State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach Division Director
Oil Conservation Division

New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: _____

Well information;

Operator Energen, Well Name and Number Chaco 23-08 15 #2H

API# 30-045-35633, Section 14, Township 23 (N)/S, Range 8 E/(W)

Conditions of Approval:

(See the below checked and handwritten conditions)

- ✓ Notify Aztec OCD 24hrs prior to casing & cement.
- ✓ Hold C-104 for directional survey & "As Drilled" Plat
- ✓ Hold C-104 for NSL, NSP, DHC
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- o Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

Chad Hurn
NMOCD Approved by Signature

2-8-2016
Date

Form 3160-3
(August 2007)

RECEIVED
MAR 18 2015
Farmington Field Office
Bureau of Land Management

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM-18463

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.
CHACO 23-08 15 #2H

2. Name of Operator ENERGEN RESOURCES CORPORATION

9. API Well No.
30-045-35633

3a. Address 2010 AFTON PLACE
FARMINGTON, NM 87401

3b. Phone No. *(include area code)*
505-325-6800

10. Field and Pool, or Exploratory
BASIN MANCOS

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface L 2106' FSL & 526' FWL, SEC 14, T23N, R8W
At proposed prod. zone M 380' FSL & 380' FWL, SEC 15, T23N, R8W

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 14. T23N. R8W. NMPM

14. Distance in miles and direction from nearest town or post office*
Approximately (7) seven miles southeast of the town of Nageezi, New Mexico

12. County or Parish
SAN JUAN COUNTY

13. State
NM

KP

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
526'	2243.16 ACRES	160 ACRES
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
75'	11,093' MD 5,125' TVD	NM2707 NMB000747
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
GL: 6,875' (NAVD 88)	05/01/2015	45 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)*	Date
Anna Stotts	Anna Stotts	1/16/15

Title
Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Maryann Maestas		1/20/2016
Title	**Office**	
AFM	FFO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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

(Continued on page 2)

*(Instructions on page 2)

NOTICE APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

OIL CONS. DIV DIST. 3

JAN 26 2016

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

NMOCD AV

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-045-35033	97232	BASIN MANCOS

4 Property Code	5 Property Name	6 Well Number
315970	CHACO 23-08 15	2H

7 OGRID No.	8 Operator Name	9 Elevation
162928	ENERGEN RESOURCES CORPORATION	6875'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	14	23N	8W		2106'	SOUTH	526'	WEST	SAN JUAN

11 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	15	23N	8W		380'	SOUTH	380'	WEST	SAN JUAN

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
160.00 ACRES S/2 S/2 SEC. 15 PROJECT AREA			

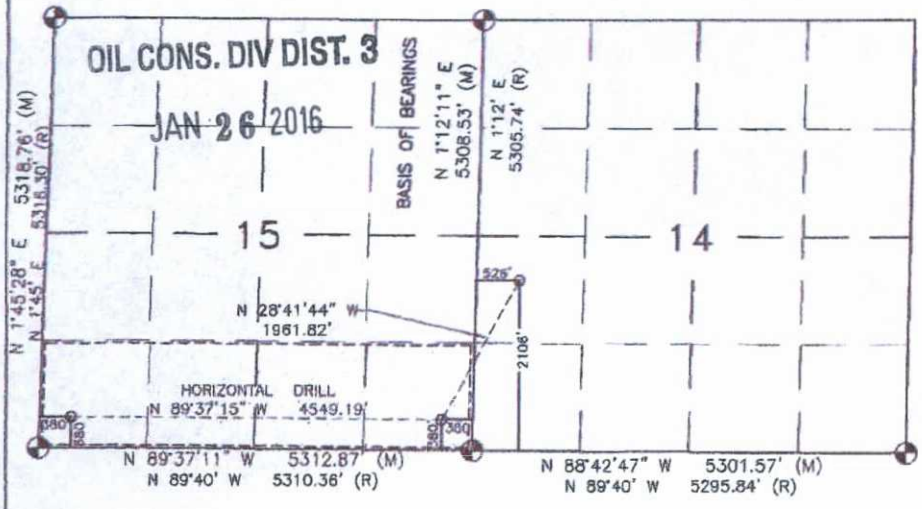
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16

BOTTOM HOLE
LAT. 36.220837° N (NAD83)
LONG. 107.677034° W (NAD83)
LAT. 36.220824° N (NAD27)
LONG. 107.676423° W (NAD27)

ENTRY POINT
LAT. 36.220754° N (NAD83)
LONG. 107.661618° W (NAD83)
LAT. 36.220741° N (NAD27)
LONG. 107.661008° W (NAD27)

WELL FLAG
LAT. 36.225479° N (NAD83)
LONG. 107.658425° W (NAD83)
LAT. 36.225466° N (NAD27)
LONG. 107.657815° W (NAD27)



17 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.

Signature — Date: 1/19/15

Nathan Smith
Printed Name

nsmith@energen.com
E-mail 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 supervision, and that the same is true and correct to the best of my belief.

