

UNORTHODOX
LOCATION

NOBBS Hobbs

Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

AUG 31 2015

APPLICATION FOR PERMIT TO DRILL OR REENTER

ATS-15-393

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

5. Lease Serial No.
NMNM116575

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
Rebel 20 Fed 5H

9. API Well No.

10. Field and Pool, or Exploratory

11. Sec., T. R. M. or Blk. and Survey or Area

Sec: 20 T24S R32E

12. County or Parish
Lea County

13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator Devon Energy Production Company, L.P.

3a. Address 333 W. Sheridan
Oklahoma City, OK 73102-5010

3b. Phone No. (include area code)
405.228.7203

4. Location of Well (Report location clearly and in accordance with any State requirements.)

At surface 314 FNL & 472 FWL, Unit D PP: 200 FNL & 810 FWL

At proposed prod. zone 330 FSL & 660 FWL, Unit M

14. Distance in miles and direction from nearest town or post office*
Approximately 21.75 miles East of Malaga, NM

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)

See attached map

16. No. of acres in lease
NMNM116575 - 640 ac

17. Spacing Unit dedicated to this well
160 ac

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.

See attached map

19. Proposed Depth
TVD: 10,725'
MD: 15,123'

20. BLM/BIA Bond No. on file
CO-1104; NBM-000801

pilot hole removed per Scott Schmidt

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3571.4' GL

22. Approximate date work will start*
08/02/2015

23. Estimated duration
45 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

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

25. Signature *Trina C. Couch*
Title Regulatory Analyst

Name (Printed/Typed)
Trina C. Couch

Date
02/03/2015

Approved by (Signature) *STEPHEN J. CAFFEY*

Name (Printed/Typed)

Date

Title FIELD MANAGER

Office CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

AUG 31 2015

RECEIVED

Removed per Scott Schmidt

Basin

*H₂S, water flows, loss of circulation, abnormal pressures, etc.

Devon Energy, Rebel 20 Fed 5H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1011900	13.375"	48	H-40	STC	1.66	3.74	11.15
12.25"	0	4450	9.625"	40	HCK-55	BTC	1.83	1.71	5.20
Option 1 4600'									
8.75"	0	15,123'	5.5"	17	P-110	LTC	1.67	2.07	2.44
Option 2									
8.75"	0	10,102'	7"	29	HCP-110	BTC	1.90	2.32	3.26
8.75"	10,102'	15,124'	5.5"	17	P-110	LTC	1.67	2.07	2.44
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Rebel 20 Fed 5H

3. Cementing Program

Casing	# Sk	Wt. lb/ gal	H:O gal/sk	Yld ft ³ / sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	1080	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	910	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod Casing Single Stage	570	11.9	12.89	2.31	n/a	1 st Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	330	12.5	10.86	1.96	30	2 nd Lead: (65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	1320	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Casing Two Stage Option	730	12.5	10.86	1.96	30	1 st Stage Lead: (65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	1320	14.5	5.31	1.2	25	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 4500 4650'					
	40	11.9	12.89	2.31	n/a	2 nd Stage Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	50	14.8	6.32	1.33	6	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
7 x 5-1/2" Single Stage Option	370	10.4	16.9	3.17	16	Lead: Tuned Light ® + 0.125 lb/sk Pol-E-Flake
	1320	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
7 x 5-1/2" Prod Casing Two Stage Option	340	10.4	16.9	3.17	16	1 st Stage Lead: Tuned Light ® + 0.125 lb/sk Pol-E-Flake
	1320	14.5	5.31	1.2	25	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 4500 4650'					
	20	10.4	16.9	3.17	16	2 nd Stage Lead: Tuned Light ® + 0.125 lb/sk Pol-E-Flake
	50	14.8	6.32	1.33	6	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

see
COA

Devon Energy, Rebel 20 Fed 5H

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	100%
9-5/8" Intermediate	0'	75%
5-1/2" Production Casing Option	3950'	25%
5-1/2" Production Casing Option – Two Stage	1 st Stage = 4500' / 2 nd Stage = 3950'	25%
7 x 5-1/2" Production Casing Option	3950'	25%
7 x 5-1/2" Production Casing Option – Two Stage	1 st Stage = 4500' / 2 nd Stage = 3950'	25%

~~Pilot Hole depth 12350ft-~~

KOP 10152ft

Pilot hole removed per Scott Schmidt

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft ³ /sack	Water gal/sk	Slurry Description and Cement Type
9952	12350	10	930	15.6	1.19	5.42	Class H + 0.5% BWOC HR-601 + 0.2% Halad-9

Devon Energy, Rebel 20 Fed 5H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other *		
			Annular	x	
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
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Devon Energy, Rebel 20 Fed 5H

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly (FMC Uni-head). This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. - Wellhead will be installed by FMC's representatives. - If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. - FMC representative will install the test plug for the initial BOP test. - FMC will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. - If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. - Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. - Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the FMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the FMC Uni-head. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

Devon Energy, Rebel 20 Fed 5H

	Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns
	See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,011' 900'	FW Gel	8.6-8.8	28-34	N/C
1,011'	4,450' 4,000'	Saturated Brine	10.0-10.2	28-34	N/C
4,450'	15,124'	Cut Brine	8.5-8.9	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

6. Logging and Testing Procedures

Logging, Coring and Testing	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
	Resistivity
	Density
X	CBL
X	Mud log
	PEX

Devon Energy, Rebel 20 Fed 5H

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	2,999 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

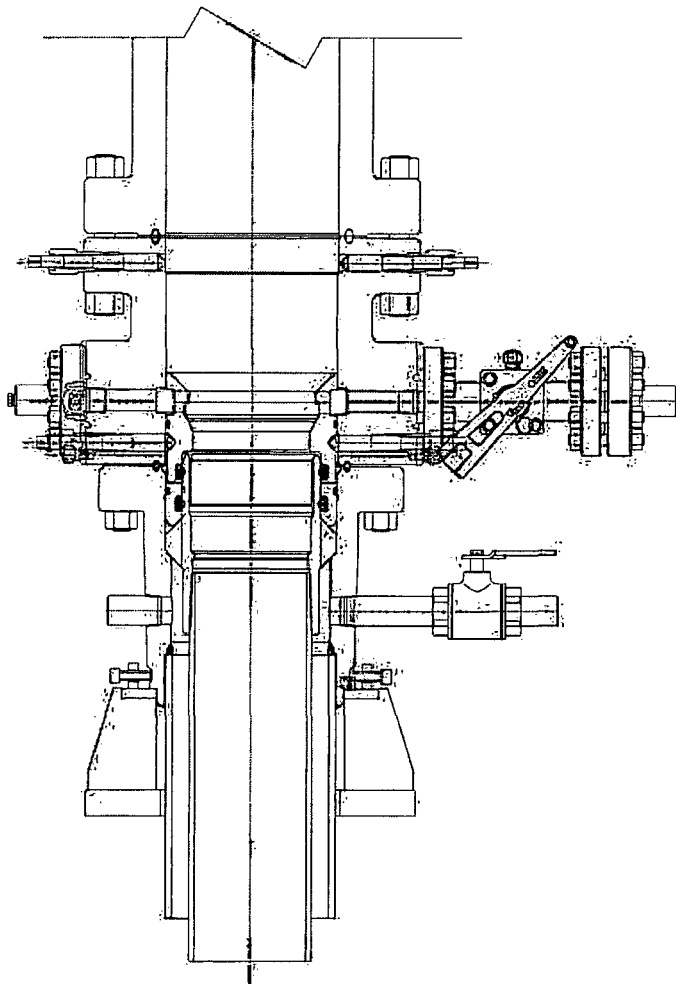
Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe



