

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Tony Delfin
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: 5-15-15

Well information;

Operator Energizer, Well Name and Number Chaco 23 08 9 #1H

API# 30-045-35688, Section 9, Township 23 N/S, Range 08 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
 - ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
 - ☐ 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
- ☒ 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
- ☒ Submit Gas Capture Plan form prior to spudding or initiating recompletion operations
- ☒ 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.


NMOCD Approved by Signature

5-5-16
Date KC

OIL CONS. DIV DIST. 3

MAY 03 2016

RECEIVED

MAY 15 2015

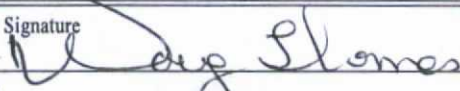
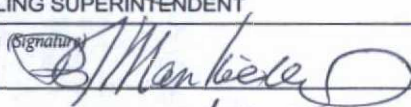
Form 3160-3
(August 2007)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFarmington Field Office
Bureau of Land ManagementFORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM18463	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator ENERGEN RESOURCES CORPORATION		7. If Unit or CA Agreement, Name and No.	
3a. Address 2010 AFTON PLACE FARMINGTON, NM 87401		8. Lease Name and Well No. CHACO 23-08 9 #1H	
3b. Phone No. (include area code) 505-325-6800		9. API Well No. 30-045-35688	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1476' FSL & 210' FWL, SEC 9, T23N, R8W At proposed prod. zone 2276' FSL & 380' FEL, SEC 9, T23N, R8W		10. Field and Pool, or Exploratory NAGEEZI GALLUP	
14. Distance in miles and direction from nearest town or post office* Approximately 3.1 miles southeast of Nageezi, New Mexico		11. Sec., T. R. M. or Blk. and Survey or Area SEC 9. T23N. R8W. NMPM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 210'	16. No. of acres in lease 2,243.16 ACRES	17. Spacing Unit dedicated to this well 160 ACRES	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50'	19. Proposed Depth 10,429' MD 5,438' TVD	20. BLM/BIA Bond No. on file NM2707 NMB000747	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL: 6,916' (NAVD 88)	22. Approximate date work will start* 07/01/2015	23. Estimated duration 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:

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

25. Signature 	Name (Printed/Typed) DOUG THOMAS	Date 5-15-15
Title DRILLING SUPERINTENDENT		
Approved by (Signature) 	Name (Printed/Typed)	Date 9/28/16
Title AFM	Office 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)

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

NMOCD

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BLM'S 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

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) 393-6181 Fax: (575) 393-0720

DISTRICT II

811 S. First St., Artesia, N.M. 80210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III

1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-8170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-3460 Fax: (505) 478-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-35688		*Pool Code 47540	*Pool Name NAGEEZI GALLUP
*Property Code 316177	*Property Name CHACO 23-08 9		*Well Number 1H
*GRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION		*Elevation 6916.3

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	9	23N	8W		1476'	SOUTH	210'	WEST	SAN JUAN

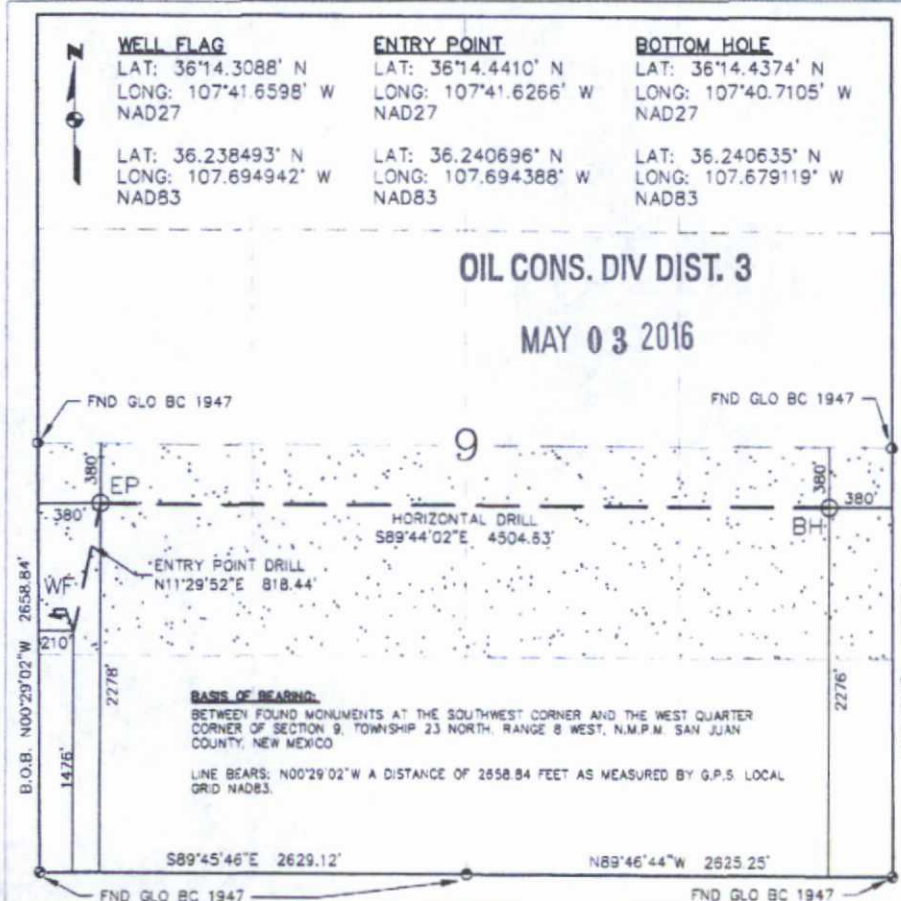
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	9	23N	8W		2276'	SOUTH	380'	EAST	SAN JUAN

