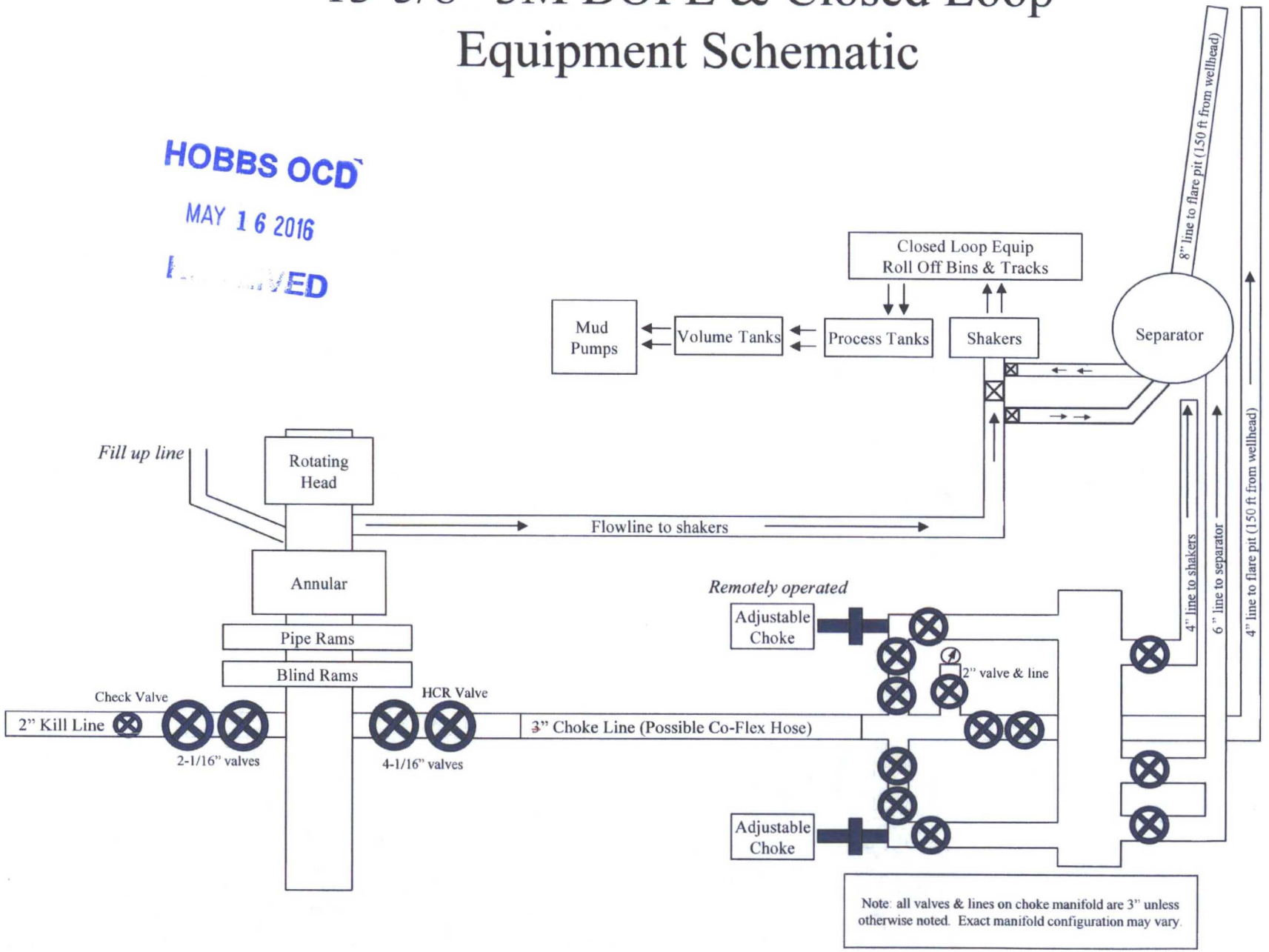
13-5/8" 3M BOPE & Closed Loop Equipment Schematic



Continental CONTITECH

Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly. It is good practice to use lifting & safety equipment but not mandatory.

Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

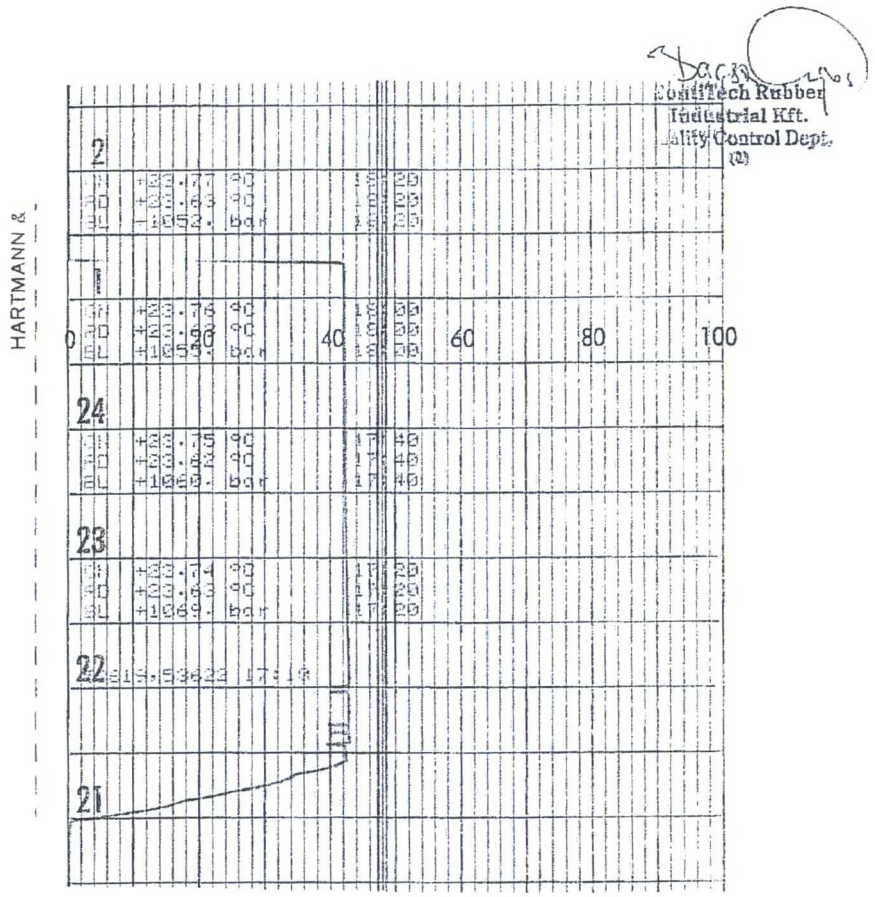
Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No 1711,1713*

Page: 1/1



ContiTech Rubber
Industrial Kft.
Quality Control Dept.

Continental CONTITECH

Fluid Technology

Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°:	1713	
PURCHASER:	ContiTech Beattie Co.			P.O. N°:	002808	
CONTITECH ORDER N°:	426127	HOSE TYPE:	3" ID	Choke and Kill Hose		
HOSE SERIAL N°:	53622	NOMINAL / ACTUAL LENGTH:		10,67 m		
W.P. 68,96 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration:	60	min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 25 MPa

COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	5503 2029	AISI 4130	N1590P
4 1/16" Flange end		AISI 4130	27566

INFOCHIP INSTALLED

API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

Hose conform to NACE MR 01-75

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
25. August. 2008		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)

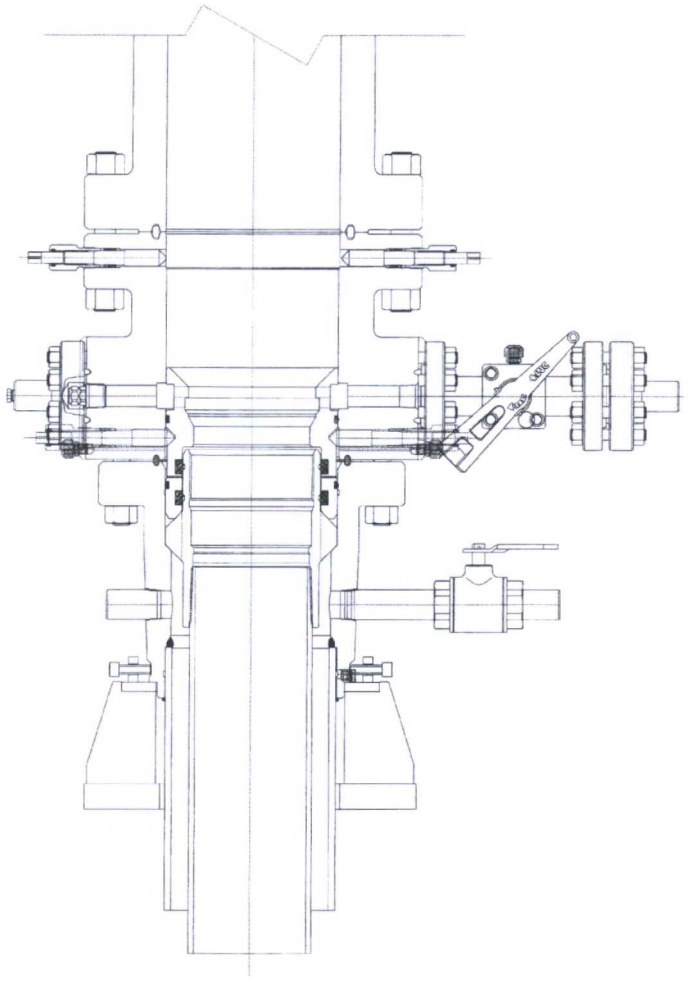
ContiTech Rubber Industrial Kft.
Budapesti út 10., Szeged H 6728
P.O.Box 152 Szeged H-6701
Hungary

Phone: +36 62 566 737
Fax: +36 62 566 738
e-mail: info@fluid.contitech.hu
Internet: www.contitech-rubber.hu

The Court of Csongrád County as Registry Court
Registry Court No: HU 06-09-002502
EU VAT No: HU11087209

Bank data
Commerzbank Zrt.
Szeged
14220108-26830003-00000000

FMC Technologies



PRIMARY MODE

DEVON ENERGY

ARTESIA
S.E.N.M
13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

REVISIONS		DESCRIPTION
A	05-08-13	
B	1-22-14	
C	5-13-14	

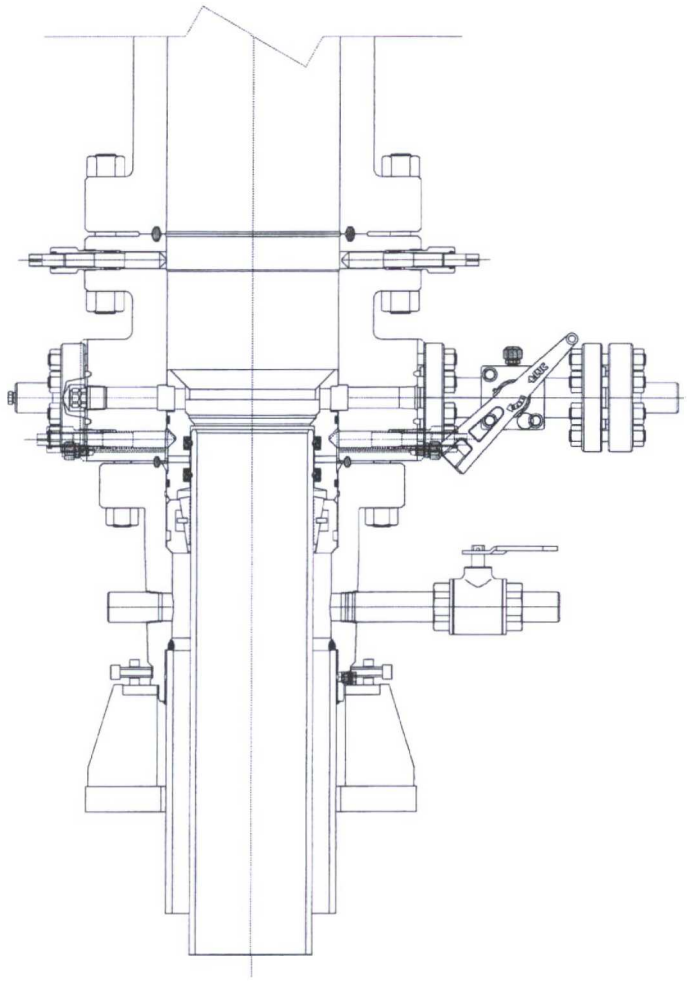
SURFACE WELLHEAD LAYOUT
UNIHEAD, UH-1,SOW,
DEVON ENERGY, ODESSA

DRAWN BY	K. VU	05-08-13
DRAFTING REVIEW	Z. MARQUEZ	05-08-13
DESIGN REVIEW	K. TAHA	05-08-13
APPROVED BY	R. HAMILTON	05-08-13

