

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 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 and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

OIL CONS. DIV DIST. 3

AUG 28 2015

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1 Operator Name and Address Energen Resources 2010 Afton Place Farmington, NM 87401		2 OGRID Number 162928
3 API Number 30-039-31341		4 Well No. 3H
5 Property Code 314743	6 Property Name MANY CANYONS 24-03 8	

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
I	8	24N	3W		1430'	SOUTH	704'	EAST	RIO ARriba

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
J	7	24N	3W		2188'	SOUTH	526'	WEST	RIO ARriba

9. Pool Information

Pool Name WEST LINDRITH GALLUP DAKOTA	Pool Code 39189
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Additional Well Information

11 Work Type N	12 Well Type O	13 Cable/Rotary R	14 Lease Type P	15 Ground Level Elevation 6881'
16 Multiple NO	17 Proposed Depth 6452' TVD/14780' MD	18 Formation MANCOS	19 Contractor TO BE DETERMINED	20 Spud Date ~ 11/01/15
Depth to Ground water UNKNOWN		Distance from nearest fresh water well ~542'		Distance to nearest surface water ~550'

☒ We will be using a closed-loop system in lieu of lined pits ✓

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
SURFACE	12-1/4"	9-5/8"	36#	320'	170 SKS	SURFACE
INTERMEDIATE	8-3/4"	7"	26#	7090'	890 SKS	SURFACE
PRODUCTION	6-1/8"	4-1/2"	11.6#	6890'-14780'	715 SKS	6890'

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
DOUBLE RAM	3000#	2550#	TO BE DETERMINED

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐, if applicable.
Signature: Anna Stotts

Printed name: Anna Stotts

Title: Regulatory Analyst

E-mail Address: astott@energen.com

Date: 8/27/15

Phone: (505) 324-4154

OIL CONSERVATION DIVISION

Approved By:

Title: SUPERVISOR DISTRICT #3

Approved Date: SEP 03 2015

Expiration Date: SEP 03 2017

Conditions of Approval Attached

SEE ATTACHED NMOCD
CONDITIONS OF APPROVAL

DISTRICT I

1825 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 393-6181 Fax: (505) 393-0720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
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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) 476-3480 Fax: (505) 476-3482

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

¹ API Number 30-039-31341	² Pool Code 39189	³ Pool Name WEST LINDRITH GALLUP DAKOTA
⁴ Property Code 314743	⁵ Property Name Many Canyons 24-03 8	⁶ Well Number 3H
⁷ OGRID No. 162928	⁸ Operator Name ENERGEN RESOURCES CORPORATION	⁹ Elevation 6880.7

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
I	8	24N	3W		1430'	SOUTH	704'	EAST	RIO ARRIBA

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
J	7	24N	3W		2188'	SOUTH	526'	WEST	RIO ARRIBA

¹² Dedicated Acres PROJECT AREA S/2 SEC 7, S/2 SEC 8 511.25 ACRES	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ 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

WELL FLAG #3H

LAT: N36°19.2938'
LONG: W107°10.3638'
NAD27

ENTRY POINT #3H

LAT: N36°19.4190'
LONG: W107°10.2876'
NAD27

BOTTOM HOLE #3H

LAT: N36°19.4122'
LONG: W107°11.8324'
NAD27

LAT: N36.321578'
LONG: W107.173329'
NAD83

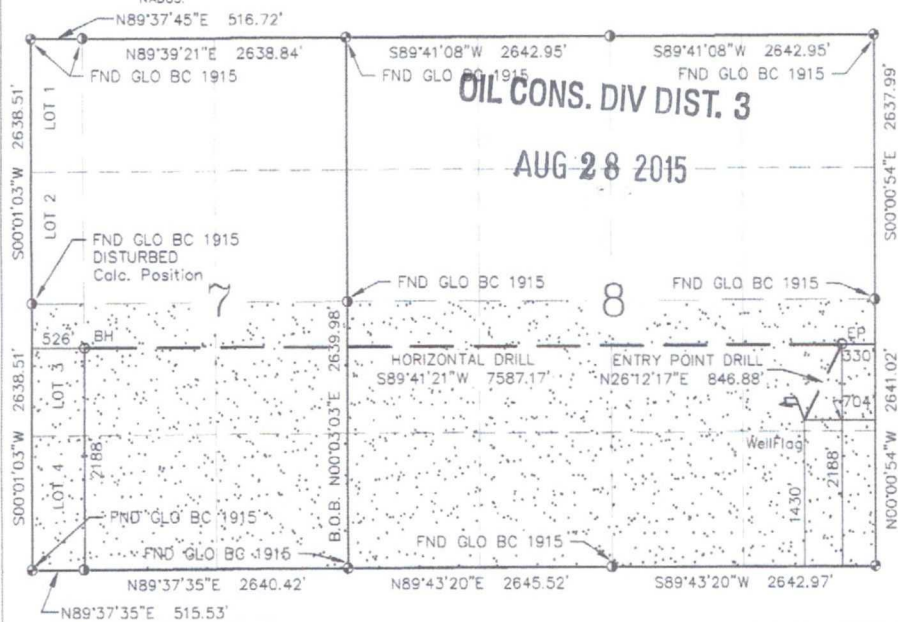
LAT: N36.323665'
LONG: W107.172060'
NAD83

