

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

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.	
6. If Indian, Allottee or Tribe Name	
7. If Unit of CA/Agreement, Name and/or No.	
8. Well Name and No.	
9. API Well No.	
10. Field and Pool or Exploratory Area	
11. Country or Parish, State	

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well		
☐ Oil Well	☐ Gas Well	☐ Other
2. Name of Operator		
3a. Address	3b. Phone No. (include area code)	
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description)		

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

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

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 recompleate 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 perfonned 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 recompletion 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 detennined that the site is ready for final inspection.)

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)	Title
Signature	Date

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
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	

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)

Additional Information

Location of Well

0. SHL: SWNW / 1861 FNL / 201 FWL / TWSP: 23S / RANGE: 30E / SECTION: 26 / LAT: 32.278088 / LONG: -103.859624 (TVD: 0 feet, MD: 0 feet)

PPP: NENE / 330 FNL / 100 FEL / TWSP: 23S / RANGE: 30E / SECTION: 27 / LAT: 32.282296 / LONG: -103.860593 (TVD: 9411 feet, MD: 9646 feet)

PPP: NENE / 330 FNL / 1 FEL / TWSP: 23S / RANGE: 30E / SECTION: 28 / LAT: 32.282281 / LONG: -103.877602 (TVD: 9533 feet, MD: 15027 feet)

PPP: NENE / 330 FNL / 1340 FEL / TWSP: 23S / RANGE: 30E / SECTION: 28 / LAT: 32.282297 / LONG: -103.881937 (TVD: 9533 feet, MD: 16367 feet)

BHL: NWNW / 330 FNL / 50 FWL / TWSP: 23S / RANGE: 30E / SECTION: 28 / LAT: 32.282345 / LONG: -103.894781 (TVD: 9533 feet, MD: 20119 feet)

SEC26-T23SR30E_IRON THRONE FED COM_Eddy__CONOCOPHILLIPS COMPANY_45825_JS

IRON THRONE FED COM

13 3/8		surface csg in a		17 1/2	inch hole.		Design Factors			Surface				
Segment	#/ft	Grade			Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight	
"A"	54.50			j 55	btc	62.62	9.89	1.4	250	24	2.43	19.06	13,625	
"B"					btc				0				0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500					Tail Cmt	does not	circ to sfc.	Totals:	250				13,625	
Comparison of Proposed to Minimum Required Cement Volumes														
Hole	Annular	1 Stage		1 Stage	Min	1 Stage	Drilling	Calc					Min Dist	
Size	Volume	Cmt Sx		CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	Req'd					Hole-Cplg
17 1/2	0.6946	269		403	174	132	8.80	1123	2M					1.56
Class 'C' tail cmt yield above 1.35.														
Site plat (pipe racks S or E) as per O.O 1.III-D-4-I: not found.														

9 5/8		casing inside the		13 3/8		Design Factors				Int 1				
Segment	#/ft	Grade			Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight	
"A"	40.00			L 80	btc	6.11	1.59	1.3	3,750	3	2.34	2.75	150,000	
									0				0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500									Totals:		3,750			150,000
The cement volume(s) are intended to achieve a top of									0	ft from surface or a		250		overlap.
Hole Size	Annular Volume	1 Stage Cmt Sx		1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE				Min Dist Hole-Cplg	
12 1/4	0.3132	1081		1784	1187	50	10.00	2455	3M				0.81	
D V Tool(s):								sum of sx		Σ CuFt		Σ%excess		
t by stage % :								#VALUE!		#VALUE!		1081 1784 50		
Class 'H' tail cmt yld > 1.20														

5 1/2		casing inside the		9 5/8		Design Factors				Prod 1				
Segment	#/ft	Grade			Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight	
"A"	23.00				P 110	TXP-BTC	2.41	2.79	3.28	25,820	3	5.92	5.92	593,860
									0				0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,975									Totals:	25,820				593,860
The cement volume(s) are intended to achieve a top of						3550	ft from surface or a		200			overlap.		
Hole Size	Annular Volume	1 Stage Cmt Sx		1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE			Min Dist Hole-Cplg		
8 3/4	0.2526	3690		6566	5627	17	9.50					1.28		
Class 'C' tail cmt yld > 1.35														
Does not meet CFO 25%,														

#N/A						Design Factors			<Choose Casing>		
0	5 1/2										
Segment	#/ft	Grade	Coupling	#N/A	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"			0.00				0				0
"B"			0.00				0				0
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	0	0		
Cmt vol calc below includes this csg, TOC intended				#N/A	ft from surface or a		#N/A			overlap.	
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE			Min Dist Hole-Cplg
0		#N/A	#N/A	0	#N/A						
#N/A											
Capitan Reef est top XXXX.											
Does not meet CFO 25%											

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CONOCOPHILLIPS COMPANY
WELL NAME & NO.:	IRON THRONE FED COM 501H
LOCATION:	Section 26, T.23 S., R.30 E., NMP
COUNTY:	Eddy County, New Mexico

COA

H ₂ S	☐ No			☒ Yes
Potash / WIPP	☐ None	☐ Secretary	☒ R-111-Q	☐ Open Annulus ☐ WIPP
Cave / Karst	3-String Design: Open Production Casing Annulus			
Wellhead	☐ Conventional	☒ Multibowl	☐ Both	☐ Diverter
Cementing	☐ Primary Squeeze	☐ Cont. Squeeze	☒ EchoMeter	☐ DV Tool
Special Req	☐ Capitan Reef	☐ Water Disposal	☒ COM	☐ Unit
Waste Prev.	☐ Self-Certification	☒ Waste Min. Plan	☐ APD Submitted prior to 06/10/2024	
Additional Language	☒ Flex Hose	☐ Casing Clearance	☐ Pilot Hole	☒ Break Testing
	☐ Four-String	☐ Offline Cementing	☐ Fluid-Filled	

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet 43 CFR part 3170 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

APD is within the R-111-Q defined boundary. Operator must follow all procedures and requirements listed within the updated order.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **316 feet per BLM Geologist** (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours**

- or **500 pounds compressive strength**, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

Option 1 (Primary + Post Frac Bradenhead):

- **A monitored open annulus will be incorporated during completion by leaving the Intermediate x Production annulus un-cemented and monitored inside the Intermediate String.** Operator must follow monitoring requirements listed within R-111-Q. Tieback requirements shall be met within **180 days**.

Operator has proposed to pump down **intermediate x production** annulus post completion. **Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus OR operator shall run a CBL from TD of the intermediate 2/production casing to surface after the second stage BH to verify TOC.** Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry during second stage bradenhead when running Echo-meter if cement is required to surface. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.

Operator has proposed an open annulus completion in R-111-Q. Operator shall provide a method of verification pre-completion top of cement. **Submit results to the BLM. Pressure monitoring device and Pressure Safety Valves must be installed at surface on both the intermediate annulus and the production annulus for the life of the well.**

In the event of a casing failure during completion, the operator must contact the BLM at (575-706-2779) and (575-361-2822 Eddy County).

- **After bradenhead mentioned above** cement should tie-back **500 feet** into the previous casing but not higher than USGS Marker Bed No. 126. **Operator must verify top of cement per R-111-Q requirements.** Submit results to the BLM. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back **500 feet** into the previous casing but not higher than USGS Marker Bed No. 126. **Operator must verify top of cement per R-111-Q requirements.** Submit results to the BLM. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**
 - **Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.**

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8 inch** surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 3500 (70% Working Pressure) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the

operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in 43 CFR 3171 and 3172.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for intervals utilizing a 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP.)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer (575-706-2779) prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per 43 CFR 3172.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

Contact Eddy County Petroleum Engineering Inspection Staff:

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220;
BLM_NM_CFO_DrillingNotifications@BLM.GOV; (575) 361-2822

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure

rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

- b. When the operator proposes to set surface casing with Spudder Rig
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing

integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-Q potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR 3172**.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

- ii. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - iii. Manufacturer representative shall install the test plug for the initial BOP test.
 - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
 - v. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - i. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - ii. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
 - iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - iv. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M

BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- v. The results of the test shall be reported to the appropriate BLM office.
- vi. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- vii. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- viii. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR 3172**.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JS 6/17/2025

C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024	
		Submittal Type:	☒ Initial Submittal
			☐ Amended Report
			☐ As Drilled

WELL LOCATION INFORMATION

API Number 30-015-56337	Pool Code 96526	Pool Name Forty Niner Ridge; Bone Spring, West
Property Code 337105	Property Name IRON THRONE FEDERAL COM	Well Number 501H
OGRID No. 217817	Operator Name CONOCOPHILLIPS COMPANY	Ground Level Elevation 3,330.95'
Surface Owner: ☒ State ☐ Fee ☐ Tribal ☒ Federal		Mineral Owner: ☒ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL E	Section 26	Township 23S	Range 30E	Lot	Ft. from N/S 1,861' FNL	Ft. from E/W 201' FWL	Latitude 32.278088°	Longitude -103.859624°	County EDDY
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Bottom Hole Location

UL D	Section 29	Township 23S	Range 30E	Lot	Ft. from N/S 330' FNL	Ft. from E/W 50' FWL	Latitude 32.282225°	Longitude -103.912082°	County EDDY
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Dedicated Acres 1920	Infill or Defining Well Infill	Defining Well API 30-015-56338	Overlapping Spacing Unit (Y/N)	Consolidation Code Com
Order Numbers.			Well setbacks are under Common Ownership: ☒ Yes ☐ No	

Kick Off Point (KOP)

UL E	Section 26	Township 23S	Range 30E	Lot	Ft. from N/S 1,861' FNL	Ft. from E/W 201' FWL	Latitude 32.278088°	Longitude -103.859624°	County EDDY
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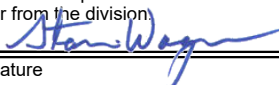
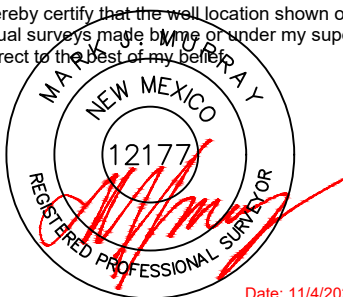
First Take Point (FTP)

UL A	Section 27	Township 23S	Range 30E	Lot	Ft. from N/S 330' FNL	Ft. from E/W 100' FEL	Latitude 32.282296°	Longitude -103.860593°	County EDDY
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Last Take Point (LTP)

UL D	Section 29	Township 23S	Range 30E	Lot	Ft. from N/S 330' FNL	Ft. from E/W 100' FWL	Latitude 32.282226°	Longitude -103.911920°	County EDDY
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Unitized Area or Area of Uniform Interest	Spacing Unit Type ☒ Horizontal ☐ Vertical	Ground Floor Elevation:
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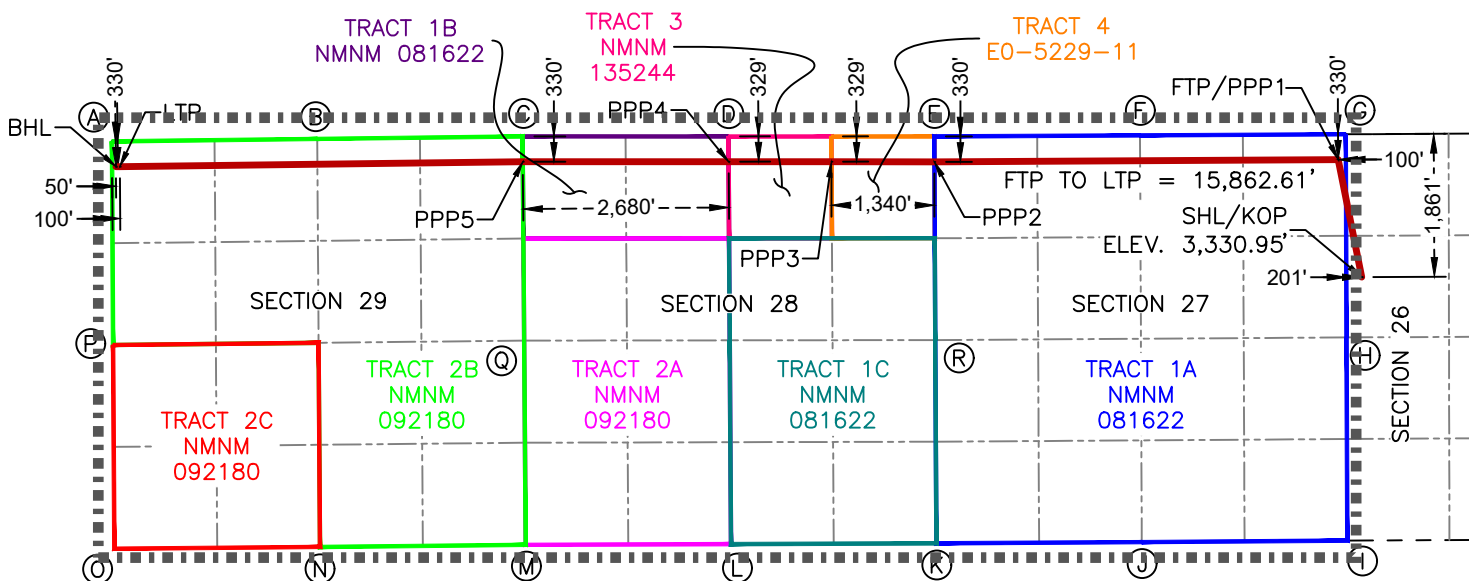
OPERATOR CERTIFICATIONS I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.  Signature Stan Wagner Printed Name Email Address		SURVEYOR CERTIFICATIONS 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: 11/4/2024 Signature and Seal of Professional Surveyor Certificate Number 12177 Date of Survey 11/4/2024	
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Note: 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.

ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.



**SURFACE HOLE LOCATION
& KICK-OFF POINT**
1,861' FNL & 201' FWL
ELEV.=3,330.95'

NAD 83 X = 687,737.61'
NAD 83 Y = 465,224.66'
NAD 83 LAT = 32.278088°
NAD 83 LONG = -103.859624°

**FIRST TAKE POINT &
PENETRATION POINT 1**
330' FNL & 100' FEL

NAD 83 X = 687,431.46'
NAD 83 Y = 466,754.15'
NAD 83 LAT = 32.282296°
NAD 83 LONG = -103.860593°

PENETRATION POINT 2
330' FNL & 0' FEL

NAD 83 X = 682,175.02'
NAD 83 Y = 466,725.76'
NAD 83 LAT = 32.282281°
NAD 83 LONG = -103.877602°

PENETRATION POINT 3
329' FNL & 1,340' FEL

NAD 83 X = 680,835.22'
NAD 83 Y = 466,726.08'
NAD 83 LAT = 32.282297°
NAD 83 LONG = -103.881937°

PENETRATION POINT 4
329' FNL & 2,680' FWL

NAD 83 X = 679,495.42'
NAD 83 Y = 467,236.70'
NAD 83 LAT = 32.283716°
NAD 83 LONG = -103.886265°

PENETRATION POINT 5
330' FNL & 0' FWL

NAD 83 X = 676,815.82'
NAD 83 Y = 467,237.35'
NAD 83 LAT = 32.283749°
NAD 83 LONG = -103.894936°

LAST TAKE POINT
330' FNL & 100' FWL

NAD 83 X = 671,569.32'
NAD 83 Y = 467,172.83'
NAD 83 LAT = 32.283629°
NAD 83 LONG = -103.911914°

BOTTOM HOLE LOCATION
330' FNL & 50' FWL

NAD 83 X = 671,519.32'
NAD 83 Y = 467,172.22'
NAD 83 LAT = 32.283628°
NAD 83 LONG = -103.912076°

CORNER COORDINATES NEW MEXICO EAST - NAD 83

A	IRON PIPE W/BRASS CAP N:466,991.31' E:671,467.47'	G	IRON PIPE W/BRASS CAP N:467,084.70' E:687,530.34'	M	IRON PIPE W/BRASS CAP N:461,738.78' E:676,854.09'
B	IRON PIPE W/BRASS CAP N:467,023.94' E:674,139.54'	H	IRON PIPE W/BRASS CAP N:464,439.06' E:687,539.26'	N	IRON PIPE W/BRASS CAP N:461,711.29' E:674,175.87'
C	IRON PIPE W/BRASS CAP N:467,057.04' E:676,813.29'	I	IRON PIPE W/BRASS CAP N:461,793.64' E:687,549.74'	O	IRON PIPE W/BRASS CAP N:461,688.04' E:671,498.61'
D	IRON PIPE W/BRASS CAP N:467,055.39' E:679,493.28'	J	IRON PIPE W/BRASS CAP N:461,774.47' E:684,874.62'	P	IRON PIPE W/BRASS CAP N:464,340.62' E:671,482.37'
E	IRON PIPE W/BRASS CAP (LAYED OVER) N:467,055.75' E:682,173.55'	K	IRON PIPE W/BRASS CAP N:461,758.24' E:682,200.45'	Q	CALCULATED CORNER N:464,462.12' E:676,833.20'
F	IRON PIPE W/BRASS CAP N:467,070.06' E:684,851.49'	L	IRON PIPE W/BRASS CAP N:461,748.40' E:679,526.06'	R	IRON PIPE W/BRASS CAP N:464,404.77' E:682,185.29'

ConocoPhillips Company - Iron Throne Fed Com 501H

1. Geologic Formations

TVD of target	9,855' EOL	Pilot hole depth	NA
MD at TD:	26,049'	Deepest expected fresh water:	0'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	253	Water	
Top of Salt	557	Salt	
USGS Marker Bed 126	1907	Salt	
Base of Salt	3685	Salt Water	
Lamar	3865	Salt Water	
Bell Canyon	3908	Oil/Gas	
Cherry Canyon	4802	Oil/Gas	
Brushy Canyon	6106	Oil/Gas	
Bone Spring	7697	Oil/Gas	
1st Bone Spring Sand	8719	Oil/Gas	
2nd Bone Spring Sand	9355	Target	

Potash well archetype: 3-String Design Open Production Casing Annulua (Figure B). Sundry aims to comply with R-111-Q as passed on 5/10/2024.

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	250	13.375"	54.5	J55	BTC	9.88	1.73	66.72
12.25"	0	3750	9.625"	40	L80-IC	BTC	1.98	1.48	6.31
8.75"	0	26,049	5.5"	23	P110-CY	TXP BTC	2.99	3.74	3.22
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172

ConocoPhillips Company - Iron Throne Fed Com 501H

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

ConocoPhillips Company - Iron Throne Fed Com 501H

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	90	13.5	1.75	9.21	12	Lead: Class C
	179	14.8	1.35	6.8	8	Tail: Class C
Inter.	730	12.8	1.8	9.21	12	Lead: Class C
	351	14.8	1.34	6.52	8	Tail: Class C
Prod.	850	10.2	2.98	14.92	72	Lead: Tuned Light
	2880	13.2	1.42	7.45	19	Tail: Class H

Intermediate #1 Salt string cemented to surface. Intermediate cement job to be performed offline. Drill out to wait for 500PSI compressive strength.

Production long string cemented Tail single slurry leaving Brushy Canyon Delaware Mountain group open as a relief zone. Section to be monitored during completions, and then Bradenhead cemented after completion is complete within 180 days to tie back.

Casing String	TOC	% Excess
Surface	0'	50%
1 st Intermediate	0'	50%
Production	4,750'	0% OH in Lateral (KOP to EOL)

ConocoPhillips Company - Iron Throne Fed Com 501H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
Y	A variance is requested for the use of BOPE break testing on intermediate skids (in accordance with the 30 day full BOPE test requirements).

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	x	Tested to:
12-1/4"	13-5/8"	5M	Annular	x	2500 psi
			Blind Ram		5M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	10M	Annular	x	50% testing pressure
			Blind Ram	x	10M
			Pipe Ram	x	
			Double Ram		
			Other*		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 43 CFR Part 3170 Subpart 3172 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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

Y	Formation integrity test will be performed per Onshore Order #2.
Y	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with 43 CFR Part 3170 Subpart 3172.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
N	A multibowl wellhead is being used. The BOP will be tested per 43 CFR Part 3170 Subpart 3172 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

ConocoPhillips Company - Iron Throne Fed Com 501H

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe	FW Gel	8.6 - 8.8	28-34	N/C
Surf csg	9-5/8" Int shoe	Saturated Brine	9 - 10	28-34	N/C
9-5/8" Int shoe	Lateral TD	Cut Brine or OBM	8.6 - 9.5	28-34	N/C

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

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

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

Additional logs planned		Interval
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
N	CBL	Production casing
Y	Mud log	Intermediate shoe to TD
N	PEX	

ConocoPhillips Company - Iron Throne Fed Com 501H**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	4870 psi at 9855' TVD
Abnormal Temperature	NO 155 Deg. F.

