OIL CONS. DIV DIST. 3

APR 06 2015

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

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

1. Operator Name and Address	2. OGRID Number
Energen Resources Corporation 2010 Afton Place Farmington, NM 87401	162928
	3. API Number 30-039-31309

4. Property Code	5. Property Name	6. Well No.
319743	Many Canyons 24-03 8	4H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
P	8	24N	3W		1230'	South	716'	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
M	8	24N	3W		330'	South	330'	West	Rio Arriba

9. Pool Information

Pool Name	Pool Code
West Lindrith Gallup Dakota	39189

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New	Oil	Rotary	Private	6878'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
No	6440' TVD 11665' MD	Gallup	To be determined	6/01/15

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
UNKNOWN	414'	~400'

☒ **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#	500'	270 sks	SURFACE
INTERMEDIATE	8-3/4"	7"	26#	7100'	875 sks	SURFACE
PRODUCTION	6-1/4"	4-1/2"	11.6#	11664'	525 sks	~6950'

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.**	OIL CONSERVATION DIVISION
Signature: Anna Stotts	Approved By: Chas Herr
Printed name: Anna Stotts	Title: SUPERVISOR DISTRICT #3
Title: Regulatory Analyst	Approved Date: 4-9-2015 Expiration Date:
E-mail Address: astotts@energen.com	
Date: 04/03/2015 Phone: 505-324-4154	Conditions of Approval Attached

SEE ATTACHED NMOCD CONDITIONS OF APPROVAL

15

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
30-039-31309	39189	WEST LINDRITH GALLUP DAKOTA

4 Property Code	5 Property Name	6 Well Number
314743	Many Canyons 24-03 8	4H

7 OGRID No.	8 Operator Name	9 Elevation
162928	ENERGEN RESOURCES CORPORATION	6877.9

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
P	8	24N	3W		1230'	SOUTH	716'	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
M	8	24N	3W		330'	SOUTH	330'	WEST	RIO ARRIBA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
S/2 S/2 SEC 8 PROJECT AREA 160 ACRES			

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

N

WELL FLAG #4H
LAT: N36°19.2610'
LONG: W107°10.3662'
NAD27

LAT: N36.321030°
LONG: W107.173370°
NAD83

ENTRY POINT #4H
LAT: N36°19.1129'
LONG: W107°10.2876'
NAD27

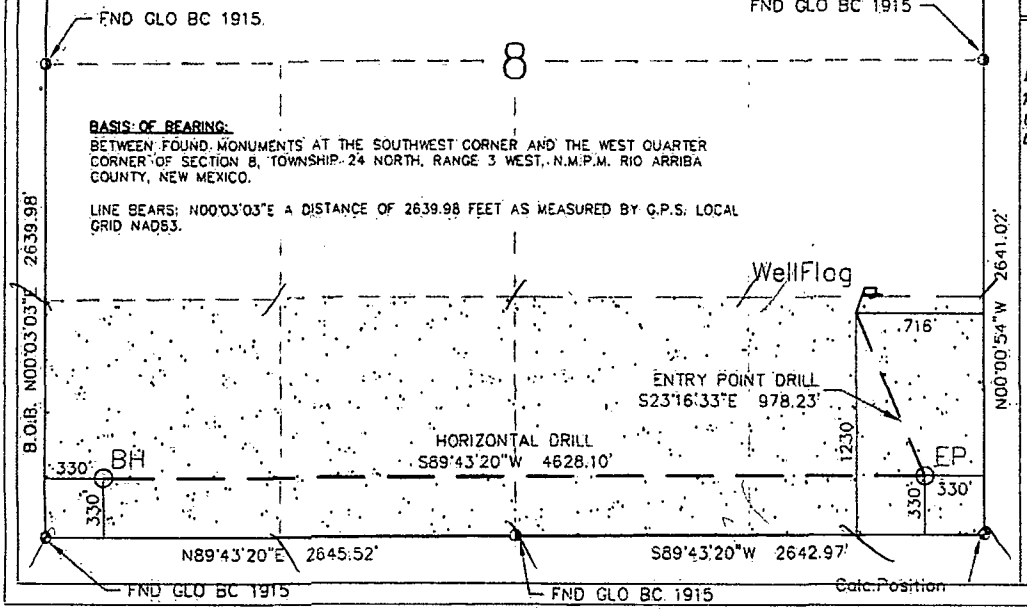
LAT: N36.318563°
LONG: W107.172058°
NAD83