PRIMARY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648

REF: DM100161737
DM100151315

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REVISIONS

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

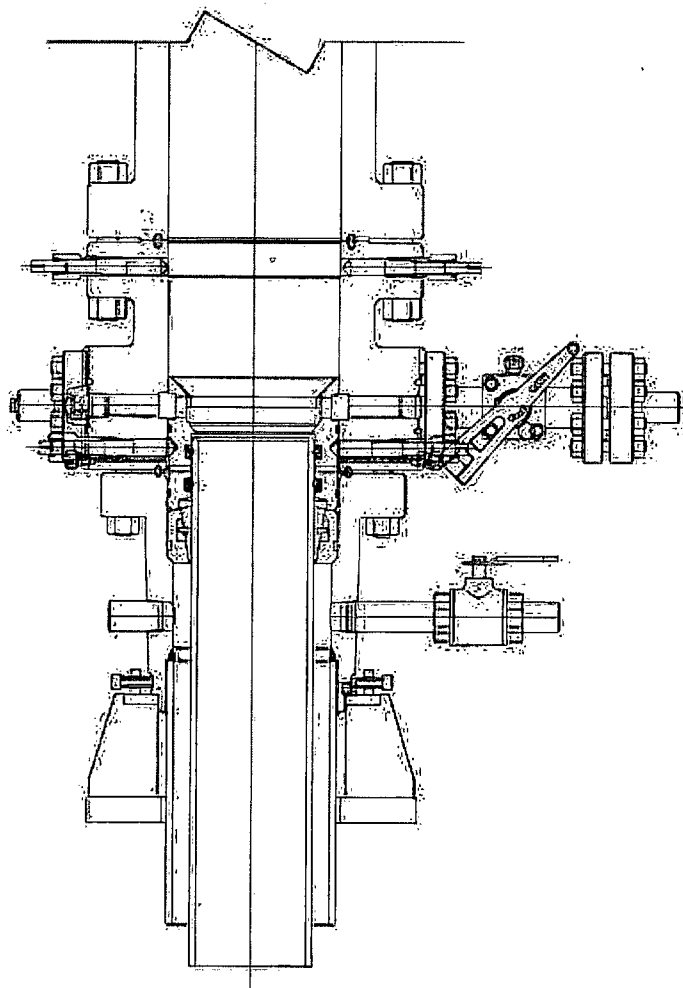
DESCRIPTION

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

DESIGNED BY	K. VU	05-08-13
DESIGNED BY	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



CONTINGENCY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

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		B	1-22-14				
		C	5-13-14				
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					DESIGN REVIEW K. TAHA	05-08-13	
					APPROVED BY R. HAMILTON	05-08-13	DRAWING NUMBER: DM100161771-2B

devon

Rebel 20 Fed 5H
Lea Co, NM

Plan Data for Rebel 20 Fed 5H Lateral

Plan Point Information:									
Dogleg Severity Unit: °/100.00ft									
MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
0.00	0.00	0.00	0.00	0.00	0.00	440454.19	736054.89	0.00	0.00
10152.50	0.00	0.00	10152.50	0.00	0.00	440454.19	736054.89	0.00	0.00
11057.35	90.49	177.16	10725.44	-577.10	28.58	439877.09	736083.47	577.81	10.00
15123.96	90.49	177.16	10691.00	-4638.59	229.71	435815.60	736284.60	4644.27	0.00

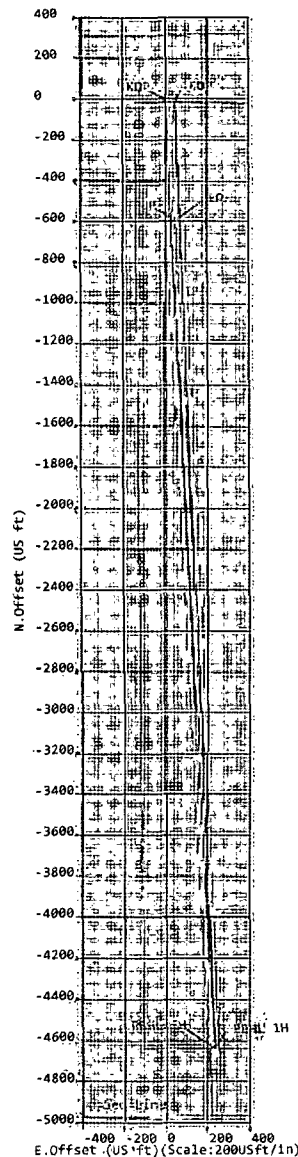
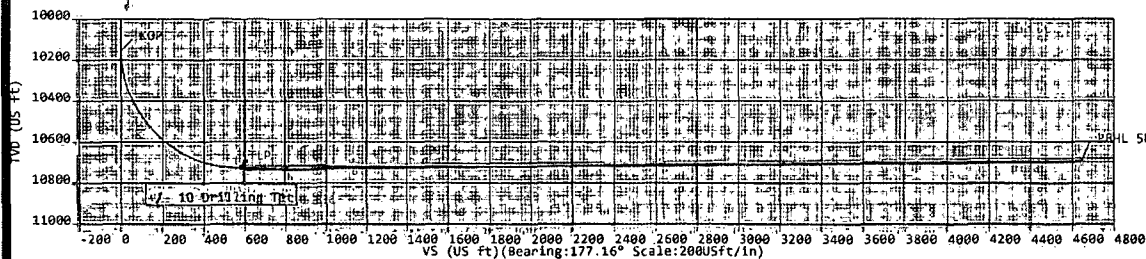
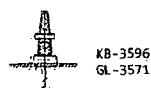
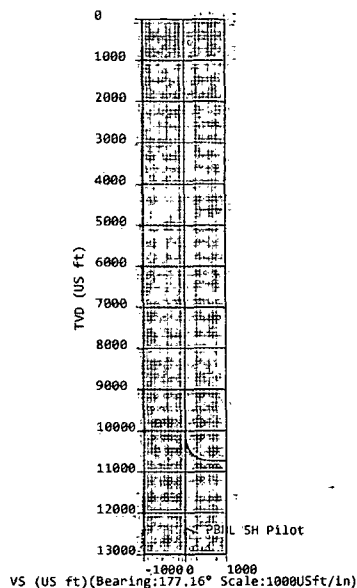
Plan Data for Rebel 20 Fed 5H Lateral