AUGUST 12, 2014
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID B. RUSSELL NEW MEXICO 10201 REGISTERED PROFESSIONAL LAND SURVEYOR

DAVID RUSSELL
Certificate Number 10201

Drilling Plan
Energen Resources Corporation

Chaco 23-08 15 #002H
Surface Location: 2106 FSL, 526 FWL
Legal Description: Sec 14, T23N, R8W (36.225479° N, 107.658425° W – NAD83)
Bottom Hole Location: 380 FSL, 380 FWL
Legal Description: Sec 15, T23N, R8W (36.220837° N, 107.677034° W – NAD83)
San Juan County, NM

1. The elevation of the unprepared ground is 6,875 feet above sea level.
2. The geological name of the surface formation is the Nacimiento.
3. A rotary rig will be used to drill the well to a Proposed Total Depth of 5,125' TVD/11,093' MD.
4. Estimated top of important geological markers:

Formation	Depth (TVD)(ft)	Depth (MD)(ft)
Nacimiento	Surface	Surface
Ojo Alamo	750	750
Kirtland	900	900
Fruitland	1,015	1,015
Pictured Cliffs	1,470	1,470
Huerfantio Bentonite	1,840	1,840
Chacra	2,260	2,260
Cliff House	2,910	2,910
Menefee	2,970	2,970
Point Lookout	3,830	3,875
Mancos	4,280	4,440
Mancos/Niobrara "C"	4,725	5,150

5. Estimated depth at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

Formation	Depth (TVD)(ft)	Water/HydroCarbon
Fruitland	1,015	Gas
Pictured Cliffs	1,470	Gas
Cliffhouse	2,910	Gas
Point Lookout	3,830	Gas
Mancos	4,280	Oil/Gas

6. All proposed casing is new and the program is as follows:

Casing	Size	Depth		Grade	Weight	Connection	PSI		x1000 lbs
		MD	TVD				Burst	Collapse	Tension
Surface	9-5/8"	0-500'	0-500'	J-55	36.00	STC	3520	2020	394
Intermediate	7"	0-6,625'	0-5,125'	J-55	26.00	LTC	4980	4320	367
Production	4-1/2"	6,475'-11,093'	5,125'-4,984	L-80	11.60	Ultra DQX	7780	6350	267

7. Cementing Program:

   a. 12-1/4" hole x 9-5/8" casing at 500' will have cement circulated to surface with 270 sks (100% excess true hole) Class H Cement with 1.0 % $CaCl_2$, ½ #/sk Poly-E-Flake15.8 ppg, 1.17 ft^3/sk. Note: CEMENT MUST BE CIRCULATED TO SURFACE. STANDARD BOW SPRING CENTRALIZERS SHALL BE PLACED ON THE FIRST 3 (BOTTOM 3) JOINTS OF CASING (1 PER JOINT) AND 1 EVERY 3RD JOINT TO SURFACE. 20 BBLS OF WATER FOLLOWED BY 20 BBLS OF MUDFLUSH AHEAD OF CEMENT AS SPACER

   b. 8-3/4" hole x 7" casing at 6,625'. Cement will be circulated to surface with 710 sks (50% excess true hole) of HLC with 1.0 % $CaCl_2$. ¼ #/sk Poly-E-Flake, 5 #/sk Kol-Seal (Gilsonite) – 12.3 ppg, 1.95 ft^3/sk followed by 115 sks (100% excess true hole) 50/50 Glass H/Poz with 0.15% Versaset, 0.30% HALAD-9, ¼ #/sk Poly-E-Flake, 5 #/sk Kol-Seal – 13.5 ppg, 1.31 ft^3/sk. ONE CENTRALIZER PER JOINT FOR THE FIRST 3 JOINTS, THEN EVERY 3RD JOINT TO SURFACE. 10 BBLS OF WATER FOLLOWED BY 30 BBLS OF MUDFLUSH AHEAD OF CEMENT AS SPACER.

   c. 6-1/4" hole x 4-1/2" liner at 11,093'. A fluid caliper will be run to determine base slurry cement to have TOC at 6,475'. Weighted Reactive Spacer to invert oil phase mud: 40 bbls Tuned Spacer with 0.20 gal/bbl Musol® A Solvent, 146.5 lb/bbl Barite, 0.20 gal/bbl SEM-7 Surfactant. Base slurry to consist of 450 sks 50/50 Class H/Poz with 0.10% Versaset, 1.5 gal/sk CHEM-FOAMER 760, 0.10% sa-1015, 0.20% HALAD-766 – 13.5 ppg, 1.27 ft^3/sk, Foamed density 10.5 ppg. 50 sks of base slurry to be used as tail cement less foaming agent. CENTRALIZERS TO BE USED AT DISCRETION IN LATERAL TO ACHIEVE 70% STAND OFF. CENTRALIZERS TO BE USED TO TIE BACK DEPTH OF 6150' TO ACHIEVE 70% STAND OFF. PACKOFF SEAL ASSEMBLY TO BE USED FOR LINER TOP ISOLATION.