LAT: N36.323550'
LONG: W107.197805'
NAD83

BASIS OF BEARING:

BETWEEN FOUND MONUMENTS AT THE SOUTHWEST CORNER AND THE WEST QUARTER CORNER OF
SECTION 8, TOWNSHIP 24 NORTH, RANGE 3 WEST, N.M.P.M. RIO ARRIBA COUNTY, NEW MEXICO.

LINE BEARS: N00°03'03"E A DISTANCE OF 2639.98 FEET AS MEASURED BY G.P.S. LOCAL GRID
NAD83.

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.

Anna Stotts 8/27/15
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.

July 15, 2015
Date of Survey

Glen W. Russell
Signature and Seal of Professional Surveyor



GLEN W. RUSSELL
Certificate Number 15703

Drilling Plan

Energen Resources Corporation

Many Canyon 24-03 8 #3H

Surface Location: 1430 FSL, 704 FEL

Legal Description: Sec 8, T24N, R3W (36.321578° N, 107.173329° W – NAD83)

Bottom Hole Location: 2188 FSL, 526 FWL

Legal Description: Sec 7, T24N, R3W (36.323550° N, 107.197805° W – NAD83)

Rio Arriba County, NM

1. The elevation of the unprepared ground is 6,881 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 6,452' TVD/14,780' MD.
4. Estimated top of important geological markers:

<u>Formation</u>	<u>Depth (TVD)(ft)</u>	<u>Depth (MD)(ft)</u>
San Jose	Surface	Surface
Nacimiento	1,238	1,238
Ojo Alamo	2,468	2,468
Kirtland	2,600	2,600
Pictured Cliffs	3,029	2,761
Lewis	3,137	3,137
Chacra	3,933	3,994
Cliff House	4,695	4,840
Menefee	4,713	4,860
Point Lookout	5,213	5,415
Mancos	5,564	5,804
Mancos Landing Depth	6,452	7,090

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>
Pictured Cliffs	3,029	Gas
Cliffhouse	4,695	Gas
Point Lookout	5,213	Gas
Mancos	5,564	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	LTC	3520	2020	394
Intermediate	7"	0-7,090'	0-6,452'	L-80	26.00	DQX TMK IPSCO	7240	5410	830
Production	4-1/2"	6,890'-14,780'	6,452'-6,351'	P-110	11.60	DQX TMK IPSCO	10690	7560	367

7. Cementing Program:

- a. 12-1/4" hole x 9-5/8" casing at 320' will have cement circulated to surface with 170 sks (100% excess true hole) of HALCEM™ SYSTEM with 1.0 % CaCl₂ - 15.8 ppg, 1.17 ft³/sk. Note: CEMENT MUST BE CIRCULATED TO SURFACE. STANDARD BOW SPRING CENTRALIZERS SHALL BE PLACED ON THE FIRST 2 (BOTTOM 2) JOINTS OF CASING (1 PER JOINT) AND 1 EVERY OTHER JOINT TO SURFACE. 10 BBLS OF WATER AHEAD OF CEMENT AS A SPACER.
- b. 8-3/4" hole x 7" casing at 7,090'. Cement will be circulated to surface with 770 sks (50% excess true hole) of HALCEM™ SYSTEM with 0.125 #/sk Poly-E-Flake - 12.3 ppg, 1.93 ft³/sk followed by 120 sks (50% excess true hole) VARICEM™ CEMENT - 13.5 ppg, 1.29 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.
- c. 6-1/8" hole x 4-1/2" liner at 14,780'. A fluid caliper will be run to determine base slurry cement to have TOC at 6,890'. Base slurry to consist of 715 sks BONDCEM™ CEMENT - 13.3 ppg, 1.35 ft³/sk (30% excess). CENTRALIZERS TO BE USED AT DISCRETION IN LATERAL TO ACHIEVE DESIRABLE STAND OFF. PACKOFF SEAL ASSEMBLY TO BE USED FOR LINER TOP ISOLATION. 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 50% 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' - 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' - 7,090'	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
7,090' - 14,780'	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: Triple Combo, FMI, Sonic Scanner
- c. LWD Program: TBD
- d. Coring Program: Sidewall Cores through Mancos Formation
- e. CBL's and/or Temperature Surveys Will Be Performed as Needed or Required.

