

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM113944

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
COTTONWOOD 29-32 FED COM WCA 6H9. API Well No.
30-015-44916-00-X110. Field and Pool or Exploratory Area
PURPLE SAGE-WOLFCAMP (GAS)11. County or Parish, State
EDDY COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

CHISHOLM ENERGY OPERATING LLC

Contact: JENNIFER ELROD

Email: JELROD@CHISHOLMENERGY.COM

3a. Address

801 CHERRY STREET
FORT WORTH, TX 76012

3b. Phone (Not include area code)

Ph: 817-958-7722
Fx: 817-601-7551

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 29 T26S R26E 100FNL 1145FWL
32.020229 N Lat, 104.319878 W Lon

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

TYPE OF ACTION

☒ Notice of Intent☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☐ Change Plans☐ Convert to Injection☐ Deepen☐ Hydraulic Fracturing☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☒ Other
Change to Original A
PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

SUNDRY TO CHANGE LP AND BHL LOCATION

LANDING POINT:

FROM: 330 FNL/528 FWL
TO: 330 FNL/400 FWL

BOTTOM HOLE:

FROM: 330 FSL/528 FWL
TO: 330 FSL/400 FWLGC 6-6-18
Accepted for record - NMOCB

OFFICIAL FILE COPY

RECEIVED

JUN 06 2018

NEW DIRECTIONAL PLAN AND C-102 ATTACHED.

All previous COA still apply. 9 5/8" casing depth change to 2750 ft.

DISTRICT II-ARTESIA O.C.D.

ZS 6/4/18

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #413089 verified by the BLM Well Information System

For CHISHOLM ENERGY OPERATING LLC, sent to the Carlsbad

Committed to AFMSS for processing by PRISCILLA PEREZ on 05/04/2018 (18PP1586SE)

Name (Printed/Typed) JENNIFER ELROD

Title SR REGULATORY TECH

Signature (Electronic Submission)

Date 05/01/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 06/04/2018

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Carlsbad

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.

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

Critical

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	48.00	H 40	ST&C	15.97	4.1	1.33	420	20,160	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,028			Tail Cmt	does	circ to sfc.	Totals:	420	20,160	
Comparison of Proposed to Minimum Required Cement Volumes									
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	575	776	346	124	8.60	695	2M	1.56

9 5/8	casing inside the	13 3/8	Design Factors				INTERMEDIATE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	36.00	J 55	LT&C	4.58	1.55	0.66	2,750	99,000	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	2,750	99,000	
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		420	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	1715	3592	907	296	9.10	3595	5M	0.81

Class 'C' tail cmt yld > 1.35

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.28, b, c, d

All > 0.70, OK.

BURST PRESSURE GRADIENT >0.70 = OK.

5 1/2	casing inside the	9 5/8	Design Factors							PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight			
"A"	20.00	P 110	BUTT	4.06	2.19	2.37	7,490	149,800			
"B"	20.00	P 110	BUTT	11.39	1.93	2.37	7,829	156,580			
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,648							Totals:	15,319	306,380		
B	would be:			79.15	2.08	if it were a vertical wellbore.					
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC		
			15319	7895	7895	7490	92	7	8810		
The cement volume(s) are intended to achieve a top of				2550	ft from surface or a			200	overlap.		
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist		
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg		
8 3/4	0.2526	2565	4308	3234	33	13.00			1.35		

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6101 Fax: (575) 393-0720

DISTRICT II

811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-0720

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV

1226 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 478-3480 Fax: (505) 478-3482State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1226 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

X AMENDED REPORT

API Number 30-015-44916	Pool Code 98220	Pool Name PURPLE SAGE; WOLFCAMP
Property Code 319571	Property Name COTTONWOOD 29-32 FED WCA	Well Number 6H
OGRID No. 372137	Operator Name CHISHOLM ENERGY OPERATING, LLC	Elevation 3433'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	FEET from the	North/SOUTH LINE	FEET from the	East/West Line	County
D	29	26 S	26 E		100	NORTH	1145	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	FEET from the	North/SOUTH LINE	FEET from the	East/West Line	County
LOT 4	32	26 S	26 E		330	SOUTH	400	WEST	EDDY
Dedicated Acres 447.97	Joint or Infill	Consolidation Code	Order No.						

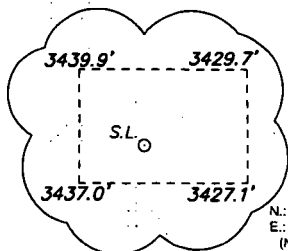
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SURFACE LOCATION

Lat - N 32.02023041°
Long - W 104.31987442°
NMSPC- N 371099.0
E 545508.7
(NAD-83)

PENETRATION POINT

330' FNL & 400' FWL
Lat - N 32.01960046°
Long - W 104.32227565°
NMSPC- N 370869.7
E 544764.5
(NAD-83)



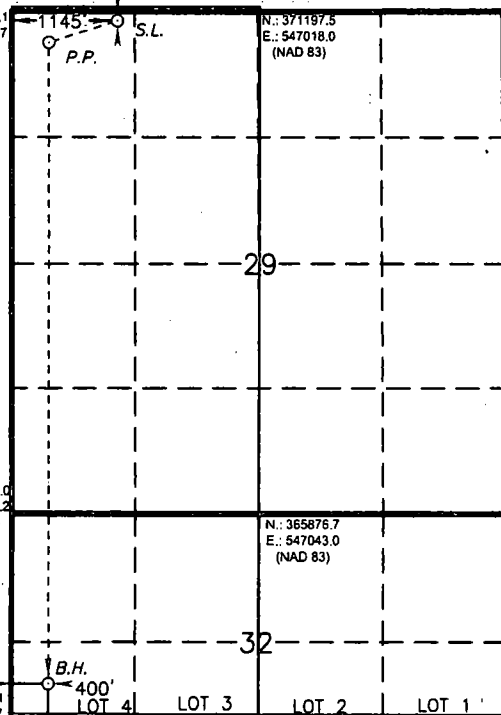
BOTTOM HOLE LOCATION

Lat - N 32.00101731°
Long - W 104.32223552°
NMSPC- N 364109.8
E 544777.7
(NAD-83)

N.: 363780.1
E.: 544377.7
(NAD 83)

N.: 371200.1
E.: 544363.7
(NAD 83)

N.: 365875.0
E.: 544377.2
(NAD 83)



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Jennifer Elrod 5/1/18
Signature Date

JENNIFER ELROD

Printed Name

jelrod@chisholmenergy.co

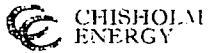
Email Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Surveyed
Signature & Seal of Professional Surveyor
Certificate No. 7977
BASIN SURVEYORS

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'
WO Num.: 33112



Chisholm Energy Holdings

GE 3433 + 22' KB @ 3455.00usft (22' KB)

Ground Level: 3433.00

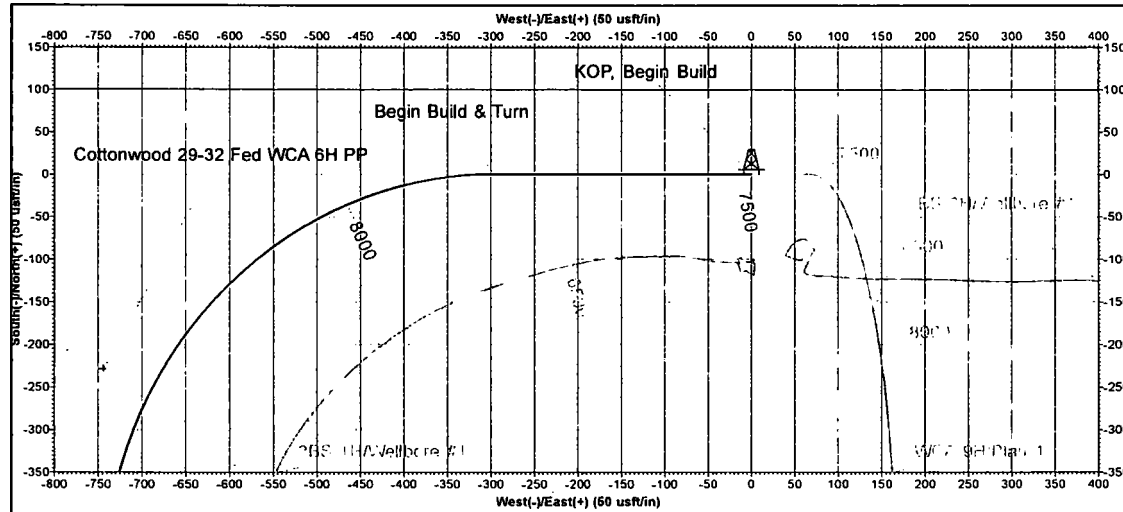
Project: Eddy County, NM (NAD 83)
Site: Cottonwood 29-32 Fed
Well: WCA 6H (Re-stake)
Wellbore: Wellbore #1
Design: Plan 2
Rig: 22' KB



Azimuths to Grid North
True North: -0.01°
Magnetic North: 7.28°
Magnetic Field
Strength: 47693.8nT
Dip Angle: 59.69°
Date: 5/1/2018
Model: BGGM2017

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone

WELL DETAILS					
Ground Level: 3433.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	371098.90	545508.70	32° 1' 12.829 N	104° 19' 11.548 W

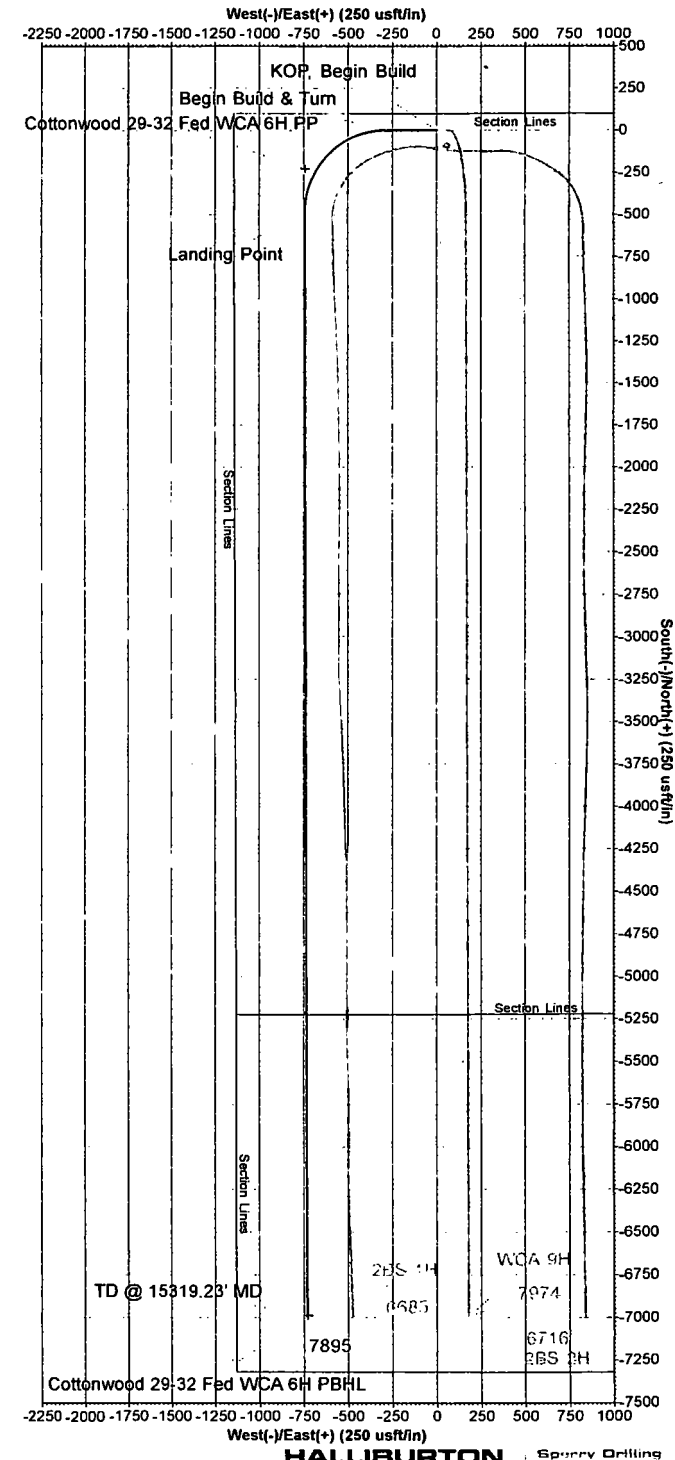
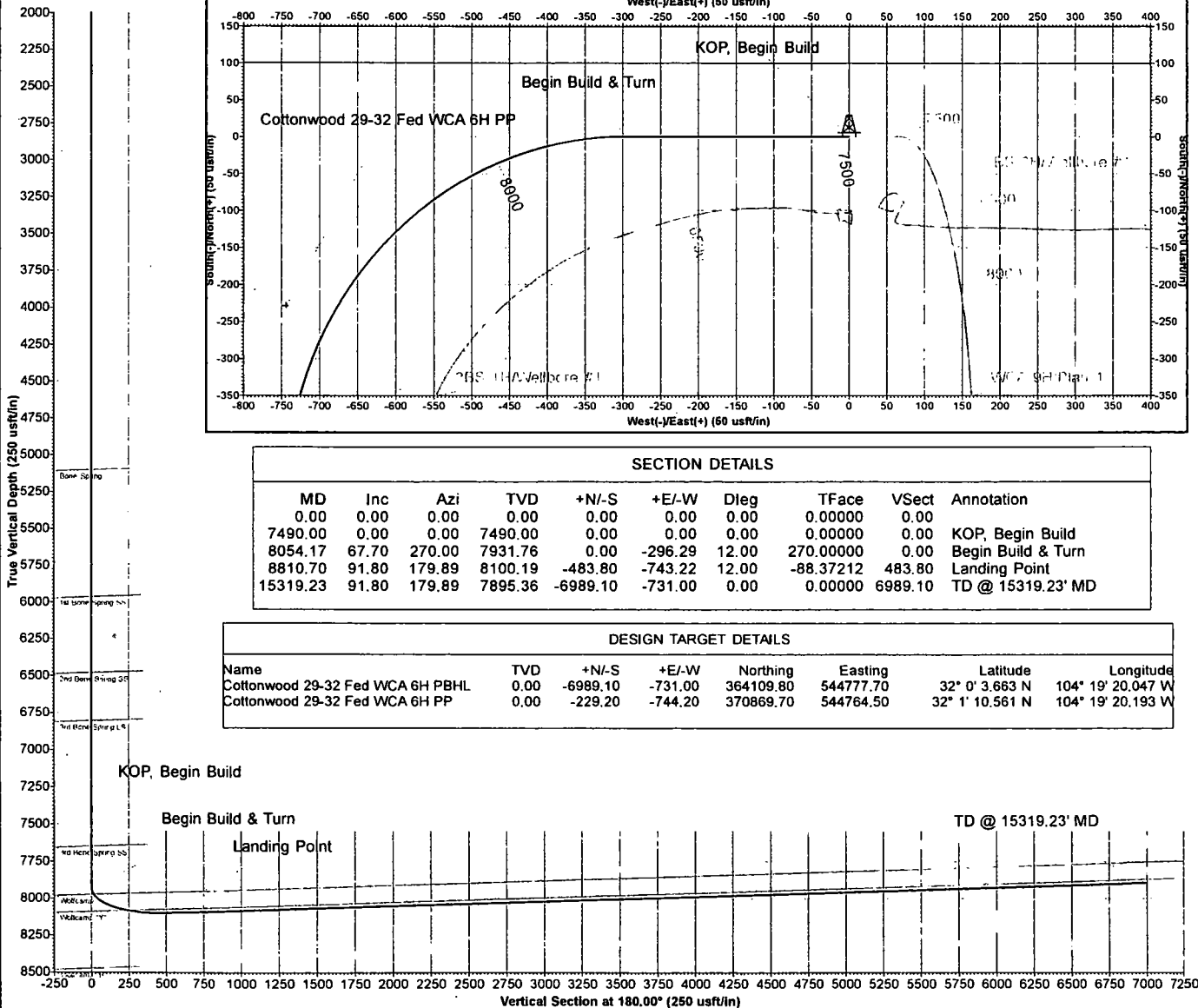