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of 43 CFR Part 3170 Subpart 3176. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N H₂S is present

Y H₂S Plan attached

8. Other Facets of Operation

Y	Is it a walking operation?
Y	Is casing pre-set?

x	H ₂ S Plan.
x	BOP & Choke Schematics.
x	Directional Plan

DELAWARE BASIN WEST

ATLAS PROSPECT (DBW)

IRON THRONE PROJECT

IRON THRONE FEDERAL COM 501H

OWB

Plan: PWP2

Standard Planning Report

29 January, 2025

ConocoPhillips
Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Project	ATLAS PROSPECT (DBW)		
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		IRON THRONE PROJECT			
Site Position:		Northing:	464,316.67 usft	Latitude:	32° 16' 32.516 N
From:	Map	Easting:	641,023.57 usft	Longitude:	103° 52' 37.352 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "		

Well	IRON THRONE FEDERAL COM 501H					
Well Position	+N/-S	0.0 usft	Northing:	465,165.27 usft	Latitude:	32° 16' 40.677 N
	+E/-W	0.0 usft	Easting:	646,554.20 usft	Longitude:	103° 51' 32.889 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,331.0 usft
Grid Convergence:		0.25 °				

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2024	10/31/2025	6.46	59.85	47,181.29799423

Design	PWP2				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.0	0.0	0.0	275.06

Plan Survey Tool Program		Date	1/29/2025		
	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	2,000.0	PWP2 (OWB)	r.5 MWD+IFR1+SAG+FDIR OWSG MWD + IFR1 + SAG +	
2	2,000.0	9,567.1	PWP2 (OWB)	r.5 MWD+IFR1+SAG+FDIR OWSG MWD + IFR1 + SAG +	
3	9,567.1	26,049.3	PWP2 (OWB)	r.5 MWD+IFR1+SAG+FDIR OWSG MWD + IFR1 + SAG +	

ConocoPhillips

Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,010.0	0.00	0.00	2,010.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,760.0	15.00	358.00	2,751.5	97.6	-3.4	2.00	2.00	0.00	358.00	
7,572.5	15.00	358.00	7,400.0	1,342.4	-46.9	0.00	0.00	0.00	0.00	
9,072.5	0.00	0.00	8,882.9	1,537.5	-53.7	1.00	-1.00	0.00	180.00	
9,567.1	0.00	0.00	9,377.5	1,537.5	-53.7	0.00	0.00	0.00	0.00	
10,317.1	90.00	270.00	9,855.0	1,537.5	-531.2	12.00	12.00	0.00	270.00	
11,192.1	90.00	270.00	9,855.0	1,537.5	-1,406.2	0.00	0.00	0.00	0.00	
11,707.1	90.00	259.70	9,855.0	1,491.3	-1,918.4	2.00	0.00	-2.00	-90.00	
12,907.1	90.00	259.70	9,855.0	1,276.8	-3,099.0	0.00	0.00	0.00	0.00	
13,407.1	90.00	269.70	9,855.0	1,230.6	-3,596.3	2.00	0.00	2.00	90.00	
14,307.1	90.00	269.70	9,855.0	1,225.9	-4,496.3	0.00	0.00	0.00	0.00	
14,772.1	90.00	279.00	9,855.0	1,261.1	-4,959.4	2.00	0.00	2.00	90.00	
16,088.1	90.00	279.00	9,855.0	1,467.0	-6,259.2	0.00	0.00	0.00	0.00	
16,538.1	90.00	270.00	9,855.0	1,502.3	-6,707.3	2.00	0.00	-2.00	-90.00	
20,752.5	90.00	270.00	9,855.0	1,502.4	-10,921.7	0.00	0.00	0.00	0.00	
20,787.9	90.00	269.29	9,855.0	1,502.1	-10,957.1	2.00	0.00	-2.00	-90.00	
26,049.4	90.00	269.29	9,855.0	1,437.2	-16,218.2	0.00	0.00	0.00	0.00	

ConocoPhillips

Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,010.0	0.00	0.00	2,010.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	1.80	358.00	2,100.0	1.4	0.0	0.2	2.00	2.00	0.00
2,200.0	3.80	358.00	2,199.9	6.3	-0.2	0.8	2.00	2.00	0.00
2,300.0	5.80	358.00	2,299.5	14.7	-0.5	1.8	2.00	2.00	0.00
2,400.0	7.80	358.00	2,398.8	26.5	-0.9	3.3	2.00	2.00	0.00
2,500.0	9.80	358.00	2,497.6	41.8	-1.5	5.1	2.00	2.00	0.00
2,600.0	11.80	358.00	2,595.8	60.5	-2.1	7.4	2.00	2.00	0.00
2,700.0	13.80	358.00	2,693.3	82.6	-2.9	10.2	2.00	2.00	0.00
2,760.0	15.00	358.00	2,751.5	97.6	-3.4	12.0	2.00	2.00	0.00
2,800.0	15.00	358.00	2,790.1	107.9	-3.8	13.3	0.00	0.00	0.00
2,900.0	15.00	358.00	2,886.7	133.8	-4.7	16.5	0.00	0.00	0.00
3,000.0	15.00	358.00	2,983.3	159.6	-5.6	19.6	0.00	0.00	0.00
3,100.0	15.00	358.00	3,079.9	185.5	-6.5	22.8	0.00	0.00	0.00
3,200.0	15.00	358.00	3,176.5	211.4	-7.4	26.0	0.00	0.00	0.00
3,300.0	15.00	358.00	3,273.1	237.2	-8.3	29.2	0.00	0.00	0.00
3,400.0	15.00	358.00	3,369.7	263.1	-9.2	32.4	0.00	0.00	0.00
3,500.0	15.00	358.00	3,466.2	289.0	-10.1	35.6	0.00	0.00	0.00
3,600.0	15.00	358.00	3,562.8	314.8	-11.0	38.7	0.00	0.00	0.00
3,700.0	15.00	358.00	3,659.4	340.7	-11.9	41.9	0.00	0.00	0.00
3,800.0	15.00	358.00	3,756.0	366.6	-12.8	45.1	0.00	0.00	0.00
3,900.0	15.00	358.00	3,852.6	392.4	-13.7	48.3	0.00	0.00	0.00
4,000.0	15.00	358.00	3,949.2	418.3	-14.6	51.5	0.00	0.00	0.00
4,100.0	15.00	358.00	4,045.8	444.2	-15.5	54.7	0.00	0.00	0.00
4,200.0	15.00	358.00	4,142.4	470.0	-16.4	57.8	0.00	0.00	0.00
4,300.0	15.00	358.00	4,239.0	495.9	-17.3	61.0	0.00	0.00	0.00
4,400.0	15.00	358.00	4,335.6	521.8	-18.2	64.2	0.00	0.00	0.00
4,500.0	15.00	358.00	4,432.2	547.6	-19.1	67.4	0.00	0.00	0.00
4,600.0	15.00	358.00	4,528.8	573.5	-20.0	70.6	0.00	0.00	0.00
4,700.0	15.00	358.00	4,625.4	599.4	-20.9	73.8	0.00	0.00	0.00
4,800.0	15.00	358.00	4,722.0	625.2	-21.8	76.9	0.00	0.00	0.00
4,900.0	15.00	358.00	4,818.5	651.1	-22.7	80.1	0.00	0.00	0.00
5,000.0	15.00	358.00	4,915.1	677.0	-23.6	83.3	0.00	0.00	0.00
5,100.0	15.00	358.00	5,011.7	702.8	-24.5	86.5	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,200.0	15.00	358.00	5,108.3	728.7	-25.4	89.7	0.00	0.00	0.00
5,300.0	15.00	358.00	5,204.9	754.6	-26.3	92.9	0.00	0.00	0.00
5,400.0	15.00	358.00	5,301.5	780.4	-27.3	96.0	0.00	0.00	0.00
5,500.0	15.00	358.00	5,398.1	806.3	-28.2	99.2	0.00	0.00	0.00
5,600.0	15.00	358.00	5,494.7	832.2	-29.1	102.4	0.00	0.00	0.00
5,700.0	15.00	358.00	5,591.3	858.0	-30.0	105.6	0.00	0.00	0.00
5,800.0	15.00	358.00	5,687.9	883.9	-30.9	108.8	0.00	0.00	0.00
5,900.0	15.00	358.00	5,784.5	909.8	-31.8	112.0	0.00	0.00	0.00
6,000.0	15.00	358.00	5,881.1	935.6	-32.7	115.1	0.00	0.00	0.00
6,100.0	15.00	358.00	5,977.7	961.5	-33.6	118.3	0.00	0.00	0.00
6,200.0	15.00	358.00	6,074.2	987.4	-34.5	121.5	0.00	0.00	0.00
6,300.0	15.00	358.00	6,170.8	1,013.2	-35.4	124.7	0.00	0.00	0.00
6,400.0	15.00	358.00	6,267.4	1,039.1	-36.3	127.9	0.00	0.00	0.00
6,500.0	15.00	358.00	6,364.0	1,064.9	-37.2	131.0	0.00	0.00	0.00
6,600.0	15.00	358.00	6,460.6	1,090.8	-38.1	134.2	0.00	0.00	0.00
6,700.0	15.00	358.00	6,557.2	1,116.7	-39.0	137.4	0.00	0.00	0.00
6,800.0	15.00	358.00	6,653.8	1,142.5	-39.9	140.6	0.00	0.00	0.00
6,900.0	15.00	358.00	6,750.4	1,168.4	-40.8	143.8	0.00	0.00	0.00
7,000.0	15.00	358.00	6,847.0	1,194.3	-41.7	147.0	0.00	0.00	0.00
7,100.0	15.00	358.00	6,943.6	1,220.1	-42.6	150.1	0.00	0.00	0.00
7,200.0	15.00	358.00	7,040.2	1,246.0	-43.5	153.3	0.00	0.00	0.00
7,300.0	15.00	358.00	7,136.8	1,271.9	-44.4	156.5	0.00	0.00	0.00
7,400.0	15.00	358.00	7,233.4	1,297.7	-45.3	159.7	0.00	0.00	0.00
7,500.0	15.00	358.00	7,330.0	1,323.6	-46.2	162.9	0.00	0.00	0.00
7,572.5	15.00	358.00	7,400.0	1,342.4	-46.9	165.2	0.00	0.00	0.00
7,600.0	14.73	358.00	7,426.6	1,349.4	-47.1	166.1	1.00	-1.00	0.00
7,700.0	13.73	358.00	7,523.5	1,374.0	-48.0	169.1	1.00	-1.00	0.00
7,800.0	12.73	358.00	7,620.8	1,396.8	-48.8	171.9	1.00	-1.00	0.00
7,900.0	11.73	358.00	7,718.6	1,418.0	-49.5	174.5	1.00	-1.00	0.00
8,000.0	10.73	358.00	7,816.7	1,437.5	-50.2	176.9	1.00	-1.00	0.00
8,100.0	9.73	358.00	7,915.1	1,455.2	-50.8	179.1	1.00	-1.00	0.00
8,200.0	8.73	358.00	8,013.8	1,471.2	-51.4	181.0	1.00	-1.00	0.00
8,300.0	7.73	358.00	8,112.7	1,485.5	-51.9	182.8	1.00	-1.00	0.00
8,400.0	6.73	358.00	8,211.9	1,498.1	-52.3	184.3	1.00	-1.00	0.00
8,500.0	5.73	358.00	8,311.4	1,508.9	-52.7	185.7	1.00	-1.00	0.00
8,600.0	4.73	358.00	8,410.9	1,518.0	-53.0	186.8	1.00	-1.00	0.00
8,700.0	3.73	358.00	8,510.7	1,525.4	-53.3	187.7	1.00	-1.00	0.00
8,800.0	2.73	358.00	8,610.5	1,531.0	-53.5	188.4	1.00	-1.00	0.00
8,900.0	1.73	358.00	8,710.4	1,534.9	-53.6	188.9	1.00	-1.00	0.00
9,000.0	0.73	358.00	8,810.4	1,537.0	-53.7	189.1	1.00	-1.00	0.00
9,072.5	0.00	0.00	8,882.9	1,537.5	-53.7	189.2	1.00	-1.00	0.00
9,100.0	0.00	0.00	8,910.4	1,537.5	-53.7	189.2	0.00	0.00	0.00
9,200.0	0.00	0.00	9,010.4	1,537.5	-53.7	189.2	0.00	0.00	0.00
9,300.0	0.00	0.00	9,110.4	1,537.5	-53.7	189.2	0.00	0.00	0.00
9,400.0	0.00	0.00	9,210.4	1,537.5	-53.7	189.2	0.00	0.00	0.00
9,500.0	0.00	0.00	9,310.4	1,537.5	-53.7	189.2	0.00	0.00	0.00
9,567.1	0.00	0.00	9,377.5	1,537.5	-53.7	189.2	0.00	0.00	0.00
9,575.0	0.94	270.00	9,385.4	1,537.5	-53.8	189.3	12.00	12.00	0.00
9,600.0	3.94	270.00	9,410.4	1,537.5	-54.8	190.3	12.00	12.00	0.00
9,625.0	6.94	270.00	9,435.3	1,537.5	-57.2	192.7	12.00	12.00	0.00
9,650.0	9.94	270.00	9,460.0	1,537.5	-60.9	196.3	12.00	12.00	0.00
9,675.0	12.94	270.00	9,484.5	1,537.5	-65.8	201.3	12.00	12.00	0.00
9,700.0	15.94	270.00	9,508.7	1,537.5	-72.1	207.5	12.00	12.00	0.00
9,725.0	18.94	270.00	9,532.5	1,537.5	-79.6	215.0	12.00	12.00	0.00

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Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,750.0	21.94	270.00	9,556.0	1,537.5	-88.3	223.7	12.00	12.00	0.00	
9,775.0	24.94	270.00	9,578.9	1,537.5	-98.2	233.6	12.00	12.00	0.00	
9,800.0	27.94	270.00	9,601.3	1,537.5	-109.4	244.7	12.00	12.00	0.00	
9,825.0	30.94	270.00	9,623.0	1,537.5	-121.6	256.9	12.00	12.00	0.00	
9,850.0	33.94	270.00	9,644.1	1,537.5	-135.1	270.2	12.00	12.00	0.00	
9,875.0	36.94	270.00	9,664.5	1,537.5	-149.6	284.7	12.00	12.00	0.00	
9,900.0	39.94	270.00	9,684.1	1,537.5	-165.1	300.2	12.00	12.00	0.00	
9,925.0	42.94	270.00	9,702.8	1,537.5	-181.6	316.7	12.00	12.00	0.00	
9,950.0	45.94	270.00	9,720.7	1,537.5	-199.1	334.1	12.00	12.00	0.00	
9,975.0	48.94	270.00	9,737.6	1,537.5	-217.6	352.4	12.00	12.00	0.00	
10,000.0	51.94	270.00	9,753.5	1,537.5	-236.8	371.6	12.00	12.00	0.00	
10,025.0	54.94	270.00	9,768.4	1,537.5	-256.9	391.6	12.00	12.00	0.00	
10,050.0	57.94	270.00	9,782.2	1,537.5	-277.7	412.4	12.00	12.00	0.00	
10,075.0	60.94	270.00	9,794.9	1,537.5	-299.3	433.8	12.00	12.00	0.00	
10,100.0	63.94	270.00	9,806.5	1,537.5	-321.4	455.9	12.00	12.00	0.00	
10,125.0	66.94	270.00	9,816.9	1,537.5	-344.2	478.5	12.00	12.00	0.00	
10,150.0	69.94	270.00	9,826.0	1,537.5	-367.4	501.7	12.00	12.00	0.00	
10,175.0	72.94	270.00	9,834.0	1,537.5	-391.1	525.3	12.00	12.00	0.00	
10,200.0	75.94	270.00	9,840.7	1,537.5	-415.2	549.3	12.00	12.00	0.00	
10,225.0	78.94	270.00	9,846.1	1,537.5	-439.6	573.6	12.00	12.00	0.00	
10,250.0	81.94	270.00	9,850.3	1,537.5	-464.2	598.1	12.00	12.00	0.00	
10,275.0	84.94	270.00	9,853.1	1,537.5	-489.1	622.9	12.00	12.00	0.00	
10,300.0	87.94	270.00	9,854.7	1,537.5	-514.0	647.7	12.00	12.00	0.00	
10,317.1	90.00	270.00	9,855.0	1,537.5	-531.2	664.8	12.00	12.00	0.00	
10,400.0	90.00	270.00	9,855.0	1,537.5	-614.0	747.3	0.00	0.00	0.00	
10,500.0	90.00	270.00	9,855.0	1,537.5	-714.0	847.0	0.00	0.00	0.00	
10,600.0	90.00	270.00	9,855.0	1,537.5	-814.0	946.6	0.00	0.00	0.00	
10,700.0	90.00	270.00	9,855.0	1,537.5	-914.0	1,046.2	0.00	0.00	0.00	
10,800.0	90.00	270.00	9,855.0	1,537.5	-1,014.0	1,145.8	0.00	0.00	0.00	
10,900.0	90.00	270.00	9,855.0	1,537.5	-1,114.0	1,245.4	0.00	0.00	0.00	
11,000.0	90.00	270.00	9,855.0	1,537.5	-1,214.0	1,345.0	0.00	0.00	0.00	
11,100.0	90.00	270.00	9,855.0	1,537.5	-1,314.0	1,444.6	0.00	0.00	0.00	
11,192.1	90.00	270.00	9,855.0	1,537.5	-1,406.2	1,536.4	0.00	0.00	0.00	
11,200.0	90.00	269.84	9,855.0	1,537.5	-1,414.0	1,544.2	2.00	0.00	-2.00	
11,300.0	90.00	267.84	9,855.0	1,535.5	-1,514.0	1,643.6	2.00	0.00	-2.00	
11,400.0	90.00	265.84	9,855.0	1,529.9	-1,613.8	1,742.6	2.00	0.00	-2.00	
11,500.0	90.00	263.84	9,855.0	1,521.0	-1,713.4	1,841.0	2.00	0.00	-2.00	
11,600.0	90.00	261.84	9,855.0	1,508.5	-1,812.6	1,938.7	2.00	0.00	-2.00	
11,707.1	90.00	259.70	9,855.0	1,491.3	-1,918.4	2,042.5	2.00	0.00	-2.00	
11,800.0	90.00	259.70	9,855.0	1,474.7	-2,009.8	2,132.1	0.00	0.00	0.00	
11,900.0	90.00	259.70	9,855.0	1,456.8	-2,108.1	2,228.5	0.00	0.00	0.00	
12,000.0	90.00	259.70	9,855.0	1,438.9	-2,206.5	2,324.9	0.00	0.00	0.00	
12,100.0	90.00	259.70	9,855.0	1,421.1	-2,304.9	2,421.4	0.00	0.00	0.00	
12,200.0	90.00	259.70	9,855.0	1,403.2	-2,403.3	2,517.8	0.00	0.00	0.00	
12,300.0	90.00	259.70	9,855.0	1,385.3	-2,501.7	2,614.2	0.00	0.00	0.00	
12,400.0	90.00	259.70	9,855.0	1,367.4	-2,600.1	2,710.6	0.00	0.00	0.00	
12,500.0	90.00	259.70	9,855.0	1,349.5	-2,698.5	2,807.1	0.00	0.00	0.00	
12,600.0	90.00	259.70	9,855.0	1,331.7	-2,796.9	2,903.5	0.00	0.00	0.00	
12,700.0	90.00	259.70	9,855.0	1,313.8	-2,895.3	2,999.9	0.00	0.00	0.00	
12,800.0	90.00	259.70	9,855.0	1,295.9	-2,993.6	3,096.3	0.00	0.00	0.00	
12,907.1	90.00	259.70	9,855.0	1,276.8	-3,099.0	3,199.7	0.00	0.00	0.00	
13,000.0	90.00	261.56	9,855.0	1,261.6	-3,190.7	3,289.6	2.00	0.00	2.00	
13,100.0	90.00	263.56	9,855.0	1,248.7	-3,289.8	3,387.2	2.00	0.00	2.00	
13,200.0	90.00	265.56	9,855.0	1,239.2	-3,389.4	3,485.5	2.00	0.00	2.00	

