

Form 3160-3  
(June 2015)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

5. Lease Serial No.

NMNM111533

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.

SWEET TEA EBS FEDERAL COM

554H

9. API Well No.

30-015-55629

10. Field and Pool, or Exploratory  
WILLOW LAKE/BONE SPRING11. Sec., T. R. M. or Blk. and Survey or Area  
SEC 31/T24S/R29E/1PM

1a. Type of work: ☒ DRILL ☐ REENTER  
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other  
1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☒ Multiple Zone

2. Name of Operator  
MARATHON OIL PERMIAN LLC3a. Address  
990 TOWN & COUNTRY BLVD, HOUSTON, TX 770243b. Phone No. (include area code)  
(713) 296-2113

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

At surface SENW / 2622 FSL / 1841 FWL / LAT 32.1736838 / LONG -104.0262941

At proposed prod. zone SESW / 100 FSL / 2304 FWL / LAT 32.1522086 / LONG -104.0248342

14. Distance in miles and direction from nearest town or post office\*  
20 miles12. County or Parish  
EDDY13. State  
NM15. Distance from proposed\*  
location to nearest  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)  
100 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well

475.67

18. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft.  
30 feet19. Proposed Depth  
9130 feet / 16663 feet20. BLM/BIA Bond No. in file  
FED: NMB00155521. Elevations (Show whether DF, KDB, RT, GL, etc.)  
2904 feet22. Approximate date work will start\*  
11/14/202423. Estimated duration  
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature  
(Electronic Submission)Name (Printed/Typed)  
ADRIAN COVARRUBIAS / Ph: (713) 929-6600Date  
11/16/2023Title  
regulatory Compliance RepresentativeApproved by (Signature)  
(Electronic Submission)Name (Printed/Typed)  
CODY LAYTON / Ph: (575) 234-5959Date  
09/25/2024Title  
Assistant Field Manager Lands & MineralsOffice  
Carlsbad Field Office

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

Conditions of approval, if any, are attached.

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

(Continued on page 2)

\*(Instructions on page 2)



## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM I:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to a new evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.



## Additional Operator Remarks

### Location of Well

0. SHL: SENW / 2622 FSL / 1841 FWL / TWSP: 24S / RANGE: 29E / SECTION: 31 / LAT: 32.1736838 / LONG: -104.0262941 ( TVD: 0 feet, MD: 0 feet )

PPP: NESW / 2540 FSL / 2310 FWL / TWSP: 24S / RANGE: 29E / SECTION: 31 / LAT: 32.1734603 / LONG: -104.0247794 ( TVD: 9130 feet, MD: 9600 feet )

BHL: SESW / 100 FSL / 2304 FWL / TWSP: 25S / RANGE: 29E / SECTION: 6 / LAT: 32.1522086 / LONG: -104.0248342 ( TVD: 9130 feet, MD: 16663 feet )

### BLM Point of Contact

Name: PAMELLA HERNANDEZ

Title: LIE

Phone: (575) 234-5954

Email: PHERNANDEZ@BLM.GOV

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### **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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U.S. Department of the Interior  
Bureau of Land Management

*Application for Permit to Drill*

**APD Package Report**

Date Printed: 09/30/2024 12:31 PM

APD ID: 10400095884	Well Status: AAPD
APD Received Date: 11/16/2023 09:22 AM	Well Name: SWEET TEA EBS FEDERAL (
Operator: MARATHON OIL PERMIAN LLC	Well Number: 554H

APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
  - Well Plat: 2 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
  - Blowout Prevention Choke Diagram Attachment: 2 file(s)
  - Blowout Prevention BOP Diagram Attachment: 1 file(s)
  - Casing Design Assumptions and Worksheet(s): 4 file(s)
  - Hydrogen sulfide drilling operations plan: 1 file(s)
  - Proposed horizontal/directional/multi-lateral plan submission: 2 file(s)
  - Other Facets: 3 file(s)
  - Other Variances: 3 file(s)
- SUPO Report
- SUPO Attachments
  - Existing Road Map: 1 file(s)
  - New Road Map: 2 file(s)
  - Attach Well map: 1 file(s)
  - Production Facilities map: 2 file(s)
  - Water source and transportation map: 1 file(s)
  - Construction Materials source location attachment: 1 file(s)
  - Well Site Layout Diagram: 1 file(s)
  - Recontouring attachment: 1 file(s)
- PWD Report
- PWD Attachments
  - None

- Bond Report
- Bond Attachments
  - None



District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102 Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-015-55629</b>	<sup>2</sup> Pool Code <b>64450</b>	<sup>3</sup> Pool Name <b>WILLOW LAKE; BONE SPRING</b>
<sup>4</sup> Property Code <b>336290</b>	<sup>5</sup> Property Name <b>SWEET TEA EBS FED COM</b>	<sup>6</sup> Well Number <b>554H</b>
<sup>7</sup> OGRID No. <b>372098</b>	<sup>8</sup> Operator Name <b>MARATHON OIL PERMIAN LLC</b>	<sup>9</sup> Elevation <b>2904'</b>

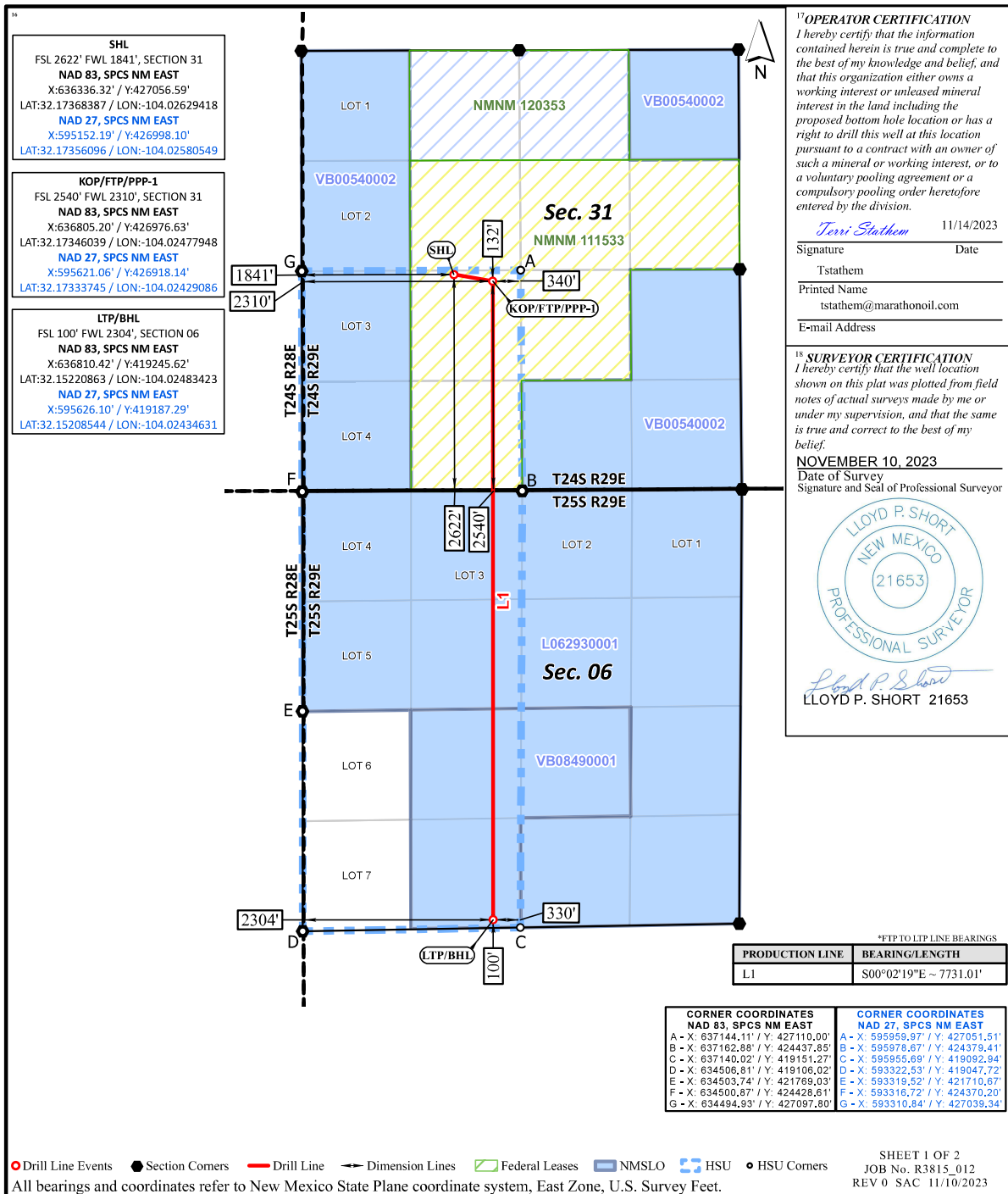
<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	31	24S	29E		2622'	SOUTH	1841'	WEST	EDDY

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	6	25S	29E		100'	SOUTH	2304'	WEST	EDDY
<sup>12</sup> Dedicated Acres <b>475.67</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Marathon Oil Permian, LLC
LEASE NO.:	NMNM 111533
COUNTY:	Eddy County, New Mexico

Wells:

**Sweet Tea EBS Fed Com 301H**

Surface Hole Location: 2464 feet from north line (FNL) and  
1782 feet from west line (FWL), Section 31, T. 24 S., R. 29 E.

Bottom Hole Location: 100 feet from south line (FSL) and  
1000 feet from west line (FWL), Section 6, T. 25 S, R 29 E.

**Sweet Tea EBS Fed Com 302H**

Surface Hole Location: 2464 feet from north line (FNL) and  
1812 feet from west line (FWL), Section 31, T. 24 S., R. 29 E.

Bottom Hole Location: 100 feet from south line (FSL) and  
2304 feet from west line (FWL), Section 6, T. 25 S, R 29 E.

**Sweet Tea EBS Fed Com 551H**

Surface Hole Location: 2622 feet from south line (FSL) and  
1751 feet from west line (FWL), Section 31, T. 24 S., R. 29 E.

Bottom Hole Location: 100 feet from south line (FSL) and  
330 feet from west line (FWL), Section 6, T. 25 S, R 29 E.

**Sweet Tea EBS Fed Com 552H**

Surface Hole Location: 2622 feet from south line (FSL) and  
1781 feet from west line (FWL), Section 31, T. 24 S., R. 29 E.

Bottom Hole Location: 100 feet from south line (FSL) and  
990 feet from west line (FWL), Section 6, T. 25 S, R 29 E.

**Sweet Tea EBS Fed Com 553H**

Surface Hole Location: 2622 feet from south line (FSL) and  
1811 feet from west line (FWL), Section 31, T. 24 S., R. 29 E.

Bottom Hole Location: 100 feet from south line (FSL) and  
1650 feet from west line (FWL), Section 6, T. 25 S, R 29 E.

**Sweet Tea EBS Fed Com 554H**

Surface Hole Location: 2622 feet from south line (FSL) and  
1841 feet from west line (FWL), Section 31, T. 24 S., R. 29 E.

Bottom Hole Location: 100 feet from south line (FSL) and  
2304 feet from west line (FWL), Section 6, T. 25 S, R 29 E.

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## 1. GENERAL PROVISIONS

The failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties pursuant to 43 CFR 3163.1 or 3163.2. A copy of these conditions of approval shall be present on the location during construction, drilling and reclamation activity. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

### 1.1. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the operator, or any person working on the operator's behalf, on the public or federal land shall be immediately reported to the Authorized Officer. The operator shall suspend all operations in the immediate area (within 100ft) of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer, in conjunction with a BLM Cultural Resource Specialist, to determine appropriate actions to prevent the loss of significant scientific values. The operator shall be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the operator.

Traditional Cultural Properties (TCPs) are protected by NHPA as codified in 36 CFR 800 for possessing traditional, religious, and cultural significance tied to a certain group of individuals. Though there are currently no designated TCPs within the project area or within a mile of the project area, but it is possible for a TCP to be designated after the approval of this project. **If a TCP is designated in the project area after the project's approval, the BLM Authorized Officer will notify the operator of the following conditions and the duration for which these conditions are required.**

1. Temporary halting of all construction, drilling, and production activities to lower noise.
2. Temporary shut-off of all artificial lights at night.

The operator is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA), specifically NAGPRA Subpart B regarding discoveries, to protect human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered during project work. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and a BLM-CFO Authorized Officer will be notified immediately. The BLM will then be required to be notified, in writing, within 24 hours of the discovery. The written notification should include the geographic location by county and state, the contents of the discovery, and the steps taken to protect said discovery. You must also include any potential threats to the discovery and a conformation that all activity within 100ft of the discovery has ceased and work will not resume until written certification is issued. All work on the entire project must halt for a minimum of 3 days and work cannot resume until an Authorized Officer grants permission to do so.

Any paleontological resource discovered by the operator, or any person working on the operator's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. The operator will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the operator.

### 1.2. RANGELAND RESOURCES

#### 1.2.1. Cattleguards

Where a permanent cattleguard is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

### 1.2.2. Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

### 1.2.3. Livestock Watering Requirement

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

## 1.3. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA, New Mexico Department of Agriculture, and BLM requirements and policies.

### 1.3.1 African Rue (*Peganum harmala*)

**Spraying:** The spraying of African Rue must be completed by a licensed or certified applicator. In order to attempt to kill or remove African Rue the proper mix of chemical is needed. The mix consists of 2% Arsenal (Imazapyr) and 2% Roundup (Glyphosate) along with a nonionic surfactant. Any other chemicals or combinations shall be approved by the BLM Noxious Weeds Coordinator prior to treatment. African Rue shall be sprayed in connection to any dirt working activities or disturbances to the site being sprayed. Spraying of African Rue shall be done on immature plants at initial growth through flowering and mature plants between budding and flowering stages. Spraying shall not be conducted after flowering when plant is fruiting. This will ensure optimal intake of chemical and decrease chances of developing herbicide resistance. After spraying, the operator or necessary parties must contact the Carlsbad Field Office to inspect the effectiveness of the application treatment to the plant species. No ground disturbing activities can take place until the inspection by the authorized officer is complete. The operator may contact the Environmental Protection Department or the BLM Noxious Weed Coordinator at (575) 234-5972 or [BLM\\_NM\\_CFO\\_NoxiousWeeds@blm.gov](mailto:BLM_NM_CFO_NoxiousWeeds@blm.gov).

**Management Practices:** In addition to spraying for African Rue, good management practices should be followed. All equipment should be washed off using a power washer in a designated containment area. The containment area shall be bermed to allow for containment of the seed to prevent it from entering any open areas of the nearby landscape. The containment area shall be excavated near or adjacent to the well pad at a depth of three feet and just large enough to get equipment inside it to be washed off. This will allow all seeds to be in a centrally located area that can be treated at a later date if the need arises.

## 1.4. LIGHT POLLUTION

### 1.4.1. Downfacing

All permanent lighting will be pointed straight down at the ground in order to prevent light spill beyond the edge of approved surface disturbance.

### 1.4.2. Shielding

All permanent lighting will use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the lowest part of the light source).

### 1.4.3. Lighting Color

Lighting shall be 3,500 Kelvin or less (Warm White) except during drilling, completion, and workover operations. No bluish-white lighting shall be used in permanent outdoor lighting.

## 2. SPECIAL REQUIREMENTS

### 2.1. WATERSHED

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

#### 2.1.1. Tank Battery

Tank battery locations will be lined and bermed. A 20-mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Secondary containment holding capacity must be large enough to contain 1 ½ times the content of the largest tank or 24-hour production, whichever is greater (displaced volume from all tanks within the berms MUST be subtracted from total volume of containment in calculating holding capacity). Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

### 2.2. CAVE/KARST

#### 2.2.1. General Construction

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- This is a sensitive area and all spills or leaks will be reported to the BLM immediately for their immediate and proper treatment, as defined in NTL 3A for Major Undesirable Events.

#### 2.2.2. Pad Construction

- The pad will be constructed and leveled by adding the necessary fill and caliche. No blasting will be used for any construction or leveling activities.
- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.



- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised (i.e. an access road crossing the berm cannot be lower than the berm height).
- Following a rain event, all fluids will be vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

#### **2.2.3. Road Construction**

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

#### **2.2.4. Buried Pipeline/Cable Construction**

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

#### **2.2.5. Powerline Construction**

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

#### **2.2.6. Surface Flowlines Installation**

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

#### **2.2.7. Production Mitigation**

- Tank battery locations and facilities will be bermed and lined with a 20-mil thick permanent liner that has a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Secondary containment holding capacity must be large enough to contain 1 ½ times the content of the largest tank or 24-hour production, whichever is greater (displaced volume from all tanks within the berms MUST be subtracted from total volume of containment in calculating holding capacity).
- Implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

#### 2.2.8. Residual and Cumulative Mitigation

The operator will perform annual pressure monitoring on all casing annuli. If the test results indicate a casing failure has occurred, contact a BLM Engineer immediately, and take remedial action to correct the problem.

#### 2.2.9. Plugging and Abandonment Mitigation

Upon well abandonment in high cave karst areas, additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

### 2.3 WILDLIFE

#### 2.3.2. Texas Hornshell Mussel

Oil and Gas and Associated Infrastructure Mitigation Measures for Zone D – CCA Boundary Requirements:

- Provide CEHMM with the permit, lease, or other authorization form BLM, if applicable.
- Provide CEHMM with plats or other electronic media describing the new surface disturbance for the project.
- 

### 2.4 VISUAL RESOURCE MANAGEMENT

#### 2.5.1 VRM IV

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Shale Green from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## 3. CONSTRUCTION REQUIREMENTS

### 3.1 CONSTRUCTION NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at [BLM\\_NM\\_CFO\\_Construction\\_Reclamation@blm.gov](mailto:BLM_NM_CFO_Construction_Reclamation@blm.gov) at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and COAs on the well site and they shall be made available upon request by the Authorized Officer.

### 3.2 TOPSOIL

The operator shall strip the topsoil (the A horizon) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. No more than the top 6 inches of topsoil shall be removed. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (the B horizon and below) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### 3.3 CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No reserve pits will be used for drill cuttings. The operator shall properly dispose of drilling contents at an authorized disposal site.

### 3.4 FEDERAL MINERAL PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### 3.5 WELL PAD & SURFACING

Any surfacing material used to surface the well pad will be removed at the time of interim and final reclamation.

### 3.6 EXCLOSURE FENCING (CELLARS & PITS)

The operator will install and maintain enclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the well cellar is free of fluids and the operator initiates backfilling. (For examples of enclosure fencing design, refer to BLM's Oil and Gas Gold Book, Enclosure Fence Illustrations, Figure 1, Page 18.)

The operator will also install and maintain mesh netting for all open well cellars to prevent access to smaller wildlife before and after drilling operations until the well cellar is free of fluids and the operator. Use a maximum netting mesh size of 1 ½ inches. The netting must not have holes or gaps.

### 3.7 ON LEASE ACCESS ROAD

#### 3.7.1 Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed twenty (20) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

#### 3.7.2 Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements will be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

#### 3.7.3 Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

#### 3.7.4 Ditching

Ditching shall be required on both sides of the road.