BOTTOM HOLE #4H
LAT: N36°19.1092'
LONG: W107°11.2298'
NAD27

LAT: N36.318500°
LONG: W107.187762°
NAD83

OIL CONS. DIV DIST. 3

APR 06 2015



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 4-2-2015
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.

MARCH 24, 2015
Date of Survey

Signature and Seal of Professional Surveyor:

GLEN W. RUSSELL
NEW MEXICO
15703
LICENSED PROFESSIONAL SURVEYOR

GLEN W. RUSSELL
Certificate Number 15703

Energen Resources

Many Canyon Sec 8, T24N, R3W
Many Canyon 24-03 8 #004H
Preliminary Desgin
Design #1

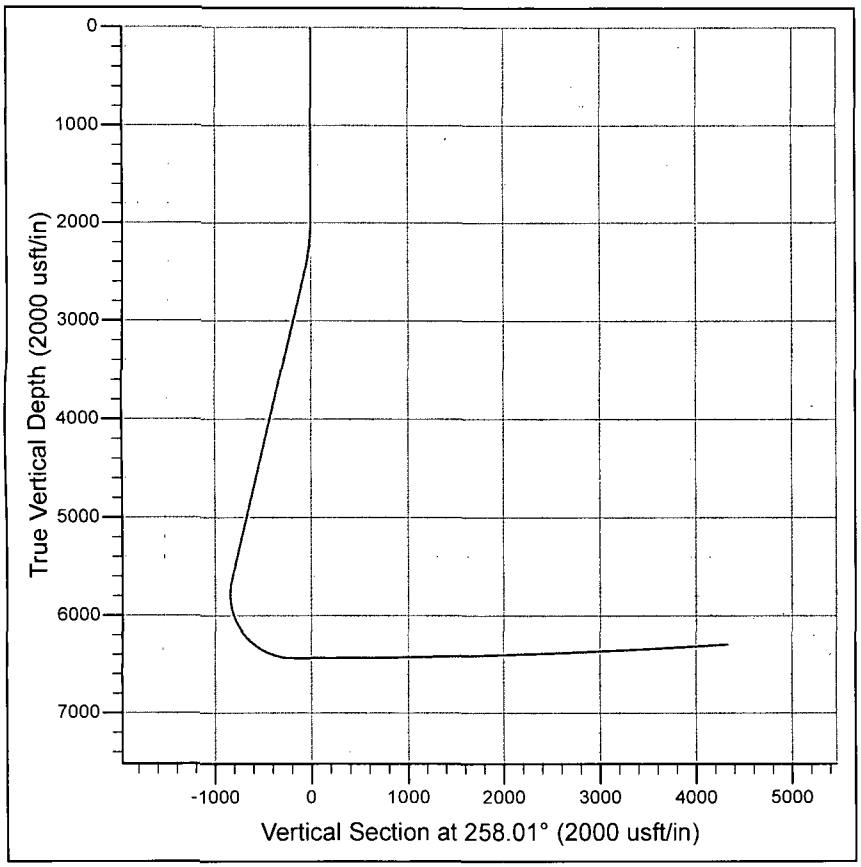
Plan: APD Plan

Preliminary Design

03 April, 2015

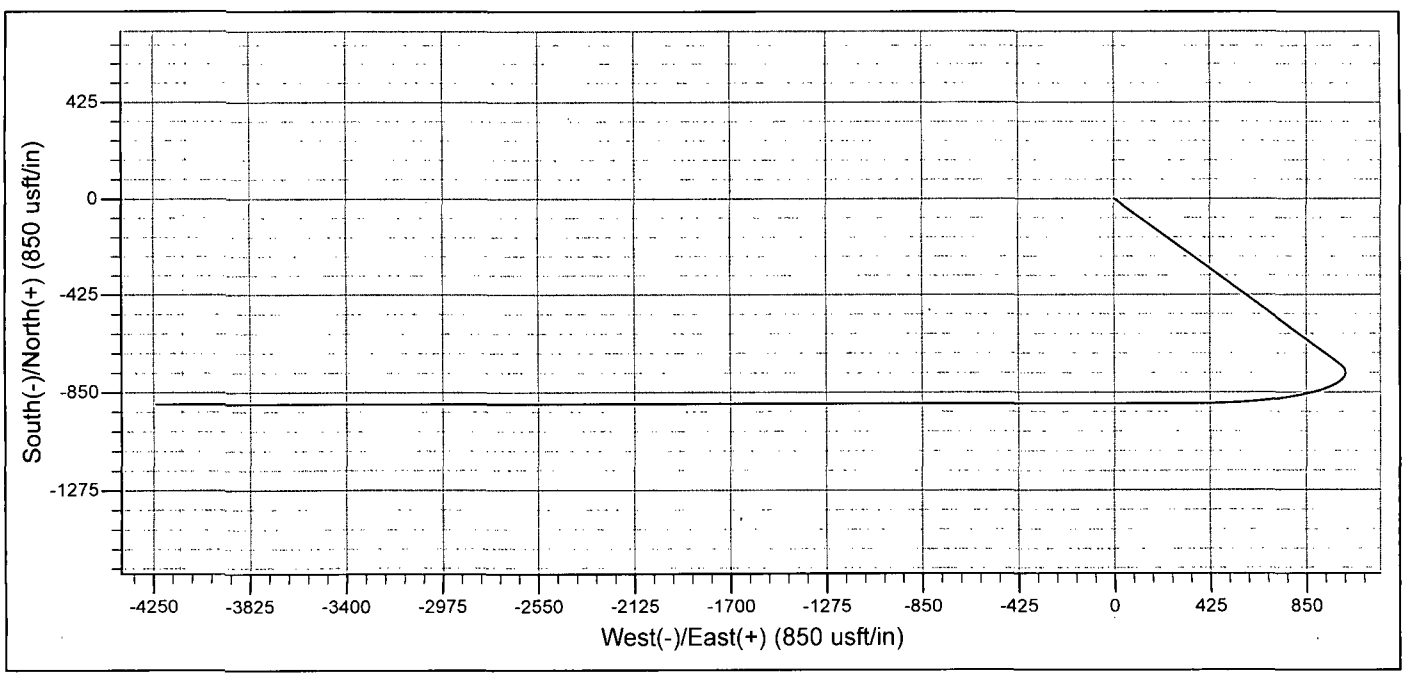
Company Name: Energen Resources

Project: Many Canyon Sec 8, T24N, R3W
Site: Many Canyon 24-03 8 #004H
Well: Preliminary Desgin
Wellbore: Design #1
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	0.0	0.0	0.00	0.00	0.0
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0
3	2500.4	20.02	126.16	2490.3	-51.0	69.8	4.00	126.16	-57.7
4	5858.5	20.02	126.16	5645.6	-729.3	997.8	0.00	0.00	-824.6
5	7036.8	90.00	270.00	6440.0	-900.0	386.0	9.00	142.12	-190.7
6	11664.8	93.50	270.00	6298.7	-900.0	-4239.1	0.08	0.00	4333.6



Energen

Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Many Canyon 24-03 8 #004H
Project:	Many Canyon Sec 8, T24N, R3W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Many Canyon 24-03 8 #004H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Preliminary Desgin	**North Reference:**	Grid
Wellbore:	Design #1	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan	**Database:**	EDM 5000.1 Single User Db

Project Many Canyon 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:	New Mexico Eastern Zone		

Site Many Canyon 24-03 8 #004H

Site Position:		**Northing:**	1,948,429.33 usft	**Latitude:**	36° 19' 15.708 N
From:	Lat/Long	**Easting:**	-295,388.39 usft	**Longitude:**	107° 10' 24.132 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	-1.68 °