Slot: Rebel 20 Fed 5H
Position:
Offset is from Site centre
+N/-S: 15.42USft Northing: 440454.19USft Latitude: 32°12'33.5"
+E/-W: -48.09USft Easting: 736054.89USft Longitude: -103°42'13.5"
Elevation Above VMD: 3571.00USft

Plan Data for Rebel 20 Fed 5H Lateral

Target Set Information:
Name: Rebel 20 Fed 5H
Position offsets from Slot centre
Name TVD +N/-S +E/-W Northing Easting
(USft) (USft) (USft) (USft)
PBHL 5H 10691.00 -4638.59 229.71 435815.60 736284.60

Rebel 20 Fed 5H Pilot
Rebel 20 Federal 1H Lat
Rebel 20 Federal 1H Pilot
Rebel 20 Fed 5H Lateral



Weatherford

Sign Off: Russell Joyner

5D Plan Report

Devon Energy

Field Name: *Lea Co, NM Nad.83 NMEZ*
Site Name: *Rebel 20 Federal 1H. Fed 5H Pad*
Well Name: *Rebel 20 Fed 5H Lateral*
Plan: *P1:V1*

21 January 2015



Rebel 20 Fed 5H Lateral

Field Name	Map Units : US ft			Company Name : Devon Energy		
Lea Co. NM NAD 83 NMEZ	Vertical Reference Datum (VRD) : Mean Sea Level					
	Projected Coordinate System : NAD83 / New Mexico East (ftUS)					
	Comment :					
Site Name	Units : US ft	North Reference : Grid	Convergence Angle : 0.34			
	Position	Northing : 440438.77 US ft	Latitude : 32° 12' 33.39"			
		Easting : 736102.98 US ft	Longitude : -103° 42' 12.98"			
Rebel 20 Fed 5H Lateral	Elevation above Mean Sea Level: 3572.00 US ft					
	Comment :					
Slot Name	Position (Offsets relative to Site Centre)					
	+N / -S : 15.42 US ft	Northing : 440454.19 US ft	Latitude : 32° 12' 33.54"			
	+E / -W : -48.09 US ft	Easting : 736054.89 US ft	Longitude : -103° 42' 13.53"			
Rebel 20 Fed 5H	Slot TVD Reference : Ground Elevation					
	Elevation above Mean Sea Level : 3571.00 US ft					
	Comment :					
Well Name	Type : Sidetrack	UWI :	Plan : P1:V1			
	Parent : Rebel 20 Fed 5H Pilot	Tie Point Method : MD	Tie Point : 10152.50 US ft			
Rebel 20 Fed 5H Lateral	Rig Height : 25.00 US ft	Comment :				
	Drill Floor : 25.00 US ft					
	Relative to Mean Sea Level: 3596.00 US ft					
	Closure Distance : 4644.27 US ft	Closure Azimuth : 177.165°				
	Vertical Section (Position of Origin Relative to Slot)					
	+N / -S : 0.00 US ft	+E / -W : 0.00 US ft	Az : 177.16°			
	Magnetic Parameters					
	Model : BGGM	Field Strength : 48160.4nT	Dec : 7.34°	Dip : 60.04°	Date : 15/Jun/2015	

Target Set

Name : Rebel 20 Fed 5H **Number of Targets :** 1

Comment :

Target Name:	Position (Relative to Slot centre)		
PBHL 5H	+N / -S : -4638.59 US ft	Northing : 435815.60 US ft	Latitude : 32° 11' 47.63"
	+E / -W : 229.71 US ft	Easting : 736284.60 US ft	Longitude : -103° 42' 11.18"
Shape:	VRD (Drill Floor) : 10691.00 US ft		
Cuboid	Orientation Azimuth : 177.16°	Inclination : 0.49°	
	Dimensions Length : 8130.00 US ft	Breadth : 50.00 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 Drill Floor)											
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	Hold
10152.50	0.00	0.00	10152.50	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	KOP
11057.35	90.49	177.16	10725.44	-577.10	28.58	577.81	10.00	10.00	0.00	177.16	LP
15123.96	90.49	177.16	10691.00	-4638.59	229.71	4644.27	0.00	0.00	0.00	0.00	PBHL SH

