

HOBBS OCD

JAN 19 2017

RECEIVED

Submit 1 Copy To Appropriate District Office
District I
 1625 N. French Dr., Hobbs, NM 88240
District II
 1301 W. Grand Ave., Artesia, NM 88210
District III
 1000 Rio Brazos Rd., Aztec, NM 87410
District IV
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
 Energy, Minerals and Natural Resources

Form C-103
 October 13, 2009

OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

WELL API NO. 30-025-42992	
5. Indicate Type of Lease STATE ☒ FEE ☐	
6. State Oil & Gas Lease No.	
7. Lease Name or Unit Agreement Name Red Raider BKS State	
8. Well Number 4H	
9. OGRID Number 229137	
10. Pool name or Wildcat Red Hills; Bone Spring, North	

SUNDRY NOTICES AND REPORTS ON WELLS
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐
2. Name of Operator COG Operating LLC
3. Address of Operator 2208 W. Main Street, Artesia, NM 88210
4. Well Location Unit Letter <u>O</u> : <u>250</u> feet from the <u>South</u> line and <u>1650</u> feet from the <u>East</u> line Section <u>25</u> Township <u>24S</u> Range <u>33E</u> NMPM Lea County

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
 3508.5'

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:
 PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
 TEMPORARILY ABANDON ☐ CHANGE PLANS ☒
 PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
 DOWNHOLE COMMINGLE ☐
 OTHER: ☒ BHL Change

SUBSEQUENT REPORT OF:
 REMEDIAL WORK ☐ ALTERING CASING ☐
 COMMENCE DRILLING OPNS. ☐ P AND A ☐
 CASING/CEMENT JOB ☐
 OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

COG Operating LLC respectfully requests approval for the following changes to the original approved APD.

BHL

From: 330' FNL & 1650' FEL Section 25, T24S, R33E
 To: 230' FNL & 1545' FEL Section 25, T24S, R33E

DRILLING CHANGES

- * Operator will drill 17.5" surface hole to 1250'. Run 13-3/8" 54.5# J55 BTC casing to TD and cement to surface with 800 sx of cement.
- * Operator will drill 12.25" intermediate hole to 5,275'. Run 9-5/8" 40# J55/L80 BTC to TD and cement to surface with 1200 sx of cement.
- * Operator will drill 8.75" production hole to TD= 14,045'. Run 5.5" 17# P110 BTC to TD and tie back 500' into intermediate casing with 2000 sx of cement.

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Maye Reyes TITLE: Regulatory Analyst DATE: 1/18/2017

Type or print name: Maye Reyes E-mail address: mreyes1@conchoresources.com PHONE: (575) 748-6945

For State Use Only

APPROVED BY: Maye Brown TITLE: AO/II DATE: 1/19/2017

Conditions of Approval (if any):

[Handwritten signature]

Concho Operating

DrilTech, LLC

SURFACE LOCATION

US State Plane 1927 (Exact solution)
New Mexico East 3001

Elevation: GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)

Northing	Easting	Latitude	Longitude
430831.60	750902.52	32.182°N	103.522°W

Lea County, NM (Nad 27)
Red Raider BKS State 4H
Well #4H
Section 25: T24S R33E
Wellbore #1
Plan #2
Noram 23

SECTION DETAILS

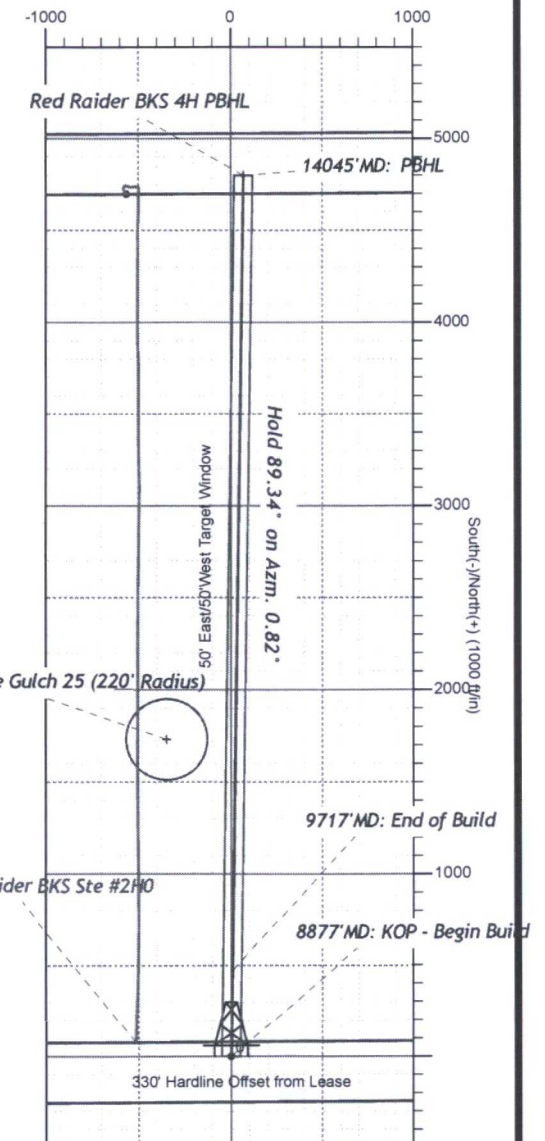
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8972.57	0.00	0.00	8972.57	0.00	0.00	0.00	0.00	0.00
9717.05	89.34	0.82	9450.00	471.90	6.73	12.00	0.82	471.95
14044.93	89.34	0.82	9500.00	4799.05	68.48	0.00	0.00	4799.54