Well Preliminary Desgin

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,948,429.33 usft	**Latitude:**	36° 19' 15.708 N
	+E/-W	0.0 usft	**Easting:**	-295,388.39 usft	**Longitude:**	107° 10' 24.132 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0.0 usft

Wellbore Design #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	2/26/2015	0.00	0.00	0

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	258.01

Survey Tool Program **Date** 4/2/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,664.8	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
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
9 5/8"							
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 Many Canyon 24-03 8 #004H
Project:	Many Canyon Sec 8, T24N, R3W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Many Canyon 24-03 8 #004H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Preliminary Desgin	**North Reference:**	Grid
Wellbore:	Design #1	**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
2,099.9	2,100.0	4.00	126.16	-2.1	2.8	4.00	-2.3
2,199.4	2,200.0	8.00	126.16	-8.2	11.3	4.00	-9.3
2,297.8	2,300.0	12.00	126.16	-18.5	25.3	4.00	-20.9
2,394.8	2,400.0	16.00	126.16	-32.7	44.8	4.00	-37.0
2,490.3	2,500.4	20.02	126.16	-51.0	69.8	4.00	-57.7
2,583.9	2,600.0	20.02	126.16	-71.2	97.4	0.00	-80.5
2,677.8	2,700.0	20.02	126.16	-91.4	125.0	0.00	-103.3
2,771.8	2,800.0	20.02	126.16	-111.6	152.6	0.00	-126.1
2,865.7	2,900.0	20.02	126.16	-131.8	180.3	0.00	-149.0
2,959.7	3,000.0	20.02	126.16	-151.9	207.9	0.00	-171.8
3,053.7	3,100.0	20.02	126.16	-172.1	235.5	0.00	-194.7
3,147.6	3,200.0	20.02	126.16	-192.3	263.2	0.00	-217.5
3,241.6	3,300.0	20.02	126.16	-212.5	290.8	0.00	-240.3
3,335.5	3,400.0	20.02	126.16	-232.7	318.4	0.00	-263.2
3,429.5	3,500.0	20.02	126.16	-252.9	346.1	0.00	-286.0
3,523.5	3,600.0	20.02	126.16	-273.1	373.7	0.00	-308.8
3,617.4	3,700.0	20.02	126.16	-293.3	401.3	0.00	-331.7
3,711.4	3,800.0	20.02	126.16	-313.5	429.0	0.00	-354.5
3,805.4	3,900.0	20.02	126.16	-333.7	456.6	0.00	-377.4
3,899.3	4,000.0	20.02	126.16	-353.9	484.2	0.00	-400.2
3,993.3	4,100.0	20.02	126.16	-374.1	511.9	0.00	-423.0
4,087.2	4,200.0	20.02	126.16	-394.3	539.5	0.00	-445.9
4,181.2	4,300.0	20.02	126.16	-414.5	567.1	0.00	-468.7
4,275.2	4,400.0	20.02	126.16	-434.7	594.8	0.00	-491.5
4,369.1	4,500.0	20.02	126.16	-454.9	622.4	0.00	-514.4
4,463.1	4,600.0	20.02	126.16	-475.1	650.0	0.00	-537.2
4,557.0	4,700.0	20.02	126.16	-495.3	677.7	0.00	-560.0
4,651.0	4,800.0	20.02	126.16	-515.5	705.3	0.00	-582.9
4,745.0	4,900.0	20.02	126.16	-535.7	733.0	0.00	-605.7
4,838.9	5,000.0	20.02	126.16	-555.9	760.6	0.00	-628.6
4,932.9	5,100.0	20.02	126.16	-576.1	788.2	0.00	-651.4
5,026.8	5,200.0	20.02	126.16	-596.3	815.9	0.00	-674.2
5,120.8	5,300.0	20.02	126.16	-616.5	843.5	0.00	-697.1
5,214.8	5,400.0	20.02	126.16	-636.6	871.1	0.00	-719.9