FMC Technologies

DRAWING NUMBER
DM100161771-2A

FMC Technologies



CONTINGENCY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

REVISIONS	
A	05-08-13
B	1-22-14
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DESCRIPTION

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DESIGN REVIEW	K. TAHA	05-08-13
APPROVED BY	R. HAMILTON	05-08-13

FMC Technologies

DRAWING NUMBER
DM100161771-2B

devon

Commitment Runs Deep

Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
February 2015

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

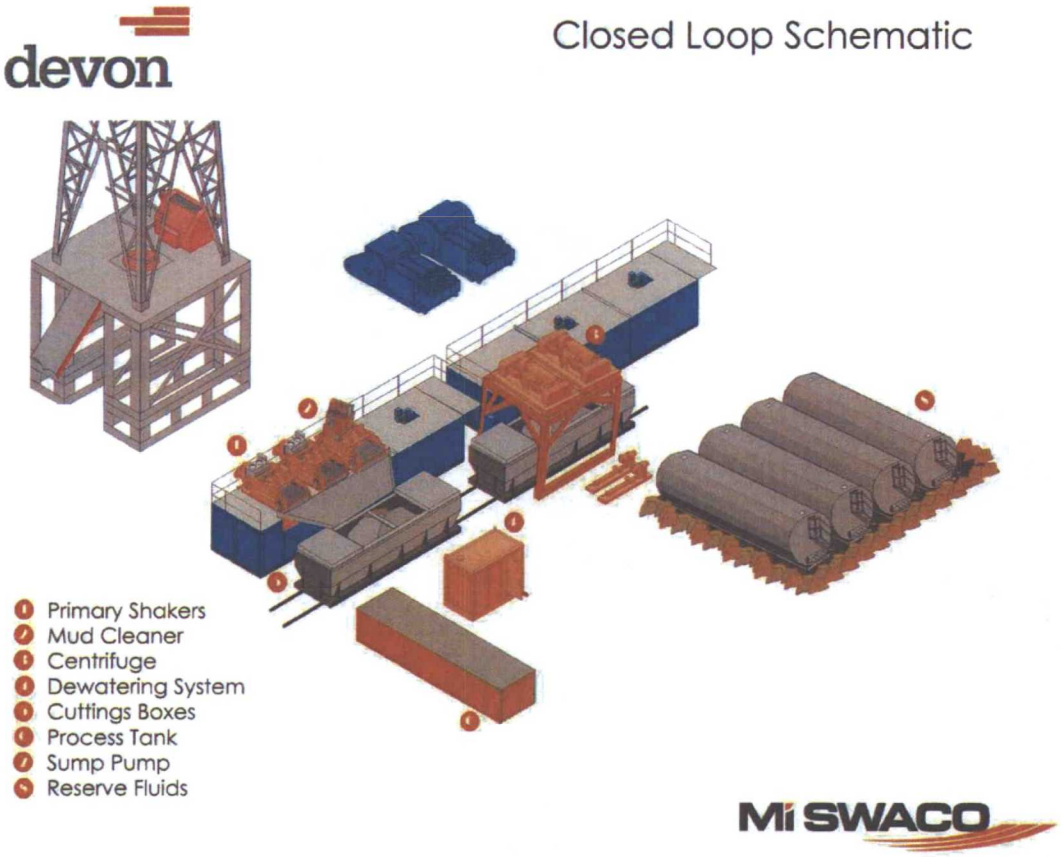
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

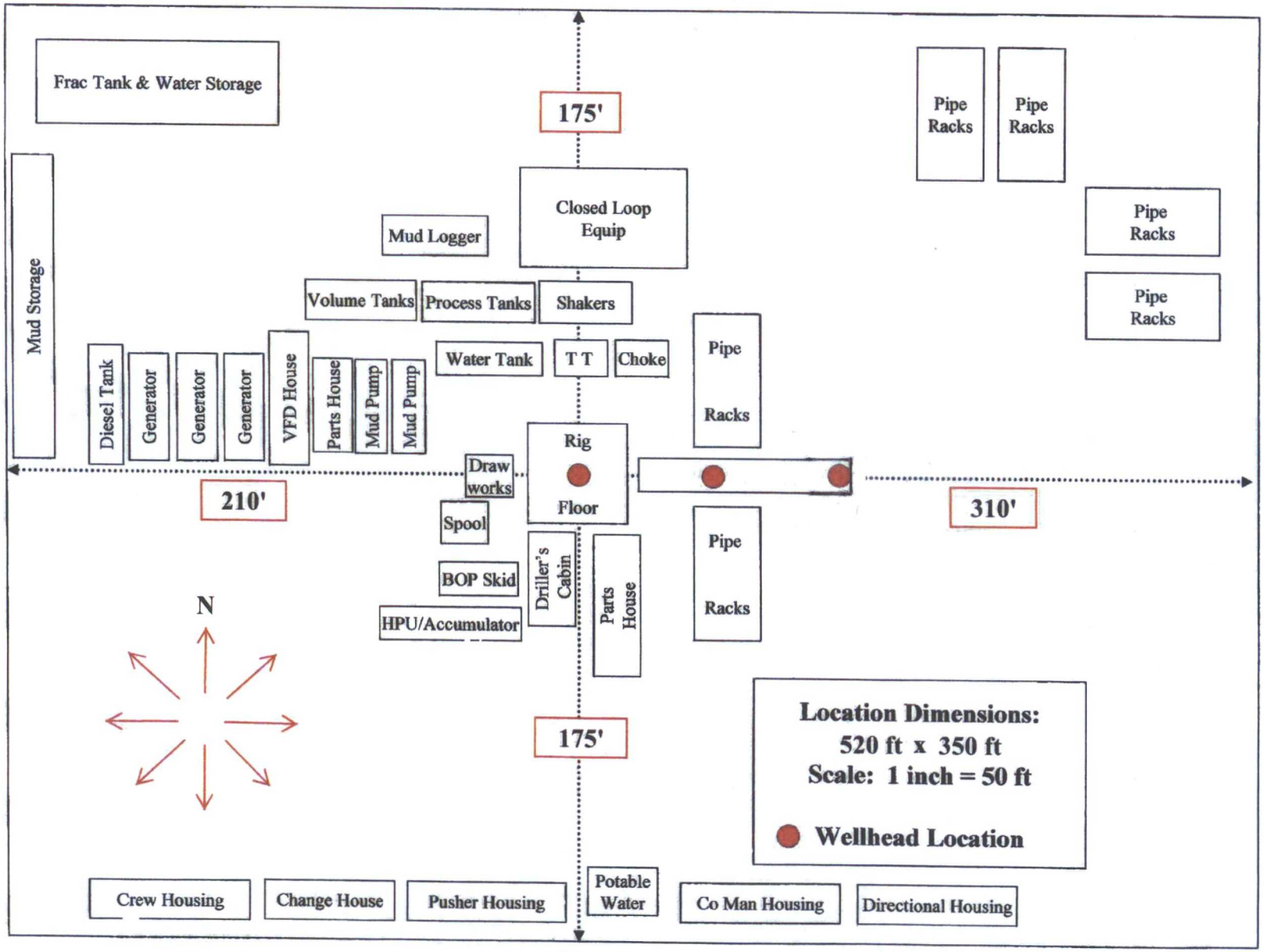
These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

Rig Location Layout
3 Well Pad



5D Plan Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Rio Blanco 4-33 Fed Com 1H,3H Pad*
Well Name: *Rio Blanco 4-33 Fed Com 1H*
Plan: *P1:V1*

05 March 2015

Rio Blanco 4-33 Fed Com 1H

Field Name
Lea Co, NM Nad 83 NMEZ

Map Units : US ft **Company Name :** Devon Energy
Vertical Reference Datum (VRD) : Mean Sea Level
Projected Coordinate System : NAD83 / New Mexico East (ftUS)
Comment :

Site Name
Rio Blanco 4-33 Fed Com 1H,3H Pad

Units : US ft **North Reference** : Grid **Convergence Angle :** 0.46

Position		
	Northing : 486168.29 US ft	**Latitude :** 32° 20' 1.25"
	Easting : 804086.94 US ft	**Longitude :** -103° 28' 57.50"

Elevation above Mean Sea Level:3415.00 US ft
Comment :

Slot Name
Rio Blanco 4-33 Fed Com 1H

Position (Offsets relative to Site Centre)

+N / -S : 0.00 US ft	**Northing :**486168.29 US ft	**Latitude :** 32°20'1.25"
+E / -W : 0.00 US ft	**Easting :**804086.94 US ft	**Longitude :** -103°28'57.50"

Slot TVD Reference : Ground Elevation
Elevation above Mean Sea Level : 3415.00 US ft
Comment :

Well Name
Rio Blanco 4-33 Fed Com 1H

Type : Main well **UWI :** **Plan :** P1:V1
Rig Height *Kelly Bushing* : 25.00 US ft **Comment :**
Relative to Mean Sea Level: 3440.00 US ft
Closure Distance : 7574.86 US ft **Closure Azimuth :** 359.987°
Vertical Section (Position of Origin Relative to Slot)
+N / -S : 0.00 US ft **+E / -W :** 0.00 US ft **Az :**359.99°
Magnetic Parameters
Model : BGGM **Field Strength :** 48251.8nT **Dec :** 7.23° **Dip :** 60.19° **Date :** 15/Jul/2015

Target Set

Name : Rio Blanco 4-33 Fed Com 1H **Number of Targets :** 1

Comment :

Target Name:
PBHL 1H

Shape:
Cuboid

Position (Relative to Slot centre)

+N / -S : 7574.86US ft	**Northing :** 493743.15 US ft	**Latitude :** 32°21'16.20"
+E / -W : -1.72 US ft	**Easting :** 804085.22US ft	**Longitude :** -103°28'56.82"

TVD (Kelly Bushing) : 8800.00 US ft

Orientation **Azimuth :** 0.00° **Inclination :** 0.00°
Dimensions **Length :** 20.00 US ft **Breadth :** 20.00 US ft **Height :** 20.00 US ft

Well path created using minimum curvature

5D Plan Report

Salient Points (Relative to Slot centre, TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Rate (°/100 US ft)	T.Face (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8227.04	0.00	0.00	8227.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP
9127.04	90.00	359.99	8800.00	572.96	-0.13	572.96	10.00	10.00	0.00	359.99	LP
16128.94	90.00	359.99	8800.00	7574.86	-1.72	7574.86	0.00	0.00	0.00	0.00	PBHL 1H