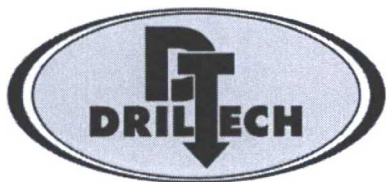
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Red Raider BKS 4H PBHL	9500.00	4799.05	68.48	435630.64	750971.00



Vertical Section at 0.82° (750 ft/in)





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Concho Operating

Lea County, NM (Nad 27)

Red Raider BKS State 4H

Well #4H

Wellbore #1

Plan: Plan #2

Standard Planning Report

18 January, 2017



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Company:	Concho Operating	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Project:	Lea County, NM (Nad 27)	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site:	Red Raider BKS State 4H	North Reference:	Grid
Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Project	Lea County, NM (Nad 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Red Raider BKS State 4H			
Site Position:		Northing:	430,831.60 usft	Latitude: 32.182°N
From:	Map	Easting:	750,902.52 usft	Longitude: 103.522°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.43 °

Well	Well #4H			
Well Position	+N/-S	0.00 ft	Northing:	430,831.60 usft
	+E/-W	0.00 ft	Easting:	750,902.52 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level: 3,508.50 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/19/2017	6.97	60.04	47,959.68157292

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	0.82

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,972.57	0.00	0.00	8,972.57	0.00	0.00	0.00	0.00	0.00	0.00	
9,717.05	89.34	0.82	9,450.00	471.90	6.73	12.00	12.00	0.11	0.82	
14,044.93	89.34	0.82	9,500.00	4,799.05	68.48	0.00	0.00	0.00	0.00	Red Raider BKS 4H



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Company:	Concho Operating	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Project:	Lea County, NM (Nad 27)	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site:	Red Raider BKS State 4H	North Reference:	Grid
Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,972.57	0.00	0.00	8,972.57	0.00	0.00	0.00	0.00	0.00	0.00
Build Rate 12°/100' MD - 8877' MD: KOP - Begin Build									
9,717.05	89.34	0.82	9,450.00	471.90	6.73	471.94	12.00	12.00	0.00
Hold 89.34° on Azm. 0.82° - 9717' MD: End of Build									
14,044.93	89.34	0.82	9,500.00	4,799.05	68.48	4,799.54	0.00	0.00	0.00
14045' MD: PBHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Red Raider BKS 4H F	-0.64	180.82	9,500.00	4,799.05	68.48	435,630.64	750,971.00	32.195°N	103.522°W
- plan hits target center									
- Rectangle (sides W100.00 H4,799.54 D0.00)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,250.00	1,250.00	13 3/8"	13.375	17.500
5,275.00	5,275.00	9 5/8"	9.625	12.250
14,045.00	9,500.00	5 1/2"	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,235.00	1,235.00	Rustler		0.00	0.82
1,275.00	1,275.00	TOS		0.00	0.82
5,067.00	5,067.00	BOX(Fletcher)		0.00	0.82
5,257.00	5,257.00	LMAR(Top Delaware)		0.00	0.82
5,342.00	5,342.00	BLCN		0.00	0.82
6,347.00	6,347.00	CYCN		0.00	0.82
7,793.00	7,793.00	BYCN		0.00	0.82
9,259.95	9,242.91	Bone Spring (BSGL)		0.62	0.82
9,490.53	9,394.75	U Avalon SH		0.62	0.82
9,715.03	9,449.98	Target Line		0.62	0.82

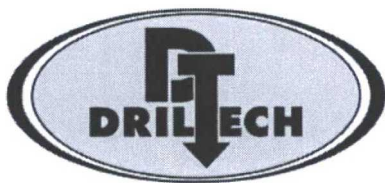


Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Company:	Concho Operating	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Project:	Lea County, NM (Nad 27)	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site:	Red Raider BKS State 4H	North Reference:	Grid
Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,972.57	8,972.57	0.00	0.00	Build Rate 12"/100'MD
8,972.57	8,972.57	0.00	0.00	8877'MD: KOP - Begin Build
9,717.05	9,450.00	471.90	6.73	Hold 89.34° on Azm. 0.82°
9,717.05	9,450.00	471.90	6.73	9717'MD: End of Build
14,044.93	9,500.00	4,799.05	68.48	14045'MD: PBHL



Concho Operating

**Lea County, NM (Nad 27)
Red Raider BKS State 4H
Well #4H**

Wellbore #1

Plan: Plan #2

Standard Planning Report - Geographic

18 January, 2017



Planning Report - Geographic

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Company:	Concho Operating	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Project:	Lea County, NM (Nad 27)	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site:	Red Raider BKS State 4H	North Reference:	Grid
Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Project	Lea County, NM (Nad 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Red Raider BKS State 4H				
Site Position:		Northing:	430,831.60 usft	Latitude:	32.182°N
From:	Map	Easting:	750,902.52 usft	Longitude:	103.522°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.43 °

Well	Well #4H					
Well Position	+N/-S	0.00 ft	Northing:	430,831.60 usft	Latitude:	32.182°N
	+E/-W	0.00 ft	Easting:	750,902.52 usft	Longitude:	103.522°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	3,508.50 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/19/2017	6.97	60.04	47,959.68157292

Design	Plan #2				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	0.82	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,972.57	0.00	0.00	8,972.57	0.00	0.00	0.00	0.00	0.00	0.00	
9,717.05	89.34	0.82	9,450.00	471.90	6.73	12.00	12.00	0.11	0.82	
14,044.93	89.34	0.82	9,500.00	4,799.05	68.48	0.00	0.00	0.00	0.00	Red Raider BKS 4H



