Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CONFIDENTIAL
TIGHT HOLE

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - *Other instructions on page 2*

OIL CONS. DIV DIST. 3

OCT 20 2015

RECEIVED
OCT 14 2015
Farmington Field Office
Bureau of Land Management

1. Type of Well
[x] Oil Well [ ] Gas Well [ ] Other

2. Name of Operator
ENERGEN RESOURCES CORPORATION

3a. Address
2010 Afton Place, Farmington, NM 87401

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

4. Location of Well (*Footage, Sec., T., R., M., or Survey Description*)
1994' FNL 187' FEL, Sec 3 T23N R08W (H) SE/NE
380' FNL 380' FWL, Sec 3 T23N R08W (D) NW/NW

5. Lease Serial No.
NMNM18463

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
Chaco 23-08 3 #1H

9. API Well No.
30-045-35647

10. Field and Pool, or Exploratory Area
Basin Mancos

11. County or Parish, State
San Juan County NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
[x] Notice of Intent	[ ] Acidize	[ ] Deepen	[ ] Production (Start/Resume)	[ ] Water Shut-Off
[ ] Subsequent Report	[ ] Alter Casing	[ ] Fracture Treat	[ ] Reclamation	[ ] Well Integrity
[ ] Final Abandonment Notice	[ ] Casing Repair	[ ] New Construction	[ ] Recomplete	[ ] Other
	[x] Change Plans	[ ] Plug and Abandon	[ ] Temporarily Abandon	
	[ ] Convert to Injection	[ ] Plug Back	[ ] Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the final site is ready for final inspection.)

Energen Resources would like to make the following changes to the Chaco 23-08 3 #1H.

Change the set depth of the 9-5/8" surface to 320'(MD);320'(TVD) and decrease the cement volume to 190 sks.
Change the set depth of the 7" intermediate to 6150'(MD);5416'(TVD) and decrease the cement to 646 sks followed by 90 sks.
Change the set depth of the 4.50" production liner to 10360'(MD);5416'(TVD) w/TOC @ 5950'(MD) and decrease the cement volume to 400 sks. Change the hole size from 6-1/4" to 6-1/8".

The revised drilling and directional plans are attached.

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

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

14. I hereby certify that the foregoing is true and correct
Name (*Printed/Typed*) Anna Stotts
Title Regulatory Analyst
Signature Anna Stotts
Date 5/18/15

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Abdelgadir Elmadani
Title PE
Date 10/15/15
Office FFO

Conditions of approval, if any, are attached. Approval of this notice 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.

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, makes 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.

NMOCD

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TIGHT HOLE

Drilling Plan

Energen Resources Corporation
Revised 10/13/15

Chaco 23-08 3 #001H
Surface Location: 1994 FNL, 187 FEL
Legal Description: Sec 3, T23N, R8W (36.258079° N, 107.660785° W – NAD83)
Bottom Hole Location: 380 FNL, 380 FWL
Legal Description: Sec 3, T23N, R8W (36.262526° N, 107.676925° W – NAD83)
San Juan County, NM

1. The elevation of the unprepared ground is 6,911 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 5,416' TVD/10,362' MD.
4. Estimated top of important geological markers:

Formation	Depth (TVD)(ft)	Depth (MD)(ft)
Nacimiento	Surface	Surface
Ojo Alamo	1,066	1,066
Kirtland	1,166	1,166
Fruitland	1,340	1,340
Pictured Cliffs	1,776	1,776
Huerfantio Bentonite	2,066	2,069
Chacra	2,541	2,586
Cliff House	3,256	3,378
Menefee	3,306	3,434
Point Lookout	4,161	4,381
Mancos	4,611	4,880
Mancos/Niobrara "C"	5,266	5,665

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	1,340	Gas
Pictured Cliffs	1,776	Gas
Cliffhouse	3,256	Gas
Point Lookout	4,161	Gas
Mancos	4,611	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"	0-320'	0-320'	J-55	36.00	STC	3520	2020	394
Intermediate	7"	0-6,150'	0-5,416'	L-80	26.00	DQX TMK IPSCO	7240	5410	830
Production	4-1/2"	5,950'-10,360'	5,416'	P-110	11.60	DQX TMK IPSCO	10690	7560	367