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
8200.00	0.00	0.00	8200.00	0.00	0.00	0.00	0.00	486168.29	804086.94	
8227.04	0.00	0.00	8227.04	0.00	0.00	0.00	0.00	486168.29	804086.94	KOP
8300.00	7.30	359.99	8299.80	4.64	-0.00	4.64	10.00	486172.93	804086.94	
8400.00	17.30	359.99	8397.39	25.91	-0.01	25.91	10.00	486194.20	804086.93	
8500.00	27.30	359.99	8489.79	63.80	-0.01	63.80	10.00	486232.09	804086.93	
8600.00	37.30	359.99	8574.21	117.16	-0.03	117.16	10.00	486285.45	804086.91	
8700.00	47.30	359.99	8648.09	184.37	-0.04	184.37	10.00	486352.66	804086.90	
8800.00	57.30	359.99	8709.17	263.39	-0.06	263.39	10.00	486431.68	804086.88	
8900.00	67.30	359.99	8755.60	351.81	-0.08	351.81	10.00	486520.10	804086.86	
9000.00	77.30	359.99	8785.97	446.96	-0.10	446.96	10.00	486615.25	804086.84	
9100.00	87.30	359.99	8799.36	545.93	-0.12	545.93	10.00	486714.22	804086.82	
9127.04	90.00	359.99	8800.00	572.96	-0.13	572.96	10.00	486741.25	804086.81	LP
9200.00	90.00	359.99	8800.00	645.92	-0.15	645.92	0.00	486814.21	804086.79	
9300.00	90.00	359.99	8800.00	745.92	-0.17	745.92	0.00	486914.21	804086.77	
9400.00	90.00	359.99	8800.00	845.92	-0.19	845.92	0.00	487014.21	804086.75	
9500.00	90.00	359.99	8800.00	945.92	-0.21	945.92	0.00	487114.21	804086.73	
9600.00	90.00	359.99	8800.00	1045.92	-0.24	1045.92	0.00	487214.21	804086.70	
9700.00	90.00	359.99	8800.00	1145.92	-0.26	1145.92	0.00	487314.21	804086.68	
9800.00	90.00	359.99	8800.00	1245.92	-0.28	1245.92	0.00	487414.21	804086.66	
9900.00	90.00	359.99	8800.00	1345.92	-0.31	1345.92	0.00	487514.21	804086.63	
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10700.00	90.00	359.99	8800.00	2145.92	-0.49	2145.92	0.00	488314.21	804086.45	
10800.00	90.00	359.99	8800.00	2245.92	-0.51	2245.92	0.00	488414.21	804086.43	
10900.00	90.00	359.99	8800.00	2345.92	-0.53	2345.92	0.00	488514.21	804086.41	
11000.00	90.00	359.99	8800.00	2445.92	-0.56	2445.92	0.00	488614.21	804086.38	
11100.00	90.00	359.99	8800.00	2545.92	-0.58	2545.92	0.00	488714.21	804086.36	
11200.00	90.00	359.99	8800.00	2645.92	-0.60	2645.92	0.00	488814.21	804086.34	
11300.00	90.00	359.99	8800.00	2745.92	-0.62	2745.92	0.00	488914.21	804086.32	
11400.00	90.00	359.99	8800.00	2845.92	-0.65	2845.92	0.00	489014.21	804086.29	
11500.00	90.00	359.99	8800.00	2945.92	-0.67	2945.92	0.00	489114.21	804086.27	
11600.00	90.00	359.99	8800.00	3045.92	-0.69	3045.92	0.00	489214.21	804086.25	
11700.00	90.00	359.99	8800.00	3145.92	-0.71	3145.92	0.00	489314.21	804086.23	
11800.00	90.00	359.99	8800.00	3245.92	-0.74	3245.92	0.00	489414.21	804086.20	
11900.00	90.00	359.99	8800.00	3345.92	-0.76	3345.92	0.00	489514.21	804086.18	
12000.00	90.00	359.99	8800.00	3445.92	-0.78	3445.92	0.00	489614.21	804086.16	
12100.00	90.00	359.99	8800.00	3545.92	-0.81	3545.92	0.00	489714.21	804086.13	
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12800.00	90.00	359.99	8800.00	4245.92	-0.96	4245.92	0.00	490414.21	804085.98	
12900.00	90.00	359.99	8800.00	4345.92	-0.99	4345.92	0.00	490514.21	804085.95	
13000.00	90.00	359.99	8800.00	4445.92	-1.01	4445.92	0.00	490614.21	804085.93	

5D Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
13100.00	90.00	359.99	8800.00	4545.92	-1.03	4545.92	0.00	490714.21	804085.91	
13200.00	90.00	359.99	8800.00	4645.92	-1.05	4645.92	0.00	490814.21	804085.89	
13300.00	90.00	359.99	8800.00	4745.92	-1.08	4745.92	0.00	490914.21	804085.86	
13400.00	90.00	359.99	8800.00	4845.92	-1.10	4845.92	0.00	491014.21	804085.84	
13500.00	90.00	359.99	8800.00	4945.92	-1.12	4945.92	0.00	491114.21	804085.82	
13600.00	90.00	359.99	8800.00	5045.92	-1.15	5045.92	0.00	491214.21	804085.79	
13700.00	90.00	359.99	8800.00	5145.92	-1.17	5145.92	0.00	491314.21	804085.77	
13800.00	90.00	359.99	8800.00	5245.92	-1.19	5245.92	0.00	491414.21	804085.75	
13900.00	90.00	359.99	8800.00	5345.92	-1.21	5345.92	0.00	491514.21	804085.73	
14000.00	90.00	359.99	8800.00	5445.92	-1.24	5445.92	0.00	491614.21	804085.70	
14100.00	90.00	359.99	8800.00	5545.92	-1.26	5545.92	0.00	491714.21	804085.68	
14200.00	90.00	359.99	8800.00	5645.92	-1.28	5645.92	0.00	491814.21	804085.66	
14300.00	90.00	359.99	8800.00	5745.92	-1.30	5745.92	0.00	491914.21	804085.64	
14400.00	90.00	359.99	8800.00	5845.92	-1.33	5845.92	0.00	492014.21	804085.61	
14500.00	90.00	359.99	8800.00	5945.92	-1.35	5945.92	0.00	492114.21	804085.59	
14600.00	90.00	359.99	8800.00	6045.92	-1.37	6045.92	0.00	492214.21	804085.57	
14700.00	90.00	359.99	8800.00	6145.92	-1.40	6145.92	0.00	492314.21	804085.54	
14800.00	90.00	359.99	8800.00	6245.92	-1.42	6245.92	0.00	492414.21	804085.52	
14900.00	90.00	359.99	8800.00	6345.92	-1.44	6345.92	0.00	492514.21	804085.50	
15000.00	90.00	359.99	8800.00	6445.92	-1.46	6445.92	0.00	492614.21	804085.48	
15100.00	90.00	359.99	8800.00	6545.92	-1.49	6545.92	0.00	492714.21	804085.45	
15200.00	90.00	359.99	8800.00	6645.92	-1.51	6645.92	0.00	492814.21	804085.43	
15300.00	90.00	359.99	8800.00	6745.92	-1.53	6745.92	0.00	492914.21	804085.41	
15400.00	90.00	359.99	8800.00	6845.92	-1.55	6845.92	0.00	493014.21	804085.39	
15500.00	90.00	359.99	8800.00	6945.92	-1.58	6945.92	0.00	493114.21	804085.36	
15600.00	90.00	359.99	8800.00	7045.92	-1.60	7045.92	0.00	493214.21	804085.34	
15700.00	90.00	359.99	8800.00	7145.92	-1.62	7145.92	0.00	493314.21	804085.32	
15800.00	90.00	359.99	8800.00	7245.92	-1.65	7245.92	0.00	493414.21	804085.29	
15900.00	90.00	359.99	8800.00	7345.92	-1.67	7345.92	0.00	493514.21	804085.27	
16000.00	90.00	359.99	8800.00	7445.92	-1.69	7445.92	0.00	493614.21	804085.25	
16100.00	90.00	359.99	8800.00	7545.92	-1.71	7545.92	0.00	493714.21	804085.23	
16128.94	90.00	359.99	8800.00	7574.86	-1.72	7574.86	0.00	493743.15	804085.22	PBHL 1H

5D Anti-Collision Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Rio Blanco 4-33 Fed Com 1H,2H,3H Pad*
Well Name: *Rio Blanco 4-33 Fed Com 1H*

06 March 2015

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Rio Blanco 4-33 Fed Com 1H

Field Name Lea Co, NM Nad 83 NMEZ	**Map Units :** US ft **Company Name :** Devon Energy **Vertical Reference Datum (VRD) :** Mean Sea Level **Projected Coordinate System :** NAD83 / New Mexico East (ftUS) **Comment :**
Site Name Rio Blanco 4-33 Fed Com 1H,2H,3H Pad	**Units :** US ft **North Reference** : Grid **Convergence Angle :** 0.46 **Position** **Northing :** 486168.29 US ft **Latitude :** 32° 20' 1.25" **Easting :** 804086.94 US ft **Longitude :** -103° 28' 57.50" **Elevation above Mean Sea Level:**3415.00 US ft **Comment :**
Slot Name Rio Blanco 4-33 Fed Com 1H	**Position (Offsets relative to Site Centre)** **+N / -S :** 0.00 US ft **Northing :**486168.29 US ft **Latitude :** 32°20'1.25" **+E / -W :** 0.00 US ft **Easting :**804086.94 US ft **Longitude :** -103°28'57.50" **Slot TVD Reference :** Ground Elevation **Elevation above Mean Sea Level :** 3415.00 US ft **Comment :**
Well Name Rio Blanco 4-33 Fed Com 1H	**Type :** Main well **UWI :** **Plan :** Working Plan **Rig Height *Kelly Bushing* :** 25.00 US ft **Comment :** **Relative to Mean Sea Level:** 3440.00 US ft **Closure Distance :** 7574.86 US ft **Closure Azimuth :** 359.987° **Vertical Section (Position of Origin Relative to Slot)** **+N / -S :** 0.00 US ft **+E / -W :** 0.00 US ft **Az :**359.99° **Magnetic Parameters** **Model :** BGGM **Field Strength :** 48251.8nT **Dec :** 7.23° **Dip :** 60.19° **Date :** 15/Jul/2015

Collision / Uncertainty Analysis

Primary Well	Start MD (US ft)	End MD (US ft)	Collision Risk Interval	No. of Std Deviations in Error Computation
Rio Blanco 4-33 Fed Com 1H (p)	0.00	16128.94	100.00	2

Secondary Well Names

Rio Blanco 4-33 Fed Com 3H (p)
Rio Blanco 4-33 Fed Com 2H (p)

Anti Collision Report Terminology

S.Minor, S.Major :Radii of the ellipse of uncertainty at the current location as seen in the along hole direction.
PHI :Angle between high-side vector and semi-minor axis
TVD Spread :Total TVD range of the ellipsoid of uncertainty at the current location
ES :Distance between the extremities of the primary and secondary uncertainty ellipsoids in the direction Cr-Cr
T.Face to Sec :Angle between the Hi-Side vector of the primary well at the current location and line of closest approach between the two wells

Separation factors calculated using Pedal Curve (Independent Uncertainty). Well path created using minimum curvature.

