90.00	88.02	8,285.00	154.68	4,471.07	4,473.75	0.00	0.00	0.00
12,600.00	90.00	88.02	8,285.00	158.14	4,571.01	4,573.75	0.00	0.00	0.00
12,622.00	90.00	88.02	8,285.00	158.90	4,593.00	4,595.75	0.00	0.00	0.00
PBHL - Lateral									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Freeway 30 Federal C - plan hits target center - Point	0.00	0.00	8,285.00	158.90	4,593.00	594,590.00	642,776.80	32° 38' 2.921 N	104° 0' 13.715 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #3H
Company:	Chi Energy	**TVD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3377.00usft (Original Well Elev)
Site:	Freeway 30 Federal Com #3H	**North Reference:**	Grid
Well:	#3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral 1r0		
Design:	Lateral 1r0		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,682.00	7,682.00	0.00	0.00	KOP, Build 9.50°/100'
8,629.39	8,285.11	20.85	602.77	Hold 90.00°, 88.02° Azimuth
12,622.00	8,285.00	158.90	4,593.00	PBHL - Lateral

20" Diverter System

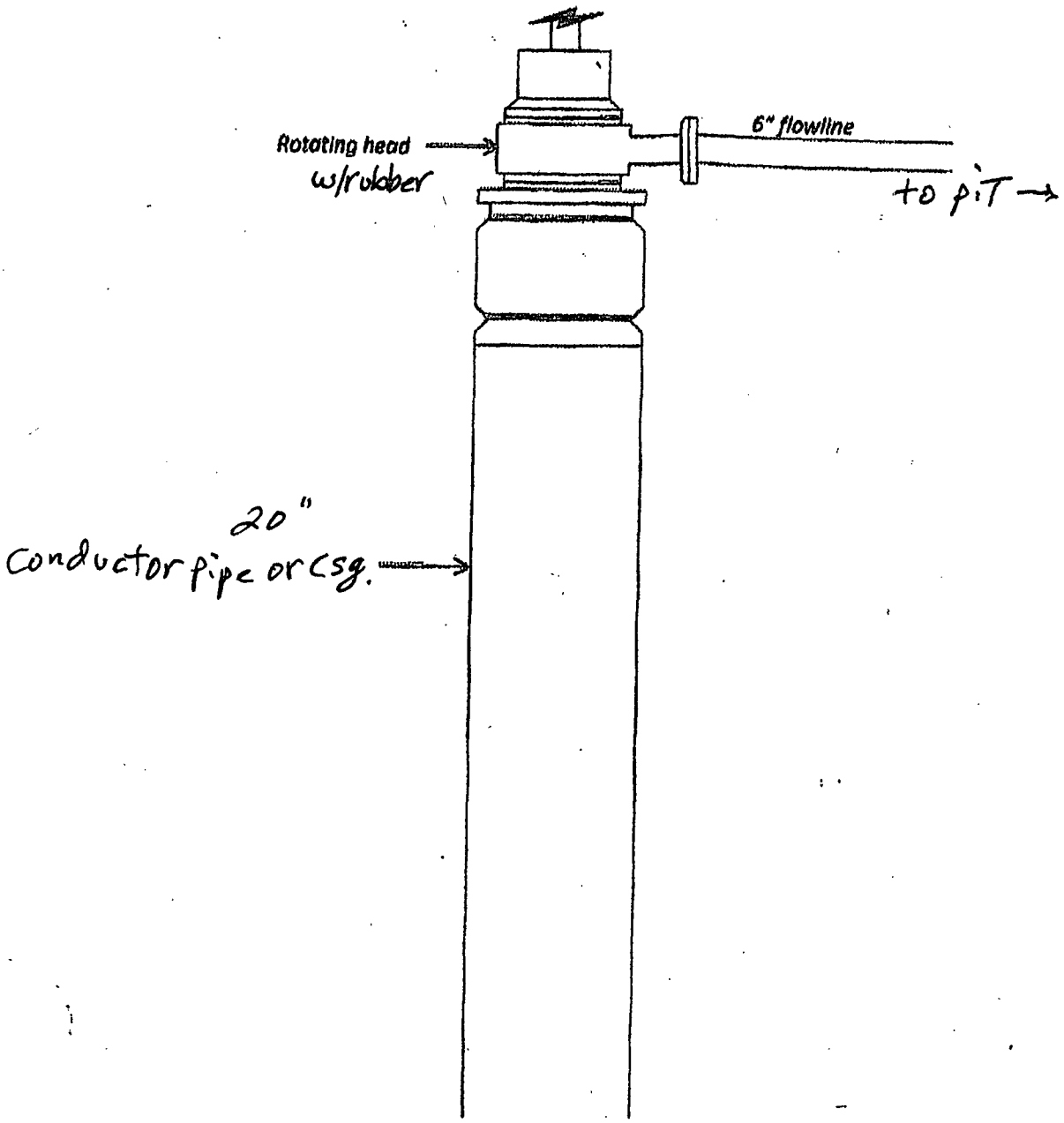


Exhibit E-1 - 20" Diverter System

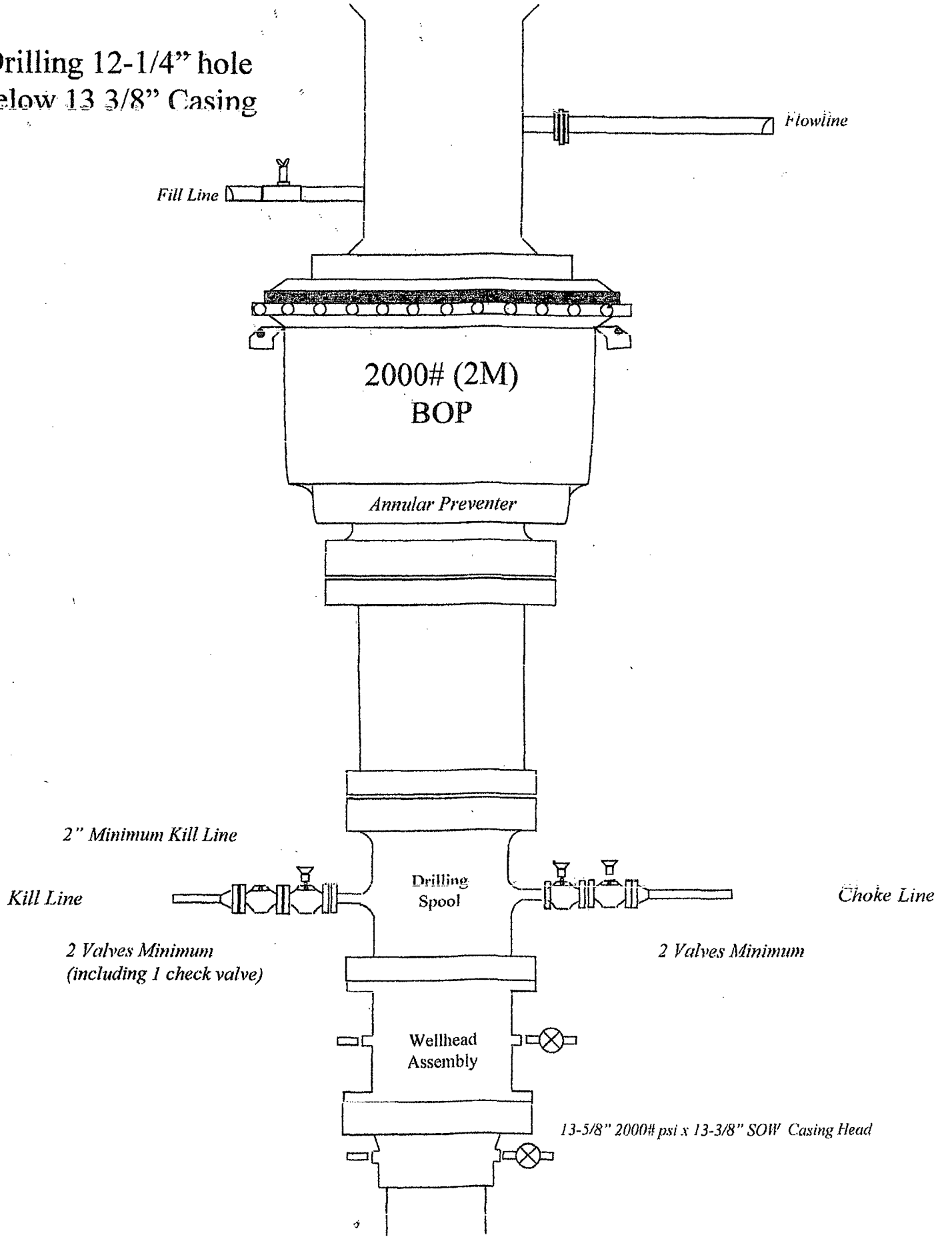


Exhibit E-1 –2000# BOP

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

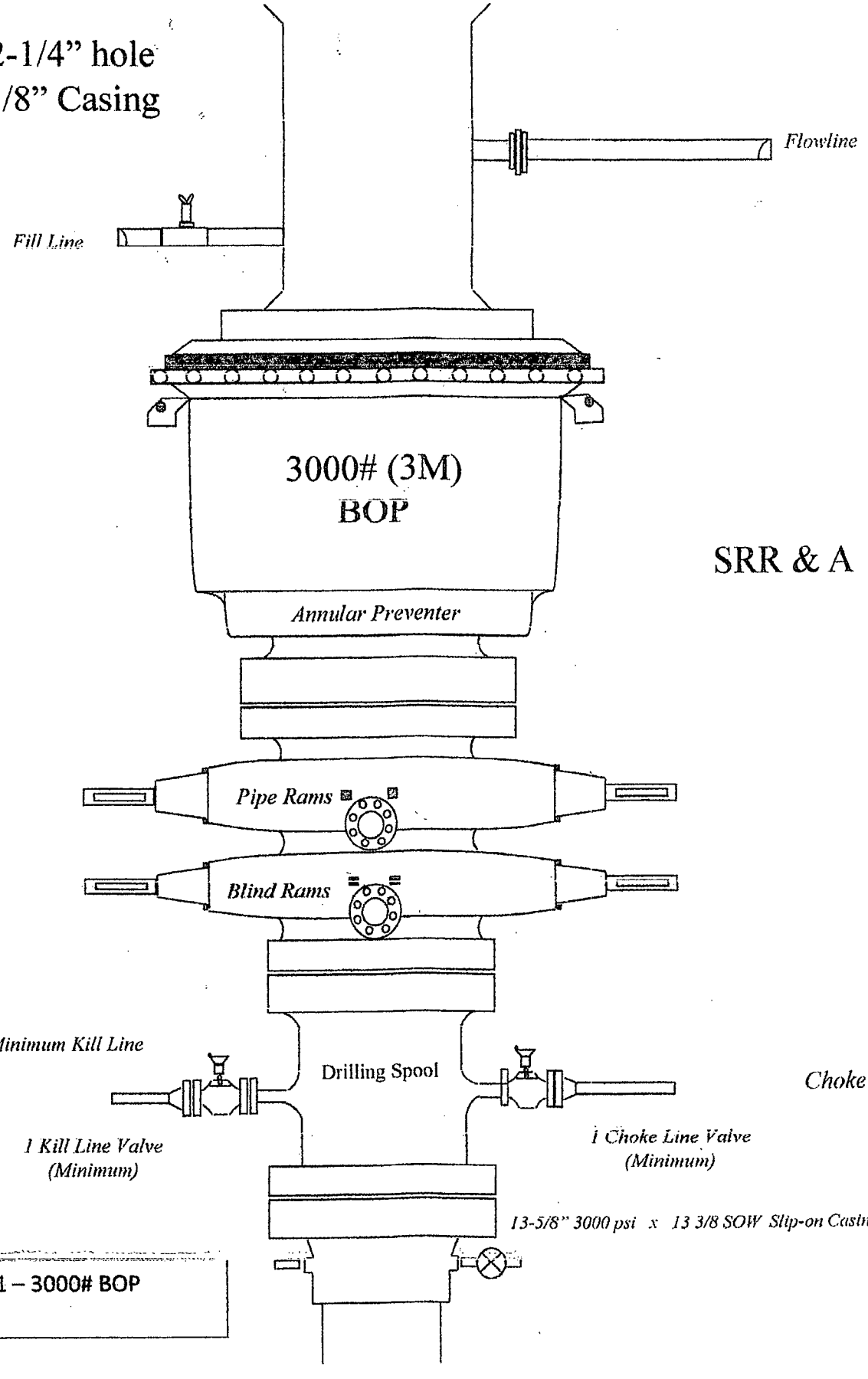
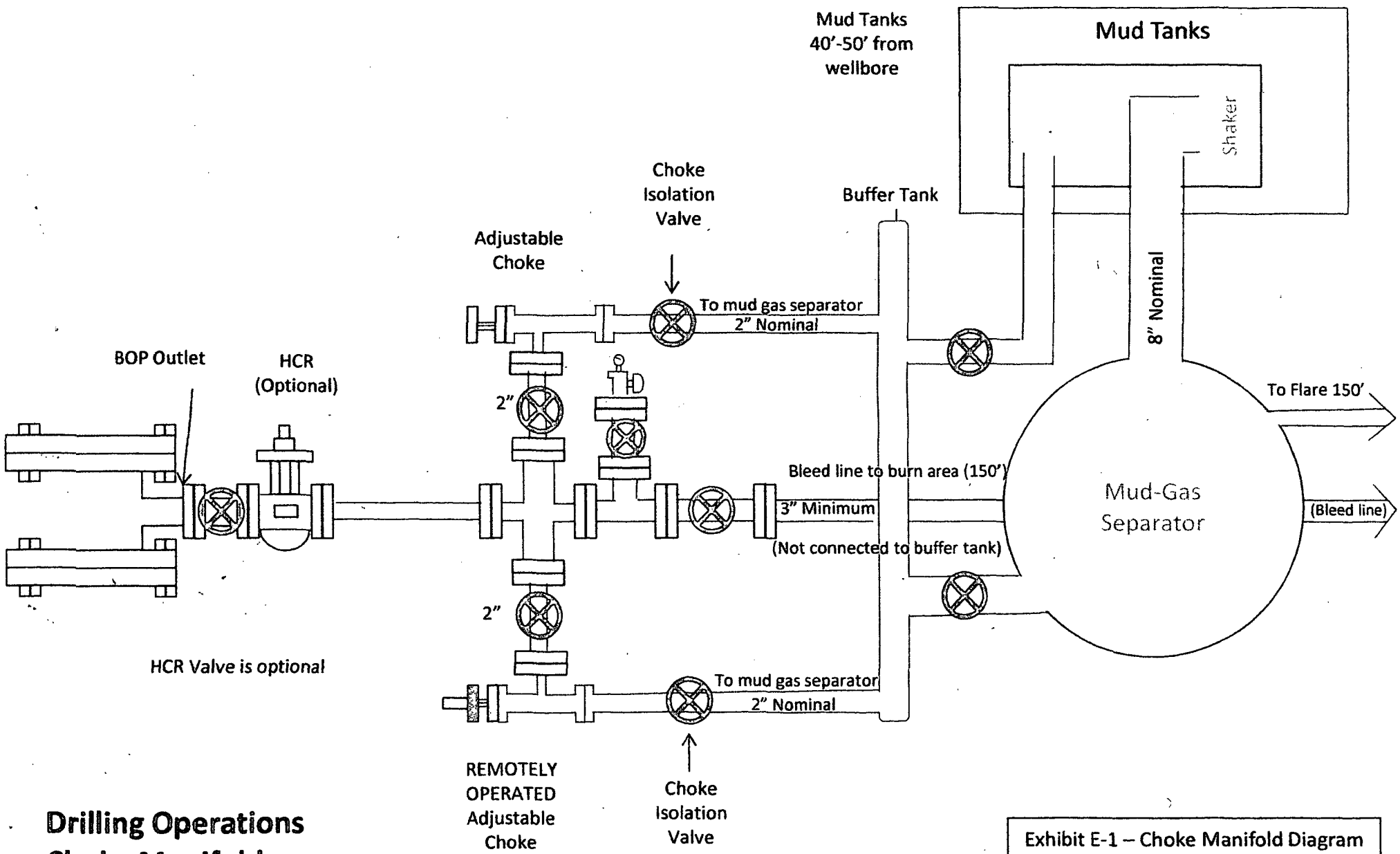