Cementing Program:

a. 12-1/4" hole x 9-5/8" casing at 320' will have cement circulated to surface with 190 sks (100% excess true hole) VARICEM ™ SYSTEM 15.8 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 3^{RD} JOINT TO SURFACE. 10 BBLS OF WATER AHEAD OF CEMENT AS SPACER Pressure test casing to 1,500 psi for 30 min.

b. 8-3/4" hole x 7" casing at 6,150'. Cement will be circulated to surface with 646 sks (50% excess true hole) of HALCEM™ SYSTEM with 0.125 #/sk Poly-E-Flake – 12.3 ppg, 1.97 ft^3/sk followed by 90 sks (50% excess true hole) VARICEM ™ CEMENT – 13.5 ppg, 1.29 ft^3/sk. ONE CENTRALIZER PER JOINT FOR THE FIRST 3 JOINTS, THEN EVERY 3^{RD} JOINT TO SURFACE. 20 BBLS OF MUDFLUSH FOLLOWED BY 20 BBLS OF CHEMWASH AHEAD OF CEMENT AS SPACER. Test Intermediate Casing to 3,500 psi for 30 min. Cement Additives Subject to Change Based on Wellbore Conditions and Cement Design Criteria.

a. 6-1/8" hole x 4-1/2" liner at 10,360'. TOC at 5,950'. Cement with 400 sks BONDCEM ™ SYSTEM – 13.3 ppg, 1.35 ft^3/sk (30% excess). ONE CENTRALIZER PER JOINT FOR THE FIRST 4 JOINTS, THEN PLACED AT DISCRETION TO ACHIEVE DESIRED STANDOFF. ONE CENTRALIZER PER JOINT THROUGH THE LINER LAP INTERVAL. Liner will be pressure tested during completion operations.

7. Pressure Control Equipment

a. BOPE to be installed prior to Surface Casing drillout.
b. Pressure control equipment will be used to meet or exceed 2,000 (2M) psi specifications.
c. Minimum 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 70% 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.

8. Mud Program:

0' - 320'	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
320' – 6,150'	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
6,150' - 10,362'	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

9. 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.

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

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Energen Resources

Chaco Mancos Sec 3, T23N, R8W
Copy of Chaco 23-8 3 #001H
Design #2
Preliminary Desgin