Planning Report - Geographic

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Company:	Concho Operating	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Project:	Lea County, NM (Nad 27)	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site:	Red Raider BKS State 4H	North Reference:	Grid
Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	430,831.60	750,902.52	32.182°N	103.522°W
8,972.57	0.00	0.00	8,972.57	0.00	0.00	430,831.60	750,902.52	32.182°N	103.522°W
Build Rate 12°/100' MD - 8877' MD: KOP - Begin Build									
9,717.05	89.34	0.82	9,450.00	471.90	6.73	431,303.50	750,909.25	32.183°N	103.522°W
Hold 89.34° on Azm. 0.82° - 9717' MD: End of Build									
14,044.93	89.34	0.82	9,500.00	4,799.05	68.48	435,630.64	750,971.00	32.195°N	103.522°W
14045' MD: PBHL									

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
Red Raider BKS 4H F	-0.64	180.82	9,500.00	4,799.05	68.48	435,630.64	750,971.00	32.195°N	103.522°W
- plan hits target center									
- Rectangle (sides W100.00 H4,799.54 D0.00)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,250.00	1,250.00	13 3/8"	13.375	17.500
5,275.00	5,275.00	9 5/8"	9.625	12.250
14,045.00	9,500.00	5 1/2"	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
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1,275.00	1,275.00	TOS		0.00	0.82
5,067.00	5,067.00	BOX(Fletcher)		0.00	0.82
5,257.00	5,257.00	LMAR(Top Delaware)		0.00	0.82
5,342.00	5,342.00	BLCN		0.00	0.82
6,347.00	6,347.00	CYCN		0.00	0.82
7,793.00	7,793.00	BYCN		0.00	0.82
9,259.95	9,242.91	Bone Spring (BSGL)		0.62	0.82
9,490.53	9,394.75	U Avalon SH		0.62	0.82
9,715.03	9,449.98	Target Line		0.62	0.82



Planning Report - Geographic

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Company:	Concho Operating	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Project:	Lea County, NM (Nad 27)	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site:	Red Raider BKS State 4H	North Reference:	Grid
Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,972.57	8,972.57	0.00	0.00	Build Rate 12°/100'MD
8,972.57	8,972.57	0.00	0.00	8877'MD: KOP - Begin Build
9,717.05	9,450.00	471.90	6.73	Hold 89.34° on Azm. 0.82°
9,717.05	9,450.00	471.90	6.73	9717'MD: End of Build
14,044.93	9,500.00	4,799.05	68.48	14045'MD: PBHL

Concho Operating

DrilTech, LLC

SURFACE LOCATION

US State Plane 1927 (Exact solution)
New Mexico East 3001
Elevation: GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Northing Easting Latitude Longitude
430831.60 750902.52 32.182°N 103.522°W

Lea County, NM (Nad 27)
Red Raider BKS State 4H
Well #4H
Section 25: T24S R33E
Wellbore #1
Plan #2
Noram 23

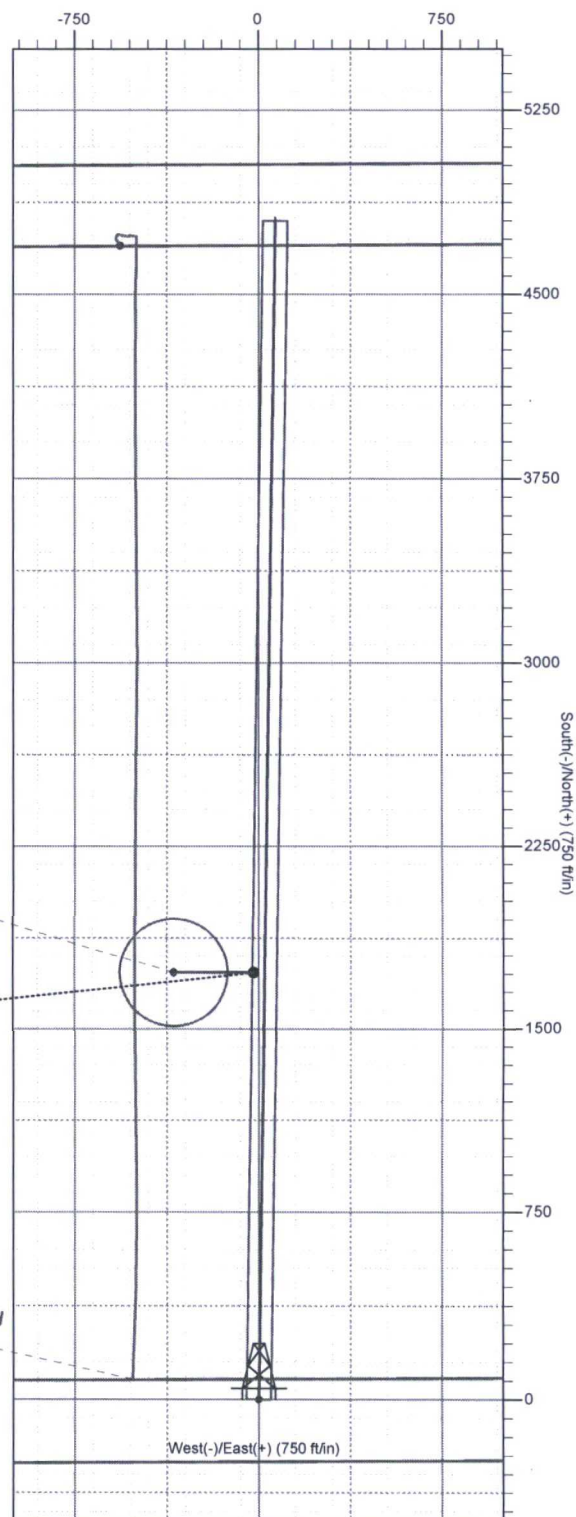


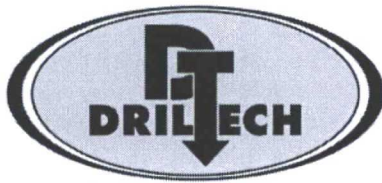
Rattlesnake Gulch 25 (220' Radius)

Rattlesnake Gulch 25 State Well #1

The inclination only readings have a 90° Azm. applied to show 'worst case' in approach to our wellpath. The total distance at bottom depth is 326' from Sur.Loc of the offset to our well.