8. Pressure Control Equipment

   a. BOPE to be installed prior to Surface Casing drillout.
   b. Pressure control equipment will be used to meet 2,000 (2M) psi specifications.
   c. BOPE working pressure of 3,000 psi.
   d. Function test and visual inspection to be done at each casing size change prior to drill out.
   e. BOP annular to be tested to 85% of working pressure.
   f. All BOP and related equipment will be tested in accordance with the requirements outlined in Onshore Order No. 2 and Notice to Operators dated May 27, 2005.
   g. BOP remote controls to be located on rig floor and readily accessible, master control on ground at accumulator will be able to function all preventors.
   h. Kill line will be 2 in min and have two kill line valves, one being a check valve.
   i. Choke line will be 2 in min and have two choke line valves, choke manifold with have two adjustable chokes, one manual and one remote. All choke lines will be as straight as possible. Any turns will be properly targeted using block and/or running tees. Choke line and manifold to be pressure tested to 1,500 psi.
   j. Float sub and TIW valve will be on the rig floor at all times.
   k. If high pressure co-flex hoses are used, they will be run as straight as possible and anchored to prevent whip.
   l. The main discharge line (panic line) will be at least 100' from the choke manifold and discharged into an appropriately sized discharge facility.

9. Mud Program:

0' - 500'	Fresh water/Spud Mud. Paper for losses and seepage. 8.5 to 9.0 ppg, 32 to 75 vis, PV 3 to 5, YP 5 to 7, WL NC
500' – 6,625'	Fresh water/LSND. As needed LCM for losses and seepage. 8.5 to 9.5 ppg, pH 10, 28 to 60 vis, PV 1, YP 1, WL 8-15
6,625' - 11,093'	WBM with shale and clay stabilizers. As needed LCM for losses and seepage. 8.3 to 9.3 ppg, 15 to 35 vis, PV 4-6, YP 4-6, WL < 20

****During drilling operations, all necessary products will be sufficiently stored on location for abnormal situations. The characteristics, use, testing of drilling mud and the implementation of related drilling procedures shall be designed to prevent the loss of well control. Sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring well control.**
****A pH of 10 or above in the fresh water base mud system shall be maintained to control the effects corrosion has on metallurgy of equipment used.**

Operating and Maintenance

Energen Resources Corporation will be using all above ground steel pits for fluid and cuttings while drilling. If any tank develops a leak we will have immediate visual discovery, we would then transfer the fluid to another tank then remove any contaminated soil and dispose of it in the cuttings bins for transportation. Any leaks, spills or other undesirable events will be reported in accordance with BLM NTL 3A. Rig crews will monitor the tanks at all times. A trip/surge tank will be used to monitor returns for any "kicks" of formation fluids.

Equipment:

2-Mongoose Shale Shakers

2-3400 High Speed Centrifuges with stands and pumps

2-Roll off bins with Tracks

2-200 bbl Open top Frac tanks

1-Mud/Gas Separator and Degasser

1-Trip/Surge Tank

Electronic or Visual monitoring system to indicate lost returns

10. Testing, Logging and Coring Program:

    a. Testing Program: No drillstem tests are anticipated
    b. Electric Logging Program: TBD
    c. LWD Program: TBD
    d. Coring Program: None.
    e. CBL's and/or Temperature Surveys Will Be Performed as Needed or Required.