Plan: APD Plan #2

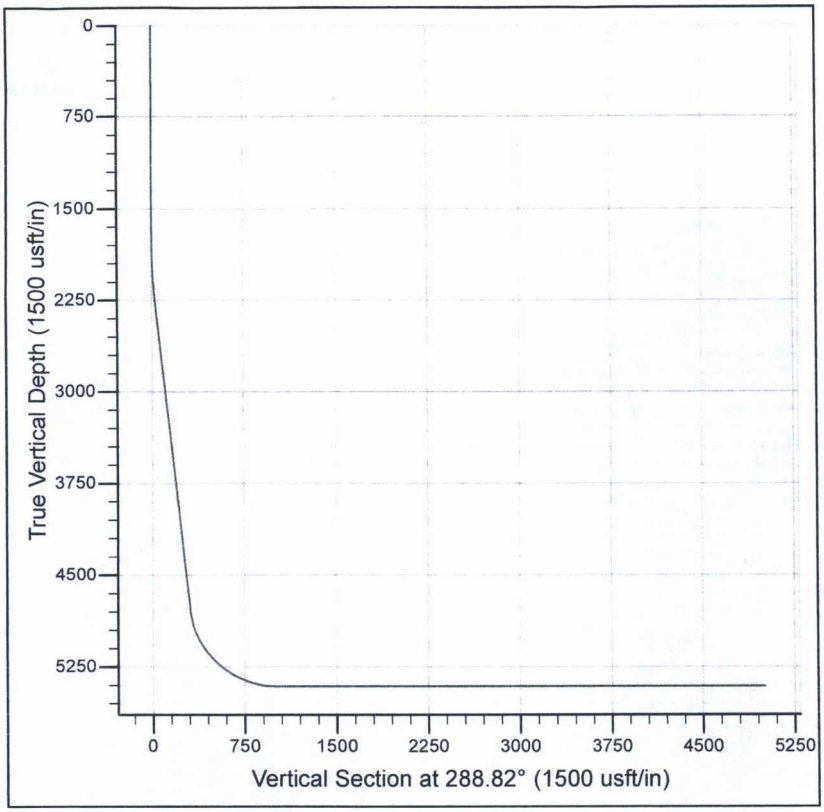
Preliminary Design

13 October, 2015

CONFIDENTIAL
TIGHT HOLE

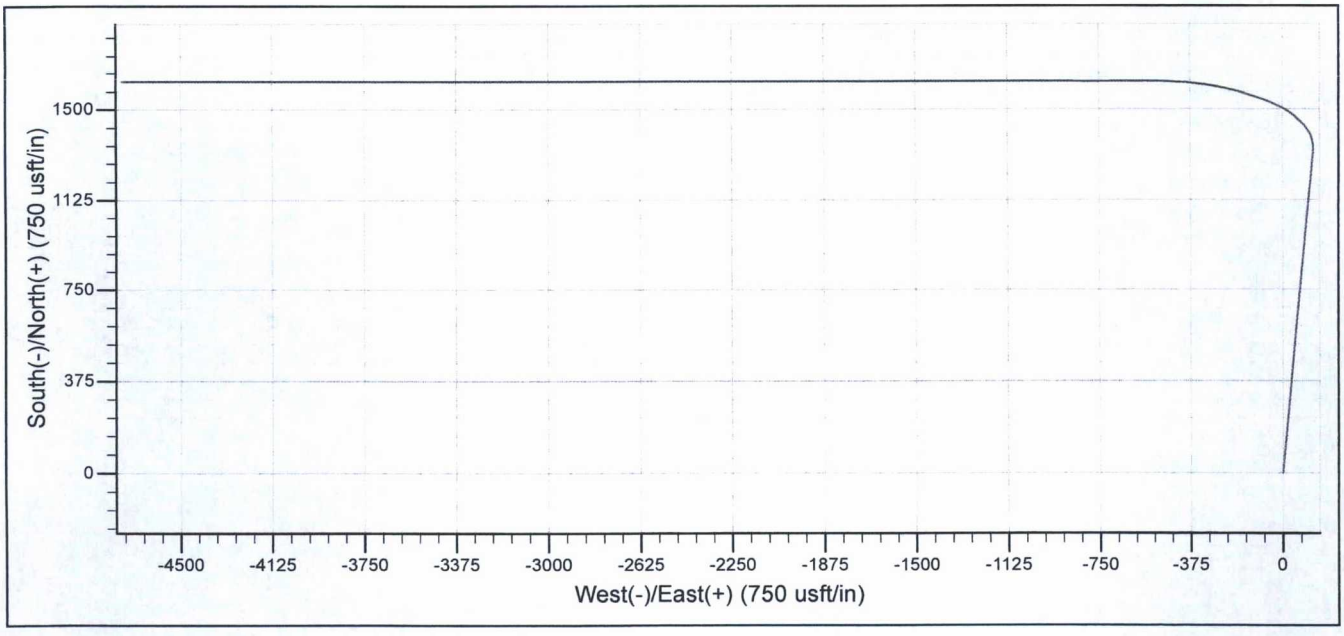
Company Name: Energen Resources

Project: Chaco Mancos Sec 3, T23N, R8W
Site: Copy of Chaco 23-8 3 #001H
Well: Design #2
Wellbore: Preliminary Desgin
Design: APD Plan #2



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	1750.0	0.00	0.00	1750.0	0.0	0.0	0.00	0.00	0.0
3	2319.9	25.65	5.29	2301.1	124.9	11.6	4.50	5.29	29.3
4	5112.7	25.65	5.29	4818.7	1328.5	123.1	0.00	0.00	311.9
5	6138.1	90.00	270.00	5416.0	1614.0	-513.0	9.00	-94.78	1006.1
6	10362.1	90.00	270.00	5416.0	1614.0	-4737.0	0.00	0.00	5004.4



