

DISTRICT I

1025 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artists, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87605

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87605

Form C-102

Revised July 16, 2010

Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-4 0438	Pool Code 17644-51683	Pool Name Red Tank; Diamondtail; Bone Spring
Property Code 39051	Property Name THYME "APY" FEDERAL	Well Number 4
GRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3736'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 4	1	23 S	32 E		330	NORTH	375	WEST	LEA

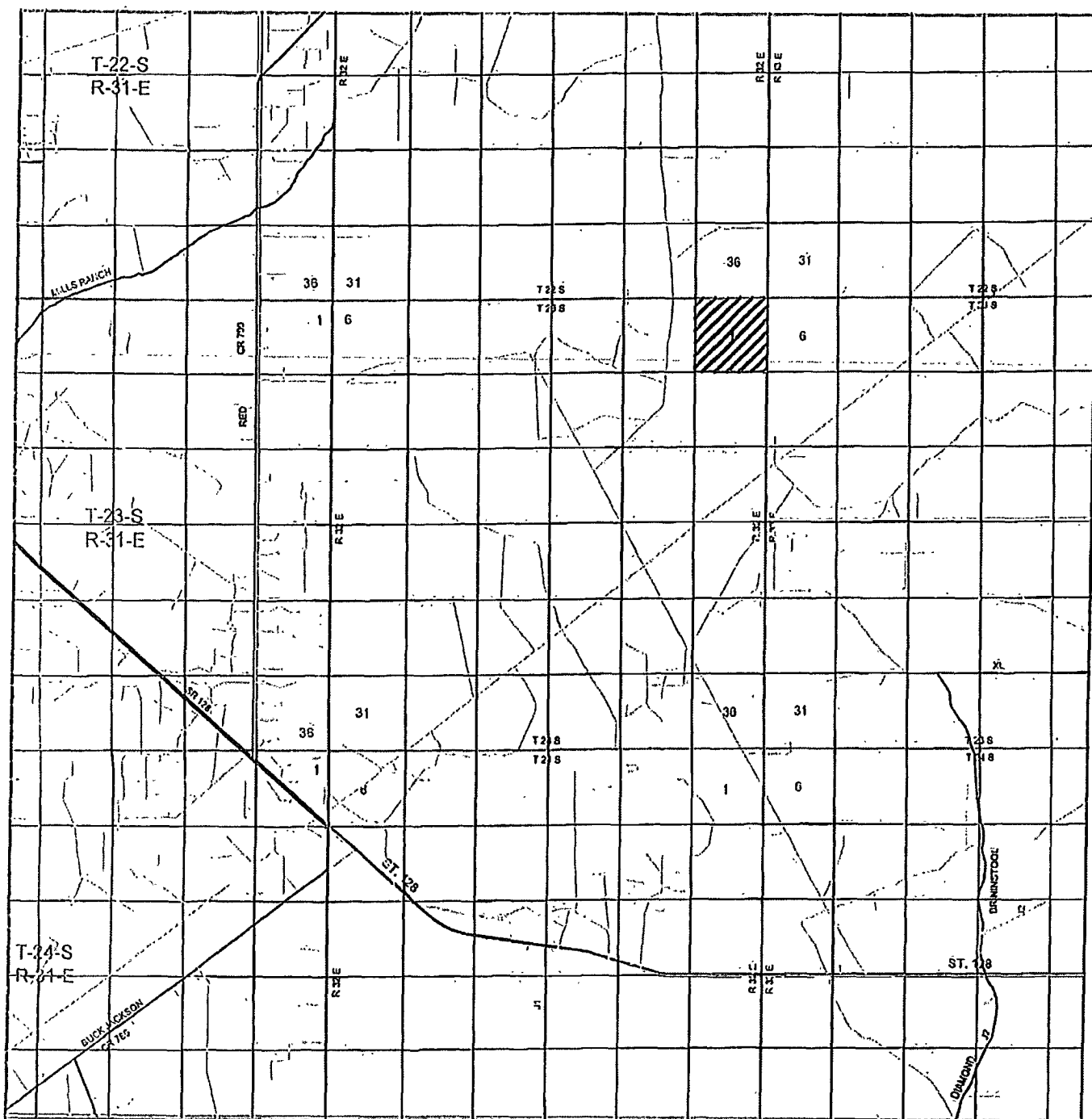
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	1	23 S	32 E		330	SOUTH	375	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

Lot 4 375' S.L. 375.6' 3736.7' 4000.6' NM-81274 375' B.H. 330'	Lot 3 SURFACE LOCATION Lat - N 32°20'24.45" Long - W 103°38'08.31" NMSPCE- N 488171.1 E 756813.3 (HAD-83)	Lot 2	Lot 1	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. <i>Zeno Farris</i> 10/19/2011 Signature Date Zeno Farris Printed Name: zfarris@cimarex.com Email Address
	PROPOSED BOTTOM HOLE LOCATION Lat - N 32°19'38.86" Long - W 103°38'08.42" NMSPCE- N 483563.60 E 756834.28 (HAD-83)			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 supervision and that the same is true and correct to the best of my belief. Date Surveyed: 10/19/2011 Signature of Surveyor: <i>[Signature]</i> Professional Surveyor Certificate No. Gary L. Jones 7977 BASIN SURVEYS 24892



THYME "APY" FEDERAL #4
 Located 330' FNL and 375' FWL
 Section 1, Township 23 South, Range 32 East,
 N.M.P.M., Lea County, New Mexico.

basin
surveys
 focused on excellence
 in the oilfield

P.O. Box 1786
 1120 H. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 -- Office
 (575) 392-2206 -- Fax
 basin-surveys.com