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	
7490.00	0.00	0.00	7490.00	0.00	0.00	0.00	0.00000	0.00	KOP, Begin Build
8054.17	67.70	270.00	7931.76	0.00	-296.29	12.00	270.00000	0.00	Begin Build & Turn
8810.70	91.80	179.89	8100.19	-483.80	-743.22	12.00	-88.37212	483.80	Landing Point
15319.23	91.80	179.89	7895.36	-6989.10	-731.00	0.00	0.00000	6989.10	TD @ 15319.23' MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Cottonwood 29-32 Fed WCA 6H PBHL	0.00	-6989.10	-731.00	364109.80	544777.70	32° 0' 3.663 N	104° 19' 20.047 W
Cottonwood 29-32 Fed WCA 6H PP	0.00	-229.20	-744.20	370869.70	544764.50	32° 1' 10.561 N	104° 19' 20.193 W



22 KB

Chisholm Energy Holdings

Eddy County, NM (NAD 83) Cottonwood 29-32 Fed

API#

WCA 6H (Re-stake)

Wellbore #1

Plan: Plan 2

Sperry Drilling Services Combo Report

01 May, 2018

Well Coordinates: 32° 01' 12.83" N
104° 19' 11.55" W

North American Datum 1983
New Mexico Eastern Zone
371,098.90 N
545,508.70 E

Ground Level: 3,433.00 usft

Local Coordinate Origin:

Centered on Well WCA 6H (Re-stake)

Viewing Datum:

GE 3433 + 22' KB @ 3455.00usft (22' KB)

TVDs to System:

N

North Reference:

Grid

Unit System:

API US Survey Feet

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.12

HALLIBURTON

Plan Report for WCA 6H (Re-stake) - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
0.00	0.00	0.00	0.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,300.00	0.00	0.00	2,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,600.00	0.00	0.00	2,600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,700.00	0.00	0.00	2,700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,800.00	0.00	0.00	2,800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
2,900.00	0.00	0.00	2,900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,000.00	0.00	0.00	3,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,200.00	0.00	0.00	3,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,400.00	0.00	0.00	3,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	

HALLIBURTON**Plan Report for WCA 6H (Re-stake) - Plan 2**

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,600.00	0.00	0.00	3,600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
3,900.00	0.00	0.00	3,900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,000.00	0.00	0.00	4,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,100.00	0.00	0.00	4,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,000.00	0.00	0.00	5,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,500.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,600.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,700.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,800.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,900.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
7,000.00	0.00	0.00	7,000.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
7,100.00	0.00	0.00	7,100.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,200.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	

HALLIBURTON**Plan Report for WCA 6H (Re-stake) - Plan 2**

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
7,300.00	0.00	0.00	7,300.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,400.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	
7,490.00	0.00	0.00	7,490.00	0.00 N	0.00 E	371,098.90	545,508.70	0.00	0.00	0.00	KOP, Begin Build
7,500.00	1.20	270.00	7,500.00	0.00 N	0.10 W	371,098.90	545,508.60	12.00	0.00	270.00	
7,525.00	4.20	270.00	7,524.97	0.00 N	1.28 W	371,098.90	545,507.42	12.00	0.00	0.00	
7,550.00	7.20	270.00	7,549.84	0.00 N	3.76 W	371,098.90	545,504.94	12.00	0.00	0.00	
7,575.00	10.20	270.00	7,574.55	0.00 N	7.55 W	371,098.90	545,501.15	12.00	0.00	0.00	
7,600.00	13.20	270.00	7,599.03	0.00 N	12.62 W	371,098.90	545,496.08	12.00	0.00	0.00	
7,625.00	16.20	270.00	7,623.21	0.00 N	18.96 W	371,098.90	545,489.74	12.00	0.00	0.00	
7,650.00	19.20	270.00	7,647.02	0.00 N	26.56 W	371,098.90	545,482.14	12.00	0.00	0.00	
7,675.00	22.20	270.00	7,670.41	0.00 N	35.39 W	371,098.90	545,473.31	12.00	0.00	0.00	
7,700.00	25.20	270.00	7,693.29	0.00 N	45.44 W	371,098.90	545,463.26	12.00	0.00	0.00	
7,725.00	28.20	270.00	7,715.63	0.00 N	56.67 W	371,098.90	545,452.03	12.00	0.00	0.00	
7,750.00	31.20	270.00	7,737.34	0.00 N	69.06 W	371,098.90	545,439.64	12.00	0.00	0.00	
7,775.00	34.20	270.00	7,758.38	0.00 N	82.56 W	371,098.90	545,426.14	12.00	0.00	0.00	
7,800.00	37.20	270.00	7,778.67	0.00 N	97.15 W	371,098.90	545,411.55	12.00	0.00	0.00	
7,825.00	40.20	270.00	7,798.18	0.00 N	112.78 W	371,098.90	545,395.92	12.00	0.00	0.00	
7,850.00	43.20	270.00	7,816.85	0.00 N	129.41 W	371,098.90	545,379.29	12.00	0.00	0.00	
7,875.00	46.20	270.00	7,834.62	0.00 N	146.99 W	371,098.90	545,361.71	12.00	0.00	0.00	
7,900.00	49.20	270.00	7,851.44	0.00 N	165.48 W	371,098.90	545,343.22	12.00	0.00	0.00	
7,925.00	52.20	270.00	7,867.27	0.00 N	184.82 W	371,098.90	545,323.88	12.00	0.00	0.00	
7,950.00	55.20	270.00	7,882.07	0.00 N	204.97 W	371,098.90	545,303.73	12.00	0.00	0.00	
7,975.00	58.20	270.00	7,895.79	0.00 N	225.86 W	371,098.90	545,282.84	12.00	0.00	0.00	
8,000.00	61.20	270.00	7,908.41	0.00 N	247.44 W	371,098.90	545,261.26	12.00	0.00	0.00	
8,025.00	64.20	270.00	7,919.87	0.00 N	269.66 W	371,098.90	545,239.04	12.00	0.00	0.00	
8,050.00	67.20	270.00	7,930.16	0.00 N	292.44 W	371,098.90	545,216.26	12.00	0.00	0.00	
8,054.17	67.70	270.00	7,931.76	0.00 N	296.29 W	371,098.90	545,212.41	12.00	0.00	0.00	Begin Build & Turn
8,075.00	67.79	267.30	7,939.65	0.45 S	315.56 W	371,098.45	545,193.14	12.00	0.45	-88.37	
8,100.00	67.96	264.07	7,949.06	2.20 S	338.65 W	371,096.70	545,170.05	12.00	2.20	-87.35	
8,125.00	68.20	260.84	7,958.40	5.24 S	361.64 W	371,093.66	545,147.06	12.00	5.24	-86.13	
8,150.00	68.49	257.63	7,967.62	9.58 S	384.46 W	371,089.32	545,124.24	12.00	9.58	-84.93	
8,175.00	68.85	254.43	7,976.72	15.20 S	407.06 W	371,083.70	545,101.64	12.00	15.20	-83.74	
8,200.00	69.27	251.25	7,985.66	22.09 S	429.36 W	371,076.81	545,079.34	12.00	22.09	-82.58	
8,225.00	69.74	248.09	7,994.41	30.22 S	451.32 W	371,068.68	545,057.38	12.00	30.22	-81.44	
8,250.00	70.28	244.95	8,002.96	39.58 S	472.86 W	371,059.32	545,035.84	12.00	39.58	-80.33	
8,275.00	70.86	241.83	8,011.28	50.14 S	493.94 W	371,048.76	545,014.76	12.00	50.14	-79.26	
8,300.00	71.50	238.73	8,019.34	61.88 S	514.49 W	371,037.02	544,994.21	12.00	61.88	-78.22	

Plan Report for WCA 6H (Re-stake) - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)								
8,325.00	72.19	235.66	8,027.14	74.74 S	534.45 W	371,024.16	544,974.25	12.00	74.74	-77.22	
8,350.00	72.92	232.61	8,034.63	88.72 S	553.77 W	371,010.18	544,954.93	12.00	88.72	-76.27	
8,375.00	73.70	229.59	8,041.81	103.76 S	572.41 W	370,995.14	544,936.29	12.00	103.76	-75.35	
8,400.00	74.53	226.59	8,048.66	119.82 S	590.30 W	370,979.08	544,918.40	12.00	119.82	-74.48	
8,425.00	75.39	223.61	8,055.15	136.86 S	607.39 W	370,962.04	544,901.31	12.00	136.86	-73.66	
8,450.00	76.29	220.66	8,061.26	154.83 S	623.65 W	370,944.07	544,885.05	12.00	154.83	-72.89	
8,475.00	77.23	217.73	8,066.99	173.69 S	639.03 W	370,925.21	544,869.67	12.00	173.69	-72.17	
8,500.00	78.20	214.83	8,072.31	193.38 S	653.48 W	370,905.52	544,855.22	12.00	193.38	-71.50	
8,525.00	79.19	211.94	8,077.21	213.85 S	666.97 W	370,885.05	544,841.73	12.00	213.85	-70.88	
8,550.00	80.22	209.07	8,081.68	235.04 S	679.45 W	370,863.86	544,829.25	12.00	235.04	-70.31	
8,575.00	81.26	206.23	8,085.71	256.89 S	690.90 W	370,842.01	544,817.80	12.00	256.89	-69.80	
8,600.00	82.33	203.39	8,089.27	279.35 S	701.28 W	370,819.55	544,807.42	12.00	279.35	-69.34	
8,625.00	83.42	200.58	8,092.38	302.35 S	710.57 W	370,796.55	544,798.13	12.00	302.35	-68.94	
8,650.00	84.52	197.77	8,095.00	325.83 S	718.73 W	370,773.07	544,789.97	12.00	325.83	-68.59	
8,675.00	85.64	194.97	8,097.15	349.73 S	725.75 W	370,749.17	544,782.95	12.00	349.73	-68.29	
8,700.00	86.76	192.19	8,098.80	373.97 S	731.60 W	370,724.93	544,777.10	12.00	373.97	-68.05	
8,725.00	87.90	189.41	8,099.97	398.50 S	736.28 W	370,700.40	544,772.42	12.00	398.50	-67.87	
8,750.00	89.04	186.63	8,100.64	423.24 S	739.77 W	370,675.66	544,768.93	12.00	423.24	-67.74	
8,775.00	90.18	183.86	8,100.81	448.14 S	742.05 W	370,650.76	544,766.65	12.00	448.14	-67.66	
8,800.00	91.32	181.08	8,100.49	473.11 S	743.13 W	370,625.79	544,765.57	12.00	473.11	-67.64	
8,810.70	91.80	179.89	8,100.19	483.80 S	743.22 W	370,615.10	544,765.48	12.00	483.80	-67.68	Landing Point
8,900.00	91.80	179.89	8,097.38	573.06 S	743.05 W	370,525.84	544,765.65	0.00	573.06	0.00	
9,000.00	91.80	179.89	8,094.24	673.01 S	742.86 W	370,425.89	544,765.84	0.00	673.01	0.00	
9,100.00	91.80	179.89	8,091.09	772.96 S	742.68 W	370,325.94	544,766.02	0.00	772.96	0.00	
9,200.00	91.80	179.89	8,087.94	872.91 S	742.49 W	370,225.99	544,766.21	0.00	872.91	0.00	
9,300.00	91.80	179.89	8,084.79	972.86 S	742.30 W	370,126.04	544,766.40	0.00	972.86	0.00	
9,400.00	91.80	179.89	8,081.65	1,072.81 S	742.11 W	370,026.09	544,766.59	0.00	1,072.81	0.00	
9,500.00	91.80	179.89	8,078.50	1,172.76 S	741.92 W	369,926.14	544,766.78	0.00	1,172.76	0.00	
9,600.00	91.80	179.89	8,075.35	1,272.71 S	741.74 W	369,826.19	544,766.96	0.00	1,272.71	0.00	
9,700.00	91.80	179.89	8,072.21	1,372.66 S	741.55 W	369,726.24	544,767.15	0.00	1,372.66	0.00	
9,800.00	91.80	179.89	8,069.06	1,472.61 S	741.36 W	369,626.29	544,767.34	0.00	1,472.61	0.00	
9,900.00	91.80	179.89	8,065.91	1,572.56 S	741.17 W	369,526.34	544,767.53	0.00	1,572.56	0.00	
10,000.00	91.80	179.89	8,062.76	1,672.51 S	740.99 W	369,426.39	544,767.71	0.00	1,672.51	0.00	
10,100.00	91.80	179.89	8,059.62	1,772.46 S	740.80 W	369,326.44	544,767.90	0.00	1,772.46	0.00	
10,200.00	91.80	179.89	8,056.47	1,872.41 S	740.61 W	369,226.49	544,768.09	0.00	1,872.41	0.00	
10,300.00	91.80	179.89	8,053.32	1,972.36 S	740.42 W	369,126.54	544,768.28	0.00	1,972.36	0.00	