ConocoPhillips

Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,300.0	90.00	267.56	9,855.0	1,233.2	-3,489.2	3,584.4	2.00	0.00	2.00	
13,407.1	90.00	269.70	9,855.0	1,230.6	-3,596.3	3,690.9	2.00	0.00	2.00	
13,500.0	90.00	269.70	9,855.0	1,230.1	-3,689.1	3,783.3	0.00	0.00	0.00	
13,600.0	90.00	269.70	9,855.0	1,229.6	-3,789.1	3,882.9	0.00	0.00	0.00	
13,700.0	90.00	269.70	9,855.0	1,229.1	-3,889.1	3,982.5	0.00	0.00	0.00	
13,800.0	90.00	269.70	9,855.0	1,228.6	-3,989.1	4,082.0	0.00	0.00	0.00	
13,900.0	90.00	269.70	9,855.0	1,228.0	-4,089.1	4,181.6	0.00	0.00	0.00	
14,000.0	90.00	269.70	9,855.0	1,227.5	-4,189.1	4,281.1	0.00	0.00	0.00	
14,100.0	90.00	269.70	9,855.0	1,227.0	-4,289.1	4,380.7	0.00	0.00	0.00	
14,200.0	90.00	269.70	9,855.0	1,226.5	-4,389.1	4,480.3	0.00	0.00	0.00	
14,307.1	90.00	269.70	9,855.0	1,225.9	-4,496.3	4,586.9	0.00	0.00	0.00	
14,400.0	90.00	271.56	9,855.0	1,226.9	-4,589.1	4,679.5	2.00	0.00	2.00	
14,500.0	90.00	273.56	9,855.0	1,231.4	-4,689.0	4,779.4	2.00	0.00	2.00	
14,600.0	90.00	275.56	9,855.0	1,239.3	-4,788.7	4,879.4	2.00	0.00	2.00	
14,700.0	90.00	277.56	9,855.0	1,250.8	-4,888.0	4,979.4	2.00	0.00	2.00	
14,772.1	90.00	279.00	9,855.0	1,261.1	-4,959.4	5,051.4	2.00	0.00	2.00	
14,800.0	90.00	279.00	9,855.0	1,265.5	-4,986.9	5,079.2	0.00	0.00	0.00	
14,900.0	90.00	279.00	9,855.0	1,281.1	-5,085.7	5,178.9	0.00	0.00	0.00	
15,000.0	90.00	279.00	9,855.0	1,296.8	-5,184.5	5,278.7	0.00	0.00	0.00	
15,100.0	90.00	279.00	9,855.0	1,312.4	-5,283.2	5,378.5	0.00	0.00	0.00	
15,200.0	90.00	279.00	9,855.0	1,328.1	-5,382.0	5,478.2	0.00	0.00	0.00	
15,300.0	90.00	279.00	9,855.0	1,343.7	-5,480.8	5,578.0	0.00	0.00	0.00	
15,400.0	90.00	279.00	9,855.0	1,359.4	-5,579.6	5,677.8	0.00	0.00	0.00	
15,500.0	90.00	279.00	9,855.0	1,375.0	-5,678.3	5,777.5	0.00	0.00	0.00	
15,600.0	90.00	279.00	9,855.0	1,390.7	-5,777.1	5,877.3	0.00	0.00	0.00	
15,700.0	90.00	279.00	9,855.0	1,406.3	-5,875.9	5,977.1	0.00	0.00	0.00	
15,800.0	90.00	279.00	9,855.0	1,421.9	-5,974.6	6,076.8	0.00	0.00	0.00	
15,900.0	90.00	279.00	9,855.0	1,437.6	-6,073.4	6,176.6	0.00	0.00	0.00	
16,000.0	90.00	279.00	9,855.0	1,453.2	-6,172.2	6,276.4	0.00	0.00	0.00	
16,088.1	90.00	279.00	9,855.0	1,467.0	-6,259.2	6,364.3	0.00	0.00	0.00	
16,100.0	90.00	278.76	9,855.0	1,468.8	-6,270.9	6,376.1	2.00	0.00	-2.00	
16,200.0	90.00	276.76	9,855.0	1,482.4	-6,370.0	6,476.0	2.00	0.00	-2.00	
16,300.0	90.00	274.76	9,855.0	1,492.4	-6,469.5	6,576.0	2.00	0.00	-2.00	
16,400.0	90.00	272.76	9,855.0	1,499.0	-6,569.3	6,676.0	2.00	0.00	-2.00	
16,500.0	90.00	270.76	9,855.0	1,502.0	-6,669.2	6,775.8	2.00	0.00	-2.00	
16,538.1	90.00	270.00	9,855.0	1,502.3	-6,707.3	6,813.7	2.00	0.00	-2.00	
16,600.0	90.00	270.00	9,855.0	1,502.3	-6,769.2	6,875.4	0.00	0.00	0.00	
16,700.0	90.00	270.00	9,855.0	1,502.3	-6,869.2	6,975.0	0.00	0.00	0.00	
16,800.0	90.00	270.00	9,855.0	1,502.3	-6,969.2	7,074.6	0.00	0.00	0.00	
16,900.0	90.00	270.00	9,855.0	1,502.3	-7,069.2	7,174.3	0.00	0.00	0.00	
17,000.0	90.00	270.00	9,855.0	1,502.3	-7,169.2	7,273.9	0.00	0.00	0.00	
17,100.0	90.00	270.00	9,855.0	1,502.3	-7,269.2	7,373.5	0.00	0.00	0.00	
17,200.0	90.00	270.00	9,855.0	1,502.3	-7,369.2	7,473.1	0.00	0.00	0.00	
17,300.0	90.00	270.00	9,855.0	1,502.3	-7,469.2	7,572.7	0.00	0.00	0.00	
17,400.0	90.00	270.00	9,855.0	1,502.3	-7,569.2	7,672.3	0.00	0.00	0.00	
17,500.0	90.00	270.00	9,855.0	1,502.3	-7,669.2	7,771.9	0.00	0.00	0.00	
17,600.0	90.00	270.00	9,855.0	1,502.3	-7,769.2	7,871.5	0.00	0.00	0.00	
17,700.0	90.00	270.00	9,855.0	1,502.3	-7,869.2	7,971.1	0.00	0.00	0.00	
17,800.0	90.00	270.00	9,855.0	1,502.3	-7,969.2	8,070.7	0.00	0.00	0.00	
17,900.0	90.00	270.00	9,855.0	1,502.3	-8,069.2	8,170.3	0.00	0.00	0.00	
18,000.0	90.00	270.00	9,855.0	1,502.3	-8,169.2	8,270.0	0.00	0.00	0.00	
18,100.0	90.00	270.00	9,855.0	1,502.3	-8,269.2	8,369.6	0.00	0.00	0.00	
18,200.0	90.00	270.00	9,855.0	1,502.3	-8,369.2	8,469.2	0.00	0.00	0.00	
18,300.0	90.00	270.00	9,855.0	1,502.3	-8,469.2	8,568.8	0.00	0.00	0.00	

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Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
18,400.0	90.00	270.00	9,855.0	1,502.3	-8,569.2	8,668.4	0.00	0.00	0.00	
18,500.0	90.00	270.00	9,855.0	1,502.3	-8,669.2	8,768.0	0.00	0.00	0.00	
18,600.0	90.00	270.00	9,855.0	1,502.3	-8,769.2	8,867.6	0.00	0.00	0.00	
18,700.0	90.00	270.00	9,855.0	1,502.3	-8,869.2	8,967.2	0.00	0.00	0.00	
18,800.0	90.00	270.00	9,855.0	1,502.3	-8,969.2	9,066.8	0.00	0.00	0.00	
18,900.0	90.00	270.00	9,855.0	1,502.3	-9,069.2	9,166.4	0.00	0.00	0.00	
19,000.0	90.00	270.00	9,855.0	1,502.3	-9,169.2	9,266.1	0.00	0.00	0.00	
19,100.0	90.00	270.00	9,855.0	1,502.3	-9,269.2	9,365.7	0.00	0.00	0.00	
19,200.0	90.00	270.00	9,855.0	1,502.3	-9,369.2	9,465.3	0.00	0.00	0.00	
19,300.0	90.00	270.00	9,855.0	1,502.3	-9,469.2	9,564.9	0.00	0.00	0.00	
19,400.0	90.00	270.00	9,855.0	1,502.3	-9,569.2	9,664.5	0.00	0.00	0.00	
19,500.0	90.00	270.00	9,855.0	1,502.3	-9,669.2	9,764.1	0.00	0.00	0.00	
19,600.0	90.00	270.00	9,855.0	1,502.3	-9,769.2	9,863.7	0.00	0.00	0.00	
19,700.0	90.00	270.00	9,855.0	1,502.3	-9,869.2	9,963.3	0.00	0.00	0.00	
19,800.0	90.00	270.00	9,855.0	1,502.3	-9,969.2	10,062.9	0.00	0.00	0.00	
19,900.0	90.00	270.00	9,855.0	1,502.3	-10,069.2	10,162.5	0.00	0.00	0.00	
20,000.0	90.00	270.00	9,855.0	1,502.3	-10,169.2	10,262.2	0.00	0.00	0.00	
20,100.0	90.00	270.00	9,855.0	1,502.3	-10,269.2	10,361.8	0.00	0.00	0.00	
20,200.0	90.00	270.00	9,855.0	1,502.3	-10,369.2	10,461.4	0.00	0.00	0.00	
20,300.0	90.00	270.00	9,855.0	1,502.4	-10,469.2	10,561.0	0.00	0.00	0.00	
20,400.0	90.00	270.00	9,855.0	1,502.4	-10,569.2	10,660.6	0.00	0.00	0.00	
20,500.0	90.00	270.00	9,855.0	1,502.4	-10,669.2	10,760.2	0.00	0.00	0.00	
20,600.0	90.00	270.00	9,855.0	1,502.4	-10,769.2	10,859.8	0.00	0.00	0.00	
20,700.0	90.00	270.00	9,855.0	1,502.4	-10,869.2	10,959.4	0.00	0.00	0.00	
20,752.5	90.00	270.00	9,855.0	1,502.4	-10,921.7	11,011.7	0.00	0.00	0.00	
20,787.9	90.00	269.29	9,855.0	1,502.1	-10,957.1	11,047.0	2.00	0.00	-2.00	
20,800.0	90.00	269.29	9,855.0	1,502.0	-10,969.2	11,059.0	0.00	0.00	0.00	
20,900.0	90.00	269.29	9,855.0	1,500.8	-11,069.2	11,158.5	0.00	0.00	0.00	
21,000.0	90.00	269.29	9,855.0	1,499.5	-11,169.2	11,258.0	0.00	0.00	0.00	
21,100.0	90.00	269.29	9,855.0	1,498.3	-11,269.2	11,357.5	0.00	0.00	0.00	
21,200.0	90.00	269.29	9,855.0	1,497.1	-11,369.2	11,457.0	0.00	0.00	0.00	
21,300.0	90.00	269.29	9,855.0	1,495.8	-11,469.2	11,556.5	0.00	0.00	0.00	
21,400.0	90.00	269.29	9,855.0	1,494.6	-11,569.2	11,656.0	0.00	0.00	0.00	
21,500.0	90.00	269.29	9,855.0	1,493.4	-11,669.2	11,755.5	0.00	0.00	0.00	
21,600.0	90.00	269.29	9,855.0	1,492.1	-11,769.2	11,854.9	0.00	0.00	0.00	
21,700.0	90.00	269.29	9,855.0	1,490.9	-11,869.2	11,954.4	0.00	0.00	0.00	
21,800.0	90.00	269.29	9,855.0	1,489.7	-11,969.2	12,053.9	0.00	0.00	0.00	
21,900.0	90.00	269.29	9,855.0	1,488.4	-12,069.1	12,153.4	0.00	0.00	0.00	
22,000.0	90.00	269.29	9,855.0	1,487.2	-12,169.1	12,252.9	0.00	0.00	0.00	
22,100.0	90.00	269.29	9,855.0	1,486.0	-12,269.1	12,352.4	0.00	0.00	0.00	
22,200.0	90.00	269.29	9,855.0	1,484.7	-12,369.1	12,451.9	0.00	0.00	0.00	
22,300.0	90.00	269.29	9,855.0	1,483.5	-12,469.1	12,551.4	0.00	0.00	0.00	
22,400.0	90.00	269.29	9,855.0	1,482.3	-12,569.1	12,650.9	0.00	0.00	0.00	
22,500.0	90.00	269.29	9,855.0	1,481.0	-12,669.1	12,750.4	0.00	0.00	0.00	
22,600.0	90.00	269.29	9,855.0	1,479.8	-12,769.1	12,849.9	0.00	0.00	0.00	
22,700.0	90.00	269.29	9,855.0	1,478.6	-12,869.1	12,949.4	0.00	0.00	0.00	
22,800.0	90.00	269.29	9,855.0	1,477.3	-12,969.1	13,048.9	0.00	0.00	0.00	
22,900.0	90.00	269.29	9,855.0	1,476.1	-13,069.1	13,148.4	0.00	0.00	0.00	
23,000.0	90.00	269.29	9,855.0	1,474.9	-13,169.1	13,247.8	0.00	0.00	0.00	
23,100.0	90.00	269.29	9,855.0	1,473.6	-13,269.1	13,347.3	0.00	0.00	0.00	
23,200.0	90.00	269.29	9,855.0	1,472.4	-13,369.1	13,446.8	0.00	0.00	0.00	
23,300.0	90.00	269.29	9,855.0	1,471.1	-13,469.0	13,546.3	0.00	0.00	0.00	
23,400.0	90.00	269.29	9,855.0	1,469.9	-13,569.0	13,645.8	0.00	0.00	0.00	
23,500.0	90.00	269.29	9,855.0	1,468.7	-13,669.0	13,745.3	0.00	0.00	0.00	

ConocoPhillips

Planning Report

Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
23,600.0	90.00	269.29	9,855.0	1,467.4	-13,769.0	13,844.8	0.00	0.00	0.00	
23,700.0	90.00	269.29	9,855.0	1,466.2	-13,869.0	13,944.3	0.00	0.00	0.00	
23,800.0	90.00	269.29	9,855.0	1,465.0	-13,969.0	14,043.8	0.00	0.00	0.00	
23,900.0	90.00	269.29	9,855.0	1,463.7	-14,069.0	14,143.3	0.00	0.00	0.00	
24,000.0	90.00	269.29	9,855.0	1,462.5	-14,169.0	14,242.8	0.00	0.00	0.00	
24,100.0	90.00	269.29	9,855.0	1,461.3	-14,269.0	14,342.3	0.00	0.00	0.00	
24,200.0	90.00	269.29	9,855.0	1,460.0	-14,369.0	14,441.8	0.00	0.00	0.00	
24,300.0	90.00	269.29	9,855.0	1,458.8	-14,469.0	14,541.3	0.00	0.00	0.00	
24,400.0	90.00	269.29	9,855.0	1,457.6	-14,569.0	14,640.8	0.00	0.00	0.00	
24,500.0	90.00	269.29	9,855.0	1,456.3	-14,669.0	14,740.2	0.00	0.00	0.00	
24,600.0	90.00	269.29	9,855.0	1,455.1	-14,768.9	14,839.7	0.00	0.00	0.00	
24,700.0	90.00	269.29	9,855.0	1,453.9	-14,868.9	14,939.2	0.00	0.00	0.00	
24,800.0	90.00	269.29	9,855.0	1,452.6	-14,968.9	15,038.7	0.00	0.00	0.00	
24,900.0	90.00	269.29	9,855.0	1,451.4	-15,068.9	15,138.2	0.00	0.00	0.00	
25,000.0	90.00	269.29	9,855.0	1,450.2	-15,168.9	15,237.7	0.00	0.00	0.00	
25,100.0	90.00	269.29	9,855.0	1,448.9	-15,268.9	15,337.2	0.00	0.00	0.00	
25,200.0	90.00	269.29	9,855.0	1,447.7	-15,368.9	15,436.7	0.00	0.00	0.00	
25,300.0	90.00	269.29	9,855.0	1,446.5	-15,468.9	15,536.2	0.00	0.00	0.00	
25,400.0	90.00	269.29	9,855.0	1,445.2	-15,568.9	15,635.7	0.00	0.00	0.00	
25,500.0	90.00	269.29	9,855.0	1,444.0	-15,668.9	15,735.2	0.00	0.00	0.00	
25,600.0	90.00	269.29	9,855.0	1,442.8	-15,768.9	15,834.7	0.00	0.00	0.00	
25,700.0	90.00	269.29	9,855.0	1,441.5	-15,868.9	15,934.2	0.00	0.00	0.00	
25,800.0	90.00	269.29	9,855.0	1,440.3	-15,968.9	16,033.7	0.00	0.00	0.00	
25,900.0	90.00	269.29	9,855.0	1,439.1	-16,068.8	16,133.1	0.00	0.00	0.00	
26,000.0	90.00	269.29	9,855.0	1,437.8	-16,168.8	16,232.6	0.00	0.00	0.00	
26,049.4	90.00	269.29	9,855.0	1,437.2	-16,218.2	16,281.8	0.00	0.00	0.00	

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Planning Report

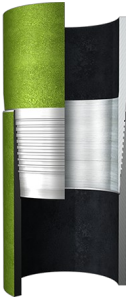
Database:	EDT 17 Permian Prod	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Company:	DELAWARE BASIN WEST	TVD Reference:	RKB=32ft @ 3363.0usft
Project:	ATLAS PROSPECT (DBW)	MD Reference:	RKB=32ft @ 3363.0usft
Site:	IRON THRONE PROJECT	North Reference:	Grid
Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP2		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
SURF BOX_10°N/S x 10 - plan hits target center - Rectangle (sides W20.0 H20.0 D2,010.0)	0.00	178.00	2,010.0	0.0	0.0	465,165.27	646,554.20	32° 16' 40.677 N	103° 51' 32.889 W
TNGT WNDW_75'A x 25' - plan hits target center - Rectangle (sides W70.0 H100.0 D4,812.5)	15.00	178.00	7,400.0	1,342.4	-46.9	466,507.64	646,507.33	32° 16' 53.963 N	103° 51' 33.366 W
KOP BOX_50°N/S x 50'E - plan hits target center - Rectangle (sides W100.0 H100.0 D494.6)	0.00	90.00	9,377.5	1,537.5	-53.7	466,702.75	646,500.51	32° 16' 55.894 N	103° 51' 33.436 W
PBHL_IRON THRONE 50 - plan hits target center - Rectangle (sides W100.0 H5,296.3 D20.0)	0.00	89.30	9,855.0	1,437.2	-16,218.2	466,602.50	630,335.98	32° 16' 55.570 N	103° 54' 41.734 W
LTP_IRON THRONE 50 - plan hits target center - Circle (radius 50.0)	90.00	269.43	9,855.0	1,437.8	-16,168.2	466,603.11	630,385.98	32° 16' 55.574 N	103° 54' 41.152 W
POI 1/PPP 2_IRON THF - plan misses target center by 142.6usft at 15405.4usft MD (9855.0 TVD, 1360.2 N, -5584.8 E) - Rectangle (sides W100.0 H5,256.5 D20.0)	0.00	89.69	9,855.0	1,501.1	-5,562.5	466,666.33	640,991.66	32° 16' 55.770 N	103° 52' 37.608 W
POI 2/PPP 5_IRON THF - plan hits target center - Rectangle (sides W100.0 H5,358.2 D20.0)	0.00	90.01	9,855.0	1,502.4	-10,921.7	466,667.63	635,632.47	32° 16' 56.004 N	103° 53' 40.034 W
FTP_IRON THRONE 50 - plan misses target center by 51.0usft at 10106.2usft MD (9809.2 TVD, 1537.5 N, -327.0 E) - Circle (radius 50.0)	0.00	0.00	9,855.0	1,529.5	-306.1	466,694.73	646,248.09	32° 16' 55.826 N	103° 51' 36.376 W

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	HOLD TO NUDGE KOP
1,907.0	1,907.0	0.0	0.0	USGS MARKER BED 126
2,010.0	2,010.0	0.0	0.0	NUDGE @ DLS 2.00
2,760.0	2,751.5	97.6	-3.4	HOLD TANGENT
7,572.5	7,400.0	1,342.4	-46.9	END NUDGE
9,072.5	8,882.9	1,537.5	-53.7	HOLD TO CURVE KOP
9,567.1	9,377.5	1,537.5	-53.7	KOP-START DLS12.00
10,317.1	9,855.0	1,537.5	-531.1	EOC-HOLD
11,192.1	9,855.0	1,537.5	-1,406.1	START DLS 2.00 TFO -90.00
11,707.1	9,855.0	1,491.3	-1,918.4	END TURN-HOLD
12,907.1	9,855.0	1,276.8	-3,099.0	START DLS 2.00 TFO 90.00
13,407.1	9,855.0	1,230.6	-3,596.2	END TURN-HOLD
14,307.1	9,855.0	1,225.9	-4,496.2	START TURN 2.00
14,772.1	9,855.0	1,261.1	-4,959.4	END TURN-HOLD
16,088.1	9,855.0	1,467.0	-6,259.2	START DLS 2.00 TFO -90.00
16,538.1	9,855.0	1,502.3	-6,707.3	END TURN-HOLD
20,752.5	9,855.0	1,502.4	-10,921.7	START DLS 2.00 TFO -90.00
20,787.9	9,855.0	1,502.1	-10,957.1	END TURN-HOLD
26,049.4	9,855.0	1,437.2	-16,218.2	TD @ 26049.4 MD / 16281.8 VS



Wedge 513[®]



Coupling	Pipe Body
Grade: P110-ICY	Grade: P110-ICY
Body: White	1st Band: White
1st Band: Pale Green	2nd Band: Pale Green
2nd Band: -	3rd Band: Pale Green
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	7.625 in.	Wall Thickness	0.375 in.	Grade	P110-ICY
Min. Wall Thickness	90.00 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	7.625 in.	Wall Thickness	0.375 in.	Body Yield Strength	1068 x1000 lb
Nominal Weight	29.70 lb/ft	Plain End Weight	29.06 lb/ft	Min. Internal Yield Pressure	11,070 psi
Drift	6.750 in.	OD Tolerance	API	SMYS	125,000 psi
Nominal ID	6.875 in.			Collapse Pressure	7360 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	7.625 in.	Tension Efficiency	60 %	Minimum	9000 ft-lb
Connection ID	6.800 in.	Joint Yield Strength	641 x1000 lb	Optimum	10,800 ft-lb
Make-up Loss	4.420 in.	Internal Pressure Capacity	11,070 psi	Maximum	15,800 ft-lb
Threads per inch	3.29	Compression Efficiency	75.20 %	Operation Limit Torques	
Connection OD Option	Regular	Compression Strength	803 x1000 lb	Operating Torque	53,000 ft-lb
		Max. Allowable Bending	45 °/100 ft	Yield Torque	79,000 ft-lb
		External Pressure Capacity	7360 psi		