*Dedicated Acres N/2 S/2 SEC 9 160 ACRES	PROJECT AREA	*Joint or Infill	*Consolidation Code	*Order No.
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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

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 unless 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.

Anna Stotts 515-15
Signature Date

Anna Stotts
Printed Name

astotts@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.

2-26-15
Date of Survey

Glen W. Russell
Signature and Seal of Licensed Professional Surveyor



GLEN W. RUSSELL
Certificate Number 15703

Drilling Plan

Energen Resources Corporation

Chaco 23-08 9 #001H

Surface Location: 1476 FSL, 210 FWL

Legal Description: Sec 9, T23N, R8W (36.238493° N, 107.694942° W – NAD83)

Bottom Hole Location: 2276 FSL, 380 FEL

Legal Description: Sec 9, T23N, R8W (36.240635° N, 107.679119° W – NAD83)

San Juan County, NM

1. The elevation of the unprepared ground is 6,916 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 5,438' TVD/10,429' MD.
4. Estimated top of important geological markers:

<u>Formation</u>	<u>Depth (TVD)(ft)</u>	<u>Depth (MD)(ft)</u>
Nacimiento	Surface	Surface
Ojo Alamo	1,063	1,063
Kirtland	1,213	1,213
Fruitland	1,328	1,328
Pictured Cliffs	1,763	1,763
Huerfanto Bentonite	2,038	2,038
Chacra	2,553	2,566
Cliff House	3,213	3,253
Menefee	3,263	3,305
Point Lookout	4,123	4,201
Mancos	4,573	4,670
Mancos/Niobrara "C"	5,288	5,471

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

<u>Formation</u>	<u>Depth (TVD)(ft)</u>	<u>Water/HydroCarbon</u>
Fruitland	1,328	Gas
Pictured Cliffs	1,763	Gas
Cliffhouse	3,213	Gas
Point Lookout	4,123	Gas
Mancos	4,573	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"	0-6,000'	0-5,400'	J-55	26.00	LTC	4980	4320	367
Production	4-1/2"	5,850'-10,429'	5,400'-5,262'	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 % CaCl₂, 1/2 #/sk Poly-E-Flake 15.8 ppg, 1.17 ft³/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. Test Surface Casing to 750 psi.
- b. 8-3/4" hole x 7" casing at 6,000'. Cement will be circulated to surface with 635 sks (50% excess true hole) of HLC with 1.0 % CaCl₂, 1/4 #/sk Poly-E-Flake, 5 #/sk Kol-Seal (Gilsonite) – 12.3 ppg, 1.95 ft³/sk followed by 115 sks (100% excess true hole) 50/50 Glass H/Poz with 0.15% Versaset, 0.30% HALAD-9, 1/4 #/sk Poly-E-Flake, 5 #/sk Kol-Seal – 13.5 ppg, 1.31 ft³/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. Test Intermediate Casing to 1500 psi. Cement additives subject to change based on wellbore conditions and cement design criteria.
- c. 6-1/4" hole x 4-1/2" liner at 10,429'. A fluid caliper will be run to determine base slurry cement to have TOC at 5,850'. Base slurry to consist of 400 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 ft³/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. Cement additives subject to change based on wellbore conditions and cement design criteria. Liner to be pressure tested during completion operations.

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' - 6,000'	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
6,000' - 10,429'	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 9, T23N, R8W