Red Raider BKS Ste #2H





Concho Operating

**Lea County, NM (Nad 27)
Red Raider BKS State 4H
Well #4H**

**Wellbore #1
Plan #2**

Anticollision Report

18 January, 2017



Anticollision Report

Company:	Concho Operating	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Reference Site:	Red Raider BKS State 4H	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Reference	Plan #2
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD + Stations Interval 100.00ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.00 ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Pedal Curve
Casing Method:	Not applied

Survey Tool Program		Date	1/17/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	14,044.93	Plan #2 (Wellbore #1)	Copy of MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rattlesnake Gulch 25 State Well #1						
Rattlesnake Gulch 25 State Well #1 - Straight Hole Incl.	10,973.30	9,490.29	220.00	-16.78	0.929	Level 1, CC, ES, SF
Red Raider BKS Ste #2H						
Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - W	9,500.00	13,673.04	511.38	394.55	4.377	SF
Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - W	9,600.00	13,584.97	508.97	393.21	4.397	ES
Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - W	9,645.99	13,545.49	508.77	393.54	4.415	CC

Offset Design												Rattlesnake Gulch 25 State Well #1 - Rattlesnake Gulch 25 State Well #1 - Straight Hole Incl. ONLY - In		Offset Site Error:		0.00 ft	
Survey Program: 392-Inclinometer only												Offset Well Error:		0.00 ft			
Reference		Offset		Semi Major Axis			Distance		Warning								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor						
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)	Factor					
10,000.00	9,453.27	9,478.69	9,458.67	35.63	192.89	-88.48	1,731.00	-195.55	997.78	771.34	226.45	4.406					
10,100.00	9,454.43	9,479.88	9,459.87	36.21	192.92	-88.79	1,731.00	-195.52	900.52	673.98	226.55	3.975					
10,200.00	9,455.58	9,481.08	9,461.06	36.85	192.95	-89.10	1,731.00	-195.49	803.93	577.25	226.68	3.547					
10,300.00	9,456.74	9,482.27	9,462.25	37.56	192.98	-89.41	1,731.00	-195.46	708.28	481.41	226.87	3.122					
10,400.00	9,457.89	9,483.46	9,463.44	38.33	193.00	-89.72	1,731.00	-195.43	614.02	386.87	227.15	2.703					
10,500.00	9,459.05	9,484.65	9,464.63	39.15	193.03	-90.03	1,731.00	-195.40	521.90	294.29	227.61	2.293					
10,600.00	9,460.20	9,485.84	9,465.83	40.02	193.06	-90.34	1,731.00	-195.37	433.28	204.92	228.36	1.897					
10,700.00	9,461.36	9,487.04	9,467.02	40.94	193.09	-90.65	1,731.00	-195.33	350.83	121.13	229.70	1.527					
10,800.00	9,462.51	9,488.23	9,468.21	41.91	193.12	-90.96	1,731.00	-195.30	280.05	48.05	232.00	1.207	Level 2				
10,900.00	9,463.67	9,489.42	9,469.40	42.92	193.15	-91.27	1,731.00	-195.27	231.89	-3.27	235.16	0.986	Level 1				
10,973.30	9,464.52	9,490.29	9,470.27	43.68	193.17	-91.50	1,731.00	-195.25	220.00	-16.78	236.78	0.929	Level 1, CC, ES, SF				
11,000.00	9,464.82	9,490.61	9,470.59	43.96	193.18	-91.58	1,731.00	-195.24	221.62	-15.32	236.93	0.935	Level 1				
11,100.00	9,465.98	9,491.81	9,471.78	45.05	193.21	-91.89	1,731.00	-195.21	253.88	18.24	235.64	1.077	Level 2				
11,200.00	9,467.13	9,493.00	9,472.98	46.17	193.24	-92.20	1,731.00	-195.18	315.89	82.49	233.40	1.353	Level 3				
11,300.00	9,468.29	9,494.19	9,474.17	47.32	193.27	-92.51	1,731.00	-195.15	393.85	162.17	231.69	1.700					
11,400.00	9,469.45	9,495.38	9,475.36	48.49	193.30	-92.82	1,731.00	-195.12	480.05	249.49	230.56	2.082					
11,500.00	9,470.60	9,496.57	9,476.55	49.70	193.33	-93.13	1,731.00	-195.09	570.77	340.93	229.84	2.483					
11,600.00	9,471.76	9,497.77	9,477.74	50.93	193.36	-93.44	1,731.00	-195.05	664.16	434.79	229.37	2.896					
11,700.00	9,472.91	9,498.96	9,478.93	52.19	193.39	-93.75	1,731.00	-195.02	759.23	530.17	229.05	3.315					
11,800.00	9,474.07	9,500.15	9,480.13	53.46	193.42	-94.06	1,731.00	-194.99	855.42	626.58	228.84	3.738					

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report

Company:	Concho Operating	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Reference Site:	Red Raider BKS State 4H	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Rattlesnake Gulch 25 State Well #1 - Rattlesnake Gulch 25 State Well #1 - Straight Hole Incl. ONLY - In												Offset Site Error:	0.00 ft
Survey Program: 392-Inclinometer only												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance		Offset Wellbore Centre		Between Centres		Minimum Separation	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
11,900.00	9,475.22	9,501.34	9,481.32	54.76	193.44	-94.37	1,731.00	-194.96	952.40	723.71	228.69	4.165	