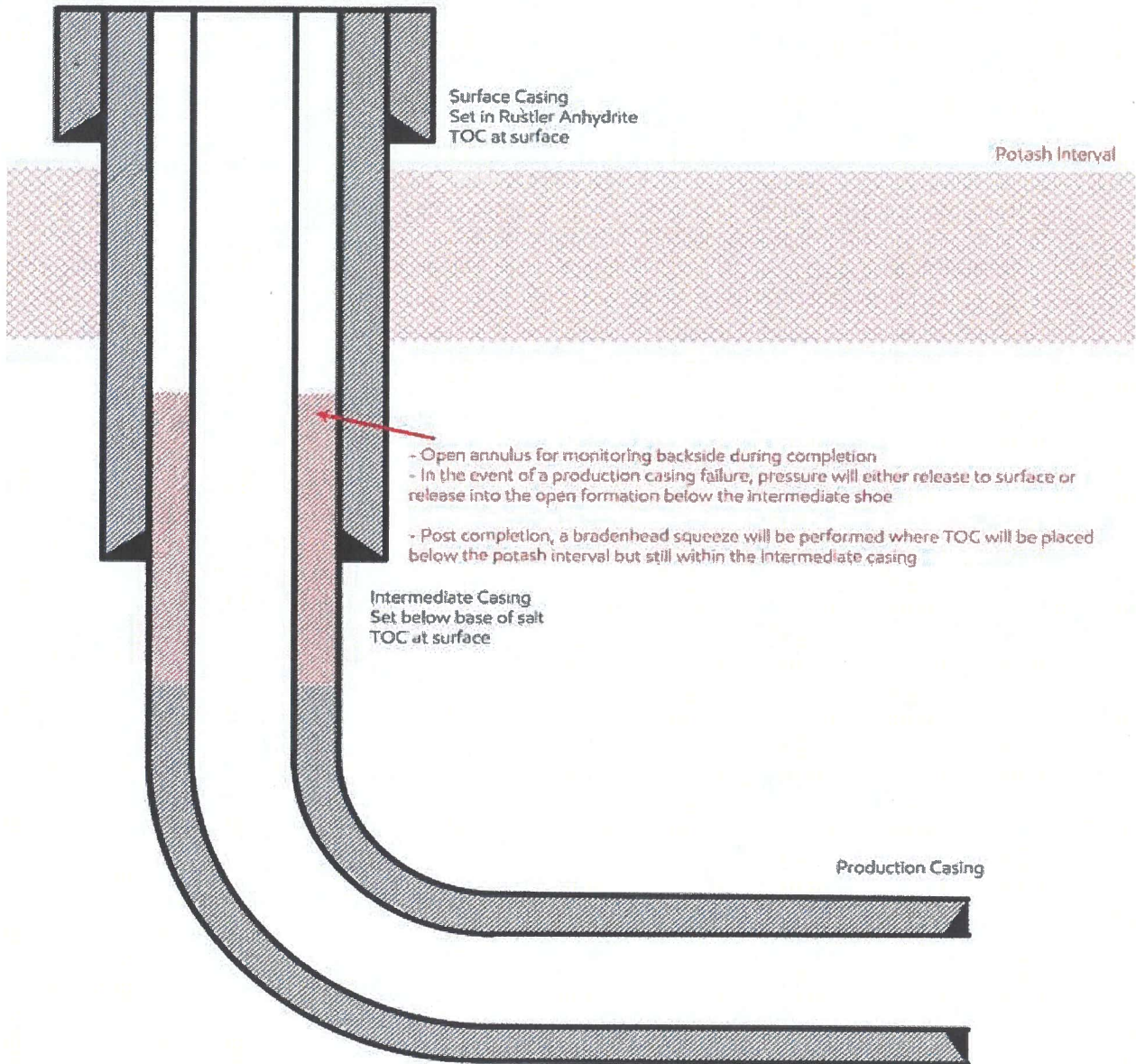
Notes

This connection is fully interchangeable with:
Wedge 523[®] - 7.625 in. - 0.375 in.
Connections with Dopeless[®] Technology are fully compatible with the same connection in its Standard version

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3-String Design – Open Production Casing Annulus



[Figure B] 3 String - Uncemented production casing annulus



TenarisHydril Wedge 441®



Coupling	Pipe Body
Grade: P110-CY	Grade: P110-CY
Body: White	1st Band: White
1st Band: Grey	2nd Band: Grey
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.415 in.	Grade	P110-CY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.415 in.	Body Yield Strength	729 x1000 lb
Nominal Weight	23 lb/ft	Plain End Weight	22.56 lb/ft	Min. Internal Yield Pressure	14,530 psi
Drift	4.545 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.670 in.			Collapse Pressure	14,540 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	5.900 in.	Tension Efficiency	90.80 %	Minimum	15,000 ft-lb
Coupling Length	8.714 in.	Joint Yield Strength	662 x1000 lb	Optimum	16,000 ft-lb
Connection ID	4.670 in.	Internal Pressure Capacity	14,530 psi	Maximum	19,200 ft-lb
Make-up Loss	3.780 in.	Compression Efficiency	90.80 %	Operation Limit Torques	
Threads per inch	3.40	Compression Strength	662 x1000 lb	Operating Torque	33,000 ft-lb
Connection OD Option	Regular	Max. Allowable Bending	79 °/100 ft	Yield Torque	39,000 ft-lb
		External Pressure Capacity	14,540 psi	Buck-On	
		Coupling Face Load	172,000 lb	Minimum	19,200 ft-lb
				Maximum	20,700 ft-lb

Notes

This connection is fully interchangeable with:
Wedge 441® - 5.5 in. - 0.476 in.
Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

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TXP[®] BTC



Coupling	Pipe Body
Grade: P110-CY	Grade: P110-CY
Body: White	1st Band: White
1st Band: Grey	2nd Band: Grey
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.415 in.	Grade	P110-CY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.415 in.	Body Yield Strength	729 x1000 lb
Nominal Weight	23 lb/ft	Plain End Weight	22.56 lb/ft	Min. Internal Yield Pressure	14,530 psi
Drift	4.545 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.670 in.			Collapse Pressure	14,540 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	6.200 in.	Tension Efficiency	100 %	Minimum	12,980 ft-lb
Coupling Length	9.450 in.	Joint Yield Strength	729 x1000 lb	Optimum	14,420 ft-lb
Connection ID	4.658 in.	Internal Pressure Capacity	14,530 psi	Maximum	15,860 ft-lb
Make-up Loss	4.204 in.	Compression Efficiency	100 %	Operation Limit Torques	
Threads per inch	5	Compression Strength	729 x1000 lb	Operating Torque	24,200 ft-lb
Connection OD Option	Regular	Max. Allowable Bending	92 °/100 ft	Yield Torque	26,900 ft-lb
		External Pressure Capacity	14,540 psi		

Notes

This connection is fully interchangeable with:
TXP[®] BTC - 5.5 in. - 0.275 / 0.304 / 0.361 / 0.476 in.
Connections with Dopeless[®] Technology are fully compatible with the same connection in its Standard version
Datasheet is also valid for Special Bevel option when applicable - except for Coupling Face Load, which will be reduced. Please contact a local Tenaris technical sales representative.
Standard coupling design comes with optimized 20° bevel.

For the latest performance data, always visit our website: www.tenaris.com

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TXP® BTC



Coupling	Pipe Body
Grade: L80-ICY	Grade: L80-ICY
Body: Red	1st Band: Red
1st Band: Brown	2nd Band: Brown
2nd Band: Pale Green	3rd Band: Pale Green
3rd Band: -	4th Band: Pale Green
	5th Band: -
	6th Band: -

Outside Diameter	7.625 in.	Wall Thickness	0.375 in.	Grade	L80-ICY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	7.625 in.	Wall Thickness	0.375 in.	Body Yield Strength	726 x1000 lb
Nominal Weight	29.70 lb/ft	Plain End Weight	29.06 lb/ft	Min. Internal Yield Pressure	7320 psi
Drift	6.750 in.	OD Tolerance	API	SMYS	85,000 psi
Nominal ID	6.875 in.			Collapse Pressure	5900 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	8.500 in.	Tension Efficiency	100 %	Minimum	16,100 ft-lb
Coupling Length	10.575 in.	Joint Yield Strength	726 x1000 lb	Optimum	17,890 ft-lb
Connection ID	6.863 in.	Internal Pressure Capacity	7320 psi	Maximum	19,680 ft-lb
Make-up Loss	4.766 in.	Compression Efficiency	100 %	Operation Limit Torques	
Threads per inch	5	Compression Strength	726 x1000 lb	Yield Torque	25,100 ft-lb
Connection OD Option	Regular	Max. Allowable Bending	51 °/100 ft		
		External Pressure Capacity	5900 psi		

Notes

This connection is fully interchangeable with:
TXP® BTC - 7.625 in. - 0.328 / 0.43 / 0.5 / 0.562 / 0.595 / 0.625 in.
Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version
Datasheet is also valid for Special Bevel option when applicable - except for Coupling Face Load, which will be reduced. Please contact a local Tenaris technical sales representative.
Standard coupling design comes with optimized 20° bevel.

For the latest performance data, always visit our website: www.tenaris.com

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DELAWARE BASIN WEST

ATLAS PROSPECT (DBW)

IRON THRONE PROJECT

IRON THRONE FEDERAL COM 501H

OWB

PWP2

Anticollision Report

29 January, 2025

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Reference	PWP2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	0.0 to 26,049.4usft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 1,000.0usft	Error Surface:	Combined Pedal Curve
Warning Levels Evaluated at:	2.79 Sigma	Casing Method:	Added to Error Values

Survey Tool Program	Date	1/29/2025		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	2,000.0	PWP2 (OWB)	r.5 MWD+IFR1+SAG+FDIR	OWSG MWD + IFR1 + SAG + FDIR Corr.
2,000.0	9,567.1	PWP2 (OWB)	r.5 MWD+IFR1+SAG+FDIR	OWSG MWD + IFR1 + SAG + FDIR Corr.
9,567.1	26,049.3	PWP2 (OWB)	r.5 MWD+IFR1+SAG+FDIR	OWSG MWD + IFR1 + SAG + FDIR Corr.

Summary						
	Reference	Offset	Distance			
Site Name	Measured	Measured	Between	Between	Separation	Warning
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses	Factor	
	(usft)	(usft)	(usft)	(usft)		
IRON THRONE PROJECT						
FNRU FEDERAL COM 22 23 PPI_16H - OWB - AWP	7,900.0	8,240.6	933.9	890.7	21.659 SF	
FNRU FEDERAL COM 22 23 PPI_16H - OWB - AWP	7,912.3	8,240.5	933.8	890.7	21.672 CC, ES	
FORTY NINER RIDGE UNIT 105H - OWB - AWP	10,349.3	9,467.2	890.9	855.4	25.073 CC, ES	
FORTY NINER RIDGE UNIT 105H - OWB - AWP	10,400.0	9,465.2	892.3	856.7	25.017 SF	
FORTY NINER RIDGE UNIT 106H - OWB - AWP	10,496.4	9,356.0	939.9	904.0	26.190 CC	
FORTY NINER RIDGE UNIT 106H - OWB - AWP	10,500.0	9,356.0	939.9	904.0	26.178 ES	
FORTY NINER RIDGE UNIT 106H - OWB - AWP	10,600.0	9,381.6	945.0	908.7	26.036 SF	
FORTY NINER RIDGE UNIT 119H - OWB - AWP	13,042.1	9,442.0	856.2	795.1	14.016 CC, ES	
FORTY NINER RIDGE UNIT 119H - OWB - AWP	13,300.0	9,442.0	885.0	820.1	13.619 SF	
FORTY NINER RIDGE UNIT 120H - OWB - AWP	14,009.4	9,356.8	815.6	748.0	12.068 CC, ES	
FORTY NINER RIDGE UNIT 120H - OWB - AWP	14,100.0	9,347.0	820.6	752.4	12.046 SF	
FORTY NINER RIDGE UNIT 121H_WELL START - OWB	15,024.0	9,335.2	819.8	742.6	10.620 CC, ES	
FORTY NINER RIDGE UNIT 121H_WELL START - OWB	15,100.0	9,350.0	822.5	744.4	10.536 SF	
FORTY NINER RIDGE UNIT 170H - OWB - AWP	11,514.0	10,117.2	110.4	44.2	1.668 Caution - Monitor Closely, CC, ES, SF	SF
FORTY NINER RIDGE UNIT 171H - OWB - AWP	12,888.6	9,816.8	103.7	34.9	1.506 Caution - Monitor Closely, CC, ES, SF	SF
FORTY NINER RIDGE UNIT 172H_WELL START - OWB	13,200.0	9,818.0	375.1	311.7	5.918 CC	
FORTY NINER RIDGE UNIT 172H_WELL START - OWB	13,204.4	9,817.7	375.1	311.7	5.917 ES, SF	
FORTY NINER RIDGE UNIT 173H - OWB - AWP	13,531.4	9,811.7	347.2	274.0	4.745 CC, ES, SF	
FORTY NINER RIDGE UNIT 174H - OWB - AWP	13,796.1	9,786.0	123.9	41.6	1.506 Caution - Monitor Closely, CC	
FORTY NINER RIDGE UNIT 174H - OWB - AWP	13,800.0	9,786.0	124.0	41.5	1.504 Caution - Monitor Closely, ES, SF	
FORTY NINER RIDGE UNIT 175H - OWB - AWP	14,108.4	9,810.7	355.1	275.0	4.433 CC, ES, SF	
FORTY NINER RIDGE UNIT 176H - OWB - AWP	14,561.1	9,791.5	152.6	66.9	1.781 Caution - Monitor Closely, CC, ES, SF	
FORTY NINER RIDGE UNIT 177H - OWB - AWP	14,748.7	9,854.1	350.8	260.9	3.903 CC, ES, SF	
IRON THRONE FEDERAL COM 502H - OWB - PWP2	2,010.0	2,010.0	30.0	18.5	2.611 Normal Operations, CC, ES, SF	
IRON THRONE FEDERAL COM 503H - OWB - PWP2	2,010.0	2,011.0	60.0	48.5	5.222 CC	
IRON THRONE FEDERAL COM 503H - OWB - PWP2	2,014.0	2,015.0	60.0	48.5	5.215 ES	
IRON THRONE FEDERAL COM 503H - OWB - PWP2	2,100.0	2,100.0	61.4	49.6	5.189 SF	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FNRU FEDERAL COM 22 23 PPI_16H - OWB - AWP													Offset Site Error:	0.0 usft
Survey Program: 100-r.5 MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor		
7,600.0	7,426.6	8,242.7	7,465.0	16.4	25.6	1.86	2,335.2	-51.6	992.6	950.1	42.54	23.335		
7,700.0	7,523.5	8,241.9	7,465.0	16.6	25.5	1.80	2,335.2	-52.3	961.4	918.4	42.99	22.365		
7,800.0	7,620.8	8,241.2	7,465.0	16.8	25.5	1.75	2,335.2	-53.0	941.6	898.4	43.19	21.800		
7,900.0	7,718.6	8,240.6	7,465.0	17.0	25.5	1.71	2,335.2	-53.7	933.9	890.7	43.12	21.659 SF		
7,912.3	7,730.7	8,240.5	7,465.0	17.1	25.5	1.70	2,335.2	-53.8	933.8	890.7	43.09	21.672 CC, ES		
8,000.0	7,816.7	8,240.0	7,465.0	17.3	25.5	1.67	2,335.2	-54.3	938.5	895.8	42.76	21.951		
8,100.0	7,915.1	8,239.4	7,465.0	17.5	25.5	1.65	2,335.2	-54.8	955.4	913.3	42.15	22.667		
8,200.0	8,013.8	8,239.0	7,465.0	17.7	25.5	1.62	2,335.2	-55.3	983.9	942.6	41.37	23.785		