Interpolated Points (Relative to Slot centre, TVD relative to Drill Floor)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northings (US ft)	Easting (US ft)		Comment
10100.00	0.00	0.00	10100.00	0.00	0.00	-0.00	0.00	440454.19	736054.89		
10152.50	0.00	0.00	10152.50	0.00	0.00	-0.00	0.00	440454.19	736054.89		KOP
10200.00	4.75	177.16	10199.95	-1.97	0.10	1.97	10.00	440452.22	736054.99		
10300.00	14.75	177.16	10298.38	-18.86	0.93	18.88	10.00	440435.33	736055.82		
10400.00	24.75	177.16	10392.37	-52.57	2.60	52.63	10.00	440401.62	736057.49		
10500.00	34.75	177.16	10479.08	-102.06	5.05	102.19	10.00	440352.13	736059.94		
10600.00	44.75	177.16	10555.87	-165.85	8.21	166.05	10.00	440288.34	736063.10		
10700.00	54.75	177.16	10620.40	-241.98	11.98	242.28	10.00	440212.21	736066.87		
10800.00	64.75	177.16	10670.71	-328.15	16.25	328.55	10.00	440126.04	736071.14		
10900.00	74.75	177.16	10705.28	-421.74	20.88	422.25	10.00	440032.45	736075.77		
11000.00	84.75	177.16	10723.05	-519.89	25.75	520.53	10.00	439934.30	736080.64		
11057.35	90.49	177.16	10725.44	-577.10	28.58	577.81	10.00	439877.09	736083.47		LP
11100.00	90.49	177.16	10725.08	-619.70	30.69	620.46	0.00	439834.49	736085.58		
11200.00	90.49	177.16	10724.23	-719.57	35.63	720.45	0.00	439734.62	736090.52		
11300.00	90.49	177.16	10723.38	-819.44	40.58	820.45	0.00	439634.75	736095.47		
11400.00	90.49	177.16	10722.54	-919.32	45.53	920.45	0.00	439534.87	736100.42		
11500.00	90.49	177.16	10721.69	-1019.19	50.47	1020.44	0.00	439435.00	736105.36		
11600.00	90.49	177.16	10720.84	-1119.07	55.42	1120.44	0.00	439335.12	736110.31		
11700.00	90.49	177.16	10720.00	-1218.94	60.36	1220.43	0.00	439235.25	736115.25		
11800.00	90.49	177.16	10719.15	-1318.81	65.31	1320.43	0.00	439135.38	736120.20		
11900.00	90.49	177.16	10718.30	-1418.69	70.26	1420.43	0.00	439035.50	736125.15		
12000.00	90.49	177.16	10717.45	-1518.56	75.20	1520.42	0.00	438935.63	736130.09		
12100.00	90.49	177.16	10716.61	-1618.44	80.15	1620.42	0.00	438835.75	736135.04		
12200.00	90.49	177.16	10715.76	-1718.31	85.09	1720.42	0.00	438735.88	736139.98		
12300.00	90.49	177.16	10714.91	-1818.19	90.04	1820.41	0.00	438636.00	736144.93		
12400.00	90.49	177.16	10714.07	-1918.06	94.99	1920.41	0.00	438536.13	736149.88		
12500.00	90.49	177.16	10713.22	-2017.93	99.93	2020.41	0.00	438436.26	736154.82		
12600.00	90.49	177.16	10712.37	-2117.81	104.88	2120.40	0.00	438336.38	736159.77		
12700.00	90.49	177.16	10711.53	-2217.68	109.82	2220.40	0.00	438236.51	736164.71		
12800.00	90.49	177.16	10710.68	-2317.56	114.77	2320.40	0.00	438136.63	736169.66		
12900.00	90.49	177.16	10709.83	-2417.43	119.71	2420.39	0.00	438036.76	736174.60		
13000.00	90.49	177.16	10708.99	-2517.30	124.66	2520.39	0.00	437936.89	736179.55		
13100.00	90.49	177.16	10708.14	-2617.18	129.61	2620.38	0.00	437837.01	736184.50		
13200.00	90.49	177.16	10707.29	-2717.05	134.55	2720.38	0.00	437737.14	736189.44		
13300.00	90.49	177.16	10706.45	-2816.93	139.50	2820.38	0.00	437637.26	736194.39		
13400.00	90.49	177.16	10705.60	-2916.80	144.44	2920.37	0.00	437537.39	736199.33		
13500.00	90.49	177.16	10704.75	-3016.67	149.39	3020.37	0.00	437437.52	736204.28		
13600.00	90.49	177.16	10703.91	-3116.55	154.34	3120.37	0.00	437337.64	736209.23		
13700.00	90.49	177.16	10703.06	-3216.42	159.28	3220.36	0.00	437237.77	736214.17		
13800.00	90.49	177.16	10702.21	-3316.30	164.23	3320.36	0.00	437137.89	736219.12		
13900.00	90.49	177.16	10701.36	-3416.17	169.17	3420.36	0.00	437038.02	736224.06		
14000.00	90.49	177.16	10700.52	-3516.04	174.12	3520.35	0.00	436938.15	736229.01		
14100.00	90.49	177.16	10699.67	-3615.92	179.07	3620.35	0.00	436838.27	736233.96		
14200.00	90.49	177.16	10698.82	-3715.79	184.01	3720.35	0.00	436738.40	736238.90		
14300.00	90.49	177.16	10697.98	-3815.67	188.96	3820.34	0.00	436638.52	736243.85		
14400.00	90.49	177.16	10697.13	-3915.54	193.90	3920.34	0.00	436538.65	736248.79		
14500.00	90.49	177.16	10696.28	-4015.41	198.85	4020.33	0.00	436438.78	736253.74		
14600.00	90.49	177.16	10695.44	-4115.29	203.80	4120.33	0.00	436338.90	736258.69		
14700.00	90.49	177.16	10694.59	-4215.16	208.74	4220.33	0.00	436239.03	736263.63		
14800.00	90.49	177.16	10693.74	-4315.04	213.69	4320.32	0.00	436139.15	736268.58		
14900.00	90.49	177.16	10692.90	-4414.91	218.63	4420.32	0.00	436039.28	736273.52		

5D Plan Report

Interpolated Points (Relative to Slot Centre, TVD relative to Drill Floor)									
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)
15000.00	90.49	177.16	10692.05	-4514.78	223.58	4520.32	0.00	435939.41	736278.47
15100.00	90.49	177.16	10691.20	-4614.66	228.52	4620.31	0.00	435839.53	736283.41
15123.96	90.49	177.16	10691.00	-4638.59	229.71	4644.27	0.00	435815.60	736284.60
									PBHL 5H

SD 7.5.9 : 21 January 2015, 19:01:05 UTC

5D Anti-Collision Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*

Site Name: *Rebel 20 Federal 1H. Fed 5H Pad*

Well Name: *Rebel 20 Fed 5H Lateral*

21 January 2015





Weatherford

Rebel 20 Fed 5H Lateral

Field Name Leaf 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 Rebel 20 Federal 1H Fed 5H Pad	Units : US ft	North Reference : Grid	Convergence Angle : 0.34	
	Position	Northing : 440438.77 US ft	Latitude : 32° 12' 33.39"	
	Easting : 736102.98 US ft	Longitude : -103° 42' 12.98"		
Elevation above Mean Sea Level : 3572.00 US ft				
Comment :				
Slot Name Rebel 20 Fed 5H	Position (Offsets relative to Site Centre)			
	+N / -S : 15.42 US ft	Northing : 440454.19 US ft	Latitude : 32° 12' 33.54"	
	+E / -W : -48.09 US ft	Easting : 736054.89 US ft	Longitude : -103° 42' 13.53"	
Slot TVD Reference : Ground Elevation				
Elevation above Mean Sea Level : 3571.00 US ft				
Comment :				
Well Name Rebel 20 Fed 5H Lateral	Type : Sidetrack		UWI :	Plan : Working Plan
	Parent : Rebel 20 Fed 5H Pilot		Tie Point Method : MD	Tie Point : 10152.50 US ft
	Rig Height Drill Floor : 25.00 US ft		Comment :	
	Relative to Mean Sea Level : 3596.00 US ft			
	Closure Distance : 4644.27 US ft		Closure Azimuth : 177.165°	
	Vertical Section (Position of Origin Relative to Slot)			
	+N / -S : 0.00 US ft		+E / -W : 0.00 US ft	Az : 177.16°
	Magnetic Parameters			
Model : BGGM	Field Strength : 48160.4nT	Dec : 7.34°	Dip : 60.04°	Date : 15/Jun/2015

Collision / Uncertainty Analysis				
Primary Well	Start MD (US ft)	End MD (US ft)	Collision Risk Interval	No. of Std Deviations in Error Computation
Rebel 20 Fed 5H Lateral (p)	0.00	15123.96	100.00	2

Secondary Well Names
Rebel 20 Federal 1H Lat (p)
Rebel 20 Federal 1H Pilot (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