Plan Report for WCA 6H (Re-stake) - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
10,400.00	91.80	179.89	8,050.18	2,072.31 S	740.24 W	369,026.59	544,768.46	0.00	2,072.31	0.00	
10,500.00	91.80	179.89	8,047.03	2,172.26 S	740.05 W	368,926.64	544,768.65	0.00	2,172.26	0.00	
10,600.00	91.80	179.89	8,043.88	2,272.21 S	739.86 W	368,826.69	544,768.84	0.00	2,272.21	0.00	
10,700.00	91.80	179.89	8,040.73	2,372.16 S	739.67 W	368,726.74	544,769.03	0.00	2,372.16	0.00	
10,800.00	91.80	179.89	8,037.59	2,472.11 S	739.48 W	368,626.79	544,769.22	0.00	2,472.11	0.00	
10,900.00	91.80	179.89	8,034.44	2,572.06 S	739.30 W	368,526.84	544,769.40	0.00	2,572.06	0.00	
11,000.00	91.80	179.89	8,031.29	2,672.01 S	739.11 W	368,426.89	544,769.59	0.00	2,672.01	0.00	
11,100.00	91.80	179.89	8,028.15	2,771.96 S	738.92 W	368,326.94	544,769.78	0.00	2,771.96	0.00	
11,200.00	91.80	179.89	8,025.00	2,871.91 S	738.73 W	368,226.99	544,769.97	0.00	2,871.91	0.00	
11,300.00	91.80	179.89	8,021.85	2,971.87 S	738.55 W	368,127.03	544,770.15	0.00	2,971.87	0.00	
11,400.00	91.80	179.89	8,018.70	3,071.82 S	738.36 W	368,027.08	544,770.34	0.00	3,071.82	0.00	
11,500.00	91.80	179.89	8,015.56	3,171.77 S	738.17 W	367,927.13	544,770.53	0.00	3,171.77	0.00	
11,600.00	91.80	179.89	8,012.41	3,271.72 S	737.98 W	367,827.18	544,770.72	0.00	3,271.72	0.00	
11,700.00	91.80	179.89	8,009.26	3,371.67 S	737.79 W	367,727.23	544,770.91	0.00	3,371.67	0.00	
11,800.00	91.80	179.89	8,006.12	3,471.62 S	737.61 W	367,627.28	544,771.09	0.00	3,471.62	0.00	
11,900.00	91.80	179.89	8,002.97	3,571.57 S	737.42 W	367,527.33	544,771.28	0.00	3,571.57	0.00	
12,000.00	91.80	179.89	7,999.82	3,671.52 S	737.23 W	367,427.38	544,771.47	0.00	3,671.52	0.00	
12,100.00	91.80	179.89	7,996.67	3,771.47 S	737.04 W	367,327.43	544,771.66	0.00	3,771.47	0.00	
12,200.00	91.80	179.89	7,993.53	3,871.42 S	736.86 W	367,227.48	544,771.84	0.00	3,871.42	0.00	
12,300.00	91.80	179.89	7,990.38	3,971.37 S	736.67 W	367,127.53	544,772.03	0.00	3,971.37	0.00	
12,400.00	91.80	179.89	7,987.23	4,071.32 S	736.48 W	367,027.58	544,772.22	0.00	4,071.32	0.00	
12,500.00	91.80	179.89	7,984.09	4,171.27 S	736.29 W	366,927.63	544,772.41	0.00	4,171.27	0.00	
12,600.00	91.80	179.89	7,980.94	4,271.22 S	736.11 W	366,827.68	544,772.59	0.00	4,271.22	0.00	
12,700.00	91.80	179.89	7,977.79	4,371.17 S	735.92 W	366,727.73	544,772.78	0.00	4,371.17	0.00	
12,800.00	91.80	179.89	7,974.64	4,471.12 S	735.73 W	366,627.78	544,772.97	0.00	4,471.12	0.00	
12,900.00	91.80	179.89	7,971.50	4,571.07 S	735.54 W	366,527.83	544,773.16	0.00	4,571.07	0.00	
13,000.00	91.80	179.89	7,968.35	4,671.02 S	735.35 W	366,427.88	544,773.35	0.00	4,671.02	0.00	
13,100.00	91.80	179.89	7,965.20	4,770.97 S	735.17 W	366,327.93	544,773.53	0.00	4,770.97	0.00	
13,200.00	91.80	179.89	7,962.06	4,870.92 S	734.98 W	366,227.98	544,773.72	0.00	4,870.92	0.00	
13,300.00	91.80	179.89	7,958.91	4,970.87 S	734.79 W	366,128.03	544,773.91	0.00	4,970.87	0.00	
13,400.00	91.80	179.89	7,955.76	5,070.82 S	734.60 W	366,028.08	544,774.10	0.00	5,070.82	0.00	
13,500.00	91.80	179.89	7,952.61	5,170.77 S	734.42 W	365,928.13	544,774.28	0.00	5,170.77	0.00	
13,600.00	91.80	179.89	7,949.47	5,270.72 S	734.23 W	365,828.18	544,774.47	0.00	5,270.72	0.00	
13,700.00	91.80	179.89	7,946.32	5,370.67 S	734.04 W	365,728.23	544,774.66	0.00	5,370.67	0.00	
13,800.00	91.80	179.89	7,943.17	5,470.62 S	733.85 W	365,628.28	544,774.85	0.00	5,470.62	0.00	
13,900.00	91.80	179.89	7,940.03	5,570.57 S	733.66 W	365,528.33	544,775.04	0.00	5,570.57	0.00	
14,000.00	91.80	179.89	7,936.88	5,670.52 S	733.48 W	365,428.38	544,775.22	0.00	5,670.52	0.00	

Plan Report for WCA 6H (Re-stake) - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
14,100.00	91.80	179.89	7,933.73	5,770.47 S	733.29 W	365,328.43	544,775.41	0.00	5,770.47	0.00	
14,200.00	91.80	179.89	7,930.58	5,870.42 S	733.10 W	365,228.48	544,775.60	0.00	5,870.42	0.00	
14,300.00	91.80	179.89	7,927.44	5,970.37 S	732.91 W	365,128.53	544,775.79	0.00	5,970.37	0.00	
14,400.00	91.80	179.89	7,924.29	6,070.32 S	732.73 W	365,028.58	544,775.97	0.00	6,070.32	0.00	
14,500.00	91.80	179.89	7,921.14	6,170.27 S	732.54 W	364,928.63	544,776.16	0.00	6,170.27	0.00	
14,600.00	91.80	179.89	7,918.00	6,270.22 S	732.35 W	364,828.68	544,776.35	0.00	6,270.22	0.00	
14,700.00	91.80	179.89	7,914.85	6,370.17 S	732.16 W	364,728.73	544,776.54	0.00	6,370.17	0.00	
14,800.00	91.80	179.89	7,911.70	6,470.13 S	731.97 W	364,628.77	544,776.73	0.00	6,470.13	0.00	
14,900.00	91.80	179.89	7,908.55	6,570.08 S	731.79 W	364,528.82	544,776.91	0.00	6,570.08	0.00	
15,000.00	91.80	179.89	7,905.41	6,670.03 S	731.60 W	364,428.87	544,777.10	0.00	6,670.03	0.00	
15,100.00	91.80	179.89	7,902.26	6,769.98 S	731.41 W	364,328.92	544,777.29	0.00	6,769.98	0.00	
15,200.00	91.80	179.89	7,899.11	6,869.93 S	731.22 W	364,228.97	544,777.48	0.00	6,869.93	0.00	
15,300.00	91.80	179.89	7,895.97	6,969.88 S	731.04 W	364,129.02	544,777.66	0.00	6,969.88	0.00	
15,319.23	91.80	179.89	7,895.36	6,989.10 S	731.00 W	364,109.80	544,777.70	0.00	6,989.10	0.00	TD @ 15319.23' MD

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,490.00	7,490.00	0.00	0.00	KOP, Begin Build
8,054.17	7,931.76	0.00	-296.29	Begin Build & Turn
8,810.70	8,100.19	-483.80	-743.22	Landing Point
15,319.23	7,895.36	-6,989.10	-731.00	TD @ 15319.23' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	15,319.23	Plan 2	MWD

Plan Report for WCA 6H (Re-stake) - Plan 2

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,500.00	13 3/8"	13-3/8	17-1/2

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	TVDSS (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
45.00	45.00	-3,410.00	Castile		-1.80000	179.89
1,580.00	1,580.00	-1,875.00	Delaware Mtn Gr		-1.80000	179.89
5,105.00	5,105.00	1,650.00	Bone Spring		-1.80000	179.89
5,965.00	5,965.00	2,510.00	1st Bone Spring SS		-1.80000	179.89
6,480.00	6,480.00	3,025.00	2nd Bone Spring SS		-1.80000	179.89
6,805.00	6,805.00	3,350.00	3rd Bone Spring LS		-1.80000	179.89
7,653.16	7,650.00	4,195.00	3rd Bone Spring SS		-1.80000	179.89
8,169.12	7,975.00	4,520.00	Wolfcamp		-1.80000	179.89
8,554.98	8,090.00	4,635.00	Wolfcamp "Y"		-1.80000	179.89

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Cottonwood 29-32 Fed WCA 6H PP ()									
	0.00	0.00	0.00	-229.20	-744.20	370,869.70	544,764.50	32° 1' 10.561 N	104° 19' 20.193 W
- plan misses target center by 778.70usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Cottonwood 29-32 Fed WCA 6H PBHL ()									
	0.00	0.00	0.00	-6,989.10	-731.00	364,109.80	544,777.70	32° 0' 3.663 N	104° 19' 20.047 W
- plan misses target center by 7027.22usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.03 °/100usft	Maximum Dogleg over Survey:	12.00 °/100usft at 8,810.70 usft
Net Tortousity applicable to Plans:	1.03 °/100usft	Directional Difficulty Index:	6.513

Plan Report for WCA 6H (Re-stake) - Plan 2

Audit Info

North Reference Sheet for Cottonwood 29-32 Fed - WCA 6H (Re-stake) - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GE 3433 + 22' KB @ 3455.00usft (22' KB). Northing and Easting are relative to WCA 6H (Re-stake)

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 104° 20' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 0° 0' 0.000 N°

False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99990911

Grid Coordinates of Well: 371,098.90 usft N, 545,508.70 usft E

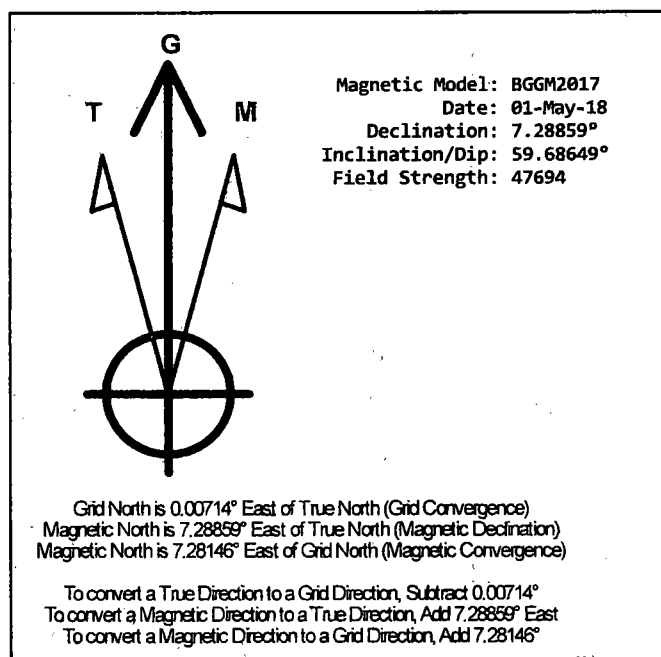
Geographical Coordinates of Well: 32° 01' 12.83" N, 104° 19' 11.55" W

Grid Convergence at Surface is: 0.00714°

Based upon Minimum Curvature type calculations, at a Measured Depth of 15,319.23usft

the Bottom Hole Displacement is 7,027.22usft in the Direction of 185.97° (Grid).

Magnetic Convergence at surface is: -7.28000° (1 May 2018, , BGGM2017)



Job#
Rig 22 KB

Chisholm Energy Holdings

Eddy County, NM (NAD 83) Cottonwood 29-32 Fed

API#

WCA 6H (Re-stake)

Wellbore #1

Sperry Drilling Services

Ellipse Separation

Anticollision Report

Minimum Magnetic Interference Warning level is 50' center to center

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)
Reference Design: Cottonwood 29-32 Fed - WCA 6H (Re-stake) - Wellbore #1 - Plan 2

Well Coordinates: 32° 01' 12.83" N
104° 19' 11.55" W

North American Datum 1983
New Mexico Eastern Zone
371,098.90 N
545,508.70 E

Ground Level: 3,433.00 usft

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Version: 5000.1 Build: 81E

Report Version: Midcon Ellipse v1.50

HALLIBURTON

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Anticollision Summary

Reference Design: Cottonwood 29-32 Fed - WCA 6H (Re-stake) - Wellbore #1 - Plan 2

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Site Name	Measured Depth (usft)	Minimum Distance (usft)	@Measured Depth (usft)	Ellipse Separation (usft)	@Measured Depth usft	Clearance Factor	Summary Based on Minimum
Comparison Well Name - Wellbore Name - Design							
Cottonwood 29-32 Fed							
2BS 1H - Wellbore #1 - Wellbore #1							
	5,485.11	98.19	5,485.11	73.32	5,485.68	3.948	Centre Distance
	5,600.00	98.63	5,600.00	73.25	5,599.63	3.887	Ellipse Separation
	6,000.00	104.68	6,000.00	77.57	5,999.21	3.862	Clearance Factor
2BS 2H - Wellbore #1 - Wellbore #1							
	2,503.31	93.83	2,503.31	81.87	2,503.77	7.851	Centre Distance
	2,700.00	94.33	2,700.00	81.53	2,700.09	7.367	Ellipse Separation
	6,100.00	130.56	6,100.00	102.98	6,098.92	4.733	Clearance Factor
WCA 9H - Wellbore #1 - Plan 1							
	7,400.00	60.00	7,400.00	25.71	7,400.00	1.750	Centre Distance
	7,500.00	60.10	7,500.00	25.36	7,500.00	1.730	Ellipse Separation / Clearance Factor

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 1H - Wellbore #1 - Wellbore #1

119-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited.