Anticollision Report

Company:	Concho Operating	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Reference Site:	Red Raider BKS State 4H	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - Wellbore #1														Offset Site Error:	0.00 ft
Survey Program: 200-GYRO-NS-CT, 8980-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset										
8,600.00	8,600.00	13,879.00	9,413.32	30.60	86.64	-81.17	79.99	-514.72	965.83	889.86	75.96	12.715			
8,700.00	8,700.00	13,879.00	9,413.32	30.96	86.64	-81.17	79.99	-514.72	883.26	803.00	80.27	11.004			
8,800.00	8,800.00	13,879.00	9,413.32	31.32	86.64	-81.17	79.99	-514.72	804.67	719.34	85.33	9.430			
8,900.00	8,900.00	13,879.00	9,413.32	31.67	86.64	-81.17	79.99	-514.72	731.32	640.12	91.20	8.019			
8,972.57	8,972.57	13,879.00	9,413.32	31.93	86.64	-81.17	79.99	-514.72	682.34	586.41	95.93	7.113			
8,975.00	8,975.00	13,879.00	9,413.32	31.94	86.64	-82.23	79.99	-514.72	680.78	584.68	96.09	7.084			
9,000.00	8,999.99	13,879.00	9,413.32	32.03	86.64	-84.68	79.99	-514.72	664.88	567.07	97.81	6.798			
9,025.00	9,024.89	13,879.00	9,413.32	32.12	86.64	-87.03	79.99	-514.72	649.46	549.90	99.56	6.524			
9,050.00	9,049.66	13,879.00	9,413.32	32.21	86.64	-89.25	79.99	-514.72	634.59	533.27	101.33	6.263			
9,075.00	9,074.22	13,879.00	9,413.32	32.30	86.64	-91.32	79.99	-514.72	620.37	517.25	103.11	6.017			
9,100.00	9,098.49	13,879.00	9,413.32	32.39	86.64	-93.25	79.99	-514.72	606.86	501.97	104.89	5.786			
9,125.00	9,122.42	13,879.00	9,413.32	32.47	86.64	-95.01	79.99	-514.72	594.16	487.52	106.64	5.572			
9,150.00	9,145.94	13,879.00	9,413.32	32.55	86.64	-96.61	79.99	-514.72	582.37	474.01	108.35	5.375			
9,175.00	9,168.99	13,879.00	9,413.32	32.63	86.64	-98.04	79.99	-514.72	571.56	461.56	109.99	5.196			
9,200.00	9,191.50	13,879.00	9,413.32	32.71	86.64	-99.29	79.99	-514.72	561.82	450.28	111.54	5.037			
9,225.00	9,213.40	13,878.28	9,413.32	32.79	86.63	-100.31	80.71	-514.69	553.24	440.28	112.96	4.898			
9,250.00	9,234.65	13,864.96	9,413.42	32.87	86.41	-100.03	94.02	-514.26	545.72	431.72	114.00	4.787			
9,275.00	9,255.18	13,850.56	9,413.52	32.95	86.17	-99.57	108.41	-513.78	539.12	424.22	114.90	4.692			
9,300.00	9,274.93	13,835.10	9,413.63	33.03	85.91	-98.96	123.86	-513.28	533.41	417.76	115.65	4.612			
9,325.00	9,293.86	13,818.64	9,413.74	33.11	85.64	-98.21	140.31	-512.74	528.54	412.28	116.25	4.546			
9,350.00	9,311.90	13,801.15	9,413.86	33.18	85.35	-97.33	157.79	-512.16	524.45	407.74	116.71	4.494			
9,375.00	9,329.02	13,781.24	9,413.99	33.26	85.03	-96.26	177.69	-511.48	521.05	404.05	116.99	4.454			
9,400.00	9,345.15	13,760.44	9,414.09	33.34	84.69	-95.13	198.48	-510.70	518.24	401.09	117.15	4.424			
9,425.00	9,360.27	13,738.81	9,414.16	33.42	84.34	-93.97	220.09	-509.83	515.94	398.74	117.19	4.403			
9,450.00	9,374.32	13,716.40	9,414.20	33.49	83.98	-92.80	242.48	-508.86	514.06	396.93	117.13	4.389			
9,475.00	9,387.28	13,694.74	9,414.21	33.57	83.63	-91.73	264.11	-507.87	512.55	395.54	117.01	4.380			
9,500.00	9,399.09	13,673.04	9,414.19	33.65	83.29	-90.72	285.79	-506.89	511.38	394.55	116.83	4.377 SF			
9,525.00	9,409.74	13,650.79	9,414.14	33.73	82.94	-89.76	308.02	-505.90	510.49	393.89	116.60	4.378			
9,550.00	9,419.19	13,628.04	9,414.05	33.81	82.58	-88.87	330.74	-504.90	509.81	393.49	116.32	4.383			
9,575.00	9,427.41	13,605.98	9,413.95	33.89	82.23	-88.10	352.79	-503.96	509.30	393.26	116.03	4.389			
9,600.00	9,434.39	13,584.97	9,413.91	33.97	81.91	-87.47	373.78	-503.17	508.97	393.21	115.76	4.397 ES			
9,625.00	9,440.10	13,563.62	9,413.95	34.05	81.57	-86.95	395.12	-502.50	508.81	393.34	115.47	4.406			
9,645.99	9,443.91	13,545.49	9,414.05	34.12	81.29	-86.59	413.25	-502.03	508.77	393.54	115.23	4.415 CC			
9,650.00	9,444.53	13,542.00	9,414.07	34.14	81.24	-86.53	416.73	-501.95	508.78	393.59	115.19	4.417			
9,675.00	9,447.67	13,520.13	9,414.28	34.22	80.90	-86.24	438.60	-501.53	508.83	393.93	114.90	4.428			
9,700.00	9,449.50	13,496.27	9,414.55	34.31	80.51	-86.06	462.45	-501.16	508.91	394.32	114.59	4.441			
9,717.05	9,450.00	13,479.97	9,414.72	34.37	80.25	-86.03	478.75	-500.94	508.95	394.57	114.38	4.450			
9,800.00	9,450.96	13,398.85	9,415.42	34.67	78.95	-86.00	559.86	-500.14	509.33	395.93	113.39	4.492			
9,900.00	9,452.12	13,297.53	9,415.88	35.11	77.37	-85.92	661.17	-498.97	509.64	397.40	112.24	4.541			
10,000.00	9,453.27	13,201.24	9,417.09	35.63	75.88	-85.94	757.46	-498.03	510.09	398.82	111.27	4.584			
10,100.00	9,454.43	13,106.40	9,418.75	36.21	74.38	-86.01	852.28	-498.31	511.76	401.39	110.37	4.637			
10,200.00	9,455.58	13,007.45	9,419.75	36.85	72.85	-86.01	951.22	-498.93	513.81	404.34	109.48	4.693			
10,300.00	9,456.74	12,909.77	9,420.45	37.56	71.34	-85.98	1,048.89	-499.85	516.21	407.54	108.67	4.750			
10,400.00	9,457.89	12,808.38	9,420.69	38.33	69.76	-85.90	1,150.28	-500.93	518.76	410.91	107.85	4.810			
10,500.00	9,459.05	12,712.85	9,420.82	39.15	68.35	-85.82	1,245.79	-502.14	521.53	414.29	107.24	4.863			
10,600.00	9,460.20	12,610.27	9,421.95	40.02	66.77	-85.83	1,348.36	-503.76	524.52	417.98	106.54	4.923			
10,700.00	9,461.36	12,505.30	9,422.35	40.94	65.09	-85.76	1,453.32	-504.48	526.69	420.90	105.79	4.979			
10,800.00	9,462.51	12,403.66	9,422.00	41.91	63.54	-85.61	1,554.97	-504.58	528.32	423.13	105.19	5.023			
10,900.00	9,463.67	12,304.29	9,421.70	42.92	62.06	-85.46	1,654.33	-504.38	529.66	424.95	104.70	5.059			
11,000.00	9,464.82	12,206.51	9,422.16	43.96	60.59	-85.41	1,752.11	-504.86	531.62	427.35	104.27	5.099			
11,100.00	9,465.98	12,103.87	9,422.58	45.05	59.02	-85.34	1,854.75	-505.12	533.36	429.58	103.78	5.139			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report