11. Bottom Hole Pressure expected to be 2,500 +/- psi
12. Bottom Hole Temperature expected to be 160 deg F.

Energen Resources

Chaco Mancos Sec 15, T23N, R8W
23-08 15 2H
Chaco 23-08 15 #002H
Southern Lateral

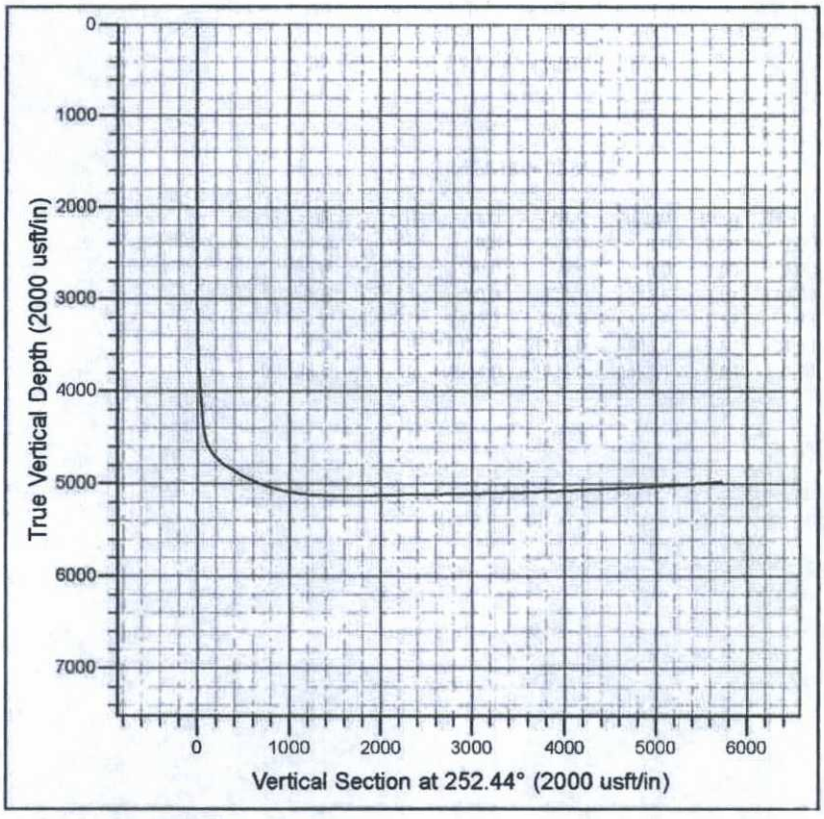
Plan: APD Plan

Preliminary Design

01 December, 2014

Company Name: Energen Resources

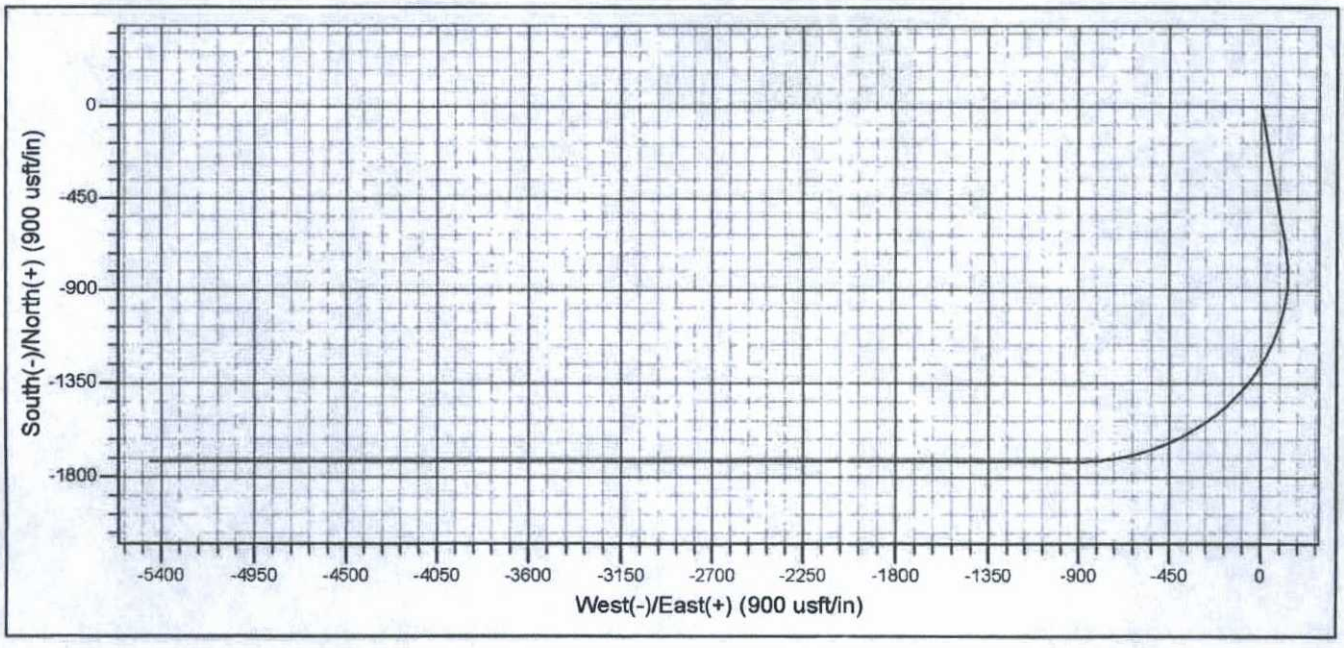
Project: Chaco Mancos Sec 15, T23N, R8W
Site: 23-08 15 2H
Well: Chaco 23-08 15 #002H
Wellbore: Southern Lateral
Design: APD Plan



OIL CONS. DIV DIST. 3
JAN 26 2016

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	3100.0	0.00	0.00	3100.0	0.0	0.0	0.00	0.00	0.0
3	4403.3	40.00	170.00	4300.0	-430.1	75.8	3.07	170.00	57.4
4	4769.5	60.21	170.95	4533.7	-705.8	121.8	5.52	2.38	96.8
5	6541.3	90.00	270.00	5125.0	-1726.0	-906.0	5.52	94.53	1384.5
6	11093.3	93.55	270.00	4984.0	-1726.0	-5455.1	0.08	0.00	5721.6



Energen
Preliminary Design

OIL CONS. DIV DIST. 3

JAN 26 2016

Company:	Energen Resources	Local Co-ordinate Reference:	Site 23-08 15 2H
Project:	Chaco Mancos Sec 15, T23N, R8W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	23-08 15 2H	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Chaco 23-08 15 #002H	North Reference:	Grid
Wellbore:	Southern Lateral	Survey Calculation Method:	Minimum Curvature
Design:	APD Plan	Database:	EDM 5000.1 Single User Db

Project Chaco Mancos Sec 15, T23N, R8W

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

Site 23-08 15 2H

Site Position:		Northing:	1,904,358.30 usft	Latitude:	36° 13' 31.724 N
From:	Lat/Long	Easting:	1,225,005.64 usft	Longitude:	107° 39' 30.330 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.83 °

Well Chaco 23-08 15 #002H

Well Position	+N/-S	0.0 usft	Northing:	1,904,358.30 usft	Latitude:	36° 13' 31.724 N
	+E/-W	0.0 usft	Easting:	1,225,005.64 usft	Longitude:	107° 39' 30.330 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore Southern Lateral