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
100.00	100.00	0.00	0.00	0.51	99.57	99.57	-100.11	0.49	0.51	100.11	97.81	179.72	43.477
200.00	200.00	0.00	0.00	0.59	199.40	199.40	-100.62	1.29	0.58	100.63	98.17	179.26	41.034
300.00	300.00	0.00	0.00	0.73	299.30	299.29	-101.33	1.98	0.70	101.35	98.63	178.88	37.278
400.00	400.00	0.00	0.00	0.91	399.13	399.12	-102.10	2.27	0.86	102.13	99.08	178.73	33.455
500.00	500.00	0.00	0.00	1.11	499.71	499.69	-102.72	1.71	1.04	102.73	99.30	179.04	29.963
600.00	600.00	0.00	0.00	1.31	600.19	600.16	-102.79	0.20	1.23	102.79	98.96	179.89	26.866
621.71	621.71	0.00	0.00	1.36	621.74	621.71	-102.77	-0.17	1.27	102.77	98.86	-179.90	26.267
700.00	700.00	0.00	0.00	1.52	699.33	699.28	-103.03	-1.35	1.42	103.04	98.81	-179.25	24.369
800.00	800.00	0.00	0.00	1.73	799.92	799.87	-103.65	-2.38	1.62	103.68	99.04	-178.68	22.358
900.00	900.00	0.00	0.00	1.95	900.26	900.21	-103.49	-2.88	1.82	103.53	98.48	-178.41	20.487
1,000.00	1,000.00	0.00	0.00	2.17	1,000.46	1,000.41	-103.18	-3.60	2.02	103.24	97.77	-178.00	18.859
1,089.50	1,089.50	0.00	0.00	2.37	1,089.56	1,089.50	-102.93	-4.50	2.20	103.03	97.17	-177.50	17.605
1,100.00	1,100.00	0.00	0.00	2.39	1,100.00	1,099.94	-102.92	-4.67	2.22	103.03	97.13	-177.40	17.473
1,200.00	1,200.00	0.00	0.00	2.61	1,199.83	1,199.76	-103.05	-5.67	2.43	103.20	96.88	-176.85	16.328
1,300.00	1,300.00	0.00	0.00	2.83	1,300.27	1,300.19	-103.13	-4.63	2.63	103.24	96.49	-177.43	15.311
1,400.00	1,400.00	0.00	0.00	3.05	1,400.53	1,400.43	-102.86	-2.64	2.83	102.90	95.73	-178.53	14.352
1,441.63	1,441.63	0.00	0.00	3.14	1,441.74	1,441.63	-102.79	-1.85	2.92	102.81	95.46	-178.97	13.994
1,500.00	1,500.00	0.00	0.00	3.27	1,499.64	1,499.53	-102.97	-0.93	3.04	102.98	95.38	-179.48	13.557
1,600.00	1,600.00	0.00	0.00	3.50	1,599.88	1,599.76	-103.28	0.30	3.24	103.28	95.25	179.84	12.868
1,700.00	1,700.00	0.00	0.00	3.72	1,699.58	1,699.45	-103.65	1.81	3.45	103.66	95.21	179.00	12.261
1,800.00	1,800.00	0.00	0.00	3.94	1,799.22	1,799.08	-104.31	2.91	3.66	104.35	95.47	178.40	11.745
1,900.00	1,900.00	0.00	0.00	4.16	1,898.89	1,898.75	-105.35	3.24	3.87	105.41	96.09	178.24	11.315
2,000.00	2,000.00	0.00	0.00	4.39	1,998.45	1,998.29	-106.70	3.66	4.07	106.77	97.03	178.03	10.957
2,100.00	2,100.00	0.00	0.00	4.61	2,098.30	2,098.13	-108.41	3.57	4.29	108.49	98.31	178.11	10.659
2,200.00	2,200.00	0.00	0.00	4.83	2,198.90	2,198.72	-109.94	3.49	4.50	110.00	99.39	178.18	10.365
2,300.00	2,300.00	0.00	0.00	5.06	2,299.07	2,298.88	-110.97	3.52	4.71	111.03	99.99	178.18	10.052
2,400.00	2,400.00	0.00	0.00	5.28	2,398.25	2,398.05	-112.29	3.13	4.92	112.35	100.88	178.40	9.788
2,500.00	2,500.00	0.00	0.00	5.50	2,498.92	2,498.71	-113.82	2.58	5.13	113.85	101.94	178.70	9.557
2,600.00	2,600.00	0.00	0.00	5.73	2,598.23	2,598.01	-115.21	2.46	5.33	115.26	102.92	178.78	9.340
2,700.00	2,700.00	0.00	0.00	5.95	2,698.44	2,698.20	-116.83	2.82	5.54	116.88	104.11	178.62	9.152

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 1H - Wellbore #1 - Wellbore #1

119-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
2,800.00	2,800.00	0.00	0.00	6.18	2,798.64	2,798.40	-118.45	2.83	5.75	118.50	105.29	178.63	8.973
2,900.00	2,900.00	0.00	0.00	6.40	2,901.94	2,901.69	-118.11	2.46	5.97	118.15	104.50	178.81	8.658
3,000.00	3,000.00	0.00	0.00	6.62	3,001.37	3,001.11	-116.97	1.68	6.17	116.98	102.90	179.18	8.309
3,100.00	3,100.00	0.00	0.00	6.85	3,100.95	3,100.68	-116.19	0.84	6.38	116.19	101.68	179.59	8.007
3,200.00	3,200.00	0.00	0.00	7.07	3,200.53	3,200.25	-115.85	-0.54	6.59	115.85	100.90	-179.73	7.752
3,300.00	3,300.00	0.00	0.00	7.30	3,301.00	3,300.70	-115.54	-2.37	6.80	115.57	100.19	-178.82	7.513
3,400.00	3,400.00	0.00	0.00	7.52	3,401.62	3,401.30	-114.47	-4.11	7.01	114.55	98.74	-177.94	7.243
3,500.00	3,500.00	0.00	0.00	7.75	3,500.82	3,500.48	-113.48	-5.70	7.22	113.62	97.37	-177.12	6.992
3,532.35	3,532.35	0.00	0.00	7.82	3,532.69	3,532.35	-113.39	-6.03	7.29	113.55	97.17	-176.96	6.929
3,600.00	3,600.00	0.00	0.00	7.97	3,599.91	3,599.57	-113.53	-6.56	7.43	113.72	97.04	-176.69	6.817
3,700.00	3,700.00	0.00	0.00	8.19	3,699.83	3,699.48	-113.94	-7.59	7.64	114.20	97.08	-176.19	6.672
3,800.00	3,800.00	0.00	0.00	8.42	3,799.95	3,799.60	-114.28	-8.54	7.85	114.60	97.05	-175.73	6.530
3,900.00	3,900.00	0.00	0.00	8.64	3,899.44	3,899.07	-114.65	-9.96	8.06	115.09	97.10	-175.04	6.400
4,000.00	4,000.00	0.00	0.00	8.87	4,000.04	3,999.66	-115.23	-11.49	8.27	115.81	97.39	-174.31	6.287
4,100.00	4,100.00	0.00	0.00	9.09	4,102.38	4,101.99	-114.53	-12.27	8.48	115.20	96.35	-173.88	6.111
4,200.00	4,200.00	0.00	0.00	9.32	4,202.20	4,201.80	-112.64	-12.63	8.69	113.37	94.08	-173.60	5.879
4,300.00	4,300.00	0.00	0.00	9.54	4,301.53	4,301.12	-111.30	-13.13	8.90	112.07	92.35	-173.27	5.684
4,400.00	4,400.00	0.00	0.00	9.77	4,401.29	4,400.87	-110.38	-13.42	9.10	111.19	91.04	-173.07	5.518
4,500.00	4,500.00	0.00	0.00	9.99	4,502.64	4,502.21	-108.81	-14.12	9.32	109.75	89.16	-172.60	5.331
4,600.00	4,600.00	0.00	0.00	10.21	4,602.14	4,601.68	-106.97	-15.17	9.52	108.05	87.03	-171.93	5.140
4,700.00	4,700.00	0.00	0.00	10.44	4,703.19	4,702.70	-104.84	-14.47	9.73	105.87	84.42	-172.14	4.935
4,800.00	4,800.00	0.00	0.00	10.66	4,802.71	4,802.18	-102.72	-12.80	9.94	103.54	81.65	-172.90	4.731
4,900.00	4,900.00	0.00	0.00	10.89	4,902.18	4,901.64	-100.96	-11.71	10.15	101.65	79.33	-173.38	4.554
5,000.00	5,000.00	0.00	0.00	11.11	5,001.53	5,000.98	-99.77	-11.08	10.36	100.39	77.63	-173.66	4.411
5,100.00	5,100.00	0.00	0.00	11.34	5,101.16	5,100.60	-99.01	-11.03	10.58	99.63	76.43	-173.64	4.295
5,200.00	5,200.00	0.00	0.00	11.56	5,200.91	5,200.35	-98.49	-11.19	10.79	99.13	75.49	-173.52	4.194
5,300.00	5,300.00	0.00	0.00	11.79	5,300.94	5,300.38	-98.16	-11.78	11.00	98.87	74.79	-173.16	4.107
5,400.00	5,400.00	0.00	0.00	12.01	5,400.95	5,400.38	-97.56	-12.48	11.21	98.36	73.85	-172.71	4.014
5,485.11	5,485.11	0.00	0.00	12.20	5,485.68	5,485.11	-97.35	-12.88	11.39	98.19	73.32	-172.46	3.948

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 1H - Wellbore #1 - Wellbore #1

119-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
5,500.00	5,500.00	0.00	0.00	12.24	5,500.50	5,499.93	-97.34	-12.94	11.42	98.20	73.26	-172.43	3.938
5,600.00	5,600.00	0.00	0.00	12.46	5,599.63	5,599.06	-97.72	-13.30	11.63	98.63	73.25	-172.25	3.887
5,700.00	5,700.00	0.00	0.00	12.68	5,698.90	5,698.33	-99.02	-13.93	11.84	100.01	74.20	-171.99	3.875
5,800.00	5,800.00	0.00	0.00	12.91	5,798.80	5,798.20	-100.72	-14.59	12.05	101.79	75.55	-171.76	3.879
5,900.00	5,900.00	0.00	0.00	13.13	5,899.10	5,898.49	-102.36	-14.76	12.26	103.43	76.76	-171.80	3.878
6,000.00	6,000.00	0.00	0.00	13.36	5,999.21	5,998.59	-103.55	-15.28	12.47	104.68	77.57	-171.61	3.862
6,100.00	6,100.00	0.00	0.00	13.58	6,097.66	6,096.54	-103.91	-24.32	12.68	106.77	79.24	-166.83	3.878
6,200.00	6,200.00	0.00	0.00	13.81	6,194.62	6,190.95	-102.00	-46.10	12.90	112.29	84.38	-155.68	4.023
6,300.00	6,300.00	0.00	0.00	14.03	6,285.29	6,277.31	-97.54	-73.29	13.12	124.10	96.08	-143.08	4.429
6,400.00	6,400.00	0.00	0.00	14.26	6,358.43	6,343.95	-96.44	-103.27	13.34	152.01	124.88	-133.04	5.602
6,500.00	6,500.00	0.00	0.00	14.48	6,426.63	6,402.05	-97.42	-138.91	13.59	195.91	169.92	-125.04	7.538
6,600.00	6,600.00	0.00	0.00	14.71	6,482.22	6,446.39	-100.33	-172.26	13.84	251.67	227.11	-120.22	10.247
6,700.00	6,700.00	0.00	0.00	14.93	6,540.52	6,490.14	-107.58	-210.06	14.16	315.82	291.99	-117.12	13.255
6,800.00	6,800.00	0.00	0.00	15.16	6,591.40	6,526.76	-116.29	-244.28	14.48	384.52	361.41	-115.46	16.641
6,900.00	6,900.00	0.00	0.00	15.38	6,628.00	6,551.60	-123.77	-270.09	14.75	457.88	435.77	-114.62	20.711
7,000.00	7,000.00	0.00	0.00	15.60	6,670.84	6,578.85	-133.97	-301.52	15.10	535.01	513.35	-113.96	24.702
7,100.00	7,100.00	0.00	0.00	15.83	6,710.20	6,602.45	-145.18	-330.96	15.46	614.95	593.67	-113.69	28.895
7,200.00	7,200.00	0.00	0.00	16.05	6,744.36	6,622.11	-156.94	-356.29	15.78	696.80	675.90	-113.77	33.333
7,300.00	7,300.00	0.00	0.00	16.28	6,776.96	6,639.81	-170.03	-380.32	16.11	780.64	760.02	-114.09	37.856
7,400.00	7,400.00	0.00	0.00	16.50	6,807.37	6,655.59	-183.99	-402.24	16.42	865.91	845.51	-114.58	42.463
7,500.00	7,500.00	0.00	-0.10	16.73	6,830.14	6,666.82	-195.48	-418.38	16.66	952.55	932.47	-24.17	47.436
7,600.00	7,599.03	0.00	-12.62	16.93	6,850.00	6,675.99	-206.23	-432.33	16.88	1,034.75	1,015.15	-18.42	52.802
7,700.00	7,693.29	0.00	-45.44	17.15	6,881.00	6,689.21	-224.44	-453.64	17.22	1,106.88	1,087.67	-15.73	57.634
7,800.00	7,778.67	0.00	-97.15	17.43	6,913.00	6,701.69	-244.99	-474.75	17.58	1,167.26	1,148.49	-14.43	62.188
7,900.00	7,851.44	0.00	-165.48	17.84	6,945.00	6,713.04	-267.27	-494.70	17.93	1,214.82	1,196.45	-13.94	66.144
8,000.00	7,908.41	0.00	-247.44	18.47	6,977.00	6,723.25	-291.33	-513.15	18.28	1,249.03	1,230.92	-14.02	68.973
8,100.00	7,949.06	-2.20	-338.65	19.38	6,998.43	6,729.51	-308.37	-524.54	18.50	1,271.07	1,253.16	-13.25	70.964
8,200.00	7,985.66	-22.09	-429.36	20.46	7,040.00	6,740.63	-343.34	-544.03	18.92	1,290.90	1,272.75	-12.17	71.119
8,300.00	8,019.34	-61.88	-514.49	21.62	7,104.46	6,756.86	-400.92	-567.91	19.49	1,308.31	1,289.49	-11.68	69.551
8,400.00	8,048.66	-119.82	-590.30	22.77	7,160.77	6,771.17	-453.70	-581.10	19.92	1,320.43	1,301.14	-10.91	68.437