Company:	Concho Operating	Local Co-ordinate Reference:	Site Red Raider BKS State 4H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Reference Site:	Red Raider BKS State 4H	MD Reference:	GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Well #4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - Red Raider BKS Ste #2H - Wellbore #1													Offset Site Error:	0.00 ft
Survey Program: 200-GYRO-NS-CT, 8980-MWD													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis			Distance			Minimum Separation			Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,200.00	9,467.13	11,999.95	9,422.74	46.17	57.45	-85.24	1,958.67	-504.78	534.53	431.21	103.32	5.173		
11,300.00	9,468.29	11,898.97	9,422.42	47.32	55.99	-85.09	2,059.65	-503.77	535.09	432.10	102.98	5.196		
11,400.00	9,469.45	11,805.28	9,422.06	48.49	54.66	-84.94	2,153.33	-503.28	536.12	433.31	102.81	5.215		
11,500.00	9,470.60	11,701.85	9,422.27	49.70	53.21	-84.85	2,256.76	-503.49	537.84	435.28	102.56	5.244		
11,600.00	9,471.76	11,607.09	9,422.48	50.93	51.92	-84.77	2,351.52	-503.30	539.17	436.67	102.49	5.261		
11,700.00	9,472.91	11,497.38	9,423.32	52.19	50.39	-84.74	2,461.22	-502.97	540.32	438.11	102.21	5.286		
11,800.00	9,474.07	11,395.47	9,423.79	53.46	48.95	-84.66	2,563.12	-501.54	540.41	438.37	102.04	5.296		
11,900.00	9,475.22	11,295.09	9,423.50	54.76	47.57	-84.51	2,663.49	-499.87	540.31	438.37	101.94	5.300		
11,991.90	9,476.28	11,203.91	9,422.86	55.97	46.40	-84.32	2,754.65	-498.27	540.17	438.22	101.95	5.298		
12,000.00	9,476.38	11,196.22	9,422.83	56.07	46.30	-84.31	2,762.34	-498.15	540.17	438.21	101.96	5.298		
12,100.00	9,477.53	11,099.10	9,423.42	57.41	45.06	-84.26	2,859.45	-497.19	540.66	438.62	102.05	5.298		
12,200.00	9,478.69	10,996.62	9,423.66	58.76	43.76	-84.16	2,961.92	-496.03	541.04	438.96	102.08	5.300		
12,300.00	9,479.84	10,901.89	9,423.26	60.12	42.64	-84.01	3,056.64	-494.75	541.31	439.01	102.30	5.292		
12,400.00	9,481.00	10,811.50	9,423.77	61.50	41.59	-83.97	3,147.02	-495.47	543.55	440.95	102.60	5.298		
12,500.00	9,482.15	10,714.20	9,424.23	62.89	40.46	-83.94	3,244.32	-497.12	546.73	443.88	102.85	5.316		
12,600.00	9,483.31	10,612.03	9,423.80	64.30	39.32	-83.81	3,346.47	-498.93	550.08	446.99	103.10	5.336		
12,700.00	9,484.46	10,504.01	9,422.86	65.72	38.21	-83.61	3,454.48	-499.66	552.40	449.02	103.38	5.343		
12,800.00	9,485.62	10,401.99	9,422.24	67.14	37.28	-83.43	3,556.49	-499.24	553.60	449.74	103.86	5.330		
12,900.00	9,486.77	10,302.25	9,424.24	68.58	36.39	-83.54	3,656.21	-499.09	554.78	450.36	104.42	5.313		
13,000.00	9,487.93	10,211.93	9,426.28	70.03	35.56	-83.66	3,746.50	-499.72	556.77	451.74	105.04	5.301		
13,100.00	9,489.08	10,113.91	9,426.45	71.48	34.71	-83.60	3,844.50	-501.40	560.00	454.39	105.61	5.302		
13,200.00	9,490.24	10,014.32	9,425.82	72.95	33.95	-83.45	3,944.08	-503.06	563.27	456.98	106.29	5.299		
13,300.00	9,491.39	9,896.61	9,425.10	74.42	33.19	-83.26	4,061.78	-503.10	564.91	457.91	107.00	5.280		
13,346.55	9,491.93	9,848.92	9,424.97	75.11	32.89	-83.19	4,109.47	-502.29	564.86	457.48	107.38	5.260		
13,400.00	9,492.55	9,811.64	9,424.06	75.90	32.67	-83.06	4,146.73	-502.06	565.55	457.66	107.89	5.242		
13,500.00	9,493.70	9,704.73	9,412.05	77.39	32.11	-81.77	4,252.91	-503.18	569.77	461.20	108.57	5.248		
13,600.00	9,494.86	9,622.41	9,394.22	78.88	31.74	-79.90	4,333.20	-501.28	572.72	463.57	109.15	5.247		
13,700.00	9,496.02	9,552.92	9,371.19	80.38	31.49	-77.59	4,398.73	-501.07	580.91	471.55	109.36	5.312		
13,800.00	9,497.17	9,488.21	9,342.86	81.89	31.30	-74.85	4,456.85	-501.91	595.52	486.53	109.00	5.464		
13,900.00	9,498.33	9,418.83	9,304.39	83.40	31.15	-71.25	4,514.52	-501.95	616.56	508.74	107.82	5.718		
14,000.00	9,499.48	9,360.59	9,266.28	84.92	31.07	-67.79	4,558.50	-500.34	644.58	538.65	105.92	6.085		
14,044.93	9,500.00	9,341.21	9,252.73	85.60	31.05	-66.59	4,572.33	-499.72	659.84	554.89	104.95	6.287		
14,045.36	9,500.01	9,341.04	9,252.61	85.61	31.05	-66.58	4,572.45	-499.71	660.00	555.05	104.94	6.289		