#### 3.7.5 Turnouts

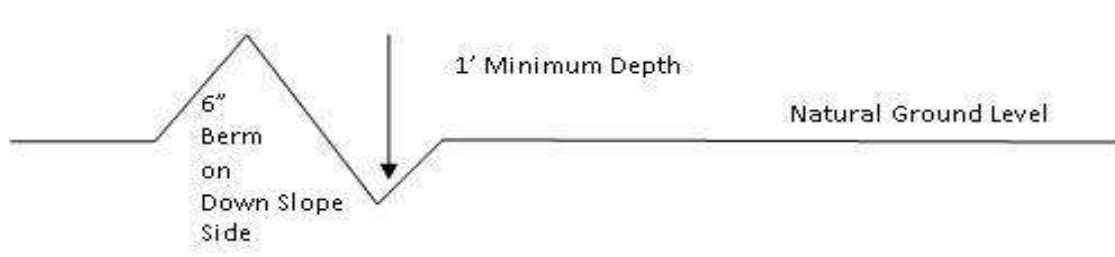
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

#### 3.7.6 Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, leadoff ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4} + 100' = 200' \text{ lead-off ditch interval}$$

#### 3.7.7 Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

- Construction Steps
1. Salvage topsoil

2. Construct road

3. Redistribute topsoil

4. Revegetate slopes

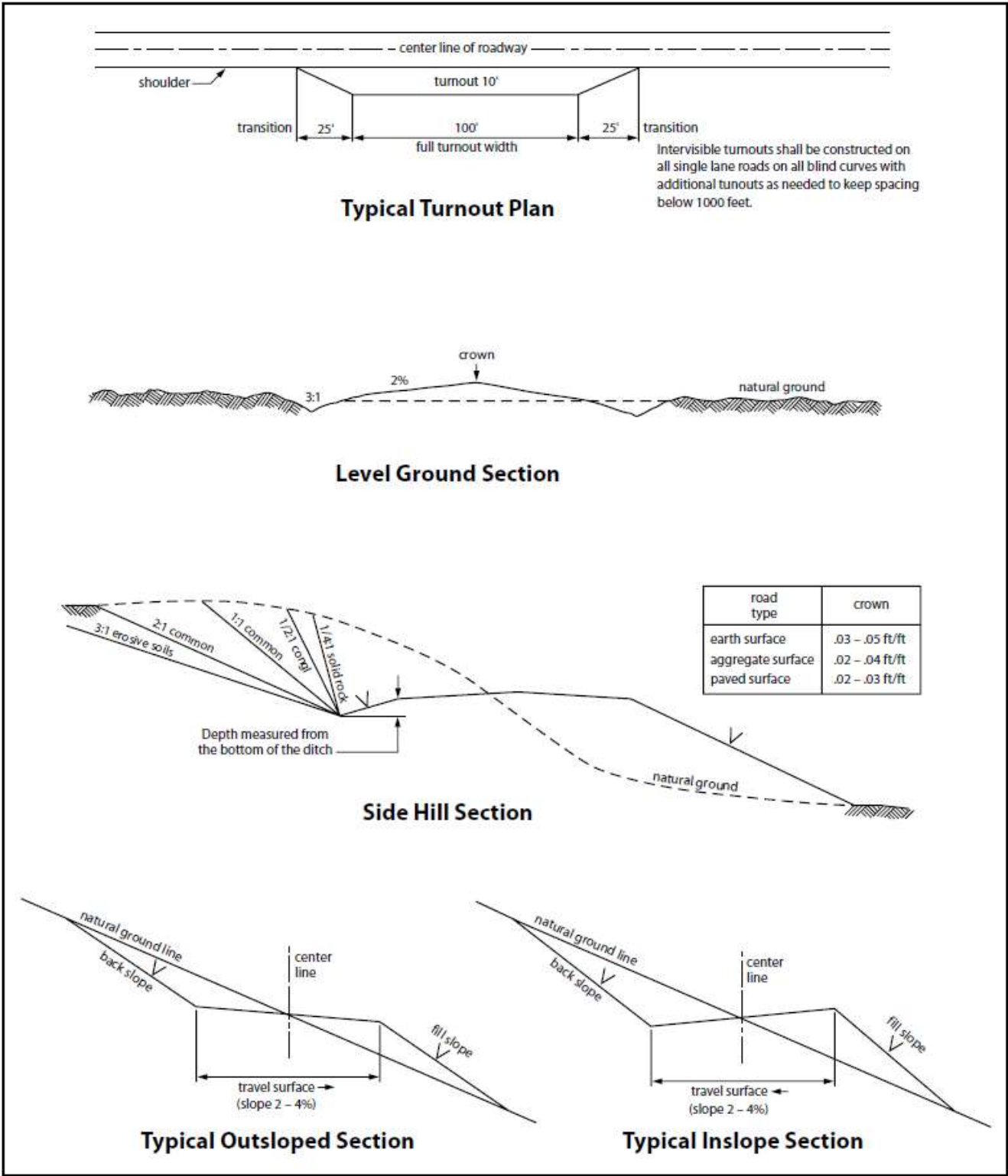


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## 4. PIPELINES

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

### 4.1 BURIED PIPELINES

A copy of the application (APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request a copy of your permit during construction to ensure compliance with all stipulations.

Operator agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Operator shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this APD.
2. The Operator shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the operator shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the pipeline corridor or on facilities authorized under this APD. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The operator agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Pipeline corridor (unless the release or threatened release is wholly unrelated to the operator's activity on the pipeline corridor), or resulting from the activity of the Operator on the pipeline corridor. This agreement applies without regard to whether a release is caused by the operator, its agent, or unrelated third parties.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant is discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of operator, regardless of fault. Upon failure of operator to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and



fish and wildlife habitats, at the full expense of the operator. Such action by the Authorized Officer shall not relieve operator of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized pipeline corridor.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this pipeline corridor will be 30 feet:
  - Blading of vegetation within the pipeline corridor will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
  - Clearing of brush species within the pipeline corridor will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
  - The remaining area of the pipeline corridor (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The operator shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately   6   inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this pipeline corridor and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire pipeline corridor shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted, and a 6-inch berm will be left over the ditch line to allow for settling back to grade.
10. The pipeline will be identified by signs at the point of origin and completion of the pipeline corridor and at all road crossings. At a minimum, signs will state the operator's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.
11. The operator shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the operator before maintenance begins. The operator will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the operator to construct temporary deterrence structures.
12. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.
13. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:



- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them alive at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30-degree slope and spaced no more than 500 feet apart) shall be placed in the trench. Before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them alive at least 100 yards from the trench.

14. Special Stipulations:

**Karst:**

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered, alignments may be rerouted to avoid the karst feature and lessen the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

## 4.2 RANGLAND MITIGATION FOR PIPELINES

### 4.5.1 Fence Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment operator prior to crossing any fence(s).

### 4.5.2 Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at road-fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

### 4.5.3 Livestock Watering Requirement

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment operator if any damage occurs to structures that provide water to livestock.

- Livestock operators will be contacted, and adequate crossing facilities will be provided as needed to ensure livestock are not prevented from reaching water sources because of the open trench.

- Wildlife and livestock trails will remain open and passable by adding soft plugs (areas where the trench is excavated and replaced with minimal compaction) during the construction phase. Soft plugs with ramps on either side will be left at all well-defined livestock and wildlife trails along the open trench to allow passage across the trench and provide a means of escape for livestock and wildlife that may enter the trench.
- Trenches will be backfilled as soon as feasible to minimize the amount of open trench. The Operator will avoid leaving trenches open overnight to the extent possible and open trenches that cannot be backfilled immediately will have escape ramps (wooden) placed at no more than 2,500 feet intervals and sloped no more than 45 degrees.

## 5. PRODUCTION (POST DRILLING)

### 5.1 WELL STRUCTURES & FACILITIES

#### 5.1.1 Placement of Production Facilities

Production facilities must be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### 5.1.2 Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### 5.1.3. Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### 5.1.4. Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

### 5.1.5. Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

## 6. RECLAMATION

Stipulations required by the Authorized Officer on specific actions may differ from the following general guidelines

### 6.1 ROAD AND SITE RECLAMATION

Any roads constructed during the life of the well will have the caliche removed or linear burial. If contaminants are indicated then testing will be required for chlorides and applicable contaminate anomalies for final disposal determination (disposed of in a manner approved by the Authorized Officer within Federal, State and Local statutes, regulations, and ordinances) and seeded to the specifications in sections 6.5 and 6.6.

### 6.2 EROSION CONTROL

Install erosion control berms, windrows, and hummocks. Windrows must be level and constructed perpendicular to down-slope drainage; steeper slopes will require greater windrow density. Topsoil between windrows must be ripped to a depth of at least 12", unless bedrock is encountered. Any large boulders pulled up during ripping must be deep-buried on location. Ripping must be perpendicular to down-slope. The surface must be left rough in order to catch and contain rainfall on-site. Any trenches resulting from erosion cause by run-off shall be addressed immediately.

### 6.3 INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations must undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators must work with BLM surface protection specialists (BLM\_NM\_CFO\_Construction\_Reclamation@blm.gov) to devise the best strategies to reduce the size of the location. Interim reclamation must allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche and any other surface material is required. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided in section 6.6.

Upon completion of interim reclamation, the operator shall submit a Sundry Notice, Subsequent Report of Reclamation (Form 3160-5).

## 6.4 FINAL ABANDONMENT & RECLAMATION

Prior to surface abandonment, the operator shall submit a Notice of Intent Sundry Notice and reclamation plan.

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding will be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM. After earthwork and seeding is completed, the operator is required to submit a Sundry Notice, Subsequent Report of Reclamation.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (BLM\_NM\_CFO\_Construction\_Reclamation@blm.gov).

## 6.5 SEEDING TECHNIQUES

Seeds shall be hydro-seeded, mechanically drilled, or broadcast, with the broadcast-seeded area raked, ripped or dragged to aid in covering the seed. The seed mixture shall be evenly and uniformly planted over the disturbed area.

## 6.6 SOIL SPECIFIC SEED MIXTURE

The lessee/permittee shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed land application will be accomplished by mechanical planting using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area. Smaller/heavier seeds tend to drop the bottom of the drill and are planted first; the operator shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory BLM or Soil Conservation

District stand is established as determined by the Authorized Officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding or until several months of precipitation have occurred, enabling a full four months of growth, with one or more seed generations being established

**Seed Mixture 2, for Sandy Site**

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegass (Setaria macrostachya)	2.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

**Mixture 4, for Gypsum Sites**

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Alkali Sacaton ( <i>Sporobolus airoides</i> )	1.5
DWS~ Four-wing saltbush ( <i>Atriplex canescens</i> )	8.0
~DWS: DeWinged Seed	

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MARATHON OIL PERMIAN LLC
WELL NAME & NO.:	COBRA COBRETTI BS FEDERAL COM 554H
LOCATION:	Section 31, T.24 S., R.29 E.
COUNTY:	Eddy County, New Mexico

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input type="radio"/> Medium	<input checked="" type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Wellhead Variance	<input type="radio"/> Diverter		
Other	<input type="checkbox"/> 4 String	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Open Annulus
Cementing	<input type="checkbox"/> Contingency Cement Squeeze	<input type="checkbox"/> EchoMeter	<input type="checkbox"/> Primary Cement Squeeze
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
Special Requirements	<input type="checkbox"/> Batch Sundry		
Special Requirements Variance	<input type="checkbox"/> Break Testing	<input type="checkbox"/> Offline Cementing	<input type="checkbox"/> Casing Clearance

### A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

### B. CASING

#### Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **500** feet (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 **9-5/8** inch intermediate casing shall be set at approximately **8,457** feet TVD. **Intermediate casing should be kept minimum half full during run for collapse SF.** The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

**Option 1 (Single Stage):**

- 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 or potash.**

**Option 2:**

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
  - b. Second stage above DV tool:
    - Cement to surface. 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 or potash.**
- ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
3. The **5-1/2** inch production casing shall be set at approximately **16,662** feet. The minimum required fill of cement behind the **5-1/2** inch production casing is:

**Option 1 (Single Stage):**

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

**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 **5000 (5M) 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 Onshore Order 1 and 43 CFR part 3170 Subpart 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.

## 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](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV); (575) 361-2822

### Contact Lea County Petroleum Engineering Inspection Staff:

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 689-5981

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 2<sup>nd</sup> 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 2<sup>nd</sup> 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.

**KPI 8/20/2024**



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Operator Certification Data Report

09/30/2024

## Operator

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** TERRI STATHEM

**Signed on:** 11/16/2023

**Title:** Regulatory Compliance Manager

**Street Address:** 990 TOWN & COUNTRY BLVD

**City:** HOUSTON

**State:** TX

**Zip:** 77024

**Phone:** (713)296-2113

**Email address:** TSTATHEM@MARATHONOIL.COM

## Field

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

**Application Data**

09/30/2024

**APD ID:** 10400095884**Submission Date:** 11/16/2023

Highlighted data  
reflects the most  
recent changes  
[Show Final Text](#)

**Operator Name:** MARATHON OIL PERMIAN LLC**Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H**Well Type:** OIL WELL**Well Work Type:** Drill

### Section 1 - General

**APD ID:** 10400095884**Tie to previous NOS?** N**Submission Date:** 11/16/2023**BLM Office:** Carlsbad**User:** TERRI STATHEM**Title:** Regulatory Compliance  
Manager**Federal/Indian APD:** FED**Is the first lease penetrated for production Federal or Indian?** FED**Lease number:** NMNM111533**Lease Acres:****Surface access agreement in place?****Allotted?****Reservation:****Agreement in place?** NO**Federal or Indian agreement:****Agreement number:****Agreement name:****Keep application confidential?** Y**Permitting Agent?** NO**APD Operator:** MARATHON OIL PERMIAN LLC**Operator letter of**

### Operator Info

**Operator Organization Name:** MARATHON OIL PERMIAN LLC**Operator Address:** 990 TOWN & COUNTRY BLVD**Zip:** 77024**Operator PO Box:****Operator City:** HOUSTON**State:** TX**Operator Phone:** (713)929-6600**Operator Internet Address:**

### Section 2 - Well Information

**Well in Master Development Plan?** NO**Master Development Plan name:****Well in Master SUPO?** NO**Master SUPO name:****Well in Master Drilling Plan?** NO**Master Drilling Plan name:****Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H**Well API Number:****Field/Pool or Exploratory?** Field and Pool**Field Name:** WILLOW LAKE**Pool Name:** BONE SPRING

**Operator Name:** MARATHON OIL PERMIAN LLC**Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H**Is the proposed well in an area containing other mineral resources?** NATURAL GAS**Is the proposed well in a Helium production area?** N **Use Existing Well Pad?** N **New surface disturbance?****Type of Well Pad:** MULTIPLE WELL**Multiple Well Pad Name:** Sweet Tea Fed **Number:** E1**Well Class:** HORIZONTAL**Number of Legs:** 1**Well Work Type:** Drill**Well Type:** OIL WELL**Describe Well Type:****Well sub-Type:** EXPLORATORY (WILDCAT)**Describe sub-type:****Distance to town:** 20 Miles**Distance to nearest well:** 30 FT**Distance to lease line:** 100 FT**Reservoir well spacing assigned acres Measurement:** 475.67 Acres**Well plat:** A2\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_C102\_20231115221445.pdf

A2\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_pay.gov\_receipt\_20231116092207.pdf

**Well work start Date:** 11/14/2024**Duration:** 30 DAYS**Section 3 - Well Location Table****Survey Type:** RECTANGULAR**Describe Survey Type:****Datum:** NAD83**Vertical Datum:** NAVD88**Survey number:** 21653**Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
SHL Leg #1	2622	FSL	1841	FWL	24S	29E	31	Aliquot SENW	32.1736838	-104.0262941	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 111533	2904	0	0	Y
KOP Leg #1	2540	FSL	2310	FWL	24S	29E	31	Aliquot NESW	32.1734603	-104.0247794	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 111533	-6226	9600	9130	Y

**Operator Name:** MARATHON OIL PERMIAN LLC**Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
PPP Leg #1-1	254 0	FSL	231 0	FW L	24S	29E	31	Aliquot NESW	32.17346 03	- 104.0247 794	EDD Y	NEW MEXI CO	FIRS T PRIN	F	NMNM 111533	- 622 6	960 0	913 0	Y
EXIT Leg #1	100	FSL	230 4	FW L	25S	29E	6	Aliquot SESW	32.15220 86	- 104.0284 834	EDD Y	NEW MEXI CO	FIRS T PRIN	S	STATE	- 622 6	166 63	913 0	Y
BHL Leg #1	100	FSL	230 4	FW L	25S	29E	6	Aliquot SESW	32.15220 86	- 104.0248 342	EDD Y	NEW MEXI CO	FIRS T PRIN	S	STATE	- 622 6	166 63	913 0	Y



# Drilling Plan Data Report

09/30/2024

U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

APD ID: 10400095884

Submission Date: 11/16/2023

Operator Name: MARATHON OIL PERMIAN LLC

Highlighted data  
reflects the most  
recent changes

Well Name: SWEET TEA EBS FEDERAL COM

Well Number: 554H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
14214565	RUSTLER	3579	0	0	ANHYDRITE	USEABLE WATER	N
14214566	SALADO	2927	652	679	ANHYDRITE, SALT	NONE	N
14214567	CASTILE	2287	1292	1319	ANHYDRITE, SALT	NONE	N
14214568	LAMAR	793	2786	2813	SANDSTONE, SHALE	NONE	N
14214576	BELL CANYON	758	2821	2848	SANDSTONE	OIL	N
14214569	CHERRY CANYON	-140	3719	3746	SANDSTONE	OIL	N
14214570	BRUSHY CANYON	-1345	4924	4951	SANDSTONE	OIL	N
14214571	BONE SPRING LIME	-3011	6590	6617	LIMESTONE	NONE	N
14214572	BONE SPRING 1ST	-3894	7473	7500	SANDSTONE	OIL	N
14214573	BONE SPRING 2ND	-4149	7728	7755	LIMESTONE, SHALE	OIL	N
14214574	BONE SPRING 3RD	-4987	8566	8593	LIMESTONE	OIL	Y
14214575	WOLFCAMP	-6159	9738	9765	SANDSTONE, SHALE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M

Rating Depth: 10000

**Equipment:** 13 5/8 BOP Annular (5,000 psi WP) and BOP Stack (10,000 psi WP) will be installed and tested before drilling all holes.

**Requesting Variance?** YES

**Variance request:** 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. Marathon requests a 5M annular variance for the 10M BOP system. Please see attached procedure.

**Operator Name:** MARATHON OIL PERMIAN LLC**Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H

**Testing Procedure:** BOP/BOPE will be tested to 250 psi low and 50% WP for Annular and 10,000 psi for BOP Stack. Testing will be conducted by an independent service company per 43 CFR 3172 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the Equipment Description 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, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics. Formation integrity test will be performed per 43 CFR 3172. 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. A multibowl wellhead is being used. The BOP will be tested per 43 CFR 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. See attached schematic.

**Choke Diagram Attachment:**

D2\_Sweet\_Tea\_Choke\_Manifold\_20231115201504.pdf

MRO\_Flex\_Hose\_20240703165920.pdf

**BOP Diagram Attachment:**

D2\_Sweet\_Tea\_10M\_BOP\_20231115201533.pdf

**Section 3 - Casing**

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	500	0	500	2904	2404	500	J-55	54.5	BUTT	5.22	1.81	BUOY	4.52	BUOY	4.52
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	8500	0	8457	0	-5553	8500	P-110	40	BUTT	1.2	1.42	BUOY	2.44	BUOY	2.44
3	PRODUCTION	8.75	5.5	NEW	API	N	0	16662	0	9130	2919	-6226	16662	P-110	23	OTHER - TLW	2.53	1.26	BUOY	2.22	BUOY	2.22

**Casing Attachments**

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: SWEET TEA EBS FEDERAL COM

Well Number: 554H

Casing Attachments

Casing ID: 1

String

SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_csg\_assump\_20231115222243.pdf

Casing ID: 2

String

INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_csg\_assump\_20231115222319.pdf

Casing ID: 3

String

PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

5.500\_23.00\_Benteler\_P110\_CY\_TLW\_CDS\_20231114175718\_20231115222342.pdf

D3\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_csg\_assump\_20231115222356.pdf

Section 4 - Cement

**Operator Name:** MARATHON OIL PERMIAN LLC**Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	350	166	2.12	12.5	353	25	Class C	Extender, Accelerator, LCM
SURFACE	Tail		350	500	99	1.32	14.8	130	25	Class C	Accelerator
INTERMEDIATE	Lead		0	8000	1451	2.18	12.4	3163	25	ClassC	Extender, Accelerator LCM
INTERMEDIATE	Tail		8000	8500	147	1.33	14.8	196	25	Class C	retarder
PRODUCTION	Lead		8200	16662	1631	1.68	13	2740	25	Class H	Retarder, exender, fluid loss, suspension agent

### Section 5 - Circulating Medium

**Mud System Type:** Closed**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:****Describe what will be on location to control well or mitigate other conditions:** The necessary mud products for additional weight and fluid loss control will be on location at all times.**Describe the mud monitoring system utilized:** Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT.

### Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	500	WATER-BASED MUD	8.4	8.8							
500	8500	OIL-BASED MUD	9.2	10.2							



**Operator Name:** MARATHON OIL PERMIAN LLC**Well Name:** SWEET TEA EBS FEDERAL COM**Well Number:** 554H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
8500	1666 2	OIL-BASED MUD	10.5	12.5							

### Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

GR from TD to Surface (horizontal well - vertical portion of well)

**List of open and cased hole logs run in the well:**

GAMMA RAY LOG, MEASUREMENT WHILE DRILLING, DIRECTIONAL SURVEY,

**Coring operation description for the well:**

NA

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 5935

**Anticipated Surface Pressure:** 3926

**Anticipated Bottom Hole Temperature(F):** 195

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations**

D7\_Sweet\_Tea\_H2S\_20231115202139.pdf

**Operator Name:** MARATHON OIL PERMIAN LLC

**Well Name:** SWEET TEA EBS FEDERAL COM

**Well Number:** 554H

## Section 8 - Other Information

### Proposed horizontal/directional/multi-lateral plan submission:

D8\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_AC\_20231115222827.pdf

D8\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_Dir\_Plan\_20231115222849.pdf

### Other proposed operations facets description:

### Other proposed operations facets attachment:

D8\_Sweet\_Tea\_NGMP\_20231115202258.pdf

D8\_Sweet\_Tea\_Rig\_Layout\_20231115202307.pdf

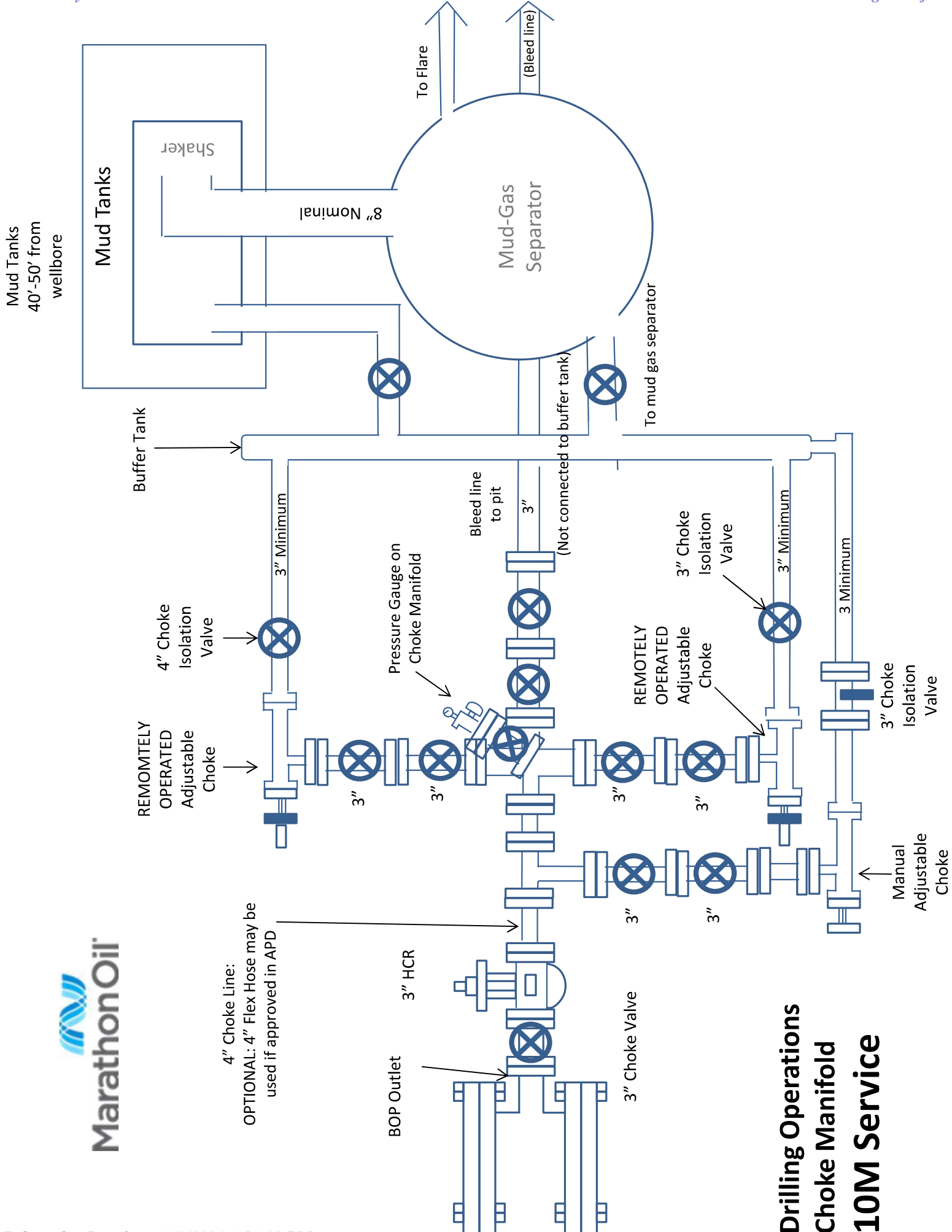
D8\_Sweet\_Tea\_EBS\_Fed\_Com\_554H\_drill\_plan\_20231115222917.pdf

### Other Variance attachment:

D8\_Sweet\_Tea\_Variance\_Request\_20231115202409.pdf

D8\_Sweet\_Tea\_Well\_Control\_Plan\_20231115202335.pdf

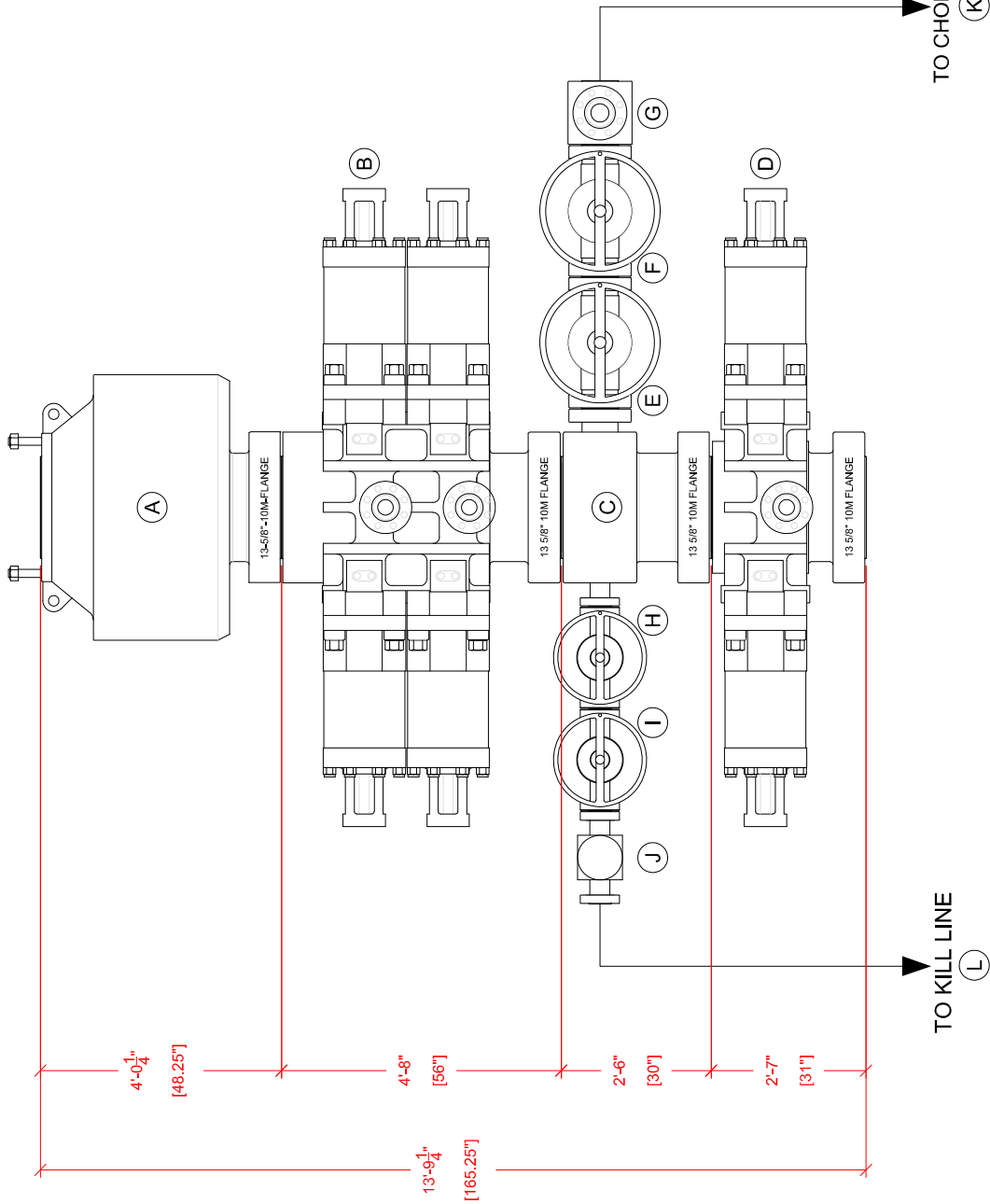
D8\_Sweet\_Tea\_Wellhead\_Diagram\_20231115202349.pdf



**Drilling Operations  
Choke Manifold  
10M Service**



BOP INFORMATION			
ITEM	DESCRIPTION	MAKE	MODEL
A	ANNULAR BOP	CAMERON	13 5/8" 5M T90
B	DOUBLE RAM BOP	CAMERON	13 5/8" 10M U
C	MUD CROSS	CAMERON	13 5/8" 10M
D	SINGLE RAM BOP	CAMERON	13 5/8" 10M U
E	WING VALVE	CAMERON	4 1/2" 10M FLS MANUAL
F	HCR VALVE	CAMERON	4 1/2" 10M HCR
G	CHOKE BLOCK	CAMERON	4 1/2" 10M
H	KILL VALVE	CAMERON	2 1/2" 10M FLS MANUAL
I	KILL VALVE	CAMERON	2 1/2" 10M FLS MANUAL
J	CHECK VALVE	CAMERON	2 1/2" 10M "R" CHECK
K	CHOKE LINE	GATES	4 1/2" 10M FR
L	KILL LINE	GATES	2 1/2" 10M FR
M			



THE DRAWING IS OWNED BY AND CONTAINS PROPRIETARY INFORMATION OF CACTUS DRILLING COMPANY, L.L.C. IT IS CONDITIONALLY LOANED AND IS TO BE RETURNED UPON COMPLETION OF THE PROJECT. NO PARTS OF THIS DRAWING ARE TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF CACTUS DRILLING COMPANY, L.L.C. OTHERS NOT TO MAKE ANY USE OF IT OR THE INFORMATION CONTAINED THEREIN EXCEPT FOR OR UNDER SPECIFIC LICENSE FROM CACTUS DRILLING COMPANY, L.L.C.			
TOLERANCE UNLESS OTHERWISE SPECIFIED		CUSTOMER INFO:	
DIMENSIONS IN INCHES		FILE:	R-170_BOP_MARATHON.dwg
DECIMAL	DIMENSION	DWG BY	IJA
CONCENTRICITY		CHK BY	
XXX ± .01	F.I.S.		7/13/2021
XXX ± .06	F.I.R.		
XXX ± .10	F.I.R.	APP BY	
ANGLES ± .5 DEGREES			
BY	REVISION	DATE	
SYM			
ACAD FILE: CAC170-A-005-00-RO			
SCALE: NTS			
TITLE: RIG 170 BOP STACK-UP			
SIZE: B			
ID: CAC170-A005			

CACTUS

Drilling Co., L.L.C.

Oklahoma City, OK, U.S.A.

Tel: 405-577-5347

Fax: 405-577-5906



# TEC-LOCK WEDGE

5.500" 23 LB/FT (.415"Wall)  
BENTELER P110 CY

## Pipe Body Data

Nominal OD:	5.500	in
Nominal Wall:	.415	in
Nominal Weight:	23.00	lb/ft
Plain End Weight:	22.56	lb/ft
Material Grade:	P110 CY	
Mill/Specification:	BENTELER	
Yield Strength:	125,000	psi
Tensile Strength:	130,000	psi
Nominal ID:	4.670	in
API Drift Diameter:	4.545	in
Special Drift Diameter:	None	in
RBW:	87.5 %	
Body Yield:	829,000	lbf
Burst:	16,510	psi
Collapse:	16,910	psi

## Connection Data

Standard OD:	5.950	in
Pin Bored ID:	4.670	in
Critical Section Area:	6.457	in <sup>2</sup>
Tensile Efficiency:	97.4 %	
Compressive Efficiency:	100 %	
Longitudinal Yield Strength:	807,000	lbf
Compressive Limit:	829,000	lbf
Internal Pressure Rating:	16,510	psi
External Pressure Rating:	16,910	psi
Maximum Bend:	101.5	°/100ft

## Operational Data

Minimum Makeup Torque:	16,400	ft*lbf
Optimum Makeup Torque:	20,500	ft*lbf
Maximum Makeup Torque:	44,300	ft*lbf
Minimum Yield:	49,200	ft*lbf
Makeup Loss:	5.97	in

**Notes** Operational Torque is equivalent to the Maximum Make-Up Torque





**Hydrogen Sulfide (H<sub>2</sub>S)  
Contingency Plan**

**Sweet Tea EBS Federal Com #301H  
2464' FNL & 1782' FWL Sec. 31 T-24S R-29E**

**Sweet Tea EBS Federal Com #302H  
2464' FNL & 1812' FWL Sec. 31 T-24S R-29E**

**Sweet Tea EBS Federal Com #551H  
2622' FSL & 1751' FWL Sec. 31 T-24S R-29E**

**Sweet Tea EBS Federal Com #552H  
2622' FSL & 1781' FWL Sec. 31 T-24S R-29E**

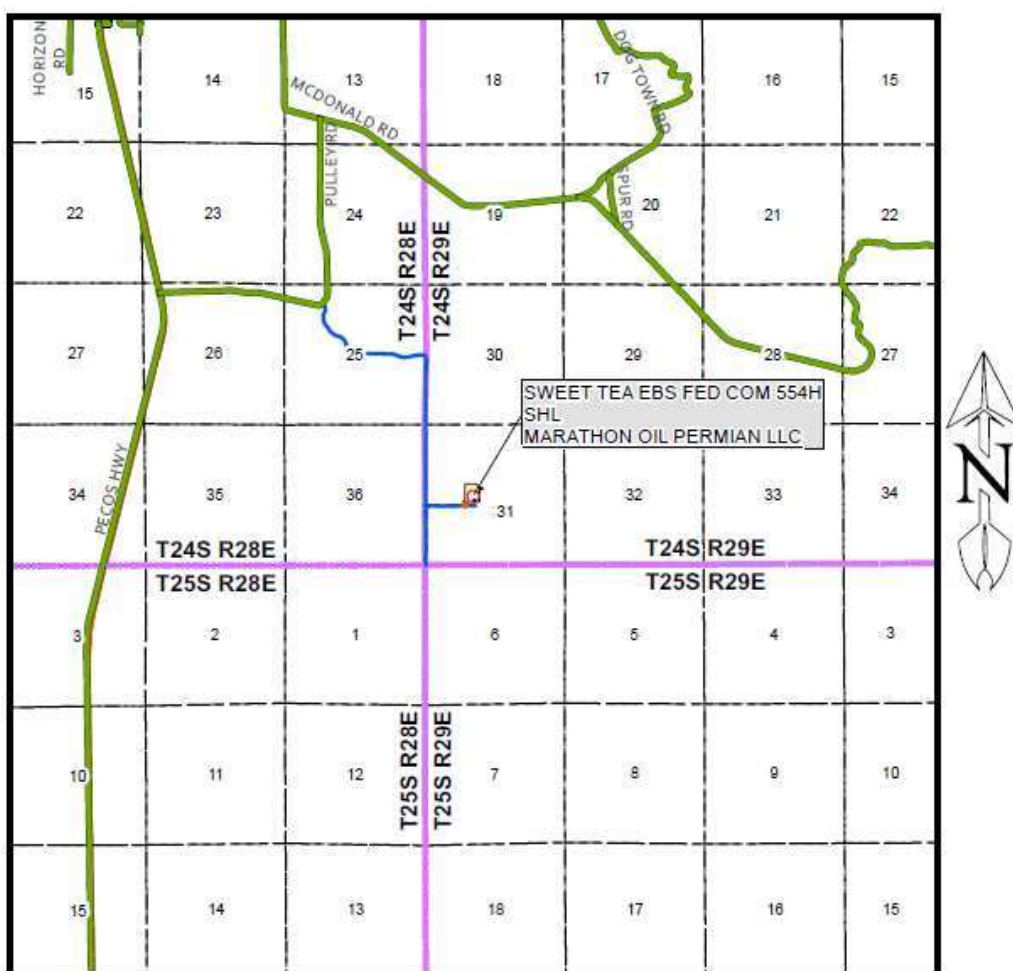
**Sweet Tea EBS Federal Com #553H  
2622' FSL & 1811' FWL Sec. 31 T-24S R-29E**

**Sweet Tea EBS Federal Com #554H  
2622' FSL & 1841' FWL Sec. 31 T-24S R-29E**

**Eddy County NM**

**Marathon Oil Permian, LLC**  
**Sweet Tea EBS Federal Com 301H, 302H, 551H, 552H, 553H, 554H**

This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H<sub>2</sub>S, including warning signs, wind indicators and H<sub>2</sub>S monitor.



### Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

**Assumed 100 ppm ROE = 3000'**

**100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan.**



### **Emergency Procedures**

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
  - Detection of H<sub>2</sub>S, and
  - Measures for protection against the gas,
  - Equipment used for protection and emergency response.

### **Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H<sub>2</sub> S and SO<sub>2</sub>

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air = 1	2 ppm	N/A	1000 ppm

### **Contacting Authorities**

Marathon Oil Permian, LLC personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Marathon Oil Permian LLC response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

## **Marathon Oil Permian, LLC**

### **Hydrogen Sulfide Drilling Operation Plan**

#### **I. HYDROGEN SULFIDE (H<sub>2</sub>S) TRAINING**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S)
- The proper use and maintenance of personal protective equipment and life support systems.
- The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- The effects of H<sub>2</sub>S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan.
- There will be weekly H<sub>2</sub>S and well control drills for all personnel in each crew.

#### **II. HYDROGEN SULFIDE TRAINING**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S.

- Well Control Equipment
  - Flare line
  - Choke manifold - Remotely Operated
  - Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

- Auxiliary equipment may include if applicable: annular preventer and rotating head.
  - Mud/Gas Separator
- Protective equipment for essential personnel:
  - 30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.
  - Fire extinguishers are located at various locations around the rig. First Aid supplies are located in the top doghouse and the rig manger's office.
- H2S detection and monitoring equipment:
  - Portable H2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H2S levels reach 10 ppm and audible sirens which activate at 15 ppm.Sensor locations:
  - Bell nipple
  - Rig floor
  - Cellar
  - Possum Belly/Shale shaker
  - Choke manifold
- Visual warning systems:
  - Wind direction indicators as shown on well site diagram
  - Caution/Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.
- Mud program:
  - The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

- Metallurgy:
  - All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H<sub>2</sub>S trim.
  - All elastomers used for packing and seals shall be H<sub>2</sub>S trim.
- Communication:
  - Company personnel have/use cellular telephones in the field.
  - Land line (telephone) communications at Office
- Well testing:
  - Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H<sub>2</sub>S environment will use the closed chamber method of testing.
  - There will be no drill stem testing.

## EMERGENCY &amp; MEDICAL FACILITIES

Marathon Oil Corporation Emergency Numbers			
Anders Storaune	Drilling Manager	<a href="mailto:astoraune@marathonoil.com">astoraune@marathonoil.com</a>	713-296-2985
Allen Livingston	Drilling Superintendent	<a href="mailto:alivingston@marathonoil.com">alivingston@marathonoil.com</a>	832-680-2348
Joshua Love	Drilling Superintendent	<a href="mailto:jlove@marathonoil.com">jlove@marathonoil.com</a>	405-657-6126
Steve Donley	Drilling Engineer	<a href="mailto:sdonley@marathonoil.com">sdonley@marathonoil.com</a>	405-593-4331
Court Nelson	Drilling Engineer	<a href="mailto:cnelson1@marathonoil.com">cnelson1@marathonoil.com</a>	406-565-0604
Scott Schmidt	Drilling Engineer	<a href="mailto:sschmidt1@marathonoil.com">sschmidt1@marathonoil.com</a>	405-249-6843
John Burt	HES Supervisor	<a href="mailto:jburt@marathonoil.com">jburt@marathonoil.com</a>	713-296-2903
Unit Rig 409	Company Man	<a href="mailto:unit409@marathonoil.com">unit409@marathonoil.com</a>	
Precision Rig 580	Company Man	<a href="mailto:precision580@marathonoil.com">precision580@marathonoil.com</a>	
Cactus Rig 169	Company Man	<a href="mailto:cactus169@marathonoil.com">cactus169@marathonoil.com</a>	
Cactus Rig 170	Company Man	<a href="mailto:cactus170@marathonoil.com">cactus170@marathonoil.com</a>	
Cactus Rig 171	Company Man	<a href="mailto:cactus171@marathonoil.com">cactus171@marathonoil.com</a>	

Emergency Services Area Numbers: Or Call 911			
Sheriff (Eddy County, NM)	575-887-7551	New Mexico Poison Control	800-222-1222
Sheriff (Lea County, NM)	575-396-3611	Border Patrol (Las Cruces, NM)	575-528-6600
New Mexico State Police	575-392-5580/5588	Energy Minerals & Natural Resources Dept.	575-748-1283
Carlsbad Medical Center	575-887-4100	Environmental Health Dept.	505-476-8600
Lea Regional Medical Center	575-492-5000	OSHA (Santa Fe, NM)	505-827-2855
Police (Carlsbad, NM)	575-885-2111		
Police (Hobbs, NM)	575-392-9265		
Fire (Carlsbad, NM)	575-885-3124		
Fire (Hobbs, NM)	575-397-9308		
Ambulance Service	911	TOTAL SAFETY H2S - SAFETY SERVICES For Life Flight 1 <sup>st</sup> dial 911, nearest helicopter will be determined	432-561-5049



## **Marathon Oil**

**Eddy County, New Mexico (NAD 27)  
Sweet Tea EBS Fed Com  
Sweet Tea EBS Fed Com 554H**

**Wellbore #1  
Design #1**

## **Anticollision Report**

**13 November, 2023**





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Design #1
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft
<b>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum centre distance of 5,000.00usft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Pedal Curve
<b>Casing Method:</b>	Not applied