Chaco 23-08 9 #1H

Design #1

Preliminary Plan

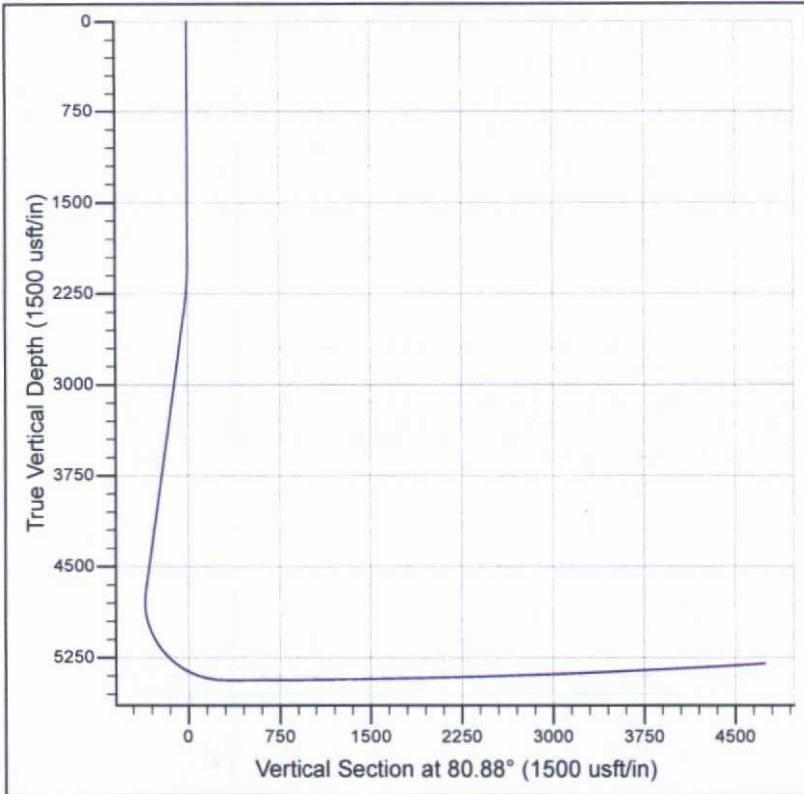
Plan: APD Plan

Preliminary Design

03 March, 2015

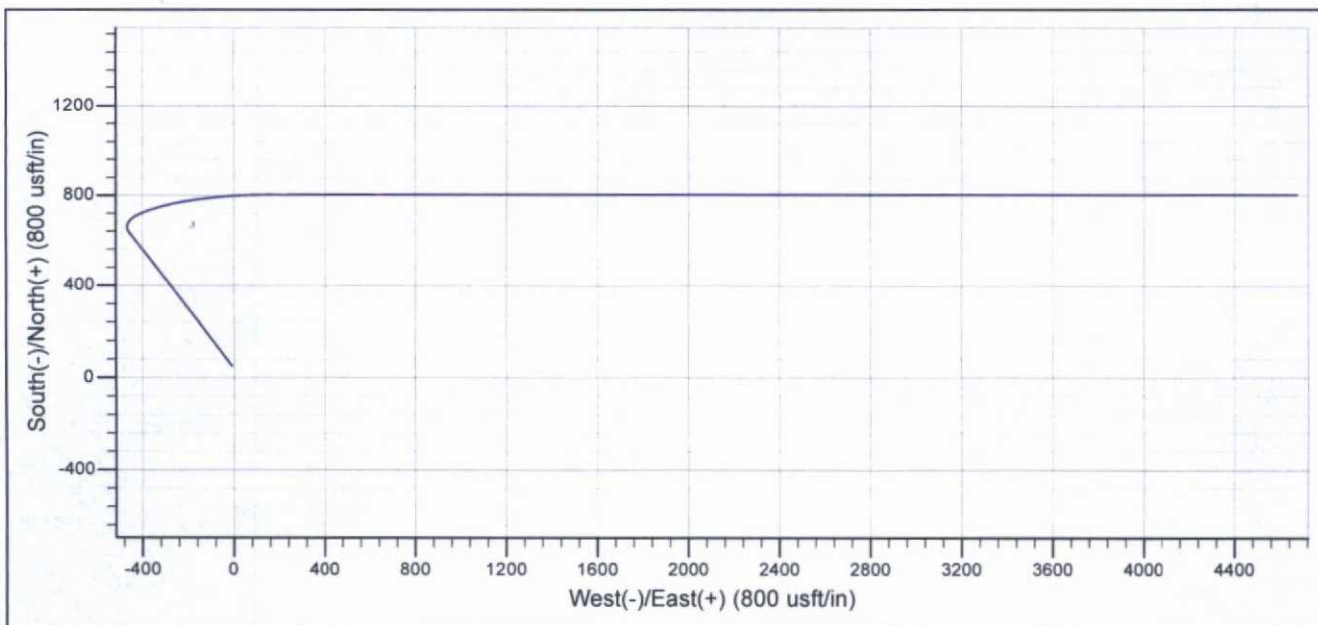
Company Name: Energen Resources

Project: Chaco Mancos Sec 9, T23N, R8W
Site: Chaco 23-08 9 #1H
Well: Design #1
Wellbore: Preliminary Plan
Design: APD Plan



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.0	0.00	0.00	0.0	50.0	-10.5	0.00	0.00	0.0
2	2000.0	0.00	0.00	2000.0	50.0	-10.5	0.00	0.00	0.0
3	2360.2	16.21	322.60	2355.4	90.2	-41.2	4.50	322.60	-24.0
4	4814.9	16.21	322.60	4712.5	634.5	-457.4	0.00	0.00	-348.6
5	5923.3	90.00	90.00	5438.0	802.0	170.0	9.00	126.29	297.4
6	10429.3	93.50	90.00	5300.4	802.0	4673.2	0.08	0.00	4743.6