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Many Canyon 24-03 8 #004H
Project:	Many Canyon Sec 8, T24N, R3W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Many Canyon 24-03 8 #004H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Preliminary Desgin	**North Reference:**	Grid
Wellbore:	Design #1	**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)
5,308.7	5,500.0	20.02	126.16	-656.8	898.8	0.00	-742.7
5,402.7	5,600.0	20.02	126.16	-677.0	926.4	0.00	-765.6
5,496.6	5,700.0	20.02	126.16	-697.2	954.0	0.00	-788.4
5,590.6	5,800.0	20.02	126.16	-717.4	981.7	0.00	-811.3
5,645.6	5,858.5	20.02	126.16	-729.3	997.8	0.00	-824.6
5,684.9	5,900.0	17.22	133.92	-737.7	1,008.0	-6.75	-832.8
5,733.0	5,950.0	14.40	146.86	-748.0	1,016.7	-5.64	-839.2
5,781.7	6,000.0	12.57	164.61	-758.5	1,021.6	-3.66	-841.8
5,830.5	6,050.0	12.19	185.64	-769.0	1,022.5	-0.76	-840.5
5,879.3	6,100.0	13.38	205.37	-779.5	1,019.5	2.39	-835.4
5,927.7	6,150.0	15.79	220.54	-789.9	1,012.6	4.83	-826.5
5,975.4	6,200.0	18.97	231.28	-800.1	1,001.8	6.34	-813.8
6,022.2	6,250.0	22.58	238.88	-810.2	987.2	7.23	-797.5
6,067.7	6,300.0	26.45	244.41	-820.0	969.0	7.75	-777.6
6,111.6	6,350.0	30.49	248.59	-829.4	947.1	8.07	-754.2
6,153.7	6,400.0	34.63	251.87	-838.5	921.8	8.28	-727.6
6,193.8	6,450.0	38.84	254.52	-847.1	893.2	8.42	-697.8
6,231.6	6,500.0	43.11	256.72	-855.2	861.4	8.52	-665.0
6,266.7	6,550.0	47.40	258.60	-862.8	826.7	8.60	-629.5
6,299.2	6,600.0	51.73	260.24	-869.7	789.3	8.65	-591.5
6,328.6	6,650.0	56.07	261.69	-876.1	749.4	8.69	-551.1
6,354.9	6,700.0	60.43	263.00	-881.7	707.3	8.72	-508.8
6,377.9	6,750.0	64.81	264.20	-886.7	663.2	8.74	-464.6
6,397.4	6,800.0	69.19	265.31	-890.9	617.4	8.76	-418.9
6,413.4	6,850.0	73.58	266.37	-894.3	570.1	8.78	-372.0
6,425.7	6,900.0	77.97	267.37	-896.9	521.7	8.79	-324.1
6,434.2	6,950.0	82.36	268.35	-898.8	472.5	8.79	-275.6
6,439.0	7,000.0	86.76	269.30	-899.8	422.8	8.80	-226.7
6,440.0	7,036.8	90.00	270.00	-900.0	386.0	8.80	-190.7
6,440.0	7,100.0	90.05	270.00	-900.0	322.8	0.08	-128.8
7"							
6,439.8	7,200.0	90.12	270.00	-900.0	222.8	0.08	-31.0
6,439.5	7,300.0	90.20	270.00	-900.0	122.8	0.08	66.8
6,439.1	7,400.0	90.27	270.00	-900.0	22.8	0.08	164.6
6,438.6	7,500.0	90.35	270.00	-900.0	-77.2	0.08	262.4
6,437.9	7,600.0	90.43	270.00	-900.0	-177.2	0.08	360.3
6,437.1	7,700.0	90.50	270.00	-900.0	-277.2	0.08	458.1
6,436.2	7,800.0	90.58	270.00	-900.0	-377.2	0.08	555.9
6,435.1	7,900.0	90.65	270.00	-900.0	-477.2	0.08	653.7
6,433.9	8,000.0	90.73	270.00	-900.0	-577.2	0.08	751.5
6,432.5	8,100.0	90.80	270.00	-900.0	-677.2	0.08	849.3
6,431.1	8,200.0	90.88	270.00	-900.0	-777.2	0.08	947.1
6,429.5	8,300.0	90.96	270.00	-900.0	-877.2	0.08	1,044.9
6,427.7	8,400.0	91.03	270.00	-900.0	-977.1	0.08	1,142.7
6,425.9	8,500.0	91.11	270.00	-900.0	-1,077.1	0.08	1,240.6