Anti Collision Proximity Summary (TVD relative to Kelly Bushing)

SF

Secondary Well Name	Pri MD (US ft)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
Rio Blanco 4-33 Fed Com 2H (p)	4490.04	4490.67	4490.04	50.92	30.59	2.50	
Rio Blanco 4-33 Fed Com 3H (p)	8311.33	8312.02	8311.02	100.18	62.51	2.66	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	89.55	0.00	0.00	Rio Blanco 4-33 Fed Com 2H (p)	50.02	49.45	86.84	
100.00	100.00	89.55	0.11	0.11	Rio Blanco 4-33 Fed Com 2H (p)	50.02	49.23	63.18	
200.00	200.00	89.55	0.34	0.34	Rio Blanco 4-33 Fed Com 2H (p)	50.02	48.78	40.35	
300.00	300.00	89.55	0.56	0.56	Rio Blanco 4-33 Fed Com 2H (p)	50.02	48.33	29.61	
400.00	400.00	89.55	0.79	0.79	Rio Blanco 4-33 Fed Com 2H (p)	50.02	47.88	23.39	
500.00	500.00	89.55	1.01	1.01	Rio Blanco 4-33 Fed Com 2H (p)	50.02	47.43	19.33	
600.00	600.00	89.55	1.24	1.24	Rio Blanco 4-33 Fed Com 2H (p)	50.02	46.98	16.47	
700.00	700.00	89.55	1.46	1.46	Rio Blanco 4-33 Fed Com 2H (p)	50.02	46.53	14.34	
800.00	800.00	89.55	1.69	1.69	Rio Blanco 4-33 Fed Com 2H (p)	50.02	46.08	12.71	
900.00	900.00	89.55	1.91	1.91	Rio Blanco 4-33 Fed Com 2H (p)	50.02	45.64	11.40	
1000.00	1000.00	89.55	2.14	2.14	Rio Blanco 4-33 Fed Com 2H (p)	50.02	45.19	10.34	
1100.00	1100.00	89.55	2.36	2.36	Rio Blanco 4-33 Fed Com 2H (p)	50.02	44.74	9.46	
1200.00	1200.00	89.55	2.59	2.59	Rio Blanco 4-33 Fed Com 2H (p)	50.02	44.29	8.72	
1300.00	1300.00	89.55	2.81	2.81	Rio Blanco 4-33 Fed Com 2H (p)	50.02	43.84	8.09	
1400.00	1400.00	89.55	3.03	3.03	Rio Blanco 4-33 Fed Com 2H (p)	50.02	43.39	7.54	
1500.00	1500.00	89.55	3.26	3.26	Rio Blanco 4-33 Fed Com 2H (p)	50.02	42.94	7.06	
1600.00	1600.00	89.55	3.48	3.48	Rio Blanco 4-33 Fed Com 2H (p)	50.02	42.49	6.64	
1700.00	1700.00	89.55	3.71	3.71	Rio Blanco 4-33 Fed Com 2H (p)	50.02	42.04	6.27	
1800.00	1800.00	89.55	3.93	3.93	Rio Blanco 4-33 Fed Com 2H (p)	50.02	41.59	5.93	
1900.00	1900.00	89.55	4.16	4.16	Rio Blanco 4-33 Fed Com 2H (p)	50.02	41.14	5.63	
2000.00	2000.00	89.55	4.38	4.38	Rio Blanco 4-33 Fed Com 2H (p)	50.02	40.69	5.36	
2100.00	2100.00	89.55	4.61	4.61	Rio Blanco 4-33 Fed Com 2H (p)	50.02	40.24	5.11	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
2200.00	2200.00	89.55	4.83	4.83	Rio Blanco 4-33 Fed Com 2H (p)	50.02	39.79	4.89	
2300.00	2300.00	89.55	5.06	5.06	Rio Blanco 4-33 Fed Com 2H (p)	50.02	39.34	4.68	
2400.00	2400.00	89.55	5.28	5.28	Rio Blanco 4-33 Fed Com 2H (p)	50.02	38.89	4.49	
2500.00	2500.00	89.55	5.51	5.51	Rio Blanco 4-33 Fed Com 2H (p)	50.02	38.44	4.32	
2600.00	2600.00	89.55	5.73	5.73	Rio Blanco 4-33 Fed Com 2H (p)	50.02	37.99	4.16	
2700.00	2700.00	89.55	5.96	5.96	Rio Blanco 4-33 Fed Com 2H (p)	50.02	37.54	4.01	
2800.00	2800.00	89.55	6.18	6.18	Rio Blanco 4-33 Fed Com 2H (p)	50.02	37.09	3.87	
2900.00	2900.00	89.55	6.41	6.41	Rio Blanco 4-33 Fed Com 2H (p)	50.02	36.64	3.74	
3000.00	3000.00	89.55	6.63	6.63	Rio Blanco 4-33 Fed Com 2H (p)	50.02	36.19	3.62	
3100.00	3100.00	89.55	6.86	6.86	Rio Blanco 4-33 Fed Com 2H (p)	50.02	35.75	3.50	
3200.00	3200.00	89.55	7.08	7.08	Rio Blanco 4-33 Fed Com 2H (p)	50.02	35.30	3.40	
3300.00	3300.00	89.55	7.31	7.31	Rio Blanco 4-33 Fed Com 2H (p)	50.02	34.85	3.30	
3400.00	3400.00	89.55	7.53	7.53	Rio Blanco 4-33 Fed Com 2H (p)	50.02	34.40	3.20	
3500.00	3500.00	89.55	7.76	7.76	Rio Blanco 4-33 Fed Com 2H (p)	50.02	33.95	3.11	
3600.00	3600.00	89.55	7.98	7.98	Rio Blanco 4-33 Fed Com 2H (p)	50.02	33.50	3.03	
3700.00	3700.00	89.55	8.20	8.20	Rio Blanco 4-33 Fed Com 2H (p)	50.02	33.05	2.95	
3800.00	3800.00	89.55	8.43	8.43	Rio Blanco 4-33 Fed Com 2H (p)	50.02	32.60	2.87	
3900.00	3900.00	89.55	8.65	8.65	Rio Blanco 4-33 Fed Com 2H (p)	50.02	32.15	2.80	
4000.00	4000.00	89.55	8.88	8.88	Rio Blanco 4-33 Fed Com 2H (p)	50.02	31.70	2.73	
4100.00	4100.00	89.55	9.10	9.10	Rio Blanco 4-33 Fed Com 2H (p)	50.02	31.25	2.66	
4200.00	4200.00	89.77	9.33	9.33	Rio Blanco 4-33 Fed Com 2H (p)	50.02	30.83	2.61	
4300.00	4300.00	91.71	9.55	9.55	Rio Blanco 4-33 Fed Com 2H (p)	50.04	30.45	2.55	
4400.00	4400.00	95.63	9.78	9.78	Rio Blanco 4-33 Fed Com 2H (p)	50.26	30.30	2.52	
4500.00	4500.00	101.40	10.00	10.00	Rio Blanco 4-33 Fed Com 2H (p)	51.03	30.66	2.51	
4600.00	4600.00	108.74	10.23	10.23	Rio Blanco 4-33 Fed Com 2H (p)	52.84	32.07	2.54	
4700.00	4700.00	116.91	10.45	10.45	Rio Blanco 4-33 Fed Com 2H (p)	56.14	35.01	2.66	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
4800.00	4800.00	124.26	10.68	10.68	Rio Blanco 4-33 Fed Com 2H (p)	60.59	39.07	2.82	
4900.00	4900.00	130.52	10.90	10.90	Rio Blanco 4-33 Fed Com 2H (p)	65.91	43.97	3.00	
5000.00	5000.00	135.80	11.13	11.13	Rio Blanco 4-33 Fed Com 2H (p)	71.89	49.55	3.22	
5100.00	5100.00	140.07	11.35	11.35	Rio Blanco 4-33 Fed Com 2H (p)	78.08	55.29	3.43	
5200.00	5200.00	143.36	11.58	11.58	Rio Blanco 4-33 Fed Com 2H (p)	83.94	60.73	3.62	
5300.00	5300.00	145.89	11.80	11.80	Rio Blanco 4-33 Fed Com 2H (p)	89.32	65.66	3.77	
5400.00	5400.00	147.85	12.03	12.03	Rio Blanco 4-33 Fed Com 2H (p)	94.10	69.94	3.90	
5500.00	5500.00	149.36	12.25	12.25	Rio Blanco 4-33 Fed Com 2H (p)	98.23	73.60	3.99	
5600.00	5600.00	89.58	12.48	12.48	Rio Blanco 4-33 Fed Com 3H (p)	100.03	74.52	3.92	
5700.00	5700.00	89.58	12.70	12.70	Rio Blanco 4-33 Fed Com 3H (p)	100.03	74.07	3.85	
5800.00	5800.00	89.58	12.93	12.93	Rio Blanco 4-33 Fed Com 3H (p)	100.03	73.62	3.79	
5900.00	5900.00	89.58	13.15	13.15	Rio Blanco 4-33 Fed Com 3H (p)	100.03	73.17	3.72	
6000.00	6000.00	89.58	13.37	13.37	Rio Blanco 4-33 Fed Com 3H (p)	100.03	72.72	3.66	
6100.00	6100.00	89.58	13.60	13.60	Rio Blanco 4-33 Fed Com 3H (p)	100.03	72.27	3.60	
6200.00	6200.00	89.58	13.82	13.82	Rio Blanco 4-33 Fed Com 3H (p)	100.03	71.82	3.55	
6300.00	6300.00	89.58	14.05	14.05	Rio Blanco 4-33 Fed Com 3H (p)	100.03	71.37	3.49	
6400.00	6400.00	89.58	14.27	14.27	Rio Blanco 4-33 Fed Com 3H (p)	100.03	70.92	3.44	
6500.00	6500.00	89.58	14.50	14.50	Rio Blanco 4-33 Fed Com 3H (p)	100.03	70.47	3.38	
6600.00	6600.00	89.58	14.72	14.72	Rio Blanco 4-33 Fed Com 3H (p)	100.03	70.02	3.33	
6700.00	6700.00	89.58	14.95	14.95	Rio Blanco 4-33 Fed Com 3H (p)	100.03	69.57	3.28	
6800.00	6800.00	89.58	15.17	15.17	Rio Blanco 4-33 Fed Com 3H (p)	100.03	69.12	3.24	
6900.00	6900.00	89.58	15.40	15.40	Rio Blanco 4-33 Fed Com 3H (p)	100.03	68.67	3.19	
7000.00	7000.00	89.58	15.62	15.62	Rio Blanco 4-33 Fed Com 3H (p)	100.03	68.22	3.14	
7100.00	7100.00	89.58	15.85	15.85	Rio Blanco 4-33 Fed Com 3H (p)	100.03	67.77	3.10	
7200.00	7200.00	89.58	16.07	16.07	Rio Blanco 4-33 Fed Com 3H (p)	100.03	67.32	3.06	
7300.00	7300.00	89.58	16.30	16.30	Rio Blanco 4-33 Fed Com 3H (p)	100.03	66.87	3.02	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
7400.00	7400.00	89.58	16.52	16.52	Rio Blanco 4-33 Fed Com 3H (p)	100.03	66.43	2.98	
7500.00	7500.00	89.58	16.75	16.75	Rio Blanco 4-33 Fed Com 3H (p)	100.03	65.98	2.94	
7600.00	7600.00	89.58	16.97	16.97	Rio Blanco 4-33 Fed Com 3H (p)	100.03	65.53	2.90	
7700.00	7700.00	89.58	17.20	17.20	Rio Blanco 4-33 Fed Com 3H (p)	100.03	65.08	2.86	
7800.00	7800.00	89.58	17.42	17.42	Rio Blanco 4-33 Fed Com 3H (p)	100.03	64.63	2.83	
7900.00	7900.00	89.58	17.65	17.65	Rio Blanco 4-33 Fed Com 3H (p)	100.03	64.18	2.79	
8000.00	8000.00	89.58	17.87	17.87	Rio Blanco 4-33 Fed Com 3H (p)	100.03	63.73	2.76	
8100.00	8100.00	89.58	18.10	18.10	Rio Blanco 4-33 Fed Com 3H (p)	100.03	63.28	2.72	
8200.00	8200.00	89.58	18.32	18.32	Rio Blanco 4-33 Fed Com 3H (p)	100.03	62.83	2.69	
8300.00	8299.80	92.23	18.54	18.39	Rio Blanco 4-33 Fed Com 3H (p)	100.11	62.47	2.66	
8400.00	8397.39	103.52	18.75	18.24	Rio Blanco 4-33 Fed Com 3H (p)	103.15	65.12	2.71	
8500.00	8489.79	119.27	18.97	17.68	Rio Blanco 4-33 Fed Com 3H (p)	118.26	79.77	3.07	
8600.00	8574.21	132.80	19.20	16.80	Rio Blanco 4-33 Fed Com 3H (p)	153.51	114.62	3.95	
8700.00	8648.09	141.23	19.52	15.79	Rio Blanco 4-33 Fed Com 3H (p)	209.13	169.88	5.33	
8800.00	8709.17	144.82	19.91	14.68	Rio Blanco 4-33 Fed Com 3H (p)	281.07	241.52	7.11	
8900.00	8755.60	143.57	20.41	13.63	Rio Blanco 4-33 Fed Com 3H (p)	365.07	325.38	9.20	
9000.00	8785.97	134.45	21.03	12.90	Rio Blanco 4-33 Fed Com 3H (p)	457.31	417.46	11.47	
9100.00	8799.36	104.42	21.77	12.57	Rio Blanco 4-33 Fed Com 3H (p)	554.31	514.34	13.87	
9200.00	8800.00	90.00	22.62	12.72	Rio Blanco 4-33 Fed Com 3H (p)	652.91	612.91	16.33	
9300.00	8800.00	90.00	23.57	12.96	Rio Blanco 4-33 Fed Com 3H (p)	751.88	711.89	18.80	
9400.00	8800.00	90.00	24.63	13.24	Rio Blanco 4-33 Fed Com 3H (p)	851.10	811.11	21.28	
9500.00	8800.00	90.00	25.77	13.55	Rio Blanco 4-33 Fed Com 3H (p)	950.48	910.50	23.77	
9600.00	8800.00	90.00	26.99	13.89	Rio Blanco 4-33 Fed Com 3H (p)	1049.98	1010.00	26.27	
9700.00	8800.00	90.00	28.27	14.26	Rio Blanco 4-33 Fed Com 3H (p)	1149.56	1109.59	28.76	
9800.00	8800.00	90.00	29.61	14.66	Rio Blanco 4-33 Fed Com 2H (p)	1342.38	1302.90	34.00	
9900.00	8800.00	176.11	31.00	15.08	Rio Blanco 4-33 Fed Com 3H (p)	1211.80	1178.51	36.41	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
10000.00	8800.00	176.17	32.44	15.53	Rio Blanco 4-33 Fed Com 3H (p)	1211.71	1177.58	35.51	
10100.00	8800.00	176.23	33.91	15.99	Rio Blanco 4-33 Fed Com 3H (p)	1211.62	1176.60	34.60	
10200.00	8800.00	176.29	35.41	16.47	Rio Blanco 4-33 Fed Com 3H (p)	1211.53	1175.59	33.71	
10300.00	8800.00	176.36	36.95	16.97	Rio Blanco 4-33 Fed Com 3H (p)	1211.45	1174.55	32.83	
10400.00	8800.00	176.42	38.51	17.48	Rio Blanco 4-33 Fed Com 3H (p)	1211.36	1173.47	31.97	
10500.00	8800.00	176.48	40.09	18.00	Rio Blanco 4-33 Fed Com 3H (p)	1211.28	1172.36	31.12	
10600.00	8800.00	176.54	41.69	18.58	Rio Blanco 4-33 Fed Com 3H (p)	1211.20	1171.22	30.29	
10700.00	8800.00	176.61	43.31	19.18	Rio Blanco 4-33 Fed Com 3H (p)	1211.12	1170.08	29.51	
10800.00	8800.00	176.67	44.94	19.72	Rio Blanco 4-33 Fed Com 3H (p)	1211.05	1168.92	28.75	
10900.00	8800.00	176.73	46.59	20.29	Rio Blanco 4-33 Fed Com 3H (p)	1210.97	1167.75	28.02	
11000.00	8800.00	176.79	48.26	20.89	Rio Blanco 4-33 Fed Com 3H (p)	1210.90	1166.59	27.33	
11100.00	8800.00	176.86	49.93	21.48	Rio Blanco 4-33 Fed Com 3H (p)	1210.82	1165.34	26.62	
11200.00	8800.00	176.92	51.62	22.11	Rio Blanco 4-33 Fed Com 3H (p)	1210.75	1164.08	25.94	
11300.00	8800.00	176.98	53.31	22.74	Rio Blanco 4-33 Fed Com 3H (p)	1210.68	1162.83	25.30	
11400.00	8800.00	177.04	55.01	23.37	Rio Blanco 4-33 Fed Com 3H (p)	1210.61	1161.61	24.70	
11500.00	8800.00	177.11	56.72	24.00	Rio Blanco 4-33 Fed Com 3H (p)	1210.54	1160.35	24.12	
11600.00	8800.00	177.17	58.44	24.64	Rio Blanco 4-33 Fed Com 3H (p)	1210.48	1159.03	23.53	
11700.00	8800.00	177.23	60.16	25.28	Rio Blanco 4-33 Fed Com 3H (p)	1210.41	1157.72	22.97	
11800.00	8800.00	177.29	61.89	25.93	Rio Blanco 4-33 Fed Com 3H (p)	1210.35	1156.40	22.44	
11900.00	8800.00	177.36	63.63	26.58	Rio Blanco 4-33 Fed Com 3H (p)	1210.29	1155.08	21.92	
12000.00	8800.00	177.42	65.37	27.23	Rio Blanco 4-33 Fed Com 3H (p)	1210.23	1153.75	21.43	
12100.00	8800.00	177.48	67.12	27.89	Rio Blanco 4-33 Fed Com 3H (p)	1210.17	1152.42	20.96	
12200.00	8800.00	177.54	68.86	28.55	Rio Blanco 4-33 Fed Com 3H (p)	1210.11	1151.08	20.50	
12300.00	8800.00	177.61	70.62	29.22	Rio Blanco 4-33 Fed Com 3H (p)	1210.06	1149.74	20.06	
12400.00	8800.00	177.67	72.37	29.89	Rio Blanco 4-33 Fed Com 3H (p)	1210.00	1148.40	19.64	
12500.00	8800.00	177.73	74.13	30.56	Rio Blanco 4-33 Fed Com 3H (p)	1209.95	1147.05	19.24	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
12600.00	8800.00	177.79	75.90	31.23	Rio Blanco 4-33 Fed Com 3H (p)	1209.90	1145.69	18.84	
12700.00	8800.00	177.86	77.66	31.91	Rio Blanco 4-33 Fed Com 3H (p)	1209.85	1144.34	18.47	
12800.00	8800.00	177.92	79.43	32.59	Rio Blanco 4-33 Fed Com 3H (p)	1209.80	1142.97	18.10	
12900.00	8800.00	177.98	81.20	33.27	Rio Blanco 4-33 Fed Com 3H (p)	1209.75	1141.58	17.74	
13000.00	8800.00	178.04	82.98	33.95	Rio Blanco 4-33 Fed Com 3H (p)	1209.71	1140.18	17.40	
13100.00	8800.00	178.11	84.76	34.64	Rio Blanco 4-33 Fed Com 3H (p)	1209.66	1138.79	17.07	
13200.00	8800.00	178.17	86.53	35.33	Rio Blanco 4-33 Fed Com 3H (p)	1209.62	1137.38	16.75	
13300.00	8800.00	178.23	88.31	36.02	Rio Blanco 4-33 Fed Com 3H (p)	1209.58	1135.98	16.44	
13400.00	8800.00	178.29	90.10	36.71	Rio Blanco 4-33 Fed Com 3H (p)	1209.54	1134.58	16.14	
13500.00	8800.00	178.36	91.88	37.40	Rio Blanco 4-33 Fed Com 3H (p)	1209.50	1133.17	15.85	
13600.00	8800.00	178.42	93.67	38.09	Rio Blanco 4-33 Fed Com 3H (p)	1209.46	1131.76	15.56	
13700.00	8800.00	178.48	95.45	38.79	Rio Blanco 4-33 Fed Com 3H (p)	1209.43	1130.34	15.29	
13800.00	8800.00	178.54	97.24	39.49	Rio Blanco 4-33 Fed Com 3H (p)	1209.39	1128.93	15.03	
13900.00	8800.00	178.61	99.03	40.19	Rio Blanco 4-33 Fed Com 3H (p)	1209.36	1127.52	14.78	
14000.00	8800.00	178.67	100.82	40.89	Rio Blanco 4-33 Fed Com 3H (p)	1209.33	1126.10	14.53	
14100.00	8800.00	178.73	102.62	41.59	Rio Blanco 4-33 Fed Com 3H (p)	1209.30	1124.68	14.29	
14200.00	8800.00	178.79	104.41	42.29	Rio Blanco 4-33 Fed Com 3H (p)	1209.27	1123.26	14.06	
14300.00	8800.00	178.86	106.21	42.99	Rio Blanco 4-33 Fed Com 3H (p)	1209.24	1121.84	13.84	
14400.00	8800.00	178.92	108.00	43.70	Rio Blanco 4-33 Fed Com 3H (p)	1209.22	1120.42	13.62	
14500.00	8800.00	178.98	109.80	44.40	Rio Blanco 4-33 Fed Com 3H (p)	1209.19	1119.00	13.41	
14600.00	8800.00	179.04	111.60	45.11	Rio Blanco 4-33 Fed Com 3H (p)	1209.17	1117.57	13.20	
14700.00	8800.00	179.11	113.40	45.81	Rio Blanco 4-33 Fed Com 3H (p)	1209.15	1116.15	13.00	
14800.00	8800.00	179.17	115.20	46.52	Rio Blanco 4-33 Fed Com 3H (p)	1209.13	1114.72	12.81	
14900.00	8800.00	179.23	117.00	47.23	Rio Blanco 4-33 Fed Com 3H (p)	1209.11	1113.30	12.62	
15000.00	8800.00	179.29	118.80	47.94	Rio Blanco 4-33 Fed Com 3H (p)	1209.09	1111.88	12.44	
15100.00	8800.00	179.36	120.60	48.65	Rio Blanco 4-33 Fed Com 3H (p)	1209.08	1110.45	12.26	