Energen

Preliminary Design

Company:	Energen Resources	Local Co-ordinate Reference:	Site Chaco 23-08 9 #1H
Project:	Chaco Mancos Sec 9, T23N, R8W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Chaco 23-08 9 #1H	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Design #1	North Reference:	Grid
Wellbore:	Preliminary Plan	Survey Calculation Method:	Minimum Curvature
Design:	APD Plan	Database:	EDM 5000.1 Single User Db

Project	Chaco Mancos Sec 9, 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	Chaco 23-08 9 #1H		
Site Position:		Northing:	1,909,254.59 usft
From:	Lat/Long	Easting:	1,214,305.01 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	36° 14' 18.575 N
		Longitude:	107° 41' 41.791 W
		Grid Convergence:	-0.85 °

Well	Design #1		
Well Position	+N/-S	50.0 usft	Northing:
	+E/-W	-10.5 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	36° 14' 19.068 N
		Longitude:	107° 41' 41.928 W
		Ground Level:	0.0 usft

Wellbore	Preliminary Plan		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.97	63.09	50,680

Design	APD Plan		
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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	50.0	-10.5	80.88

Survey Tool Program	Date	3/3/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	10,429.3	APD Plan (Preliminary Plan)	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	50.0	-10.5	0.00	0.0
	100.0	100.0	0.00	0.00	50.0	-10.5	0.00	0.0
	200.0	200.0	0.00	0.00	50.0	-10.5	0.00	0.0
	300.0	300.0	0.00	0.00	50.0	-10.5	0.00	0.0
	400.0	400.0	0.00	0.00	50.0	-10.5	0.00	0.0
	500.0	500.0	0.00	0.00	50.0	-10.5	0.00	0.0
9 5/8"	600.0	600.0	0.00	0.00	50.0	-10.5	0.00	0.0
	700.0	700.0	0.00	0.00	50.0	-10.5	0.00	0.0
	800.0	800.0	0.00	0.00	50.0	-10.5	0.00	0.0
	900.0	900.0	0.00	0.00	50.0	-10.5	0.00	0.0
	1,000.0	1,000.0	0.00	0.00	50.0	-10.5	0.00	0.0

Energen

Preliminary Design

Company:	Energen Resources	Local Co-ordinate Reference:	Site Chaco 23-08 9 #1H
Project:	Chaco Mancos Sec 9, T23N, R8W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
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Well:	Design #1	North Reference:	Grid
Wellbore:	Preliminary Plan	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	50.0	-10.5	0.00	0.0
1,200.0	1,200.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,300.0	1,300.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,400.0	1,400.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,500.0	1,500.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,600.0	1,600.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,700.0	1,700.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,800.0	1,800.0	0.00	0.00	50.0	-10.5	0.00	0.0
1,900.0	1,900.0	0.00	0.00	50.0	-10.5	0.00	0.0
2,000.0	2,000.0	0.00	0.00	50.0	-10.5	0.00	0.0
2,099.9	2,100.0	4.50	322.60	53.2	-12.8	4.50	-1.9
2,199.2	2,200.0	9.00	322.60	62.5	-20.0	4.50	-7.4
2,297.2	2,300.0	13.50	322.60	78.0	-31.8	4.50	-16.7
2,355.4	2,360.2	16.21	322.60	90.2	-41.2	4.50	-24.0
2,393.6	2,400.0	16.21	322.60	99.1	-48.0	0.00	-29.2
2,489.7	2,500.0	16.21	322.60	121.2	-64.9	0.00	-42.5
2,585.7	2,600.0	16.21	322.60	143.4	-81.9	0.00	-55.7
2,681.7	2,700.0	16.21	322.60	165.6	-98.8	0.00	-68.9
2,777.7	2,800.0	16.21	322.60	187.8	-115.8	0.00	-82.1
2,873.8	2,900.0	16.21	322.60	209.9	-132.7	0.00	-95.4
2,969.8	3,000.0	16.21	322.60	232.1	-149.7	0.00	-108.6
3,065.8	3,100.0	16.21	322.60	254.3	-166.6	0.00	-121.8
3,161.8	3,200.0	16.21	322.60	276.5	-183.6	0.00	-135.1
3,257.9	3,300.0	16.21	322.60	298.6	-200.6	0.00	-148.3
3,353.9	3,400.0	16.21	322.60	320.8	-217.5	0.00	-161.5
3,449.9	3,500.0	16.21	322.60	343.0	-234.5	0.00	-174.7
3,545.9	3,600.0	16.21	322.60	365.1	-251.4	0.00	-188.0
3,642.0	3,700.0	16.21	322.60	387.3	-268.4	0.00	-201.2
3,738.0	3,800.0	16.21	322.60	409.5	-285.3	0.00	-214.4
3,834.0	3,900.0	16.21	322.60	431.7	-302.3	0.00	-227.6
3,930.0	4,000.0	16.21	322.60	453.8	-319.2	0.00	-240.9
4,026.1	4,100.0	16.21	322.60	476.0	-336.2	0.00	-254.1
4,122.1	4,200.0	16.21	322.60	498.2	-353.1	0.00	-267.3
4,218.1	4,300.0	16.21	322.60	520.4	-370.1	0.00	-280.5
4,314.1	4,400.0	16.21	322.60	542.5	-387.1	0.00	-293.8
4,410.2	4,500.0	16.21	322.60	564.7	-404.0	0.00	-307.0
4,506.2	4,600.0	16.21	322.60	586.9	-421.0	0.00	-320.2
4,602.2	4,700.0	16.21	322.60	609.1	-437.9	0.00	-333.4
4,698.2	4,800.0	16.21	322.60	631.2	-454.9	0.00	-346.7
4,712.5	4,814.9	16.21	322.60	634.5	-457.4	0.00	-348.6
4,746.4	4,850.0	14.56	332.78	642.3	-462.4	-4.70	-352.3
4,795.0	4,900.0	13.17	350.74	653.6	-466.2	-2.78	-354.3
4,843.7	4,950.0	13.22	10.55	664.8	-466.1	0.10	-352.4
4,892.2	5,000.0	14.69	28.27	676.0	-462.0	2.95	-346.6