Survey Tool Program		Date	11/13/2023		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	16,662.52	Design #1 (Wellbore #1)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Prince 31 (401H,404H,562H,564H)						
Prince 31 Fed Com 404H - Wellbore #1 - Surveys	7,668.43	9,608.19	663.22	582.58	8.224	CC, ES, SF
Prince 31 Fed Com 564H - Wellbore #1 - Surveys	8,751.56	10,803.09	541.24	457.15	6.437	CC, ES
Prince 31 Fed Com 564H - Wellbore #1 - Surveys	8,800.00	10,805.84	545.42	460.15	6.397	SF
Prince 31 (Offsets)						
Prince 31 B2EH Fed Com 1H - Wellbore #1 - Surveys	8,503.68	10,422.02	683.22	594.89	7.734	CC, ES, SF
Sweet Tea EBS Fed Com						
Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #	1,500.00	1,500.00	257.10	246.79	24.933	CC
Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #	1,600.00	1,601.74	257.50	246.49	23.386	ES
Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #	16,662.52	15,235.08	1,968.60	1,832.01	14.412	SF
Sweet Tea EBS Fed Com 302H - Wellbore #1 - Design #	3,899.93	3,921.75	46.27	18.31	1.655	CC
Sweet Tea EBS Fed Com 302H - Wellbore #1 - Design #	3,900.00	3,921.83	46.27	18.31	1.655	ES, SF
Sweet Tea EBS Fed Com 551H - Wellbore #1 - Design #	1,500.00	1,500.00	90.03	79.72	8.731	CC, ES
Sweet Tea EBS Fed Com 551H - Wellbore #1 - Design #	1,600.00	1,596.85	93.43	82.43	8.499	SF
Sweet Tea EBS Fed Com 552H - Wellbore #1 - Design #	1,500.00	1,500.00	60.00	49.69	5.819	CC, ES
Sweet Tea EBS Fed Com 552H - Wellbore #1 - Design #	1,600.00	1,597.85	63.41	52.41	5.766	SF
Sweet Tea EBS Fed Com 553H - Wellbore #1 - Design #	1,500.00	1,499.00	30.00	19.69	2.910	CC, ES, SF

<b>Offset Design:</b> Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 404H - Wellbore #1 - Surveys												
											<b>Offset Site Error:</b>	0.00 usft
											<b>Offset Well Error:</b>	0.00 usft
<b>Survey Program:</b>	162-, 493-											
<b>Reference</b>	<b>Offset</b>	<b>Semi Major Axis</b>	<b>Rule Assigned:</b>									
<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Reference</b>	<b>Offset</b>	<b>Azimuth from North (°)</b>	<b>Offset Wellbore Centre</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Minimum Separation (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
0.00	0.00	7.94	7.94	0.00	0.01	-47.176	1,370.41	-1,478.66	2,016.05			
100.00	100.00	113.80	113.80	0.14	0.17	-47.170	1,370.45	-1,478.38	2,015.88	0.31	6,587.125	
200.00	200.00	211.14	211.14	0.50	0.41	-47.156	1,370.58	-1,477.80	2,015.54	0.91	2,215.722	
237.20	237.20	244.70	244.70	0.63	0.53	-47.150	1,370.70	-1,477.65	2,015.50	1.16	1,735.013	
300.00	300.00	301.36	301.35	0.85	0.73	-47.140	1,371.01	-1,477.48	2,015.60	1.59	1,269.984	
400.00	400.00	389.19	389.18	1.21	1.04	-47.123	1,371.80	-1,477.42	2,016.17	2.26	893.592	
500.00	500.00	476.16	476.13	1.57	1.30	-47.093	1,373.34	-1,477.51	2,017.44	2.87	702.713	
600.00	600.00	570.60	570.55	1.93	1.39	-47.046	1,375.64	-1,477.57	2,019.15	3.32	607.949	
700.00	700.00	671.82	671.74	2.29	1.52	-47.000	1,378.11	-1,477.85	2,021.02	3.80	531.486	
800.00	800.00	861.81	861.69	2.65	1.91	-47.011	1,377.04	-1,477.28	2,020.27	4.56	443.117	
900.00	900.00	988.86	988.60	3.00	2.25	-47.130	1,370.96	-1,476.89	2,016.76	5.25	383.890	

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 404H - Wellbore #1 - Surveys												Offset Site Error:	0.00 usft
Survey Program:	162-, 493-	Offset	Semi Major Axis	Reference	Offset	Azimuth	Offset Wellbore Centre	Distance	Rule Assigned:	Offset Well Error:	0.00 usft		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,000.00	1,000.00	1,096.58	1,096.04	3.36	2.57	-47.303	1,363.39	-1,477.67	2,012.50	2,006.58	5.92	339.716	
1,100.00	1,100.00	1,216.14	1,215.12	3.72	2.94	-47.558	1,352.92	-1,479.48	2,007.69	2,001.04	6.66	301.678	
1,200.00	1,200.00	1,351.94	1,349.80	4.08	3.41	-47.992	1,336.04	-1,483.41	2,001.44	1,993.98	7.46	268.126	
1,300.00	1,300.00	1,574.24	1,568.07	4.44	4.25	-49.032	1,294.87	-1,491.24	1,992.08	1,983.47	8.61	231.333	
1,400.00	1,400.00	1,689.07	1,680.05	4.80	4.72	-49.621	1,269.52	-1,492.76	1,978.46	1,969.05	9.41	210.216	
1,500.00	1,500.00	1,773.00	1,761.97	5.16	5.07	-50.045	1,251.26	-1,493.60	1,965.01	1,954.90	10.11	194.370	
1,600.00	1,599.98	1,848.76	1,836.05	5.50	5.39	-50.448	1,235.45	-1,494.69	1,954.14	1,943.37	10.77	181.433	
1,700.00	1,699.84	1,927.65	1,913.35	5.84	5.73	-50.909	1,219.79	-1,496.37	1,947.67	1,936.23	11.44	170.285	
1,800.00	1,799.45	2,028.37	2,012.12	6.19	6.16	-51.526	1,200.21	-1,498.92	1,945.08	1,932.88	12.19	159.513	
1,860.08	1,859.13	2,103.32	2,085.57	6.39	6.48	-51.991	1,185.35	-1,500.42	1,944.75	1,932.04	12.71	153.056	
1,900.00	1,898.70	2,155.97	2,137.15	6.53	6.71	-52.315	1,174.85	-1,500.97	1,944.88	1,931.83	13.06	148.951	
2,000.00	1,997.47	2,272.65	2,251.31	6.88	7.22	-53.090	1,150.71	-1,501.23	1,946.46	1,932.58	13.89	140.166	
2,100.00	2,095.62	2,354.17	2,331.09	7.23	7.58	-53.732	1,133.98	-1,501.56	1,951.77	1,937.18	14.59	133.749	
2,200.00	2,193.06	2,463.85	2,438.50	7.59	8.06	-54.538	1,111.81	-1,501.85	1,960.68	1,945.27	15.41	127.248	
2,249.82	2,241.29	2,530.40	2,503.57	7.77	8.36	-55.016	1,097.84	-1,501.64	1,965.98	1,950.12	15.86	123.939	
2,300.00	2,289.76	2,568.34	2,540.65	7.95	8.53	-55.357	1,089.79	-1,501.48	1,971.70	1,955.49	16.21	121.618	
2,400.00	2,386.35	2,645.10	2,615.78	8.32	8.87	-56.025	1,074.07	-1,501.45	1,984.07	1,967.16	16.91	117.315	
2,500.00	2,482.95	2,723.24	2,692.47	8.69	9.21	-56.668	1,059.05	-1,501.58	1,997.66	1,980.04	17.62	113.397	
2,600.00	2,579.54	2,783.95	2,752.13	9.06	9.48	-57.217	1,047.86	-1,502.19	2,012.71	1,994.46	18.25	110.272	
2,700.00	2,676.14	2,836.00	2,803.21	9.44	9.70	-57.742	1,038.05	-1,504.11	2,029.99	2,011.14	18.85	107.708	
2,800.00	2,772.73	2,916.11	2,881.45	9.82	10.07	-58.461	1,021.64	-1,509.21	2,048.92	2,029.34	19.58	104.657	
2,900.00	2,869.32	2,998.26	2,961.16	10.20	10.45	-59.244	1,003.09	-1,516.25	2,068.97	2,048.64	20.33	101.770	
3,000.00	2,965.92	3,085.49	3,045.62	10.58	10.86	-60.068	982.85	-1,524.44	2,089.87	2,068.75	21.12	98.975	
3,015.31	2,980.71	3,099.11	3,058.80	10.64	10.92	-60.195	979.68	-1,525.75	2,093.13	2,071.89	21.24	98.560	
3,100.00	3,062.82	3,172.74	3,130.08	10.96	11.27	-60.866	962.65	-1,532.82	2,110.28	2,088.38	21.90	96.355	
3,200.00	3,160.52	3,257.30	3,212.05	11.34	11.67	-61.593	943.57	-1,540.97	2,128.23	2,105.56	22.67	93.883	
3,300.00	3,258.91	3,349.98	3,345.61	11.72	12.32	-62.621	912.67	-1,553.79	2,143.28	2,119.56	23.71	90.380	
3,400.00	3,357.85	3,507.09	3,454.04	12.09	12.86	-63.473	885.60	-1,562.61	2,153.17	2,128.54	24.63	87.409	
3,500.00	3,457.24	3,590.00	3,534.37	12.45	13.26	-64.086	866.11	-1,568.98	2,160.20	2,134.80	25.39	85.068	
3,600.00	3,556.96	3,675.30	3,617.47	12.81	13.66	-64.640	847.90	-1,575.17	2,164.71	2,138.56	26.15	82.792	
3,700.00	3,656.87	3,780.27	3,719.88	13.16	14.15	-65.271	826.04	-1,582.59	2,166.15	2,139.15	26.99	80.245	
3,765.14	3,722.00	3,840.25	3,778.15	13.38	14.44	-65.649	812.63	-1,587.17	2,165.30	2,137.80	27.51	78.718	
3,800.00	3,756.87	3,874.00	3,810.89	13.50	14.60	-65.865	804.89	-1,589.88	2,164.55	2,136.76	27.79	77.891	
3,900.00	3,856.87	3,961.62	3,895.83	13.84	15.02	-66.433	784.67	-1,597.18	2,162.78	2,134.23	28.56	75.741	
4,000.00	3,956.87	4,042.97	3,974.84	14.19	15.41	-66.946	766.60	-1,604.13	2,161.80	2,132.52	29.28	73.832	
4,030.88	3,987.75	4,064.00	3,995.32	14.29	15.51	-67.072	762.17	-1,605.93	2,161.71	2,132.23	29.48	73.326	
4,100.00	4,056.87	4,110.22	4,040.39	14.53	15.72	-67.345	752.77	-1,610.09	2,162.04	2,132.12	29.92	72.267	
4,200.00	4,156.87	4,176.06	4,104.67	14.87	16.02	-67.720	740.17	-1,616.71	2,164.03	2,133.49	30.54	70.868	
4,300.00	4,256.87	4,254.00	4,180.90	15.22	16.37	-68.145	726.25	-1,625.08	2,167.34	2,136.13	31.21	69.436	
4,400.00	4,356.87	4,326.70	4,252.20	15.57	16.68	-68.511	714.58	-1,633.19	2,171.86	2,140.01	31.84	68.201	
4,500.00	4,456.87	4,415.60	4,339.64	15.91	17.06	-68.912	702.18	-1,643.25	2,177.41	2,144.85	32.56	66.883	
4,600.00	4,556.87	4,498.74	4,421.53	16.26	17.40	-69.269	691.29	-1,652.71	2,183.46	2,150.24	33.23	65.712	
4,700.00	4,656.87	4,576.64	4,498.10	16.61	17.72	-69.616	680.81	-1,662.44	2,190.53	2,156.66	33.87	64.675	
4,800.00	4,756.87	4,660.94	4,580.81	16.95	18.08	-70.006	669.18	-1,673.88	2,198.61	2,164.05	34.55	63.634	
4,900.00	4,856.87	4,758.77	4,676.74	17.30	18.49	-70.460	655.52	-1,687.34	2,206.97	2,171.66	35.31	62.495	
5,000.00	4,956.87	4,853.98	4,770.09	17.65	18.89	-70.898	642.32	-1,700.63	2,215.69	2,179.63	36.06	61.442	
5,100.00	5,056.87	4,958.96	4,873.09	18.00	19.34	-71.370	628.00	-1,714.97	2,224.34	2,187.47	36.86	60.337	
5,200.00	5,156.87	5,057.03	4,969.45	18.35	19.75	-71.788	615.25	-1,728.01	2,232.97	2,195.34	37.62	59.353	
5,300.00	5,256.87	5,160.99	5,071.70	18.70	20.18	-72.212	602.33	-1,741.67	2,241.73	2,203.32	38.41	58.363	
5,400.00	5,356.87	5,312.71	5,221.05	19.05	20.81	-72.831	582.70	-1,759.78	2,249.39	2,209.92	39.47	56.986	
5,500.00	5,456.87	5,438.43	5,345.15	19.40	21.33	-73.308	566.93	-1,772.27	2,255.32	2,214.95	40.38	55.857	
5,600.00	5,556.87	5,566.00	5,431.98	19.75	22.80	-74.309	582.75	335.06	2,171.80	2,133.74	38.06	57.062	

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

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COMPASS 5000.15 Build 91E



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 404H - Wellbore #1 - Surveys														Offset Site Error: 0.00 usft	
Survey Program: 162-, 493-		Reference		Offset		Semi Major Axis		Azimuth		Offset Wellbore Centre		Rule Assigned:		Offset Well Error: 0.00 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,700.00	5,656.87	9,566.00	7,631.98	20.10	52.80	-4.309	582.75	335.06	2,076.82	2,037.98	38.84	53.474			
5,800.00	5,756.87	9,566.00	7,631.98	20.45	52.80	-4.309	582.75	335.06	1,982.34	1,942.65	39.69	49.950			
5,900.00	5,856.87	9,577.73	7,632.18	20.80	53.03	-3.299	582.87	346.79	1,888.38	1,847.66	40.72	46.375			
6,000.00	5,956.87	9,579.09	7,632.20	21.16	53.06	-3.182	582.89	348.15	1,795.10	1,753.34	41.76	42.986			
6,100.00	6,056.87	9,580.49	7,632.23	21.51	53.09	-3.061	582.90	349.55	1,702.60	1,659.68	42.91	39.678			
6,200.00	6,156.87	9,581.92	7,632.25	21.86	53.12	-2.938	582.92	350.98	1,610.98	1,566.79	44.19	36.458			
6,300.00	6,256.87	9,583.39	7,632.28	22.21	53.15	-2.811	582.93	352.45	1,520.42	1,474.81	45.61	33.333			
6,400.00	6,356.87	9,584.90	7,632.31	22.57	53.18	-2.681	582.95	353.96	1,431.12	1,383.91	47.21	30.315			
6,500.00	6,456.87	9,586.45	7,632.34	22.92	53.21	-2.547	582.97	355.51	1,343.32	1,294.32	49.00	27.414			
6,600.00	6,556.87	9,588.04	7,632.37	23.27	53.24	-2.410	582.99	357.10	1,257.34	1,206.32	51.02	24.644			
6,700.00	6,656.87	9,589.68	7,632.40	23.62	53.27	-2.269	583.00	358.74	1,173.58	1,120.29	53.30	22.020			
6,800.00	6,756.87	9,591.36	7,632.43	23.98	53.31	-2.124	583.02	360.42	1,092.56	1,036.70	55.86	19.559			
6,900.00	6,856.87	9,593.09	7,632.47	24.33	53.34	-1.974	583.04	362.14	1,014.92	956.19	58.73	17.280			
7,000.00	6,956.87	9,594.86	7,632.50	24.68	53.38	-1.821	583.06	363.92	941.51	879.59	61.92	15.205			
7,100.00	7,056.87	9,596.69	7,632.54	25.04	53.41	-1.663	583.08	365.75	873.39	808.00	65.39	13.357			
7,200.00	7,156.87	9,598.58	7,632.58	25.39	53.45	-1.500	583.10	367.63	811.90	742.84	69.05	11.758			
7,300.00	7,256.87	9,600.51	7,632.62	25.75	53.49	-1.333	583.13	369.57	758.64	685.91	72.73	10.431			
7,400.00	7,356.87	9,602.51	7,632.66	26.10	53.53	-1.160	583.15	371.57	715.46	639.35	76.11	9.400			
7,500.00	7,456.87	9,604.57	7,632.71	26.45	53.57	-0.983	583.17	373.63	684.26	605.46	78.80	8.684			
7,600.00	7,556.87	9,606.70	7,632.75	26.81	53.61	-0.799	583.20	375.75	666.74	586.37	80.37	8.296			
7,668.43	7,625.29	9,608.19	7,632.79	27.05	53.64	-0.670	583.21	377.24	663.22	582.58	80.64	8.224 CC, ES, SF			
7,700.00	7,656.87	9,608.89	7,632.80	27.16	53.66	-0.610	583.22	377.94	663.97	583.44	80.53	8.245			
7,800.00	7,756.87	9,611.15	7,632.85	27.52	53.70	-0.414	583.25	380.20	676.14	596.90	79.24	8.533			
7,900.00	7,856.87	9,613.49	7,632.91	27.87	53.75	-0.213	583.28	382.54	702.47	625.71	76.76	9.152			
8,000.00	7,956.87	9,615.90	7,632.97	28.23	53.80	0.001	583.31	384.95	741.45	667.94	73.51	10.086			
8,100.00	8,056.87	9,618.40	7,633.03	28.58	53.85	0.212	583.34	387.45	791.21	721.28	69.93	11.314			
8,200.00	8,156.87	9,620.98	7,633.09	28.94	53.90	0.435	583.37	390.03	849.87	783.51	66.36	12.807			
8,300.00	8,256.87	9,623.66	7,633.16	29.29	53.95	0.665	583.40	392.70	915.71	852.69	63.02	14.530			
8,400.00	8,356.87	9,626.43	7,633.22	29.65	54.01	0.904	583.43	395.47	987.30	927.28	60.02	16.450			
8,500.00	8,456.87	9,629.30	7,633.30	30.00	54.07	1.152	583.47	398.34	1,063.48	1,006.09	57.39	18.531			
8,600.00	8,556.87	9,632.27	7,633.38	30.36	54.13	1.409	583.51	401.32	1,143.33	1,088.20	55.13	20.740			
8,600.18	8,557.04	9,632.28	7,633.38	30.36	54.13	1.409	583.51	401.32	1,143.47	1,088.35	55.12	20.744			
8,650.00	8,606.80	9,634.06	7,633.42	30.53	54.16	1.536	583.53	403.10	1,185.54	1,131.35	54.20	21.874			
8,700.00	8,656.36	9,636.37	7,633.49	30.69	54.21	1.656	583.56	405.42	1,230.37	1,176.87	53.50	22.998			
8,750.00	8,705.16	9,639.23	7,633.56	30.86	54.27	1.765	583.59	408.27	1,277.21	1,224.20	53.01	24.094			
8,800.00	8,752.84	9,642.60	7,633.66	31.01	54.33	1.863	583.64	411.64	1,325.50	1,272.79	52.71	25.146			
8,850.00	8,799.02	9,646.47	7,633.77	31.17	54.41	1.949	583.69	415.51	1,374.74	1,322.15	52.59	26.141			
8,900.00	8,843.37	9,650.83	7,633.89	31.31	54.50	2.022	583.74	419.87	1,424.47	1,371.85	52.62	27.069			
8,950.00	8,885.53	9,655.64	7,634.04	31.45	54.59	2.082	583.81	424.67	1,474.29	1,421.49	52.80	27.922			
9,000.00	8,925.20	9,660.87	7,634.20	31.58	54.70	2.129	583.88	429.90	1,523.82	1,470.71	53.11	28.694			
9,050.00	8,962.06	9,666.46	7,634.37	31.69	54.81	2.163	583.95	435.49	1,572.72	1,519.19	53.53	29.382			
9,100.00	8,995.84	9,661.00	7,634.20	31.81	54.70	1.434	583.88	430.03	1,620.73	1,566.84	53.89	30.077			
9,150.00	9,026.28	9,661.00	7,634.20	31.91	54.70	1.086	583.88	430.03	1,667.55	1,613.13	54.41	30.645			
9,200.00	9,053.15	9,675.24	7,634.63	32.01	54.99	1.607	584.08	444.27	1,712.86	1,657.63	55.24	31.010			
9,250.00	9,076.24	9,678.95	7,634.74	32.11	55.07	1.458	584.14	447.97	1,756.56	1,700.59	55.98	31.379			
9,300.00	9,095.38	9,682.66	7,634.84	32.21	55.14	1.307	584.20	451.68	1,798.41	1,741.62	56.79	31.668			
9,350.00	9,110.43	9,686.34	7,634.94	32.30	55.21	1.157	584.27	455.36	1,838.21	1,780.55	57.66	31.879			
9,400.00	9,121.26	9,689.97	7,635.04	32.39	55.29	1.010	584.33	458.99	1,875.81	1,817.22	58.59	32.015			
9,450.00	9,127.80	9,693.53	7,635.14	32.48	55.36	0.866	584.39	462.54	1,911.07	1,851.49	59.57	32.079			
9,500.00	9,130.00	9,696.99	7,635.23	32.55	55.43	0.727	584.46	466.00	1,943.84	1,883.24	60.60	32.077			
9,500.18	9,130.00	9,697.00	7,635.23	32.55	55.43	0.727	584.46	466.01	1,943.95	1,883.34	60.60	32.077			
9,600.00	9,130.00	9,702.50	7,635.37	32.71	55.54	0.494	584.56	471.51	2,008.40	1,945.77	62.63	32.069			