Exhibit E-1 – 3000# BOP



Drilling Operations
Choke Manifold
3M Service

Exhibit E-1 – Choke Manifold Diagram

Plat for Closed Loop System

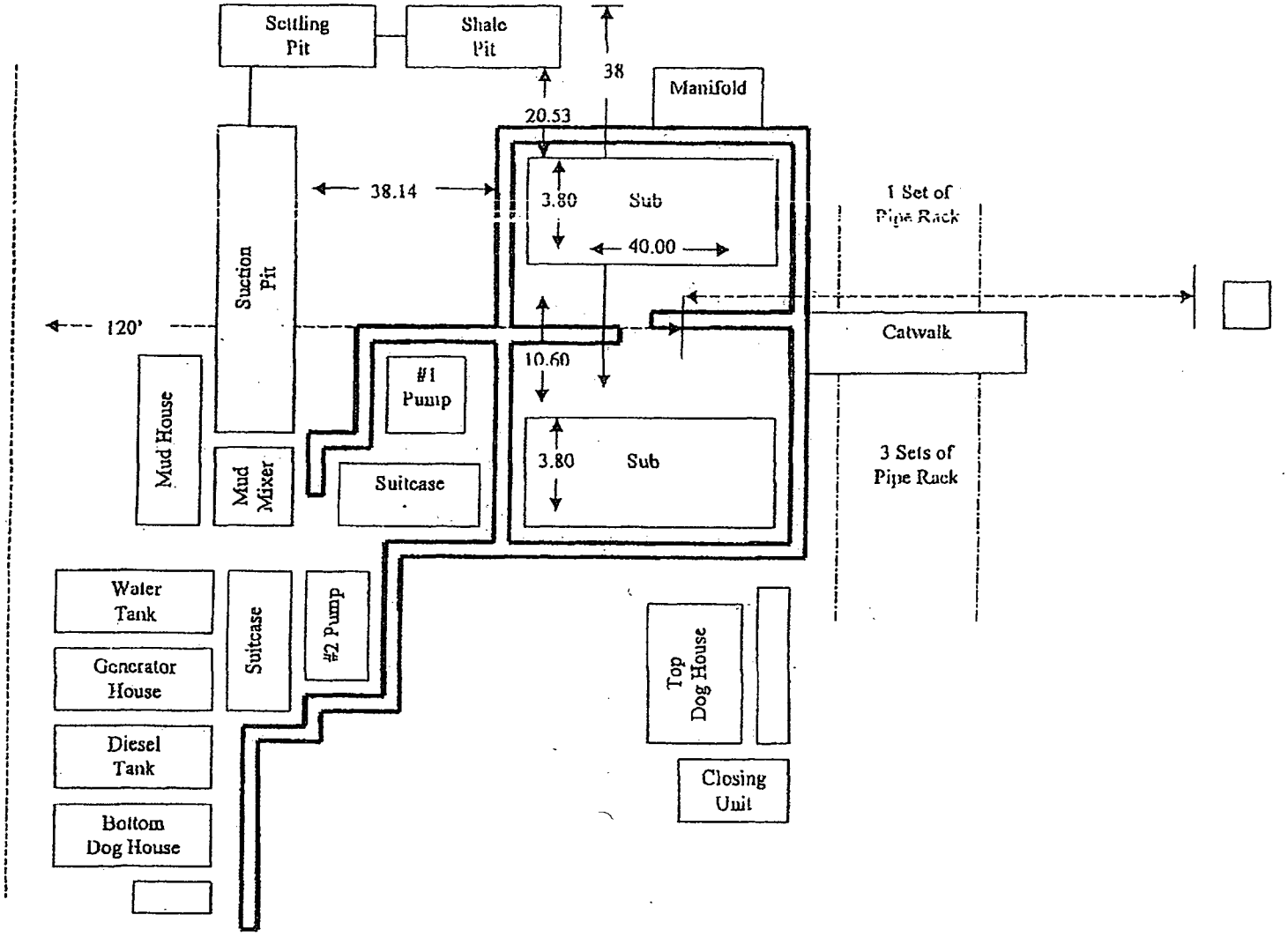
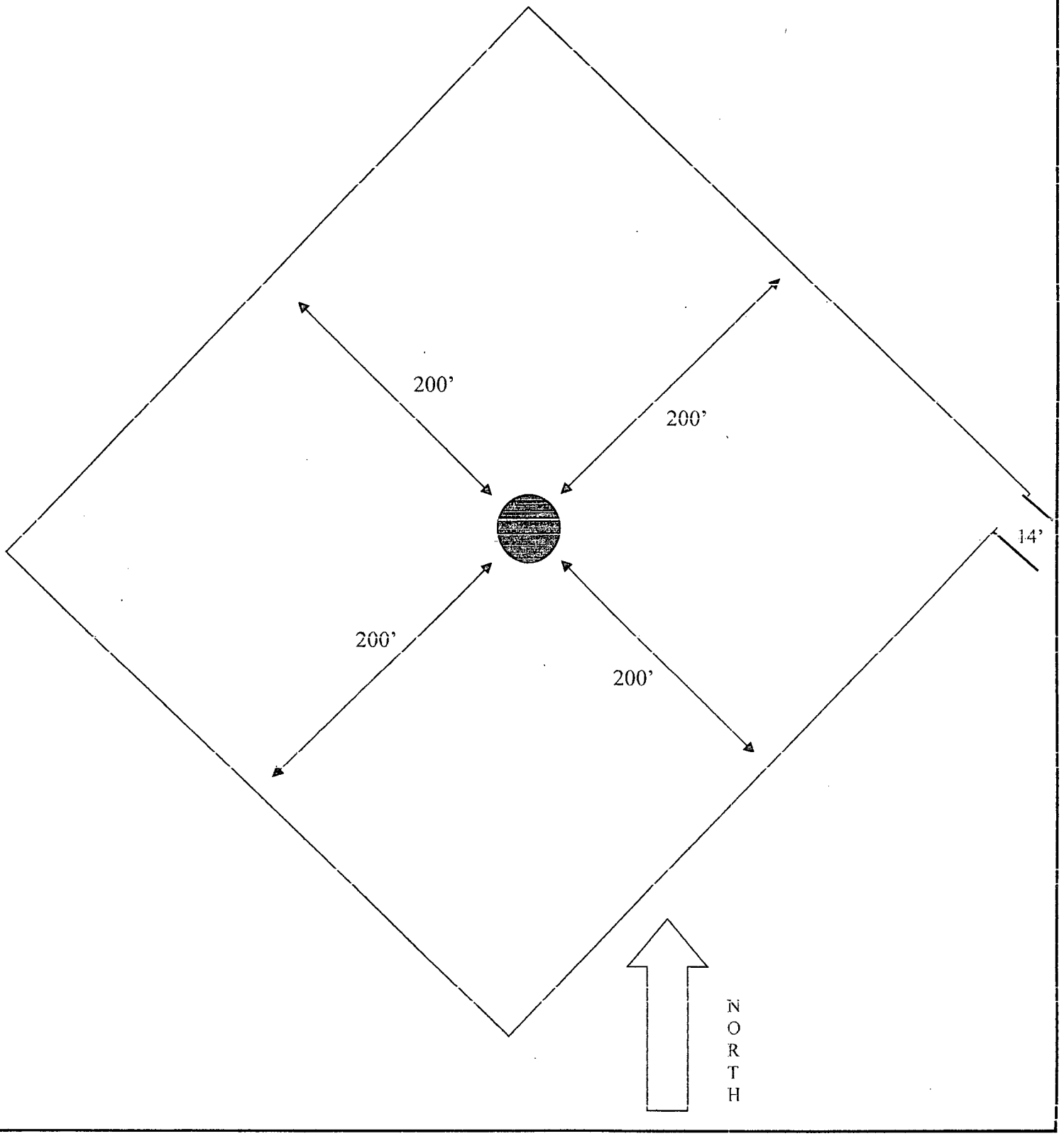


EXHIBIT D

Rig Plat Only
FREEWAY 30 FEDERAL COM 3H
V-DOOR NORTHEAST



CHI OPERATING, INC.

FREEWAY 30 FEDERAL COM 3H
HYDROGEN SULFIDE (H2S) CONTINGENCY DRILLING PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H2S concentration shall trigger activation of this plan.

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be rigged up and in use when the company drills out from under surface casing. H_2S monitors, warning signs, wind indicators and flags will be in use.

A. All personnel shall receive proper H2S training in accordance with Onshore Order 6 III.C.3.a

B. Briefing Area: Two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment:

- Well control equipment
  a. Flare line 150' from wellhead to be ignited by flare gun.
  b. Choke manifold with a remotely operated choke.
  c. Mud/Gas Seperator.

- Protective Equipment for essential personnel.
  Breathing apparatus:
  a. Rescue Packs (SCBA) – 1 unit shall be placed ar each briefing area. 2 units shall be stored in the safety trailer.
  b. Work/Escape packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
  c. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

  Auxillary Rescue Equipment:
  a. Stretcher
  b. Two OSHA full body harness
  c. 100 ft. 5/8" OSHA approved rope
  d. One 20# class ABC fire extinguisher

- H2S detection and monitoring Equipment:
  The stationary detector with three sensors will be placed in the upper doghouse, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor, Bell nipple, end of flare line or where well bore fluid is being discharged (Gas sample tubes will be stored in the safety trailer).

- Visual warning systems.