Energen

Preliminary Design

Company:	Energen Resources	Local Co-ordinate Reference:	Site Chaco 23-08 9 #1H
Project:	Chaco Mancos Sec 9, T23N, R8W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Chaco 23-08 9 #1H	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Design #1	North Reference:	Grid
Wellbore:	Preliminary Plan	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)
4,940.3	5,050.0	17.23	41.86	687.1	-454.1	5.07	-337.0
4,987.6	5,100.0	20.43	51.70	698.0	-442.3	6.41	-323.6
5,033.9	5,150.0	24.04	58.83	708.7	-426.7	7.22	-306.5
5,078.9	5,200.0	27.90	64.14	719.1	-407.4	7.71	-285.9
5,122.2	5,250.0	31.91	68.23	729.1	-384.6	8.03	-261.8
5,163.7	5,300.0	36.03	71.49	738.7	-358.4	8.24	-234.4
5,203.0	5,350.0	40.22	74.15	747.8	-328.9	8.38	-203.8
5,239.9	5,400.0	44.46	76.39	756.3	-296.4	8.48	-170.3
5,274.3	5,450.0	48.74	78.31	764.2	-260.9	8.56	-134.1
5,305.8	5,500.0	53.04	79.99	771.5	-222.8	8.61	-95.3
5,334.4	5,550.0	57.37	81.50	778.1	-182.3	8.66	-54.3
5,359.7	5,600.0	61.71	82.86	784.0	-139.6	8.69	-11.2
5,381.7	5,650.0	66.07	84.12	789.0	-95.0	8.71	33.7
5,400.2	5,700.0	70.44	85.29	793.3	-48.8	8.73	80.0
5,415.1	5,750.0	74.81	86.41	796.8	-1.2	8.75	127.5
5,426.4	5,800.0	79.19	87.47	799.4	47.4	8.76	175.9
5,433.9	5,850.0	83.57	88.51	801.1	96.8	8.76	225.0
5,437.6	5,900.0	87.95	89.53	801.9	146.7	8.77	274.3
5,438.0	5,923.3	90.00	90.00	802.0	170.0	8.77	297.4
5,438.0	6,000.0	90.06	90.00	802.0	246.7	0.08	373.1
7"							
5,437.8	6,100.0	90.14	90.00	802.0	346.7	0.08	471.8
5,437.5	6,200.0	90.21	90.00	802.0	446.7	0.08	570.6
5,437.0	6,300.0	90.29	90.00	802.0	546.7	0.08	669.3
5,436.5	6,400.0	90.37	90.00	802.0	646.7	0.08	768.0
5,435.7	6,500.0	90.45	90.00	802.0	746.7	0.08	866.8
5,434.9	6,600.0	90.53	90.00	802.0	846.6	0.08	965.5
5,433.9	6,700.0	90.60	90.00	802.0	946.6	0.08	1,064.2
5,432.8	6,800.0	90.68	90.00	802.0	1,046.6	0.08	1,162.9
5,431.5	6,900.0	90.76	90.00	802.0	1,146.6	0.08	1,261.7
5,430.1	7,000.0	90.84	90.00	802.0	1,246.6	0.08	1,360.4
5,428.6	7,100.0	90.91	90.00	802.0	1,346.6	0.08	1,459.1
5,427.0	7,200.0	90.99	90.00	802.0	1,446.6	0.08	1,557.8
5,425.2	7,300.0	91.07	90.00	802.0	1,546.6	0.08	1,656.6
5,423.2	7,400.0	91.15	90.00	802.0	1,646.6	0.08	1,755.3
5,421.2	7,500.0	91.22	90.00	802.0	1,746.5	0.08	1,854.0
5,418.9	7,600.0	91.30	90.00	802.0	1,846.5	0.08	1,952.7
5,416.6	7,700.0	91.38	90.00	802.0	1,946.5	0.08	2,051.4
5,414.1	7,800.0	91.46	90.00	802.0	2,046.5	0.08	2,150.1
5,411.5	7,900.0	91.54	90.00	802.0	2,146.4	0.08	2,248.8
5,408.8	8,000.0	91.61	90.00	802.0	2,246.4	0.08	2,347.5
5,405.9	8,100.0	91.69	90.00	802.0	2,346.3	0.08	2,446.2
5,402.9	8,200.0	91.77	90.00	802.0	2,446.3	0.08	2,544.9
5,399.7	8,300.0	91.85	90.00	802.0	2,546.2	0.08	2,643.6
5,396.4	8,400.0	91.92	90.00	802.0	2,646.2	0.08	2,742.3