Energen

Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Many Canyon 24-03 8 #004H
Project:	Many Canyon Sec 8, T24N, R3W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Many Canyon 24-03 8 #004H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Preliminary Desgin	**North Reference:**	Grid
Wellbore:	Design #1	**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)
6,423.9	8,600.0	91.18	270.00	-900.0	-1,177.1	0.08	1,338.4
6,421.7	8,700.0	91.26	270.00	-900.0	-1,277.1	0.08	1,436.1
6,419.5	8,800.0	91.33	270.00	-900.0	-1,377.1	0.08	1,533.9
6,417.1	8,900.0	91.41	270.00	-900.0	-1,477.0	0.08	1,631.7
6,414.6	9,000.0	91.48	270.00	-900.0	-1,577.0	0.08	1,729.5
6,411.9	9,100.0	91.56	270.00	-900.0	-1,677.0	0.08	1,827.3
6,409.1	9,200.0	91.64	270.00	-900.0	-1,776.9	0.08	1,925.1
6,406.2	9,300.0	91.71	270.00	-900.0	-1,876.9	0.08	2,022.9
6,403.1	9,400.0	91.79	270.00	-900.0	-1,976.8	0.08	2,120.6
6,400.0	9,500.0	91.86	270.00	-900.0	-2,076.8	0.08	2,218.4
6,396.6	9,600.0	91.94	270.00	-900.0	-2,176.7	0.08	2,316.2
6,393.2	9,700.0	92.01	270.00	-900.0	-2,276.7	0.08	2,413.9
6,389.6	9,800.0	92.09	270.00	-900.0	-2,376.6	0.08	2,511.7
6,385.9	9,900.0	92.17	270.00	-900.0	-2,476.5	0.08	2,609.4
6,382.1	10,000.0	92.24	270.00	-900.0	-2,576.5	0.08	2,707.2
6,378.1	10,100.0	92.32	270.00	-900.0	-2,676.4	0.08	2,804.9
6,374.0	10,200.0	92.39	270.00	-900.0	-2,776.3	0.08	2,902.7
6,369.7	10,300.0	92.47	270.00	-900.0	-2,876.2	0.08	3,000.4
6,365.4	10,400.0	92.54	270.00	-900.0	-2,976.1	0.08	3,098.1
6,360.9	10,500.0	92.62	270.00	-900.0	-3,076.0	0.08	3,195.9
6,356.2	10,600.0	92.69	270.00	-900.0	-3,175.9	0.08	3,293.6
6,351.5	10,700.0	92.77	270.00	-900.0	-3,275.8	0.08	3,391.3
6,346.6	10,800.0	92.85	270.00	-900.0	-3,375.7	0.08	3,489.0
6,341.5	10,900.0	92.92	270.00	-900.0	-3,475.5	0.08	3,586.7
6,336.4	11,000.0	93.00	270.00	-900.0	-3,575.4	0.08	3,684.4
6,331.1	11,100.0	93.07	270.00	-900.0	-3,675.3	0.08	3,782.0
6,325.6	11,200.0	93.15	270.00	-900.0	-3,775.1	0.08	3,879.7
6,320.1	11,300.0	93.22	270.00	-900.0	-3,875.0	0.08	3,977.4
6,314.4	11,400.0	93.30	270.00	-900.0	-3,974.8	0.08	4,075.1
6,308.6	11,500.0	93.38	270.00	-900.0	-4,074.6	0.08	4,172.7
6,302.6	11,600.0	93.45	270.00	-900.0	-4,174.5	0.08	4,270.4
6,298.7	11,664.0	93.50	270.00	-900.0	-4,238.3	0.08	4,332.8
4-1/2"							
6,298.7	11,664.8	93.50	270.00	-900.0	-4,239.1	0.08	4,333.6