Energen
Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Copy of Chaco 23-8 3 #001H
Project:	Chaco Mancos Sec 3, T23N, R8W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Copy of Chaco 23-8 3 #001H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Design #2	**North Reference:**	Grid
Wellbore:	Preliminary Desgin	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan #2	**Database:**	EDM 5000.1 Single User Db

Project Chaco Mancos Sec 3, T23N, R8W

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

Site Copy of Chaco 23-8 3 #001H

Site Position:		**Northing:**	1,913,284.76 usft	**Latitude:**	36° 15' 29.084 N
From:	Lat/Long	**Easting:**	2,773,962.50 usft	**Longitude:**	107° 39' 38.826 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.10 °

Well Design #2

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,913,284.76 usft	**Latitude:**	36° 15' 29.084 N
	+E/-W	0.0 usft	**Easting:**	2,773,962.50 usft	**Longitude:**	107° 39' 38.826 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0.0 usft

Wellbore Preliminary Desgin

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/24/2014	9.36	63.01	50,233

Design APD Plan #2

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	288.82

Survey Tool Program **Date** 10/13/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	10,362.1	APD Plan #2 (Preliminary Desgin)	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
320.0	320.0	0.00	0.00	0.0	0.0	0.00	0.0
Surface Casing							
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
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

Energen
Preliminary Design

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Well:	Design #2	**North Reference:**	Grid
Wellbore:	Preliminary Desgin	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan #2	**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)
1,000.0	1,000.0	0.00	0.00	0.0	0.0	0.00	0.0
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
1,750.0	1,750.0	0.00	0.00	0.0	0.0	0.00	0.0
1,800.0	1,800.0	2.25	5.29	1.0	0.1	4.50	0.2
1,899.7	1,900.0	6.75	5.29	8.8	0.8	4.50	2.1
1,998.4	2,000.0	11.25	5.29	24.4	2.3	4.50	5.7
2,095.6	2,100.0	15.75	5.29	47.6	4.4	4.50	11.2
2,190.7	2,200.0	20.25	5.29	78.4	7.3	4.50	18.4
2,283.1	2,300.0	24.75	5.29	116.5	10.8	4.50	27.3
2,301.1	2,319.9	25.65	5.29	124.9	11.6	4.50	29.3
2,373.3	2,400.0	25.65	5.29	159.4	14.8	0.00	37.4
2,463.4	2,500.0	25.65	5.29	202.5	18.8	0.00	47.5
2,553.6	2,600.0	25.65	5.29	245.6	22.8	0.00	57.7
2,643.7	2,700.0	25.65	5.29	288.7	26.8	0.00	67.8
2,733.9	2,800.0	25.65	5.29	331.8	30.7	0.00	77.9
2,824.0	2,900.0	25.65	5.29	374.9	34.7	0.00	88.0
2,914.2	3,000.0	25.65	5.29	418.0	38.7	0.00	98.1
3,004.3	3,100.0	25.65	5.29	461.1	42.7	0.00	108.3
3,094.5	3,200.0	25.65	5.29	504.2	46.7	0.00	118.4
3,184.6	3,300.0	25.65	5.29	547.3	50.7	0.00	128.5
3,274.8	3,400.0	25.65	5.29	590.4	54.7	0.00	138.6
3,364.9	3,500.0	25.65	5.29	633.5	58.7	0.00	148.7
3,455.1	3,600.0	25.65	5.29	676.6	62.7	0.00	158.9
3,545.2	3,700.0	25.65	5.29	719.7	66.7	0.00	169.0
3,635.4	3,800.0	25.65	5.29	762.8	70.7	0.00	179.1
3,725.5	3,900.0	25.65	5.29	805.9	74.7	0.00	189.2
3,815.6	4,000.0	25.65	5.29	848.9	78.7	0.00	199.3
3,905.8	4,100.0	25.65	5.29	892.0	82.7	0.00	209.4
3,995.9	4,200.0	25.65	5.29	935.1	86.7	0.00	219.6
4,086.1	4,300.0	25.65	5.29	978.2	90.7	0.00	229.7
4,176.2	4,400.0	25.65	5.29	1,021.3	94.6	0.00	239.8
4,266.4	4,500.0	25.65	5.29	1,064.4	98.6	0.00	249.9
4,356.5	4,600.0	25.65	5.29	1,107.5	102.6	0.00	260.0
4,446.7	4,700.0	25.65	5.29	1,150.6	106.6	0.00	270.2
4,536.8	4,800.0	25.65	5.29	1,193.7	110.6	0.00	280.3
4,627.0	4,900.0	25.65	5.29	1,236.8	114.6	0.00	290.4
4,717.1	5,000.0	25.65	5.29	1,279.9	118.6	0.00	300.5
4,807.3	5,100.0	25.65	5.29	1,323.0	122.6	0.00	310.6