Energen

Preliminary Design

Company: Energen Resources	Local Co-ordinate Reference: Site Chaco 23-08 9 #1H
Project: Chaco Mancos Sec 9, T23N, R8W	TVD Reference: WELL @ 0.0usft (Original Well Elev)
Site: Chaco 23-08 9 #1H	MD Reference: WELL @ 0.0usft (Original Well Elev)
Well: Design #1	North Reference: Grid
Wellbore: Preliminary Plan	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)
5,393.0	8,500.0	92.00	90.00	802.0	2,746.1	0.08	2,841.0
5,389.4	8,600.0	92.08	90.00	802.0	2,846.1	0.08	2,939.6
5,385.7	8,700.0	92.16	90.00	802.0	2,946.0	0.08	3,038.3
5,381.9	8,800.0	92.23	90.00	802.0	3,045.9	0.08	3,137.0
5,377.9	8,900.0	92.31	90.00	802.0	3,145.8	0.08	3,235.6
5,373.8	9,000.0	92.39	90.00	802.0	3,245.8	0.08	3,334.3
5,369.6	9,100.0	92.47	90.00	802.0	3,345.7	0.08	3,432.9
5,365.2	9,200.0	92.55	90.00	802.0	3,445.6	0.08	3,531.6
5,360.7	9,300.0	92.62	90.00	802.0	3,545.5	0.08	3,630.2
5,356.1	9,400.0	92.70	90.00	802.0	3,645.4	0.08	3,728.8
5,351.3	9,500.0	92.78	90.00	802.0	3,745.3	0.08	3,827.4
5,346.4	9,600.0	92.86	90.00	802.0	3,845.1	0.08	3,926.1
5,341.3	9,700.0	92.93	90.00	802.0	3,945.0	0.08	4,024.7
5,336.2	9,800.0	93.01	90.00	802.0	4,044.9	0.08	4,123.3
5,330.8	9,900.0	93.09	90.00	802.0	4,144.7	0.08	4,221.9
5,325.4	10,000.0	93.17	90.00	802.0	4,244.6	0.08	4,320.5
5,319.8	10,100.0	93.24	90.00	802.0	4,344.4	0.08	4,419.0
5,314.1	10,200.0	93.32	90.00	802.0	4,444.3	0.08	4,517.6
5,308.2	10,300.0	93.40	90.00	802.0	4,544.1	0.08	4,616.2
5,302.2	10,400.0	93.48	90.00	802.0	4,643.9	0.08	4,714.7
5,300.4	10,429.0	93.50	90.00	802.0	4,672.9	0.08	4,743.3
4 1/2"							
5,300.4	10,429.3	93.50	90.00	802.0	4,673.2	0.08	4,743.6

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
10,429.0	5,300.4	4 1/2"	4-1/2	6-1/4
6,000.0	5,438.0	7"	7	8-3/4
500.0	500.0	9 5/8"	9-5/8	12-1/4

Checked By: _____ Approved By: _____ Date: _____

Produced water from nearby existing gas wells will also be utilized for completions operations if such activity proves practicable.

The water hauler(s) will access the proposed well pad via the roads described in Section A: *Existing Access Roads* and Section B: *New or Reconstructed Access Roads*.

No water supply well will be drilled on this lease.

F. Construction Plan and Materials

The BLM-FFO (505-564-7600) will be notified at least 48 hours prior to the start of construction activities; approximately 3-6 weeks of construction will be required for the construction phase of the proposed project.

The well pad will be leveled with heavy equipment to provide space and a level surface for vehicles and equipment. All native excavated material will be used on the well pad. Excavated materials from the cuts will be used for fill in order to level the proposed well pad. Approximately 11.6 feet of cut and 13.1 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.

Activity will cease when construction equipment cause ruts in the soil 6 inches in depth and/or when equipment can no longer move or operate under its own power on access road surfaces.

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

G. 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 stored in metal containment bins until hauled to a commercial disposal facility. No reserve pit will be needed for this project. 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.