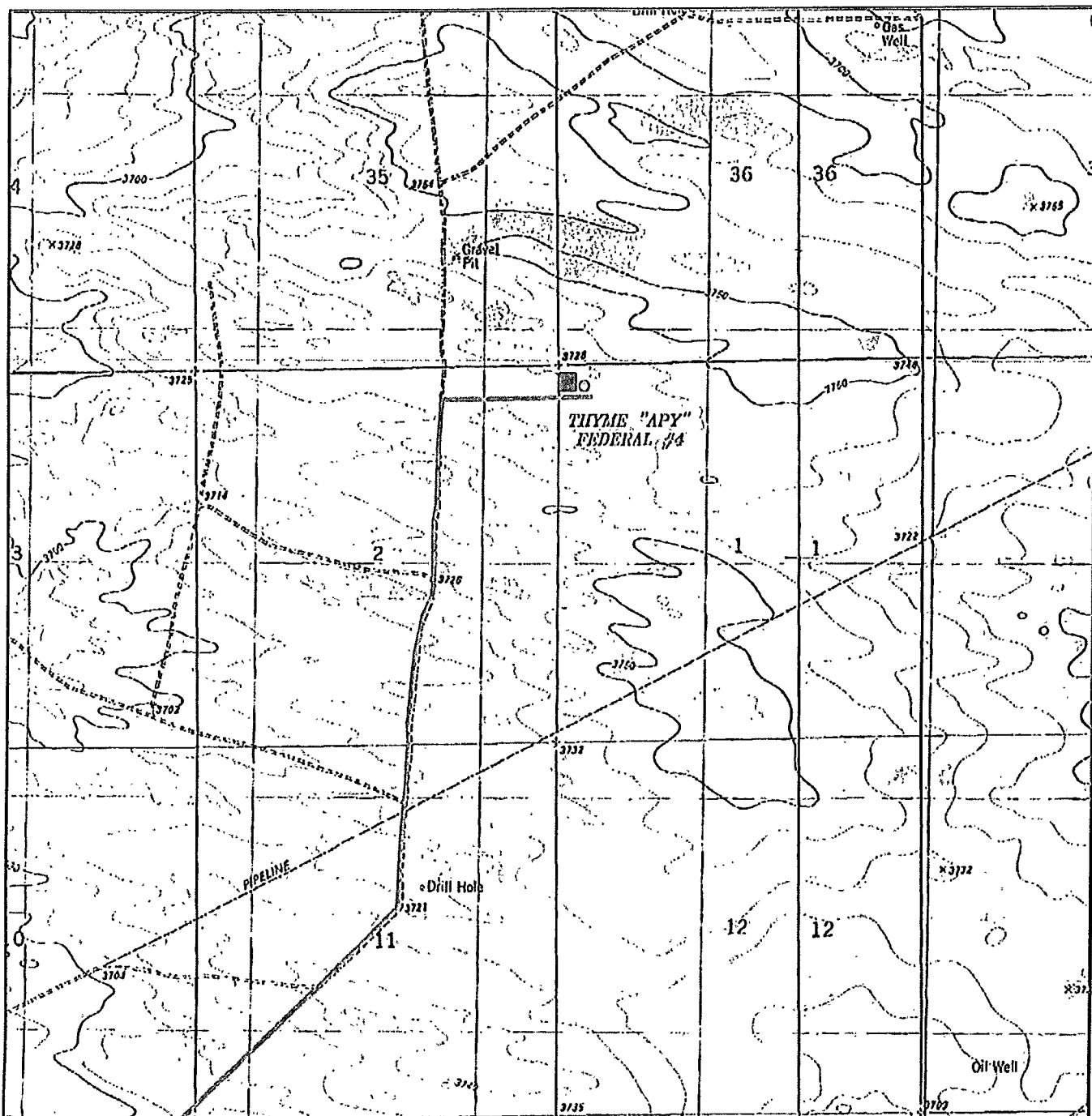
W.O. Number: JMS 240868

Survey Date: 07-20-2011

Scale: 1" = 2 Miles

Date: 07-21-2011

CIMAREX
ENERGY CO.
OF COLORADO



THYME "APY" FEDERAL #4
 Located 330' FNL and 375' FWL
 Section 1, Township 23 South, Range 32 East,
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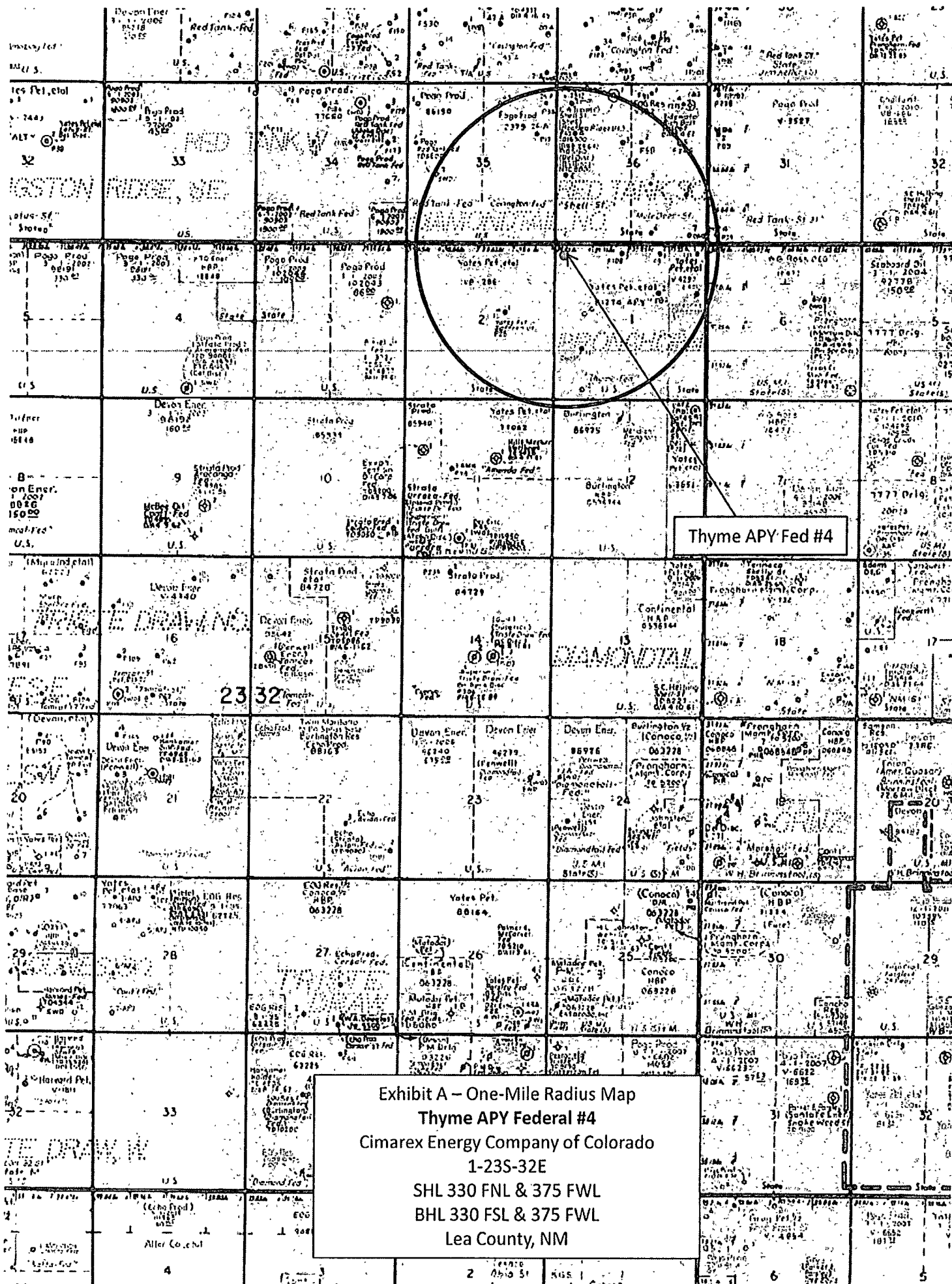
W.O. Number: JMS 24892