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Many Canyon 24-03 8 #004H
Project:	Many Canyon Sec 8, T24N, R3W	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Many Canyon 24-03 8 #004H	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Preliminary Desgin	**North Reference:**	Grid
Wellbore:	Design #1	**Survey Calculation Method:**	Minimum Curvature
Design:	APD Plan	**Database:**	EDM 5000.1 Single User Db

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	9 5/8"	9-5/8	12-1/4
7,100.0	6,440.0	7"	7	8-3/4
11,664.0	6,298.7	4-1/2"	4-1/2	4-1/2

Checked By: _____ Approved By: _____ Date: _____

Drilling Plan
Energen Resources Corporation

Many Canyon 24-03 8 #4H
Surface Location: 1230 FSL, 716 FEL
Legal Description: Sec 8, T24N, R3W (36.321030° N, 107.173370° W – NAD83)
Bottom Hole Location: 330 FSL, 330 FWL
Legal Description: Sec 8, T24N, R3W (36.318500° N, 107.187762° W – NAD83)
Rio Arriba County, NM

1. The elevation of the unprepared ground is 6,878 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 6,440' TVD/11,665' MD.
4. Estimated top of important geological markers:

Formation	Depth (TVD)(ft)	Depth (MD)(ft)
Nacimiento	Surface	Surface
Ojo Alamo	2,572	2,572
Kirtland	2,762	2,762
Pictured Cliffs	3,852	3,852
Huerfanito Bentonite	3,445	3,445
Chacra	3,936	3,936
Cliff House	4,711	4,863
Menefee	4,733	4,887
Point Lookout	5,228	5,414
Mancos	5,582	5,791
Mancos/Niobrara "B"	6,399	6,804

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
Pictured Cliffs	3,852	Gas
Cliffhouse	4,711	Gas
Point Lookout	5,228	Gas
Mancos	5,582	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"	0-7,100'	0-6,440'	L-80	26.00	DQX TMK IPSCO	7240	5410	830
Production	4-1/2"	6,950'-11,664'	6,440'-6,300'	P-110	11.60	DQX TMK IPSCO	10690	7560	367

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 7,100'. Cement will be circulated to surface with 760 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. 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 11,664'. A fluid caliper will be run to determine base slurry cement to have TOC at 6,950'. Base slurry to consist of 475 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. 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' – 7,100'	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
7,100' – 11,664'	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.

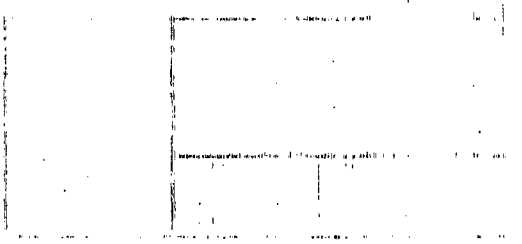
ENERGEN RESOURCES CORPORATION
MANY CANYONS 24-03 8 #4H

1230' FSL & 716' FEL
SEC. 8, T-24-N, R-3-W, N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO

WELL FLAG LOCATED AT
36.321030° N
107.173370° 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.