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 404H - Wellbore #1 - Surveys													Offset Site Error:
Survey Program: 162-, 493-													Offset Well Error:
Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	from North (°)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,700.00	9,130.00	9,705.47	7,635.44	32.89	55.60	0.330	584.62	474.48	2,075.96	2,011.47	64.49	32.189	
9,800.00	9,130.00	9,705.96	7,635.45	33.09	55.61	0.226	584.63	474.97	2,146.17	2,079.98	66.19	32.426	
9,825.64	9,130.00	9,705.70	7,635.44	33.14	55.61	0.208	584.63	474.71	2,164.55	2,097.96	66.59	32.504	
9,900.00	9,130.00	9,704.72	7,635.42	33.30	55.59	0.162	584.61	473.73	2,218.70	2,150.97	67.72	32.762	
10,000.00	9,130.00	9,703.42	7,635.39	33.53	55.56	0.107	584.58	472.43	2,293.29	2,224.16	69.13	33.172	
10,100.00	9,130.00	9,702.15	7,635.36	33.78	55.53	0.060	584.56	471.16	2,369.76	2,299.33	70.43	33.647	
10,200.00	9,130.00	9,700.90	7,635.33	34.05	55.51	0.017	584.53	469.91	2,447.92	2,376.30	71.62	34.179	
10,300.00	9,130.00	9,699.68	7,635.29	34.33	55.48	-0.020	584.51	468.69	2,527.62	2,454.91	72.72	34.760	
10,400.00	9,130.00	9,698.48	7,635.26	34.64	55.46	-0.053	584.48	467.49	2,608.72	2,535.00	73.72	35.386	
10,500.00	9,130.00	9,697.30	7,635.23	34.97	55.44	-0.083	584.46	466.31	2,691.10	2,616.45	74.65	36.050	
10,600.00	9,130.00	9,696.14	7,635.20	35.31	55.41	-0.109	584.44	465.16	2,774.62	2,699.12	75.50	36.750	
10,700.00	9,130.00	9,695.01	7,635.17	35.67	55.39	-0.133	584.42	464.02	2,859.21	2,782.92	76.29	37.480	
10,800.00	9,130.00	9,693.90	7,635.14	36.05	55.37	-0.155	584.40	462.91	2,944.76	2,867.75	77.01	38.237	
10,900.00	9,130.00	9,692.80	7,635.12	36.44	55.35	-0.174	584.38	461.82	3,031.20	2,953.51	77.68	39.020	
11,000.00	9,130.00	9,691.73	7,635.09	36.85	55.32	-0.192	584.36	460.75	3,118.45	3,040.14	78.31	39.824	
11,100.00	9,130.00	9,690.68	7,635.06	37.28	55.30	-0.208	584.34	459.69	3,206.44	3,127.55	78.88	40.648	
11,200.00	9,130.00	9,689.64	7,635.03	37.72	55.28	-0.222	584.32	458.66	3,295.11	3,215.69	79.42	41.490	
11,300.00	9,130.00	9,688.63	7,635.00	38.17	55.26	-0.235	584.31	457.64	3,384.42	3,304.50	79.92	42.349	
11,400.00	9,130.00	9,687.63	7,634.98	38.64	55.24	-0.247	584.29	456.64	3,474.31	3,393.92	80.38	43.222	
11,500.00	9,130.00	9,686.65	7,634.95	39.12	55.22	-0.258	584.27	455.66	3,564.73	3,483.91	80.82	44.108	
11,600.00	9,130.00	9,685.68	7,634.92	39.62	55.20	-0.269	584.25	454.70	3,655.66	3,574.43	81.22	45.007	
11,700.00	9,130.00	9,684.73	7,634.90	40.12	55.18	-0.278	584.24	453.75	3,747.04	3,665.44	81.61	45.916	
11,800.00	9,130.00	9,683.80	7,634.87	40.64	55.16	-0.286	584.22	452.82	3,838.86	3,756.89	81.96	46.836	
11,900.00	9,130.00	9,682.88	7,634.85	41.17	55.14	-0.294	584.21	451.90	3,931.07	3,848.77	82.30	47.764	
12,000.00	9,130.00	9,681.98	7,634.82	41.71	55.13	-0.301	584.19	451.00	4,023.66	3,941.04	82.62	48.701	
12,100.00	9,130.00	9,681.00	7,634.20	42.26	54.70	-0.608	583.88	430.03	4,116.68	4,034.17	82.51	49.895	
12,200.00	9,130.00	9,681.00	7,634.20	42.83	54.70	-0.593	583.88	430.03	4,209.93	4,127.12	82.81	50.840	
12,300.00	9,130.00	9,681.00	7,634.20	43.40	54.70	-0.579	583.88	430.03	4,303.48	4,220.39	83.09	51.790	
12,400.00	9,130.00	9,681.00	7,634.20	43.98	54.70	-0.566	583.88	430.03	4,397.32	4,313.95	83.37	52.747	
12,500.00	9,130.00	9,681.00	7,634.20	44.57	54.70	-0.554	583.88	430.03	4,491.42	4,407.79	83.63	53.708	
12,600.00	9,130.00	9,681.00	7,634.20	45.17	54.70	-0.542	583.88	430.03	4,585.77	4,501.89	83.87	54.675	
12,700.00	9,130.00	9,681.00	7,634.20	45.77	54.70	-0.531	583.88	430.03	4,680.35	4,596.24	84.11	55.645	
12,800.00	9,130.00	9,681.00	7,634.20	46.39	54.70	-0.520	583.88	430.03	4,775.16	4,690.82	84.34	56.619	
12,900.00	9,130.00	9,681.00	7,634.20	47.01	54.70	-0.510	583.88	430.03	4,870.17	4,785.62	84.56	57.597	
13,000.00	9,130.00	9,681.00	7,634.20	47.64	54.70	-0.500	583.88	430.03	4,965.38	4,880.62	84.77	58.578	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 564H - Wellbore #1 - Surveys													Offset Site Error:
Survey Program: 177-, 517- Reference													Offset Well Error: 0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-47.940	1,370.31	-1,518.66	2,045.51				
100.00	100.00	97.87	97.87	0.14	0.15	-47.941	1,370.43	-1,518.86	2,045.75	2,045.47	0.29	7,169.738	
200.00	200.00	177.00	177.00	0.50	0.27	-47.944	1,370.69	-1,519.33	2,046.48	2,045.72	0.76	2,677.689	
300.00	300.00	273.56	273.55	0.85	0.61	-47.960	1,371.07	-1,520.62	2,047.75	2,046.28	1.47	1,394.327	
400.00	400.00	358.92	358.88	1.21	0.92	-47.993	1,371.36	-1,522.67	2,049.76	2,047.63	2.13	960.734	
500.00	500.00	445.31	445.23	1.57	1.23	-48.036	1,371.78	-1,525.45	2,052.47	2,049.67	2.80	732.912	
600.00	600.00	550.94	550.79	1.93	1.41	-48.095	1,372.27	-1,529.13	2,055.38	2,052.05	3.33	617.072	
700.00	700.00	657.10	656.84	2.29	1.52	-48.207	1,371.11	-1,533.88	2,057.99	2,054.18	3.80	541.061	
800.00	800.00	715.89	715.50	2.65	1.62	-48.297	1,369.89	-1,537.38	2,061.21	2,056.95	4.26	484.184	
900.00	900.00	871.29	870.20	3.00	2.01	-48.665	1,363.71	-1,550.34	2,065.10	2,060.10	5.00	413.391	
1,000.00	1,000.00	988.03	985.85	3.36	2.36	-49.104	1,352.87	-1,562.02	2,066.55	2,060.84	5.71	361.877	
1,100.00	1,100.00	1,105.15	1,101.75	3.72	2.76	-49.571	1,340.59	-1,573.56	2,067.20	2,060.74	6.47	319.699	
1,200.00	1,200.00	1,209.58	1,205.10	4.08	3.13	-49.984	1,329.31	-1,583.33	2,067.37	2,060.17	7.20	287.195	
1,300.00	1,300.00	1,284.69	1,279.25	4.44	3.42	-50.317	1,320.44	-1,591.41	2,068.08	2,060.24	7.84	263.675	
1,400.00	1,400.00	1,372.12	1,364.99	4.80	3.77	-50.787	1,308.31	-1,603.42	2,069.89	2,061.33	8.55	241.959	
1,500.00	1,500.00	1,483.93	1,474.18	5.16	4.24	-51.450	1,291.01	-1,620.12	2,071.86	2,062.48	9.39	220.732	
1,600.00	1,599.98	1,746.58	1,730.67	5.50	5.38	-53.019	1,242.96	-1,649.35	2,070.51	2,059.66	10.85	190.801	
1,700.00	1,699.84	1,969.68	1,948.10	5.84	6.33	-54.355	1,194.55	-1,660.89	2,066.30	2,054.20	12.10	170.779	
1,800.00	1,799.45	2,045.34	2,021.68	6.19	6.66	-54.888	1,177.09	-1,663.26	2,063.24	2,050.46	12.78	161.426	
1,821.49	1,820.82	2,065.00	2,040.82	6.26	6.75	-55.026	1,172.67	-1,663.96	2,063.18	2,050.23	12.94	159.420	
1,900.00	1,898.70	2,163.37	2,136.73	6.53	7.17	-55.673	1,150.95	-1,666.51	2,063.95	2,050.33	13.62	151.489	
2,000.00	1,997.47	2,254.00	2,225.32	6.88	7.55	-56.297	1,131.86	-1,667.63	2,067.54	2,053.18	14.36	143.993	
2,100.00	2,095.62	2,344.30	2,313.76	7.23	7.93	-56.930	1,113.64	-1,668.50	2,074.91	2,059.82	15.09	137.490	
2,200.00	2,193.06	2,473.91	2,440.72	7.59	8.48	-57.764	1,087.56	-1,668.76	2,085.23	2,069.26	15.97	130.603	
2,249.82	2,241.29	2,533.59	2,499.18	7.77	8.73	-58.154	1,075.61	-1,668.09	2,091.18	2,074.80	16.38	127.636	
2,300.00	2,289.76	2,569.97	2,534.85	7.95	8.88	-58.437	1,068.48	-1,667.58	2,097.64	2,080.92	16.72	125.455	
2,400.00	2,386.35	2,643.76	2,607.32	8.32	9.18	-58.988	1,054.59	-1,666.88	2,111.55	2,094.16	17.39	121.419	
2,500.00	2,482.95	2,722.00	2,684.40	8.69	9.50	-59.523	1,041.16	-1,666.29	2,126.69	2,108.62	18.08	117.646	
2,600.00	2,579.54	2,801.91	2,763.09	9.06	9.83	-60.070	1,027.26	-1,666.54	2,142.84	2,124.07	18.78	114.127	
2,700.00	2,676.14	2,927.99	2,886.22	9.44	10.40	-60.943	1,000.40	-1,669.28	2,158.92	2,139.23	19.69	109.640	
2,800.00	2,772.73	3,022.78	2,978.00	9.82	10.85	-61.730	976.92	-1,672.39	2,174.63	2,154.12	20.51	106.037	
2,900.00	2,869.32	3,116.85	3,069.00	10.20	11.31	-62.509	953.33	-1,675.68	2,190.80	2,169.47	21.33	102.708	
3,000.00	2,965.92	3,223.35	3,172.02	10.58	11.82	-63.353	926.51	-1,679.07	2,207.08	2,184.87	22.21	99.375	
3,015.31	2,980.71	3,239.92	3,188.06	10.64	11.90	-63.480	922.41	-1,679.50	2,209.56	2,187.21	22.34	98.884	
3,100.00	3,062.82	3,322.22	3,267.94	10.96	12.29	-64.093	902.66	-1,681.10	2,222.06	2,199.01	23.05	96.407	
3,200.00	3,160.52	3,409.95	3,353.23	11.34	12.70	-64.720	882.19	-1,682.81	2,234.33	2,210.50	23.83	93.755	
3,300.00	3,258.91	3,477.00	3,418.50	11.72	13.01	-65.195	866.88	-1,684.02	2,243.83	2,219.31	24.52	91.523	
3,400.00	3,357.85	3,545.41	3,485.12	12.09	13.34	-65.657	851.48	-1,686.12	2,251.43	2,226.23	25.20	89.334	
3,500.00	3,457.24	3,620.85	3,558.64	12.45	13.69	-66.139	835.01	-1,689.95	2,257.69	2,231.78	25.91	87.135	
3,600.00	3,556.96	3,723.35	3,659.07	12.81	14.15	-66.687	814.98	-1,694.14	2,260.88	2,234.15	26.73	84.571	
3,700.00	3,656.87	3,878.35	3,809.98	13.16	14.89	-67.578	780.29	-1,700.19	2,259.64	2,231.82	27.82	81.221	
3,765.14	3,722.00	3,943.25	3,872.45	13.38	15.21	-68.016	762.94	-1,702.95	2,256.20	2,227.83	28.37	79.519	
3,800.00	3,756.87	3,981.44	3,909.11	13.50	15.41	-68.282	752.38	-1,704.67	2,253.99	2,225.30	28.69	78.571	
3,900.00	3,856.87	4,086.18	4,009.77	13.84	15.94	-69.002	723.70	-1,708.80	2,247.44	2,217.88	29.56	76.023	
4,000.00	3,956.87	4,176.98	4,097.39	14.19	16.40	-69.594	700.12	-1,711.84	2,241.20	2,210.84	30.36	73.822	
4,100.00	4,056.87	4,260.34	4,178.30	14.53	16.80	-70.095	680.19	-1,714.35	2,235.64	2,204.54	31.11	71.872	
4,200.00	4,156.87	4,330.00	4,246.34	14.87	17.12	-70.470	665.39	-1,716.32	2,231.10	2,199.33	31.77	70.221	
4,300.00	4,256.87	4,407.60	4,322.28	15.22	17.48	-70.876	649.66	-1,719.11	2,227.78	2,195.31	32.47	68.613	
4,400.00	4,356.87	4,483.63	4,396.31	15.57	17.85	-71.318	632.93	-1,723.29	2,225.79	2,192.61	33.17	67.096	
4,500.00	4,456.87	4,576.49	4,485.67	15.91	18.32	-71.968	608.66	-1,730.38	2,224.75	2,190.76	33.99	65.452	
4,600.00	4,556.87	4,684.58	4,588.86	16.26	18.89	-72.796	577.73	-1,739.11	2,223.73	2,188.81	34.92	63.686	
4,700.00	4,656.87	4,785.31	4,684.84	16.61	19.44	-73.583	548.20	-1,746.97	2,222.68	2,186.87	35.81	62.072	

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 564H - Wellbore #1 - Surveys													Offset Site Error:	0.00 usft
Survey Program: 177-, 517- Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Rule Assigned: Distance				Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,800.00	4,756.87	4,904.09	4,798.88	16.95	20.06	-74.438	515.98	-1,754.84	2,221.54	2,184.76	36.78	60.398		
4,900.00	4,856.87	5,014.04	4,906.00	17.30	20.58	-75.074	491.70	-1,759.53	2,219.80	2,182.15	37.65	58.956		
5,000.00	4,956.87	5,112.18	5,002.11	17.65	21.02	-75.585	472.12	-1,762.84	2,217.98	2,179.53	38.45	57.691		
5,100.00	5,056.87	5,271.23	5,158.57	18.00	21.71	-76.314	443.90	-1,766.28	2,216.15	2,176.66	39.49	56.123		
5,200.00	5,156.87	5,353.37	5,240.02	18.35	22.03	-76.575	433.36	-1,765.50	2,212.21	2,172.06	40.15	55.095		
5,300.00	5,256.87	5,442.95	5,329.03	18.70	22.36	-76.825	423.32	-1,765.04	2,209.10	2,168.26	40.84	54.096		
5,400.00	5,356.87	5,540.12	5,425.75	19.05	22.71	-77.058	413.96	-1,764.40	2,206.27	2,164.74	41.53	53.121		
5,500.00	5,456.87	5,628.29	5,513.71	19.40	23.01	-77.201	408.12	-1,763.42	2,203.71	2,161.53	42.18	52.247		
5,600.00	5,556.87	5,721.50	5,606.76	19.75	23.32	-77.334	402.72	-1,762.70	2,201.68	2,158.85	42.84	51.398		
5,700.00	5,656.87	5,799.49	5,684.64	20.10	23.57	-77.436	398.62	-1,762.36	2,200.14	2,156.71	43.43	50.656		
5,781.62	5,738.48	5,860.86	5,745.98	20.39	23.76	-77.483	396.80	-1,762.53	2,199.82	2,155.91	43.90	50.104		
5,800.00	5,756.87	5,877.25	5,762.36	20.45	23.81	-77.493	396.43	-1,762.62	2,199.82	2,155.81	44.02	49.975		
5,900.00	5,856.87	5,979.20	5,864.29	20.80	24.13	-77.547	394.47	-1,763.31	2,200.07	2,155.39	44.68	49.237		
6,000.00	5,956.87	6,082.48	5,967.54	21.16	24.45	-77.609	392.05	-1,763.51	2,199.75	2,154.40	45.36	48.500		
6,020.79	5,977.65	6,100.09	5,985.15	21.23	24.50	-77.621	391.63	-1,763.59	2,199.74	2,154.26	45.48	48.364		
6,100.00	6,056.87	6,174.14	6,059.18	21.51	24.73	-77.669	389.85	-1,764.12	2,199.88	2,153.89	45.99	47.833		
6,200.00	6,156.87	6,273.79	6,158.79	21.86	25.05	-77.741	387.21	-1,764.95	2,200.13	2,153.47	46.66	47.155		
6,300.00	6,256.87	6,379.42	6,264.39	22.21	25.36	-77.800	385.03	-1,765.62	2,200.31	2,152.98	47.33	46.490		
6,370.78	6,327.65	6,450.18	6,335.15	22.46	25.55	-77.775	385.94	-1,765.37	2,200.27	2,152.50	47.77	46.063		
6,400.00	6,356.87	6,477.52	6,362.48	22.57	25.62	-77.760	386.51	-1,765.26	2,200.28	2,152.34	47.94	45.899		
6,500.00	6,456.87	6,565.38	6,450.30	22.92	25.84	-77.699	388.87	-1,765.04	2,200.60	2,152.10	48.50	45.370		
6,600.00	6,556.87	6,660.49	6,545.37	23.27	26.08	-77.626	391.79	-1,765.22	2,201.44	2,152.35	49.09	44.842		
6,700.00	6,656.87	6,745.46	6,630.31	23.62	26.30	-77.576	393.84	-1,765.69	2,202.52	2,152.87	49.66	44.356		
6,800.00	6,756.87	10,754.47	8,853.66	23.98	53.95	-6.812	421.89	325.05	2,149.55	2,110.11	39.44	54.504		
6,900.00	6,856.87	10,756.51	8,853.71	24.33	53.98	-6.582	421.92	327.09	2,052.49	2,012.41	40.08	51.213		
7,000.00	6,956.87	10,758.58	8,853.76	24.68	54.02	-6.348	421.95	329.16	1,955.72	1,914.95	40.77	47.968		
7,100.00	7,056.87	10,760.69	8,853.81	25.04	54.06	-6.111	421.98	331.26	1,859.29	1,817.76	41.53	44.771		
7,200.00	7,156.87	10,762.82	8,853.87	25.39	54.10	-5.870	422.01	333.40	1,763.25	1,720.89	42.36	41.624		
7,300.00	7,256.87	10,764.98	8,853.93	25.75	54.15	-5.625	422.04	335.56	1,667.68	1,624.40	43.28	38.530		
7,400.00	7,356.87	10,767.18	8,853.98	26.10	54.19	-5.376	422.08	337.76	1,572.65	1,528.34	44.31	35.492		
7,500.00	7,456.87	10,769.42	8,854.04	26.45	54.23	-5.123	422.11	339.99	1,478.28	1,432.82	45.46	32.517		
7,600.00	7,556.87	10,771.69	8,854.10	26.81	54.27	-4.866	422.15	342.26	1,384.69	1,337.92	46.77	29.609		
7,700.00	7,656.87	10,773.99	8,854.17	27.16	54.32	-4.604	422.19	344.56	1,292.06	1,243.80	48.25	26.777		
7,800.00	7,756.87	10,776.33	8,854.23	27.52	54.36	-4.339	422.23	346.90	1,200.60	1,150.64	49.96	24.030		
7,900.00	7,856.87	10,778.71	8,854.29	27.87	54.40	-4.068	422.27	349.28	1,110.62	1,058.67	51.94	21.382		
8,000.00	7,956.87	10,781.13	8,854.36	28.23	54.45	-3.794	422.31	351.69	1,022.48	968.23	54.25	18.847		
8,100.00	8,056.87	10,783.58	8,854.43	28.58	54.50	-3.515	422.35	354.15	936.73	879.78	56.96	16.446		
8,200.00	8,156.87	10,786.08	8,854.50	28.94	54.54	-3.231	422.39	356.64	854.08	793.95	60.13	14.204		
8,300.00	8,256.87	10,793.00	8,854.70	29.29	54.68	-2.443	422.52	363.56	775.52	711.61	63.91	12.135		
8,400.00	8,356.87	10,793.00	8,854.70	29.65	54.68	-2.443	422.52	363.56	702.40	634.27	68.13	10.310		
8,500.00	8,456.87	10,793.90	8,854.72	30.00	54.69	-2.340	422.54	364.46	636.63	563.81	72.83	8.742		
8,600.00	8,556.87	10,796.81	8,854.81	30.36	54.75	-2.010	422.59	367.37	580.71	502.98	77.73	7.471		
8,600.18	8,557.04	10,796.81	8,854.81	30.36	54.75	-2.009	422.59	367.37	580.62	502.88	77.74	7.469		
8,650.00	8,606.80	10,798.47	8,854.85	30.53	54.78	-1.841	422.62	369.03	559.36	479.26	80.10	6.983		
8,700.00	8,656.36	10,800.54	8,854.91	30.69	54.82	-1.669	422.66	371.10	545.97	463.70	82.27	6.637		
8,750.00	8,705.16	10,803.00	8,854.98	30.86	54.87	-1.499	422.70	373.56	541.24	457.20	84.04	6.441		
8,751.56	8,706.67	10,803.09	8,854.99	30.86	54.87	-1.494	422.70	373.64	541.24	457.15	84.08	6.437 CC, ES		
8,800.00	8,752.84	10,805.84	8,855.07	31.01	54.92	-1.338	422.76	376.40	545.42	460.15	85.27	6.397 SF		
8,850.00	8,799.02	10,809.04	8,855.16	31.17	54.98	-1.188	422.81	379.59	558.27	472.34	85.93	6.497		
8,900.00	8,843.37	10,812.56	8,855.26	31.31	55.05	-1.052	422.88	383.11	579.13	493.03	86.10	6.727		
8,950.00	8,885.53	10,816.40	8,855.37	31.45	55.12	-0.933	422.95	386.95	607.00	521.09	85.90	7.066		
9,000.00	8,925.20	10,820.51	8,855.49	31.58	55.20	-0.831	423.02	391.06	640.78	555.27	85.51	7.494		