AG Filter Info : The following filter(s) have been applied: Separation Factor

SD Anti-Collision Report

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

Anti-Collision Proximity Summary (TVD relative to Drill Floor)

Secondary Well Name	Pri MD (US ft)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
Rebel 20 Federal 1H Pilot (p)	10297.81	10297.26	10296.26	47.27	0.79	1.02	SF (Med)
Rebel 20 Federal 1H Lat. (p)	15123.96	12873.58	10691.00	2182.00	2109.44	30.07	

Primary Well: Rebel 20 Fed 5H Lateral (p) (TVD Relative to Drill Floor, 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
10152.50	10152.50	107.78	22.71	22.71	Rebel 20 Federal 1H Pilot (p)	50.50	4.55	1.10	SF (Med)
10252.50	10251.99	280.71	22.88	22.67	Rebel 20 Federal 1H Pilot (p)	48.13	1.84	1.04	SF (Med)
10297.81	10296.26	269.36	22.95	22.57	Rebel 20 Federal 1H Pilot (p)	47.27	0.79	1.02	SF (Med)
10352.50	10348.46	251.56	23.04	22.25	Rebel 20 Federal 1H Pilot (p)	50.16	3.43	1.07	SF (Med)
10452.50	10438.98	222.78	23.20	21.60	Rebel 20 Federal 1H Pilot (p)	75.59	28.52	1.61	SF (Lo)
10552.50	10520.79	207.96	23.39	20.67	Rebel 20 Federal 1H Pilot (p)	125.51	78.05	2.64	
10652.50	10591.41	201.48	23.65	19.58	Rebel 20 Federal 1H Pilot (p)	192.77	145.06	4.04	
10752.50	10648.70	199.38	24.00	18.50	Rebel 20 Federal 1H Pilot (p)	272.83	224.88	5.69	
10852.50	10690.90	201.04	24.45	17.58	Rebel 20 Federal 1H Pilot (p)	362.31	314.25	7.54	
10952.50	10716.75	210.85	25.01	17.02	Rebel 20 Federal 1H Pilot (p)	458.13	409.95	9.51	
11052.50	10725.46	270.00	25.66	16.95	Rebel 20 Federal 1H Pilot (p)	557.19	508.97	11.56	
11152.50	10724.63	276.69	26.44	17.11	Rebel 20 Federal 1H Pilot (p)	656.88	608.65	13.62	
11252.50	10723.78	277.70	27.30	17.30	Rebel 20 Federal 1H Pilot (p)	756.65	708.39	15.68	
11352.50	10722.94	278.71	28.27	17.51	Rebel 20 Federal 1H Pilot (p)	856.47	808.20	17.74	
11452.50	10722.09	279.71	29.31	17.75	Rebel 20 Federal 1H Pilot (p)	956.33	908.04	19.80	
11552.50	10721.24	280.70	30.44	18.01	Rebel 20 Federal 1H Pilot (p)	1056.22	1007.91	21.87	
11652.50	10720.40	281.69	31.63	18.30	Rebel 20 Federal 1H Pilot (p)	1156.12	1107.81	23.93	
11752.50	10719.55	282.67	32.88	18.61	Rebel 20 Federal 1H Pilot (p)	1256.04	1207.72	25.99	
11852.50	10718.70	283.65	34.18	18.94	Rebel 20 Federal 1H Pilot (p)	1355.97	1307.64	28.05	
11952.50	10717.86	284.61	35.53	19.29	Rebel 20 Federal 1H Pilot (p)	1455.91	1407.57	30.12	
12052.50	10717.01	285.57	36.93	19.67	Rebel 20 Federal 1H Pilot (p)	1555.86	1507.51	32.18	
12152.50	10716.16	286.52	38.36	20.09	Rebel 20 Federal 1H Pilot (p)	1655.81	1607.47	34.25	

SD Anti-Collision Report

Primary Well: Rebel 20 Fed 5H Lateral (p) (TVD Relative to Drill Floor: 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
12252.50	10715.32	287.46	39.83	20.53	Rebel 20 Federal 1H Pilot (p)	1755.77	1707.43	36.32	
12352.50	10714.47	288.38	41.33	20.99	Rebel 20 Federal 1H Pilot (p)	1855.73	1807.37	38.37	
12452.50	10713.62	289.30	42.85	21.46	Rebel 20 Federal 1H Pilot (p)	1955.70	1907.27	40.39	
12552.50	10712.78	290.21	44.40	21.92	Rebel 20 Federal 1H Pilot (p)	2055.67	2007.20	42.41	
12652.50	10711.93	291.11	45.97	22.33	Rebel 20 Federal 1H Pilot (p)	2155.64	2107.17	44.48	
12752.50	10711.08	292.00	47.56	22.91	Rebel 20 Federal 1H Pilot (p)	2255.61	2207.12	46.51	
12852.50	10710.24	292.88	49.17	23.42	Rebel 20 Federal 1H Pilot (p)	2355.59	2307.09	48.57	
12952.50	10709.39	359.41	50.80	23.91	Rebel 20 Federal 1H Lat (p)	2211.19	2166.16	49.10	
13052.50	10708.54	359.44	52.43	24.46	Rebel 20 Federal 1H Lat (p)	2209.84	2163.66	47.85	
13152.50	10707.69	359.46	54.09	25.00	Rebel 20 Federal 1H Lat (p)	2208.49	2161.12	46.62	
13252.50	10706.85	359.49	55.75	25.52	Rebel 20 Federal 1H Lat (p)	2207.14	2158.58	45.45	
13352.50	10706.00	359.51	57.43	26.10	Rebel 20 Federal 1H Lat (p)	2205.79	2156.04	44.34	
13452.50	10705.15	359.54	59.11	26.70	Rebel 20 Federal 1H Lat (p)	2204.45	2153.44	43.22	
13552.50	10704.31	359.56	60.81	27.27	Rebel 20 Federal 1H Lat (p)	2203.10	2150.87	42.18	
13652.50	10703.46	359.59	62.51	27.84	Rebel 20 Federal 1H Lat (p)	2201.75	2148.30	41.19	
13752.50	10702.61	359.62	64.22	28.40	Rebel 20 Federal 1H Lat (p)	2200.41	2145.72	40.24	
13852.50	10701.77	359.64	65.94	28.97	Rebel 20 Federal 1H Lat (p)	2199.06	2143.14	39.32	
13952.50	10700.92	359.67	67.66	29.55	Rebel 20 Federal 1H Lat (p)	2197.72	2140.55	38.44	
14052.50	10700.07	359.69	69.39	30.17	Rebel 20 Federal 1H Lat (p)	2196.37	2137.95	37.60	
14152.50	10699.23	359.72	71.13	30.80	Rebel 20 Federal 1H Lat (p)	2195.03	2135.33	36.77	
14252.50	10698.38	359.75	72.87	31.43	Rebel 20 Federal 1H Lat (p)	2193.68	2132.67	35.96	
14352.50	10697.53	359.77	74.62	32.07	Rebel 20 Federal 1H Lat (p)	2192.34	2130.02	35.18	
14452.50	10696.69	359.80	76.37	32.70	Rebel 20 Federal 1H Lat (p)	2190.99	2127.36	34.43	
14552.50	10695.84	359.82	78.13	33.34	Rebel 20 Federal 1H Lat (p)	2189.65	2124.69	33.71	
14652.50	10694.99	359.85	79.89	33.99	Rebel 20 Federal 1H Lat (p)	2188.31	2122.02	33.01	
14752.50	10694.15	359.87	81.65	34.63	Rebel 20 Federal 1H Lat (p)	2186.97	2119.35	32.34	