11. Bottom Hole Pressure expected to be 2,250 +/- psi

12. Bottom Hole Temperature expected to be 160 deg F.

Energen Resources

Many Canyons Sec 8, T24N, R3W

Many Canyons 24-03 8 #3H

Preliminary Design

Design #1

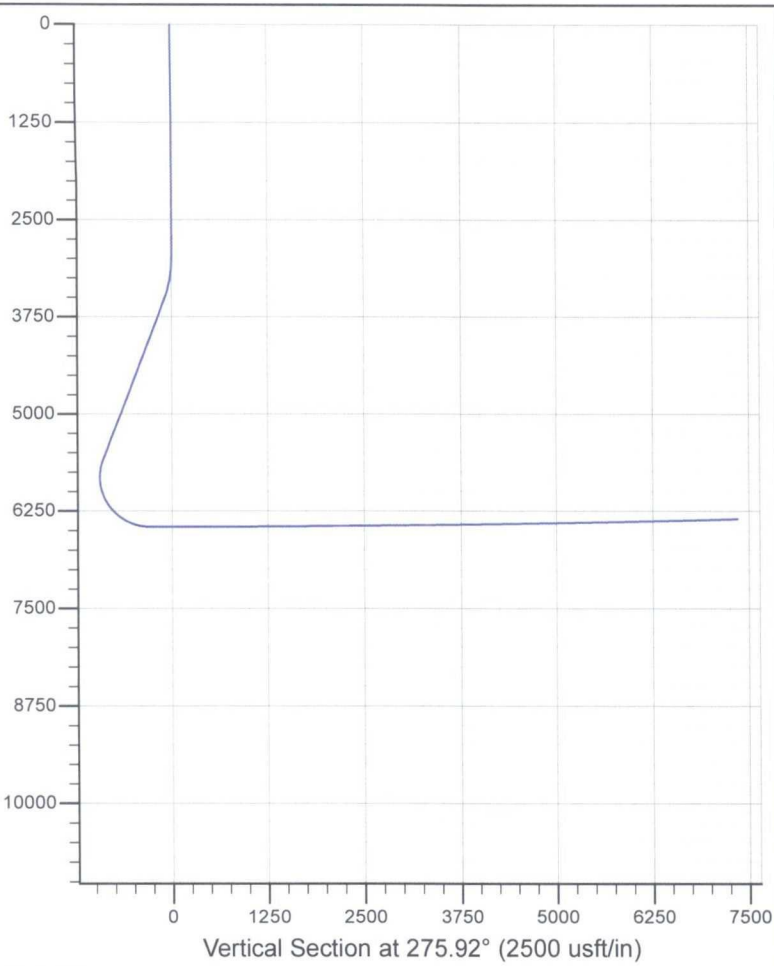
Plan: APD Plan

OIL CONS. DIV DIST. 3

AUG 28 2015

Preliminary Design

25 August, 2015



PROJECT DETAILS: Many Canyons Sec 8, T24N, R3W

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Alabama Eastern Zone

System Datum: Mean Sea Level

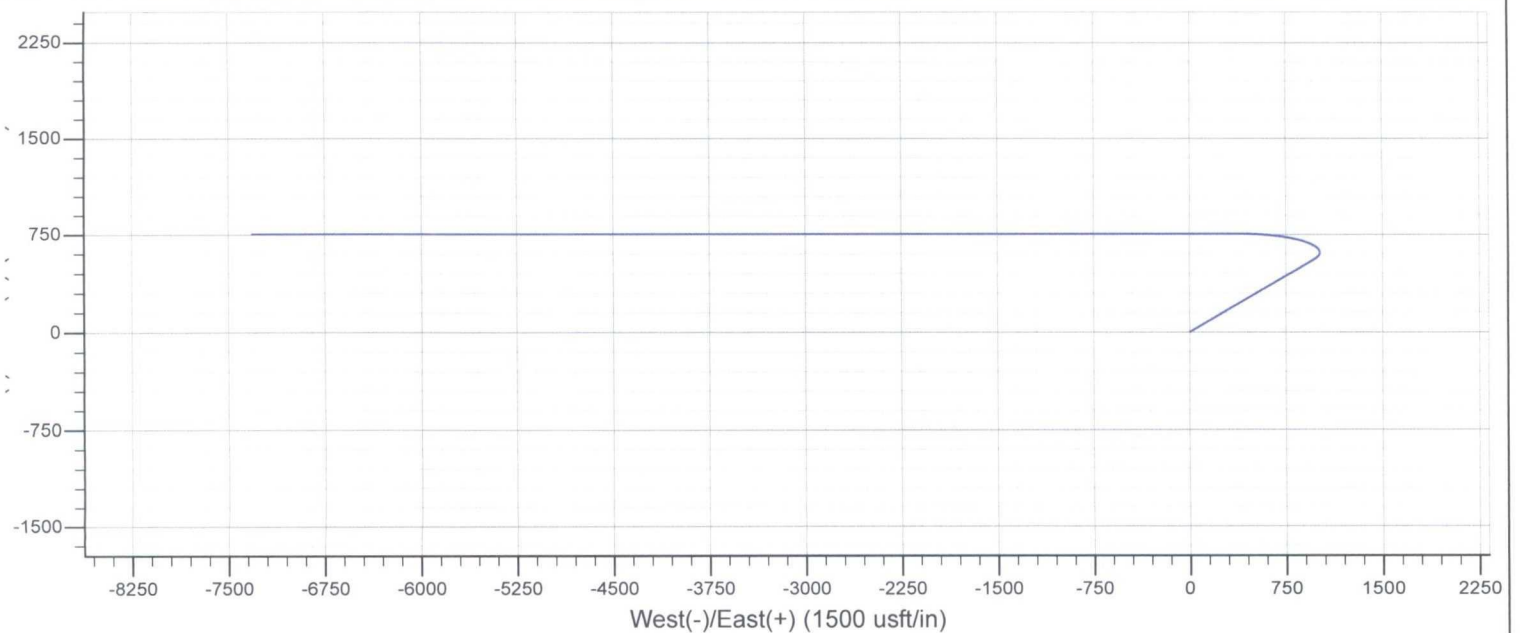
SITE DETAILS: Many Canyons 24-03 8 #3H

Site Centre Latitude: 35° 34' 59.131 N
 Longitude: 78° 14' 7.862 W

Positional Uncertainty: 0.0
 Convergence: 4.44
 Local North: Grid

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0		
3	3571.6	25.72	60.15	3552.6	62.8	109.4	4.50	60.15	-102.4		
4	5844.1	25.72	60.15	5599.9	553.7	964.8	0.00	0.00	-902.6		
5	7089.8	90.00	270.00	6452.0	758.0	375.0	9.00	-147.50	-294.9		
6	14779.8	91.50	270.00	6351.3	758.0	-7314.1	0.02	0.00	7353.3		



Energen

Preliminary Design

Company:	Energen Resources	Local Co-ordinate Reference:	Site Many Canyons 24-03 8 #3H
Project:	Many Canyons Sec 8, T24N, R3W	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Many Canyons 24-03 8 #3H	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Preliminary Design	North Reference:	Grid
Wellbore:	Design #1	Survey Calculation Method:	Minimum Curvature
Design:	APD Plan	Database:	EDM 5000.1 Single User Db

Project	Many Canyons Sec 8, T24N, R3W, Rio Arriba County, NM, Single Lateral		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Alabama Eastern Zone		

Site		Many Canyons 24-03 8 #3H			
Site Position:		Northing:	1,937,018.01 usft	Latitude:	35° 34' 59.131 N
From:	Lat/Long	Easting:	2,917,518.26 usft	Longitude:	78° 14' 7.862 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	4.44 °

Well	Preliminary Design					
Well Position	+N/-S	0.0 usft	Northing:	1,937,018.01 usft	Latitude:	35° 34' 59.131 N
	+E/-W	0.0 usft	Easting:	2,917,518.26 usft	Longitude:	78° 14' 7.862 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore	Design #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/25/2015	-9.41	63.33	49,821

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	0.0	0.0	275.92	

Survey Tool Program	Date	8/25/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,779.8	APD Plan (Design #1)	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
9 5/8"							
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

Company: Energen Resources
Project: Many Canyons Sec 8, T24N, R3W
Site: Many Canyons 24-03 8 #3H
Well: Preliminary Design
Wellbore: Design #1
Design: APD Plan