  a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  b. A colored condition flag will be on display, reflecting the current condition, at the drilling site.
  c. Two wind socks will be placed in strategic locations being visible from all angles.

- Mud Program:
  The mud program has been designated to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.

- Metallurgy:
  a. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, shall be suitable for H2S service.
  b. All elastomers used for packing and seals shall be H2S trim.

- Communication:
  Communication will be via two way radio in emergency and company vehicles. Cell phones and land lines where available.

Contacting Authorities

CHI Operating personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. CHI Operating, Inc. response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER) and BLM Onshore Order #6.

H_2S Operations

Though no H_2S is anticipated during the drilling operation, this contingency plan will provide for methods to ensure the well is kept under control in the event an H_2S reading of 100 ppm or more are encountered. Once personnel are safe and the proper protective gear is in place and on personnel, the operator and rig crew essential personnel will ensure the well is under control, suspend drilling operations and shut-in the well (unless pressure build up or other operational situations dictate suspending operations will prevent well control), increase the mud weight and circulate all gas from the hole utilizing the mud/gas separator downstream of the choke, the choke manifold and the emergency flare system located 150' from the well. Bring the mud system into compliance and the H_2S level below 10 ppm, then notify all emergency officers that drilling ahead is practical and safe.

Proceed with drilling ahead only after all provisions of Onshore Order 6, Section III.C. have been satisfied.