5D Anti-Collision Report

Primary Well: Rebel 20 Fed 5H Lateral (p) (TVD Relative to Drill Floor: 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
14852.50	10693.30	359.90	83.42	35.28	Rebel 20 Federal 1H Lat (p)	2185.63	2116.67	31.69	
14952.50	10692.45	359.93	85.19	35.93	Rebel 20 Federal 1H Lat (p)	2184.29	2113.98	31.07	
15052.50	10691.61	359.95	86.96	36.59	Rebel 20 Federal 1H Lat (p)	2182.94	2111.30	30.47	
15123.96	10691.00	359.97	88.23	37.06	Rebel 20 Federal 1H Lat (p)	2182.00	2109.44	30.07	

Secondary Well: Rebel 20 Federal 1H Lat (p) (TVD Relative to Drill Floor: (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
10152.50	8470.04	8669.20	171.64	20.03	12.21	1740.72	1711.96	60.52	
10252.50	8472.04	8677.25	356.71	20.09	12.18	1834.90	1806.00	63.48	
10352.50	8474.62	8688.36	357.65	20.16	12.13	1922.70	1893.72	66.34	
10452.50	8477.50	8702.00	358.16	20.25	12.06	2002.24	1973.25	69.05	
10552.50	8480.42	8717.70	358.46	20.38	11.98	2071.95	2042.92	71.39	
10652.50	8483.15	8735.03	358.66	20.52	11.90	2130.53	2101.50	73.37	
10752.50	8485.50	8753.61	358.79	20.66	11.88	2176.98	2147.89	74.83	
10852.50	8487.32	8773.10	358.87	20.82	11.85	2210.51	2181.41	75.95	
10952.50	8488.51	8793.16	358.92	20.97	11.81	2230.59	2201.40	76.43	
11052.50	8489.00	8813.51	358.93	21.14	11.84	2236.89	2207.55	76.22	
11152.50	8489.48	8910.72	358.96	22.05	12.05	2235.55	2205.83	75.21	
11252.50	8489.97	9010.70	358.98	23.08	12.32	2234.20	2204.02	74.05	
11352.50	8490.46	9110.69	359.01	24.20	12.62	2232.84	2202.15	72.76	
11452.50	8490.95	9210.68	359.03	25.41	12.95	2231.48	2200.22	71.39	
11552.50	8491.45	9310.66	359.06	26.69	13.31	2230.13	2198.24	69.93	
11652.50	8491.94	9410.65	359.08	28.04	13.71	2228.77	2196.20	68.42	
11752.50	8492.43	9510.63	359.11	29.44	14.13	2227.42	2194.11	66.87	
11852.50	8492.92	9610.62	359.13	30.88	14.57	2226.06	2191.98	65.31	
11952.50	8493.42	9710.61	359.16	32.37	15.04	2224.71	2189.81	63.74	
12052.50	8493.91	9810.59	359.18	33.89	15.52	2223.35	2187.60	62.18	
12152.50	8494.40	9910.58	359.21	35.44	16.02	2222.00	2185.35	60.63	
12252.50	8494.89	10010.57	359.23	37.01	16.53	2220.65	2183.03	59.03	
12352.50	8495.39	10110.55	359.26	38.61	17.09	2219.30	2180.66	57.44	
12452.50	8495.88	10210.54	359.28	40.23	17.68	2217.94	2178.25	55.87	
12552.50	8496.37	10310.52	359.31	41.87	18.22	2216.59	2175.88	54.45	
12652.50	8496.87	10410.51	359.34	43.53	18.82	2215.24	2173.52	53.10	
12752.50	8497.36	10510.50	359.36	45.20	19.42	2213.89	2171.01	51.63	
12852.50	8497.85	10610.48	359.39	46.88	20.02	2212.54	2168.56	50.31	
12952.50	8498.34	10710.47	359.41	48.57	20.56	2211.19	2166.16	49.10	
13052.50	8498.84	10810.45	359.44	50.28	21.19	2209.84	2163.66	47.85	
13152.50	8499.33	10910.44	359.46	51.99	21.84	2208.49	2161.12	46.62	
13252.50	8499.82	11010.43	359.49	53.71	22.48	2207.14	2158.58	45.45	
13352.50	8500.31	11110.41	359.51	55.44	23.12	2205.79	2156.04	44.34	
13452.50	8500.81	11210.40	359.54	57.18	23.76	2204.45	2153.44	43.22	
13552.50	8501.30	11310.38	359.56	58.92	24.41	2203.10	2150.87	42.18	
13652.50	8501.79	11410.37	359.59	60.67	25.06	2201.75	2148.30	41.19	
13752.50	8502.28	11510.36	359.62	62.42	25.72	2200.41	2145.72	40.24	
13852.50	8502.78	11610.34	359.64	64.18	26.38	2199.06	2143.14	39.32	
13952.50	8503.27	11710.33	359.67	65.94	27.04	2197.72	2140.55	38.44	
14052.50	8503.76	11810.31	359.69	67.71	27.71	2196.37	2137.95	37.60	
14152.50	8504.25	11910.30	359.72	69.48	28.38	2195.03	2135.33	36.77	
14252.50	8504.75	12010.29	359.75	71.26	29.05	2193.68	2132.67	35.96	
14352.50	8505.24	12110.27	359.77	73.03	29.73	2192.34	2130.02	35.18	
14452.50	8505.73	12210.26	359.80	74.82	30.41	2190.99	2127.36	34.43	
14552.50	8506.22	12310.24	359.82	76.60	31.09	2189.65	2124.69	33.71	
14652.50	8506.72	12410.23	359.85	78.39	31.77	2188.31	2122.02	33.01	