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (401H,404H,562H,564H) - Prince 31 Fed Com 564H - Wellbore #1 - Surveys												Offset Site Error:	0.00 usft
Survey Program: 177-, 517- Reference												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,050.00	8,962.06	10,824.87	8,855.61	31.69	55.29	-0.746	423.10	395.41	679.34	594.30	85.04	7.988	
9,100.00	8,995.84	10,829.45	8,855.75	31.81	55.38	-0.677	423.18	399.99	721.64	637.05	84.59	8.531	
9,150.00	9,026.28	10,834.21	8,855.88	31.91	55.47	-0.623	423.27	404.75	766.78	682.55	84.23	9.104	
9,200.00	9,053.15	10,839.12	8,856.02	32.01	55.56	-0.583	423.35	409.65	813.95	729.98	83.97	9.693	
9,250.00	9,076.24	10,844.14	8,856.17	32.11	55.66	-0.554	423.44	414.67	862.50	778.67	83.83	10.288	
9,300.00	9,095.38	10,849.23	8,856.32	32.21	55.75	-0.537	423.53	419.76	911.87	828.05	83.81	10.880	
9,350.00	9,110.43	10,854.36	8,856.46	32.30	55.85	-0.529	423.62	424.89	961.58	877.67	83.90	11.461	
9,400.00	9,121.26	10,859.49	8,856.61	32.39	55.95	-0.528	423.71	430.01	1,011.22	927.14	84.08	12.026	
9,450.00	9,127.80	10,864.57	8,856.76	32.48	56.05	-0.535	423.80	435.09	1,060.47	976.13	84.34	12.573	
9,500.00	9,130.00	10,869.57	8,856.90	32.55	56.15	-0.547	423.88	440.09	1,109.02	1,024.35	84.67	13.099	
9,500.18	9,130.00	10,869.59	8,856.90	32.55	56.15	-0.547	423.88	440.11	1,109.19	1,024.52	84.67	13.100	
9,600.00	9,130.00	10,877.72	8,857.14	32.71	56.30	-0.576	424.02	448.24	1,205.66	1,120.37	85.29	14.137	
9,700.00	9,130.00	10,882.34	8,857.27	32.89	56.39	-0.602	424.10	452.85	1,302.99	1,217.24	85.75	15.195	
9,800.00	9,130.00	10,883.39	8,857.30	33.09	56.41	-0.627	424.12	453.90	1,400.80	1,314.72	86.07	16.274	
9,825.64	9,130.00	10,883.08	8,857.29	33.14	56.40	-0.634	424.11	453.59	1,425.93	1,339.79	86.14	16.554	
9,900.00	9,130.00	10,881.85	8,857.25	33.30	56.38	-0.652	424.09	452.36	1,498.91	1,412.61	86.30	17.369	
10,000.00	9,130.00	10,880.19	8,857.21	33.53	56.35	-0.673	424.06	450.70	1,597.25	1,510.77	86.48	18.470	
10,100.00	9,130.00	10,878.52	8,857.16	33.78	56.32	-0.693	424.03	449.03	1,695.78	1,609.15	86.63	19.575	
10,200.00	9,130.00	10,876.85	8,857.11	34.05	56.29	-0.710	424.00	447.36	1,794.47	1,707.72	86.76	20.684	
10,300.00	9,130.00	10,875.16	8,857.06	34.33	56.25	-0.726	423.98	445.68	1,893.30	1,806.44	86.86	21.796	
10,400.00	9,130.00	10,873.48	8,857.01	34.64	56.22	-0.740	423.95	443.99	1,992.25	1,905.29	86.95	22.911	
10,500.00	9,130.00	10,871.78	8,856.96	34.97	56.19	-0.753	423.92	442.30	2,091.29	2,004.25	87.03	24.028	
10,600.00	9,130.00	10,870.08	8,856.92	35.31	56.16	-0.765	423.89	440.60	2,190.42	2,103.32	87.10	25.147	
10,700.00	9,130.00	10,868.37	8,856.87	35.67	56.12	-0.776	423.86	438.89	2,289.62	2,202.46	87.16	26.268	
10,800.00	9,130.00	10,866.66	8,856.82	36.05	56.09	-0.787	423.83	437.18	2,388.89	2,301.68	87.22	27.391	
10,900.00	9,130.00	10,864.94	8,856.77	36.44	56.06	-0.796	423.80	435.46	2,488.22	2,400.96	87.26	28.514	
11,000.00	9,130.00	10,863.21	8,856.72	36.85	56.02	-0.805	423.77	433.73	2,587.59	2,500.29	87.30	29.639	
11,100.00	9,130.00	10,861.48	8,856.67	37.28	55.99	-0.814	423.74	432.00	2,687.02	2,599.68	87.34	30.765	
11,200.00	9,130.00	10,859.74	8,856.62	37.72	55.96	-0.822	423.71	430.26	2,786.48	2,699.11	87.38	31.891	
11,300.00	9,130.00	10,857.99	8,856.57	38.17	55.92	-0.830	423.68	428.51	2,885.98	2,798.57	87.41	33.018	
11,400.00	9,130.00	10,856.23	8,856.52	38.64	55.89	-0.837	423.65	426.76	2,985.51	2,898.08	87.43	34.146	
11,500.00	9,130.00	10,854.47	8,856.47	39.12	55.86	-0.844	423.62	425.00	3,085.07	2,997.61	87.46	35.274	
11,600.00	9,130.00	10,852.70	8,856.42	39.62	55.82	-0.851	423.59	423.23	3,184.66	3,097.18	87.48	36.403	
11,700.00	9,130.00	10,850.93	8,856.36	40.12	55.79	-0.857	423.56	421.45	3,284.27	3,196.76	87.50	37.532	
11,800.00	9,130.00	10,849.14	8,856.31	40.64	55.75	-0.863	423.53	419.67	3,383.90	3,296.38	87.53	38.662	
11,900.00	9,130.00	10,847.35	8,856.26	41.17	55.72	-0.869	423.50	417.88	3,483.56	3,396.01	87.55	39.791	
12,000.00	9,130.00	10,845.56	8,856.21	41.71	55.68	-0.874	423.47	416.09	3,583.23	3,495.67	87.56	40.921	
12,100.00	9,130.00	10,843.75	8,856.16	42.26	55.65	-0.880	423.43	414.28	3,682.92	3,595.34	87.58	42.051	
12,200.00	9,130.00	10,841.94	8,856.11	42.83	55.61	-0.885	423.40	412.47	3,782.62	3,695.02	87.60	43.181	
12,300.00	9,130.00	10,840.12	8,856.05	43.40	55.58	-0.890	423.37	410.66	3,882.34	3,794.73	87.62	44.311	
12,400.00	9,130.00	10,838.30	8,856.00	43.98	55.54	-0.895	423.34	408.83	3,982.07	3,894.44	87.63	45.441	
12,500.00	9,130.00	10,836.46	8,855.95	44.57	55.51	-0.900	423.31	407.00	4,081.82	3,994.17	87.65	46.570	
12,600.00	9,130.00	10,834.62	8,855.89	45.17	55.47	-0.905	423.27	405.16	4,181.58	4,093.91	87.66	47.700	
12,700.00	9,130.00	10,832.78	8,855.84	45.77	55.44	-0.909	423.24	403.31	4,281.34	4,193.66	87.68	48.829	
12,800.00	9,130.00	10,830.92	8,855.79	46.39	55.40	-0.914	423.21	401.46	4,381.12	4,293.42	87.70	49.958	
12,900.00	9,130.00	10,829.06	8,855.73	47.01	55.37	-0.918	423.17	399.60	4,480.90	4,393.19	87.71	51.086	
13,000.00	9,130.00	10,827.19	8,855.68	47.64	55.33	-0.922	423.14	397.73	4,580.70	4,492.97	87.73	52.215	
13,100.00	9,130.00	10,825.31	8,855.63	48.28	55.30	-0.926	423.11	395.85	4,680.50	4,592.76	87.74	53.343	
13,200.00	9,130.00	10,823.42	8,855.57	48.92	55.26	-0.930	423.07	393.97	4,780.31	4,692.55	87.76	54.470	
13,300.00	9,130.00	10,821.53	8,855.52	49.57	55.22	-0.934	423.04	392.07	4,880.13	4,792.35	87.78	55.597	
13,400.00	9,130.00	10,819.63	8,855.46	50.23	55.19	-0.938	423.01	390.17	4,979.95	4,892.16	87.79	56.723	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (Offsets) - Prince 31 B2EH Fed Com 1H - Wellbore #1 - Surveys													Offset Site Error:
Survey Program: 97- Reference													Offset Well Error: 0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	7.29	7.29	0.00	0.01	-53.451	1,140.31	-1,538.27	1,914.83				
100.00	100.00	103.75	103.75	0.14	0.16	-53.485	1,139.44	-1,539.02	1,914.92	1,914.63	0.29	6,669.932	
200.00	200.00	209.42	209.40	0.50	0.53	-53.542	1,138.07	-1,540.40	1,915.22	1,914.19	1.03	1,868.017	
275.74	275.74	283.27	283.24	0.77	0.80	-53.577	1,137.10	-1,541.02	1,915.13	1,913.57	1.56	1,225.926	
300.00	300.00	305.17	305.13	0.85	0.87	-53.587	1,136.83	-1,541.23	1,915.15	1,913.42	1.73	1,108.369	
400.00	400.00	401.57	401.52	1.21	1.22	-53.635	1,135.67	-1,542.38	1,915.39	1,912.96	2.43	787.118	
500.00	500.00	501.42	501.34	1.57	1.58	-53.694	1,134.31	-1,543.83	1,915.75	1,912.60	3.15	607.904	
600.00	600.00	609.19	609.10	1.93	1.97	-53.758	1,132.66	-1,545.20	1,915.87	1,911.98	3.90	491.495	
700.00	700.00	712.84	712.73	2.29	2.34	-53.813	1,131.04	-1,546.13	1,915.67	1,911.05	4.63	413.841	
800.00	800.00	817.57	817.45	2.65	2.72	-53.858	1,129.61	-1,546.72	1,915.32	1,909.96	5.36	357.182	
900.00	900.00	927.94	927.81	3.00	3.11	-53.896	1,128.08	-1,546.75	1,914.53	1,908.42	6.11	313.229	
1,000.00	1,000.00	1,029.99	1,029.85	3.36	3.47	-53.923	1,126.61	-1,546.29	1,913.31	1,906.48	6.83	280.033	
1,100.00	1,100.00	1,125.13	1,124.98	3.72	3.81	-53.949	1,125.33	-1,546.00	1,912.27	1,904.75	7.53	254.013	
1,200.00	1,200.00	1,220.06	1,219.90	4.08	4.15	-53.981	1,124.05	-1,546.01	1,911.49	1,903.26	8.23	232.376	
1,300.00	1,300.00	1,314.79	1,314.60	4.44	4.49	-54.043	1,122.09	-1,546.84	1,910.98	1,902.05	8.92	214.123	
1,400.00	1,400.00	1,411.45	1,411.21	4.80	4.84	-54.137	1,119.39	-1,548.48	1,910.72	1,901.09	9.63	198.370	
1,500.00	1,500.00	1,509.60	1,509.29	5.16	5.19	-54.246	1,116.37	-1,550.49	1,910.57	1,900.23	10.35	184.663	
1,502.85	1,502.85	1,512.39	1,512.09	5.17	5.20	-54.249	1,116.28	-1,550.55	1,910.57	1,900.21	10.37	184.306	
1,600.00	1,599.98	1,615.16	1,614.77	5.50	5.57	-54.387	1,113.00	-1,552.68	1,912.00	1,900.93	11.08	172.620	
1,700.00	1,699.94	1,724.87	1,724.44	5.84	5.97	-54.548	1,109.94	-1,554.01	1,916.16	1,904.34	11.81	162.208	
1,800.00	1,799.45	1,818.57	1,818.07	6.19	6.31	-54.751	1,106.83	-1,555.33	1,923.37	1,910.87	12.50	153.904	
1,900.00	1,898.70	1,909.79	1,909.11	6.53	6.65	-55.061	1,102.06	-1,558.27	1,934.19	1,921.02	13.17	146.812	
2,000.00	1,997.47	2,023.45	2,022.41	6.88	7.07	-55.507	1,094.35	-1,563.00	1,948.17	1,934.22	13.94	139.736	
2,100.00	2,095.62	2,138.56	2,137.12	7.23	7.50	-56.001	1,085.59	-1,567.09	1,964.46	1,949.74	14.72	133.478	
2,200.00	2,193.06	2,245.55	2,243.70	7.59	7.90	-56.511	1,076.84	-1,570.43	1,983.40	1,967.94	15.47	128.232	
2,249.82	2,241.29	2,298.56	2,296.50	7.77	8.10	-56.776	1,072.34	-1,571.95	1,993.89	1,978.05	15.84	125.863	
2,300.00	2,289.76	2,362.00	2,359.65	7.95	8.34	-57.076	1,066.56	-1,573.64	2,004.66	1,988.40	16.26	123.312	
2,400.00	2,386.35	2,489.51	2,486.40	8.32	8.83	-57.708	1,053.00	-1,576.53	2,025.10	2,008.01	17.09	118.507	
2,500.00	2,482.95	2,555.75	2,552.19	8.69	9.09	-58.166	1,045.53	-1,578.25	2,045.68	2,027.98	17.70	115.565	
2,600.00	2,579.54	2,622.13	2,618.15	9.06	9.34	-58.614	1,038.55	-1,580.81	2,067.83	2,049.52	18.31	112.915	
2,700.00	2,676.14	2,689.08	2,684.68	9.44	9.60	-59.057	1,031.89	-1,584.23	2,091.48	2,072.56	18.93	110.514	
2,800.00	2,772.73	2,774.00	2,769.05	9.82	9.93	-59.550	1,023.93	-1,589.81	2,116.72	2,097.11	19.61	107.939	
2,900.00	2,869.32	2,836.09	2,830.70	10.20	10.17	-59.967	1,018.25	-1,594.53	2,142.93	2,122.74	20.20	106.089	
3,000.00	2,965.92	2,921.97	2,915.91	10.58	10.51	-60.458	1,010.17	-1,601.51	2,169.85	2,148.96	20.89	103.862	
3,015.31	2,980.71	2,935.09	2,928.92	10.64	10.56	-60.533	1,008.91	-1,602.62	2,174.02	2,153.02	21.00	103.536	
3,100.00	3,062.82	3,013.40	3,006.57	10.96	10.87	-60.956	1,001.38	-1,609.39	2,196.10	2,174.49	21.61	101.628	
3,200.00	3,160.52	3,111.02	3,103.41	11.34	11.25	-61.430	992.24	-1,617.63	2,219.30	2,196.95	22.35	99.276	
3,300.00	3,258.91	3,210.42	3,202.08	11.72	11.65	-61.863	983.27	-1,625.73	2,239.28	2,216.18	23.11	96.909	
3,400.00	3,357.85	3,311.27	3,302.22	12.09	12.04	-62.260	974.40	-1,633.65	2,255.95	2,232.09	23.86	94.533	
3,500.00	3,457.24	3,410.43	3,400.73	12.45	12.43	-62.615	965.91	-1,641.18	2,269.28	2,244.67	24.61	92.212	
3,600.00	3,556.96	3,509.10	3,498.78	12.81	12.82	-62.934	957.71	-1,648.55	2,279.35	2,254.01	25.35	89.921	
3,700.00	3,656.87	3,637.28	3,626.19	13.16	13.33	-63.306	946.83	-1,657.47	2,285.64	2,259.42	26.22	87.167	
3,765.14	3,722.00	3,726.36	3,714.72	13.38	13.68	-63.556	938.51	-1,662.77	2,287.11	2,260.30	26.81	85.306	
3,800.00	3,756.87	3,762.34	3,750.48	13.50	13.82	-63.657	935.02	-1,664.77	2,287.35	2,260.27	27.07	84.488	
3,900.00	3,856.87	3,870.00	3,857.44	13.84	14.25	-63.962	924.31	-1,670.59	2,287.80	2,259.95	27.85	82.159	
4,000.00	3,956.87	3,972.34	3,959.13	14.19	14.65	-64.252	913.98	-1,675.86	2,288.03	2,259.43	28.59	80.016	
4,100.00	4,056.87	4,071.94	4,058.16	14.53	15.05	-64.518	904.52	-1,680.66	2,288.28	2,258.95	29.33	78.016	
4,200.00	4,156.87	4,170.84	4,156.57	14.87	15.43	-64.763	895.81	-1,685.12	2,288.58	2,258.52	30.06	76.134	
4,300.00	4,256.87	4,269.62	4,254.94	15.22	15.81	-64.987	887.86	-1,689.26	2,288.96	2,258.17	30.79	74.347	
4,400.00	4,356.87	4,369.97	4,354.89	15.57	16.21	-65.211	879.93	-1,693.40	2,289.37	2,257.85	31.52	72.625	
4,500.00	4,456.87	4,470.41	4,454.84	15.91	16.60	-65.459	871.07	-1,697.92	2,289.79	2,257.53	32.26	70.979	
4,600.00	4,556.87	4,565.79	4,549.67	16.26	16.97	-65.713	862.04	-1,702.57	2,290.31	2,257.33	32.98	69.443	