Energen

Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Copy of Chaco 23-8 3 #001H
Project:	Chaco Mancos Sec 3, T23N, R8W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Copy of Chaco 23-8 3 #001H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Design #2	**North Reference:**	Grid
Wellbore:	Preliminary Desgin	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan #2	**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)
4,818.7	5,112.7	25.65	5.29	1,328.5	123.1	0.00	311.9
4,852.4	5,150.0	25.57	357.52	1,344.6	123.5	-0.20	316.7
4,897.4	5,200.0	26.11	347.26	1,366.1	120.6	1.08	326.4
4,942.1	5,250.0	27.34	337.62	1,387.4	113.8	2.46	339.7
4,986.1	5,300.0	29.17	328.92	1,408.5	103.1	3.66	356.6
5,029.3	5,350.0	31.50	321.28	1,429.1	88.7	4.65	377.0
5,071.3	5,400.0	34.22	314.67	1,449.2	70.5	5.44	400.7
5,111.9	5,450.0	37.24	308.96	1,468.6	48.7	6.06	427.5
5,150.8	5,500.0	40.51	304.03	1,487.2	23.5	6.53	457.4
5,187.9	5,550.0	43.96	299.72	1,504.9	-5.1	6.90	490.1
5,222.8	5,600.0	47.55	295.93	1,521.6	-36.7	7.18	525.5
5,255.3	5,650.0	51.25	292.56	1,537.2	-71.3	7.40	563.3
5,285.3	5,700.0	55.04	289.53	1,551.5	-108.7	7.58	603.3
5,312.5	5,750.0	58.90	286.76	1,564.5	-148.5	7.72	645.2
5,336.9	5,800.0	62.81	284.22	1,576.2	-190.6	7.82	688.7
5,358.2	5,850.0	66.77	281.84	1,586.4	-234.6	7.91	733.7
5,376.3	5,900.0	70.75	279.61	1,595.0	-280.4	7.98	779.9
5,391.1	5,950.0	74.77	277.48	1,602.1	-327.6	8.03	826.8
5,402.5	6,000.0	78.80	275.43	1,607.6	-376.0	8.07	874.4
5,410.5	6,050.0	82.85	273.44	1,611.4	-425.2	8.10	922.2
5,415.0	6,100.0	86.91	271.48	1,613.5	-474.9	8.11	969.9
5,416.0	6,138.1	90.00	270.00	1,614.0	-513.0	8.12	1,006.1
5,416.0	6,150.0	90.00	270.00	1,614.0	-524.9	0.00	1,017.4
Intermediate Casing							
5,416.0	6,200.0	90.00	270.00	1,614.0	-574.9	0.00	1,064.7
5,416.0	6,300.0	90.00	270.00	1,614.0	-674.9	0.00	1,159.4
5,416.0	6,400.0	90.00	270.00	1,614.0	-774.9	0.00	1,254.0
5,416.0	6,500.0	90.00	270.00	1,614.0	-874.9	0.00	1,348.7
5,416.0	6,600.0	90.00	270.00	1,614.0	-974.9	0.00	1,443.4
5,416.0	6,700.0	90.00	270.00	1,614.0	-1,074.9	0.00	1,538.0
5,416.0	6,800.0	90.00	270.00	1,614.0	-1,174.9	0.00	1,632.7
5,416.0	6,900.0	90.00	270.00	1,614.0	-1,274.9	0.00	1,727.3
5,416.0	7,000.0	90.00	270.00	1,614.0	-1,374.9	0.00	1,822.0
5,416.0	7,100.0	90.00	270.00	1,614.0	-1,474.9	0.00	1,916.6
5,416.0	7,200.0	90.00	270.00	1,614.0	-1,574.9	0.00	2,011.3
5,416.0	7,300.0	90.00	270.00	1,614.0	-1,674.9	0.00	2,105.9
5,416.0	7,400.0	90.00	270.00	1,614.0	-1,774.9	0.00	2,200.6
5,416.0	7,500.0	90.00	270.00	1,614.0	-1,874.9	0.00	2,295.3
5,416.0	7,600.0	90.00	270.00	1,614.0	-1,974.9	0.00	2,389.9
5,416.0	7,700.0	90.00	270.00	1,614.0	-2,074.9	0.00	2,484.6
5,416.0	7,800.0	90.00	270.00	1,614.0	-2,174.9	0.00	2,579.2
5,416.0	7,900.0	90.00	270.00	1,614.0	-2,274.9	0.00	2,673.9
5,416.0	8,000.0	90.00	270.00	1,614.0	-2,374.9	0.00	2,768.5
5,416.0	8,100.0	90.00	270.00	1,614.0	-2,474.9	0.00	2,863.2
5,416.0	8,200.0	90.00	270.00	1,614.0	-2,574.9	0.00	2,957.9