Survey Date: 07-20-2011

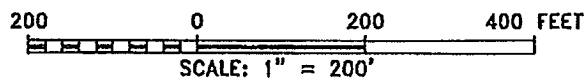
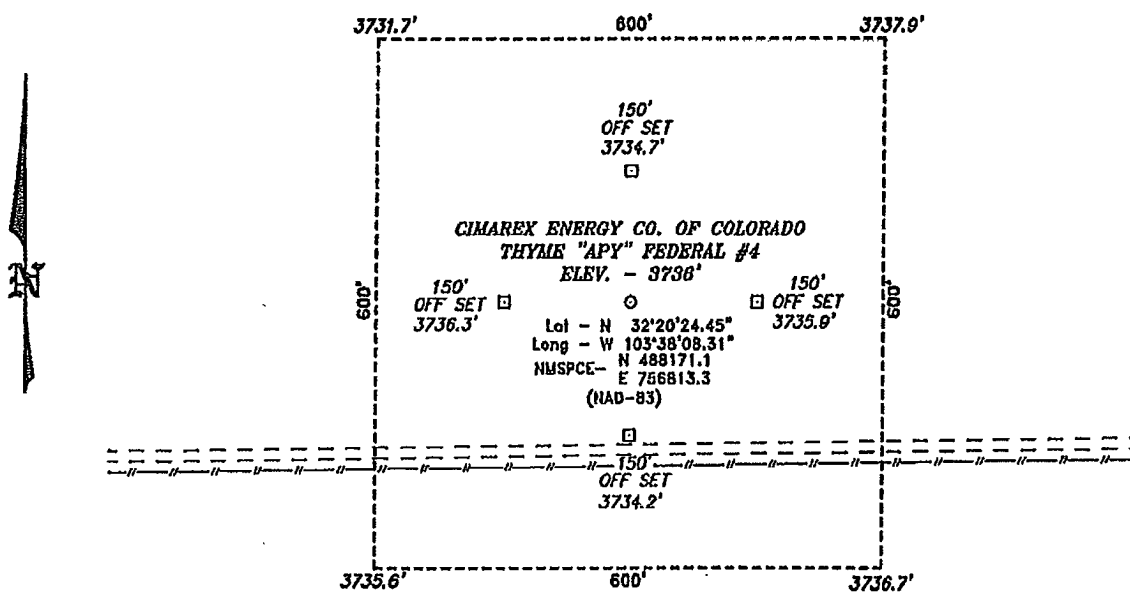
Scale: 1" = 2000'

Date: 07-21-2011

CIMAREX
 ENERGY CO.
 OF COLORADO



SECTION 1, TOWNSHIP 23 SOUTH, RANGE 32 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM MILE MARKER 19 OF HWY 128, GO
NORTHEAST 5.6 MILES TO LEASE ROAD, ON LEASE
ROAD GO NORTHWEST 1.4 MILES TO LEASE ROAD,
ON LEASE ROAD GO NORTH 2.7 MILES TO LEASE
ROAD, ON LEASE ROAD GO EAST 0.3 MILES TO
PROPOSED LOCATION.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 24892 Drawn By: J. SMALL

Date: 07-21-2011 Disk: JMS 24892

CIMAREX ENERGY CO. OF COLORADO

REF: THYME "APY" FEDERAL #4 / WELL PAD TOPO

THE THYME "APY" FEDERAL #1 LOCATED 330'

FROM THE NORTH LINE AND 375' FROM THE WEST LINE OF

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 32 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: 07-20-2011 Sheet 1 of 1 Sheets

Application to Drill
Thyme APY Federal No. 4
 Cimarex Energy Co. of Colorado
 Lot 4, Section 1
 T23S-R32E; Lea County, NM

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

- 1 Location: SHL 330 FNL & 375 FWL
 BHL 330 FSL & 375 FWL
- 2 Elevation above sea level: 3736 GR
- 3 Geologic name of surface formation: Quaternary Alluvium Deposits
- 4 Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.
- 5 Proposed drilling depth: MD 14085 TVD 9600 Pilot Hole 10200
- 6 Estimated tops of geological markers:

Rustler	1220
T. Salt	1295
B. Salt	4680
Delaware	5000
Basal Brushy Canyon	8500
Bone Spring	8600
Upper Bone Spring Shale	9250
1st Bone Spring SS	9975
- 7 Possible mineral bearing formation:

Delaware	Oil
Bone Spring	Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1245' 1325'	8.4 - 8.6	28	NC	FW
1245' to 4800'	10.0	30-32	NC	Brine water
4800' to 10200'	8.4 - 9.5	30-32	NC	FW, Brine
10200' to 14085'	8.4	30-32	NC	2% KCL

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.

Proposed drilling Plan

After setting surface and intermediate casing, drill 8 $\frac{3}{4}$ " hole to 10200 and log. Then pump 495 sks Type H Cement, D080 (Dispersant) 0.080 gal/sk, D177 (Retarder) 0.045gal/sk 17.5 ppg yield 0.94 & 0% Excess from 10200-KOP, must tag cement prior to setting the whipstock for KOP. kick off 8 $\frac{3}{4}$ " lateral at 9314 and drill to TD at 14085 MD, 9600 TVD. Set 5 $\frac{1}{2}$ " 17# P110 LTC from 0-TD and cement.

Application to Drill
Thyme APY Federal No. 4
 Cimarex Energy Co. of Colorado
 Lot 4, Section 1
 T23S-R32E; Lea County, NM

9 Casing & Cementing Program:

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
<i>2 1/2" CA</i> Surface	17 1/2"	0' to <i>18 2 1/2'</i> 1245'	New 13 3/8"	48#	STC	H-40
Intermediate	12 1/4"	0' to 4800'	New 9 5/8"	40#	LTC	N-80
Production	8 3/4"	0' to 14085'	New 5 1/2"	17#	LTC	P-110

10 Cementing:

Surface

Lead: 2195SKS Halcem C + 2% CaCl 13.5ppg 1.75yield 100% Excess
 Tail: 345SKS Class C + 4% D20, 1% S001, 0.2% D46, 0.125 lb/sk D130 14.2ppg 1.34 yield 25% Excess
TOC Surface Centralizers per Onshorder 2.III.B.1.f

Intermediate

Lead: 1190SKS Econocem + 5% Salt + 5# Gilsonite 14.6ppg 1.54yield 70% Excess
 Tail: 160SKS Halcem + 1% CaCl 14.8ppg 1.34 yield 25% Excess
TOC Surface

Production

Lead: 1040SKS Econocem H + 0.5% CFR-3 + 0.1% HR-601 11.9ppg 2.44 yield 50% Excess
 Tail: 1270SKS Versacem H + 0.5% Halad-344 + 0.4% CFR-3 + 1# Salt + 0.1% HR-601 14.5ppg 1.22 yield 25% Excess
TOC 4500' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.