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (Offsets) - Prince 31 B2EH Fed Com 1H - Wellbore #1 - Surveys													Offset Site Error:	0.00 usft
Survey Program: 97-		Offset		Semi Major Axis		Azimuth from North (°)	Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.00 usft
Reference	Vertical	Measured	Vertical	Reference	Offset		+N/-S	+E/-W	Distance	Minimum	Separation	Warning		
Measured Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)		(usft)	(usft)	Between Centres (usft)	Ellipses (usft)	Separation (usft)	Factor		
4,700.00	4,656.87	4,664.00	4,647.28	16.61	17.36	-65.985	852.43	-1,707.70	2,291.07	2,257.36	33.72	67.953		
4,800.00	4,756.87	4,757.98	4,740.68	16.95	17.74	-66.246	843.25	-1,712.75	2,292.03	2,257.60	34.43	66.567		
4,900.00	4,856.87	4,855.27	4,837.40	17.30	18.12	-66.507	834.10	-1,717.91	2,293.14	2,257.97	35.16	65.213		
5,000.00	4,956.87	4,952.80	4,934.40	17.65	18.51	-66.757	825.38	-1,722.99	2,294.38	2,258.49	35.89	63.923		
5,100.00	5,056.87	5,050.55	5,031.68	18.00	18.89	-66.994	817.18	-1,727.94	2,295.75	2,259.12	36.62	62.686		
5,200.00	5,156.87	5,149.73	5,130.44	18.35	19.27	-67.219	809.42	-1,732.77	2,297.20	2,259.84	37.35	61.498		
5,300.00	5,256.87	5,254.13	5,234.45	18.70	19.68	-67.440	801.87	-1,737.59	2,298.68	2,260.57	38.11	60.318		
5,400.00	5,356.87	5,381.46	5,361.28	19.05	20.17	-67.720	791.80	-1,742.73	2,299.39	2,260.43	38.97	59.011		
5,500.00	5,456.87	5,492.23	5,471.55	19.40	20.60	-67.983	781.96	-1,746.51	2,299.20	2,259.45	39.75	57.842		
5,600.00	5,556.87	5,595.88	5,574.73	19.75	21.01	-68.227	772.72	-1,749.80	2,298.82	2,258.31	40.50	56.755		
5,700.00	5,656.87	5,690.63	5,669.05	20.10	21.38	-68.453	764.17	-1,752.84	2,298.46	2,257.24	41.22	55.757		
5,766.32	5,723.18	5,752.57	5,730.68	20.33	21.62	-68.607	758.43	-1,755.03	2,298.40	2,256.70	41.70	55.123		
5,800.00	5,756.87	5,784.02	5,761.97	20.45	21.74	-68.686	755.46	-1,756.21	2,298.41	2,256.48	41.94	54.808		
5,900.00	5,856.87	5,887.41	5,864.81	20.80	22.15	-68.952	745.55	-1,760.13	2,298.49	2,255.79	42.69	53.835		
6,000.00	5,956.87	5,986.00	5,962.86	21.16	22.54	-69.208	735.93	-1,763.69	2,298.38	2,254.95	43.43	52.918		
6,023.88	5,980.75	6,011.53	5,988.25	21.24	22.64	-69.274	733.42	-1,764.61	2,298.35	2,254.73	43.62	52.692		
6,100.00	6,056.87	6,076.30	6,052.66	21.51	22.90	-69.444	727.09	-1,767.17	2,298.55	2,254.41	44.14	52.078		
6,200.00	6,156.87	6,175.00	6,150.79	21.86	23.29	-69.706	717.54	-1,771.67	2,299.44	2,254.56	44.88	51.238		
6,300.00	6,256.87	6,263.67	6,238.95	22.21	23.64	-69.942	709.04	-1,775.92	2,300.59	2,255.02	45.57	50.481		
6,400.00	6,356.87	10,398.00	8,467.63	22.57	57.95	-1.490	603.49	367.22	2,211.59	2,171.19	40.41	54.735		
6,500.00	6,456.87	10,398.00	8,467.63	22.92	57.95	-1.490	603.49	367.22	2,116.72	2,075.46	41.26	51.304		
6,600.00	6,556.87	10,398.00	8,467.63	23.27	57.95	-1.490	603.49	367.22	2,022.33	1,980.15	42.19	47.936		
6,700.00	6,656.87	10,398.00	8,467.63	23.62	57.95	-1.490	603.49	367.22	1,928.52	1,885.31	43.21	44.634		
6,800.00	6,756.87	10,398.00	8,467.63	23.98	57.95	-1.490	603.49	367.22	1,835.36	1,791.03	44.33	41.403		
6,900.00	6,856.87	10,398.00	8,467.63	24.33	57.95	-1.490	603.49	367.22	1,742.95	1,697.38	45.57	38.251		
7,000.00	6,956.87	10,398.00	8,467.63	24.68	57.95	-1.490	603.49	367.22	1,651.43	1,604.49	46.94	35.182		
7,100.00	7,056.87	10,398.00	8,467.63	25.04	57.95	-1.490	603.49	367.22	1,560.95	1,512.48	48.47	32.205		
7,200.00	7,156.87	10,398.00	8,467.63	25.39	57.95	-1.490	603.49	367.22	1,471.71	1,421.53	50.18	29.329		
7,300.00	7,256.87	10,398.00	8,467.63	25.75	57.95	-1.490	603.49	367.22	1,383.93	1,331.84	52.10	26.565		
7,400.00	7,356.87	10,398.00	8,467.63	26.10	57.95	-1.490	603.49	367.22	1,297.93	1,243.68	54.25	23.924		
7,500.00	7,456.87	10,406.65	8,467.77	26.45	58.13	-0.766	603.39	375.87	1,214.03	1,157.24	56.80	21.375		
7,600.00	7,556.87	10,408.05	8,467.79	26.81	58.16	-0.648	603.38	377.27	1,132.78	1,073.23	59.55	19.022		
7,700.00	7,656.87	10,409.48	8,467.82	27.16	58.19	-0.528	603.36	378.70	1,054.75	992.11	62.64	16.839		
7,800.00	7,756.87	10,410.93	8,467.84	27.52	58.22	-0.406	603.34	380.15	980.72	914.65	66.06	14.845		
7,900.00	7,856.87	10,412.42	8,467.87	27.87	58.25	-0.282	603.33	381.64	911.65	841.84	69.81	13.059		
8,000.00	7,956.87	10,413.93	8,467.89	28.23	58.28	-0.155	603.31	383.15	848.77	774.96	73.81	11.500		
8,100.00	8,056.87	10,415.47	8,467.92	28.58	58.31	-0.026	603.30	384.69	793.54	715.65	77.88	10.189		
8,200.00	8,156.87	10,417.05	8,467.95	28.94	58.35	0.106	603.28	386.26	747.65	665.88	81.78	9.143		
8,300.00	8,256.87	10,418.65	8,467.98	29.29	58.38	0.240	603.27	387.87	712.93	627.83	85.10	8.378		
8,400.00	8,356.87	10,420.29	8,468.01	29.65	58.41	0.378	603.25	389.50	691.04	603.64	87.40	7.906		
8,500.00	8,456.87	10,421.95	8,468.04	30.00	58.45	0.518	603.24	391.17	683.23	594.90	88.33	7.735		
8,503.68	8,460.54	10,422.02	8,468.04	30.02	58.45	0.523	603.24	391.23	683.22	594.89	88.34	7.734 CC, ES, SF		
8,600.00	8,556.87	10,423.66	8,468.07	30.36	58.48	0.660	603.22	392.88	689.98	602.25	87.73	7.865		
8,600.18	8,557.04	10,423.66	8,468.07	30.36	58.48	0.661	603.22	392.88	690.00	602.28	87.73	7.865		
8,650.00	8,606.80	10,424.77	8,468.09	30.53	58.51	0.731	603.21	393.99	700.80	613.90	86.90	8.064		
8,700.00	8,656.36	10,426.38	8,468.12	30.69	58.54	0.796	603.20	395.60	719.00	633.17	85.83	8.377		
8,750.00	8,705.16	10,428.49	8,468.16	30.86	58.58	0.855	603.18	397.71	743.90	659.27	84.63	8.790		
8,800.00	8,752.84	10,431.08	8,468.21	31.01	58.64	0.908	603.16	400.30	774.67	691.26	83.41	9.287		
8,850.00	8,799.02	10,434.13	8,468.27	31.17	58.70	0.952	603.13	403.35	810.42	728.15	82.27	9.850		
8,900.00	8,843.37	10,437.62	8,468.34	31.31	58.78	0.987	603.11	406.83	850.26	768.99	81.27	10.462		
8,950.00	8,885.53	10,441.50	8,468.42	31.45	58.86	1.014	603.08	410.72	893.37	812.92	80.45	11.104		
9,000.00	8,925.20	10,445.76	8,468.50	31.58	58.95	1.031	603.06	414.97	938.97	859.14	79.83	11.762		

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Prince 31 (Offsets) - Prince 31 B2EH Fed Com 1H - Wellbore #1 - Surveys												Offset Site Error:	0.00 usft
Survey Program: 97- Reference												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,050.00	8,962.06	10,450.34	8,468.60	31.69	59.04	1.040	603.03	419.55	986.40	907.00	79.41	12.422	
9,100.00	8,995.84	10,455.20	8,468.71	31.81	59.14	1.039	603.00	424.41	1,035.07	955.89	79.18	13.073	
9,150.00	9,026.28	10,460.29	8,468.82	31.91	59.25	1.030	602.98	429.50	1,084.46	1,005.34	79.12	13.706	
9,200.00	9,053.15	10,465.57	8,468.94	32.01	59.36	1.013	602.96	434.77	1,134.12	1,054.89	79.23	14.314	
9,250.00	9,076.24	10,470.98	8,469.07	32.11	59.47	0.989	602.94	440.18	1,183.66	1,104.19	79.47	14.894	
9,300.00	9,095.38	10,476.46	8,469.20	32.21	59.59	0.958	602.93	445.67	1,232.75	1,152.90	79.84	15.440	
9,350.00	9,110.43	10,481.98	8,469.34	32.30	59.70	0.921	602.92	451.18	1,281.07	1,200.76	80.32	15.951	
9,400.00	9,121.26	10,487.46	8,469.48	32.39	59.82	0.878	602.91	456.67	1,328.37	1,247.49	80.88	16.425	
9,450.00	9,127.80	10,493.00	8,469.62	32.48	59.93	0.837	602.91	462.20	1,374.40	1,292.89	81.51	16.862	
9,500.00	9,130.00	10,493.00	8,469.62	32.55	59.93	0.543	602.91	462.20	1,418.98	1,336.89	82.08	17.287	
9,500.18	9,130.00	10,493.00	8,469.62	32.55	59.93	0.542	602.91	462.20	1,419.13	1,337.04	82.09	17.288	
9,600.00	9,130.00	10,505.15	8,469.92	32.71	60.19	0.608	602.92	474.34	1,507.41	1,423.93	83.48	18.058	
9,700.00	9,130.00	10,509.97	8,470.03	32.89	60.29	0.511	602.92	479.17	1,597.44	1,512.90	84.55	18.894	
9,800.00	9,130.00	10,512.00	8,470.07	33.09	60.33	0.453	602.93	481.20	1,688.75	1,603.33	85.42	19.770	
9,825.64	9,130.00	10,512.08	8,470.07	33.14	60.34	0.444	602.93	481.27	1,712.33	1,626.72	85.61	20.001	
9,900.00	9,130.00	10,512.04	8,470.07	33.30	60.34	0.421	602.93	481.23	1,781.04	1,694.91	86.13	20.677	
10,000.00	9,130.00	10,511.98	8,470.07	33.53	60.33	0.393	602.93	481.18	1,874.13	1,787.37	86.75	21.603	
10,100.00	9,130.00	10,511.93	8,470.07	33.78	60.33	0.367	602.93	481.12	1,967.89	1,880.60	87.29	22.543	
10,200.00	9,130.00	10,511.88	8,470.07	34.05	60.33	0.345	602.93	481.07	2,062.24	1,974.47	87.77	23.497	
10,300.00	9,130.00	10,511.83	8,470.07	34.33	60.33	0.325	602.93	481.02	2,157.10	2,068.91	88.19	24.461	
10,400.00	9,130.00	10,511.77	8,470.07	34.64	60.33	0.306	602.93	480.97	2,252.40	2,163.85	88.56	25.434	
10,500.00	9,130.00	10,511.72	8,470.07	34.97	60.33	0.290	602.93	480.92	2,348.10	2,259.21	88.89	26.416	
10,600.00	9,130.00	10,511.67	8,470.07	35.31	60.33	0.274	602.93	480.87	2,444.14	2,354.95	89.19	27.404	
10,700.00	9,130.00	10,511.62	8,470.06	35.67	60.33	0.260	602.92	480.82	2,540.48	2,451.02	89.46	28.398	
10,800.00	9,130.00	10,511.57	8,470.06	36.05	60.33	0.247	602.92	480.77	2,637.10	2,547.39	89.71	29.397	
10,900.00	9,130.00	10,511.53	8,470.06	36.44	60.32	0.236	602.92	480.72	2,733.96	2,644.03	89.93	30.401	
11,000.00	9,130.00	10,511.48	8,470.06	36.85	60.32	0.225	602.92	480.67	2,831.04	2,740.90	90.14	31.408	
11,100.00	9,130.00	10,511.43	8,470.06	37.28	60.32	0.214	602.92	480.62	2,928.31	2,837.99	90.33	32.419	
11,200.00	9,130.00	10,511.38	8,470.06	37.72	60.32	0.205	602.92	480.58	3,025.76	2,935.26	90.50	33.433	
11,300.00	9,130.00	10,511.34	8,470.06	38.17	60.32	0.196	602.92	480.53	3,123.38	3,032.71	90.67	34.449	
11,400.00	9,130.00	10,511.29	8,470.06	38.64	60.32	0.187	602.92	480.48	3,221.14	3,130.32	90.82	35.468	
11,500.00	9,130.00	10,511.24	8,470.06	39.12	60.32	0.180	602.92	480.44	3,319.03	3,228.07	90.96	36.488	
11,600.00	9,130.00	10,511.20	8,470.06	39.62	60.32	0.172	602.92	480.39	3,417.05	3,325.95	91.10	37.510	
11,700.00	9,130.00	10,511.15	8,470.05	40.12	60.32	0.165	602.92	480.35	3,515.18	3,423.95	91.22	38.533	
11,800.00	9,130.00	10,511.11	8,470.05	40.64	60.32	0.159	602.92	480.30	3,613.41	3,522.06	91.35	39.557	
11,900.00	9,130.00	10,511.07	8,470.05	41.17	60.31	0.153	602.92	480.26	3,711.73	3,620.27	91.46	40.583	
12,000.00	9,130.00	10,511.02	8,470.05	41.71	60.31	0.147	602.92	480.22	3,810.14	3,718.57	91.57	41.609	
12,100.00	9,130.00	10,510.98	8,470.05	42.26	60.31	0.141	602.92	480.17	3,908.63	3,816.96	91.68	42.635	
12,200.00	9,130.00	10,510.94	8,470.05	42.83	60.31	0.136	602.92	480.13	4,007.20	3,915.42	91.78	43.662	
12,300.00	9,130.00	10,510.89	8,470.05	43.40	60.31	0.131	602.92	480.09	4,105.84	4,013.96	91.88	44.689	
12,400.00	9,130.00	10,510.85	8,470.05	43.98	60.31	0.126	602.92	480.05	4,204.54	4,112.57	91.97	45.716	
12,500.00	9,130.00	10,510.81	8,470.05	44.57	60.31	0.122	602.92	480.01	4,303.30	4,211.24	92.06	46.743	
12,600.00	9,130.00	10,510.77	8,470.05	45.17	60.31	0.118	602.92	479.97	4,402.12	4,309.96	92.15	47.770	
12,700.00	9,130.00	10,510.73	8,470.04	45.77	60.31	0.114	602.92	479.92	4,500.99	4,408.75	92.24	48.797	
12,800.00	9,130.00	10,510.69	8,470.04	46.39	60.31	0.110	602.92	479.88	4,599.90	4,507.58	92.32	49.823	
12,900.00	9,130.00	10,510.65	8,470.04	47.01	60.31	0.106	602.92	479.85	4,698.87	4,606.46	92.41	50.849	
13,000.00	9,130.00	10,510.61	8,470.04	47.64	60.30	0.102	602.92	479.81	4,797.87	4,705.38	92.49	51.875	
13,100.00	9,130.00	10,510.57	8,470.04	48.28	60.30	0.099	602.92	479.77	4,896.92	4,804.35	92.57	52.900	
13,200.00	9,130.00	10,510.53	8,470.04	48.92	60.30	0.096	602.92	479.73	4,996.01	4,903.36	92.65	53.924	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #1														Offset Site Error:	0.00 usft
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Azimuth		Offset Wellbore Centre		Rule Assigned:		Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	-13.496	250.00	-60.00	257.10						
100.00	100.00	100.00	100.00	0.14	0.14	-13.496	250.00	-60.00	257.10	256.82	0.27	937.528			
200.00	200.00	200.00	200.00	0.50	0.50	-13.496	250.00	-60.00	257.10	256.11	0.99	259.389			
300.00	300.00	300.00	300.00	0.85	0.85	-13.496	250.00	-60.00	257.10	255.39	1.71	150.516			
400.00	400.00	400.00	400.00	1.21	1.21	-13.496	250.00	-60.00	257.10	254.67	2.43	106.018			
500.00	500.00	500.00	500.00	1.57	1.57	-13.496	250.00	-60.00	257.10	253.96	3.14	81.827			
600.00	600.00	600.00	600.00	1.93	1.93	-13.496	250.00	-60.00	257.10	253.24	3.86	66.624			
700.00	700.00	700.00	700.00	2.29	2.29	-13.496	250.00	-60.00	257.10	252.52	4.58	56.186			
800.00	800.00	800.00	800.00	2.65	2.65	-13.496	250.00	-60.00	257.10	251.81	5.29	48.575			
900.00	900.00	900.00	900.00	3.00	3.00	-13.496	250.00	-60.00	257.10	251.09	6.01	42.780			
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	-13.496	250.00	-60.00	257.10	250.37	6.73	38.221			
1,100.00	1,100.00	1,100.00	1,100.00	3.72	3.72	-13.496	250.00	-60.00	257.10	249.66	7.44	34.539			
1,200.00	1,200.00	1,200.00	1,200.00	4.08	4.08	-13.496	250.00	-60.00	257.10	248.94	8.16	31.505			
1,300.00	1,300.00	1,300.00	1,300.00	4.44	4.44	-13.496	250.00	-60.00	257.10	248.22	8.88	28.961			
1,400.00	1,400.00	1,400.00	1,400.00	4.80	4.80	-13.496	250.00	-60.00	257.10	247.50	9.59	26.797			
1,500.00	1,500.00	1,500.00	1,500.00	5.16	5.16	-13.496	250.00	-60.00	257.10	246.79	10.31	24.933 CC			
1,600.00	1,599.98	1,601.74	1,601.72	5.50	5.51	-14.241	249.23	-61.63	257.50	246.49	11.01	23.386 ES			
1,700.00	1,699.84	1,702.80	1,702.63	5.84	5.85	-16.448	246.95	-66.49	258.98	247.29	11.69	22.153			
1,800.00	1,799.45	1,802.52	1,801.96	6.19	6.19	-20.025	243.21	-74.44	262.27	249.90	12.37	21.200			
1,900.00	1,898.70	1,900.27	1,898.97	6.53	6.52	-24.784	238.12	-85.26	268.52	255.47	13.05	20.574			
2,000.00	1,997.47	1,995.49	1,993.02	6.88	6.85	-30.417	231.81	-98.68	279.10	265.38	13.72	20.335			
2,100.00	2,095.62	2,087.67	2,083.56	7.23	7.17	-36.524	224.43	-114.35	295.37	280.99	14.38	20.534			
2,200.00	2,193.06	2,176.37	2,170.11	7.59	7.49	-42.672	216.17	-131.92	318.38	303.36	15.02	21.198			
2,249.82	2,241.29	2,219.15	2,211.63	7.77	7.64	-45.631	211.78	-141.25	332.56	317.23	15.32	21.700			
2,300.00	2,289.76	2,262.00	2,253.05	7.95	7.79	-48.485	207.13	-151.14	348.35	332.72	15.63	22.293			
2,400.00	2,386.35	2,349.95	2,338.01	8.32	8.11	-53.590	197.44	-171.74	382.44	366.20	16.24	23.547			
2,500.00	2,482.95	2,437.90	2,422.96	8.69	8.43	-57.852	187.75	-192.34	419.18	402.32	16.86	24.860			
2,600.00	2,579.54	2,525.85	2,507.91	9.06	8.76	-61.425	178.06	-212.94	457.91	440.43	17.49	26.187			
2,700.00	2,676.14	2,613.80	2,592.86	9.44	9.09	-64.443	168.37	-233.54	498.19	480.07	18.12	27.498			
2,800.00	2,772.73	2,701.74	2,677.81	9.82	9.42	-67.012	158.68	-254.13	539.65	520.90	18.75	28.774			
2,900.00	2,869.32	2,789.69	2,762.76	10.20	9.75	-69.217	148.99	-274.73	582.06	562.66	19.40	30.005			
3,000.00	2,965.92	2,877.64	2,847.71	10.58	10.08	-71.124	139.30	-295.33	625.21	605.16	20.05	31.185			
3,015.31	2,980.71	2,891.11	2,860.73	10.64	10.14	-71.394	137.82	-298.49	631.88	611.73	20.15	31.362			
3,100.00	3,062.82	2,966.14	2,933.20	10.96	10.42	-72.786	129.55	-316.06	667.84	647.14	20.70	32.258			
3,200.00	3,160.52	3,056.10	3,020.09	11.34	10.77	-74.251	119.64	-337.13	707.84	686.47	21.37	33.128			
3,300.00	3,258.91	3,147.43	3,108.31	11.72	11.12	-75.566	109.58	-358.52	745.04	723.00	22.04	33.802			
3,400.00	3,357.85	3,240.02	3,197.74	12.09	11.48	-76.765	99.38	-380.20	779.33	756.61	22.72	34.296			
3,500.00	3,457.24	3,333.75	3,288.28	12.45	11.85	-77.876	89.05	-402.16	810.64	787.23	23.41	34.624			
3,600.00	3,556.96	3,428.51	3,379.82	12.81	12.22	-78.918	78.61	-424.35	838.90	814.79	24.11	34.799			
3,700.00	3,656.87	3,524.19	3,472.23	13.16	12.59	-79.910	68.07	-446.76	864.05	839.24	24.80	34.834			
3,765.14	3,722.00	3,586.95	3,532.85	13.38	12.84	-80.535	61.16	-461.46	878.74	853.48	25.26	34.790			
3,800.00	3,756.87	3,620.63	3,565.38	13.50	12.97	-80.863	57.45	-469.35	886.26	860.76	25.50	34.753			
3,900.00	3,856.87	3,717.22	3,658.68	13.84	13.35	-81.775	46.81	-491.97	907.98	881.77	26.20	34.651			
4,000.00	3,956.87	3,813.81	3,751.98	14.19	13.74	-82.645	36.16	-514.59	929.91	903.00	26.91	34.560			
4,100.00	4,056.87	3,910.40	3,845.28	14.53	14.12	-83.475	25.52	-537.21	952.04	924.42	27.61	34.478			
4,200.00	4,156.87	4,007.00	3,938.59	14.87	14.50	-84.268	14.88	-559.84	974.35	946.03	28.32	34.404			
4,300.00	4,256.87	4,103.59	4,031.89	15.22	14.89	-85.026	4.24	-582.46	996.84	967.81	29.03	34.338			
4,400.00	4,356.87	4,200.18	4,125.19	15.57	15.27	-85.751	-6.40	-605.08	1,019.48	989.74	29.74	34.279			
4,500.00	4,456.87	4,296.77	4,218.49	15.91	15.66	-86.445	-17.04	-627.71	1,042.28	1,011.83	30.45	34.226			
4,600.00	4,556.87	4,393.37	4,311.79	16.26	16.04	-87.110	-27.68	-650.33	1,065.22	1,034.06	31.17	34.178			
4,700.00	4,656.87	4,489.96	4,405.09	16.61	16.43	-87.746	-38.33	-672.95	1,088.29	1,056.41	31.88	34.135			
4,800.00	4,756.87	4,615.82	4,526.97	16.95	16.93	-88.509	-51.69	-701.35	1,110.77	1,077.92	32.85	33.814			