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/13/2014	9.41	62.96	50,191

Design APD Plan

Audit Notes:

Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	252.44

Survey Tool Program Date 12/1/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,093.3	APD Plan (Southern Lateral)	MWD	MWD - Standard

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
0.0	0.0	0.00	0.00	0.0	0.0	0.00	0.0
100.0	100.0	0.00	0.00	0.0	0.0	0.00	0.0
200.0	200.0	0.00	0.00	0.0	0.0	0.00	0.0
300.0	300.0	0.00	0.00	0.0	0.0	0.00	0.0
400.0	400.0	0.00	0.00	0.0	0.0	0.00	0.0
500.0	500.0	0.00	0.00	0.0	0.0	0.00	0.0
Surface Casing							
600.0	600.0	0.00	0.00	0.0	0.0	0.00	0.0
700.0	700.0	0.00	0.00	0.0	0.0	0.00	0.0
800.0	800.0	0.00	0.00	0.0	0.0	0.00	0.0
900.0	900.0	0.00	0.00	0.0	0.0	0.00	0.0
1,000.0	1,000.0	0.00	0.00	0.0	0.0	0.00	0.0

Energen
Preliminary Design

Company:	Energen Resources	Local Co-ordinate Reference:	Site 23-08 15 2H
Project:	Chaco Mancos Sec 15, T23N, R8W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	23-08 15 2H	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Chaco 23-08 15 #002H	North Reference:	Grid
Wellbore:	Southern Lateral	Survey Calculation Method:	Minimum Curvature
Design:	APD Plan	Database:	EDM 5000.1 Single User Db

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
1,100.0	1,100.0	0.00	0.00	0.0	0.0	0.00	0.0
1,200.0	1,200.0	0.00	0.00	0.0	0.0	0.00	0.0
1,300.0	1,300.0	0.00	0.00	0.0	0.0	0.00	0.0
1,400.0	1,400.0	0.00	0.00	0.0	0.0	0.00	0.0
1,500.0	1,500.0	0.00	0.00	0.0	0.0	0.00	0.0
1,600.0	1,600.0	0.00	0.00	0.0	0.0	0.00	0.0
1,700.0	1,700.0	0.00	0.00	0.0	0.0	0.00	0.0
1,800.0	1,800.0	0.00	0.00	0.0	0.0	0.00	0.0
1,900.0	1,900.0	0.00	0.00	0.0	0.0	0.00	0.0
2,000.0	2,000.0	0.00	0.00	0.0	0.0	0.00	0.0
2,100.0	2,100.0	0.00	0.00	0.0	0.0	0.00	0.0
2,200.0	2,200.0	0.00	0.00	0.0	0.0	0.00	0.0
2,300.0	2,300.0	0.00	0.00	0.0	0.0	0.00	0.0
2,400.0	2,400.0	0.00	0.00	0.0	0.0	0.00	0.0
2,500.0	2,500.0	0.00	0.00	0.0	0.0	0.00	0.0
2,600.0	2,600.0	0.00	0.00	0.0	0.0	0.00	0.0
2,700.0	2,700.0	0.00	0.00	0.0	0.0	0.00	0.0
2,800.0	2,800.0	0.00	0.00	0.0	0.0	0.00	0.0
2,900.0	2,900.0	0.00	0.00	0.0	0.0	0.00	0.0
3,000.0	3,000.0	0.00	0.00	0.0	0.0	0.00	0.0
3,100.0	3,100.0	0.00	0.00	0.0	0.0	0.00	0.0
3,200.0	3,200.0	3.07	170.00	-2.6	0.5	3.07	0.4
3,299.6	3,300.0	6.14	170.00	-10.5	1.9	3.07	1.4
3,398.7	3,400.0	9.21	170.00	-23.7	4.2	3.07	3.2
3,496.9	3,500.0	12.28	170.00	-42.0	7.4	3.07	5.6
3,594.0	3,600.0	15.35	170.00	-65.5	11.6	3.07	8.8
3,689.7	3,700.0	18.41	170.00	-94.1	16.6	3.07	12.6
3,783.7	3,800.0	21.48	170.00	-127.7	22.5	3.07	17.1
3,875.7	3,900.0	24.55	170.00	-166.2	29.3	3.07	22.2
3,965.5	4,000.0	27.62	170.00	-209.5	36.9	3.07	28.0
4,052.9	4,100.0	30.69	170.00	-257.5	45.4	3.07	34.4
4,137.4	4,200.0	33.76	170.00	-310.0	54.7	3.07	41.4
4,219.1	4,300.0	36.83	170.00	-366.9	64.7	3.07	49.0
4,300.0	4,403.3	40.00	170.00	-430.1	75.8	3.07	57.4
4,371.1	4,500.0	45.34	170.31	-494.7	87.0	5.52	66.2
4,437.8	4,600.0	50.85	170.58	-568.0	99.4	5.52	76.6
4,497.1	4,700.0	56.37	170.81	-647.4	112.4	5.52	88.2
4,533.7	4,769.5	60.21	170.95	-705.8	121.8	5.52	96.8
4,548.8	4,800.0	60.09	172.88	-732.0	125.5	-0.39	101.2
4,598.9	4,900.0	59.90	179.26	-818.3	131.4	-0.19	121.6
4,649.0	5,000.0	60.02	185.64	-904.8	127.7	0.12	151.2
4,698.7	5,100.0	60.45	191.98	-990.5	114.4	0.42	189.7
4,747.5	5,200.0	61.17	198.25	-1,074.7	91.7	0.72	236.8
4,795.0	5,300.0	62.18	204.42	-1,156.6	59.6	1.01	292.0