Primary Well : Rio Blanco 4-33 Fed Com 1H (p) (TVD Relative to Kelly Bushing ; All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
15200.00	8800.00	179.42	122.40	49.36	Rio Blanco 4-33 Fed Com 3H (p)	1209.06	1109.02	12.09	
15300.00	8800.00	179.48	124.21	50.07	Rio Blanco 4-33 Fed Com 3H (p)	1209.05	1107.60	11.92	
15400.00	8800.00	179.54	126.01	50.78	Rio Blanco 4-33 Fed Com 3H (p)	1209.04	1106.17	11.75	
15500.00	8800.00	179.61	127.82	51.49	Rio Blanco 4-33 Fed Com 3H (p)	1209.03	1104.75	11.59	
15600.00	8800.00	179.67	129.62	52.21	Rio Blanco 4-33 Fed Com 3H (p)	1209.02	1103.32	11.44	
15700.00	8800.00	179.73	131.43	52.92	Rio Blanco 4-33 Fed Com 3H (p)	1209.01	1101.90	11.29	
15800.00	8800.00	179.79	133.24	53.64	Rio Blanco 4-33 Fed Com 3H (p)	1209.01	1100.47	11.14	
15900.00	8800.00	179.86	135.04	54.35	Rio Blanco 4-33 Fed Com 3H (p)	1209.00	1099.05	11.00	
16000.00	8800.00	179.92	136.85	55.07	Rio Blanco 4-33 Fed Com 3H (p)	1209.00	1097.63	10.86	
16100.00	8800.00	179.98	138.66	55.78	Rio Blanco 4-33 Fed Com 3H (p)	1209.00	1096.20	10.72	
16128.94	8800.00	180.00	139.18	55.99	Rio Blanco 4-33 Fed Com 3H (p)	1209.00	1095.79	10.68	