HALLIBURTON**Anticollision Report for WCA 6H (Re-stake) - Plan 2**

Offset Design: Cottonwood 29-32 Fed - 2BS 1H - Wellbore #1 - Wellbore #1

119-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
8,500.00	8,072.31	-193.38	-653.48	23.81	7,199.00	6,780.35	-490.54	-585.52	20.17	1,327.44	1,308.06	-9.79	68.508
8,600.00	8,089.27	-279.35	-701.28	24.70	7,231.00	6,786.92	-521.82	-586.80	20.37	1,329.67	1,310.37	-8.71	68.892
8,700.00	8,098.80	-373.97	-731.60	25.42	7,262.00	6,791.23	-552.51	-586.63	20.55	1,327.64	1,308.43	-7.78	69.087
8,800.00	8,100.49	-473.11	-743.13	25.95	7,262.00	6,791.23	-552.51	-586.63	20.55	1,320.96	1,302.15	-6.89	70.237
8,900.00	8,097.38	-573.06	-743.05	26.40	7,290.00	6,792.97	-580.44	-585.88	20.72	1,313.87	1,294.82	-6.87	68.962
9,000.00	8,094.24	-673.01	-742.86	26.93	7,385.00	6,793.63	-675.39	-583.31	21.32	1,310.36	1,290.30	-7.00	65.339
9,100.00	8,091.09	-772.96	-742.68	27.55	7,477.08	6,792.97	-767.45	-581.62	21.95	1,308.08	1,287.00	-7.08	62.035
9,200.00	8,087.94	-872.91	-742.49	28.25	7,579.65	6,792.97	-869.99	-579.19	22.73	1,305.23	1,282.96	-7.19	58.613
9,300.00	8,084.79	-972.86	-742.30	29.06	7,672.93	6,792.96	-963.21	-575.72	23.57	1,302.57	1,279.15	-7.35	55.632
9,400.00	8,081.65	-1,072.81	-742.11	29.95	7,765.00	6,792.72	-1,055.17	-571.21	24.49	1,300.33	1,275.74	-7.56	52.880
9,500.00	8,078.50	-1,172.76	-741.92	30.94	7,859.00	6,791.65	-1,149.05	-566.62	25.48	1,298.95	1,273.14	-7.76	50.314
9,579.38	8,076.00	-1,252.10	-741.78	31.78	7,921.30	6,790.24	-1,211.28	-563.97	26.19	1,298.64	1,271.95	-7.87	48.656
9,600.00	8,075.35	-1,272.71	-741.74	32.00	7,939.48	6,789.75	-1,229.43	-563.22	26.40	1,298.66	1,271.72	-7.90	48.211
9,700.00	8,072.21	-1,372.66	-741.55	33.15	8,022.57	6,786.92	-1,312.41	-559.84	27.41	1,299.46	1,271.36	-8.04	46.231
9,800.00	8,069.06	-1,472.61	-741.36	34.36	8,121.15	6,782.55	-1,410.82	-556.25	28.66	1,301.22	1,271.78	-8.18	44.192
9,900.00	8,065.91	-1,572.56	-741.17	35.64	8,212.45	6,778.31	-1,502.00	-554.09	29.85	1,303.04	1,272.31	-8.26	42.410
10,000.00	8,062.76	-1,672.51	-740.99	36.97	8,291.05	6,773.70	-1,580.44	-552.36	30.94	1,306.04	1,274.14	-8.32	40.945
10,100.00	8,059.62	-1,772.46	-740.80	38.35	8,366.78	6,767.74	-1,655.93	-551.34	32.03	1,310.89	1,277.84	-8.33	39.663
10,200.00	8,056.47	-1,872.41	-740.61	39.77	8,452.41	6,759.42	-1,741.16	-550.51	33.27	1,317.46	1,283.16	-8.33	38.408
10,300.00	8,053.32	-1,972.36	-740.42	41.22	8,600.57	6,746.95	-1,888.76	-548.53	35.35	1,323.04	1,286.87	-8.35	36.575
10,400.00	8,050.18	-2,072.31	-740.24	42.72	8,705.61	6,740.96	-1,993.61	-546.82	36.89	1,325.76	1,288.11	-8.40	35.209
10,500.00	8,047.03	-2,172.26	-740.05	44.24	8,792.62	6,735.54	-2,080.45	-545.48	38.24	1,329.02	1,290.06	-8.43	34.116
10,600.00	8,043.88	-2,272.21	-739.86	45.78	8,928.74	6,728.12	-2,216.36	-544.40	40.29	1,331.37	1,290.59	-8.45	32.645
10,700.00	8,040.73	-2,372.16	-739.67	47.35	9,025.19	6,723.90	-2,312.71	-545.20	41.76	1,332.44	1,290.26	-8.40	31.589
10,800.00	8,037.59	-2,472.11	-739.48	48.94	9,114.33	6,719.19	-2,401.70	-546.99	43.17	1,334.23	1,290.74	-8.30	30.677
10,900.00	8,034.44	-2,572.06	-739.30	50.54	9,254.64	6,712.17	-2,541.80	-549.80	45.41	1,336.12	1,290.77	-8.16	29.461
11,000.00	8,031.29	-2,672.01	-739.11	52.17	9,372.32	6,710.84	-2,659.47	-549.78	47.25	1,334.02	1,287.00	-8.16	28.376
11,100.00	8,028.15	-2,771.96	-738.92	53.80	9,471.32	6,709.98	-2,758.46	-549.01	48.84	1,331.85	1,283.36	-8.20	27.469
11,200.00	8,025.00	-2,871.91	-738.73	55.46	9,570.41	6,709.02	-2,857.55	-548.34	50.43	1,329.76	1,279.80	-8.23	26.615

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 1H - Wellbore #1 - Wellbore #1

119-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
11,300.00	8,021.85	-2,971.87	-738.55	57.12	9,670.90	6,707.96	-2,958.02	-548.50	52.05	1,327.63	1,276.19	-8.23	25.806
11,400.00	8,018.70	-3,071.82	-738.36	58.79	9,762.80	6,706.53	-3,049.91	-549.54	53.55	1,325.87	1,273.05	-8.19	25.100
11,500.00	8,015.56	-3,171.77	-738.17	60.47	9,867.41	6,704.87	-3,154.51	-550.34	55.27	1,324.19	1,269.85	-8.16	24.365
11,600.00	8,012.41	-3,271.72	-737.98	62.17	9,978.55	6,704.12	-3,265.58	-546.88	57.07	1,322.19	1,266.17	-8.31	23.601
11,700.00	8,009.26	-3,371.67	-737.79	63.87	10,100.04	6,705.66	-3,386.93	-541.50	59.02	1,318.39	1,260.53	-8.57	22.786
11,800.00	8,006.12	-3,471.62	-737.61	65.57	10,189.43	6,707.12	-3,476.24	-537.86	60.47	1,314.27	1,254.95	-8.75	22.153
11,900.00	8,002.97	-3,571.57	-737.42	67.29	10,272.98	6,707.44	-3,559.70	-533.94	61.86	1,311.47	1,250.73	-8.93	21.592
12,000.00	7,999.82	-3,671.52	-737.23	69.01	10,359.90	6,706.78	-3,646.54	-530.27	63.33	1,309.74	1,247.56	-9.09	21.062
12,100.00	7,996.67	-3,771.47	-737.04	70.73	10,449.81	6,705.11	-3,736.38	-527.25	64.86	1,308.96	1,245.31	-9.23	20.565
12,193.76	7,993.72	-3,865.18	-736.87	72.36	10,537.64	6,703.01	-3,824.14	-524.49	66.36	1,308.71	1,243.64	-9.34	20.112
12,200.00	7,993.53	-3,871.42	-736.86	72.47	10,543.22	6,702.86	-3,829.71	-524.32	66.45	1,308.71	1,243.55	-9.35	20.084
12,300.00	7,990.38	-3,971.37	-736.67	74.20	10,631.24	6,700.11	-3,917.65	-521.56	67.96	1,309.18	1,242.58	-9.46	19.656
12,400.00	7,987.23	-4,071.32	-736.48	75.94	10,725.23	6,696.13	-4,011.51	-518.72	69.57	1,310.70	1,242.58	-9.57	19.241
12,500.00	7,984.09	-4,171.27	-736.29	77.69	10,848.89	6,692.75	-4,135.07	-515.03	71.63	1,310.66	1,240.62	-9.72	18.713
12,577.26	7,981.65	-4,248.49	-736.15	79.04	10,921.31	6,690.99	-4,207.43	-512.78	72.85	1,310.50	1,239.27	-9.82	18.398
12,600.00	7,980.94	-4,271.22	-736.11	79.44	10,942.15	6,690.42	-4,228.25	-512.14	73.21	1,310.51	1,238.94	-9.84	18.310
12,700.00	7,977.79	-4,371.17	-735.92	81.19	11,060.20	6,687.35	-4,346.22	-508.95	75.22	1,310.49	1,237.06	-9.98	17.848
12,800.00	7,974.64	-4,471.12	-735.73	82.95	11,218.62	6,688.85	-4,504.60	-506.78	77.80	1,306.45	1,230.72	-10.11	17.253
12,900.00	7,971.50	-4,571.07	-735.54	84.71	11,313.71	6,691.50	-4,599.65	-506.04	79.38	1,300.72	1,223.46	-10.17	16.834
13,000.00	7,968.35	-4,671.02	-735.35	86.47	11,400.87	6,693.06	-4,686.79	-505.21	80.86	1,295.98	1,217.26	-10.24	16.462
13,100.00	7,965.20	-4,770.97	-735.17	88.23	11,494.61	6,694.12	-4,780.52	-504.64	82.48	1,291.86	1,211.61	-10.29	16.098
13,200.00	7,962.06	-4,870.92	-734.98	90.00	11,588.53	6,694.58	-4,874.44	-504.56	84.11	1,288.26	1,206.50	-10.31	15.758
13,300.00	7,958.91	-4,970.87	-734.79	91.77	11,685.34	6,694.63	-4,971.25	-505.10	85.78	1,284.97	1,201.70	-10.30	15.432
13,400.00	7,955.76	-5,070.82	-734.60	93.54	11,779.40	6,694.33	-5,065.30	-506.02	87.41	1,281.98	1,197.25	-10.28	15.130
13,500.00	7,952.61	-5,170.77	-734.42	95.32	11,869.04	6,693.39	-5,154.93	-507.07	88.97	1,279.68	1,193.55	-10.24	14.857
13,600.00	7,949.47	-5,270.72	-734.23	97.09	11,959.94	6,691.71	-5,245.81	-507.87	90.55	1,278.20	1,190.66	-10.20	14.600
13,700.00	7,946.32	-5,370.67	-734.04	98.87	12,061.41	6,689.90	-5,347.25	-506.50	92.27	1,277.07	1,187.90	-10.27	14.321
13,800.00	7,943.17	-5,470.62	-733.85	100.65	12,165.53	6,689.01	-5,451.31	-502.77	94.03	1,275.41	1,184.46	-10.44	14.023
13,900.00	7,940.03	-5,570.57	-733.66	102.44	12,272.83	6,688.03	-5,558.52	-498.72	95.86	1,273.91	1,181.11	-10.63	13.729
14,000.00	7,936.88	-5,670.52	-733.48	104.22	12,389.82	6,688.41	-5,675.48	-496.15	97.82	1,270.83	1,176.13	-10.77	13.420

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 1H - Wellbore #1 - Wellbore #1

119-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
14,100.00	7,933.73	-5,770.47	-733.29	106.01	12,487.67	6,689.10	-5,773.32	-494.64	99.47	1,267.31	1,170.97	-10.86	13.155
14,200.00	7,930.58	-5,870.42	-733.10	107.79	12,592.38	6,689.61	-5,878.02	-493.87	101.26	1,263.85	1,165.82	-10.92	12.893
14,300.00	7,927.44	-5,970.37	-732.91	109.58	12,687.44	6,690.00	-5,973.08	-494.10	102.89	1,260.27	1,160.71	-10.93	12.659
14,400.00	7,924.29	-6,070.32	-732.73	111.37	12,777.79	6,689.64	-6,063.42	-495.25	104.47	1,257.30	1,156.32	-10.89	12.451
14,500.00	7,921.14	-6,170.27	-732.54	113.16	12,878.04	6,688.81	-6,163.66	-496.40	106.19	1,254.77	1,152.26	-10.85	12.240
14,600.00	7,918.00	-6,270.22	-732.35	114.95	12,971.63	6,688.18	-6,257.24	-495.93	107.77	1,252.40	1,148.36	-10.88	12.037
14,700.00	7,914.85	-6,370.17	-732.16	116.75	13,079.46	6,687.69	-6,365.06	-494.07	109.59	1,250.05	1,144.22	-10.98	11.812
14,800.00	7,911.70	-6,470.13	-731.97	118.54	13,184.74	6,688.02	-6,470.31	-491.57	111.36	1,247.07	1,139.43	-11.12	11.586
14,900.00	7,908.55	-6,570.08	-731.79	120.34	13,281.54	6,688.41	-6,567.07	-489.19	113.02	1,244.03	1,134.68	-11.25	11.377
15,000.00	7,905.41	-6,670.03	-731.60	122.13	13,373.20	6,688.51	-6,658.69	-486.21	114.61	1,241.45	1,130.41	-11.40	11.181
15,100.00	7,902.26	-6,769.98	-731.41	123.93	13,460.54	6,687.85	-6,745.96	-482.92	116.12	1,239.81	1,127.13	-11.57	11.004
15,200.00	7,899.11	-6,869.93	-731.22	125.73	13,563.69	6,686.81	-6,849.03	-478.97	117.88	1,238.45	1,123.88	-11.76	10.810
15,300.00	7,895.97	-6,969.88	-731.04	127.53	13,661.33	6,685.70	-6,946.61	-475.60	119.57	1,237.15	1,120.78	-11.92	10.632
15,319.23	7,895.36	-6,989.10	-731.00	127.87	13,680.55	6,685.46	-6,965.82	-474.96	119.90	1,236.91	1,120.19	-11.95	10.597

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 2H - Wellbore #1 - Wellbore #1