Local Co-ordinate Reference: Site Many Canyons 24-03 8 #3H
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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
1,800.0	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
3,099.9	3,100.0	4.50	60.15	2.0	3.4	4.50	-3.2
3,199.2	3,200.0	9.00	60.15	7.8	13.6	4.50	-12.7
3,297.2	3,300.0	13.50	60.15	17.5	30.5	4.50	-28.5
3,393.5	3,400.0	18.00	60.15	31.0	54.0	4.50	-50.6
3,487.2	3,500.0	22.50	60.15	48.2	84.1	4.50	-78.6
3,552.6	3,571.6	25.72	60.15	62.8	109.4	4.50	-102.4
3,578.2	3,600.0	25.72	60.15	68.9	120.1	0.00	-112.4
3,668.3	3,700.0	25.72	60.15	90.5	157.8	0.00	-147.6
3,758.4	3,800.0	25.72	60.15	112.1	195.4	0.00	-182.8
3,848.5	3,900.0	25.72	60.15	133.7	233.0	0.00	-218.0
3,938.5	4,000.0	25.72	60.15	155.3	270.7	0.00	-253.2
4,028.6	4,100.0	25.72	60.15	176.9	308.3	0.00	-288.4
4,118.7	4,200.0	25.72	60.15	198.5	346.0	0.00	-323.7
4,208.8	4,300.0	25.72	60.15	220.1	383.6	0.00	-358.9
4,298.9	4,400.0	25.72	60.15	241.7	421.2	0.00	-394.1
4,389.0	4,500.0	25.72	60.15	263.3	458.9	0.00	-429.3
4,479.1	4,600.0	25.72	60.15	285.0	496.5	0.00	-464.5
4,569.2	4,700.0	25.72	60.15	306.6	534.2	0.00	-499.7
4,659.3	4,800.0	25.72	60.15	328.2	571.8	0.00	-534.9
4,749.4	4,900.0	25.72	60.15	349.8	609.4	0.00	-570.1
4,839.5	5,000.0	25.72	60.15	371.4	647.1	0.00	-605.4
4,929.6	5,100.0	25.72	60.15	393.0	684.7	0.00	-640.6
5,019.6	5,200.0	25.72	60.15	414.6	722.4	0.00	-675.8

Energen

Preliminary Design

Company: Energen Resources
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Site: Many Canyons 24-03 8 #3H
Well: Preliminary Design
Wellbore: Design #1
Design: APD Plan

Local Co-ordinate Reference: Site Many Canyons 24-03 8 #3H
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	
5,109.7	5,300.0	25.72	60.15	436.2	760.0	0.00	-711.0	
5,199.8	5,400.0	25.72	60.15	457.8	797.6	0.00	-746.2	
5,289.9	5,500.0	25.72	60.15	479.4	835.3	0.00	-781.4	
5,380.0	5,600.0	25.72	60.15	501.0	872.9	0.00	-816.6	
5,470.1	5,700.0	25.72	60.15	522.6	910.6	0.00	-851.9	
5,560.2	5,800.0	25.72	60.15	544.2	948.2	0.00	-887.1	
5,599.9	5,844.1	25.72	60.15	553.7	964.8	0.00	-902.6	
5,605.3	5,850.0	25.27	59.48	555.0	967.0	-7.57	-904.6	
5,651.1	5,900.0	21.63	52.80	566.0	983.5	-7.28	-920.0	
5,698.1	5,950.0	18.36	43.74	577.2	996.3	-6.55	-931.5	
5,745.9	6,000.0	15.68	31.33	588.7	1,005.3	-5.36	-939.3	
5,794.3	6,050.0	13.94	15.01	600.3	1,010.4	-3.48	-943.1	
5,842.9	6,100.0	13.51	356.05	612.0	1,011.5	-0.85	-943.1	
5,891.4	6,150.0	14.51	337.85	623.6	1,008.8	2.00	-939.1	
5,939.6	6,200.0	16.69	323.12	635.1	1,002.1	4.34	-931.3	
5,987.1	6,250.0	19.65	312.20	646.5	991.6	5.92	-919.6	
6,033.7	6,300.0	23.09	304.22	657.7	977.2	6.89	-904.2	
6,079.0	6,350.0	26.84	298.29	668.6	959.2	7.49	-885.1	
6,122.8	6,400.0	30.77	293.75	679.1	937.5	7.87	-862.5	
6,164.8	6,450.0	34.83	290.16	689.1	912.4	8.12	-836.5	
6,204.8	6,500.0	38.98	287.24	698.7	883.9	8.29	-807.2	
6,242.5	6,550.0	43.18	284.80	707.8	852.4	8.41	-774.9	
6,277.7	6,600.0	47.43	282.72	716.2	817.9	8.50	-739.7	
6,310.1	6,650.0	51.72	280.91	724.0	780.6	8.57	-701.8	
6,339.6	6,700.0	56.02	279.30	731.0	740.9	8.62	-661.6	
6,365.9	6,750.0	60.35	277.84	737.4	698.9	8.65	-619.1	
6,389.0	6,800.0	64.69	276.51	742.9	654.8	8.68	-574.8	
6,408.6	6,850.0	69.05	275.27	747.6	609.1	8.71	-528.8	
6,424.7	6,900.0	73.41	274.10	751.5	562.0	8.72	-481.5	
6,437.1	6,950.0	77.77	272.98	754.4	513.6	8.74	-433.1	
6,445.9	7,000.0	82.15	271.90	756.5	464.5	8.74	-384.0	
6,450.8	7,050.0	86.52	270.84	757.7	414.7	8.75	-334.4	
6,452.0	7,089.8	90.00	270.00	758.0	375.0	8.75	-294.9	
6,452.0	7,090.0	90.00	270.00	758.0	374.8	0.00	-294.6	
7"	6,452.0	7,100.0	90.00	270.00	758.0	364.8	0.02	-284.7
	6,452.0	7,200.0	90.02	270.00	758.0	264.8	0.02	-185.2
	6,451.9	7,300.0	90.04	270.00	758.0	164.8	0.02	-85.7
	6,451.8	7,400.0	90.06	270.00	758.0	64.8	0.02	13.7
	6,451.7	7,500.0	90.08	270.00	758.0	-35.2	0.02	113.2
	6,451.6	7,600.0	90.10	270.00	758.0	-135.2	0.02	212.7
	6,451.4	7,700.0	90.12	270.00	758.0	-235.2	0.02	312.1
	6,451.1	7,800.0	90.14	270.00	758.0	-335.2	0.02	411.6
	6,450.9	7,900.0	90.16	270.00	758.0	-435.2	0.02	511.1
	6,450.6	8,000.0	90.18	270.00	758.0	-535.2	0.02	610.5