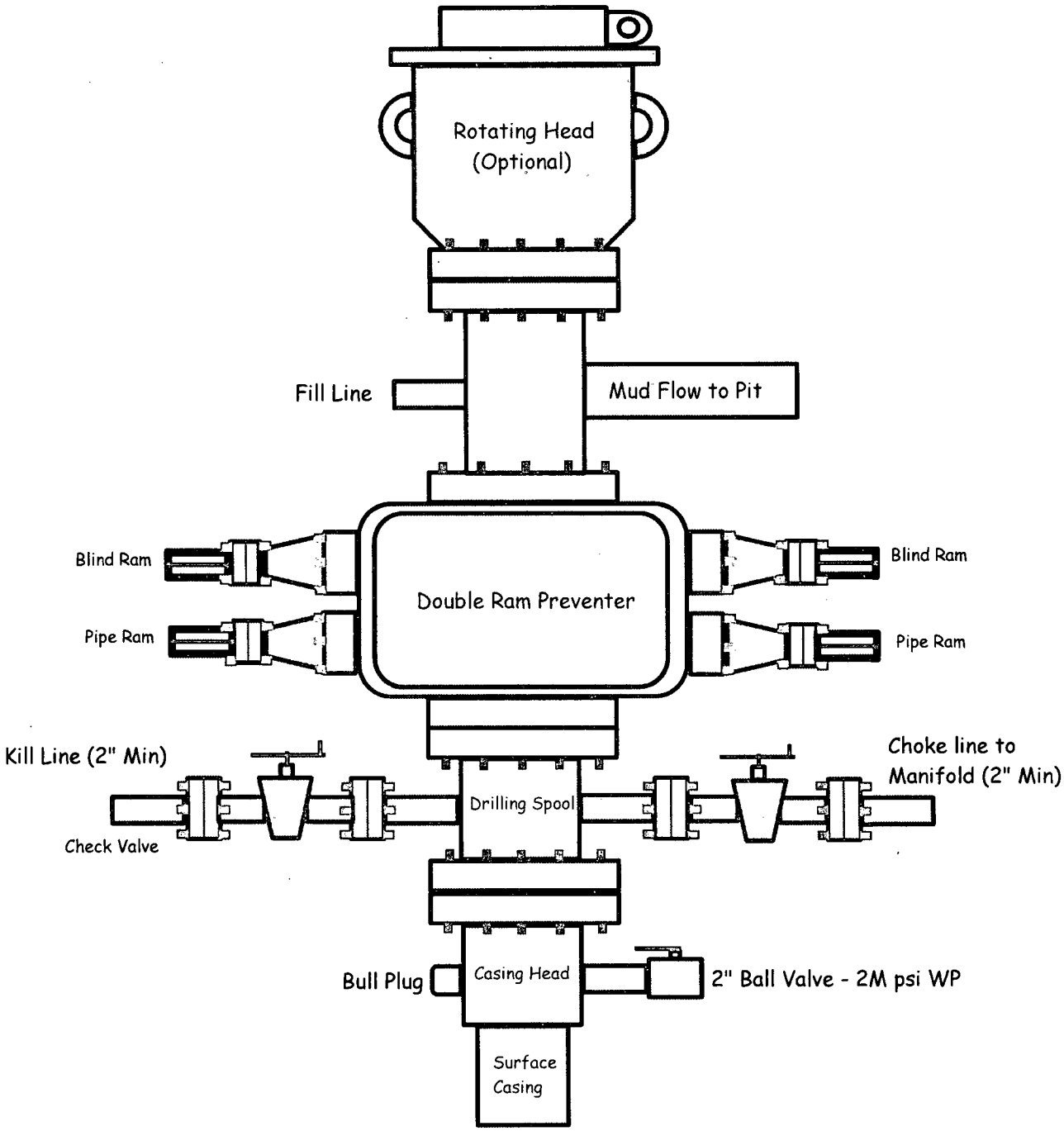
tegre
integrity - respect - responsibility
1199 MAIN AVENUE
SUITE 101
DURANGO, COLORADO 81301
(970)828-4732

ENERGEN RESOURCES CORPORATION
MANY CANYONS 24-03 8 #4H, 1230' FSL & 716' FEL
SEC. 8, T-24-N, R-3-W, N.M.P.M., RIO ARRIBA CO, NM
GROUND ELEVATION: 6877.9'
DESIGN ELEVATION: 6881.0'

PROJ. NO		CLIENT		SHEET
DRAWN BY	DATE	CHECKED BY	DATE	1 OF 1
WHE	03/12/15	GWR	03/12/15	

ENERGEN

Typical BOP Schematic - 3M 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
- o 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
- 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.