96-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
100.00	100.00	0.00	0.00	0.51	100.52	100.52	-99.83	59.84	0.51	116.39	114.09	149.06	50.538
200.00	200.00	0.00	0.00	0.59	200.16	200.15	-100.08	59.00	0.59	116.17	113.71	149.48	47.134
300.00	300.00	0.00	0.00	0.73	300.61	300.59	-100.55	57.51	0.73	115.84	113.08	150.23	42.111
400.00	400.00	0.00	0.00	0.91	400.75	400.72	-100.89	55.66	0.90	115.23	112.13	151.12	37.192
500.00	500.00	0.00	0.00	1.11	501.10	501.04	-100.98	53.88	1.08	114.46	110.99	151.92	33.005
600.00	600.00	0.00	0.00	1.31	601.44	601.38	-100.59	52.32	1.26	113.40	109.54	152.52	29.408
700.00	700.00	0.00	0.00	1.52	701.49	701.42	-99.85	51.04	1.45	112.15	107.89	152.92	26.361
800.00	800.00	0.00	0.00	1.73	801.68	801.59	-99.14	49.45	1.65	110.80	106.13	153.49	23.738
900.00	900.00	0.00	0.00	1.95	901.97	901.85	-98.39	47.39	1.85	109.22	104.13	154.28	21.455
1,000.00	1,000.00	0.00	0.00	2.17	1,001.83	1,001.69	-97.53	45.30	2.06	107.55	102.04	155.09	19.508
1,100.00	1,100.00	0.00	0.00	2.39	1,101.39	1,101.24	-96.91	43.60	2.26	106.28	100.34	155.78	17.909
1,200.00	1,200.00	0.00	0.00	2.61	1,201.59	1,201.41	-96.33	41.53	2.47	104.91	98.55	156.68	16.492
1,300.00	1,300.00	0.00	0.00	2.83	1,301.06	1,300.87	-95.79	40.15	2.68	103.86	97.08	157.26	15.307
1,400.00	1,400.00	0.00	0.00	3.05	1,400.79	1,400.60	-95.19	39.71	2.88	103.14	95.93	157.35	14.308
1,500.00	1,500.00	0.00	0.00	3.27	1,500.45	1,500.26	-94.71	39.78	3.08	102.73	95.10	157.22	13.457
1,600.00	1,600.00	0.00	0.00	3.50	1,600.27	1,600.07	-94.67	39.59	3.29	102.62	94.55	157.30	12.727
1,700.00	1,700.00	0.00	0.00	3.72	1,700.47	1,700.28	-94.56	39.41	3.49	102.45	93.95	157.38	12.064
1,800.00	1,800.00	0.00	0.00	3.94	1,801.35	1,801.15	-93.98	39.35	3.70	101.90	92.98	157.28	11.421
1,900.00	1,900.00	0.00	0.00	4.16	1,901.92	1,901.67	-91.53	41.10	3.91	100.35	90.99	155.82	10.731
2,000.00	2,000.00	0.00	0.00	4.39	2,001.85	2,001.55	-88.92	42.80	4.12	98.70	88.92	154.30	10.093
2,100.00	2,100.00	0.00	0.00	4.61	2,101.78	2,101.44	-86.43	44.41	4.32	97.18	86.97	152.80	9.518
2,200.00	2,200.00	0.00	0.00	4.83	2,201.53	2,201.15	-84.08	45.94	4.53	95.82	85.17	151.35	9.004
2,300.00	2,300.00	0.00	0.00	5.06	2,301.38	2,300.97	-82.02	47.37	4.74	94.72	83.65	149.99	8.554
2,400.00	2,400.00	0.00	0.00	5.28	2,400.78	2,400.34	-80.27	48.90	4.95	93.99	82.49	148.65	8.171
2,500.00	2,500.00	0.00	0.00	5.50	2,500.46	2,500.01	-79.14	50.40	5.16	93.83	81.89	147.51	7.861
2,503.31	2,503.31	0.00	0.00	5.51	2,503.77	2,503.31	-79.11	50.45	5.16	93.83	81.87	147.47	7.851
2,600.00	2,600.00	0.00	0.00	5.73	2,600.20	2,599.73	-78.29	51.96	5.37	93.97	81.60	146.43	7.596
2,700.00	2,700.00	0.00	0.00	5.95	2,700.09	2,699.60	-77.59	53.64	5.57	94.33	81.53	145.34	7.367
2,800.00	2,800.00	0.00	0.00	6.18	2,799.99	2,799.48	-76.92	55.43	5.78	94.81	81.57	144.22	7.163
2,900.00	2,900.00	0.00	0.00	6.40	2,899.91	2,899.39	-76.43	57.09	6.00	95.40	81.73	143.24	6.977

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 2H - Wellbore #1 - Wellbore #1

96-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
3,000.00	3,000.00	0.00	0.00	6.62	2,999.74	2,999.20	-76.12	58.73	6.21	96.15	82.04	142.35	6.815
3,100.00	3,100.00	0.00	0.00	6.85	3,099.75	3,099.20	-76.11	60.12	6.42	96.99	82.44	141.70	6.668
3,200.00	3,200.00	0.00	0.00	7.07	3,199.80	3,199.25	-76.27	61.09	6.63	97.72	82.74	141.31	6.524
3,300.00	3,300.00	0.00	0.00	7.30	3,299.47	3,298.91	-76.67	62.14	6.84	98.70	83.28	140.98	6.403
3,400.00	3,400.00	0.00	0.00	7.52	3,399.40	3,398.83	-77.27	63.20	7.05	99.83	83.98	140.72	6.297
3,500.00	3,500.00	0.00	0.00	7.75	3,499.01	3,498.44	-78.11	64.16	7.26	101.09	84.80	140.60	6.206
3,600.00	3,600.00	0.00	0.00	7.97	3,598.54	3,597.95	-79.34	65.62	7.47	102.98	86.26	140.41	6.158
3,700.00	3,700.00	0.00	0.00	8.19	3,698.60	3,697.99	-80.86	66.82	7.68	104.92	87.76	140.43	6.115
3,800.00	3,800.00	0.00	0.00	8.42	3,798.50	3,797.88	-82.44	67.94	7.89	106.85	89.26	140.51	6.075
3,900.00	3,900.00	0.00	0.00	8.64	3,897.72	3,897.07	-84.32	69.13	8.10	109.07	91.05	140.65	6.053
4,000.00	4,000.00	0.00	0.00	8.87	3,998.58	3,997.89	-86.26	70.98	8.31	111.73	93.28	140.55	6.054
4,100.00	4,100.00	0.00	0.00	9.09	4,099.32	4,098.62	-87.30	71.83	8.52	113.06	94.17	140.55	5.985
4,200.00	4,200.00	0.00	0.00	9.32	4,199.32	4,198.61	-88.30	72.54	8.73	114.28	94.95	140.60	5.912
4,300.00	4,300.00	0.00	0.00	9.54	4,299.35	4,298.63	-89.35	73.15	8.94	115.48	95.71	140.69	5.842
4,400.00	4,400.00	0.00	0.00	9.77	4,400.57	4,399.85	-90.14	73.36	9.15	116.22	96.02	140.86	5.752
4,500.00	4,500.00	0.00	0.00	9.99	4,500.93	4,500.21	-90.29	73.06	9.36	116.15	95.51	141.02	5.629
4,600.00	4,600.00	0.00	0.00	10.21	4,600.86	4,600.15	-90.42	72.65	9.57	115.99	94.92	141.22	5.505
4,671.89	4,671.89	0.00	0.00	10.38	4,672.61	4,671.89	-90.64	72.30	9.72	115.94	94.56	141.42	5.422
4,700.00	4,700.00	0.00	0.00	10.44	4,700.66	4,699.94	-90.76	72.16	9.78	115.95	94.44	141.52	5.391
4,800.00	4,800.00	0.00	0.00	10.66	4,800.47	4,799.74	-91.48	71.47	10.00	116.09	94.14	142.00	5.289
4,900.00	4,900.00	0.00	0.00	10.89	4,900.28	4,899.55	-92.51	70.62	10.21	116.38	93.99	142.64	5.198
5,000.00	5,000.00	0.00	0.00	11.11	4,999.85	4,999.10	-93.95	69.65	10.43	116.96	94.13	143.45	5.124
5,100.00	5,100.00	0.00	0.00	11.34	5,099.46	5,098.69	-95.85	68.66	10.64	117.91	94.65	144.39	5.068
5,200.00	5,200.00	0.00	0.00	11.56	5,199.26	5,198.47	-97.76	68.07	10.85	119.13	95.44	145.15	5.028
5,300.00	5,300.00	0.00	0.00	11.79	5,299.25	5,298.44	-99.62	67.66	11.05	120.43	96.31	145.82	4.992
5,400.00	5,400.00	0.00	0.00	12.01	5,399.59	5,398.77	-101.36	67.26	11.26	121.66	97.10	146.43	4.955
5,500.00	5,500.00	0.00	0.00	12.24	5,499.84	5,498.99	-103.01	66.21	11.47	122.46	97.47	147.27	4.901
5,600.00	5,600.00	0.00	0.00	12.46	5,599.62	5,598.74	-105.06	64.73	11.68	123.41	97.98	148.36	4.854
5,700.00	5,700.00	0.00	0.00	12.68	5,698.66	5,697.74	-107.34	63.39	11.89	124.68	98.82	149.44	4.822

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - 2BS 2H - Wellbore #1 - Wellbore #1

96-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
5,800.00	5,800.00	0.00	0.00	12.91	5,798.89	5,797.94	-110.07	62.70	12.10	126.69	100.40	150.33	4.819
5,900.00	5,900.00	0.00	0.00	13.13	5,899.61	5,898.64	-111.82	62.14	12.31	127.93	101.21	150.94	4.788
6,000.00	6,000.00	0.00	0.00	13.36	5,999.25	5,998.26	-113.47	61.48	12.51	129.06	101.91	151.55	4.753
6,100.00	6,100.00	0.00	0.00	13.58	6,098.92	6,097.92	-115.29	61.24	12.72	130.56	102.98	152.02	4.733
6,200.00	6,200.00	0.00	0.00	13.81	6,195.45	6,194.40	-117.00	62.83	12.92	132.92	104.93	151.76	4.749
6,300.00	6,300.00	0.00	0.00	14.03	6,289.49	6,287.94	-119.18	71.97	13.12	139.75	111.41	148.88	4.931
6,400.00	6,400.00	0.00	0.00	14.26	6,374.65	6,371.26	-119.95	89.09	13.30	152.15	123.75	143.40	5.358
6,500.00	6,500.00	0.00	0.00	14.48	6,447.53	6,439.14	-122.10	115.31	13.47	178.62	150.87	136.64	6.435
6,600.00	6,600.00	0.00	0.00	14.71	6,513.10	6,495.45	-123.35	148.74	13.65	219.70	193.06	129.67	8.247
6,700.00	6,700.00	0.00	0.00	14.93	6,564.28	6,535.43	-123.31	180.64	13.84	273.72	248.70	124.32	10.943
6,800.00	6,800.00	0.00	0.00	15.16	6,605.27	6,564.34	-123.77	209.66	14.03	338.84	315.47	120.55	14.499
6,900.00	6,900.00	0.00	0.00	15.38	6,638.61	6,585.67	-124.64	235.27	14.22	411.94	390.00	117.91	18.774
7,000.00	7,000.00	0.00	0.00	15.60	6,665.52	6,601.22	-125.46	257.21	14.41	490.84	470.11	116.00	23.673
7,100.00	7,100.00	0.00	0.00	15.83	6,679.00	6,608.41	-125.86	268.60	14.50	574.15	554.69	115.11	29.491
7,200.00	7,200.00	0.00	0.00	16.05	6,710.00	6,623.34	-126.57	295.75	14.76	660.33	641.24	113.17	34.606
7,300.00	7,300.00	0.00	0.00	16.28	6,722.77	6,628.83	-126.65	307.28	14.88	748.95	730.57	112.40	40.750
7,400.00	7,400.00	0.00	0.00	16.50	6,742.00	6,636.40	-126.33	324.95	15.07	839.42	821.40	111.24	46.563
7,500.00	7,500.00	0.00	-0.10	16.73	6,742.00	6,636.40	-126.33	324.95	15.07	931.35	913.94	-157.63	53.481
7,600.00	7,599.03	0.00	-12.62	16.93	6,758.11	6,642.14	-125.76	339.99	15.24	1,027.51	1,010.06	-134.78	58.868
7,700.00	7,693.29	0.00	-45.44	17.15	6,758.51	6,642.28	-125.74	340.37	15.25	1,126.63	1,109.11	-51.95	64.284
7,800.00	7,778.67	0.00	-97.15	17.43	6,742.00	6,636.40	-126.33	324.95	15.07	1,224.30	1,206.72	-19.62	69.633
7,900.00	7,851.44	0.00	-165.48	17.84	6,742.00	6,636.40	-126.33	324.95	15.07	1,316.36	1,298.24	-11.90	72.658
8,000.00	7,908.41	0.00	-247.44	18.47	6,729.26	6,631.48	-126.60	313.20	14.95	1,400.32	1,381.68	-8.48	75.144
8,100.00	7,949.06	-2.20	-338.65	19.38	6,710.00	6,623.34	-126.57	295.75	14.76	1,474.95	1,455.74	-10.75	76.756
8,200.00	7,985.66	-22.09	-429.36	20.46	6,710.00	6,623.34	-126.57	295.75	14.76	1,546.81	1,526.76	-17.66	77.131
8,300.00	8,019.34	-61.88	-514.49	21.62	6,679.00	6,608.41	-125.86	268.60	14.50	1,614.95	1,594.56	-22.09	79.211
8,400.00	8,048.66	-119.82	-590.30	22.77	6,679.00	6,608.41	-125.86	268.60	14.50	1,676.92	1,655.84	-25.94	79.561
8,500.00	8,072.31	-193.38	-653.48	23.81	6,679.00	6,608.41	-125.86	268.60	14.50	1,731.42	1,709.71	-28.67	79.757