Anticollision Report

Company: Concho Operating
Project: Lea County, NM (Nad 27)

Reference Site: Red Raider BKS State 4H

Site Error: 0.00 ft

Reference Well: Well #4H

Well Error: 0.00 ft

Reference Wellbore: Wellbore #1

Reference Design: Plan #2

Local Co-ordinate Reference: Site Red Raider BKS State 4H
TVD Reference: GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)

MD Reference: GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)

North Reference: Grid

Survey Calculation Method: Minimum Curvature

Output errors are at 2.00 sigma

Database: EDM 5000.14 Single User Db

Offset TVD Reference: Reference Datum

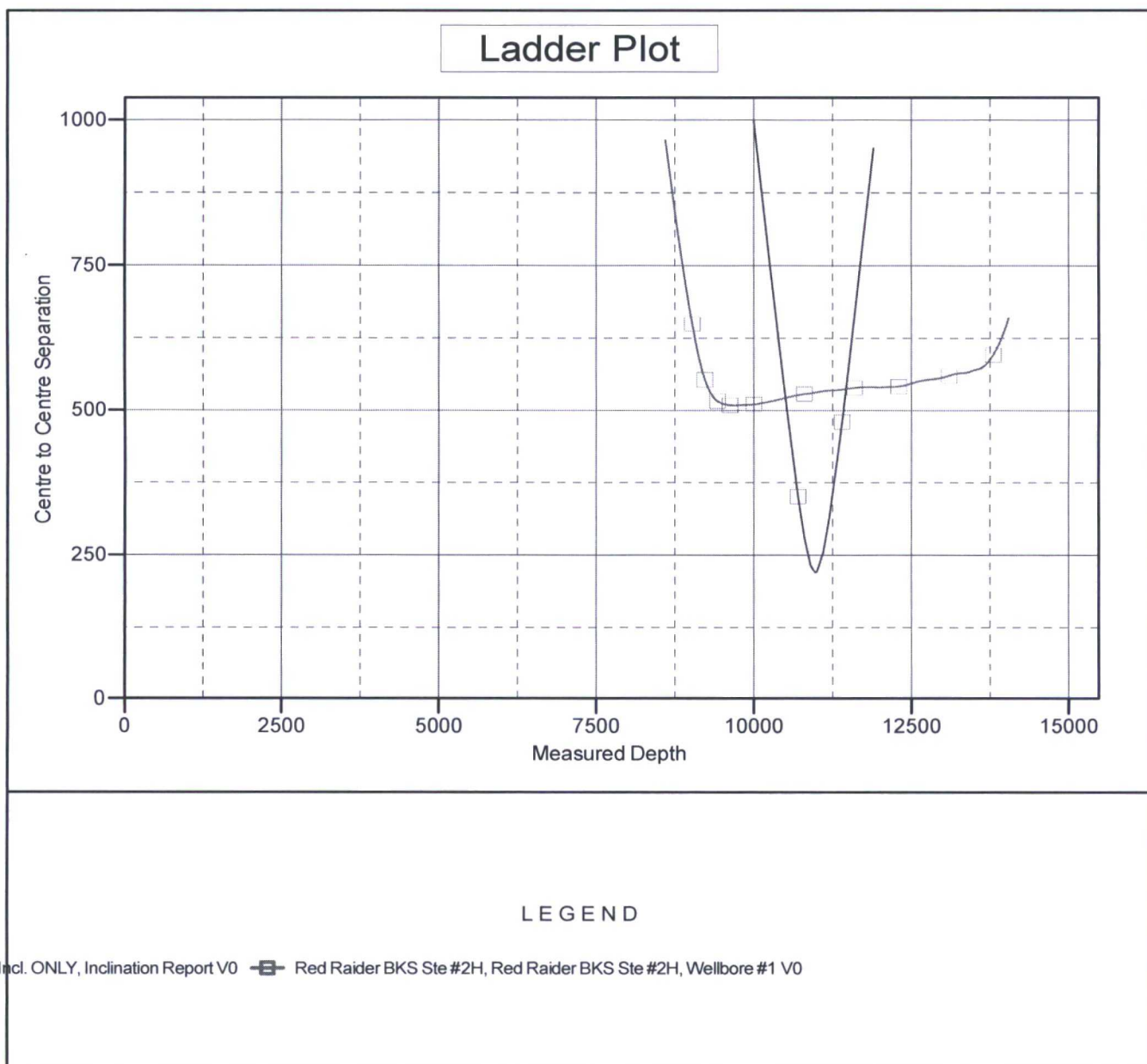
Reference Depths are relative to GL 3508.5' + RKB 28' @ 3536.50ft (NCoordinates are relative to: Red Raider BKS State 4H)