H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

Company Offices - CHI Operating Office 432-634-8958

KEY PERSONNEL					
Name	**Title**	**Location**	**Phone #**		
JOHN QUALLS	PRODUCTION ENGINEER	MIDLAND	432-685-5001		
RONNIE ROGERS	FIELD FOREMAN	MIDLAND	432-631-2717		

Agency Call List		
City	**Agency or Office**	**Telephone Number**
Artesia	Ambulance	911
Artesia	State Police	575-746-2703
Artesia	Sheriff's Office	575-746-9888
Artesia	City Police	575-746-2703
Artesia	Fire Department	575-746-2701
Artesia	Local Emergency Planning Committee	575-746-2122
Artesia	New Mexico OCD District II	575-748-1283
Carlsbad	Ambulance	911
Carlsbad	State Police	575-885-3137
Carlsbad	Sheriff's Office	575-887-7551
Carlsbad	City Police	575-885-2111
Carlsbad	Fire Department	575-885-2111
Carlsbad	Local Emergency Planning Committee	575-887-3798
Carlsbad	US DOI Bureau of Land Management	575-887-6544
State Wide	New Mexico Emergency Response Commission ("NMERC")	505-476-9600
State Wide	NMERC 24 hour Number	505-827-9126
State Wide	New Mexico State Emergency Operations Center	505-476-9635
National	National Emergency Response Center (Washington, D.C.)	800-424-8802

H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

Emergency Services				
Name	Service	Location	Telephone Number	Alternate Number
Boots & Coots International Well Control	Well Control	Houston / Odessa	1-800-256-9688	281-931-8884
Cudd Pressure Control	Well Control & Pumping	Odessa	915-699-0139	915-563-3356
Baker Huges Inc.	Pumping Service	Artesia, Hobbs and Odessa	575-746-2757	SAME
Total Safety	Safety Equipment and Personnel	Artesia	575-746-2847	SAME
Cutter Oilfield Services	Drilling Systems Equipment	Midland	432-488-6707	SAME
Assurance Fire & Safety	Safety Equipment and Personnel	Artesia	575-396-9702	575-441-2224
Flight for Life	Emergency Helicopter Evacuation	Lubbock	806-743-9911	SAME
Aerocare	Emergency Helicopter Evacuation	Lubbock	806-747-8923	SAME
Med Flight Air Ambulance	Emergency Helicopter Evacuation	Albuquerque	505-842-4433	SAME
Artesia General Hospital	Emergency Medical Care	Artesia	575-748-3333	702 North 13 Street

H2S Briefing Areas and Alarm Locations

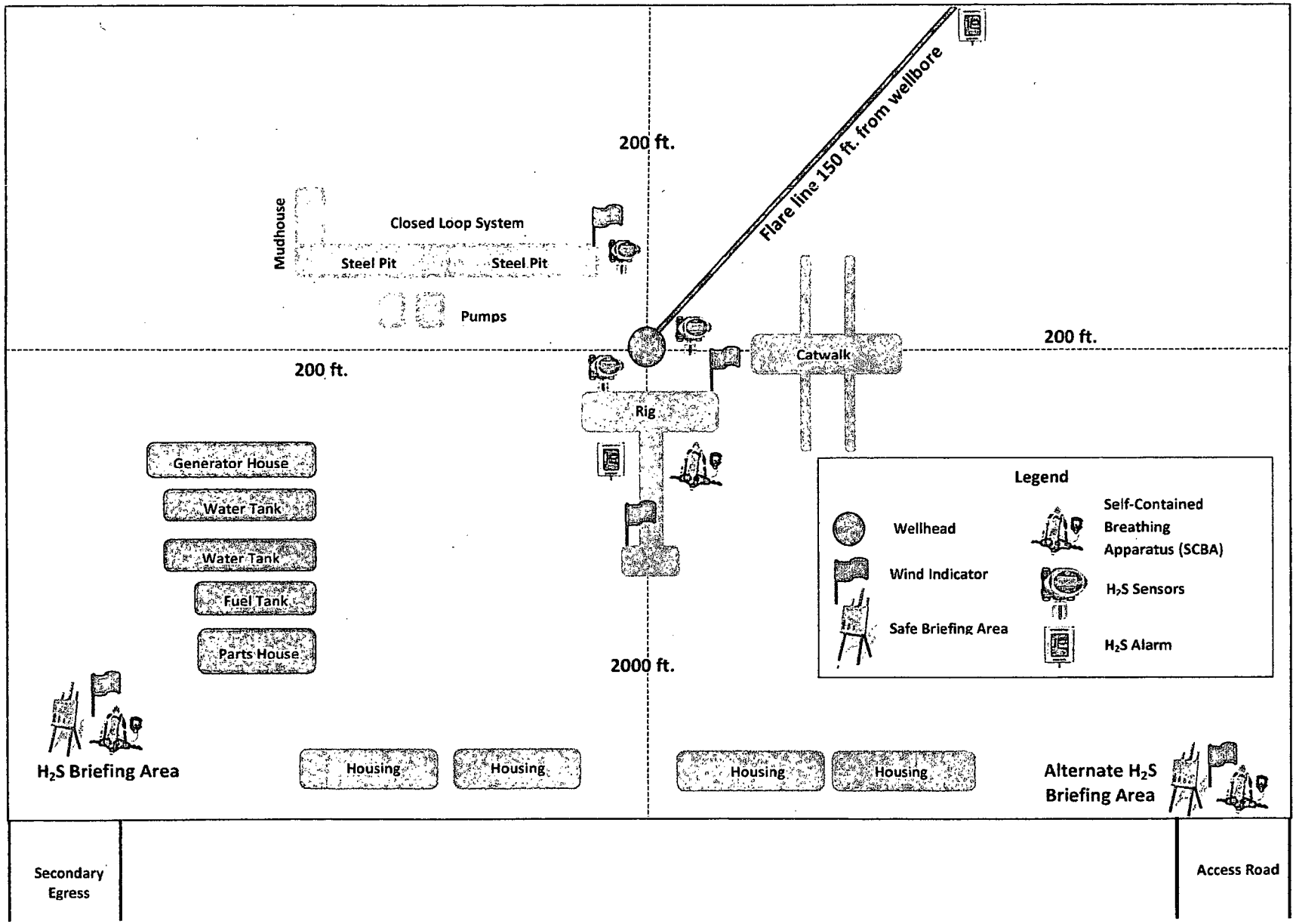
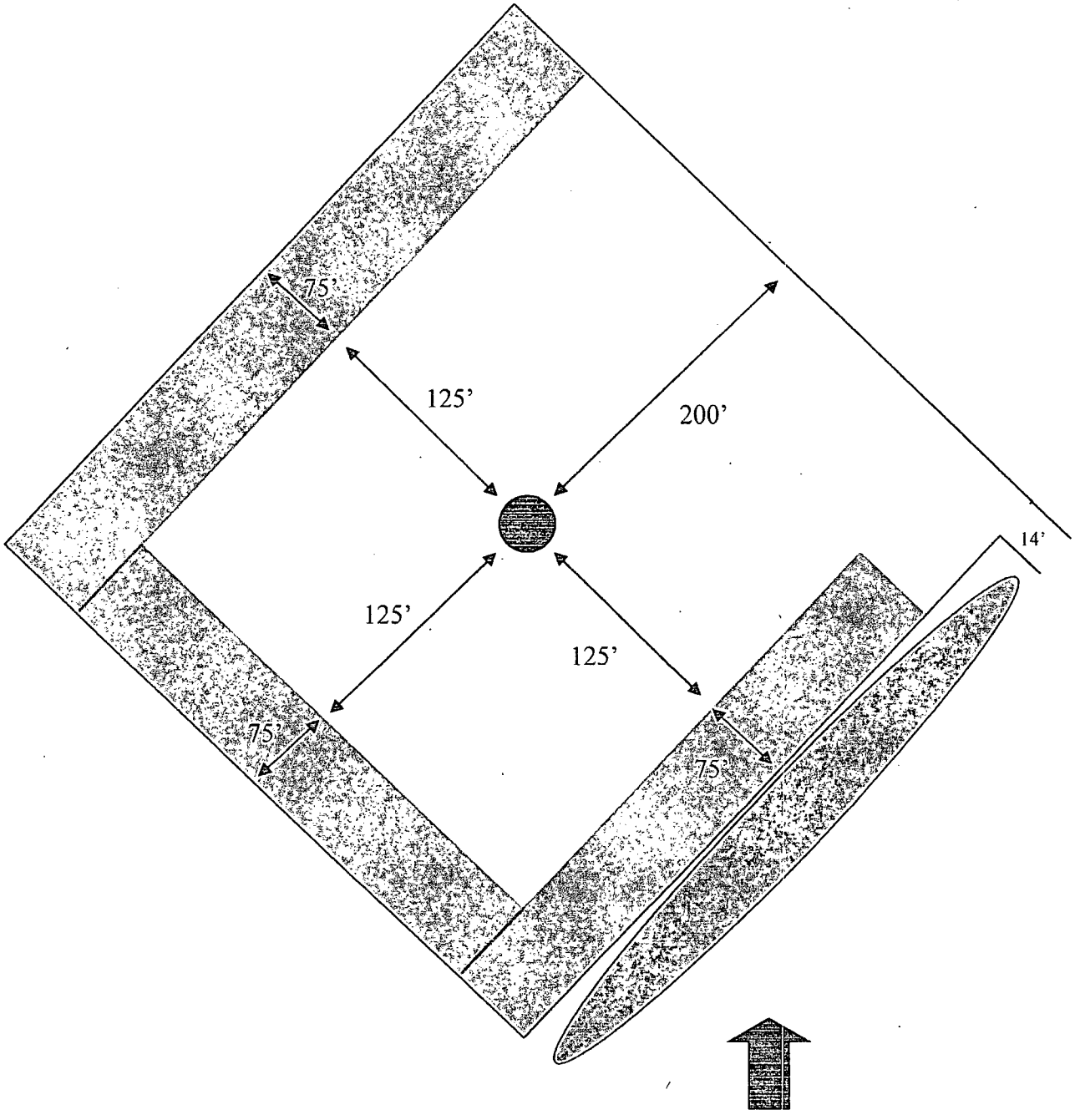