HALLIBURTON**Anticollision Report for WCA 6H (Re-stake) - Plan 2**

Offset Design: Cottonwood 29-32 Fed - WCA 9H - Wellbore #1 - Plan 1

0-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
100.00	100.00	0.00	0.00	0.51	100.00	100.00	0.00	60.00	0.51	60.00	57.70	90.00	26.068
200.00	200.00	0.00	0.00	0.59	200.00	200.00	0.00	60.00	0.59	60.00	57.53	90.00	24.335
300.00	300.00	0.00	0.00	0.73	300.00	300.00	0.00	60.00	0.73	60.00	57.25	90.00	21.785
400.00	400.00	0.00	0.00	0.91	400.00	400.00	0.00	60.00	0.91	60.00	56.89	90.00	19.298
500.00	500.00	0.00	0.00	1.11	500.00	500.00	0.00	60.00	1.11	60.00	56.50	90.00	17.149
600.00	600.00	0.00	0.00	1.31	600.00	600.00	0.00	60.00	1.31	60.00	56.09	90.00	15.354
700.00	700.00	0.00	0.00	1.52	700.00	700.00	0.00	60.00	1.52	60.00	55.67	90.00	13.863
800.00	800.00	0.00	0.00	1.73	800.00	800.00	0.00	60.00	1.73	60.00	55.24	90.00	12.616
900.00	900.00	0.00	0.00	1.95	900.00	900.00	0.00	60.00	1.95	60.00	54.81	90.00	11.564
1,000.00	1,000.00	0.00	0.00	2.17	1,000.00	1,000.00	0.00	60.00	2.17	60.00	54.38	90.00	10.668
1,100.00	1,100.00	0.00	0.00	2.39	1,100.00	1,100.00	0.00	60.00	2.39	60.00	53.94	90.00	9.896
1,200.00	1,200.00	0.00	0.00	2.61	1,200.00	1,200.00	0.00	60.00	2.61	60.00	53.50	90.00	9.226
1,300.00	1,300.00	0.00	0.00	2.83	1,300.00	1,300.00	0.00	60.00	2.83	60.00	53.05	90.00	8.639
1,400.00	1,400.00	0.00	0.00	3.05	1,400.00	1,400.00	0.00	60.00	3.05	60.00	52.61	90.00	8.121
1,500.00	1,500.00	0.00	0.00	3.27	1,500.00	1,500.00	0.00	60.00	3.27	60.00	52.17	90.00	7.661
1,600.00	1,600.00	0.00	0.00	3.50	1,600.00	1,600.00	0.00	60.00	3.50	60.00	51.72	90.00	7.249
1,700.00	1,700.00	0.00	0.00	3.72	1,700.00	1,700.00	0.00	60.00	3.72	60.00	51.28	90.00	6.879
1,800.00	1,800.00	0.00	0.00	3.94	1,800.00	1,800.00	0.00	60.00	3.94	60.00	50.83	90.00	6.545
1,900.00	1,900.00	0.00	0.00	4.16	1,900.00	1,900.00	0.00	60.00	4.16	60.00	50.39	90.00	6.241
2,000.00	2,000.00	0.00	0.00	4.39	2,000.00	2,000.00	0.00	60.00	4.39	60.00	49.94	90.00	5.964
2,100.00	2,100.00	0.00	0.00	4.61	2,100.00	2,100.00	0.00	60.00	4.61	60.00	49.49	90.00	5.711
2,200.00	2,200.00	0.00	0.00	4.83	2,200.00	2,200.00	0.00	60.00	4.83	60.00	49.05	90.00	5.478
2,300.00	2,300.00	0.00	0.00	5.06	2,300.00	2,300.00	0.00	60.00	5.06	60.00	48.60	90.00	5.263
2,400.00	2,400.00	0.00	0.00	5.28	2,400.00	2,400.00	0.00	60.00	5.28	60.00	48.15	90.00	5.064
2,500.00	2,500.00	0.00	0.00	5.50	2,500.00	2,500.00	0.00	60.00	5.50	60.00	47.70	90.00	4.880
2,600.00	2,600.00	0.00	0.00	5.73	2,600.00	2,600.00	0.00	60.00	5.73	60.00	47.26	90.00	4.708
2,700.00	2,700.00	0.00	0.00	5.95	2,700.00	2,700.00	0.00	60.00	5.95	60.00	46.81	90.00	4.548
2,800.00	2,800.00	0.00	0.00	6.18	2,800.00	2,800.00	0.00	60.00	6.18	60.00	46.36	90.00	4.399
2,900.00	2,900.00	0.00	0.00	6.40	2,900.00	2,900.00	0.00	60.00	6.40	60.00	45.91	90.00	4.259
3,000.00	3,000.00	0.00	0.00	6.62	3,000.00	3,000.00	0.00	60.00	6.62	60.00	45.46	90.00	4.128

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - WCA 9H - Wellbore #1 - Plan 1

0-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
3,100.00	3,100.00	0.00	0.00	6.85	3,100.00	3,100.00	0.00	60.00	6.85	60.00	45.02	90.00	4.004
3,200.00	3,200.00	0.00	0.00	7.07	3,200.00	3,200.00	0.00	60.00	7.07	60.00	44.57	90.00	3.888
3,300.00	3,300.00	0.00	0.00	7.30	3,300.00	3,300.00	0.00	60.00	7.30	60.00	44.12	90.00	3.778
3,400.00	3,400.00	0.00	0.00	7.52	3,400.00	3,400.00	0.00	60.00	7.52	60.00	43.67	90.00	3.674
3,500.00	3,500.00	0.00	0.00	7.75	3,500.00	3,500.00	0.00	60.00	7.75	60.00	43.22	90.00	3.576
3,600.00	3,600.00	0.00	0.00	7.97	3,600.00	3,600.00	0.00	60.00	7.97	60.00	42.77	90.00	3.483
3,700.00	3,700.00	0.00	0.00	8.19	3,700.00	3,700.00	0.00	60.00	8.19	60.00	42.32	90.00	3.395
3,800.00	3,800.00	0.00	0.00	8.42	3,800.00	3,800.00	0.00	60.00	8.42	60.00	41.88	90.00	3.310
3,900.00	3,900.00	0.00	0.00	8.64	3,900.00	3,900.00	0.00	60.00	8.64	60.00	41.43	90.00	3.231
4,000.00	4,000.00	0.00	0.00	8.87	4,000.00	4,000.00	0.00	60.00	8.87	60.00	40.98	90.00	3.154
4,100.00	4,100.00	0.00	0.00	9.09	4,100.00	4,100.00	0.00	60.00	9.09	60.00	40.53	90.00	3.082
4,200.00	4,200.00	0.00	0.00	9.32	4,200.00	4,200.00	0.00	60.00	9.32	60.00	40.08	90.00	3.012
4,300.00	4,300.00	0.00	0.00	9.54	4,300.00	4,300.00	0.00	60.00	9.54	60.00	39.63	90.00	2.946
4,400.00	4,400.00	0.00	0.00	9.77	4,400.00	4,400.00	0.00	60.00	9.77	60.00	39.18	90.00	2.882
4,500.00	4,500.00	0.00	0.00	9.99	4,500.00	4,500.00	0.00	60.00	9.99	60.00	38.73	90.00	2.821
4,600.00	4,600.00	0.00	0.00	10.21	4,600.00	4,600.00	0.00	60.00	10.21	60.00	38.28	90.00	2.763
4,700.00	4,700.00	0.00	0.00	10.44	4,700.00	4,700.00	0.00	60.00	10.44	60.00	37.84	90.00	2.707
4,800.00	4,800.00	0.00	0.00	10.66	4,800.00	4,800.00	0.00	60.00	10.66	60.00	37.39	90.00	2.653
4,900.00	4,900.00	0.00	0.00	10.89	4,900.00	4,900.00	0.00	60.00	10.89	60.00	36.94	90.00	2.602
5,000.00	5,000.00	0.00	0.00	11.11	5,000.00	5,000.00	0.00	60.00	11.11	60.00	36.49	90.00	2.552
5,100.00	5,100.00	0.00	0.00	11.34	5,100.00	5,100.00	0.00	60.00	11.34	60.00	36.04	90.00	2.504
5,200.00	5,200.00	0.00	0.00	11.56	5,200.00	5,200.00	0.00	60.00	11.56	60.00	35.59	90.00	2.458
5,300.00	5,300.00	0.00	0.00	11.79	5,300.00	5,300.00	0.00	60.00	11.79	60.00	35.14	90.00	2.414
5,400.00	5,400.00	0.00	0.00	12.01	5,400.00	5,400.00	0.00	60.00	12.01	60.00	34.69	90.00	2.371
5,500.00	5,500.00	0.00	0.00	12.24	5,500.00	5,500.00	0.00	60.00	12.24	60.00	34.24	90.00	2.329
5,600.00	5,600.00	0.00	0.00	12.46	5,600.00	5,600.00	0.00	60.00	12.46	60.00	33.79	90.00	2.290
5,700.00	5,700.00	0.00	0.00	12.68	5,700.00	5,700.00	0.00	60.00	12.68	60.00	33.34	90.00	2.251
5,800.00	5,800.00	0.00	0.00	12.91	5,800.00	5,800.00	0.00	60.00	12.91	60.00	32.90	90.00	2.214
5,900.00	5,900.00	0.00	0.00	13.13	5,900.00	5,900.00	0.00	60.00	13.13	60.00	32.45	90.00	2.178

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - WCA 9H - Wellbore #1 - Plan 1

0-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft. Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
6,000.00	6,000.00	0.00	0.00	13.36	6,000.00	6,000.00	0.00	60.00	13.36	60.00	32.00	90.00	2.143
6,100.00	6,100.00	0.00	0.00	13.58	6,100.00	6,100.00	0.00	60.00	13.58	60.00	31.55	90.00	2.109
6,200.00	6,200.00	0.00	0.00	13.81	6,200.00	6,200.00	0.00	60.00	13.81	60.00	31.10	90.00	2.076
6,300.00	6,300.00	0.00	0.00	14.03	6,300.00	6,300.00	0.00	60.00	14.03	60.00	30.65	90.00	2.044
6,400.00	6,400.00	0.00	0.00	14.26	6,400.00	6,400.00	0.00	60.00	14.26	60.00	30.20	90.00	2.013
6,500.00	6,500.00	0.00	0.00	14.48	6,500.00	6,500.00	0.00	60.00	14.48	60.00	29.75	90.00	1.984
6,600.00	6,600.00	0.00	0.00	14.71	6,600.00	6,600.00	0.00	60.00	14.71	60.00	29.30	90.00	1.958
6,700.00	6,700.00	0.00	0.00	14.93	6,700.00	6,700.00	0.00	60.00	14.93	60.00	28.85	90.00	1.928
6,800.00	6,800.00	0.00	0.00	15.16	6,800.00	6,800.00	0.00	60.00	15.16	60.00	28.40	90.00	1.899
6,900.00	6,900.00	0.00	0.00	15.38	6,900.00	6,900.00	0.00	60.00	15.38	60.00	27.95	90.00	1.872
7,000.00	7,000.00	0.00	0.00	15.60	7,000.00	7,000.00	0.00	60.00	15.60	60.00	27.50	90.00	1.846
7,100.00	7,100.00	0.00	0.00	15.83	7,100.00	7,100.00	0.00	60.00	15.83	60.00	27.06	90.00	1.821
7,200.00	7,200.00	0.00	0.00	16.05	7,200.00	7,200.00	0.00	60.00	16.05	60.00	26.61	90.00	1.797
7,300.00	7,300.00	0.00	0.00	16.28	7,300.00	7,300.00	0.00	60.00	16.28	60.00	26.16	90.00	1.773
7,400.00	7,400.00	0.00	0.00	16.50	7,400.00	7,400.00	0.00	60.00	16.50	60.00	25.71	90.00	1.750
7,407.41	7,407.41	0.00	-0.01	16.52	7,407.41	7,407.41	0.00	60.00	16.52	60.01	25.68	180.00	1.748
7,500.00	7,500.00	0.00	-0.10	16.73	7,500.00	7,500.00	0.00	60.00	16.73	60.10	25.36	180.00	1.730
7,600.00	7,599.03	0.00	-12.62	16.93	7,595.38	7,595.37	0.00	60.60	16.94	73.30	38.19	180.00	2.088
7,700.00	7,693.29	0.00	-45.44	17.15	7,670.77	7,670.06	-0.02	70.26	17.09	118.01	83.06	-179.99	3.377
7,800.00	7,778.67	0.00	-97.15	17.43	7,743.43	7,740.96	-6.25	84.53	17.22	185.66	150.46	-177.06	5.274
7,900.00	7,851.44	0.00	-165.48	17.84	7,798.22	7,793.35	-18.17	95.13	17.31	267.62	232.28	-171.82	7.571
8,000.00	7,908.41	0.00	-247.44	18.47	7,833.80	7,826.50	-29.15	101.86	17.38	359.96	324.53	-163.19	10.158
8,100.00	7,949.06	-2.20	-338.65	19.38	7,853.27	7,844.28	-36.22	105.48	17.42	457.59	422.07	-130.16	12.884
8,200.00	7,985.66	-22.09	-429.36	20.46	7,875.88	7,864.55	-45.36	109.61	17.46	552.90	517.24	-108.35	15.503
8,300.00	8,019.34	-61.88	-514.49	21.62	7,907.16	7,891.83	-59.58	115.18	17.52	642.45	606.54	-98.79	17.890
8,400.00	8,048.66	-119.82	-590.30	22.77	7,950.67	7,928.15	-82.33	122.63	17.61	724.01	687.74	-93.57	19.964
8,500.00	8,072.31	-193.38	-653.48	23.81	8,012.51	7,975.93	-120.25	132.48	17.75	795.21	758.45	-90.93	21.629
8,600.00	8,089.27	-279.35	-701.28	24.70	8,102.16	8,035.76	-185.67	144.93	18.03	853.06	815.56	-90.25	22.745
8,700.00	8,098.80	-373.97	-731.60	25.42	8,230.69	8,098.36	-296.69	158.25	18.62	893.20	854.46	-90.97	23.053
8,800.00	8,100.49	-473.11	-743.13	25.95	8,397.72	8,132.64	-459.10	166.24	19.72	910.04	869.17	-91.98	22.263

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - WCA 9H - Wellbore #1 - Plan 1