Secondary Well : Rio Blanco 4-33 Fed Com 3H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	1.00	89.58	0.01	0.01	100.03	99.46	173.67	
100.00	100.00	101.00	89.58	0.12	0.12	100.03	99.24	126.35	
200.00	200.00	201.00	89.58	0.34	0.34	100.03	98.79	80.68	
300.00	300.00	301.00	89.58	0.56	0.56	100.03	98.34	59.22	
400.00	400.00	401.00	89.58	0.79	0.79	100.03	97.89	46.78	
500.00	500.00	501.00	89.58	1.01	1.01	100.03	97.44	38.65	
600.00	600.00	601.00	89.58	1.24	1.24	100.03	97.00	32.93	
700.00	700.00	701.00	89.58	1.46	1.46	100.03	96.55	28.69	
800.00	800.00	801.00	89.58	1.69	1.69	100.03	96.10	25.41	
900.00	900.00	901.00	89.58	1.91	1.91	100.03	95.65	22.81	
1000.00	1000.00	1001.00	89.58	2.14	2.14	100.03	95.20	20.69	
1100.00	1100.00	1101.00	89.58	2.36	2.36	100.03	94.75	18.93	
1200.00	1200.00	1201.00	89.58	2.59	2.59	100.03	94.30	17.44	
1300.00	1300.00	1301.00	89.58	2.81	2.81	100.03	93.85	16.18	
1400.00	1400.00	1401.00	89.58	3.04	3.04	100.03	93.40	15.08	
1500.00	1500.00	1501.00	89.58	3.26	3.26	100.03	92.95	14.12	
1600.00	1600.00	1601.00	89.58	3.49	3.49	100.03	92.50	13.28	
1700.00	1700.00	1701.00	89.58	3.71	3.71	100.03	92.05	12.53	
1800.00	1800.00	1801.00	89.58	3.94	3.94	100.03	91.60	11.86	
1900.00	1900.00	1901.00	89.58	4.16	4.16	100.03	91.15	11.26	
2000.00	2000.00	2001.00	89.58	4.39	4.39	100.03	90.70	10.72	
2100.00	2100.00	2101.00	89.58	4.61	4.61	100.03	90.25	10.23	
2200.00	2200.00	2201.00	89.58	4.84	4.84	100.03	89.80	9.78	
2300.00	2300.00	2301.00	89.58	5.06	5.06	100.03	89.35	9.37	
2400.00	2400.00	2401.00	89.58	5.28	5.28	100.03	88.90	8.99	
2500.00	2500.00	2501.00	89.58	5.51	5.51	100.03	88.45	8.64	
2600.00	2600.00	2601.00	89.58	5.73	5.73	100.03	88.00	8.32	
2700.00	2700.00	2701.00	89.58	5.96	5.96	100.03	87.55	8.02	
2800.00	2800.00	2801.00	89.58	6.18	6.18	100.03	87.11	7.74	
2900.00	2900.00	2901.00	89.58	6.41	6.41	100.03	86.66	7.48	

Secondary Well : Rio Blanco 4-33 Fed Com 3H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
3000.00	3000.00	3001.00	89.58	6.63	6.63	100.03	86.21	7.23	
3100.00	3100.00	3101.00	89.58	6.86	6.86	100.03	85.76	7.01	
3200.00	3200.00	3201.00	89.58	7.08	7.08	100.03	85.31	6.79	
3300.00	3300.00	3301.00	89.58	7.31	7.31	100.03	84.86	6.59	
3400.00	3400.00	3401.00	89.58	7.53	7.53	100.03	84.41	6.40	
3500.00	3500.00	3501.00	89.58	7.76	7.76	100.03	83.96	6.22	
3600.00	3600.00	3601.00	89.58	7.98	7.98	100.03	83.51	6.05	
3700.00	3700.00	3701.00	89.58	8.21	8.21	100.03	83.06	5.89	
3800.00	3800.00	3801.00	89.58	8.43	8.43	100.03	82.61	5.74	
3900.00	3900.00	3901.00	89.58	8.66	8.66	100.03	82.16	5.60	
4000.00	4000.00	4001.00	89.58	8.88	8.88	100.03	81.71	5.46	
4100.00	4100.00	4101.00	89.58	9.11	9.11	100.03	81.26	5.33	
4200.00	4200.00	4201.00	89.58	9.33	9.33	100.03	80.81	5.20	
4300.00	4300.00	4301.00	89.58	9.56	9.56	100.03	80.36	5.09	
4400.00	4400.00	4401.00	89.58	9.78	9.78	100.03	79.91	4.97	
4500.00	4500.00	4501.00	89.58	10.01	10.01	100.03	79.46	4.86	
4600.00	4600.00	4601.00	89.58	10.23	10.23	100.03	79.01	4.76	
4700.00	4700.00	4701.00	89.58	10.45	10.45	100.03	78.56	4.66	
4800.00	4800.00	4801.00	89.58	10.68	10.68	100.03	78.11	4.56	
4900.00	4900.00	4901.00	89.58	10.90	10.90	100.03	77.66	4.47	
5000.00	5000.00	5001.00	89.58	11.13	11.13	100.03	77.21	4.38	
5100.00	5100.00	5101.00	89.58	11.35	11.35	100.03	76.77	4.30	
5200.00	5200.00	5201.00	89.58	11.58	11.58	100.03	76.32	4.22	
5300.00	5300.00	5301.00	89.58	11.80	11.80	100.03	75.87	4.14	
5400.00	5400.00	5401.00	89.58	12.03	12.03	100.03	75.42	4.06	
5500.00	5500.00	5501.00	89.58	12.25	12.25	100.03	74.97	3.99	
5600.00	5600.00	5601.00	89.58	12.48	12.48	100.03	74.52	3.92	
5700.00	5700.00	5701.00	89.58	12.70	12.70	100.03	74.07	3.85	
5800.00	5800.00	5801.00	89.58	12.93	12.93	100.03	73.62	3.79	
5900.00	5900.00	5901.00	89.58	13.15	13.15	100.03	73.17	3.72	
6000.00	6000.00	6001.00	89.58	13.38	13.38	100.03	72.72	3.66	
6100.00	6100.00	6101.00	89.58	13.60	13.60	100.03	72.27	3.60	
6200.00	6200.00	6201.00	89.58	13.83	13.83	100.03	71.82	3.55	
6300.00	6300.00	6301.00	89.58	14.05	14.05	100.03	71.37	3.49	
6400.00	6400.00	6401.00	89.58	14.28	14.28	100.03	70.92	3.44	
6500.00	6500.00	6501.00	89.58	14.50	14.50	100.03	70.47	3.38	
6600.00	6600.00	6601.00	89.58	14.73	14.73	100.03	70.02	3.33	
6700.00	6700.00	6701.00	89.58	14.95	14.95	100.03	69.57	3.28	
6800.00	6800.00	6801.00	89.58	15.18	15.18	100.03	69.12	3.24	
6900.00	6900.00	6901.00	89.58	15.40	15.40	100.03	68.67	3.19	
7000.00	7000.00	7001.00	89.58	15.62	15.62	100.03	68.22	3.14	
7100.00	7100.00	7101.00	89.58	15.85	15.85	100.03	67.77	3.10	
7200.00	7200.00	7201.00	89.58	16.07	16.07	100.03	67.32	3.06	
7300.00	7300.00	7301.00	89.58	16.30	16.30	100.03	66.87	3.02	
7400.00	7400.00	7401.00	89.58	16.52	16.52	100.03	66.43	2.98	
7500.00	7500.00	7501.00	89.58	16.75	16.75	100.03	65.98	2.94	
7600.00	7600.00	7601.00	89.58	16.97	16.97	100.03	65.53	2.90	
7700.00	7700.00	7701.00	89.58	17.20	17.20	100.03	65.08	2.86	
7800.00	7800.00	7801.00	89.58	17.42	17.42	100.03	64.63	2.83	
7900.00	7900.00	7901.00	89.58	17.65	17.65	100.03	64.18	2.79	
8000.00	8000.00	8001.00	89.58	17.87	17.87	100.03	63.73	2.76	
8100.00	8100.00	8101.00	89.58	18.10	18.10	100.03	63.28	2.72	
8200.00	8200.00	8201.00	89.58	18.32	18.32	100.03	62.83	2.69	
8300.00	8299.80	8300.80	92.23	18.55	18.55	100.11	62.47	2.66	
8400.00	8397.39	8398.39	103.52	18.77	18.77	103.15	65.12	2.71	
8500.00	8489.79	8490.79	119.27	18.97	18.97	118.26	79.77	3.07	
8600.00	8574.21	8575.21	132.80	19.16	19.16	153.51	114.62	3.95	
8700.00	8648.09	8649.09	141.23	19.33	19.33	209.13	169.88	5.33	