5D Anti-Collision Report

Secondary Well (Rebel 20 Federal 1H Pilot (p)) (TVD Relative to Drill Floor (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
14752.50	8507.21	12510.22	359.87	80.17	32.46	2186.97	2119.35	32.34	
14852.50	8507.70	12610.20	359.90	81.97	33.15	2185.63	2116.67	31.69	
14952.50	8508.20	12710.19	359.93	83.76	33.84	2184.29	2113.98	31.07	
15052.50	8508.69	12810.18	359.95	85.55	34.53	2182.94	2111.30	30.47	
15123.96	8509.00	12873.58	359.97	86.69	34.97	2182.00	2109.44	30.07	

Secondary Well (Rebel 20 Federal 1H Pilot (p)) (TVD Relative to Drill Floor (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
10152.50	10152.50	10153.50	107.78	22.71	22.71	50.50	4.55	1.10	SF (Med)
10252.50	10251.99	10252.99	280.71	22.94	22.94	48.13	1.84	1.04	SF (Med)
10297.81	10296.26	10297.26	269.36	23.03	23.03	47.27	0.79	1.02	SF (Med)
10352.50	10348.46	10349.46	251.56	23.15	23.15	50.16	3.43	1.07	SF (Med)
10452.50	10438.98	10439.98	222.78	23.36	23.36	75.59	26.52	1.61	SF (Lo)
10552.50	10520.79	10521.79	207.96	23.54	23.54	125.51	78.05	2.64	
10652.50	10591.41	10592.41	201.48	23.70	23.70	192.77	145.06	4.04	
10752.50	10648.70	10649.70	199.38	23.83	23.83	272.83	224.88	5.69	
10852.50	10690.90	10691.90	201.04	23.92	23.92	362.31	314.25	7.54	
10952.50	10716.75	10717.75	210.85	23.98	23.98	458.13	409.95	9.51	
11052.50	10725.46	10726.46	270.00	24.00	24.00	557.19	508.97	11.56	
11152.50	10724.63	10725.63	276.69	24.00	24.00	656.88	608.65	13.62	
11252.50	10723.78	10724.78	277.70	24.00	24.00	756.65	708.39	15.68	
11352.50	10722.94	10723.94	278.71	23.99	23.99	856.47	808.20	17.74	
11452.50	10722.09	10723.09	279.71	23.99	23.99	956.33	908.04	19.80	
11552.50	10721.24	10722.24	280.70	23.99	23.99	1056.22	1007.91	21.87	
11652.50	10720.40	10721.40	281.69	23.99	23.99	1156.12	1107.81	23.93	
11752.50	10719.55	10720.55	282.67	23.99	23.99	1256.04	1207.72	25.99	
11852.50	10718.70	10719.70	283.65	23.98	23.98	1355.97	1307.64	28.05	
11952.50	10717.86	10718.86	284.61	23.98	23.98	1455.91	1407.57	30.12	
12052.50	10717.01	10718.01	285.57	23.98	23.98	1555.86	1507.51	32.18	
12152.50	10716.16	10717.16	286.52	23.98	23.98	1655.81	1607.47	34.25	
12252.50	10715.32	10716.32	287.46	23.98	23.98	1755.77	1707.43	36.32	
12352.50	10714.47	10715.47	288.38	23.97	23.97	1855.73	1807.37	38.37	
12452.50	10713.62	10714.62	289.30	23.97	23.97	1955.70	1907.27	40.39	
12552.50	10712.78	10713.78	290.21	23.97	23.97	2055.67	2007.20	42.41	
12652.50	10711.93	10712.93	291.11	23.97	23.97	2155.64	2107.17	44.48	
12752.50	10711.08	10712.08	292.00	23.97	23.97	2255.61	2207.12	46.51	
12852.50	10710.24	10711.24	292.88	23.97	23.97	2355.59	2307.09	48.57	
12952.50	10709.39	10710.39	293.74	23.96	23.96	2455.57	2407.01	50.57	
13052.50	10708.54	10709.54	294.60	23.96	23.96	2555.54	2507.05	52.70	
13152.50	10707.69	10708.69	295.44	23.96	23.96	2655.52	2607.00	54.73	
13252.50	10706.85	10707.85	296.27	23.96	23.96	2755.50	2706.97	56.66	
13352.50	10706.00	10707.00	297.09	23.96	23.96	2855.49	2806.89	58.76	
13452.50	10705.15	10706.15	297.90	23.95	23.95	2955.47	2906.81	60.74	
13552.50	10704.31	10705.31	298.69	23.95	23.95	3055.45	3006.74	62.72	
13652.50	10703.46	10704.46	299.48	23.95	23.95	3155.44	3106.68	64.72	
13752.50	10702.61	10703.61	300.25	23.95	23.95	3255.42	3206.64	66.72	
13852.50	10701.77	10702.77	301.01	23.95	23.95	3355.41	3306.59	68.73	
13952.50	10700.92	10701.92	301.76	23.94	23.94	3455.40	3406.55	70.74	
14052.50	10700.07	10701.07	302.49	23.94	23.94	3555.38	3506.51	72.75	
14152.50	10699.23	10700.23	303.22	23.94	23.94	3655.37	3606.47	74.75	
14252.50	10698.38	10699.38	303.93	23.94	23.94	3755.36	3706.43	76.75	
14352.50	10697.53	10698.53	304.63	23.94	23.94	3855.35	3806.39	78.75	
14452.50	10696.69	10697.69	305.32	23.93	23.93	3955.34	3906.35	80.74	
14552.50	10695.84	10696.84	306.00	23.93	23.93	4055.33	4006.30	82.72	
14652.50	10694.99	10695.99	306.66	23.93	23.93	4155.32	4106.26	84.70	
14752.50	10694.15	10695.15	307.32	23.93	23.93	4255.31	4206.21	86.68	
14852.50	10693.30	10694.30	307.96	23.93	23.93	4355.30	4306.17	88.65	
14952.50	10692.45	10693.45	308.59	23.93	23.93	4455.29	4406.12	90.61	

5D Anti-Collision Report

Secondary Well: Rebel 20 Federal 1st Pilot (B) (TVD Relative to Drill Floor (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
15052.50	10691.61	10692.61	309.22	23.92	23.92	4555.28	4506.07	92.57	
15123.96	10691.00	10692.00	309.65	23.92	23.92	4626.74	4577.50	93.97	

**Weatherford****Weatherford Drilling Services**

GeoDec4 v2.1.0.0

Report Date: January 21, 2015

Job Number: _____

Customer: Devon Energy

Well Name: Rebel 20-Fed 5H

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: 440454.19 US Survey Foot

East: 736054.89 US Survey Foot

Convergence: 0.34°

Declination: 7.34°

Total Correction: 7.00°

Datum Transformation: none

NAD83 (1986)

Geodetic Coordinate System

Datum: North American Datum 1983 (1986)