EXHIBIT C

Interim Reclamation & Production Facilities
FREEWAY 30 FEDERAL COM 3H
V-DOOR NORTHEAST



LEGEND

Well Bore

Topsoil

Interim Reclamation

Production Facilities

NORTH

SURFACE USE PLAN

CHI OPERATING, INC.
FREEWAY 30 FEDERAL COM 3H
Surface Hole: 1800 FNL & 330 FWL, Section 30, T. 19 S., R. 30 E.
Bottom Hole: 1650 FNL & 330 FEL, Section 30, T. 19 S., R. 30 E.
Eddy County, New Mexico

This plan is submitted with form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

1. EXISTING ROADS:

   A. DIRECTIONS: From the intersection of State Highway 31 and County Road 235 (Curry Comb Road), go northwest on C.R. 235 for 3.6 miles. New road will begin at this point. All existing roads are either paved or a caliche lease road.

   B. See attached plats and maps provided by Basin Surveys.

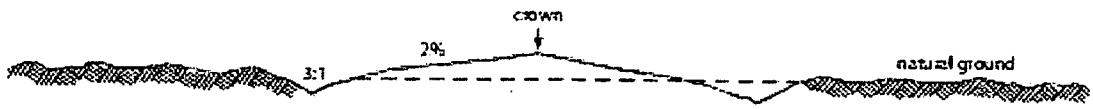
   C. The access route from County Road 235 to the well location is depicted on **EXHIBIT A**. The route highlighted in red will be the access, which will not require a ROW due to all of road system being within the same lease.

   D. Existing roads on the access route will be improved and maintained to the standard set forth in Section 2 of this Surface Use Plan of Operations.

2. NEW OR RECONSTRUCTED ACCESS ROADS:

   A. The new road will run from the northeast corner of the well pad and run southeast to the existing lease road. The distance of the new road will be 484 ft.

   B. The maximum width of the driving surface will be 14 feet. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1 foot deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.



Level Ground Section

   C. Surface material will be native caliche. The average grade of the entire road will be approximately 3%.
   D. Fence Cuts: No
   E. Cattle guards: No
   F. Turnouts: No
   G. Culverts: No
   H. Cuts and Fills: Not significant
   I. Approximately 6 inches of topsoil (root zone) will be stripped from the proposed access road

prior to any further construction activity. The topsoil that was stripped will be spread along the edge of the road and within the ditch. The topsoil will be seeded with the proper seed mix designated by the BLM.

J. The access road will be constructed and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. The road will be crowned and ditched with water turnouts installed
as necessary to provide for proper drainage along the access road route.

K. The access road and associated drainage structures will be constructed and maintained in accordance with road guidelines contained in the joint BLM/USFS publication: Surface Operating Standards for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

3. LOCATION OF EXISTING WELLS:

See attached map **(EXHIBIT B)** showing all wells within a one-mile radius.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

A. In the event the well is found productive the company will run a surface installed, 2-7/8" steel flowline (90 psi), that will be run from the well, east and then north, following lease roads, to the battery at the Freeway 30 Fed Com 2H, for a distance of 1967.3 ft. **(SEE EXHIBIT E).**

B. All permanent (on site six months or longer) aboveground structures constructed or installed on location and not subject to safety requirements will be painted to BLM specifications.

C. Containment berms will be constructed completely around any production facilities designed to hold fluids. The containment berns will be constructed or compacted subsoil, be sufficiently impervious, hold 1 ½ times the capacity of the largest tank and away from cut or fill areas.