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site 23-08 15 2H
Project:	Chaco Mancos Sec 15, T23N, R8W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	23-08 15 2H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chaco 23-08 15 #002H	**North Reference:**	Grid
Wellbore:	Southern Lateral	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan	**Database:**	EDM 5000.1 Single User Db

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
4,840.7	5,400.0	63.45	210.46	-1,235.5	18.7	1.28	354.9
4,884.2	5,500.0	64.98	216.36	-1,310.6	-30.9	1.52	424.8
4,925.1	5,600.0	66.73	222.10	-1,381.2	-88.6	1.75	501.1
4,963.1	5,700.0	68.68	227.68	-1,446.7	-153.9	1.95	583.1
4,997.7	5,800.0	70.82	233.11	-1,506.4	-226.2	2.13	670.1
5,028.7	5,900.0	73.10	238.40	-1,559.9	-304.7	2.29	761.1
5,055.8	6,000.0	75.53	243.55	-1,606.6	-388.9	2.42	855.4
5,078.6	6,100.0	78.06	248.60	-1,646.0	-477.9	2.53	952.1
5,097.1	6,200.0	80.68	253.54	-1,677.9	-570.8	2.62	1,050.4
5,111.0	6,300.0	83.36	258.42	-1,701.8	-666.8	2.69	1,149.2
5,120.2	6,400.0	86.10	263.24	-1,717.7	-765.1	2.73	1,247.6
5,124.6	6,500.0	88.86	268.03	-1,725.3	-864.7	2.76	1,344.9
5,125.0	6,541.3	90.00	270.00	-1,726.0	-906.0	2.77	1,384.5
5,125.0	6,600.0	90.05	270.00	-1,726.0	-964.7	0.08	1,440.4
5,125.0	6,625.0	90.07	270.00	-1,726.0	-989.7	0.08	1,464.2
Intermediate Casing							
5,124.8	6,700.0	90.12	270.00	-1,726.0	-1,064.7	0.08	1,535.8
5,124.5	6,800.0	90.20	270.00	-1,726.0	-1,164.7	0.08	1,631.1
5,124.1	6,900.0	90.28	270.00	-1,726.0	-1,264.7	0.08	1,726.4
5,123.6	7,000.0	90.36	270.00	-1,726.0	-1,364.7	0.08	1,821.8
5,122.9	7,100.0	90.44	270.00	-1,726.0	-1,464.7	0.08	1,917.1
5,122.0	7,200.0	90.51	270.00	-1,726.0	-1,564.7	0.08	2,012.4
5,121.1	7,300.0	90.59	270.00	-1,726.0	-1,664.7	0.08	2,107.8
5,120.0	7,400.0	90.67	270.00	-1,726.0	-1,764.7	0.08	2,203.1
5,118.7	7,500.0	90.75	270.00	-1,726.0	-1,864.7	0.08	2,298.5
5,117.4	7,600.0	90.83	270.00	-1,726.0	-1,964.6	0.08	2,393.8
5,115.9	7,700.0	90.90	270.00	-1,726.0	-2,064.6	0.08	2,489.1
5,114.2	7,800.0	90.98	270.00	-1,726.0	-2,164.6	0.08	2,584.4
5,112.4	7,900.0	91.06	270.00	-1,726.0	-2,264.6	0.08	2,679.8
5,110.5	8,000.0	91.14	270.00	-1,726.0	-2,364.6	0.08	2,775.1
5,108.5	8,100.0	91.22	270.00	-1,726.0	-2,464.6	0.08	2,870.4
5,106.3	8,200.0	91.29	270.00	-1,726.0	-2,564.5	0.08	2,965.7
5,104.0	8,300.0	91.37	270.00	-1,726.0	-2,664.5	0.08	3,061.1
5,101.5	8,400.0	91.45	270.00	-1,726.0	-2,764.5	0.08	3,156.4
5,098.9	8,500.0	91.53	270.00	-1,726.0	-2,864.4	0.08	3,251.7
5,096.2	8,600.0	91.61	270.00	-1,726.0	-2,964.4	0.08	3,347.0
5,093.3	8,700.0	91.68	270.00	-1,726.0	-3,064.4	0.08	3,442.3
5,090.3	8,800.0	91.76	270.00	-1,726.0	-3,164.3	0.08	3,537.6
5,087.1	8,900.0	91.84	270.00	-1,726.0	-3,264.3	0.08	3,632.9
5,083.9	9,000.0	91.92	270.00	-1,726.0	-3,364.2	0.08	3,728.2
5,080.4	9,100.0	92.00	270.00	-1,726.0	-3,464.2	0.08	3,823.5
5,076.9	9,200.0	92.07	270.00	-1,726.0	-3,564.1	0.08	3,918.7
5,073.2	9,300.0	92.15	270.00	-1,726.0	-3,664.0	0.08	4,014.0
5,069.4	9,400.0	92.23	270.00	-1,726.0	-3,764.0	0.08	4,109.3
5,065.4	9,500.0	92.31	270.00	-1,726.0	-3,863.9	0.08	4,204.5