Energren will follow New Mexico Oil Conservation Division Pit Rule and Onshore Orders No. 1 and No. 7 regarding placement, operation, and closure of the closed-loop system. No blow pit will be used.

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

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

H. Ancillary Facilities

No ancillary facilities will be associated with the well pad.

I. Well Site Layout

The approximate cuts, fills, and orientation for the proposed well pad are depicted on the construction plats in the APD package. The location of drilling equipment, rig orientation, and the location of topsoil stockpiles are provided in Appendix C.

J. Plans for Surface Reclamation

Please see Appendix A: *Reclamation Plan*.

ENERGEN RESOURCES CORPORATION
CHACO 23-08 9 #1H

1476' FSL & 210' FWL
SEC. 9, T-23-N, R-8-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

WELL FLAG LOCATED AT
36.238493° N
107.694942° W
NAD 83

DIRECTIONS

1. FROM THE INTERSECTION OF HWY 64 AND US-550 IN BLOOMFIELD, NEW MEXICO, TRAVEL SOUTH ON US-550 FOR 39.7 MILES TO M.P. 112; CONTINUE 0.1 MILES
2. TO THE BEGINNING OF NEW ACCESS ON THE RIGHT (SOUTH) SIDE OF HWY 550 WHICH CONTINUES SOUTH-SOUTHWESTERLY FOR 2651.2' TO THE NEW WELL LOCATION.



1199 MAIN AVENUE
SUITE 101
DURANGO, COLORADO 81301
(970)828-4732

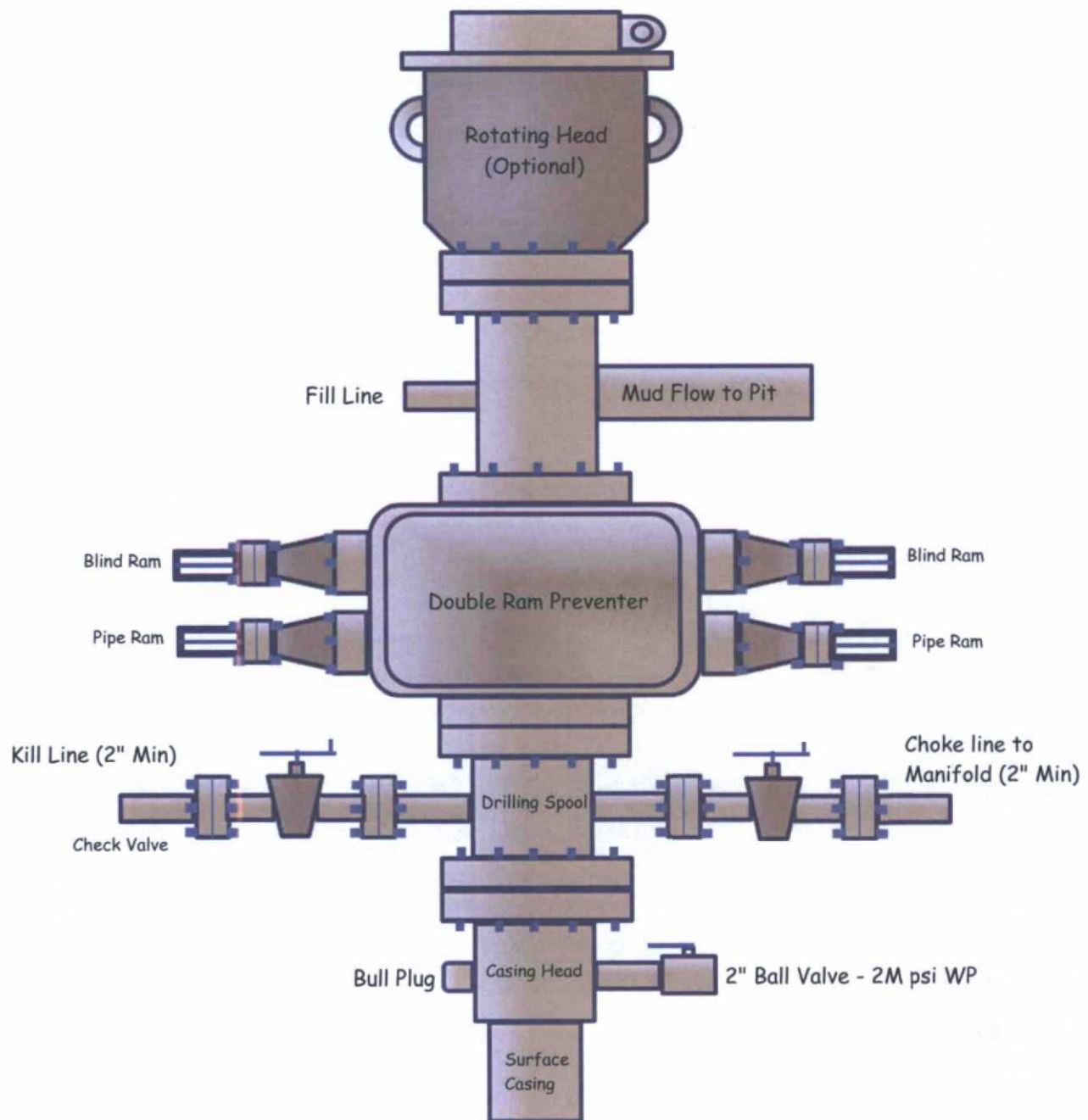
ENERGEN RESOURCES CORPORATION
CHACO 23-08 9 #1H, 1476' FSL & 210' FWL
SEC. 9, T-23-N, R-8-W, N.M.P.M., SAN JUAN CO, NM
GROUND ELEVATION: 6916.3'
DESIGN ELEVATION: 6913.0'