Secondary Well : Rio Blanco 4-33 Fed Com 3H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
8800.00	8709.17	8710.17	144.82	19.47	19.47	281.07	241.52	7.11	
8900.00	8755.60	8756.60	143.57	19.57	19.57	365.07	325.38	9.20	
9000.00	8785.97	8786.97	134.45	19.64	19.64	457.31	417.46	11.47	
9100.00	8799.36	8800.36	104.42	19.67	19.67	554.31	514.34	13.87	
9200.00	8800.00	8801.00	90.00	19.67	19.67	652.91	612.91	16.33	
9300.00	8800.00	8801.00	90.00	19.67	19.67	751.88	711.89	18.80	
9400.00	8800.00	8801.00	90.00	19.67	19.67	851.10	811.11	21.28	
9500.00	8800.00	8801.00	90.00	19.67	19.67	950.48	910.50	23.77	
9600.00	8800.00	8801.00	90.00	19.67	19.67	1049.98	1010.00	26.27	
9700.00	8800.00	8801.00	90.00	19.67	19.67	1149.56	1109.59	28.76	
9800.00	10009.00	11010.50	176.05	31.47	17.07	1211.89	1179.40	37.30	
9900.00	10009.00	11110.49	176.11	32.79	17.44	1211.80	1178.51	36.41	
10000.00	10009.00	11210.48	176.17	34.15	17.82	1211.71	1177.58	35.51	
10100.00	10009.00	11310.47	176.23	35.55	18.23	1211.62	1176.60	34.60	
10200.00	10009.00	11410.46	176.29	36.99	18.66	1211.53	1175.59	33.71	
10300.00	10009.00	11510.45	176.36	38.46	19.10	1211.45	1174.55	32.83	
10400.00	10009.00	11610.44	176.42	39.97	19.56	1211.36	1173.47	31.97	
10500.00	10009.00	11710.43	176.48	41.50	20.03	1211.28	1172.36	31.12	
10600.00	10009.00	11810.43	176.54	43.05	20.50	1211.20	1171.22	30.29	
10700.00	10009.00	11910.42	176.61	44.62	21.01	1211.12	1170.08	29.51	
10800.00	10009.00	12010.41	176.67	46.22	21.59	1211.05	1168.92	28.75	
10900.00	10009.00	12110.40	176.73	47.83	22.10	1210.97	1167.75	28.02	
11000.00	10009.00	12210.39	176.79	49.45	22.62	1210.90	1166.59	27.33	
11100.00	10009.00	12310.38	176.86	51.09	23.22	1210.82	1165.34	26.62	
11200.00	10009.00	12410.37	176.92	52.74	23.79	1210.75	1164.08	25.94	
11300.00	10009.00	12510.36	176.98	54.41	24.35	1210.68	1162.83	25.30	
11400.00	10009.00	12610.36	177.04	56.08	24.88	1210.61	1161.61	24.70	
11500.00	10009.00	12710.35	177.11	57.77	25.45	1210.54	1160.35	24.12	
11600.00	10009.00	12810.34	177.17	59.46	26.07	1210.48	1159.03	23.53	
11700.00	10009.00	12910.33	177.23	61.16	26.69	1210.41	1157.72	22.97	
11800.00	10009.00	13010.32	177.29	62.87	27.31	1210.35	1156.40	22.44	
11900.00	10009.00	13110.31	177.36	64.58	27.94	1210.29	1155.08	21.92	
12000.00	10009.00	13210.30	177.42	66.30	28.57	1210.23	1153.75	21.43	
12100.00	10009.00	13310.29	177.48	68.03	29.20	1210.17	1152.42	20.96	
12200.00	10009.00	13410.29	177.54	69.76	29.83	1210.11	1151.08	20.50	
12300.00	10009.00	13510.28	177.61	71.50	30.47	1210.06	1149.74	20.06	
12400.00	10009.00	13610.27	177.67	73.24	31.12	1210.00	1148.40	19.64	
12500.00	10009.00	13710.26	177.73	74.98	31.76	1209.95	1147.05	19.24	
12600.00	10009.00	13810.25	177.79	76.73	32.41	1209.90	1145.69	18.84	
12700.00	10009.00	13910.24	177.86	78.49	33.07	1209.85	1144.34	18.47	
12800.00	10009.00	14010.23	177.92	80.24	33.72	1209.80	1142.97	18.10	
12900.00	10009.00	14110.22	177.98	82.00	34.38	1209.75	1141.58	17.74	
13000.00	10009.00	14210.22	178.04	83.77	35.05	1209.71	1140.18	17.40	
13100.00	10009.00	14310.21	178.11	85.53	35.71	1209.66	1138.79	17.07	
13200.00	10009.00	14410.20	178.17	87.30	36.38	1209.62	1137.38	16.75	
13300.00	10009.00	14510.19	178.23	89.07	37.05	1209.58	1135.98	16.44	
13400.00	10009.00	14610.18	178.29	90.85	37.72	1209.54	1134.58	16.14	
13500.00	10009.00	14710.17	178.36	92.62	38.40	1209.50	1133.17	15.85	
13600.00	10009.00	14810.16	178.42	94.40	39.07	1209.46	1131.76	15.56	
13700.00	10009.00	14910.16	178.48	96.18	39.75	1209.43	1130.34	15.29	
13800.00	10009.00	15010.15	178.54	97.96	40.43	1209.39	1128.93	15.03	
13900.00	10009.00	15110.14	178.61	99.75	41.12	1209.36	1127.52	14.78	
14000.00	10009.00	15210.13	178.67	101.53	41.80	1209.33	1126.10	14.53	
14100.00	10009.00	15310.12	178.73	103.32	42.49	1209.30	1124.68	14.29	
14200.00	10009.00	15410.11	178.79	105.11	43.17	1209.27	1123.26	14.06	
14300.00	10009.00	15510.10	178.86	106.90	43.86	1209.24	1121.84	13.84	
14400.00	10009.00	15610.09	178.92	108.69	44.55	1209.22	1120.42	13.62	
14500.00	10009.00	15710.09	178.98	110.48	45.25	1209.19	1119.00	13.41	

Secondary Well : Rio Blanco 4-33 Fed Com 3H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
14600.00	10009.00	15810.08	179.04	112.27	45.94	1209.17	1117.57	13.20	
14700.00	10009.00	15910.07	179.11	114.07	46.63	1209.15	1116.15	13.00	
14800.00	10009.00	16010.06	179.17	115.87	47.33	1209.13	1114.72	12.81	
14900.00	10009.00	16110.05	179.23	117.66	48.02	1209.11	1113.30	12.62	
15000.00	10009.00	16210.04	179.29	119.46	48.72	1209.09	1111.88	12.44	
15100.00	10009.00	16310.03	179.36	121.26	49.42	1209.08	1110.45	12.26	
15200.00	10009.00	16410.02	179.42	123.06	50.12	1209.06	1109.02	12.09	
15300.00	10009.00	16510.02	179.48	124.86	50.82	1209.05	1107.60	11.92	
15400.00	10009.00	16610.01	179.54	126.66	51.52	1209.04	1106.17	11.75	
15500.00	10009.00	16710.00	179.61	128.47	52.22	1209.03	1104.75	11.59	
15600.00	10009.00	16809.99	179.67	130.27	52.93	1209.02	1103.32	11.44	
15700.00	10009.00	16909.98	179.73	132.07	53.63	1209.01	1101.90	11.29	
15800.00	10009.00	17009.97	179.79	133.88	54.34	1209.01	1100.47	11.14	
15900.00	10009.00	17109.96	179.86	135.69	55.04	1209.00	1099.05	11.00	
16000.00	10009.00	17209.95	179.92	137.49	55.75	1209.00	1097.63	10.86	
16100.00	10009.00	17309.95	179.98	139.30	56.46	1209.00	1096.20	10.72	
16128.94	10009.00	17338.89	180.00	139.82	56.66	1209.00	1095.79	10.68	

Secondary Well : Rio Blanco 4-33 Fed Com 2H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	1.00	89.55	0.01	0.01	50.02	49.45	86.84	
100.00	100.00	101.00	89.55	0.12	0.12	50.02	49.23	63.18	
200.00	200.00	201.00	89.55	0.34	0.34	50.02	48.78	40.35	
300.00	300.00	301.00	89.55	0.56	0.56	50.02	48.33	29.61	
400.00	400.00	401.00	89.55	0.79	0.79	50.02	47.88	23.39	
500.00	500.00	501.00	89.55	1.01	1.01	50.02	47.43	19.33	
600.00	600.00	601.00	89.55	1.24	1.24	50.02	46.98	16.47	
700.00	700.00	701.00	89.55	1.46	1.46	50.02	46.53	14.34	
800.00	800.00	801.00	89.55	1.69	1.69	50.02	46.08	12.71	
900.00	900.00	901.00	89.55	1.91	1.91	50.02	45.64	11.40	
1000.00	1000.00	1001.00	89.55	2.14	2.14	50.02	45.19	10.34	
1100.00	1100.00	1101.00	89.55	2.36	2.36	50.02	44.74	9.46	
1200.00	1200.00	1201.00	89.55	2.59	2.59	50.02	44.29	8.72	
1300.00	1300.00	1301.00	89.55	2.81	2.81	50.02	43.84	8.09	
1400.00	1400.00	1401.00	89.55	3.04	3.04	50.02	43.39	7.54	
1500.00	1500.00	1501.00	89.55	3.26	3.26	50.02	42.94	7.06	
1600.00	1600.00	1601.00	89.55	3.49	3.49	50.02	42.49	6.64	
1700.00	1700.00	1701.00	89.55	3.71	3.71	50.02	42.04	6.27	
1800.00	1800.00	1801.00	89.55	3.94	3.94	50.02	41.59	5.93	
1900.00	1900.00	1901.00	89.55	4.16	4.16	50.02	41.14	5.63	
2000.00	2000.00	2001.00	89.55	4.39	4.39	50.02	40.69	5.36	
2100.00	2100.00	2101.00	89.55	4.61	4.61	50.02	40.24	5.11	
2200.00	2200.00	2201.00	89.55	4.84	4.84	50.02	39.79	4.89	
2300.00	2300.00	2301.00	89.55	5.06	5.06	50.02	39.34	4.68	
2400.00	2400.00	2401.00	89.55	5.28	5.28	50.02	38.89	4.49	
2500.00	2500.00	2501.00	89.55	5.51	5.51	50.02	38.44	4.32	
2600.00	2600.00	2601.00	89.55	5.73	5.73	50.02	37.99	4.16	
2700.00	2700.00	2701.00	89.55	5.96	5.96	50.02	37.54	4.01	
2800.00	2800.00	2801.00	89.55	6.18	6.18	50.02	37.09	3.87	
2900.00	2900.00	2901.00	89.55	6.41	6.41	50.02	36.64	3.74	
3000.00	3000.00	3001.00	89.55	6.63	6.63	50.02	36.19	3.62	
3100.00	3100.00	3101.00	89.55	6.86	6.86	50.02	35.75	3.50	
3200.00	3200.00	3201.00	89.55	7.08	7.08	50.02	35.30	3.40	
3300.00	3300.00	3301.00	89.55	7.31	7.31	50.02	34.85	3.30	
3400.00	3400.00	3401.00	89.55	7.53	7.53	50.02	34.40	3.20	
3500.00	3500.00	3501.00	89.55	7.76	7.76	50.02	33.95	3.11	
3600.00	3600.00	3601.00	89.55	7.98	7.98	50.02	33.50	3.03	
3700.00	3700.00	3701.00	89.55	8.21	8.21	50.02	33.05	2.95	