Energen

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6,450.3	8,100.0	90.20	270.00	758.0	-635.2	0.02	710.0
6,449.9	8,200.0	90.22	270.00	758.0	-735.2	0.02	809.5
6,449.5	8,300.0	90.24	270.00	758.0	-835.2	0.02	908.9
6,449.1	8,400.0	90.26	270.00	758.0	-935.2	0.02	1,008.4
6,448.6	8,500.0	90.28	270.00	758.0	-1,035.2	0.02	1,107.9
6,448.1	8,600.0	90.29	270.00	758.0	-1,135.2	0.02	1,207.3
6,447.6	8,700.0	90.31	270.00	758.0	-1,235.2	0.02	1,306.8
6,447.0	8,800.0	90.33	270.00	758.0	-1,335.2	0.02	1,406.3
6,446.4	8,900.0	90.35	270.00	758.0	-1,435.2	0.02	1,505.7
6,445.8	9,000.0	90.37	270.00	758.0	-1,535.2	0.02	1,605.2
6,445.1	9,100.0	90.39	270.00	758.0	-1,635.2	0.02	1,704.7
6,444.4	9,200.0	90.41	270.00	758.0	-1,735.2	0.02	1,804.1
6,443.7	9,300.0	90.43	270.00	758.0	-1,835.2	0.02	1,903.6
6,442.9	9,400.0	90.45	270.00	758.0	-1,935.2	0.02	2,003.1
6,442.1	9,500.0	90.47	270.00	758.0	-2,035.2	0.02	2,102.5
6,441.3	9,600.0	90.49	270.00	758.0	-2,135.2	0.02	2,202.0
6,440.4	9,700.0	90.51	270.00	758.0	-2,235.2	0.02	2,301.4
6,439.5	9,800.0	90.53	270.00	758.0	-2,335.2	0.02	2,400.9
6,438.6	9,900.0	90.55	270.00	758.0	-2,435.2	0.02	2,500.4
6,437.6	10,000.0	90.57	270.00	758.0	-2,535.2	0.02	2,599.8
6,436.6	10,100.0	90.59	270.00	758.0	-2,635.2	0.02	2,699.3
6,435.5	10,200.0	90.61	270.00	758.0	-2,735.2	0.02	2,798.8
6,434.5	10,300.0	90.63	270.00	758.0	-2,835.2	0.02	2,898.2
6,433.3	10,400.0	90.65	270.00	758.0	-2,935.2	0.02	2,997.7
6,432.2	10,500.0	90.67	270.00	758.0	-3,035.2	0.02	3,097.1
6,431.0	10,600.0	90.68	270.00	758.0	-3,135.2	0.02	3,196.6
6,429.8	10,700.0	90.70	270.00	758.0	-3,235.2	0.02	3,296.1
6,428.6	10,800.0	90.72	270.00	758.0	-3,335.2	0.02	3,395.5
6,427.3	10,900.0	90.74	270.00	758.0	-3,435.1	0.02	3,495.0
6,426.0	11,000.0	90.76	270.00	758.0	-3,535.1	0.02	3,594.4
6,424.6	11,100.0	90.78	270.00	758.0	-3,635.1	0.02	3,693.9
6,423.2	11,200.0	90.80	270.00	758.0	-3,735.1	0.02	3,793.4
6,421.8	11,300.0	90.82	270.00	758.0	-3,835.1	0.02	3,892.8
6,420.4	11,400.0	90.84	270.00	758.0	-3,935.1	0.02	3,992.3
6,418.9	11,500.0	90.86	270.00	758.0	-4,035.1	0.02	4,091.7
6,417.4	11,600.0	90.88	270.00	758.0	-4,135.1	0.02	4,191.2
6,415.8	11,700.0	90.90	270.00	758.0	-4,235.1	0.02	4,290.6
6,414.2	11,800.0	90.92	270.00	758.0	-4,335.0	0.02	4,390.1
6,412.6	11,900.0	90.94	270.00	758.0	-4,435.0	0.02	4,489.5
6,411.0	12,000.0	90.96	270.00	758.0	-4,535.0	0.02	4,589.0
6,409.3	12,100.0	90.98	270.00	758.0	-4,635.0	0.02	4,688.5
6,407.5	12,200.0	91.00	270.00	758.0	-4,735.0	0.02	4,787.9
6,405.8	12,300.0	91.02	270.00	758.0	-4,835.0	0.02	4,887.4
6,404.0	12,400.0	91.04	270.00	758.0	-4,935.0	0.02	4,986.8