PROJ. NO		CLIENT	
3040914			
DRAWN BY	DATE	CHECKED BY	DATE
MJW	01/14/15	GWR	01/14/15

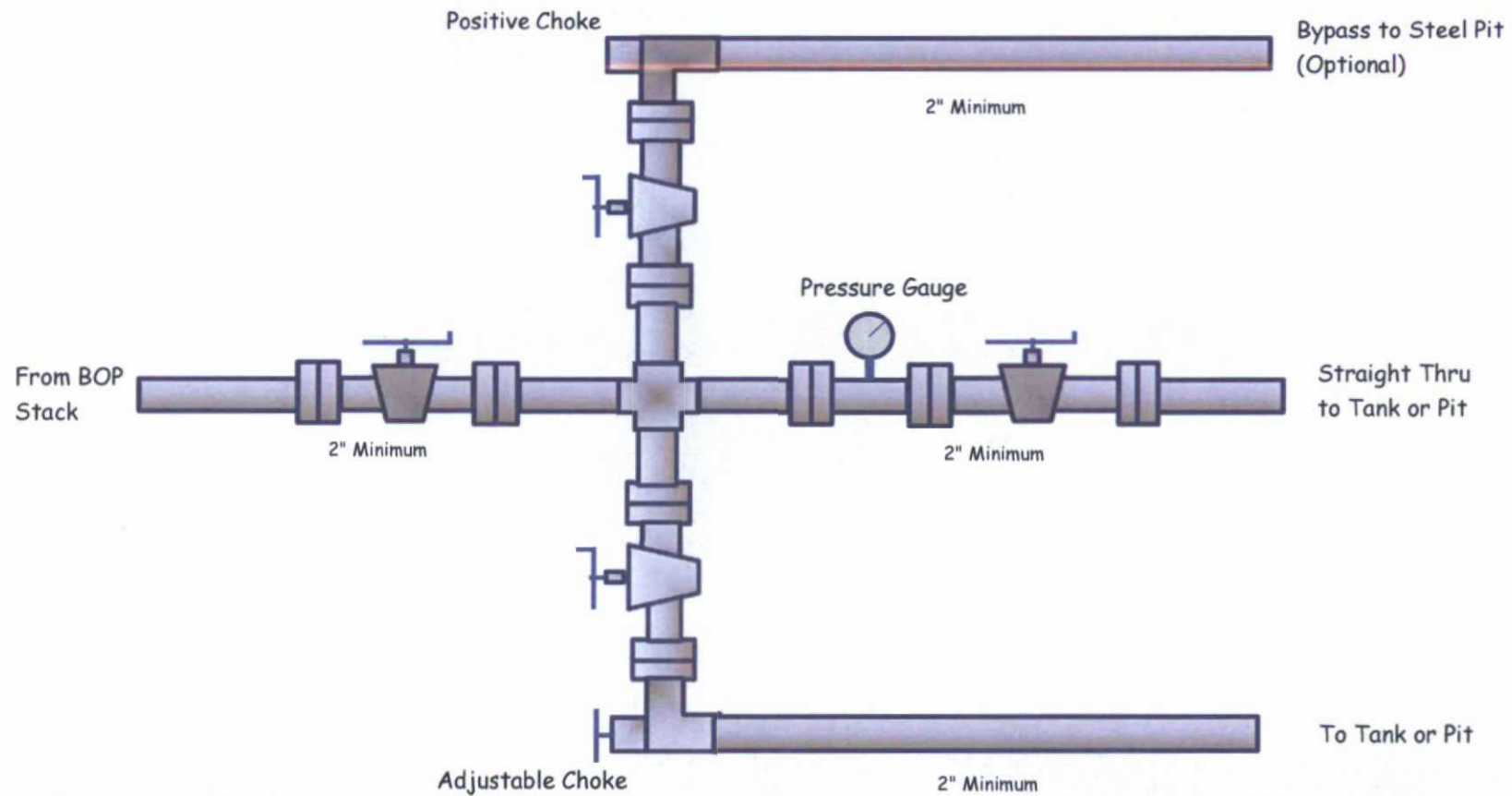
ENERGEN

SHEET
1
OF
1

Typical BOP Schematic - 3M psi System



2M Choke & Kill Manifold



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