5. LOCATION AND TYPE OF WATER SUPPLY:

The well will be drilled using a combination of water mud systems as outlined in the Drilling Program. The water will be obtained from commercial water stations in the area and hauled to the location by transport truck using the existing and proposed roads shown in the attached survey plats. If a commercial water well is nearby, a temporary, surface poly line, will be laid along existing roads or other ROW easements and the water pumped to the well. No water well will be drilled on the location.

6. SOURCE OF CONSTRUCTION MATERIALS:

Any construction material that may be required for surfacing of the drill pad and access road will be from a contractor having a permitted source of materials within the general area. No construction materials will be removed from Federal lands without prior approval from the appropriate surface management agency. All roads will be constructed of 6" rolled and compacted caliche.

7. METHODS OF HANDLING WASTE DISPOSAL:

A. The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to an NMOCD approved disposal site.

B. Drilling fluids will be contained in steel mud pits.

C. Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility.

D. Oil produced during operations will be stored in tanks until sold.
E. Portable, self-contained chemical toilets will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents thereof disposed of in an approved sewage disposal facility. All state and local laws and regulations pertaining to disposal of human and solid waste will be complied with. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
F. All trash, junk, and other waste materials will be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Immediately after drilling all debris and other waste materials on and around the well location, not contained in the trash cage will be cleaned up and removed from the location. No potentially adverse materials or substances will be left on the location.

8. ANCILLARY FACILITIES:

No campsite, airstrip, or other facilities will be built as a result of the operation of this well. No staging areas are needed.

9. WELL SITE LAYOUT:

A. **Exhibit D** shows the dimensions of the proposed well pad.
B. The proposed well pad size will be 400' x 400' **(See EXHIBIT D).**
There will be no reserve pit due to the well being drilled utilizing a closed loop mud system. The closed loop system will meet the NMOCD requirements 19.15.17 .
C. The Basin Survey's plat, Form C-102 and **Exhibit D**, shows the direction of the pad at a V-Door Northeast.
D. A 600' x 600' area has been staked and flagged.
E. All equipment and vehicles will be confined to the approved disturbed areas of this APD (i.e., access road, well pad, and topsoil storage areas)

10. PLANS FOR SURFACE RECLAMATION:

A. After concluding the drilling and/or completion operations, if the well is found non-commercial, all the equipment will be removed, the surface material, caliche, will be removed from the well pad and road and transported to the original caliche pit or used for other roads. The original stock piled top soil will be returned to the pad and contoured, as close as possible, to the original topography. The access road will have the caliche removed and the road ripped, barricaded and seeded as directed by the BLM.
B. If the well is a producer, the portions of the pad not essential to production facilities or space required for workover operations, will be reclaimed and seeded as per BLM requirements for interim reclamation. **(SEE EXHIBIT C FOR INTERIM RECLAMATION PLAT FOR THIS WELL)**
C. Reclamation Performance Standards
The following reclamation performance standards will be met:

Final Reclamation – Includes disturbed areas where the original landform and a natural vegetative community will be restored and it is anticipated the site will not be redisturbed for future development.

- The original landform will be restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors.
- A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community will be established on the site, with a density sufficient to control erosion and invasion by non-native plants and to re-establish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation.
- Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.
- The site will be free of State- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive and non-native weeds are controlled.

Seeding:

- Seedbed Preparation. Initial seedbed preparation will consist of recontouring to the appropriate interim or final reclamation standard. All compacted areas to be seeded will be ripped to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified to a depth of no less than 4 6 inches. If the site is to be broadcast seeded, the surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration.
- If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
- Seed Application. Seeding will be conducted no more than two weeks following completion of final seedbed preparation. A certified weed-free seed mix designed by the BLM to meet reclamation standards will be used.
- If the site is harrowed or dragged, seed will be covered by no more than 0.25 inch of soil.

11. SURFACE OWNERSHIP:

A. The surface is owned by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas.

12. OTHER INFORMATION:

A. The area surrounding the well site is in a gentle sloped, shallow sandy loam, rolling hills type area. The vegetation consists of Mesquite, Catclaw Mimosa, Yucca, with three-awns and some dropseed species.
B. There is no permanent or live water in the immediate area.
C. There are no dwellings within 2 miles of this location.
D. A Class III Cultural Resources Examination has been completed by Boone Archaeological Services and the results will be forwarded to the BLM office.

13. BOND COVERAGE:

Bond Coverage is Nationwide; Bond Number NM-1616.

OPERATORS REPRESENTATIVE:

The CHI Operating, Inc. representatvies responsible for ensuring compliance of the surface use plan are listed below:

Surface:
Barry W. Hunt – Permit Agent
1403 Spring Farm Place
Carlsbad, NM 88220
(575) 885-1417 (Home)
(575) 361-4078 (Cell)

Drilling & Production:
John Qualls – CHI Operating, Inc.
P.O. Box 1799
Midland, Tx. 79702
(432) 685-5001 (Office)
(432) 557-8774 (Cell)

ON-SITE PERFORMED ON 7/17/14 RESULTED IN PROPOSED LOCATION BEING MOVED 150 FT. SOUTH DUE TO A GAS PIPELINE. IT WAS AGREED TO TURN THE LOCATION TO A V-DOOR NORTHEAST. IT WAS FURTHER AGREED TO RUN FLOWLINE TO THE BATTERY AT THE 2H, INTERIM RECLAMATION WOULD BE THE ALL SIDES OF THE PAD AND TOP SOIL TO BE TO THE SOUTHEAST. ACCESS ROAD TO FOLLOW PIPELINE TO SOUTHEAST TO LEASE ROAD.

PRESENT AT ON-SITE:
BARRY HUNT – PERMIT AGENT FOR CHI OPERATING, INC.
AMANDA LYNCH – BLM
BASIN SURVEYS

(432) 685-5001 Fax (432) 687-2662

Chi Operating, Inc.

P. O. BOX 1799
MIDLAND, TEXAS 79702

August 27, 2012

Re: Authorization to Permit for Drilling and Right Of Way

To Whom it may concern,

Chi Operating, Inc. hereby authorizes Mr. Barry Hunt to serve as an agent for the purpose of permitting and obtaining Federal authority.

Gary Womack

Chi Energy, Inc.

432-634-8958 (C)
432-685-5001 (O)

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 15 2015
RECEIVED

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Chi Operating, Inc.**
LEASE NO.:	**NMLC-062376**
WELL NAME & NO.:	**Freeway 30 Federal Com 3H**
SURFACE HOLE FOOTAGE:	**1800' FNL & 0330' FWL**
BOTTOM HOLE FOOTAGE	**1650' FNL & 0330' FEL**
LOCATION:	**Section 30, T. 19 S., R 30 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.

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 15 2015
RECEIVED

PECOS DISTRICT
CONDITIONS OF APPROVAL

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LEASE NO.:	**NMLC-062376**
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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)

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g. caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)

Tank Battery Liners and Berms:
Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

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.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Drilling:

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

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.