Depth to ground water is 500 according to the State Engineer. Fresh water zones will be protected by setting 13 3/8" casing at 1245' and cementing to surface and 9 5/8" casing at 4800 and cementing to surface. Hydrocarbon zones will be protected by setting 5 1/2" casing at 14085 and cementing to 4500.

<u>Collapse Factor</u>	<u>Burst Factor</u>	<u>Tension Factor</u>
1.125	1.125	1.6

11 Pressure control Equipment:

Exhibit "E". A 13 3/8" 5000 PSI working pressure B.O.P. consisting of one set of blind rams and one set of pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 6000'. A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor. Mud gas separator will be available if drilling in H2S areas.

BOP unit will be hydraulically operated. BOP will be nipped up and operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling. From the base of the surface pipe through the running of production casing, the well will be equipped with a 5000 psi BOP system.

Before drilling out of the surface pipe BOP's will be tested to 250 psi low and 3000 psi high by an independent service company. Hydril will be tested to 250 psi low and 1500 psi high. Before drilling out of the intermediate pipe BOP's will be tested by an independent service company to 250 psi low and 5000 psi high. Hydril will be tested to 250 psi low and 2500 psi high.

Application to Drill
Thyme APY Federal No. 4
Cimarex Energy Co. of Colorado
Lot 4, Section 1
T23S-R32E; Lea County, NM

12 Testing, Logging and Coring Program: *See COP*

- A. Mud logging program: 2 man unit from 4800 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H₂S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S Safety package on all wells, attached is an "H₂S Drilling Operations Plan." Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP 4320 psi Estimated BHT 130°

14 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.

Drilling expected to take 30-35 days

If production casing is run an additional 30 days will be required to complete and construct surface facilities.

15 Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

Bone Spring pay will be perforated and stimulated.

The proposed well will be tested and potentialized as an oil well.



Cimarex Energy Co.

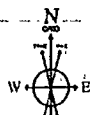
Location: Lea County, NM
Field: (Thyme) Sec. 1, T23S, R32E
Facility: Thyme "APY" Federal No. 4

Slot: No. 4 SHL
Well: No. 4
Wellbore: No. 4 PWB



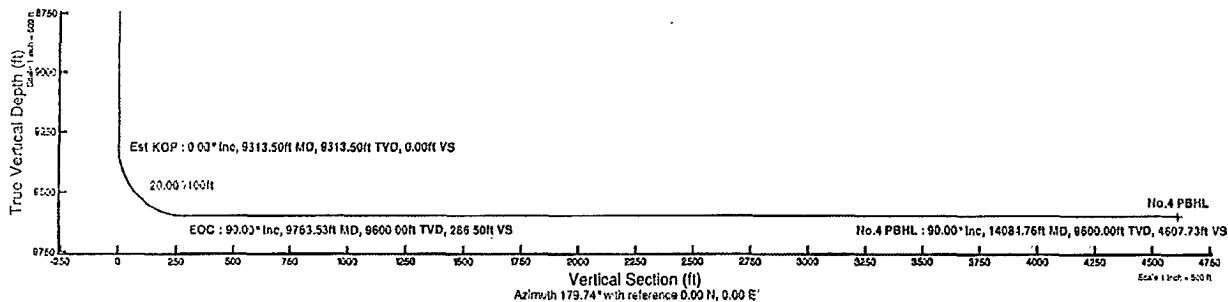
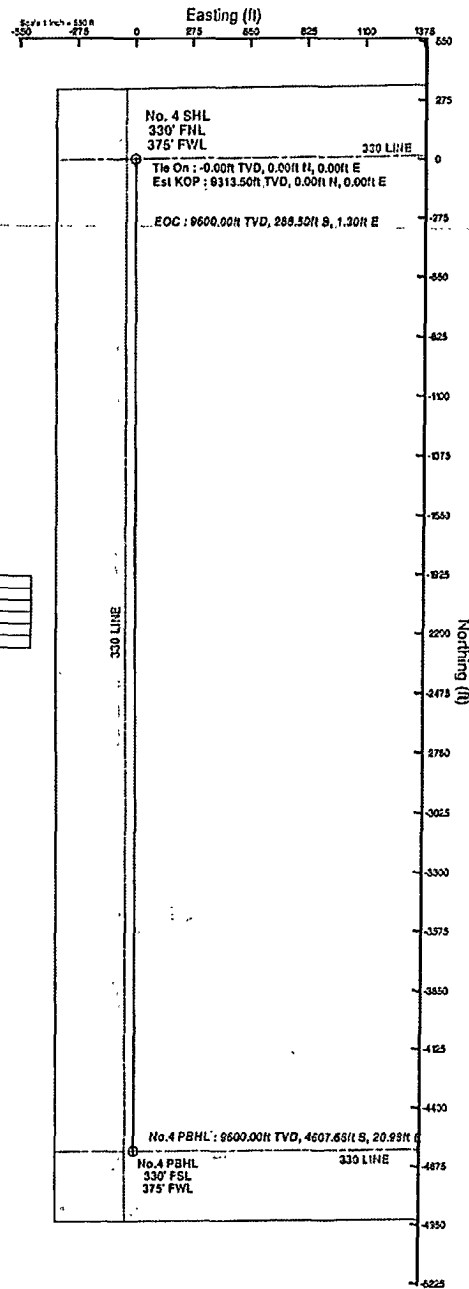
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°100ft)	VS (ft)
Tie On	0.00	0.000	179.739	0.00	0.00	0.00	0.00	0.00
Est KOP	9313.50	0.000	179.739	9313.50	0.00	0.00	0.00	0.00
EOC	9763.53	90.000	179.739	9600.00	-286.50	1.30	20.00	286.50
No. 4 PBHL	14084.76	90.000	179.739	9600.00	-4607.68	20.98	0.00	4607.73



BDGM (1945.0 to 2012.0) Dip: 69.93° Field: 43714.5 N
Magnetic North is 7.64 degrees East of True North (at 9/1/2011)
Grid North is 0.57 degrees East of True North
To correct azimuth from True to Grid subtract 0.57 degrees
To correct azimuth from Magnetic to Grid add 7.27 degrees
For example, if the Magnetic North Azimuth = 90 degrees, then the Grid North Azimuth = 90 + 7.27 = 97.27

Reference well is Pwml 2	
The vertical data are referenced to No. 4 SHL (R32E)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (G2011), US feet
The horizontal data are referenced to No. 4 SHL (R32E)	North reference: Grid north
The vertical data are referenced to No. 4 SHL (R32E)	Scale: True distance
The horizontal data are referenced to No. 4 SHL (R32E)	Depth are in feet
The vertical data are referenced to No. 4 SHL (R32E)	Created by catfish on 1/2/2011





Planned Wellpath Report

Prelim_2
Page 1 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4 SHL
Area	Lea County, NM	Well	No.4
Field	(Thyme) Sec 1, T23S, R32E	Wellbore	No.4 PWB
Facility	Thyme "APY" Federal No.4		