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 105H - OWB - AWP													Offset Site Error: 0.0 usft
Survey Program: 113-r.5 MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
8,600.0	8,410.9	8,344.1	8,340.6	18.4	13.1	-29.65	2,363.9	-572.4	992.6	961.2	31.38	31.631	
8,700.0	8,510.7	8,444.9	8,441.4	18.6	13.3	-29.90	2,362.7	-573.1	985.6	954.0	31.64	31.149	
8,800.0	8,610.5	8,547.2	8,543.7	18.7	13.4	-30.12	2,361.3	-573.9	980.0	948.1	31.90	30.723	
8,900.0	8,710.4	8,653.5	8,650.0	18.9	13.5	-30.34	2,359.1	-574.9	975.4	943.2	32.16	30.333	
9,000.0	8,810.4	8,760.2	8,756.6	19.0	13.7	-30.51	2,356.3	-575.5	971.6	939.1	32.43	29.960	
9,072.5	8,882.9	8,834.6	8,831.0	19.1	13.8	-32.60	2,354.0	-575.8	969.4	936.8	32.60	29.736	
9,100.0	8,910.4	8,862.4	8,858.8	19.1	13.9	-32.63	2,353.1	-575.8	968.7	936.1	32.65	29.667	
9,200.0	9,010.4	8,972.9	8,969.2	19.1	14.1	-32.76	2,349.1	-575.9	965.7	932.8	32.90	29.353	
9,300.0	9,110.4	9,068.1	9,064.4	19.2	14.4	-32.85	2,345.6	-575.5	962.4	929.3	33.16	29.027	
9,400.0	9,210.4	9,168.8	9,165.0	19.3	14.6	-32.90	2,342.5	-574.4	959.2	925.8	33.42	28.698	
9,500.0	9,310.4	9,254.0	9,250.2	19.3	14.8	-32.89	2,340.6	-573.0	956.5	922.8	33.68	28.403	
9,567.1	9,377.5	9,307.3	9,303.4	19.4	14.8	-32.84	2,340.4	-572.0	955.7	921.9	33.78	28.292	
9,572.1	9,382.5	9,310.9	9,307.1	19.4	14.9	57.17	2,340.5	-571.9	955.7	921.9	33.78	28.289	
9,575.0	9,385.4	9,321.0	9,317.2	19.4	14.9	57.19	2,340.6	-571.8	955.3	921.4	33.83	28.234	
9,600.0	9,410.4	9,321.0	9,317.2	19.4	14.9	57.23	2,340.6	-571.8	955.3	921.4	33.83	28.234	
9,625.0	9,435.3	9,334.9	9,331.0	19.4	14.9	57.40	2,341.1	-571.5	954.5	920.6	33.86	28.189	
9,650.0	9,460.0	9,353.0	9,349.1	19.4	14.9	57.72	2,342.4	-570.9	953.6	919.7	33.88	28.146	
9,675.0	9,484.5	9,353.0	9,349.1	19.4	14.9	57.87	2,342.4	-570.9	952.1	918.2	33.94	28.057	
9,700.0	9,508.7	9,353.0	9,349.1	19.4	14.9	58.02	2,342.4	-570.9	950.7	916.7	34.00	27.965	
9,725.0	9,532.5	9,368.5	9,364.4	19.4	14.8	58.51	2,344.2	-570.4	948.8	914.8	34.01	27.894	
9,750.0	9,556.0	9,384.0	9,379.8	19.4	14.8	59.12	2,346.7	-569.7	946.9	912.8	34.03	27.821	
9,775.0	9,578.9	9,384.0	9,379.8	19.4	14.8	59.35	2,346.7	-569.7	944.6	910.5	34.10	27.701	
9,800.0	9,601.3	9,384.0	9,379.8	19.4	14.8	59.59	2,346.7	-569.7	942.3	908.1	34.17	27.579	
9,825.0	9,623.0	9,399.9	9,395.4	19.4	14.8	60.39	2,349.8	-568.9	939.6	905.4	34.18	27.486	
9,850.0	9,644.1	9,416.0	9,411.0	19.4	14.8	61.30	2,353.5	-567.9	937.0	902.8	34.20	27.393	
9,875.0	9,664.5	9,416.0	9,411.0	19.4	14.8	61.61	2,353.5	-567.9	934.0	899.7	34.28	27.250	
9,900.0	9,684.1	9,416.0	9,411.0	19.4	14.8	61.92	2,353.5	-567.9	931.1	896.8	34.35	27.108	
9,925.0	9,702.8	9,427.9	9,422.4	19.4	14.8	62.78	2,356.6	-567.0	928.0	893.7	34.38	26.991	
9,950.0	9,720.7	9,433.9	9,428.1	19.5	14.7	63.40	2,358.3	-566.5	925.0	890.6	34.44	26.858	
9,975.0	9,737.6	9,447.0	9,440.6	19.5	14.7	64.40	2,362.3	-565.4	922.0	887.5	34.47	26.747	
10,000.0	9,753.5	9,447.0	9,440.6	19.5	14.7	64.75	2,362.3	-565.4	918.9	884.3	34.55	26.597	
10,025.0	9,768.4	9,447.0	9,440.6	19.5	14.7	65.07	2,362.3	-565.4	915.9	881.3	34.63	26.449	
10,050.0	9,782.2	9,447.0	9,440.6	19.6	14.7	65.39	2,362.3	-565.4	913.0	878.3	34.71	26.305	
10,075.0	9,794.9	9,457.0	9,449.9	19.6	14.7	66.28	2,365.5	-564.4	910.1	875.4	34.75	26.190	
10,100.0	9,806.5	9,460.3	9,453.0	19.6	14.7	66.77	2,366.7	-564.0	907.4	872.6	34.82	26.061	
10,125.0	9,816.9	9,463.0	9,455.6	19.7	14.7	67.23	2,367.6	-563.7	904.8	869.9	34.89	25.935	
10,150.0	9,826.0	9,465.3	9,457.7	19.7	14.7	67.64	2,368.4	-563.5	902.4	867.5	34.96	25.814	
10,175.0	9,834.0	9,467.1	9,459.4	19.8	14.7	68.00	2,369.1	-563.3	900.2	865.2	35.03	25.697	
10,200.0	9,840.7	9,468.4	9,460.6	19.8	14.7	68.31	2,369.5	-563.1	898.1	863.0	35.10	25.586	
10,225.0	9,846.1	9,479.0	9,470.4	19.9	14.7	69.19	2,373.4	-561.9	896.5	861.3	35.14	25.514	
10,250.0	9,850.3	9,479.0	9,470.4	20.0	14.7	69.38	2,373.4	-561.9	894.8	859.6	35.21	25.414	
10,275.0	9,853.1	9,479.0	9,470.4	20.0	14.7	69.53	2,373.4	-561.9	893.4	858.2	35.28	25.324	
10,300.0	9,854.7	9,479.0	9,470.4	20.1	14.7	69.66	2,373.4	-561.9	892.3	856.9	35.35	25.242	
10,317.1	9,855.0	9,468.5	9,460.7	20.1	14.7	69.07	2,369.6	-563.1	891.5	856.0	35.44	25.156	
10,349.3	9,855.0	9,467.2	9,459.5	20.2	14.7	68.98	2,369.1	-563.3	890.9	855.4	35.53	25.073 CC, ES	
10,400.0	9,855.0	9,465.2	9,457.7	20.4	14.7	68.86	2,368.4	-563.5	892.3	856.7	35.67	25.017 SF	
10,500.0	9,855.0	9,461.5	9,454.2	20.8	14.7	68.62	2,367.1	-563.9	903.5	867.5	35.95	25.135	
10,600.0	9,855.0	9,458.0	9,450.9	21.2	14.7	68.39	2,365.9	-564.3	925.4	889.2	36.20	25.564	
10,700.0	9,855.0	9,447.0	9,440.6	21.7	14.7	67.69	2,362.3	-565.4	957.3	920.8	36.44	26.272	
10,800.0	9,855.0	9,447.0	9,440.6	22.3	14.7	67.69	2,362.3	-565.4	998.1	961.5	36.60	27.270	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 106H - OWB - AWP													Offset Site Error: 0.0 usft	
Survey Program: 127-r.5 MWD				Rule Assigned:									Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
9,368.1	9,178.5	9,104.0	9,102.5	19.2	13.9	-39.08	2,313.2	-683.7	999.3	967.0	32.30	30.937		
9,400.0	9,210.4	9,119.9	9,118.5	19.3	13.9	-39.08	2,313.3	-683.7	999.5	967.2	32.35	30.894		
10,075.0	9,794.9	9,305.5	9,298.3	19.6	13.6	55.36	2,349.8	-697.7	997.7	963.7	34.08	29.280		
10,100.0	9,806.5	9,310.5	9,302.9	19.6	13.6	55.96	2,351.6	-698.8	994.0	959.9	34.17	29.090		
10,125.0	9,816.9	9,325.0	9,315.9	19.7	13.6	57.05	2,357.2	-702.1	990.3	956.1	34.22	28.939		
10,150.0	9,826.0	9,325.0	9,315.9	19.7	13.6	57.48	2,357.2	-702.1	986.1	951.8	34.34	28.715		
10,175.0	9,834.0	9,325.0	9,315.9	19.8	13.6	57.91	2,357.2	-702.1	981.9	947.4	34.47	28.489		
10,200.0	9,840.7	9,325.0	9,315.9	19.8	13.6	58.36	2,357.2	-702.1	977.6	943.0	34.59	28.264		
10,225.0	9,846.1	9,325.0	9,315.9	19.9	13.6	58.81	2,357.2	-702.1	973.2	938.5	34.71	28.038		
10,250.0	9,850.3	9,325.0	9,315.9	20.0	13.6	59.27	2,357.2	-702.1	968.8	934.0	34.83	27.814		
10,275.0	9,853.1	9,337.0	9,326.4	20.0	13.5	60.42	2,362.0	-705.1	964.2	929.3	34.90	27.629		
10,300.0	9,854.7	9,339.5	9,328.6	20.1	13.5	61.05	2,363.0	-705.8	959.6	924.6	35.00	27.414		
10,317.1	9,855.0	9,341.1	9,330.0	20.1	13.5	61.48	2,363.7	-706.2	956.5	921.4	35.08	27.268		
10,400.0	9,855.0	9,356.0	9,342.8	20.4	13.5	62.35	2,370.0	-710.4	944.8	909.4	35.41	26.685		
10,496.4	9,855.0	9,356.0	9,342.8	20.8	13.5	62.35	2,370.0	-710.4	939.9	904.0	35.89	26.190 CC		
10,500.0	9,855.0	9,356.0	9,342.8	20.8	13.5	62.35	2,370.0	-710.4	939.9	904.0	35.90	26.178 ES		
10,600.0	9,855.0	9,381.6	9,364.3	21.2	13.4	63.83	2,381.3	-718.6	945.0	908.7	36.30	26.036 SF		
10,700.0	9,855.0	9,401.3	9,380.5	21.7	13.4	64.95	2,390.2	-725.4	959.9	923.2	36.70	26.153		
10,800.0	9,855.0	9,419.0	9,394.8	22.3	13.4	65.95	2,398.4	-731.8	984.1	947.0	37.09	26.534		

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 119H - OWB - AWP												Offset Site Error:	0.0 usft
Survey Program: 177-r.5 MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,500.0	9,855.0	9,490.0	9,328.2	35.2	38.8	58.24	1,979.4	-3,323.6	996.3	941.0	55.27	18.027	
12,600.0	9,855.0	9,471.2	9,313.5	36.1	38.8	57.01	1,967.8	-3,323.8	949.2	893.6	55.58	17.077	
12,700.0	9,855.0	9,467.2	9,310.2	37.0	38.8	56.74	1,965.4	-3,323.9	911.0	854.5	56.49	16.125	
12,800.0	9,855.0	9,462.8	9,306.7	37.9	38.8	56.45	1,962.8	-3,324.0	882.5	824.8	57.69	15.297	
12,900.0	9,855.0	9,458.0	9,302.8	38.9	38.8	56.13	1,960.0	-3,324.2	864.6	805.5	59.12	14.625	
12,907.1	9,855.0	9,442.0	9,289.7	38.9	38.8	55.08	1,950.8	-3,325.1	864.2	805.4	58.80	14.698	
13,000.0	9,855.0	9,442.0	9,289.7	39.8	38.8	55.00	1,950.8	-3,325.1	857.0	796.6	60.37	14.196	
13,042.1	9,855.0	9,442.0	9,289.7	40.2	38.8	54.99	1,950.8	-3,325.1	856.2	795.1	61.09	14.016 CC, ES	
13,100.0	9,855.0	9,442.0	9,289.7	40.8	38.8	55.00	1,950.8	-3,325.1	857.7	795.6	62.05	13.822	
13,200.0	9,855.0	9,442.0	9,289.7	41.8	38.8	55.11	1,950.8	-3,325.1	867.1	803.5	63.62	13.630	
13,300.0	9,855.0	9,442.0	9,289.7	42.8	38.8	55.32	1,950.8	-3,325.1	885.0	820.1	64.99	13.619 SF	
13,400.0	9,855.0	9,442.0	9,289.7	43.8	38.8	55.62	1,950.8	-3,325.1	910.9	844.8	66.10	13.780	
13,407.1	9,855.0	9,442.0	9,289.7	43.9	38.8	55.65	1,950.8	-3,325.1	913.0	846.8	66.17	13.798	
13,500.0	9,855.0	9,442.0	9,289.7	44.8	38.8	55.65	1,950.8	-3,325.1	945.1	878.2	66.95	14.117	
13,600.0	9,855.0	9,428.5	9,278.5	45.8	38.7	54.77	1,943.4	-3,326.0	988.2	920.9	67.31	14.682	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 120H - OWB - AWP												Offset Site Error:	0.0 usft
Survey Program: 178-r.5 MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		No-Go Distance (usft)	Separation Factor
13,500.0	9,855.0	9,394.0	9,354.6	44.8	32.6	58.44	1,923.4	-4,197.4	960.0	899.6		60.41	15.891
13,600.0	9,855.0	9,394.0	9,354.6	45.8	32.6	58.44	1,923.4	-4,197.4	911.4	849.3		62.09	14.678
13,700.0	9,855.0	9,394.0	9,354.6	46.8	32.6	58.44	1,923.4	-4,197.4	871.6	807.8		63.86	13.649
13,800.0	9,855.0	9,378.5	9,342.0	47.8	32.6	57.37	1,914.6	-4,199.3	841.7	776.5		65.21	12.908
13,900.0	9,855.0	9,368.6	9,333.9	48.9	32.6	56.68	1,909.1	-4,200.5	822.8	756.3		66.52	12.370
14,000.0	9,855.0	9,357.8	9,325.0	49.9	32.6	55.93	1,903.1	-4,201.9	815.7	748.2		67.51	12.082
14,009.4	9,855.0	9,356.8	9,324.2	50.0	32.6	55.85	1,902.5	-4,202.1	815.6	748.0		67.58	12.068 CC, ES
14,100.0	9,855.0	9,347.0	9,316.1	50.9	32.6	55.17	1,897.0	-4,203.4	820.6	752.4		68.12	12.046 SF
14,200.0	9,855.0	9,347.0	9,316.1	52.0	32.6	55.17	1,897.0	-4,203.4	837.4	768.7		68.63	12.202
14,300.0	9,855.0	9,347.0	9,316.1	53.0	32.6	55.17	1,897.0	-4,203.4	865.5	796.7		68.74	12.591
14,307.1	9,855.0	9,347.0	9,316.1	53.1	32.6	55.17	1,897.0	-4,203.4	867.9	799.1		68.73	12.627
14,400.0	9,855.0	9,347.0	9,316.1	54.0	32.6	55.60	1,897.0	-4,203.4	902.7	834.2		68.49	13.179
14,500.0	9,855.0	9,347.0	9,316.1	55.1	32.6	56.15	1,897.0	-4,203.4	946.5	878.6		67.96	13.927
14,600.0	9,855.0	9,347.0	9,316.1	56.2	32.6	56.78	1,897.0	-4,203.4	996.1	928.8		67.22	14.817

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 121H_WELL START - OWB - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-r.5 MWD+IFR1												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,500.0	9,855.0	9,318.3	9,284.1	55.1	22.1	54.05	1,945.7	-5,115.4	969.5	904.8	64.73	14.979	
14,600.0	9,855.0	9,320.2	9,285.6	56.2	22.1	53.57	1,946.8	-5,115.4	923.9	856.1	67.86	13.615	
14,700.0	9,855.0	9,323.0	9,287.9	57.2	22.1	53.25	1,948.4	-5,115.4	884.6	813.8	70.81	12.492	
14,772.1	9,855.0	9,325.5	9,289.9	58.0	22.1	53.12	1,949.8	-5,115.4	860.7	787.9	72.73	11.833	
14,800.0	9,855.0	9,326.5	9,290.8	58.3	22.1	53.19	1,950.4	-5,115.4	852.6	779.2	73.41	11.614	
14,900.0	9,855.0	9,330.4	9,293.9	59.3	22.1	53.46	1,952.7	-5,115.4	830.7	755.2	75.52	10.999	
15,000.0	9,855.0	9,334.3	9,297.0	60.3	22.1	53.73	1,955.0	-5,115.5	820.5	743.5	76.97	10.660	
15,024.0	9,855.0	9,335.2	9,297.8	60.6	22.1	53.80	1,955.6	-5,115.5	819.8	742.6	77.20	10.620 CC, ES	
15,100.0	9,855.0	9,350.0	9,309.6	61.4	22.0	54.82	1,964.5	-5,115.5	822.5	744.4	78.06	10.536 SF	
15,200.0	9,855.0	9,350.0	9,309.6	62.4	22.0	54.82	1,964.5	-5,115.5	836.2	758.5	77.74	10.757	
15,300.0	9,855.0	9,350.0	9,309.6	63.5	22.0	54.82	1,964.5	-5,115.5	861.4	784.7	76.68	11.234	
15,400.0	9,855.0	9,350.0	9,309.6	64.5	22.0	54.82	1,964.5	-5,115.5	897.1	822.0	75.06	11.951	
15,500.0	9,855.0	9,350.0	9,309.6	65.6	22.0	54.82	1,964.5	-5,115.5	942.0	869.0	73.09	12.889	
15,600.0	9,855.0	9,350.0	9,309.6	66.7	22.0	54.82	1,964.5	-5,115.5	995.1	924.1	70.94	14.028	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 170H - OWB - AWP												Offset Site Error:	0.0 usft
Survey Program: 101-r.5 MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,600.0	9,855.0	10,155.7	9,877.7	21.2	49.9	-128.20	1,436.2	-1,715.0	910.1	835.4	74.70	12.184	
10,700.0	9,855.0	10,154.1	9,876.4	21.7	49.9	-127.53	1,435.5	-1,715.0	811.3	736.5	74.77	10.851	
10,800.0	9,855.0	10,152.4	9,874.8	22.3	49.9	-126.77	1,434.7	-1,715.1	712.7	637.9	74.84	9.524	
10,900.0	9,855.0	10,150.4	9,873.0	22.8	49.9	-125.89	1,433.8	-1,715.1	614.6	539.7	74.91	8.205	
11,000.0	9,855.0	10,148.1	9,871.0	23.4	49.9	-124.86	1,432.7	-1,715.2	517.2	442.2	74.97	6.899	
11,100.0	9,855.0	10,145.4	9,868.6	24.1	49.9	-123.65	1,431.5	-1,715.3	421.0	346.0	74.99	5.615	
11,192.1	9,855.0	10,142.4	9,865.9	24.7	49.9	-122.33	1,430.2	-1,715.4	334.4	259.5	74.88	4.465	
11,200.0	9,855.0	10,142.1	9,865.7	24.7	49.9	-122.40	1,430.0	-1,715.5	327.1	252.2	74.86	4.369	
11,300.0	9,855.0	10,137.4	9,861.4	25.5	49.9	-122.42	1,427.9	-1,715.7	237.2	162.9	74.27	3.193	
11,400.0	9,855.0	10,130.0	9,854.8	26.2	49.9	-120.20	1,424.7	-1,716.1	157.3	85.3	72.03	2.184	Caution - Monitor Closely
11,500.0	9,855.0	10,119.0	9,844.9	27.0	49.9	-115.11	1,420.0	-1,716.7	111.3	44.7	66.57	1.672	Caution - Monitor Closely
11,514.0	9,855.0	10,117.2	9,843.2	27.1	49.9	-114.18	1,419.3	-1,716.8	110.4	44.2	66.17	1.668	Caution - Monitor Closely, CC, ES, SF
11,600.0	9,855.0	10,105.5	9,832.6	27.7	49.9	-107.97	1,414.5	-1,717.6	138.1	69.3	68.82	2.006	Caution - Monitor Closely
11,700.0	9,855.0	10,091.1	9,819.3	28.5	49.9	-100.38	1,408.9	-1,718.5	211.3	139.0	72.36	2.920	Normal Operations
11,707.1	9,855.0	10,090.0	9,818.4	28.6	49.9	-99.85	1,408.5	-1,718.6	217.3	144.7	72.51	2.996	Normal Operations
11,800.0	9,855.0	10,076.7	9,806.0	29.3	49.9	-93.75	1,403.5	-1,719.4	299.0	225.3	73.75	4.055	
11,900.0	9,855.0	10,064.7	9,794.8	30.1	49.9	-88.55	1,399.3	-1,720.2	392.2	318.0	74.27	5.281	
12,000.0	9,855.0	10,055.5	9,786.1	30.9	49.9	-84.70	1,396.5	-1,720.6	487.9	413.4	74.47	6.552	
12,100.0	9,855.0	10,048.1	9,779.0	31.7	49.9	-81.72	1,394.4	-1,721.0	584.9	510.3	74.54	7.846	
12,200.0	9,855.0	10,042.0	9,773.1	32.6	49.9	-79.35	1,392.8	-1,721.2	682.6	608.0	74.57	9.154	
12,300.0	9,855.0	10,028.0	9,759.5	33.4	49.9	-74.09	1,389.6	-1,721.7	780.9	706.2	74.72	10.452	
12,400.0	9,855.0	10,028.0	9,759.5	34.3	49.9	-74.09	1,389.6	-1,721.7	879.5	804.9	74.64	11.784	
12,500.0	9,855.0	10,028.0	9,759.5	35.2	49.9	-74.09	1,389.6	-1,721.7	978.3	903.8	74.57	13.119	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 171H - OWB - AWP														Offset Site Error:	0.0 usft
Survey Program: 228-r.5 MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
11,900.0	9,855.0	9,834.0	9,791.1	30.1	41.0	85.73	1,383.7	-3,099.4	994.0	935.5	58.47	16.999			
12,000.0	9,855.0	9,827.2	9,784.6	30.9	41.0	82.06	1,381.8	-3,099.2	894.6	836.0	58.54	15.282			
12,100.0	9,855.0	9,826.0	9,783.4	31.7	41.0	81.42	1,381.5	-3,099.1	795.3	736.7	58.68	13.555			
12,200.0	9,855.0	9,824.8	9,782.3	32.6	41.1	80.77	1,381.2	-3,099.1	696.3	637.5	58.85	11.831			
12,300.0	9,855.0	9,823.6	9,781.2	33.4	41.1	80.13	1,380.9	-3,099.0	597.6	538.5	59.09	10.113			
12,400.0	9,855.0	9,822.5	9,780.0	34.3	41.1	79.48	1,380.6	-3,099.0	499.5	440.0	59.43	8.404			
12,500.0	9,855.0	9,821.3	9,778.9	35.2	41.1	78.84	1,380.3	-3,099.0	402.2	342.2	59.96	6.708			
12,600.0	9,855.0	9,820.1	9,777.8	36.1	41.1	78.20	1,380.0	-3,098.9	306.7	245.8	60.87	5.038			
12,700.0	9,855.0	9,819.0	9,776.7	37.0	41.1	77.56	1,379.7	-3,098.9	215.2	152.5	62.70	3.433			
12,800.0	9,855.0	9,817.8	9,775.5	37.9	41.1	76.92	1,379.5	-3,098.9	136.4	69.7	66.71	2.045 Caution - Monitor Closely			
12,888.6	9,855.0	9,816.8	9,774.5	38.8	41.1	76.35	1,379.2	-3,098.8	103.7	34.9	68.84	1.506 Caution - Monitor Closely, CC, ES, SF			
12,900.0	9,855.0	9,816.6	9,774.4	38.9	41.1	76.28	1,379.2	-3,098.8	104.3	36.1	68.26	1.528 Caution - Monitor Closely			
12,907.1	9,855.0	9,816.6	9,774.3	38.9	41.1	76.23	1,379.2	-3,098.8	105.3	37.5	67.79	1.554 Caution - Monitor Closely			
13,000.0	9,855.0	9,815.8	9,773.5	39.8	41.1	76.06	1,379.0	-3,098.8	151.2	90.3	60.90	2.482 Caution - Monitor Closely			
13,100.0	9,855.0	9,815.5	9,773.3	40.8	41.1	76.59	1,378.9	-3,098.8	232.6	174.3	58.29	3.990			
13,200.0	9,855.0	9,815.8	9,773.6	41.8	41.1	77.73	1,379.0	-3,098.8	323.4	265.7	57.76	5.600			
13,300.0	9,855.0	9,816.8	9,774.6	42.8	41.1	79.30	1,379.2	-3,098.8	417.5	359.7	57.74	7.230			
13,400.0	9,855.0	9,818.6	9,776.3	43.8	41.1	81.10	1,379.6	-3,098.9	512.9	455.0	57.88	8.862			
13,407.1	9,855.0	9,818.7	9,776.4	43.9	41.1	81.24	1,379.7	-3,098.9	519.7	461.8	57.89	8.978			
13,500.0	9,855.0	9,820.9	9,778.5	44.8	41.1	82.07	1,380.2	-3,099.0	609.3	551.3	58.05	10.496			
13,600.0	9,855.0	9,823.4	9,781.0	45.8	41.1	83.04	1,380.8	-3,099.0	706.7	648.5	58.22	12.138			
13,700.0	9,855.0	9,826.2	9,783.7	46.8	41.0	84.09	1,381.6	-3,099.1	804.7	746.4	58.38	13.784			
13,800.0	9,855.0	9,829.3	9,786.6	47.8	41.0	85.25	1,382.4	-3,099.2	903.2	844.7	58.52	15.433			