Energen

Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Copy of Chaco 23-8 3 #001H
Project:	Chaco Mancos Sec 3, T23N, R8W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Copy of Chaco 23-8 3 #001H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Design #2	**North Reference:**	Grid
Wellbore:	Preliminary Desgin	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan #2	**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)
5,416.0	8,300.0	90.00	270.00	1,614.0	-2,674.9	0.00	3,052.5
5,416.0	8,400.0	90.00	270.00	1,614.0	-2,774.9	0.00	3,147.2
5,416.0	8,500.0	90.00	270.00	1,614.0	-2,874.9	0.00	3,241.8
5,416.0	8,600.0	90.00	270.00	1,614.0	-2,974.9	0.00	3,336.5
5,416.0	8,700.0	90.00	270.00	1,614.0	-3,074.9	0.00	3,431.1
5,416.0	8,800.0	90.00	270.00	1,614.0	-3,174.9	0.00	3,525.8
5,416.0	8,900.0	90.00	270.00	1,614.0	-3,274.9	0.00	3,620.5
5,416.0	9,000.0	90.00	270.00	1,614.0	-3,374.9	0.00	3,715.1
5,416.0	9,100.0	90.00	270.00	1,614.0	-3,474.9	0.00	3,809.8
5,416.0	9,200.0	90.00	270.00	1,614.0	-3,574.9	0.00	3,904.4
5,416.0	9,300.0	90.00	270.00	1,614.0	-3,674.9	0.00	3,999.1
5,416.0	9,400.0	90.00	270.00	1,614.0	-3,774.9	0.00	4,093.7
5,416.0	9,500.0	90.00	270.00	1,614.0	-3,874.9	0.00	4,188.4
5,416.0	9,600.0	90.00	270.00	1,614.0	-3,974.9	0.00	4,283.0
5,416.0	9,700.0	90.00	270.00	1,614.0	-4,074.9	0.00	4,377.7
5,416.0	9,800.0	90.00	270.00	1,614.0	-4,174.9	0.00	4,472.4
5,416.0	9,900.0	90.00	270.00	1,614.0	-4,274.9	0.00	4,567.0
5,416.0	10,000.0	90.00	270.00	1,614.0	-4,374.9	0.00	4,661.7
5,416.0	10,100.0	90.00	270.00	1,614.0	-4,474.9	0.00	4,756.3
5,416.0	10,200.0	90.00	270.00	1,614.0	-4,574.9	0.00	4,851.0
5,416.0	10,300.0	90.00	270.00	1,614.0	-4,674.9	0.00	4,945.6
5,416.0	10,360.0	90.00	270.00	1,614.0	-4,734.9	0.00	5,002.4
Production Liner							
5,416.0	10,362.1	90.00	270.00	1,614.0	-4,737.0	0.00	5,004.4

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
10,360.0	5,416.0	Production Liner	4-1/2	6-1/4
320.0	320.0	Surface Casing	9-5/8	12-1/4
6,150.0	5,416.0	Intermediate Casing	7	8-3/4

Checked By: _____ Approved By: _____ Date: _____