O-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
8,900.00	8,097.38	-573.06	-743.05	26.40	8,510.79	8,130.79	-572.13	166.64	20.66	910.30	867.65	-92.10	21.341
9,000.00	8,094.24	-673.01	-742.86	26.93	8,610.79	8,128.35	-672.10	166.83	21.62	910.33	865.89	-92.15	20.484
9,100.00	8,091.09	-772.96	-742.68	27.55	8,710.79	8,125.91	-772.07	167.02	22.68	910.36	863.91	-92.19	19.597
9,200.00	8,087.94	-872.91	-742.49	28.25	8,810.78	8,123.47	-872.04	167.21	23.84	910.39	861.73	-92.24	18.709
9,300.00	8,084.79	-972.86	-742.30	29.06	8,910.78	8,121.03	-972.01	167.40	25.07	910.42	859.38	-92.28	17.838
9,400.00	8,081.65	-1,072.81	-742.11	29.95	9,010.78	8,118.59	-1,071.97	167.59	26.38	910.45	856.89	-92.33	16.997
9,500.00	8,078.50	-1,172.76	-741.92	30.94	9,110.78	8,116.15	-1,171.94	167.78	27.75	910.49	854.27	-92.37	16.196
9,600.00	8,075.35	-1,272.71	-741.74	32.00	9,210.77	8,113.71	-1,271.91	167.97	29.16	910.52	851.54	-92.41	15.438
9,700.00	8,072.21	-1,372.66	-741.55	33.15	9,310.77	8,111.27	-1,371.88	168.16	30.62	910.55	848.72	-92.46	14.726
9,800.00	8,069.06	-1,472.61	-741.36	34.36	9,410.77	8,108.83	-1,471.84	168.36	32.12	910.59	845.82	-92.50	14.059
9,900.00	8,065.91	-1,572.56	-741.17	35.64	9,510.77	8,106.39	-1,571.81	168.55	33.65	910.62	842.84	-92.55	13.435
10,000.00	8,062.76	-1,672.51	-740.99	36.97	9,610.76	8,103.95	-1,671.78	168.74	35.21	910.66	839.81	-92.59	12.854
10,100.00	8,059.62	-1,772.46	-740.80	38.35	9,710.76	8,101.51	-1,771.75	168.93	36.79	910.69	836.72	-92.64	12.312
10,200.00	8,056.47	-1,872.41	-740.61	39.77	9,810.76	8,099.07	-1,871.71	169.12	38.39	910.73	833.59	-92.68	11.806
10,300.00	8,053.32	-1,972.36	-740.42	41.22	9,910.76	8,096.63	-1,971.68	169.31	40.02	910.76	830.41	-92.73	11.335
10,400.00	8,050.18	-2,072.31	-740.24	42.72	10,010.75	8,094.19	-2,071.65	169.50	41.66	910.80	827.20	-92.77	10.895
10,500.00	8,047.03	-2,172.26	-740.05	44.24	10,110.75	8,091.75	-2,171.62	169.69	43.32	910.84	823.96	-92.82	10.484
10,600.00	8,043.88	-2,272.21	-739.86	45.78	10,210.75	8,089.31	-2,271.58	169.88	44.99	910.88	820.69	-92.86	10.100
10,700.00	8,040.73	-2,372.16	-739.67	47.35	10,310.75	8,086.87	-2,371.55	170.07	46.67	910.92	817.39	-92.90	9.740
10,800.00	8,037.59	-2,472.11	-739.48	48.94	10,410.74	8,084.43	-2,471.52	170.27	48.36	910.96	814.08	-92.95	9.403
10,900.00	8,034.44	-2,572.06	-739.30	50.54	10,510.74	8,081.99	-2,571.49	170.46	50.06	911.00	810.74	-92.99	9.087
11,000.00	8,031.29	-2,672.01	-739.11	52.17	10,610.74	8,079.56	-2,671.45	170.65	51.77	911.04	807.38	-93.04	8.789
11,100.00	8,028.15	-2,771.96	-738.92	53.80	10,710.74	8,077.12	-2,771.42	170.84	53.49	911.08	804.01	-93.08	8.510
11,200.00	8,025.00	-2,871.91	-738.73	55.46	10,810.73	8,074.68	-2,871.39	171.03	55.21	911.12	800.63	-93.13	8.246
11,300.00	8,021.85	-2,971.87	-738.55	57.12	10,910.73	8,072.24	-2,971.36	171.22	56.94	911.16	797.23	-93.17	7.997
11,400.00	8,018.70	-3,071.82	-738.36	58.79	11,010.73	8,069.80	-3,071.32	171.41	58.68	911.20	793.82	-93.22	7.763
11,500.00	8,015.56	-3,171.77	-738.17	60.47	11,110.73	8,067.36	-3,171.29	171.60	60.42	911.25	790.40	-93.26	7.540
11,600.00	8,012.41	-3,271.72	-737.98	62.17	11,210.72	8,064.92	-3,271.26	171.79	62.17	911.29	786.97	-93.30	7.330
11,700.00	8,009.26	-3,371.67	-737.79	63.87	11,310.72	8,062.48	-3,371.23	171.98	63.92	911.33	783.53	-93.35	7.131

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - WCA 9H - Wellbore #1 - Plan 1

0-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
11,800.00	8,006.12	-3,471.62	-737.61	65.57	11,410.72	8,060.04	-3,471.19	172.18	65.68	911.38	780.08	-93.39	6.941
11,900.00	8,002.97	-3,571.57	-737.42	67.29	11,510.72	8,057.60	-3,571.16	172.37	67.44	911.42	776.62	-93.44	6.761
12,000.00	7,999.82	-3,671.52	-737.23	69.01	11,610.71	8,055.16	-3,671.13	172.56	69.20	911.47	773.16	-93.48	6.590
12,100.00	7,996.67	-3,771.47	-737.04	70.73	11,710.71	8,052.72	-3,771.10	172.75	70.97	911.52	769.69	-93.53	6.427
12,200.00	7,993.53	-3,871.42	-736.86	72.47	11,810.71	8,050.28	-3,871.06	172.94	72.74	911.56	766.22	-93.57	6.272
12,300.00	7,990.38	-3,971.37	-736.67	74.20	11,910.71	8,047.84	-3,971.03	173.13	74.51	911.61	762.74	-93.61	6.124
12,400.00	7,987.23	-4,071.32	-736.48	75.94	12,010.70	8,045.40	-4,071.00	173.32	76.29	911.66	759.26	-93.66	5.982
12,500.00	7,984.09	-4,171.27	-736.29	77.69	12,110.70	8,042.96	-4,170.97	173.51	78.06	911.71	755.77	-93.70	5.847
12,600.00	7,980.94	-4,271.22	-736.11	79.44	12,210.70	8,040.52	-4,270.93	173.70	79.84	911.76	752.28	-93.75	5.717
12,700.00	7,977.79	-4,371.17	-735.92	81.19	12,310.70	8,038.08	-4,370.90	173.90	81.63	911.81	748.78	-93.79	5.593
12,800.00	7,974.64	-4,471.12	-735.73	82.95	12,410.69	8,035.64	-4,470.87	174.09	83.41	911.86	745.29	-93.84	5.474
12,900.00	7,971.50	-4,571.07	-735.54	84.71	12,510.69	8,033.20	-4,570.84	174.28	85.20	911.91	741.78	-93.88	5.360
13,000.00	7,968.35	-4,671.02	-735.35	86.47	12,610.69	8,030.77	-4,670.80	174.47	86.98	911.96	738.28	-93.93	5.251
13,100.00	7,965.20	-4,770.97	-735.17	88.23	12,710.69	8,028.33	-4,770.77	174.66	88.77	912.01	734.77	-93.97	5.146
13,200.00	7,962.06	-4,870.92	-734.98	90.00	12,810.68	8,025.89	-4,870.74	174.85	90.56	912.07	731.26	-94.01	5.045
13,300.00	7,958.91	-4,970.87	-734.79	91.77	12,910.68	8,023.45	-4,970.71	175.04	92.36	912.12	727.75	-94.06	4.947
13,400.00	7,955.76	-5,070.82	-734.60	93.54	13,010.68	8,021.01	-5,070.67	175.23	94.15	912.17	724.24	-94.10	4.854
13,500.00	7,952.61	-5,170.77	-734.42	95.32	13,110.68	8,018.57	-5,170.64	175.42	95.95	912.23	720.72	-94.15	4.764
13,600.00	7,949.47	-5,270.72	-734.23	97.09	13,210.67	8,016.13	-5,270.61	175.61	97.74	912.28	717.21	-94.19	4.677
13,700.00	7,946.32	-5,370.67	-734.04	98.87	13,310.67	8,013.69	-5,370.58	175.81	99.54	912.34	713.69	-94.24	4.593
13,800.00	7,943.17	-5,470.62	-733.85	100.65	13,410.67	8,011.25	-5,470.54	176.00	101.34	912.39	710.17	-94.28	4.512
13,900.00	7,940.03	-5,570.57	-733.66	102.44	13,510.67	8,008.81	-5,570.51	176.19	103.14	912.45	706.65	-94.32	4.434
14,000.00	7,936.88	-5,670.52	-733.48	104.22	13,610.66	8,006.37	-5,670.48	176.38	104.94	912.51	703.13	-94.37	4.358
14,100.00	7,933.73	-5,770.47	-733.29	106.01	13,710.66	8,003.93	-5,770.45	176.57	106.74	912.56	699.60	-94.41	4.285
14,200.00	7,930.58	-5,870.42	-733.10	107.79	13,810.66	8,001.49	-5,870.42	176.76	108.54	912.62	696.08	-94.46	4.215
14,300.00	7,927.44	-5,970.37	-732.91	109.58	13,910.66	7,999.05	-5,970.38	176.95	110.34	912.68	692.56	-94.50	4.146
14,400.00	7,924.29	-6,070.32	-732.73	111.37	14,010.65	7,996.61	-6,070.35	177.14	112.15	912.74	689.03	-94.55	4.080
14,500.00	7,921.14	-6,170.27	-732.54	113.16	14,110.65	7,994.17	-6,170.32	177.33	113.95	912.80	685.50	-94.59	4.016
14,600.00	7,918.00	-6,270.22	-732.35	114.95	14,210.65	7,991.73	-6,270.29	177.52	115.76	912.86	681.98	-94.63	3.954
14,700.00	7,914.85	-6,370.17	-732.16	116.75	14,310.65	7,989.29	-6,370.25	177.72	117.56	912.92	678.45	-94.68	3.894

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Offset Design: Cottonwood 29-32 Fed - WCA 9H - Wellbore #1 - Plan 1

0-MWD

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)

Scan Range: 0.00 to 15,319.23 usft. Measured Depth.

Scan Radius is 1,731.92 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Uncertainty Data for Reference Well					Uncertainty Data for Comparison Well					Separation (Ref. > Comp.)			
Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Measured Depth (usft)	Vertical Depth (usft)	Ellipse Centre +N/-S (usft)	Ellipse Centre +E/-W (usft)	Ellipse Major Axis/2	Between Centres (usft)	Between Ellipsoids (usft)	Relative Highside Bearing	Clearance Factor
14,800.00	7,911.70	-6,470.13	-731.97	118.54	14,410.64	7,986.85	-6,470.22	177.91	119.37	912.98	674.92	-94.72	3.835
14,900.00	7,908.55	-6,570.08	-731.79	120.34	14,510.64	7,984.41	-6,570.19	178.10	121.18	913.04	671.40	-94.77	3.778
15,000.00	7,905.41	-6,670.03	-731.60	122.13	14,610.64	7,981.98	-6,670.16	178.29	122.99	913.10	667.87	-94.81	3.723
15,100.00	7,902.26	-6,769.98	-731.41	123.93	14,710.64	7,979.54	-6,770.12	178.48	124.79	913.17	664.34	-94.86	3.670
15,200.00	7,899.11	-6,869.93	-731.22	125.73	14,810.63	7,977.10	-6,870.09	178.67	126.60	913.23	660.81	-94.90	3.618
15,300.00	7,895.97	-6,969.88	-731.04	127.53	14,910.63	7,974.66	-6,970.06	178.86	128.41	913.29	657.28	-94.94	3.567
15,319.23	7,895.36	-6,989.10	-731.00	127.87	14,929.86	7,974.19	-6,989.28	178.90	128.76	913.31	656.61	-94.95	3.558

Anticollision Report for WCA 6H (Re-stake) - Plan 2

Reference Well Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	15,319.23	Plan 2	MWD

Anticollision Info

Error Model:	ISCWSA	Output errors are at	2.00 sigma
Scan Method:	Closest Approach 3D		

Ellipse error terms are correlated across survey tool tie-on points.

Calculated ellipses incorporate surface errors.

Separation is the actual distance between ellipsoids.

Distance Between centres is the straight line distance between wellbore centres.

Clearance Factor = Distance Between Profiles / (Distance Between Profiles - Ellipse Separation).

All station coordinates were calculated using the Minimum Curvature method.

Anticollision Report for WCA 6H (Re-stake) - Plan 2

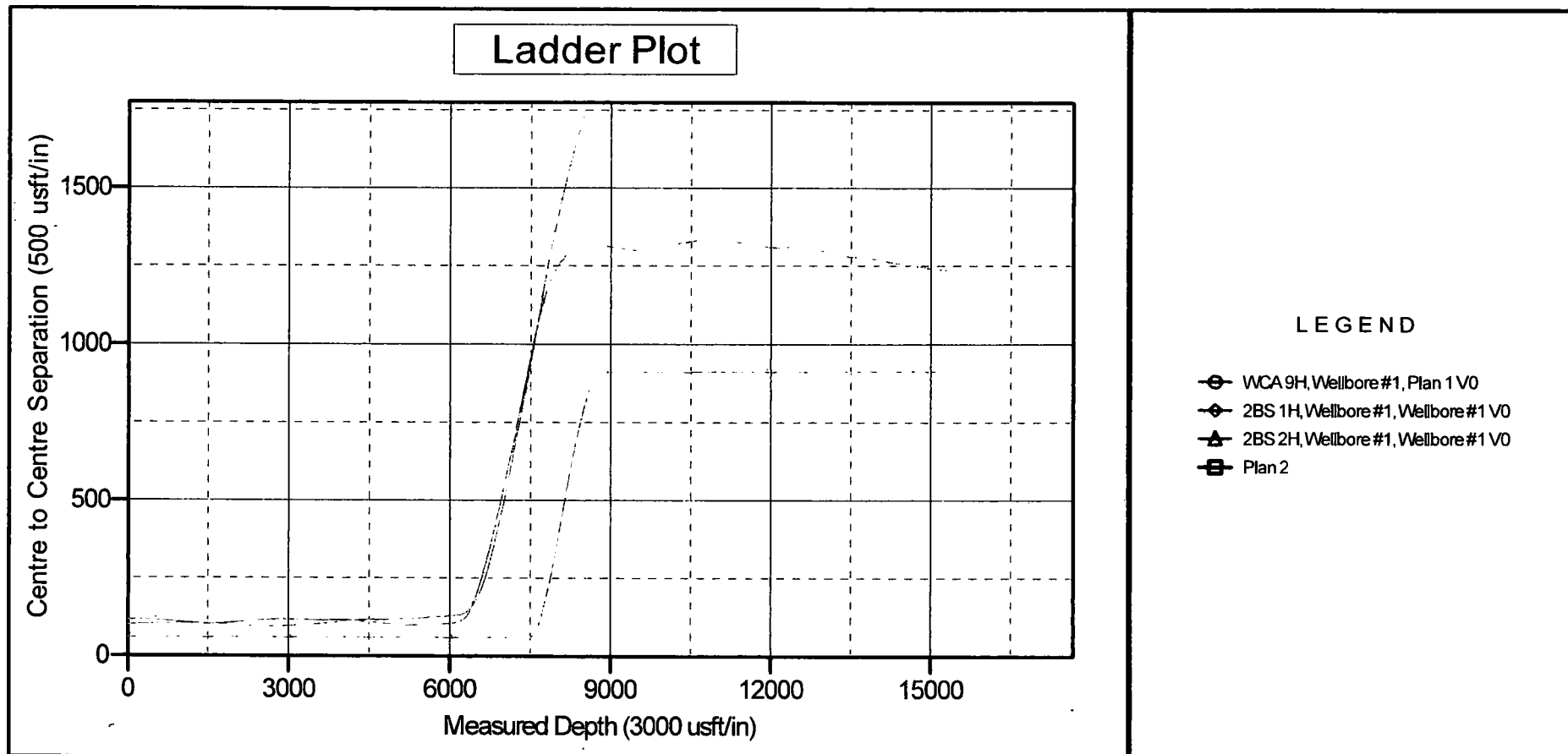
Direction and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GE 3433 + 22' KB @ 3455.00usft (22' KB). Northing and Easting are relative to WCA 6H (Re-stake).

Coordinate System is US State Plane 1983, New Mexico Eastern Zone.

Central Meridian is -104.00°, Grid Convergence at Surface is: 0.00714°.

Summary is based on Minimum Centre Distance



Anticollision Report for WCA 6H (Re-stake) - Plan 2

Clearance Factor Plot: Measured Depth versus Separation(Clearance) Factor