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 172H_WELL START - OWB - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-r.5 MWD+IFR1												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,300.0	9,855.0	9,862.7	9,849.9	33.4	31.8	97.64	1,612.3	-3,417.9	945.3	893.7	51.63	18.308	
12,400.0	9,855.0	9,857.7	9,845.0	34.3	31.8	96.92	1,612.4	-3,418.2	855.3	803.2	52.03	16.438	
12,500.0	9,855.0	9,852.8	9,840.1	35.2	31.8	96.20	1,612.4	-3,418.4	767.6	715.0	52.57	14.601	
12,600.0	9,855.0	9,847.9	9,835.2	36.1	31.8	95.48	1,612.5	-3,418.7	683.3	630.0	53.34	12.811	
12,700.0	9,855.0	9,842.9	9,830.2	37.0	31.8	94.75	1,612.6	-3,419.0	603.8	549.4	54.41	11.097	
12,800.0	9,855.0	9,838.0	9,825.3	37.9	31.7	94.03	1,612.7	-3,419.2	531.2	475.3	55.91	9.502	
12,900.0	9,855.0	9,833.1	9,820.4	38.9	31.7	93.30	1,612.7	-3,419.5	468.8	410.9	57.88	8.099	
12,907.1	9,855.0	9,832.7	9,820.0	38.9	31.7	93.25	1,612.7	-3,419.5	464.8	406.8	58.04	8.009	
13,000.0	9,855.0	9,828.1	9,815.4	39.8	31.7	92.62	1,612.8	-3,419.7	419.6	359.5	60.19	6.972	
13,100.0	9,855.0	9,823.1	9,810.4	40.8	31.7	91.89	1,612.9	-3,420.0	387.0	324.7	62.29	6.213	
13,200.0	9,855.0	9,818.0	9,805.3	41.8	31.7	91.11	1,613.0	-3,420.3	375.1	311.7	63.39	5.918 CC	
13,204.4	9,855.0	9,817.7	9,805.1	41.8	31.7	91.08	1,613.0	-3,420.3	375.1	311.7	63.40	5.917 ES, SF	
13,300.0	9,855.0	9,812.8	9,800.1	42.8	31.6	90.32	1,613.0	-3,420.6	386.0	323.0	62.97	6.130	
13,400.0	9,855.0	9,807.5	9,794.9	43.8	31.6	89.53	1,613.1	-3,420.8	417.9	356.5	61.38	6.808	
13,407.1	9,855.0	9,807.2	9,794.5	43.9	31.6	89.47	1,613.1	-3,420.8	420.8	359.6	61.24	6.872	
13,500.0	9,855.0	9,802.3	9,789.6	44.8	31.6	88.74	1,613.2	-3,421.1	467.6	408.2	59.36	7.878	
13,600.0	9,855.0	9,797.0	9,784.3	45.8	31.6	87.95	1,613.3	-3,421.4	531.6	474.1	57.52	9.242	
13,700.0	9,855.0	9,791.7	9,779.1	46.8	31.6	87.16	1,613.4	-3,421.7	605.4	549.4	56.08	10.797	
13,800.0	9,855.0	9,786.4	9,773.8	47.8	31.6	86.37	1,613.4	-3,421.9	685.9	630.9	55.00	12.471	
13,900.0	9,855.0	9,781.2	9,768.5	48.9	31.5	85.59	1,613.5	-3,422.2	770.9	716.7	54.21	14.220	
14,000.0	9,855.0	9,775.9	9,763.3	49.9	31.5	84.81	1,613.6	-3,422.5	859.1	805.4	53.64	16.016	
14,100.0	9,855.0	9,770.6	9,758.0	50.9	31.5	84.02	1,613.7	-3,422.8	949.6	896.4	53.22	17.843	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 173H - OWB - AWP												Offset Site Error:	0.0 usft
Survey Program: 119-r.5 MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Separation Factor	Warning
12,600.0	9,855.0	9,799.8	9,795.2	36.1	30.7	89.61	1,577.4	-3,722.3	957.5	908.6	48.87	19.594	
12,700.0	9,855.0	9,801.6	9,797.0	37.0	30.7	89.86	1,577.3	-3,722.3	868.0	818.2	49.84	17.417	
12,800.0	9,855.0	9,803.3	9,798.8	37.9	30.7	90.11	1,577.3	-3,722.3	781.1	730.0	51.15	15.271	
12,900.0	9,855.0	9,804.9	9,800.4	38.9	30.7	90.34	1,577.2	-3,722.3	697.7	644.8	52.94	13.180	
12,907.1	9,855.0	9,805.1	9,800.5	38.9	30.7	90.35	1,577.2	-3,722.3	692.0	638.9	53.09	13.034	
13,000.0	9,855.0	9,806.5	9,801.9	39.8	30.7	90.57	1,577.2	-3,722.4	618.3	563.0	55.32	11.176	
13,100.0	9,855.0	9,807.8	9,803.2	40.8	30.7	90.80	1,577.2	-3,722.4	543.2	484.8	58.38	9.303	
13,200.0	9,855.0	9,808.9	9,804.4	41.8	30.7	91.01	1,577.1	-3,722.4	474.5	412.3	62.19	7.630	
13,300.0	9,855.0	9,809.9	9,805.4	42.8	30.7	91.19	1,577.1	-3,722.4	415.6	349.0	66.56	6.243	
13,400.0	9,855.0	9,810.8	9,806.2	43.8	30.7	91.35	1,577.1	-3,722.4	371.2	300.5	70.73	5.248	
13,407.1	9,855.0	9,810.8	9,806.3	43.9	30.7	91.36	1,577.1	-3,722.4	368.8	297.8	70.99	5.195	
13,500.0	9,855.0	9,811.5	9,806.9	44.8	30.7	91.48	1,577.1	-3,722.4	348.6	275.5	73.09	4.770	
13,531.4	9,855.0	9,811.7	9,807.2	45.1	30.7	91.51	1,577.1	-3,722.4	347.2	274.0	73.18	4.745 CC, ES, SF	
13,600.0	9,855.0	9,812.2	9,807.6	45.8	30.7	91.59	1,577.1	-3,722.4	353.9	281.7	72.17	4.904	
13,700.0	9,855.0	9,812.9	9,808.3	46.8	30.7	91.70	1,577.0	-3,722.4	386.0	317.4	68.53	5.632	
13,800.0	9,855.0	9,813.5	9,808.9	47.8	30.7	91.81	1,577.0	-3,722.4	439.0	374.9	64.06	6.852	
13,900.0	9,855.0	9,814.1	9,809.5	48.9	30.7	91.91	1,577.0	-3,722.4	506.4	446.2	60.11	8.424	
14,000.0	9,855.0	9,814.7	9,810.1	49.9	30.8	92.00	1,577.0	-3,722.4	583.2	526.1	57.05	10.222	
14,100.0	9,855.0	9,815.2	9,810.7	50.9	30.8	92.09	1,577.0	-3,722.4	666.2	611.4	54.80	12.157	
14,200.0	9,855.0	9,815.7	9,811.2	52.0	30.8	92.18	1,577.0	-3,722.4	753.3	700.2	53.17	14.169	
14,300.0	9,855.0	9,816.2	9,811.7	53.0	30.8	92.26	1,576.9	-3,722.4	843.3	791.4	51.98	16.224	
14,307.1	9,855.0	9,816.3	9,811.7	53.1	30.8	92.26	1,576.9	-3,722.4	849.8	797.9	51.91	16.371	
14,400.0	9,855.0	9,816.7	9,812.1	54.0	30.8	92.17	1,576.9	-3,722.4	934.8	883.7	51.09	18.299	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 174H - OWB - AWP													Offset Site Error: 0.0 usft
Survey Program: 176-r.5 MWD													Offset Well Error: 0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor	
12,800.0	9,855.0	9,759.8	9,749.6	37.9	35.4	78.21	1,346.6	-3,984.4	993.2	952.0	41.17	24.126	
12,900.0	9,855.0	9,760.6	9,750.4	38.9	35.4	78.42	1,346.7	-3,984.4	896.2	855.1	41.12	21.797	
12,907.1	9,855.0	9,760.7	9,750.5	38.9	35.4	78.43	1,346.7	-3,984.4	889.4	848.2	41.12	21.630	
13,000.0	9,855.0	9,761.6	9,751.4	39.8	35.4	77.22	1,346.8	-3,984.5	799.7	758.5	41.16	19.427	
13,100.0	9,855.0	9,762.9	9,752.7	40.8	35.4	75.85	1,347.0	-3,984.5	703.0	661.7	41.34	17.005	
13,200.0	9,855.0	9,764.5	9,754.3	41.8	35.4	74.50	1,347.2	-3,984.6	606.5	564.7	41.72	14.536	
13,300.0	9,855.0	9,766.6	9,756.4	42.8	35.4	73.30	1,347.5	-3,984.7	510.1	467.7	42.41	12.030	
13,400.0	9,855.0	9,769.2	9,759.0	43.8	35.4	72.46	1,347.9	-3,984.8	414.4	370.8	43.65	9.495	
13,407.1	9,855.0	9,769.5	9,759.2	43.9	35.4	72.43	1,347.9	-3,984.8	407.6	363.9	43.77	9.314	
13,500.0	9,855.0	9,772.4	9,762.1	44.8	35.4	73.76	1,348.4	-3,985.0	320.5	274.4	46.15	6.945	
13,600.0	9,855.0	9,776.0	9,765.7	45.8	35.4	75.42	1,348.9	-3,985.2	231.6	179.6	52.03	4.452	
13,700.0	9,855.0	9,786.0	9,775.5	46.8	35.4	80.00	1,350.6	-3,985.9	156.8	90.4	66.35	2.363	Caution - Monitor Closely
13,796.1	9,855.0	9,786.0	9,775.5	47.8	35.4	80.00	1,350.6	-3,985.9	123.9	41.6	82.27	1.506	Caution - Monitor Closely, CC
13,800.0	9,855.0	9,786.0	9,775.5	47.8	35.4	80.00	1,350.6	-3,985.9	124.0	41.5	82.44	1.504	Caution - Monitor Closely, ES, SF
13,900.0	9,855.0	9,791.3	9,780.7	48.9	35.4	82.46	1,351.6	-3,986.3	161.6	89.0	72.62	2.226	Caution - Monitor Closely
14,000.0	9,855.0	9,798.5	9,787.7	49.9	35.3	85.73	1,353.0	-3,986.8	238.3	177.8	60.46	3.941	
14,100.0	9,855.0	9,807.0	9,796.0	50.9	35.3	89.54	1,354.9	-3,987.6	327.6	273.5	54.09	6.056	
14,200.0	9,855.0	9,817.3	9,806.0	52.0	35.3	93.98	1,357.3	-3,988.6	421.5	370.7	50.75	8.305	
14,300.0	9,855.0	9,830.0	9,818.1	53.0	35.3	99.10	1,360.5	-3,989.9	517.5	468.6	48.85	10.593	
14,307.1	9,855.0	9,831.0	9,819.1	53.1	35.3	99.50	1,360.7	-3,990.0	524.4	475.6	48.75	10.757	
14,400.0	9,855.0	9,843.5	9,831.1	54.0	35.2	102.51	1,364.2	-3,991.5	614.2	566.6	47.60	12.901	
14,500.0	9,855.0	9,859.1	9,845.8	55.1	35.2	105.14	1,368.9	-3,993.4	710.7	664.1	46.66	15.231	
14,600.0	9,855.0	9,878.5	9,863.9	56.2	35.1	107.51	1,375.3	-3,996.0	807.1	761.1	45.94	17.567	
14,700.0	9,855.0	9,896.6	9,880.6	57.2	35.1	108.70	1,381.9	-3,998.5	903.0	857.7	45.34	19.915	
14,772.1	9,855.0	9,910.9	9,893.6	58.0	35.0	109.37	1,387.5	-4,000.6	971.9	927.0	44.98	21.609	
14,800.0	9,855.0	9,916.8	9,898.9	58.3	35.0	110.19	1,389.9	-4,001.4	998.5	953.7	44.86	22.261	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 175H - OWB - AWP													Offset Site Error:	0.0 usft
Survey Program: 176-r.5 MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor	Warning	
13,200.0	9,855.0	9,775.7	9,765.2	41.8	36.2	85.60	1,582.3	-4,298.1	971.9	918.9	52.94	18.356		
13,300.0	9,855.0	9,779.9	9,769.4	42.8	36.3	85.88	1,582.3	-4,298.2	881.6	828.2	53.41	16.507		
13,400.0	9,855.0	9,783.9	9,773.4	43.8	36.3	86.22	1,582.3	-4,298.4	792.0	737.9	54.10	14.638		
13,407.1	9,855.0	9,784.2	9,773.7	43.9	36.3	86.25	1,582.3	-4,298.4	785.6	731.4	54.17	14.504		
13,500.0	9,855.0	9,787.9	9,777.4	44.8	36.3	86.84	1,582.2	-4,298.5	704.1	648.9	55.16	12.765		
13,600.0	9,855.0	9,791.8	9,781.3	45.8	36.3	87.46	1,582.2	-4,298.7	619.8	563.0	56.80	10.912		
13,700.0	9,855.0	9,795.6	9,785.1	46.8	36.3	88.08	1,582.2	-4,298.8	541.0	481.6	59.36	9.114		
13,800.0	9,855.0	9,799.4	9,788.9	47.8	36.3	88.69	1,582.1	-4,299.0	470.2	407.0	63.19	7.441		
13,900.0	9,855.0	9,803.1	9,792.6	48.9	36.3	89.29	1,582.1	-4,299.1	411.7	343.2	68.50	6.010		
14,000.0	9,855.0	9,806.8	9,796.3	49.9	36.3	89.88	1,582.1	-4,299.2	371.2	296.6	74.67	4.972		
14,100.0	9,855.0	9,810.4	9,799.9	50.9	36.4	90.47	1,582.0	-4,299.4	355.2	275.4	79.80	4.451		
14,108.4	9,855.0	9,810.7	9,800.2	51.0	36.4	90.51	1,582.0	-4,299.4	355.1	275.0	80.10	4.433	CC, ES, SF	
14,200.0	9,855.0	9,814.0	9,803.4	52.0	36.4	91.04	1,582.0	-4,299.5	366.7	284.9	81.82	4.482		
14,300.0	9,855.0	9,817.5	9,806.9	53.0	36.4	91.60	1,582.0	-4,299.6	403.4	322.8	80.69	5.000		
14,307.1	9,855.0	9,817.7	9,807.2	53.1	36.4	91.64	1,582.0	-4,299.6	406.9	326.4	80.52	5.053		
14,400.0	9,855.0	9,820.9	9,810.4	54.0	36.4	92.11	1,581.9	-4,299.7	458.2	380.3	77.91	5.882		
14,500.0	9,855.0	9,824.3	9,813.7	55.1	36.4	92.56	1,581.9	-4,299.8	524.0	449.3	74.72	7.013		
14,600.0	9,855.0	9,827.5	9,817.0	56.2	36.4	92.95	1,581.9	-4,300.0	597.2	525.4	71.72	8.326		
14,700.0	9,855.0	9,830.7	9,820.2	57.2	36.4	93.27	1,581.8	-4,300.1	675.2	606.1	69.09	9.772		
14,772.1	9,855.0	9,832.9	9,822.4	58.0	36.4	93.46	1,581.8	-4,300.1	733.6	666.1	67.44	10.878		
14,800.0	9,855.0	9,833.8	9,823.3	58.3	36.4	93.58	1,581.8	-4,300.2	756.6	689.7	66.85	11.317		
14,900.0	9,855.0	9,836.8	9,826.3	59.3	36.4	93.99	1,581.8	-4,300.3	841.5	776.5	65.04	12.938		
15,000.0	9,855.0	9,839.8	9,829.3	60.3	36.4	94.39	1,581.8	-4,300.4	929.5	865.9	63.60	14.614		

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 176H - OWB - AWP													Offset Site Error:	0.0 usft
Survey Program: 169-r.5 MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor	Warning	
13,600.0	9,855.0	9,773.3	9,726.5	45.8	42.2	64.47	1,372.3	-4,737.6	961.8	901.8	59.91	16.052		
13,700.0	9,855.0	9,774.8	9,728.0	46.8	42.2	65.01	1,372.8	-4,737.7	863.4	803.5	59.83	14.430		
13,800.0	9,855.0	9,783.0	9,735.7	47.8	42.2	67.86	1,375.4	-4,737.9	765.5	705.7	59.76	12.809		
13,900.0	9,855.0	9,783.0	9,735.7	48.9	42.2	67.86	1,375.4	-4,737.9	668.1	608.4	59.71	11.188		
14,000.0	9,855.0	9,783.0	9,735.7	49.9	42.2	67.86	1,375.4	-4,737.9	571.6	511.9	59.74	9.569		
14,100.0	9,855.0	9,783.0	9,735.7	50.9	42.2	67.86	1,375.4	-4,737.9	476.6	416.7	59.94	7.951		
14,200.0	9,855.0	9,783.0	9,735.7	52.0	42.2	67.86	1,375.4	-4,737.9	384.1	323.5	60.63	6.335		
14,300.0	9,855.0	9,783.0	9,735.7	53.0	42.2	67.86	1,375.4	-4,737.9	296.6	234.0	62.64	4.735		
14,307.1	9,855.0	9,783.0	9,735.7	53.1	42.2	67.86	1,375.4	-4,737.9	290.7	227.8	62.88	4.622		
14,400.0	9,855.0	9,783.0	9,735.7	54.0	42.2	66.98	1,375.4	-4,737.9	218.9	150.9	68.00	3.220		
14,500.0	9,855.0	9,789.2	9,741.5	55.1	42.2	68.75	1,377.5	-4,738.0	163.8	84.3	79.56	2.059	Caution - Monitor Closely	
14,561.1	9,855.0	9,791.5	9,743.7	55.7	42.2	69.55	1,378.3	-4,738.1	152.6	66.9	85.69	1.781	Caution - Monitor Closely, CC, ES, SF	
14,600.0	9,855.0	9,793.2	9,745.2	56.2	42.2	70.21	1,378.9	-4,738.1	157.2	70.8	86.47	1.818	Caution - Monitor Closely	
14,700.0	9,855.0	9,798.3	9,750.0	57.2	42.2	72.45	1,380.8	-4,738.2	203.8	123.7	80.14	2.544	Normal Operations	
14,772.1	9,855.0	9,802.7	9,754.1	58.0	42.2	74.45	1,382.4	-4,738.3	255.8	180.9	74.89	3.415		
14,800.0	9,855.0	9,804.5	9,755.7	58.3	42.2	75.09	1,383.1	-4,738.4	278.0	204.8	73.27	3.794		
14,900.0	9,855.0	9,811.1	9,761.9	59.3	42.2	77.43	1,385.6	-4,738.5	364.2	295.0	69.19	5.264		
15,000.0	9,855.0	9,818.0	9,768.2	60.3	42.2	79.81	1,388.3	-4,738.7	456.0	389.1	66.87	6.819		
15,100.0	9,855.0	9,825.1	9,774.7	61.4	42.2	82.20	1,391.1	-4,738.8	550.5	485.0	65.47	8.408		
15,200.0	9,855.0	9,833.1	9,782.0	62.4	42.2	84.84	1,394.4	-4,739.0	646.6	582.0	64.60	10.010		
15,300.0	9,855.0	9,845.3	9,793.0	63.5	42.1	88.67	1,399.6	-4,739.3	743.6	679.5	64.06	11.608		
15,400.0	9,855.0	9,859.6	9,805.9	64.5	42.1	92.88	1,405.9	-4,739.8	841.1	777.4	63.70	13.204		
15,500.0	9,855.0	9,876.8	9,821.2	65.6	42.1	97.46	1,413.6	-4,740.4	939.0	875.5	63.47	14.794		