REPORT SETUP INFORMATION			
Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Calhphik
Scale	0.999962	Report Generated	9/1/2011 at 10:43:34 AM
Convergence at slot	0.37° East	Database/Source file	WA_Midland/No.4_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W
Facility Reference Pt			756813.30	488171.10	32°20'24.448"N	103°38'08.315"W
Field Reference Pt			756813.30	488171.10	32°20'24.448"N	103°38'08.315"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No.4 SHL (RKB) to GL	3736.00ft
Horizontal Reference Pt	Slot	Rig on No.4 SHL (RKB) to Mean Sea Level	3736.00ft
Vertical Reference Pt	Rig on No.4 SHL (RKB)	Rig on No.4 SHL (RKB) to Mud Line at Slot (No. 4 SHL)	3736.00ft
MD Reference Pt	Rig on No.4 SHL (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.74°



Planned Wellpath Report

Prelim_2

Page 2 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4 SHL
Area	Lea County, NM	Well	No.4
Field	(Thyme) Sec 1, T23S, R32E	Wellbore	No.4 PWB
Facility	Thyme "APY" Federal No.4		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	179.739	0.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	Tie On
100.00†	0.000	179.739	100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
200.00†	0.000	179.739	200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
300.00†	0.000	179.739	300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
400.00†	0.000	179.739	400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
500.00†	0.000	179.739	500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
600.00†	0.000	179.739	600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
700.00†	0.000	179.739	700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
800.00†	0.000	179.739	800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
900.00†	0.000	179.739	900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1000.00†	0.000	179.739	1000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1100.00†	0.000	179.739	1100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1200.00†	0.000	179.739	1200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1300.00†	0.000	179.739	1300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1400.00†	0.000	179.739	1400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1500.00†	0.000	179.739	1500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1600.00†	0.000	179.739	1600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1700.00†	0.000	179.739	1700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1800.00†	0.000	179.739	1800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
1900.00†	0.000	179.739	1900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2000.00†	0.000	179.739	2000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2100.00†	0.000	179.739	2100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2200.00†	0.000	179.739	2200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2300.00†	0.000	179.739	2300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2400.00†	0.000	179.739	2400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2500.00†	0.000	179.739	2500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2600.00†	0.000	179.739	2600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2700.00†	0.000	179.739	2700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2800.00†	0.000	179.739	2800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
2900.00†	0.000	179.739	2900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3000.00†	0.000	179.739	3000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3100.00†	0.000	179.739	3100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3200.00†	0.000	179.739	3200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3300.00†	0.000	179.739	3300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3400.00†	0.000	179.739	3400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3500.00†	0.000	179.739	3500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3600.00†	0.000	179.739	3600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3700.00†	0.000	179.739	3700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3800.00†	0.000	179.739	3800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
3900.00†	0.000	179.739	3900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4000.00†	0.000	179.739	4000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4100.00†	0.000	179.739	4100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4200.00†	0.000	179.739	4200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4300.00†	0.000	179.739	4300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4400.00†	0.000	179.739	4400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4 SHL
Area	Lea County, NM	Well	No.4
Field	(Thyme) Sec I, T23S, R32E	Wellbore	No.4 PWB
Facility	Thyme "APY" Federal No.4		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4500.00†	0.000	179.739	4500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4600.00†	0.000	179.739	4600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4700.00†	0.000	179.739	4700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4800.00†	0.000	179.739	4800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
4900.00†	0.000	179.739	4900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5000.00†	0.000	179.739	5000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5100.00†	0.000	179.739	5100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5200.00†	0.000	179.739	5200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5300.00†	0.000	179.739	5300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5400.00†	0.000	179.739	5400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5500.00†	0.000	179.739	5500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5600.00†	0.000	179.739	5600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5700.00†	0.000	179.739	5700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5800.00†	0.000	179.739	5800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
5900.00†	0.000	179.739	5900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6000.00†	0.000	179.739	6000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6100.00†	0.000	179.739	6100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6200.00†	0.000	179.739	6200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6300.00†	0.000	179.739	6300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6400.00†	0.000	179.739	6400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6500.00†	0.000	179.739	6500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6600.00†	0.000	179.739	6600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6700.00†	0.000	179.739	6700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6800.00†	0.000	179.739	6800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
6900.00†	0.000	179.739	6900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7000.00†	0.000	179.739	7000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7100.00†	0.000	179.739	7100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7200.00†	0.000	179.739	7200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7300.00†	0.000	179.739	7300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7400.00†	0.000	179.739	7400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7500.00†	0.000	179.739	7500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7600.00†	0.000	179.739	7600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7700.00†	0.000	179.739	7700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7800.00†	0.000	179.739	7800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