Offset Depths are relative to Offset Datum

Central Meridian is 104.333°W

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.43°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report

Company: Concho Operating
Project: Lea County, NM (Nad 27)

Reference Site: Red Raider BKS State 4H

Site Error: 0.00 ft
Reference Well: Well #4H
Well Error: 0.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #2

Local Co-ordinate Reference: Site Red Raider BKS State 4H
TVD Reference: GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
MD Reference: GL 3508.5' + RKB 28' @ 3536.50ft (Noram 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.14 Single User Db
Offset TVD Reference: Reference Datum

Reference Depths are relative to GL 3508.5' + RKB 28' @ 3536.50ft (NCoordinates are relative to: Red Raider BKS State 4H)

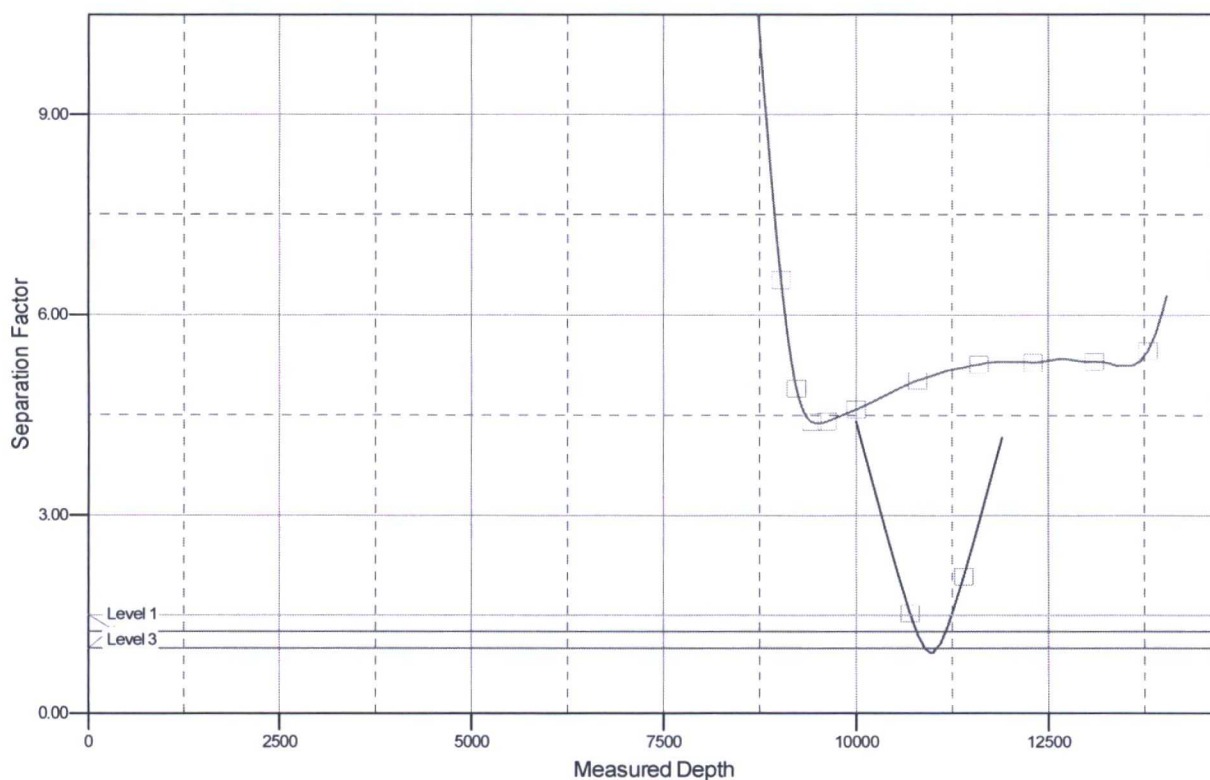
Offset Depths are relative to Offset Datum

Central Meridian is 104.333°W

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.43°

Separation Factor Plot



LEGEND

Incl. ONLY, Inclination Report V0 Red Raider BKS Ste #2H, Red Raider BKS Ste #2H, Wellbore #1 V0