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - FORTY NINER RIDGE UNIT 177H - OWB - AWP												Offset Site Error:	0.0 usft
Survey Program: 166-r.5 MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		No-Go Distance (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,800.0	9,855.0	9,750.7	9,703.9	47.8	42.6	76.12	1,604.6	-4,872.0	964.2	899.6	64.61	14.924	
13,900.0	9,855.0	9,759.8	9,712.9	48.9	42.6	77.40	1,604.6	-4,873.0	873.8	808.5	65.24	13.394	
14,000.0	9,855.0	9,769.2	9,722.3	49.9	42.6	78.76	1,604.6	-4,874.0	785.5	719.4	66.13	11.878	
14,100.0	9,855.0	9,779.1	9,732.1	50.9	42.7	80.18	1,604.6	-4,875.1	700.2	632.8	67.42	10.385	
14,200.0	9,855.0	9,789.3	9,742.3	52.0	42.7	81.68	1,604.6	-4,876.3	619.2	549.9	69.30	8.935	
14,300.0	9,855.0	9,800.1	9,752.9	53.0	42.8	83.25	1,604.6	-4,877.5	544.3	472.3	72.00	7.559	
14,307.1	9,855.0	9,800.8	9,753.7	53.1	42.8	83.37	1,604.6	-4,877.6	539.3	467.0	72.23	7.465	
14,400.0	9,855.0	9,811.3	9,764.1	54.0	42.8	84.76	1,604.6	-4,878.9	477.2	401.5	75.71	6.303	
14,500.0	9,855.0	9,823.0	9,775.7	55.1	42.9	86.46	1,604.5	-4,880.3	419.9	339.5	80.35	5.226	
14,600.0	9,855.0	9,835.2	9,787.8	56.2	42.9	88.35	1,604.5	-4,881.8	377.0	291.7	85.30	4.419	
14,700.0	9,855.0	9,847.9	9,800.4	57.2	43.0	90.39	1,604.4	-4,883.4	353.7	264.7	89.05	3.972	
14,748.7	9,855.0	9,854.1	9,806.6	57.7	43.0	91.40	1,604.4	-4,884.2	350.8	260.9	89.88	3.903 CC, ES, SF	
14,772.1	9,855.0	9,857.0	9,809.5	58.0	43.0	91.88	1,604.4	-4,884.6	351.5	261.5	89.99	3.906	
14,800.0	9,855.0	9,860.5	9,812.9	58.3	43.0	92.44	1,604.4	-4,885.0	354.2	264.3	89.88	3.941	
14,900.0	9,855.0	9,872.5	9,824.8	59.3	43.1	94.38	1,604.3	-4,886.5	380.6	292.9	87.64	4.342	
15,000.0	9,855.0	9,884.0	9,836.2	60.3	43.1	96.24	1,604.2	-4,887.9	428.9	344.9	83.92	5.110	
15,100.0	9,855.0	9,895.0	9,847.2	61.4	43.2	98.00	1,604.1	-4,889.2	492.7	412.5	80.24	6.140	
15,200.0	9,855.0	9,905.5	9,857.6	62.4	43.2	99.68	1,604.1	-4,890.5	566.9	489.6	77.23	7.340	
15,300.0	9,855.0	9,915.6	9,867.7	63.5	43.3	101.28	1,604.0	-4,891.6	647.8	572.9	74.94	8.645	
15,400.0	9,855.0	9,925.3	9,877.3	64.5	43.3	102.80	1,603.9	-4,892.7	733.4	660.1	73.24	10.013	
15,500.0	9,855.0	9,934.7	9,886.6	65.6	43.3	104.25	1,603.8	-4,893.7	822.0	750.1	71.98	11.420	
15,600.0	9,855.0	9,943.6	9,895.5	66.7	43.4	105.63	1,603.7	-4,894.7	913.0	841.9	71.05	12.850	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - IRON THRONE FEDERAL COM 502H - OWB - PWP2													Offset Site Error: 0.0 usft
Survey Program: 0-r.5 MWD+IFR1+SAG+FDIR, 2000-r.5 MWD+IFR1+SAG+FDIR, 9405-r.5 MWD+IFR1+SAG+FDIR													Offset Well Error: 0.0 usft
Reference	Offset	Semi Major Axis	Distance	Rule Assigned:									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-30.0	0.0	30.0				
100.0	100.0	100.0	100.0	0.8	0.8	180.00	-30.0	0.0	30.0	28.0	2.02	14.833	
200.0	200.0	200.0	200.0	1.4	1.4	180.00	-30.0	0.0	30.0	26.7	3.34	8.975	
300.0	300.0	300.0	300.0	1.9	1.9	180.00	-30.0	0.0	30.0	25.8	4.23	7.098	
400.0	400.0	400.0	400.0	2.2	2.2	180.00	-30.0	0.0	30.0	25.1	4.94	6.069	
500.0	500.0	500.0	500.0	2.6	2.6	180.00	-30.0	0.0	30.0	24.4	5.56	5.392	
600.0	600.0	600.0	600.0	2.8	2.8	180.00	-30.0	0.0	30.0	23.9	6.12	4.901	
700.0	700.0	700.0	700.0	3.1	3.1	180.00	-30.0	0.0	30.0	23.4	6.63	4.523	
800.0	800.0	800.0	800.0	3.3	3.3	180.00	-30.0	0.0	30.0	22.9	7.11	4.221	
900.0	900.0	900.0	900.0	3.6	3.6	180.00	-30.0	0.0	30.0	22.4	7.55	3.971	
1,000.0	1,000.0	1,000.0	1,000.0	3.8	3.8	180.00	-30.0	0.0	30.0	22.0	7.98	3.760	
1,100.0	1,100.0	1,100.0	1,100.0	4.0	4.0	180.00	-30.0	0.0	30.0	21.6	8.38	3.579	
1,200.0	1,200.0	1,200.0	1,200.0	4.2	4.2	180.00	-30.0	0.0	30.0	21.2	8.77	3.421	
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	180.00	-30.0	0.0	30.0	20.9	9.14	3.281	
1,400.0	1,400.0	1,400.0	1,400.0	4.6	4.6	180.00	-30.0	0.0	30.0	20.5	9.50	3.156	
1,500.0	1,500.0	1,500.0	1,500.0	4.7	4.7	180.00	-30.0	0.0	30.0	20.1	9.85	3.044	
1,600.0	1,600.0	1,600.0	1,600.0	4.9	4.9	180.00	-30.0	0.0	30.0	19.8	10.19	2.943 Normal Operations	
1,700.0	1,700.0	1,700.0	1,700.0	5.1	5.1	180.00	-30.0	0.0	30.0	19.5	10.52	2.851 Normal Operations	
1,800.0	1,800.0	1,800.0	1,800.0	5.2	5.2	180.00	-30.0	0.0	30.0	19.2	10.85	2.766 Normal Operations	
1,900.0	1,900.0	1,900.0	1,900.0	5.4	5.4	180.00	-30.0	0.0	30.0	18.8	11.16	2.688 Normal Operations	
2,000.0	2,000.0	2,000.0	2,000.0	5.6	5.6	180.00	-30.0	0.0	30.0	18.5	11.47	2.615 Normal Operations	
2,010.0	2,010.0	2,010.0	2,010.0	5.6	5.6	180.00	-30.0	0.0	30.0	18.5	11.49	2.611 Normal Operations, CC, ES, SF	
2,100.0	2,100.0	2,100.0	2,100.0	5.8	5.7	-178.09	-30.0	0.0	31.4	19.6	11.84	2.654 Normal Operations	
2,200.0	2,199.9	2,199.9	2,199.9	6.0	5.8	-178.34	-30.0	0.0	36.3	24.1	12.17	2.981 Normal Operations	
2,300.0	2,299.5	2,299.5	2,299.5	6.2	6.0	-178.65	-30.0	0.0	44.7	32.2	12.51	3.571	
2,400.0	2,398.8	2,398.8	2,398.8	6.4	6.1	-178.93	-30.0	0.0	56.5	43.7	12.84	4.401	
2,500.0	2,497.6	2,497.6	2,497.6	6.6	6.2	-179.15	-30.0	0.0	71.8	58.6	13.16	5.454	
2,600.0	2,595.8	2,597.3	2,597.3	6.8	6.3	-179.23	-29.2	-0.2	89.7	76.2	13.49	6.651	
2,700.0	2,693.3	2,697.1	2,697.0	7.0	6.4	-179.12	-26.7	-0.7	109.4	95.6	13.81	7.920	
2,760.0	2,751.5	2,756.9	2,756.8	7.1	6.5	-179.02	-24.4	-1.2	122.1	108.1	13.95	8.750	
2,800.0	2,790.1	2,796.9	2,796.7	7.1	6.6	-178.93	-22.5	-1.6	130.6	116.5	14.03	9.309	
2,900.0	2,886.7	2,897.2	2,896.9	7.3	6.7	-178.67	-16.5	-2.9	150.7	136.4	14.28	10.548	
3,000.0	2,983.3	2,998.3	2,997.7	7.4	6.8	-178.34	-8.8	-4.5	169.1	154.5	14.55	11.622	
3,100.0	3,079.9	3,103.5	3,102.3	7.6	7.0	-178.03	2.0	-6.4	184.9	170.0	14.87	12.432	
3,200.0	3,176.5	3,205.9	3,203.7	7.7	7.1	-177.79	15.7	-8.1	197.5	182.4	15.09	13.087	
3,300.0	3,273.1	3,305.1	3,302.0	7.9	7.2	-177.59	29.4	-9.8	209.8	194.4	15.39	13.634	
3,400.0	3,369.7	3,404.4	3,400.3	8.0	7.4	-177.41	43.2	-11.5	222.1	206.4	15.69	14.156	
3,500.0	3,466.2	3,503.6	3,498.6	8.2	7.5	-177.25	56.9	-13.2	234.4	218.4	15.99	14.653	
3,600.0	3,562.8	3,602.9	3,596.8	8.4	7.7	-177.10	70.6	-14.8	246.6	230.3	16.31	15.126	
3,700.0	3,659.4	3,702.1	3,695.1	8.5	7.8	-176.97	84.3	-16.5	258.9	242.3	16.62	15.577	
3,800.0	3,756.0	3,801.3	3,793.4	8.7	7.9	-176.85	98.0	-18.2	271.2	254.3	16.94	16.006	
3,900.0	3,852.6	3,900.6	3,891.7	8.9	8.1	-176.74	111.7	-19.9	283.5	266.2	17.27	16.415	
4,000.0	3,949.2	3,999.8	3,989.9	9.0	8.2	-176.64	125.4	-21.6	295.8	278.2	17.60	16.805	
4,100.0	4,045.8	4,099.1	4,088.2	9.2	8.4	-176.55	139.1	-23.3	308.1	290.1	17.94	17.177	
4,200.0	4,142.4	4,198.3	4,186.5	9.4	8.6	-176.47	152.8	-24.9	320.4	302.1	18.27	17.531	
4,300.0	4,239.0	4,297.5	4,284.8	9.6	8.7	-176.39	166.5	-26.6	332.7	314.0	18.62	17.869	
4,400.0	4,335.6	4,396.8	4,383.0	9.8	8.9	-176.31	180.2	-28.3	344.9	326.0	18.96	18.192	
4,500.0	4,432.2	4,496.0	4,481.3	10.0	9.0	-176.25	194.0	-30.0	357.2	337.9	19.31	18.500	
4,600.0	4,528.8	4,595.3	4,579.6	10.2	9.2	-176.18	207.7	-31.7	369.5	349.9	19.66	18.794	
4,700.0	4,625.4	4,694.5	4,677.9	10.4	9.3	-176.12	221.4	-33.4	381.8	361.8	20.02	19.075	
4,800.0	4,722.0	4,793.8	4,776.1	10.5	9.5	-176.07	235.1	-35.0	394.1	373.7	20.37	19.344	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - IRON THRONE FEDERAL COM 502H - OWB - PWP2													Offset Site Error: 0.0 usft
Survey Program: 0-r.5 MWD+IFR1+SAG+FDIR, 2000-r.5 MWD+IFR1+SAG+FDIR, 9405-r.5 MWD+IFR1+SAG+FDIR													Offset Well Error: 0.0 usft
Reference	Offset	Semi Major Axis	Distance	Rule Assigned:									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor	Warning
4,900.0	4,818.5	4,893.0	4,874.4	10.7	9.7	-176.02	248.8	-36.7	406.4	385.7	20.73	19.601	
5,000.0	4,915.1	4,992.2	4,972.7	10.9	9.8	-175.97	262.5	-38.4	418.7	397.6	21.10	19.847	
5,100.0	5,011.7	5,091.5	5,071.0	11.1	10.0	-175.92	276.2	-40.1	431.0	409.5	21.46	20.083	
5,200.0	5,108.3	5,190.7	5,169.2	11.3	10.2	-175.88	289.9	-41.8	443.3	421.5	21.83	20.308	
5,300.0	5,204.9	5,290.0	5,267.5	11.5	10.3	-175.83	303.6	-43.5	455.6	433.4	22.20	20.525	
5,400.0	5,301.5	5,389.2	5,365.8	11.7	10.5	-175.80	317.3	-45.1	467.9	445.3	22.58	20.725	
5,500.0	5,398.1	5,482.3	5,458.1	11.9	10.7	-175.77	329.7	-46.7	480.7	457.7	22.93	20.961	
5,600.0	5,494.7	5,573.6	5,548.7	12.1	10.8	-175.77	340.5	-48.0	495.0	471.7	23.28	21.260	
5,700.0	5,591.3	5,664.5	5,639.1	12.4	11.0	-175.80	349.7	-49.1	510.9	487.3	23.63	21.620	
5,800.0	5,687.9	5,754.9	5,729.1	12.6	11.1	-175.85	357.5	-50.1	528.3	504.3	23.97	22.039	
5,900.0	5,784.5	5,844.7	5,818.8	12.8	11.2	-175.92	363.9	-50.9	547.3	523.0	24.31	22.514	
6,000.0	5,881.1	5,934.0	5,907.9	13.0	11.4	-176.01	368.8	-51.5	567.7	543.1	24.64	23.045	
6,100.0	5,977.7	6,022.7	5,996.6	13.2	11.5	-176.12	372.4	-51.9	589.7	564.8	24.96	23.630	
6,200.0	6,074.2	6,110.8	6,084.6	13.4	11.6	-176.24	374.5	-52.2	613.2	587.9	25.27	24.268	
6,300.0	6,170.8	6,198.2	6,172.0	13.6	11.7	-176.36	375.3	-52.3	638.1	612.5	25.56	24.966	
6,400.0	6,267.4	6,293.6	6,267.4	13.8	11.8	-176.50	375.4	-52.3	663.9	638.1	25.85	25.681	
6,500.0	6,364.0	6,390.2	6,364.0	14.0	11.9	-176.63	375.4	-52.3	689.8	663.6	26.15	26.373	
6,600.0	6,460.6	6,486.8	6,460.6	14.2	12.0	-176.75	375.4	-52.3	715.6	689.1	26.46	27.048	
6,700.0	6,557.2	6,583.4	6,557.2	14.5	12.1	-176.87	375.4	-52.3	741.4	714.7	26.76	27.706	
6,800.0	6,653.8	6,680.0	6,653.8	14.7	12.1	-176.97	375.4	-52.3	767.3	740.2	27.07	28.349	
6,900.0	6,750.4	6,776.6	6,750.4	14.9	12.2	-177.07	375.4	-52.3	793.1	765.8	27.37	28.976	
7,000.0	6,847.0	6,873.2	6,847.0	15.1	12.3	-177.16	375.4	-52.3	819.0	791.3	27.68	29.588	
7,100.0	6,943.6	6,969.8	6,943.6	15.3	12.4	-177.25	375.4	-52.3	844.8	816.9	27.99	30.186	
7,200.0	7,040.2	7,066.4	7,040.2	15.5	12.5	-177.33	375.4	-52.3	870.7	842.4	28.30	30.770	
7,300.0	7,136.8	7,162.9	7,136.8	15.8	12.6	-177.41	375.4	-52.3	896.6	868.0	28.61	31.341	
7,400.0	7,233.4	7,259.5	7,233.4	16.0	12.6	-177.48	375.4	-52.3	922.4	893.5	28.92	31.898	
7,500.0	7,330.0	7,356.1	7,330.0	16.2	12.7	-177.55	375.4	-52.3	948.3	919.0	29.23	32.442	
7,572.5	7,400.0	7,426.2	7,400.0	16.3	12.8	-177.60	375.4	-52.3	967.0	937.6	29.45	32.842	
7,600.0	7,426.6	7,452.7	7,426.6	16.4	12.8	-177.62	375.4	-52.3	974.1	944.6	29.52	32.995	
7,700.0	7,523.5	7,549.7	7,523.5	16.6	12.9	-177.69	375.4	-52.3	998.6	968.8	29.83	33.473	
12,500.0	9,855.0	12,317.8	9,856.0	35.2	32.7	-90.06	360.1	-2,692.8	989.4	922.0	67.47	14.664	
12,600.0	9,855.0	12,416.3	9,856.0	36.1	33.7	-90.06	359.6	-2,791.3	972.1	902.8	69.35	14.018	
12,700.0	9,855.0	12,514.8	9,856.0	37.0	34.7	-90.06	359.0	-2,889.8	954.8	883.6	71.24	13.403	
12,800.0	9,855.0	12,613.3	9,856.0	37.9	35.7	-90.06	358.4	-2,988.2	937.5	864.3	73.15	12.816	
12,900.0	9,855.0	12,711.8	9,856.0	38.9	36.7	-90.06	357.9	-3,086.7	920.2	845.1	75.07	12.257	
12,907.1	9,855.0	12,718.8	9,856.0	38.9	36.8	-90.06	357.8	-3,093.8	918.9	843.7	75.21	12.218	
13,000.0	9,855.0	12,810.5	9,856.0	39.8	37.8	-90.06	357.3	-3,185.5	904.3	827.3	77.02	11.741	
13,100.0	9,855.0	12,909.7	9,856.0	40.8	38.8	-90.06	356.7	-3,284.7	892.0	813.0	79.00	11.291	
13,200.0	9,855.0	13,009.3	9,856.0	41.8	39.8	-90.07	356.2	-3,384.3	883.1	802.1	81.00	10.902	
13,300.0	9,855.0	13,109.2	9,856.0	42.8	40.9	-90.07	355.6	-3,484.1	877.6	794.6	83.02	10.571	
13,400.0	9,855.0	13,209.1	9,856.0	43.8	41.9	-90.07	355.0	-3,584.1	875.7	790.6	85.05	10.296	
13,405.6	9,855.0	13,214.8	9,856.0	43.8	42.0	-90.07	355.0	-3,589.7	875.7	790.5	85.17	10.282	
13,407.1	9,855.0	13,216.3	9,856.0	43.9	42.0	-90.07	355.0	-3,591.2	875.7	790.5	85.20	10.278	
13,500.0	9,855.0	13,309.1	9,856.0	44.8	43.0	-90.07	354.4	-3,684.1	875.7	788.6	87.08	10.056	
13,600.0	9,855.0	13,409.1	9,856.0	45.8	44.0	-90.07	353.9	-3,784.1	875.8	786.7	89.12	9.827	
13,700.0	9,855.0	13,509.1	9,856.0	46.8	45.1	-90.07	353.3	-3,884.1	875.8	784.7	91.17	9.606	
13,800.0	9,855.0	13,609.1	9,856.0	47.8	46.2	-90.07	352.7	-3,984.1	875.9	782.7	93.23	9.395	
13,900.0	9,855.0	13,709.1	9,856.0	48.9	47.2	-90.07	352.1	-4,084.1	875.9	780.6	95.29	9.193	
14,000.0	9,855.0	13,809.1	9,856.0	49.9	48.3	-90.07	351.5	-4,184.1	876.0	778.6	97.36	8.998	
14,100.0	9,855.0	13,909.1	9,856.0	50.9	49.4	-90.07	351.0	-4,284.1	876.0	776.6	99.43	8.810	
14,200.0	9,855.0	14,009.1	9,856.0	52.0	50.4	-90.07	350.4	-4,384.1	876.1	774.6	101.51	8.630	

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - IRON THRONE FEDERAL COM 502H - OWB - PWP2												Offset Site Error:	0.0 usft
Survey Program: 0-r.5 MWD+IFR1+SAG+FDIR, 2000-r.5 MWD+IFR1+SAG+FDIR, 9405-r.5 MWD+IFR1+SAG+FDIR												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Separation Factor	
14,300.0	9,855.0	14,109.1	9,856.0	53.0	51.5	-90.07	349.8	-4,484.1	876.1	772.5	103.60	8.457	
14,307.1	9,855.0	14,116.3	9,856.0	53.1	51.6	-90.07	349.8	-4,491.2	876.1	772.4	103.75	8.445	
14,400.0	9,855.0	14,209.1	9,856.0	54.0	52.6	-90.07	349.2	-4,584.1	877.7	772.0	105.70	8.304	
14,500.0	9,855.0	14,309.0	9,856.0	55.1	53.7	-90.07	348.7	-4,683.9	882.7	774.9	107.80	8.189	
14,600.0	9,855.0	14,408.6	9,856.0	56.2	54.7	-90.06	348.1	-4,783.6	891.3	781.4	109.90	8.110	
14,700.0	9,855.0	14,507.9	9,856.0	57.2	55.8	-90.06	347.5	-4,882.8	903.3	791.3	112.00	8.065	
14,772.1	9,855.0	14,579.2	9,856.0	58.0	56.6	-90.06	347.1	-4,954.2	914.0	800.5	113.50	8.053	
14,800.0	9,855.0	14,606.7	9,856.0	58.3	56.9	-90.06	347.0	-4,981.7	918.6	804.5	114.08	8.052	
14,900.0	9,855.0	14,705.4	9,856.0	59.3	58.0	-90.06	346.4	-5,080.3	934.8	818.6	116.16	8.048	
15,000.0	9,855.0	14,804.1	9,856.0	60.3	59.0	-90.06	345.8	-5,179.0	951.0	832.7	118.24	8.043	
15,100.0	9,855.0	14,902.7	9,856.0	61.4	60.1	-90.06	345.2	-5,277.7	967.2	846.9	120.33	8.038	
15,200.0	9,855.0	15,001.4	9,856.0	62.4	61.2	-90.06	344.7	-5,376.4	983.4	861.0	122.42	8.033	
15,300.0	9,855.0	15,100.1	9,856.0	63.5	62.3	-90.06	344.1	-5,475.0	999.6	875.1	124.51	8.028	