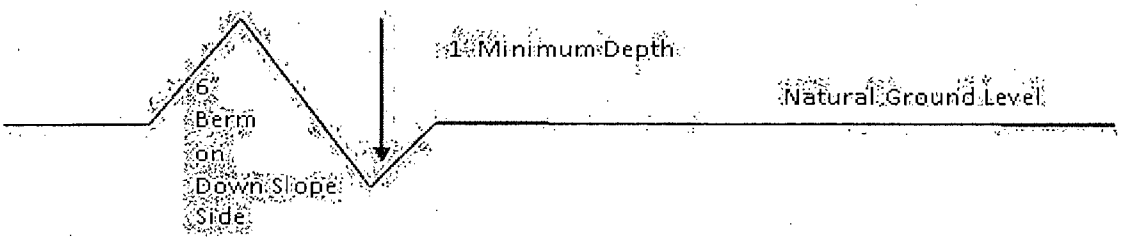
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

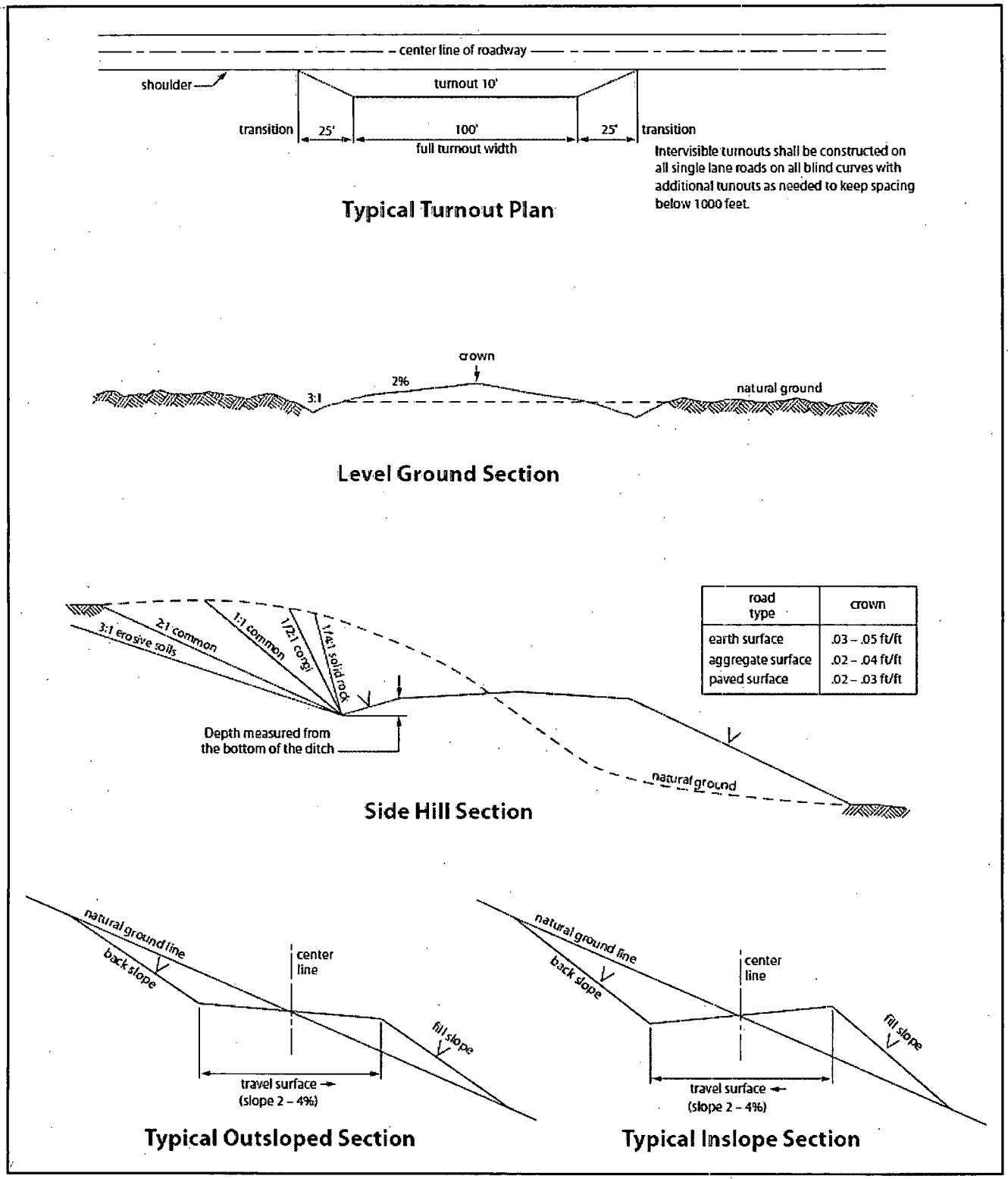


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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 (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values 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) for Potash Areas:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

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

Secretary's Potash
High Cave/Karst
Capitan Reef
Possibility of water and brine flows in the Artesia and Salado Groups.
Possibility of lost circulation in the Artesia Group.

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.

1. The **20** inch surface casing shall be set at approximately **350** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    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 **13-3/8** inch 1st 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 and potash. Excess calculates to negative 5% - Additional cement will be required.**

3. The minimum required fill of cement behind the **9-5/8** inch 2nd 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 Capitan Reef and potash. Excess calculates to 7% - Additional cement will be required.**

Centralizers required through the curve and a minimum of one every other joint.

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

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash. Excess calculates to 8% - Additional cement will be required.**

5. Cement not required on the **4-1/2"** casing. **Packer system being used.**

6. 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 53.

2. **A variance is granted for the use of a diverter on the 20" surface casing.**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8** 1st intermediate casing shoe shall be **2000 (2M)** psi **(Installing 2M annular)**.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** 2nd 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 potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

    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.

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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
Low-profile tanks not greater than eight-feet-high shall be used.

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, 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 activity of 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. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
b. Activities of other parties including, but not limited to:
    (1) Land clearing.
    (2) Earth-disturbing and earth-moving work.
    (3) Blasting.
    (4) Vandalism and sabotage.
c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, 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, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the 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 the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. 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.

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. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. 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. Signs will be maintained in a legible condition for the life of the pipeline.

14. 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. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (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 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.

16. 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, powerline 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.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

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 2 (SANDY LOCATIONS)

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 months prior to purchase. Commercial seed will be 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 to 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 double the amounts listed below. 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 (note: if broadcasting seed, amounts are to be doubled):

Species	**Pound/acre**
Plains Bristlegrass (*Setaria macrostachya*)	2.0
Sand Lovegrass (*Eragrostis trichodes*)	1.0
Sand Dropseed (*Sporobolus cryptandrus*)	1.0

* Pounds of pure live seed = (Pounds of seed) x (Percent purity) x (Percent germination)