7900.00†	0.000	179.739	7900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8000.00†	0.000	179.739	8000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8100.00†	0.000	179.739	8100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8200.00†	0.000	179.739	8200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8300.00†	0.000	179.739	8300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8400.00†	0.000	179.739	8400.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8500.00†	0.000	179.739	8500.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8600.00†	0.000	179.739	8600.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	Bone Spring
8700.00†	0.000	179.739	8700.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8800.00†	0.000	179.739	8800.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
8900.00†	0.000	179.739	8900.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4 SHL
Area	Lea County, NM	Well	No. 4
Field	(Thyme) Sec 1, T23S, R32E	Wellbore	No. 4 PWB
Facility	Thyme "APY" Federal No. 4		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
9000.00†	0.000	179.739	9000.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
9100.00†	0.000	179.739	9100.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
9200.00†	0.000	179.739	9200.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
9250.00†	0.000	179.739	9250.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	Upper Bone Spring Shale
9300.00†	0.000	179.739	9300.00	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	
9313.50	0.000	179.739	9313.50	0.00	0.00	0.00	756813.30	488171.10	32°20'24.448"N	103°38'08.315"W	0.00	Est KOP
9400.00†	17.299	179.739	9398.69	12.96	-12.96	0.06	756813.36	488158.14	32°20'24.320"N	103°38'08.315"W	20.00	
9500.00†	37.297	179.739	9487.10	58.59	-58.59	0.27	756813.57	488112.51	32°20'23.868"N	103°38'08.316"W	20.00	
9600.00†	57.296	179.739	9554.58	131.70	-131.70	0.60	756813.90	488039.40	32°20'23.145"N	103°38'08.318"W	20.00	
9700.00†	77.294	179.739	9592.98	223.49	-223.48	1.02	756814.32	487947.62	32°20'22.237"N	103°38'08.320"W	20.00	
9763.53	90.000	179.739	9600.00	286.50	-286.50	1.30	756814.60	487884.61	32°20'21.613"N	103°38'08.321"W	20.00	EOC
9800.00†	90.000	179.739	9600.00	322.97	-322.96	1.47	756814.77	487848.15	32°20'21.252"N	103°38'08.322"W	0.00	
9900.00†	90.000	179.739	9600.00	422.97	-422.96	1.93	756815.23	487748.15	32°20'20.263"N	103°38'08.324"W	0.00	
10000.00†	90.000	179.739	9600.00	522.97	-522.96	2.38	756815.68	487648.16	32°20'19.273"N	103°38'08.327"W	0.00	
10100.00†	90.000	179.739	9600.00	622.97	-622.96	2.84	756816.14	487548.16	32°20'18.284"N	103°38'08.329"W	0.00	
10200.00†	90.000	179.739	9600.00	722.97	-722.96	3.29	756816.59	487448.17	32°20'17.294"N	103°38'08.331"W	0.00	
10300.00†	90.000	179.739	9600.00	822.97	-822.96	3.75	756817.05	487348.17	32°20'16.305"N	103°38'08.333"W	0.00	
10400.00†	90.000	179.739	9600.00	922.97	-922.96	4.20	756817.50	487248.18	32°20'15.315"N	103°38'08.336"W	0.00	
10500.00†	90.000	179.739	9600.00	1022.97	-1022.96	4.66	756817.96	487148.18	32°20'14.326"N	103°38'08.338"W	0.00	
10600.00†	90.000	179.739	9600.00	1122.97	-1122.96	5.11	756818.41	487048.19	32°20'13.336"N	103°38'08.340"W	0.00	
10700.00†	90.000	179.739	9600.00	1222.97	-1222.95	5.57	756818.87	486948.19	32°20'12.347"N	103°38'08.342"W	0.00	
10800.00†	90.000	179.739	9600.00	1322.97	-1322.95	6.02	756819.32	486848.20	32°20'11.357"N	103°38'08.345"W	0.00	
10900.00†	90.000	179.739	9600.00	1422.97	-1422.95	6.48	756819.78	486748.20	32°20'10.368"N	103°38'08.347"W	0.00	
11000.00†	90.000	179.739	9600.00	1522.97	-1522.95	6.93	756820.23	486648.21	32°20'09.378"N	103°38'08.349"W	0.00	
11100.00†	90.000	179.739	9600.00	1622.97	-1622.95	7.39	756820.69	486548.21	32°20'08.389"N	103°38'08.352"W	0.00	
11200.00†	90.000	179.739	9600.00	1722.97	-1722.95	7.85	756821.15	486448.22	32°20'07.399"N	103°38'08.354"W	0.00	
11300.00†	90.000	179.739	9600.00	1822.97	-1822.95	8.30	756821.60	486348.22	32°20'06.410"N	103°38'08.356"W	0.00	
11400.00†	90.000	179.739	9600.00	1922.97	-1922.95	8.76	756822.06	486248.23	32°20'05.420"N	103°38'08.358"W	0.00	
11500.00†	90.000	179.739	9600.00	2022.97	-2022.95	9.21	756822.51	486148.23	32°20'04.431"N	103°38'08.361"W	0.00	
11600.00†	90.000	179.739	9600.00	2122.97	-2122.94	9.67	756822.97	486048.24	32°20'03.441"N	103°38'08.363"W	0.00	
11700.00†	90.000	179.739	9600.00	2222.97	-2222.94	10.12	756823.42	485948.24	32°20'02.452"N	103°38'08.365"W	0.00	
11800.00†	90.000	179.739	9600.00	2322.97	-2322.94	10.58	756823.88	485848.25	32°20'01.462"N	103°38'08.368"W	0.00	
11900.00†	90.000	179.739	9600.00	2422.97	-2422.94	11.03	756824.33	485748.25	32°20'00.473"N	103°38'08.370"W	0.00	
12000.00†	90.000	179.739	9600.00	2522.97	-2522.94	11.49	756824.79	485648.26	32°19'59.483"N	103°38'08.372"W	0.00	
12100.00†	90.000	179.739	9600.00	2622.97	-2622.94	11.94	756825.24	485548.26	32°19'58.494"N	103°38'08.374"W	0.00	
12200.00†	90.000	179.739	9600.00	2722.97	-2722.94	12.40	756825.70	485448.27	32°19'57.504"N	103°38'08.377"W	0.00	
12300.00†	90.000	179.739	9600.00	2822.97	-2822.94	12.85	756826.15	485348.27	32°19'56.515"N	103°38'08.379"W	0.00	
12400.00†	90.000	179.739	9600.00	2922.97	-2922.94	13.31	756826.61	485248.28	32°19'55.525"N	103°38'08.381"W	0.00	
12500.00†	90.000	179.739	9600.00	3022.97	-3022.94	13.76	756827.06	485148.28	32°19'54.536"N	103°38'08.384"W	0.00	
12600.00†	90.000	179.739	9600.00	3122.97	-3122.93	14.22	756827.52	485048.29	32°19'53.546"N	103°38'08.386"W	0.00	
12700.00†	90.000	179.739	9600.00	3222.97	-3222.93	14.68	756827.97	484948.29	32°19'52.557"N	103°38'08.388"W	0.00	
12800.00†	90.000	179.739	9600.00	3322.97	-3322.93	15.13	756828.43	484848.30	32°19'51.567"N	103°38'08.390"W	0.00	
12900.00†	90.000	179.739	9600.00	3422.97	-3422.93	15.59	756828.89	484748.30	32°19'50.578"N	103°38'08.393"W	0.00	
13000.00†	90.000	179.739	9600.00	3522.97	-3522.93	16.04	756829.34	484648.31	32°19'49.588"N	103°38'08.395"W	0.00	
13100.00†	90.000	179.739	9600.00	3622.97	-3622.93	16.50	756829.80	484548.31	32°19'48.599"N	103°38'08.397"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4 SHL
Area	Lea County, NM	Well	No.4
Field	(Thyme) Sec 1, T23S, R32E	Wellbore	No.4 PWB
Facility	Thyme "APY" Federal No.4		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13200.00†	90.000	179.739	9600.00	3722.97	-3722.93	16.95	756830.25	484448.32	32°19'47.609"N	103°38'08.400"W	0.00	
13300.00†	90.000	179.739	9600.00	3822.97	-3822.93	17.41	756830.71	484348.32	32°19'46.620"N	103°38'08.402"W	0.00	
13400.00†	90.000	179.739	9600.00	3922.97	-3922.93	17.86	756831.16	484248.33	32°19'45.630"N	103°38'08.404"W	0.00	
13500.00†	90.000	179.739	9600.00	4022.97	-4022.93	18.32	756831.62	484148.33	32°19'44.641"N	103°38'08.406"W	0.00	
13600.00†	90.000	179.739	9600.00	4122.97	-4122.92	18.77	756832.07	484048.34	32°19'43.651"N	103°38'08.409"W	0.00	
13700.00†	90.000	179.739	9600.00	4222.97	-4222.92	19.23	756832.53	483948.34	32°19'42.662"N	103°38'08.411"W	0.00	
13800.00†	90.000	179.739	9600.00	4322.97	-4322.92	19.68	756832.98	483848.35	32°19'41.672"N	103°38'08.413"W	0.00	
13900.00†	90.000	179.739	9600.00	4422.97	-4422.92	20.14	756833.44	483748.35	32°19'40.683"N	103°38'08.416"W	0.00	
14000.00†	90.000	179.739	9600.00	4522.97	-4522.92	20.59	756833.89	483648.36	32°19'39.693"N	103°38'08.418"W	0.00	
14084.76	90.000	179.739	9600.00	4607.73	-4607.68	20.98	756834.28	483563.60	32°19'38.855"N	103°38'08.420"W	0.00	No.4 PBHL