Ellipsoid: GRS 1980

EPSG: 4269

Latitude: 32.209318 Degree

Longitude: -103.70376 Degree

Geodetic Location WGS84

MSL Elevation = 0 m

Latitude = 32° 12' 33.54" N

Longitude = 103° 42' 13.53" W

Magnetic Declination = 7.34 deg

[[True North Offset]]

Local Gravity = .9988 g

Checksum = 6444

Local Field Strength = 48160 nT

Magnetic Vector X = 23853 nT

Magnetic Dip = 60.04 deg

Magnetic Vector Y = 3072 nT

Magnetic Model = bggm2014.dat

Magnetic Vector Z = 41726 nT

Run Date = June 15, 2015

Magnetic Vector H = 24050 nT

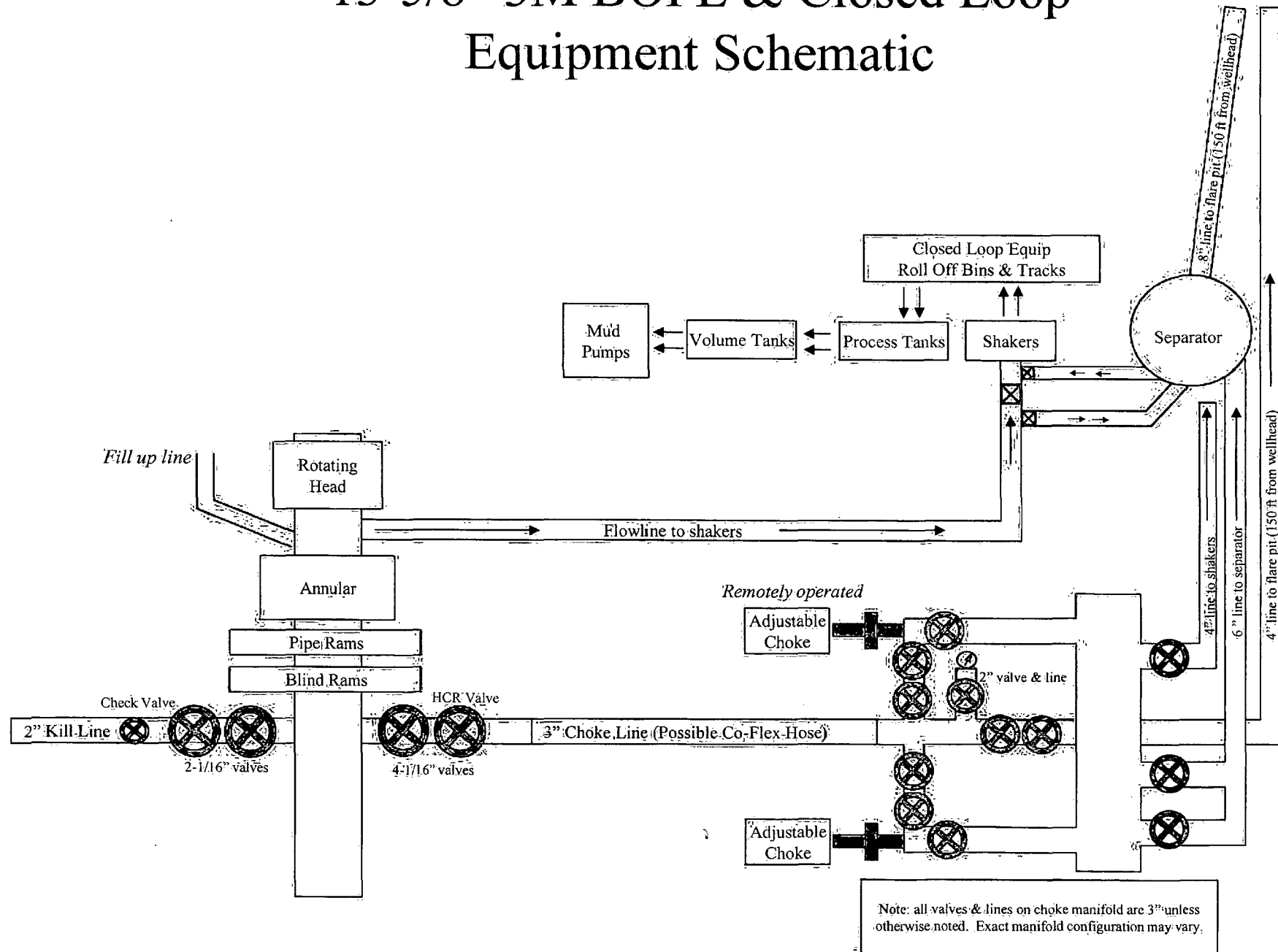
Signed: _____

Date: _____

© 2013 Weatherford

Warning: This information is controlled; and any printed version is deemed as uncontrolled unless suitably endorsed by a controlling authority or accompanied by a controlled table of contents in order to ensure adequate revision control.

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



NOTES REGARDING BLOWOUT PREVENTERS

Devon Energy Production Company, L.P.
Rebel 20 Fed 5H

1. Drilling Nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Wear ring will be properly installed in head.
3. Blowout preventer and all associated filings will be in operable condition to withstand a minimum of 3000psi working pressure.
4. All fittings will be flanged.
5. A fill bore safety valve tested to a minimum of 3000psi WP with proper thread connections will be available on the rotary rig floor at all times.
6. All choke lines will be anchored to prevent movement.
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
8. Will maintain a kelly cock attached to the kelly.
9. Hand wheels and wrenches will be properly installed and tested for safe operation.
10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.



Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Heimerich & 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.

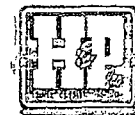
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

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 Brittonmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com



RIG 212



QUALITY DOCUMENT

**PHOENIX RUBBER
INDUSTRIAL LTD.**

 6728 Szeged, Budapesti út 10, Hungary • H-6701 Szeged, P. O. Box 152
 Phone: (3662) 566-737 • Fax: (3662) 566-738

 SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44, Hungary • H-1440 Budapest, P. O. Box 26
 Phone: (361) 456-4200 • Fax: (361) 217-2972, 456-4273 • www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.				P.O. N°: 1519FA-871	
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH: 11,43 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 4 1/16" Flange end	720 719		AISI 4130	C7626	
			AISI 4130	47357	
API Spec 16 C Temperature rate: "B"					
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
Date: 29. April. 2002.		Inspector		Quality Control PHOENIX RUBBER Industrial Ltd. Hose Inspection and Pressure Testing PHOENIX RUBBER G.C.	

40920-0-00015 N800C 14094-68

8	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00
7	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00
6	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00
5	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00
4	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00
3	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00
2	CN	10.0000	0.00	14.00
	RD	10.0000	0.00	14.00
	SL	10.0000	0.00	14.00

[Signature]
PHOENIX RUBBER
 Industrial Ltd.
 Hose Inspection and
 Certification Dept.

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.

H&P Flex Rig Location Layout