Secondary Well : Rio Blanco 4-33 Fed Com 2H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
3800.00	3800.00	3801.00	89.55	8.43	8.43	50.02	32.60	2.87	
3900.00	3900.00	3901.00	89.55	8.66	8.66	50.02	32.15	2.80	
4000.00	4000.00	4001.00	89.55	8.88	8.88	50.02	31.70	2.73	
4100.00	4100.00	4101.00	89.55	9.11	9.11	50.02	31.25	2.66	
4200.00	4200.00	4201.00	89.77	9.32	9.32	50.02	30.83	2.61	
4300.00	4299.96	4300.98	91.71	9.48	9.48	50.04	30.45	2.55	
4400.00	4399.79	4400.86	95.63	9.65	9.64	50.26	30.30	2.52	
4500.00	4499.39	4500.60	101.40	9.82	9.81	51.03	30.66	2.51	
4600.00	4598.68	4600.13	108.74	9.99	9.97	52.84	32.07	2.54	
4700.00	4697.78	4699.59	116.91	10.17	10.13	56.14	35.01	2.66	
4800.00	4797.02	4799.21	124.26	10.35	10.31	60.59	39.07	2.82	
4900.00	4896.26	4898.83	130.52	10.54	10.49	65.91	43.97	3.00	
5000.00	4995.50	4998.45	135.80	10.73	10.67	71.89	49.55	3.22	
5100.00	5095.27	5098.56	140.07	10.94	10.88	78.08	55.29	3.43	
5200.00	5195.27	5198.84	143.36	11.18	11.12	83.94	60.73	3.62	
5300.00	5295.45	5299.24	145.89	11.41	11.35	89.32	65.66	3.77	
5400.00	5395.80	5399.75	147.85	11.65	11.58	94.10	69.94	3.90	
5500.00	5496.29	5500.36	149.36	11.88	11.81	98.23	73.60	3.99	
5600.00	5596.89	5601.04	150.51	12.11	12.04	101.65	76.56	4.05	
5700.00	5697.59	5701.79	151.35	12.35	12.27	104.34	78.80	4.09	
5800.00	5798.35	5802.58	151.92	12.57	12.49	106.27	80.29	4.09	
5900.00	5899.17	5903.40	152.25	12.80	12.72	107.44	81.01	4.06	
6000.00	6000.00	6004.23	152.36	13.03	12.94	107.83	80.95	4.01	
6100.00	6100.00	6104.23	152.36	13.25	13.17	107.83	80.50	3.95	
6200.00	6200.00	6204.23	152.36	13.47	13.39	107.83	80.05	3.88	
6300.00	6300.00	6304.23	152.36	13.69	13.61	107.83	79.61	3.82	
6400.00	6400.00	6404.23	152.36	13.91	13.84	107.83	79.16	3.76	
6500.00	6500.00	6504.23	152.36	14.14	14.06	107.83	78.71	3.70	
6600.00	6600.00	6604.23	152.36	14.36	14.28	107.83	78.26	3.65	
6700.00	6700.00	6704.23	152.36	14.58	14.51	107.83	77.82	3.59	
6800.00	6800.00	6804.23	152.36	14.80	14.73	107.83	77.37	3.54	
6900.00	6900.00	6904.23	152.36	15.02	14.95	107.83	76.92	3.49	
7000.00	7000.00	7004.23	152.36	15.25	15.18	107.83	76.47	3.44	
7100.00	7100.00	7104.23	152.36	15.47	15.40	107.83	76.02	3.39	
7200.00	7200.00	7204.23	152.36	15.69	15.62	107.83	75.58	3.34	
7300.00	7300.00	7304.23	152.36	15.92	15.85	107.83	75.13	3.30	
7400.00	7400.00	7404.23	152.36	16.14	16.07	107.83	74.68	3.25	
7500.00	7500.00	7504.23	152.36	16.36	16.30	107.83	74.23	3.21	
7600.00	7600.00	7604.23	152.36	16.58	16.52	107.83	73.79	3.17	
7700.00	7700.00	7704.23	152.36	16.81	16.74	107.83	73.34	3.13	
7800.00	7800.00	7804.23	152.36	17.03	16.97	107.83	72.89	3.09	
7900.00	7900.00	7904.23	152.36	17.25	17.19	107.83	72.44	3.05	
8000.00	8000.00	8004.23	152.36	17.48	17.41	107.83	71.99	3.01	
8100.00	8100.00	8104.23	152.36	17.70	17.64	107.83	71.55	2.97	
8200.00	8200.00	8204.23	152.36	17.92	17.86	107.83	71.10	2.94	
8300.00	8299.80	8304.04	153.29	18.15	18.09	111.96	74.78	3.01	
8400.00	8397.39	8401.62	156.67	18.36	18.30	131.33	93.75	3.49	
8500.00	8489.79	8494.03	160.55	18.57	18.51	166.99	128.95	4.39	
8600.00	8574.21	8578.45	163.54	18.76	18.70	218.49	180.08	5.69	
8700.00	8648.09	8652.32	165.24	18.92	18.87	284.34	245.56	7.33	
8800.00	8709.17	8713.40	165.54	19.06	19.00	362.39	323.36	9.29	
8900.00	8755.60	8759.84	163.85	19.16	19.11	450.13	410.94	11.49	
9000.00	8785.97	8790.21	157.26	19.23	19.18	544.79	505.51	13.87	
9100.00	8799.36	8803.60	121.19	19.26	19.21	643.41	604.08	16.36	
9200.00	8800.00	8804.23	90.00	19.26	19.21	743.14	703.78	18.88	
9300.00	8800.00	8804.23	90.00	19.26	19.21	842.94	803.55	21.40	
9400.00	8800.00	8804.23	90.00	19.26	19.21	942.78	903.37	23.92	
9500.00	8800.00	8804.23	90.00	19.26	19.21	1042.65	1003.22	26.44	

Secondary Well : Rio Blanco 4-33 Fed Com 2H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
9600.00	8800.00	8804.23	90.00	19.26	19.21	1142.55	1103.10	28.96	
9700.00	8800.00	8804.23	90.00	19.26	19.21	1242.46	1202.99	31.48	
9800.00	8800.00	8804.23	90.00	19.26	19.21	1342.38	1302.90	34.00	
9900.00	8800.00	8804.23	90.00	19.26	19.21	1442.32	1402.82	36.51	
10000.00	8800.00	8804.23	90.00	19.26	19.21	1542.26	1502.75	39.03	
10100.00	8800.00	8804.23	90.00	19.26	19.21	1642.21	1602.68	41.54	
10200.00	8800.00	8804.23	90.00	19.26	19.21	1742.17	1702.62	44.05	
10300.00	8800.00	8804.23	90.00	19.26	19.21	1842.13	1802.57	46.56	
10400.00	8800.00	8804.23	90.00	19.26	19.21	1942.10	1902.52	49.08	
10500.00	8800.00	8804.23	90.00	19.26	19.21	2042.06	2002.49	51.60	
10600.00	8800.00	8804.23	90.00	19.26	19.21	2142.04	2102.44	54.10	
10700.00	8800.00	8804.23	90.00	19.26	19.21	2242.01	2202.34	56.52	
10800.00	8800.00	8804.23	90.00	19.26	19.21	2341.99	2302.33	59.06	
10900.00	8800.00	8804.23	90.00	19.26	19.21	2441.96	2402.22	61.45	
11000.00	11304.00	13604.04	179.24	50.78	25.52	2504.22	2457.26	53.32	
11100.00	11304.00	13704.04	179.25	52.39	26.11	2504.22	2456.07	52.02	
11200.00	11304.00	13804.04	179.26	54.00	26.59	2504.21	2454.94	50.83	
11300.00	11304.00	13904.04	179.28	55.64	27.18	2504.20	2453.72	49.61	
11400.00	11304.00	14004.03	179.29	57.28	27.68	2504.19	2452.58	48.52	
11500.00	11304.00	14104.03	179.31	58.93	28.17	2504.18	2451.45	47.49	
11600.00	11304.00	14204.03	179.32	60.60	28.79	2504.18	2450.19	46.38	
11700.00	11304.00	14304.03	179.34	62.27	29.39	2504.17	2448.94	45.34	
11800.00	11304.00	14404.02	179.35	63.96	29.98	2504.16	2447.70	44.35	
11900.00	11304.00	14504.02	179.37	65.65	30.56	2504.15	2446.46	43.40	
12000.00	11304.00	14604.02	179.38	67.34	31.14	2504.15	2445.22	42.49	
12100.00	11304.00	14704.02	179.40	69.05	31.72	2504.14	2443.97	41.62	
12200.00	11304.00	14804.02	179.41	70.76	32.31	2504.13	2442.71	40.77	
12300.00	11304.00	14904.01	179.43	72.47	32.90	2504.13	2441.45	39.95	
12400.00	11304.00	15004.01	179.44	74.20	33.49	2504.12	2440.18	39.16	
12500.00	11304.00	15104.01	179.46	75.92	34.09	2504.11	2438.90	38.40	
12600.00	11304.00	15204.01	179.47	77.65	34.69	2504.11	2437.62	37.66	
12700.00	11304.00	15304.01	179.49	79.39	35.30	2504.10	2436.33	36.95	
12800.00	11304.00	15404.00	179.50	81.13	35.91	2504.10	2435.04	36.26	
12900.00	11304.00	15504.00	179.52	82.87	36.55	2504.09	2433.71	35.58	
13000.00	11304.00	15604.00	179.53	84.62	37.20	2504.08	2432.37	34.92	
13100.00	11304.00	15704.00	179.55	86.37	37.85	2504.08	2431.03	34.28	
13200.00	11304.00	15804.00	179.56	88.12	38.50	2504.07	2429.69	33.66	
13300.00	11304.00	15903.99	179.58	89.88	39.15	2504.07	2428.34	33.07	
13400.00	11304.00	16003.99	179.59	91.64	39.81	2504.06	2426.99	32.49	
13500.00	11304.00	16103.99	179.61	93.40	40.47	2504.06	2425.63	31.93	
13600.00	11304.00	16203.99	179.62	95.17	41.13	2504.06	2424.27	31.39	
13700.00	11304.00	16303.98	179.64	96.94	41.79	2504.05	2422.91	30.86	
13800.00	11304.00	16403.98	179.65	98.71	42.45	2504.05	2421.54	30.35	
13900.00	11304.00	16503.98	179.67	100.48	43.12	2504.04	2420.17	29.86	
14000.00	11304.00	16603.98	179.68	102.25	43.79	2504.04	2418.80	29.38	
14100.00	11304.00	16703.98	179.70	104.03	44.46	2504.04	2417.43	28.91	
14200.00	11304.00	16803.97	179.71	105.80	45.13	2504.03	2416.05	28.46	
14300.00	11304.00	16903.97	179.73	107.58	45.80	2504.03	2414.67	28.02	
14400.00	11304.00	17003.97	179.74	109.36	46.48	2504.03	2413.29	27.60	
14500.00	11304.00	17103.97	179.76	111.15	47.16	2504.02	2411.91	27.18	
14600.00	11304.00	17203.97	179.77	112.93	47.83	2504.02	2410.52	26.78	
14700.00	11304.00	17303.96	179.79	114.72	48.51	2504.02	2409.13	26.39	
14800.00	11304.00	17403.96	179.80	116.50	49.19	2504.02	2407.74	26.01	
14900.00	11304.00	17503.96	179.82	118.29	49.88	2504.01	2406.34	25.64	
15000.00	11304.00	17603.96	179.83	120.08	50.56	2504.01	2404.95	25.28	
15100.00	11304.00	17703.95	179.85	121.87	51.25	2504.01	2403.55	24.93	
15200.00	11304.00	17803.95	179.86	123.66	51.93	2504.01	2402.15	24.58	
15300.00	11304.00	17903.95	179.88	125.45	52.62	2504.01	2400.75	24.25	

Secondary Well : Rio Blanco 4-33 Fed Com 2H (p) (TVD Relative to Kelly Bushing (Primary) ; All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
15400.00	11304.00	18003.95	179.89	127.25	53.31	2504.01	2399.35	23.93	
15500.00	11304.00	18103.95	179.91	129.04	54.00	2504.00	2397.95	23.61	
15600.00	11304.00	18203.94	179.92	130.84	54.69	2504.00	2396.54	23.30	
15700.00	11304.00	18303.94	179.94	132.63	55.38	2504.00	2395.14	23.00	
15800.00	11304.00	18403.94	179.95	134.43	56.08	2504.00	2393.73	22.71	
15900.00	11304.00	18503.94	179.97	136.23	56.77	2504.00	2392.32	22.42	
16000.00	11304.00	18603.94	179.98	138.03	57.47	2504.00	2390.91	22.14	
16100.00	11304.00	18703.93	180.00	139.83	58.16	2504.00	2389.50	21.87	
16128.94	11304.00	18732.88	180.00	140.35	58.36	2504.00	2389.09	21.79	

Weatherford

Weatherford Drilling Services

GeoDec4 v2.1.0.0

Report Date:	March 05, 2015
Job Number:	
Customer:	Devon Energy
Well Name:	Rio Blanco 4-33 Fed Com 1H
API Number:	
Rig Name:	
Location:	Lea Co, NM Nad83 NME
Block:	
Engineer:	RWJ

NAD83 / New Mexico East (ftUS)
Projected Coordinate System
Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980
EPSG: 2257
North: 486168.29 US Survey Foot
East: 804086.94 US Survey Foot
Convergence: 0.46°
Declination: 7.23°
Total Correction: 6.77°
Datum Transformation: none

NAD83 (1986)
Geodetic Coordinate System
Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980
EPSG: 4269
Latitude: 32.33368 Degree
Longitude: -103.48264 Degree

HOBBS OCD
MAY 16 2016
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Geodetic Location WGS84

MSL Elevation	=	0 m
Latitude	=	32° 20' 01.25" N
Longitude	=	103° 28' 57.50" W

			[True North Offset]		
Magnetic Declination	=	7.23 deg			
Local Gravity	=	.9988 g	CheckSum	=	6674
Local Field Strength	=	48252 nT	Magnetic Vector X	=	23794 nT
Magnetic Dip	=	60.19 deg	Magnetic Vector Y	=	3020 nT
Magnetic Model	=	bggm2014.dat	Magnetic Vector Z	=	41869 nT
Run Date	=	July 15, 2015	Magnetic Vector H	=	23985 nT

Signed:_____ Date:_____