HOLE & CASING SECTIONS - Ref Wellbore: No.4 PWB Ref Wellpath: Prelim_2									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
12.25in Open Hole	0.00	4500.00	4500.00	0.00	4500.00	0.00	0.00	0.00	0.00
9.625in Casing	0.00	4500.00	4500.00	0.00	4500.00	0.00	0.00	0.00	0.00
8.75in Open Hole	4500.00	14084.76	9584.76	4500.00	9600.00	0.00	0.00	-4607.68	20.98
5.5in Casing	0.00	14084.76	14084.76	0.00	9600.00	0.00	0.00	-4607.68	20.98

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No.4 PBHL	14084.76	9600.00	-4607.68	20.98	756834.28	483563.60	32°19'38.855"N	103°38'08.420"W	point

SURVEY PROGRAM - Ref Wellbore: No.4 PWB Ref Wellpath: Prelim_2				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
3736.00	14084.76	NaviTrak (Standard)		No.4 PWB

SR & A

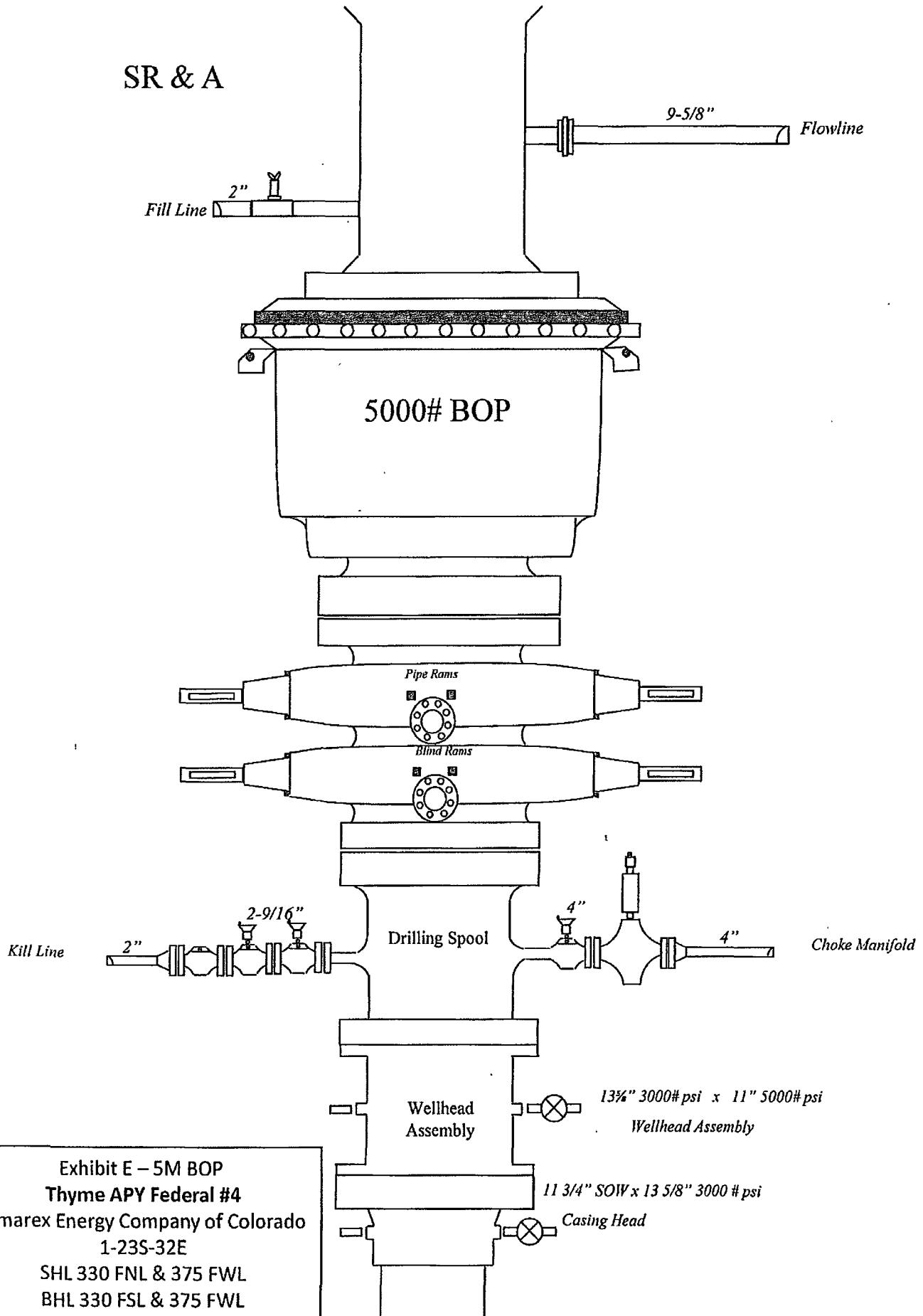
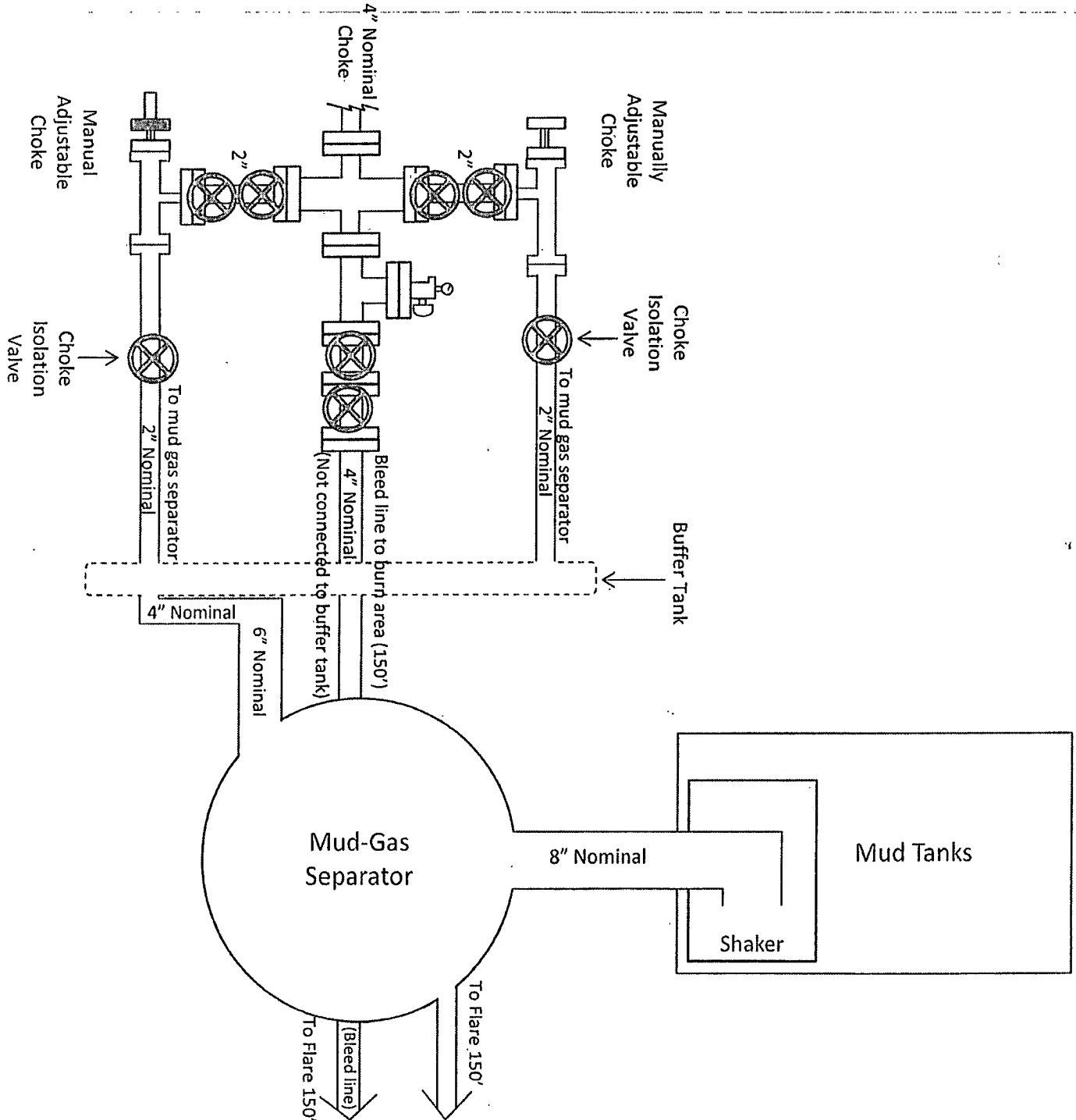
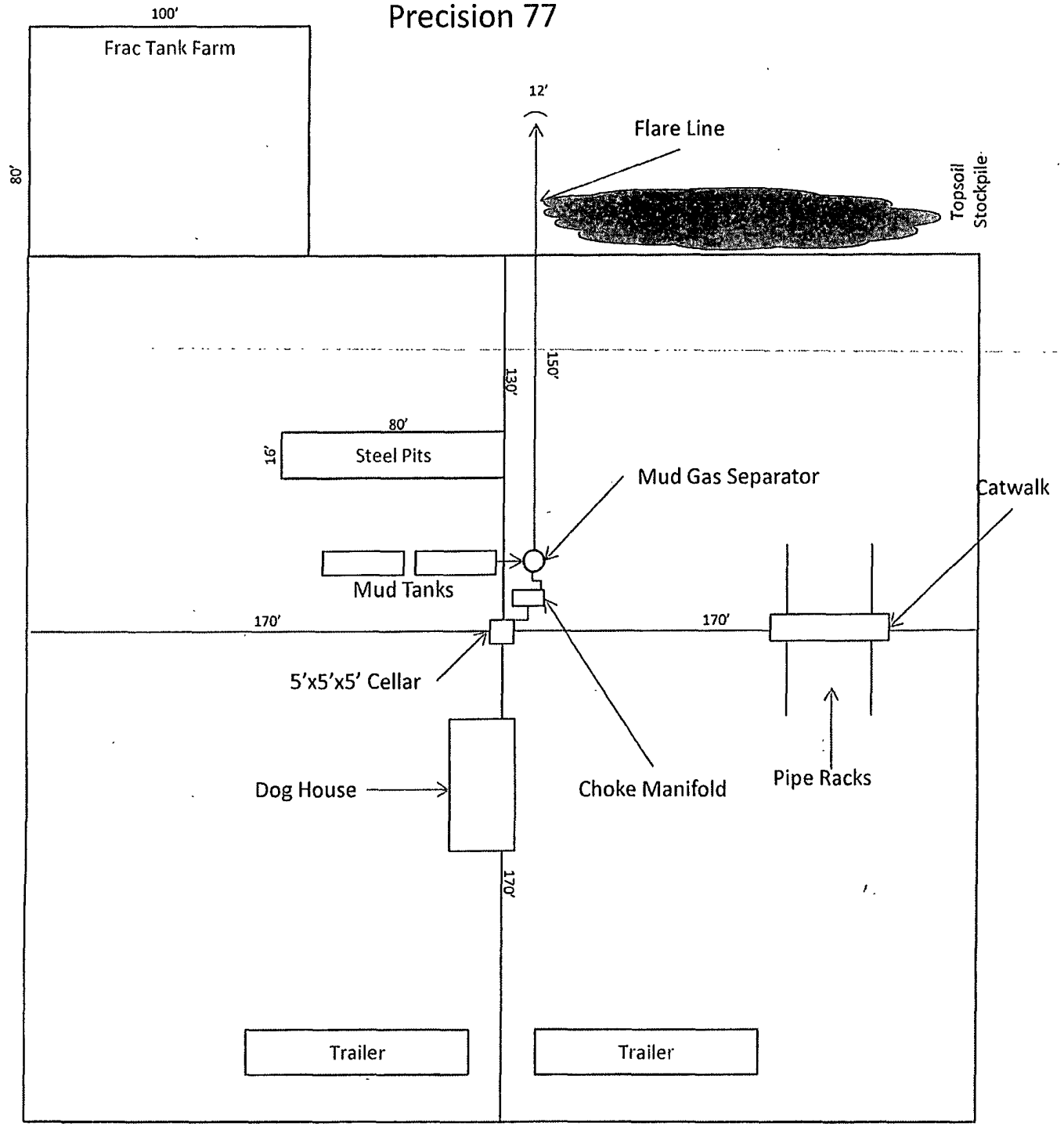


Exhibit E – 5M BOP
Thyme APY Federal #4
Cimarex Energy Company of Colorado
1-23S-32E
SHL 330 FNL & 375 FWL
BHL 330 FSL & 375 FWL
Lea County, NM

4" Nomin Choke



Precision 77



Access Road



Exhibit D – Rig Diagram
Thyme APY Federal #4
Cimarex Energy Company of Colorado
1-23S-32E
SHL 330 FNL & 375 FWL
BHL 330 FSL & 375 FWL
Lea County, NM