Energen

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Planned Survey

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6,402.2	12,500.0	91.06	270.00	758.0	-5,034.9	0.02	5,086.3
6,400.3	12,600.0	91.07	270.00	758.0	-5,134.9	0.02	5,185.7
6,398.4	12,700.0	91.09	270.00	758.0	-5,234.9	0.02	5,285.2
6,396.5	12,800.0	91.11	270.00	758.0	-5,334.9	0.02	5,384.6
6,394.5	12,900.0	91.13	270.00	758.0	-5,434.9	0.02	5,484.1
6,392.5	13,000.0	91.15	270.00	758.0	-5,534.9	0.02	5,583.5
6,390.5	13,100.0	91.17	270.00	758.0	-5,634.8	0.02	5,682.9
6,388.5	13,200.0	91.19	270.00	758.0	-5,734.8	0.02	5,782.4
6,386.4	13,300.0	91.21	270.00	758.0	-5,834.8	0.02	5,881.8
6,384.2	13,400.0	91.23	270.00	758.0	-5,934.8	0.02	5,981.3
6,382.1	13,500.0	91.25	270.00	758.0	-6,034.7	0.02	6,080.7
6,379.9	13,600.0	91.27	270.00	758.0	-6,134.7	0.02	6,180.2
6,377.6	13,700.0	91.29	270.00	758.0	-6,234.7	0.02	6,279.6
6,375.4	13,800.0	91.31	270.00	758.0	-6,334.7	0.02	6,379.1
6,373.1	13,900.0	91.33	270.00	758.0	-6,434.6	0.02	6,478.5
6,370.7	14,000.0	91.35	270.00	758.0	-6,534.6	0.02	6,577.9
6,368.4	14,100.0	91.37	270.00	758.0	-6,634.6	0.02	6,677.4
6,365.9	14,200.0	91.39	270.00	758.0	-6,734.6	0.02	6,776.8
6,363.5	14,300.0	91.41	270.00	758.0	-6,834.5	0.02	6,876.3
6,361.0	14,400.0	91.43	270.00	758.0	-6,934.5	0.02	6,975.7
6,358.5	14,500.0	91.45	270.00	758.0	-7,034.5	0.02	7,075.1
6,356.0	14,600.0	91.46	270.00	758.0	-7,134.4	0.02	7,174.6
6,353.4	14,700.0	91.48	270.00	758.0	-7,234.4	0.02	7,274.0
6,351.4	14,779.0	91.50	270.00	758.0	-7,313.4	0.02	7,352.5
4 1/2'							
6,351.3	14,779.8	91.50	270.00	758.0	-7,314.1	0.02	7,353.3

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
320.0	320.0	9 5/8"	9-5/8	12-1/4
7,090.0	6,452.0	7"	7	8-3/4
14,779.0	6,351.4	4 1/2'	4-1/2	6-1/8