Energen
Preliminary Design

Company:	Energen Resources	Local Co-ordinate Reference:	Site 23-08 15 2H
Project:	Chaco Mancos Sec 15, T23N, R8W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	23-08 15 2H	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Chaco 23-08 15 #002H	North Reference:	Grid
Wellbore:	Southern Lateral	Survey Calculation Method:	Minimum Curvature
Design:	APD Plan	Database:	EDM 5000.1 Single User Db

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
5,061.3	9,600.0	92.39	270.00	-1,726.0	-3,963.8	0.08	4,299.8
5,057.1	9,700.0	92.46	270.00	-1,726.0	-4,063.7	0.08	4,395.1
5,052.7	9,800.0	92.54	270.00	-1,726.0	-4,163.6	0.08	4,490.3
5,048.2	9,900.0	92.62	270.00	-1,726.0	-4,263.5	0.08	4,585.6
5,043.6	10,000.0	92.70	270.00	-1,726.0	-4,363.4	0.08	4,680.8
5,038.8	10,100.0	92.78	270.00	-1,726.0	-4,463.3	0.08	4,776.0
5,033.9	10,200.0	92.85	270.00	-1,726.0	-4,563.2	0.08	4,871.3
5,028.9	10,300.0	92.93	270.00	-1,726.0	-4,663.0	0.08	4,966.5
5,023.7	10,400.0	93.01	270.00	-1,726.0	-4,762.9	0.08	5,061.7
5,018.4	10,500.0	93.09	270.00	-1,726.0	-4,862.8	0.08	5,156.9
5,012.9	10,600.0	93.17	270.00	-1,726.0	-4,962.6	0.08	5,252.1
5,007.3	10,700.0	93.24	270.00	-1,726.0	-5,062.5	0.08	5,347.3
5,001.6	10,800.0	93.32	270.00	-1,726.0	-5,162.3	0.08	5,442.5
4,995.7	10,900.0	93.40	270.00	-1,726.0	-5,262.1	0.08	5,537.7
4,989.7	11,000.0	93.48	270.00	-1,726.0	-5,361.9	0.08	5,632.8
4,984.0	11,093.0	93.55	270.00	-1,726.0	-5,454.8	0.08	5,721.3
Production Liner							
4,984.0	11,093.3	93.55	270.00	-1,726.0	-5,455.1	0.08	5,721.6

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
11,093.0	4,984.0	Production Liner	4-1/2	6-1/4
500.0	500.0	Surface Casing	9-5/8	12-1/4
6,625.0	5,125.0	Intermediate Casing	7	8-3/4

Checked By: _____ Approved By: _____ Date: _____

proposed well pad. Approximately 4.1 feet of cut and 4.7 feet of fill will be needed to create a level well pad. No additional materials will be required for construction of the proposed well pad.

Within 90 days of installation, aboveground structures not subject to safety requirements will be painted according to stipulations as outlined in the BLM COAs to reduce visual resource impacts and blend with vegetation and characteristics of the surrounding landscape.

Construction plats are provided in the APD and ROW grant permit packages.

9. METHODS FOR HANDLING WASTE

Drilling operations will utilize a closed-loop system. Drilling of the horizontal lateral will be done using a water based mud system. All water-based mud cuttings will be hauled to a commercial disposal facility. The drilling operations area will be enclosed by a containment berm and ditches, and the containment berm will be ramped to allow access to the solids control area. The contained operations area will drain gradually to one area of the pad which will be contoured for spill prevention and control.

Energen will follow New Mexico Oil Conservation Division Pit Rule and Onshore Order No. 1 and No. 7 regarding placement, operation, and closure of any reserve pits or closed-loop systems. No blow pit will be used.

As stated in the Reclamation Plan (Appendix A), if drilling has not been initiated on the proposed well pad within 120 days of the well pad being constructed, Energen will submit a site-stabilization plan to the BLM-FFO.

All refuse will be placed in metal trash basket and will be hauled off site, as needed, and properly disposed in an approved landfill.

Portable toilets will be provided and maintained as needed during construction, drilling and completion operations.

10. ANCILLARY FACILITIES

No ancillary facilities will be associated with the proposed project.

All TUAs are depicted in Appendix C and in the construction plats provided in this APD submission. No TUAs will be needed for the well pad.

11. WELL SITE LAYOUT

The interim reclamation/long-term disturbance layout is depicted in Appendix C and is described below.

The following areas (known as the "non-reseeded working areas") will remain unreclaimed throughout the lifetime of the proposed project. These areas will regularly be used for equipment or for vehicular access.

- Production facilities will be located within a facility area measuring approximately 75-by-250 foot (0.43 acre) on the eastern end of the proposed well pad.
- The teardrop for the proposed well pad will include a looped, 20-foot-wide driving surface, totaling approximately 0.55 acre.

The following areas (known as the "reseeded working areas") will be reseeded and not recontoured during interim reclamation. These areas may be used for future activities within the proposed well pad, but will not be used for daily activities.