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

ConocoPhillips
Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Offset Design: IRON THRONE PROJECT - IRON THRONE FEDERAL COM 503H - OWB - PWP2													Offset Site Error:	0.0 usft
Survey Program: 0-r.5 MWD+IFR1+SAG+FDIR, 2000-r.5 MWD+IFR1+SAG+FDIR, 9431-r.5 MWD+IFR1+SAG+FDIR													Offset Well Error:	0.0 usft
Reference	Offset		Semi Major Axis		Offset Wellbore Centre		Distance		No-Go		Separation		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	No-Go Distance (usft)	Factor		
0.0	0.0	1.0	1.0	0.0	0.0	180.00	-60.0	0.0	60.0					
100.0	100.0	101.0	101.0	0.8	0.8	180.00	-60.0	0.0	60.0	58.0	2.03	29.570		
200.0	200.0	201.0	201.0	1.4	1.4	180.00	-60.0	0.0	60.0	56.7	3.35	17.925		
300.0	300.0	301.0	301.0	1.9	1.9	180.00	-60.0	0.0	60.0	55.8	4.23	14.184		
400.0	400.0	401.0	401.0	2.2	2.3	180.00	-60.0	0.0	60.0	55.1	4.95	12.130		
500.0	500.0	501.0	501.0	2.6	2.6	180.00	-60.0	0.0	60.0	54.4	5.57	10.778		
600.0	600.0	601.0	601.0	2.8	2.8	180.00	-60.0	0.0	60.0	53.9	6.12	9.797		
700.0	700.0	701.0	701.0	3.1	3.1	180.00	-60.0	0.0	60.0	53.4	6.63	9.043		
800.0	800.0	801.0	801.0	3.3	3.3	180.00	-60.0	0.0	60.0	52.9	7.11	8.439		
900.0	900.0	901.0	901.0	3.6	3.6	180.00	-60.0	0.0	60.0	52.4	7.56	7.940		
1,000.0	1,000.0	1,001.0	1,001.0	3.8	3.8	180.00	-60.0	0.0	60.0	52.0	7.98	7.518		
1,100.0	1,100.0	1,101.0	1,101.0	4.0	4.0	180.00	-60.0	0.0	60.0	51.6	8.38	7.156		
1,200.0	1,200.0	1,201.0	1,201.0	4.2	4.2	180.00	-60.0	0.0	60.0	51.2	8.77	6.840		
1,300.0	1,300.0	1,301.0	1,301.0	4.4	4.4	180.00	-60.0	0.0	60.0	50.9	9.15	6.560		
1,400.0	1,400.0	1,401.0	1,401.0	4.6	4.6	180.00	-60.0	0.0	60.0	50.5	9.51	6.312		
1,500.0	1,500.0	1,501.0	1,501.0	4.7	4.7	180.00	-60.0	0.0	60.0	50.1	9.86	6.088		
1,600.0	1,600.0	1,601.0	1,601.0	4.9	4.9	180.00	-60.0	0.0	60.0	49.8	10.20	5.885		
1,700.0	1,700.0	1,701.0	1,701.0	5.1	5.1	180.00	-60.0	0.0	60.0	49.5	10.53	5.700		
1,800.0	1,800.0	1,801.0	1,801.0	5.2	5.2	180.00	-60.0	0.0	60.0	49.2	10.85	5.531		
1,900.0	1,900.0	1,901.0	1,901.0	5.4	5.4	180.00	-60.0	0.0	60.0	48.8	11.16	5.375		
2,000.0	2,000.0	2,001.0	2,001.0	5.6	5.6	180.00	-60.0	0.0	60.0	48.5	11.47	5.230		
2,010.0	2,010.0	2,011.0	2,011.0	5.6	5.6	180.00	-60.0	0.0	60.0	48.5	11.49	5.222 CC		
2,014.0	2,014.0	2,015.0	2,015.0	5.6	5.6	-178.00	-60.0	0.0	60.0	48.5	11.50	5.215 ES		
2,100.0	2,100.0	2,100.0	2,100.0	5.8	5.7	-178.04	-60.0	0.0	61.4	49.6	11.84	5.189 SF		
2,200.0	2,199.9	2,198.5	2,198.5	6.0	5.9	-178.09	-61.7	-0.1	68.0	55.8	12.25	5.554		
2,300.0	2,299.5	2,295.1	2,295.0	6.2	6.1	-178.05	-66.6	-0.4	81.5	68.8	12.64	6.447		
2,400.0	2,398.8	2,390.0	2,389.5	6.4	6.3	-177.97	-74.6	-0.9	101.6	88.6	13.01	7.813		
2,500.0	2,497.6	2,482.7	2,481.5	6.6	6.5	-177.88	-85.5	-1.6	128.4	115.0	13.36	9.609		
2,600.0	2,595.8	2,573.8	2,571.6	6.8	6.6	-177.79	-98.9	-2.4	161.4	147.8	13.61	11.855		
2,700.0	2,693.3	2,666.6	2,663.3	7.0	6.7	-177.74	-113.4	-3.3	198.5	184.6	13.91	14.267		
2,760.0	2,751.5	2,721.7	2,717.7	7.1	6.8	-177.73	-122.0	-3.8	222.3	208.2	14.05	15.820		
2,800.0	2,790.1	2,758.3	2,753.8	7.1	6.8	-177.74	-127.7	-4.1	238.6	224.4	14.13	16.881		
2,900.0	2,886.7	2,849.6	2,844.1	7.3	6.9	-177.76	-142.0	-5.0	279.2	264.8	14.39	19.406		
3,000.0	2,983.3	2,941.0	2,934.3	7.4	7.1	-177.78	-156.3	-5.9	319.8	305.2	14.65	21.833		
3,100.0	3,079.9	3,032.4	3,024.6	7.6	7.2	-177.79	-170.5	-6.8	360.4	345.5	14.92	24.165		
3,200.0	3,176.5	3,123.8	3,114.8	7.7	7.3	-177.80	-184.8	-7.6	401.1	385.9	15.19	26.402		
3,300.0	3,273.1	3,215.1	3,205.1	7.9	7.4	-177.81	-199.1	-8.5	441.7	426.2	15.47	28.550		
3,400.0	3,369.7	3,306.5	3,295.3	8.0	7.6	-177.81	-213.3	-9.4	482.3	466.6	15.76	30.610		
3,500.0	3,466.2	3,397.9	3,385.6	8.2	7.7	-177.82	-227.6	-10.3	523.0	506.9	16.05	32.586		
3,600.0	3,562.8	3,489.2	3,475.8	8.4	7.9	-177.82	-241.9	-11.1	563.6	547.3	16.35	34.480		
3,700.0	3,659.4	3,580.6	3,566.1	8.5	8.0	-177.83	-256.1	-12.0	604.2	587.6	16.65	36.296		
3,800.0	3,756.0	3,672.0	3,656.3	8.7	8.1	-177.83	-270.4	-12.9	644.9	627.9	16.95	38.037		
3,900.0	3,852.6	3,763.4	3,746.6	8.9	8.3	-177.83	-284.7	-13.7	685.5	668.2	17.26	39.707		
4,000.0	3,949.2	3,854.7	3,836.8	9.0	8.4	-177.84	-298.9	-14.6	726.1	708.6	17.58	41.308		
4,100.0	4,045.8	3,946.1	3,927.1	9.2	8.6	-177.84	-313.2	-15.5	766.8	748.9	17.90	42.843		
4,200.0	4,142.4	4,037.5	4,017.3	9.4	8.7	-177.84	-327.5	-16.4	807.4	789.2	18.22	44.315		
4,300.0	4,239.0	4,128.9	4,107.6	9.6	8.9	-177.84	-341.7	-17.2	848.0	829.5	18.54	45.728		
4,400.0	4,335.6	4,220.2	4,197.8	9.8	9.0	-177.85	-356.0	-18.1	888.7	869.8	18.87	47.084		
4,500.0	4,432.2	4,311.6	4,288.1	10.0	9.2	-177.85	-370.3	-19.0	929.3	910.1	19.21	48.385		
4,600.0	4,528.8	4,403.0	4,378.3	10.2	9.3	-177.85	-384.5	-19.8	969.9	950.4	19.54	49.633		

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB=32ft @ 3363.0usft

Offset Depths are relative to Offset Datum

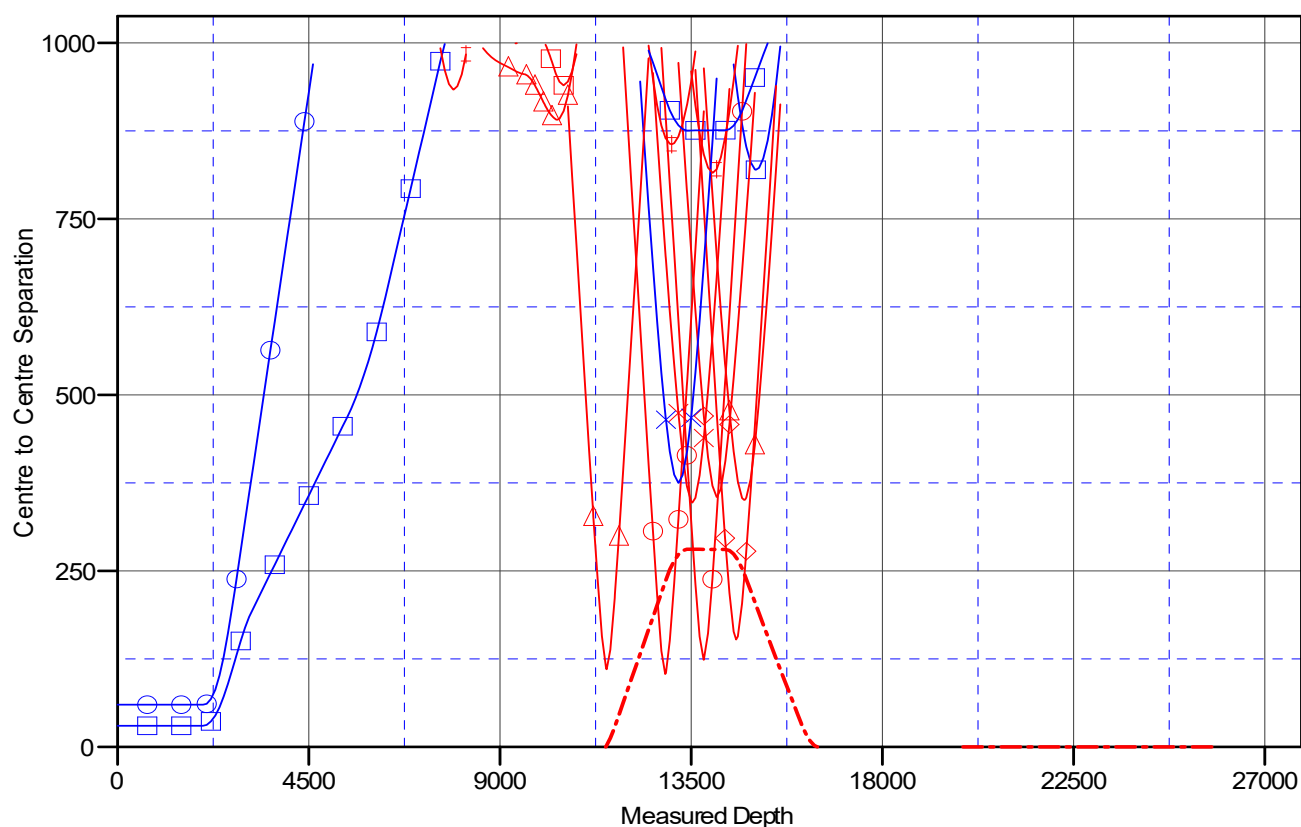
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: IRON THRONE FEDERAL COM 501H

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

Grid Convergence at Surface is: 0.25°

Ladder Plot



LEGEND

Forty Niner Ridge Unit 10H, OWB, AWP V0
Forty Niner Ridge Unit 11H, OWB, AWP V0
Forty Niner Ridge Unit 12H, WELL START, OWB, Design #1 V0
Forty Niner Ridge Unit 17H, OWB, AWP V0
Forty Niner Ridge Unit 16H, OWB, AWP V0
Forty Niner Ridge Unit 17H, OWB, AWP V0

Forty Niner Ridge Unit 10H, OWB, AWP V0
Forty Niner Ridge Unit 12H, OWB, AWP V0
Forty Niner Ridge Unit 17H, OWB, AWP V0
Forty Niner Ridge Unit 12H, WELL START, OWB, Design #1 V0
Forty Niner Ridge Unit 12H, OWB, AWP V0

Forty Niner Ridge Unit 12H, OWB, AWP V0
IRON THRONE FEDERAL COM503H, OWB, PWP2 V0
IRON THRONE FEDERAL COM502H, OWB, PWP2 V0
RNRU FEDERAL COM 22 23 PR_16H, OWB, AWP V0

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

ConocoPhillips

Anticollision Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well IRON THRONE FEDERAL COM 501H
Project:	ATLAS PROSPECT (DBW)	TVD Reference:	RKB=32ft @ 3363.0usft
Reference Site:	IRON THRONE PROJECT	MD Reference:	RKB=32ft @ 3363.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRON THRONE FEDERAL COM 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDT 17 Permian Prod
Reference Design:	PWP2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB=32ft @ 3363.0usft

Offset Depths are relative to Offset Datum

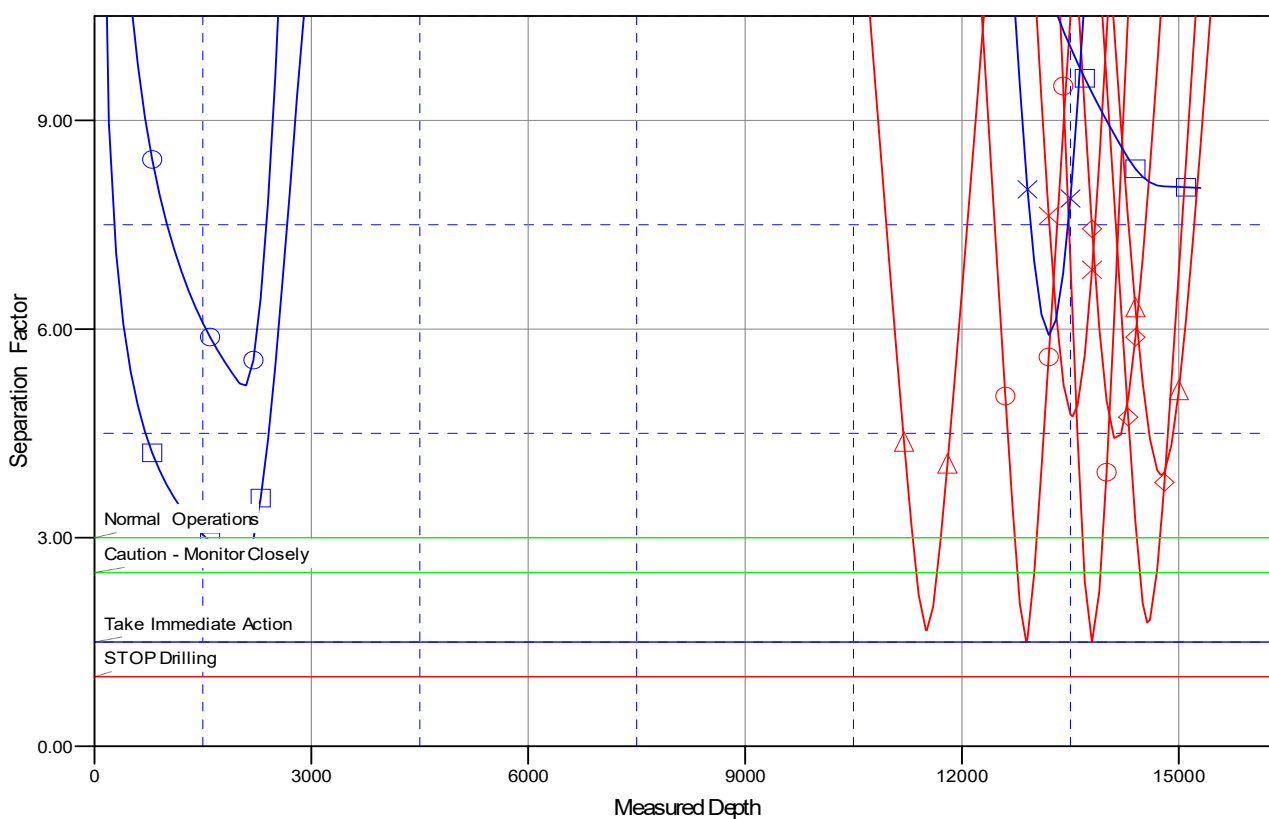
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: IRON THRONE FEDERAL COM 501H

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

Grid Convergence at Surface is: 0.25°

Separation Factor Plot



LEGEND

FORTY NINER RIDGE UNIT 10H, OWB, AWP V0
FORTY NINER RIDGE UNIT 11H, OWB, AWP V0
FORTY NINER RIDGE UNIT 12H, WELL START, OWB, Design #1 V0
FORTY NINER RIDGE UNIT 17H, OWB, AWP V0
FORTY NINER RIDGE UNIT 18H, OWB, AWP V0
FORTY NINER RIDGE UNIT 17H, OWB, AWP V0

FORTY NINER RIDGE UNIT 10H, OWB, AWP V0
FORTY NINER RIDGE UNIT 12H, OWB, AWP V0
FORTY NINER RIDGE UNIT 17H, OWB, AWP V0
FORTY NINER RIDGE UNIT 12H, WELL START, OWB, Design #1 V0
FORTY NINER RIDGE UNIT 12H, OWB, AWP V0

FORTY NINER RIDGE UNIT 12H, OWB, AWP V0
IRON THRONE FEDERAL COM503H, OWB, PWP2 V0
IRON THRONE FEDERAL COM502H, OWB, PWP2 V0
PNRU FEDERAL COM 22 23 PR_16H, OWB, AWP V0



API BTC

Coupling	Pipe Body
Grade: J55 (Casing)	Grade: J55 (Casing)
Body: Bright Green	1st Band: Bright Green
1st Band: White	2nd Band: -
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -

Outside Diameter	13.375 in.	Wall Thickness	0.380 in.	Grade	J55 (Casing)
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	Regular				

Pipe Body Data

Geometry			Performance		
Nominal OD	13.375 in.	Drift	12.459 in.	SMYS	55,000 psi
Wall Thickness	0.380 in.	Plain End Weight	52.79 lb/ft	Min UTS	75,000 psi
Nominal Weight	54.500 lb/ft	OD Tolerance	API	Body Yield Strength	853 x1000 lb
Nominal ID	12.615 in.			Min. Internal Yield Pressure	2730 psi
				Collapse Pressure	1130 psi
				Max. Allowed Bending	19 °/100 ft

Connection Data

Geometry		Performance	
Thread per In	5	Joint Strength	909 x1000 lb
Connection OD	14.375 in.	Coupling Face Load	766 x1000 lb
Hand Tight Stand Off	1 in.	Internal Pressure Capacity	2730 psi

Notes

For products according to API Standards 5CT & 5B; Performance calculated considering API Technical Report 5C3 (Sections 9 & 10) equations.
For geometrical and steel grades combinations not considered in the API Standards 5CT and/or 5B; Performance calculations indirectly derived from API Technical Report 5C3 (Sections 9 & 10) equations.
Couplings OD are shown according to current API 5CT 10th Edition.
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API BTC

Coupling	Pipe Body
Grade: J55 (Casing)	Grade: J55 (Casing)
Body: Bright Green	1st Band: Bright Green
1st Band: White	2nd Band: -
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -

Outside Diameter	10.750 in.	Wall Thickness	0.400 in.	Grade	J55 (Casing)
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	Regular				

Pipe Body Data

Geometry			Performance		
Nominal OD	10.750 in.	Drift	9.794 in.	SMYS	55,000 psi
Wall Thickness	0.400 in.	Plain End Weight	44.26 lb/ft	Min UTS	75,000 psi
Nominal Weight	45.500 lb/ft	OD Tolerance	API	Body Yield Strength	715 x1000 lb
Nominal ID	9.950 in.			Min. Internal Yield Pressure	3580 psi
				Collapse Pressure	2090 psi
				Max. Allowed Bending	23 °/100 ft

Connection Data

Geometry		Performance	
Thread per In	5	Joint Strength	796 x1000 lb
Connection OD	11.750 in.	Coupling Face Load	628 x1000 lb
Hand Tight Stand Off	1 in.	Internal Pressure Capacity	3580 psi

Notes

For products according to API Standards 5CT & 5B; Performance calculated considering API Technical Report 5C3 (Sections 9 & 10) equations.
For geometrical and steel grades combinations not considered in the API Standards 5CT and/or 5B; Performance calculations indirectly derived from API Technical Report 5C3 (Sections 9 & 10) equations.
Couplings OD are shown according to current API 5CT 10th Edition.
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 484613

CONDITIONS

Operator: CONOCOPHILLIPS COMPANY 600 W. Illinois Avenue Midland, TX 79701	OGRID: 217817
	Action Number: 484613
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Operator must comply with all of the R-111-Q requirements.	8/13/2025
ward.rikala	Any previous COA's not addressed within the updated COA's still apply.	8/13/2025
ward.rikala	Operator can not produce this well until they are in compliance with Rule 5.9.	8/13/2025