Checked By: _____ Approved By: _____ Date: _____

ENERGEN RESOURCES CORPORATION
MANY CANYONS 24-03 & #3H

1430' FSL & 704' FEL
SEC. 8, T-24-N, R-3-W, N.M.P.M.
RIO ARriba COUNTY, NEW MEXICO

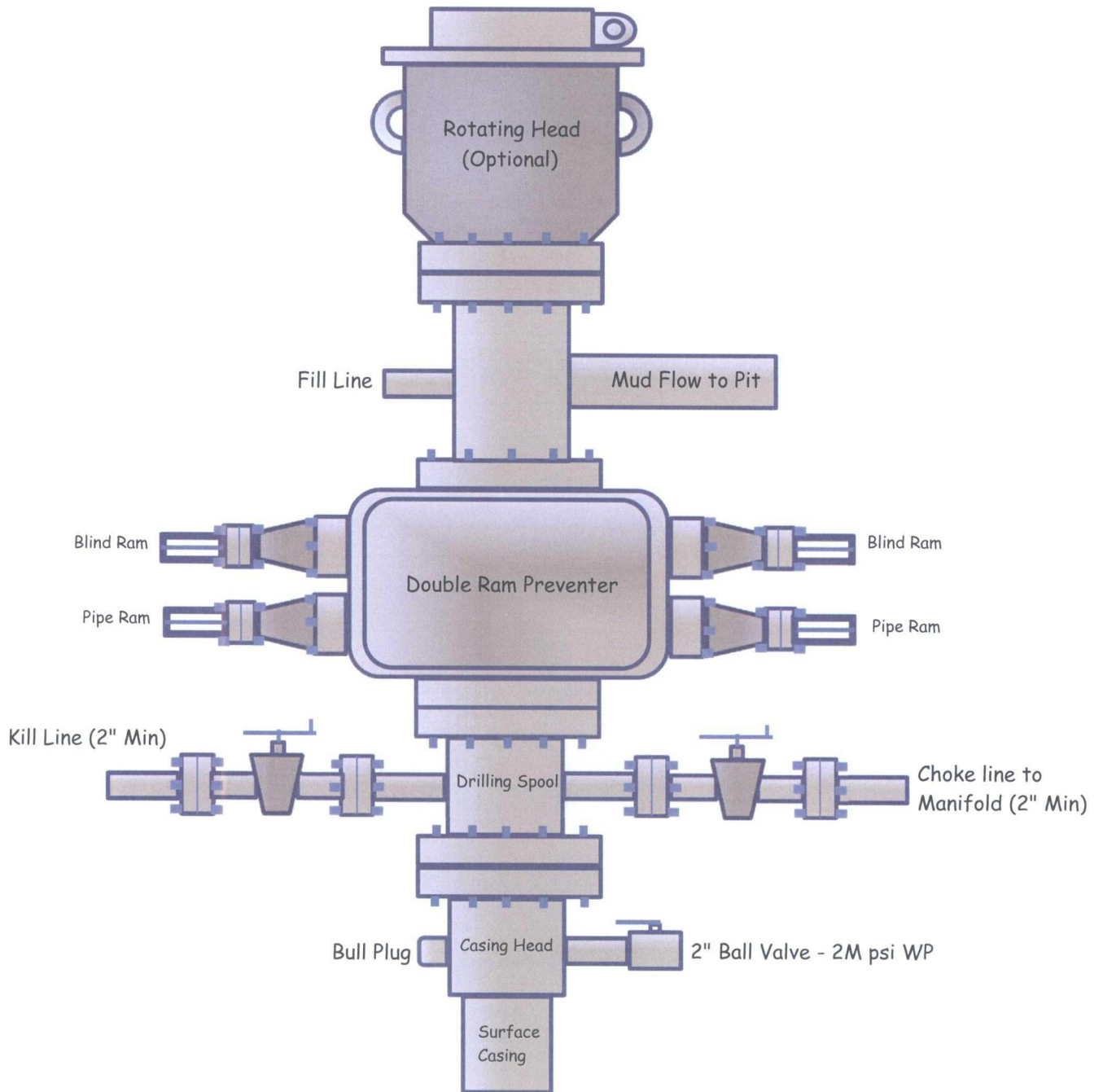
WELL FLAG LOCATED AT
36.321578° N
107.173329° W
NAD 83

DIRECTIONS

1. FROM THE INTERSECTION OF HWY 64 AND US-550 IN BLOOMFIELD, NEW MEXICO, TRAVEL SOUTH ON US-550 FOR 65.9 MILES TO M.P. 86; CONTINUE 0.5 MILES.
2. TURN LEFT (NORTH) ON STATE HWY 537 13.6 MILE TO ROAD J19 (COUNTY ROAD 370)
3. TURN RIGHT (EAST) CONTINUE 5.6 TO AN EXISTING ACCESS.
4. TURN RIGHT (SOUTH) TO LOCKED GATE (BLUE). CONTINUE 1,300' FEET (.25 MILES) TO THE NEW WELL LOCATION.

 1199 MAIN AVENUE SUITE 101 DURANGO, COLORADO 81301 (970)828-4732	ENERGEN RESOURCES CORPORATION MANY CANYONS 24-03 & #3H, 1430' FSL & 704' FEL SEC. 8, T-24-N, R-3-W, N.M.P.M., RIO ARriba CO, NM GROUND ELEVATION: 6880.7' DESIGN ELEVATION: 6880.7'				SHEET 1 OF 1
	PROJ. NO.	CLIENT			
	DRAWN BY	DATE	CHECKED BY	DATE	
	WHE	07/08/15	JS	07/08/15	

Typical BOP Schematic - 2M psi System



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 Conditions of Approval
(C-101 Application for permit to drill)**

- ☒ 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
- ☒ 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.