ENERGEN RESOURCES CORPORATION

CHACO 23-08 15 #2H
2106' FSL & 526' FWL
LOCATED IN THE NW/4 SW/4 OF SECTION 14, T23N, R8W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO

DIRECTIONS

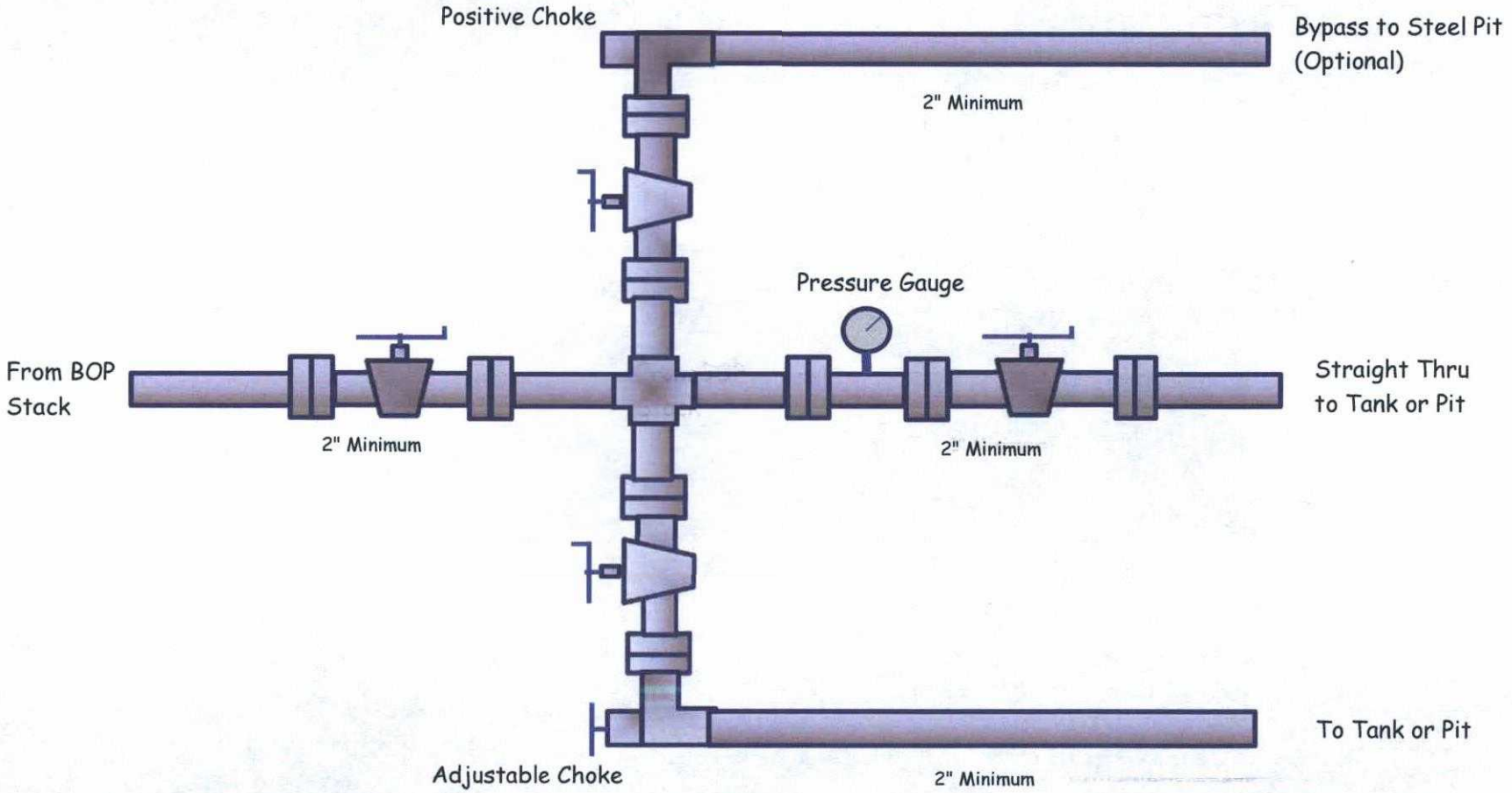
1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 39.0 MILES TO INDIAN SERVICE ROUTE 7061.
2) TURN RIGHT AND GO 1.7 MILES TO A DIRT ROAD WITH CATTLE GUARD.
3) TURN LEFT AND GO 0.6 MILES TO "Y" INTERSECTION.
4) TURN LEFT AND GO 0.9 MILES TO "T" INTERSECTION.
5) TURN RIGHT AND GO 1.3 MILES TO WHERE PAD IS STAKED ON RIGHT SIDE OF ROAD.

WELL FLAG LOCATED AT LAT. 36.225479° N, LONG.107.658425° W (NAD 83).

JOB No.: ERG332
DATE: 08/21/2014
DRAWN BY: TWT

Scorpion Survey & Consulting, L.L.C.
302 S. Ash
Aztec, New Mexico 87410
(505) 334-4007

2M Choke & Kill Manifold



Note: All connections are bolted flange
Working pressure for all equipment is
2,000 psi or greater

Typical BOP Schematic - 3M psi System