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,900.00	4,856.87	4,766.86	4,674.80	17.30	17.52	-89.223	-64.84	-729.32	1,129.20	1,095.22	33.97	33.238		
5,000.00	4,956.87	4,920.86	4,826.98	17.65	18.09	-89.741	-74.82	-750.54	1,142.95	1,107.92	35.04	32.622		
5,100.00	5,056.87	5,076.97	4,982.32	18.00	18.66	-90.070	-81.37	-764.46	1,151.88	1,115.86	36.02	31.976		
5,200.00	5,156.87	5,234.32	5,139.49	18.35	19.20	-90.216	-84.32	-770.73	1,155.87	1,118.95	36.92	31.308		
5,300.00	5,256.87	5,351.70	5,256.87	18.70	19.59	-90.225	-84.49	-771.09	1,156.10	1,118.46	37.64	30.715		
5,400.00	5,356.87	5,451.70	5,356.87	19.05	19.91	-90.225	-84.49	-771.09	1,156.10	1,117.78	38.31	30.174		
5,500.00	5,456.87	5,551.70	5,456.87	19.40	20.24	-90.225	-84.49	-771.09	1,156.10	1,117.11	38.99	29.650		
5,600.00	5,556.87	5,651.70	5,556.87	19.75	20.57	-90.225	-84.49	-771.09	1,156.10	1,116.43	39.67	29.144		
5,700.00	5,656.87	5,751.70	5,656.87	20.10	20.90	-90.225	-84.49	-771.09	1,156.10	1,115.75	40.35	28.653		
5,800.00	5,756.87	5,851.70	5,756.87	20.45	21.23	-90.225	-84.49	-771.09	1,156.10	1,115.07	41.03	28.178		
5,900.00	5,856.87	5,951.70	5,856.87	20.80	21.56	-90.225	-84.49	-771.09	1,156.10	1,114.39	41.71	27.718		
6,000.00	5,956.87	6,051.70	5,956.87	21.16	21.89	-90.225	-84.49	-771.09	1,156.10	1,113.71	42.39	27.272		
6,100.00	6,056.87	6,151.70	6,056.87	21.51	22.22	-90.225	-84.49	-771.09	1,156.10	1,113.02	43.08	26.839		
6,200.00	6,156.87	6,251.70	6,156.87	21.86	22.56	-90.225	-84.49	-771.09	1,156.10	1,112.34	43.76	26.419		
6,300.00	6,256.87	6,351.70	6,256.87	22.21	22.89	-90.225	-84.49	-771.09	1,156.10	1,111.65	44.45	26.011		
6,400.00	6,356.87	6,451.70	6,356.87	22.57	23.23	-90.225	-84.49	-771.09	1,156.10	1,110.97	45.13	25.615		
6,500.00	6,456.87	6,551.70	6,456.87	22.92	23.56	-90.225	-84.49	-771.09	1,156.10	1,110.28	45.82	25.231		
6,600.00	6,556.87	6,651.70	6,556.87	23.27	23.90	-90.225	-84.49	-771.09	1,156.10	1,109.59	46.51	24.857		
6,700.00	6,656.87	6,751.70	6,656.87	23.62	24.24	-90.225	-84.49	-771.09	1,156.10	1,108.90	47.20	24.494		
6,800.00	6,756.87	6,851.70	6,756.87	23.98	24.57	-90.225	-84.49	-771.09	1,156.10	1,108.21	47.89	24.141		
6,900.00	6,856.87	6,951.70	6,856.87	24.33	24.91	-90.225	-84.49	-771.09	1,156.10	1,107.52	48.58	23.798		
7,000.00	6,956.87	7,051.70	6,956.87	24.68	25.25	-90.225	-84.49	-771.09	1,156.10	1,106.83	49.27	23.464		
7,100.00	7,056.87	7,151.70	7,056.87	25.04	25.59	-90.225	-84.49	-771.09	1,156.10	1,106.14	49.96	23.139		
7,200.00	7,156.87	7,238.92	7,143.96	25.39	25.88	-90.390	-87.83	-771.41	1,156.51	1,105.89	50.62	22.846		
7,300.00	7,256.87	7,319.39	7,223.10	25.75	26.16	-91.093	-102.04	-772.78	1,158.48	1,107.23	51.25	22.604		
7,400.00	7,356.87	7,400.00	7,299.57	26.10	26.43	-92.331	-127.19	-775.20	1,162.58	1,110.71	51.87	22.414		
7,500.00	7,456.87	7,462.59	7,356.07	26.45	26.64	-93.641	-153.95	-777.78	1,169.48	1,117.11	52.38	22.329		
7,600.00	7,556.87	7,522.88	7,407.40	26.81	26.83	-95.166	-185.36	-780.80	1,180.06	1,127.26	52.80	22.348		
7,700.00	7,656.87	7,575.55	7,449.32	27.16	27.00	-96.691	-217.07	-783.86	1,195.03	1,141.93	53.10	22.506		
7,800.00	7,756.87	7,621.22	7,483.17	27.52	27.13	-98.140	-247.57	-786.79	1,214.95	1,161.72	53.24	22.822		
7,900.00	7,856.87	7,650.00	7,503.20	27.87	27.22	-99.108	-268.13	-788.77	1,240.25	1,187.15	53.11	23.355		
8,000.00	7,956.87	7,700.00	7,535.46	28.23	27.36	-100.874	-306.14	-792.43	1,270.86	1,217.80	53.06	23.951		
8,100.00	8,056.87	7,724.63	7,550.09	28.58	27.43	-101.778	-325.86	-794.33	1,306.95	1,254.28	52.66	24.817		
8,200.00	8,156.87	7,750.00	7,564.26	28.94	27.51	-102.729	-346.81	-796.35	1,348.32	1,296.14	52.18	25.838		
8,300.00	8,256.87	7,773.23	7,576.41	29.29	27.57	-103.614	-366.52	-798.25	1,394.71	1,343.09	51.61	27.022		
8,400.00	8,356.87	7,800.00	7,589.39	29.65	27.65	-104.648	-389.81	-800.49	1,445.82	1,394.78	51.05	28.323		
8,500.00	8,456.87	7,800.00	7,589.39	30.00	27.65	-104.648	-389.81	-800.49	1,501.30	1,451.15	50.15	29.939		
8,600.00	8,556.87	7,826.70	7,601.24	30.36	27.72	-105.691	-413.62	-802.78	1,560.57	1,511.00	49.56	31.486		
8,600.18	8,557.04	7,826.72	7,601.25	30.36	27.72	-105.692	-413.65	-802.78	1,560.68	1,511.11	49.56	31.489		
8,650.00	8,606.80	7,850.00	7,610.66	30.53	27.79	-106.509	-434.84	-804.82	1,591.53	1,542.15	49.39	32.227		
8,700.00	8,656.36	7,850.00	7,610.66	30.69	27.79	-106.213	-434.84	-804.82	1,622.16	1,573.24	48.93	33.154		
8,750.00	8,705.16	7,850.00	7,610.66	30.86	27.79	-105.720	-434.84	-804.82	1,652.72	1,604.24	48.48	34.094		
8,800.00	8,752.84	7,850.00	7,610.66	31.01	27.79	-105.033	-434.84	-804.82	1,682.98	1,634.95	48.03	35.039		
8,850.00	8,799.02	7,873.66	7,619.34	31.17	27.85	-105.112	-456.75	-806.93	1,712.21	1,664.34	47.87	35.767		
8,900.00	8,843.37	7,900.00	7,627.91	31.31	27.92	-105.135	-481.53	-809.32	1,740.86	1,693.11	47.74	36.462		
8,950.00	8,885.53	7,900.00	7,627.91	31.45	27.92	-103.911	-481.53	-809.32	1,767.93	1,720.59	47.35	37.339		
9,000.00	8,925.20	7,900.00	7,627.91	31.58	27.92	-102.516	-481.53	-809.32	1,793.93	1,746.95	46.98	38.187		
9,050.00	8,962.06	7,921.05	7,633.94	31.69	27.98	-101.852	-501.61	-811.25	1,818.27	1,771.42	46.85	38.811		
9,100.00	8,995.84	7,950.00	7,641.01	31.81	28.06	-101.397	-529.55	-813.94	1,841.26	1,794.44	46.82	39.330		
9,150.00	9,026.28	7,950.00	7,641.01	31.91	28.06	-99.578	-529.55	-813.94	1,861.95	1,815.42	46.54	40.012		
9,200.00	9,053.15	7,950.00	7,641.01	32.01	28.06	-97.637	-529.55	-813.94	1,881.03	1,834.73	46.30	40.630		
9,250.00	9,076.24	7,973.18	7,645.64	32.11	28.12	-96.616	-552.16	-816.12	1,897.89	1,851.59	46.30	40.993		

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Reference	Offset	from North (°)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
9,300.00	9,095.38	8,000.00	7,649.85	32.21	28.19	-95.689	-578.52	-818.66	1,912.88	1,866.53	46.36	41.265	
9,350.00	9,110.43	8,000.00	7,649.85	32.30	28.19	-93.512	-578.52	-818.66	1,925.33	1,879.09	46.25	41.631	
9,400.00	9,121.26	8,000.00	7,649.85	32.39	28.19	-91.292	-578.52	-818.66	1,935.86	1,889.67	46.19	41.909	
9,450.00	9,127.80	8,027.44	7,652.87	32.48	28.26	-90.284	-605.66	-821.27	1,943.71	1,897.34	46.37	41.918	
9,500.00	9,130.00	8,050.00	7,654.37	32.55	28.32	-89.058	-628.07	-823.43	1,949.46	1,902.91	46.55	41.880	
9,500.18	9,130.00	8,050.00	7,654.37	32.55	28.32	-89.051	-628.07	-823.43	1,949.48	1,902.93	46.55	41.880	
9,600.00	9,130.00	8,076.87	7,655.00	32.71	28.39	-85.832	-654.81	-826.01	1,959.15	1,912.30	46.85	41.822	
9,700.00	9,130.00	8,203.10	7,655.00	32.89	28.72	-87.024	-780.68	-835.33	1,968.30	1,920.71	47.59	41.360	
9,800.00	9,130.00	8,372.55	7,655.00	33.09	29.21	-90.078	-950.07	-839.17	1,971.48	1,922.98	48.50	40.647	
9,825.64	9,130.00	8,398.20	7,655.00	33.14	29.29	-90.078	-975.71	-839.13	1,971.55	1,922.90	48.65	40.527	
9,900.00	9,130.00	8,472.55	7,655.00	33.30	29.52	-90.078	-1,050.07	-839.03	1,971.51	1,922.43	49.09	40.163	
10,000.00	9,130.00	8,572.55	7,655.00	33.53	29.85	-90.078	-1,150.07	-838.90	1,971.47	1,921.75	49.72	39.653	
10,100.00	9,130.00	8,672.55	7,655.00	33.78	30.20	-90.078	-1,250.07	-838.76	1,971.43	1,921.03	50.39	39.121	
10,200.00	9,130.00	8,772.55	7,655.00	34.05	30.57	-90.078	-1,350.07	-838.63	1,971.38	1,920.27	51.11	38.570	
10,300.00	9,130.00	8,872.55	7,655.00	34.33	30.96	-90.078	-1,450.07	-838.49	1,971.34	1,919.47	51.87	38.005	
10,400.00	9,130.00	8,972.55	7,655.00	34.64	31.36	-90.078	-1,550.07	-838.35	1,971.30	1,918.63	52.67	37.428	
10,500.00	9,130.00	9,072.55	7,655.00	34.97	31.79	-90.078	-1,650.07	-838.22	1,971.25	1,917.75	53.50	36.842	
10,600.00	9,130.00	9,172.55	7,655.00	35.31	32.23	-90.078	-1,750.07	-838.08	1,971.21	1,916.83	54.38	36.251	
10,700.00	9,130.00	9,272.55	7,655.00	35.67	32.69	-90.078	-1,850.07	-837.95	1,971.17	1,915.88	55.28	35.655	
10,800.00	9,130.00	9,372.55	7,655.00	36.05	33.16	-90.078	-1,950.07	-837.81	1,971.13	1,914.90	56.22	35.059	
10,900.00	9,130.00	9,472.55	7,655.00	36.44	33.65	-90.078	-2,050.07	-837.67	1,971.08	1,913.89	57.19	34.463	
11,000.00	9,130.00	9,572.55	7,655.00	36.85	34.15	-90.078	-2,150.07	-837.54	1,971.04	1,912.85	58.19	33.870	
11,100.00	9,130.00	9,672.55	7,655.00	37.28	34.67	-90.078	-2,250.07	-837.40	1,971.00	1,911.77	59.22	33.281	
11,200.00	9,130.00	9,772.55	7,655.00	37.72	35.19	-90.078	-2,350.07	-837.27	1,970.95	1,910.68	60.28	32.698	
11,300.00	9,130.00	9,872.55	7,655.00	38.17	35.74	-90.078	-2,450.07	-837.13	1,970.91	1,909.55	61.36	32.122	
11,400.00	9,130.00	9,972.55	7,655.00	38.64	36.29	-90.078	-2,550.07	-836.99	1,970.87	1,908.40	62.46	31.553	
11,500.00	9,130.00	10,072.55	7,655.00	39.12	36.86	-90.078	-2,650.07	-836.86	1,970.82	1,907.23	63.59	30.993	
11,600.00	9,130.00	10,172.55	7,655.00	39.62	37.43	-90.078	-2,750.07	-836.72	1,970.78	1,906.04	64.74	30.442	
11,700.00	9,130.00	10,272.55	7,655.00	40.12	38.02	-90.078	-2,850.07	-836.59	1,970.74	1,904.83	65.91	29.901	
11,800.00	9,130.00	10,372.55	7,655.00	40.64	38.62	-90.078	-2,950.07	-836.45	1,970.69	1,903.60	67.10	29.371	
11,900.00	9,130.00	10,472.55	7,655.00	41.17	39.23	-90.078	-3,050.07	-836.31	1,970.65	1,902.35	68.31	28.851	
12,000.00	9,130.00	10,572.55	7,655.00	41.71	39.84	-90.078	-3,150.07	-836.18	1,970.61	1,901.08	69.53	28.342	
12,100.00	9,130.00	10,672.55	7,655.00	42.26	40.47	-90.078	-3,250.07	-836.04	1,970.56	1,899.79	70.77	27.844	
12,200.00	9,130.00	10,772.55	7,655.00	42.83	41.10	-90.078	-3,350.07	-835.91	1,970.52	1,898.49	72.03	27.357	
12,300.00	9,130.00	10,872.55	7,655.00	43.40	41.74	-90.078	-3,450.07	-835.77	1,970.48	1,897.18	73.30	26.881	
12,400.00	9,130.00	10,972.55	7,655.00	43.98	42.39	-90.078	-3,550.07	-835.63	1,970.44	1,895.85	74.59	26.417	
12,500.00	9,130.00	11,072.55	7,655.00	44.57	43.05	-90.078	-3,650.07	-835.50	1,970.39	1,894.50	75.89	25.964	
12,600.00	9,130.00	11,172.55	7,655.00	45.17	43.71	-90.078	-3,750.07	-835.36	1,970.35	1,893.15	77.20	25.522	
12,700.00	9,130.00	11,272.55	7,655.00	45.77	44.38	-90.078	-3,850.07	-835.23	1,970.31	1,891.78	78.53	25.090	
12,800.00	9,130.00	11,372.55	7,655.00	46.39	45.06	-90.078	-3,950.07	-835.09	1,970.26	1,890.40	79.87	24.670	
12,900.00	9,130.00	11,472.55	7,655.00	47.01	45.74	-90.078	-4,050.07	-834.95	1,970.22	1,889.01	81.21	24.260	
13,000.00	9,130.00	11,572.55	7,655.00	47.64	46.43	-90.078	-4,150.07	-834.82	1,970.18	1,887.61	82.57	23.860	
13,100.00	9,130.00	11,672.55	7,655.00	48.28	47.13	-90.078	-4,250.07	-834.68	1,970.13	1,886.19	83.94	23.471	
13,200.00	9,130.00	11,772.55	7,655.00	48.92	47.83	-90.078	-4,350.07	-834.55	1,970.09	1,884.77	85.32	23.091	
13,300.00	9,130.00	11,872.55	7,655.00	49.57	48.53	-90.078	-4,450.07	-834.41	1,970.05	1,883.34	86.70	22.721	
13,400.00	9,130.00	11,972.55	7,655.00	50.23	49.24	-90.078	-4,550.07	-834.27	1,970.00	1,881.90	88.10	22.361	
13,500.00	9,130.00	12,072.55	7,655.00	50.89	49.96	-90.078	-4,650.07	-834.14	1,969.96	1,880.46	89.50	22.010	
13,600.00	9,130.00	12,172.55	7,655.00	51.56	50.67	-90.078	-4,750.07	-834.00	1,969.92	1,879.00	90.91	21.668	
13,700.00	9,130.00	12,272.55	7,655.00	52.24	51.40	-90.078	-4,850.06	-833.87	1,969.88	1,877.54	92.33	21.334	
13,800.00	9,130.00	12,372.55	7,655.00	52.91	52.12	-90.078	-4,950.06	-833.73	1,969.83	1,876.07	93.76	21.009	
13,900.00	9,130.00	12,472.55	7,655.00	53.60	52.86	-90.078	-5,050.06	-833.59	1,969.79	1,874.60	95.19	20.693	
14,000.00	9,130.00	12,572.55	7,655.00	54.29	53.59	-90.078	-5,150.06	-833.46	1,969.75	1,873.11	96.63	20.384	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 301H - Wellbore #1 - Design #1													Offset Site Error: 0.00 usft
Survey Program: Reference		0-MWD+IFR1+FDIR Offset		Semi Major Axis		Azimuth from North (°)	Offset Wellbore Centre		Rule Assigned: Distance		Minimum Separation (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)			
14,100.00	9,130.00	12,672.55	7,655.00	54.98	54.33	-90.078	-5,250.06	-833.32	1,969.70	1,871.63	98.08	20.083	
14,200.00	9,130.00	12,772.55	7,655.00	55.68	55.07	-90.078	-5,350.06	-833.19	1,969.66	1,870.13	99.53	19.790	
14,300.00	9,130.00	12,872.55	7,655.00	56.39	55.82	-90.078	-5,450.06	-833.05	1,969.62	1,868.63	100.99	19.504	
14,400.00	9,130.00	12,972.55	7,655.00	57.10	56.57	-90.078	-5,550.06	-832.91	1,969.57	1,867.13	102.45	19.225	
14,500.00	9,130.00	13,072.55	7,655.00	57.81	57.32	-90.078	-5,650.06	-832.78	1,969.53	1,865.62	103.92	18.953	
14,600.00	9,130.00	13,172.55	7,655.00	58.52	58.07	-90.078	-5,750.06	-832.64	1,969.49	1,864.10	105.39	18.688	
14,700.00	9,130.00	13,272.55	7,655.00	59.24	58.83	-90.078	-5,850.06	-832.51	1,969.45	1,862.58	106.87	18.429	
14,800.00	9,130.00	13,372.55	7,655.00	59.97	59.59	-90.078	-5,950.06	-832.37	1,969.40	1,861.05	108.35	18.177	
14,900.00	9,130.00	13,472.55	7,655.00	60.69	60.36	-90.078	-6,050.06	-832.23	1,969.36	1,859.53	109.83	17.930	
15,000.00	9,130.00	13,572.55	7,655.00	61.42	61.12	-90.078	-6,150.06	-832.10	1,969.32	1,857.99	111.32	17.690	
15,100.00	9,130.00	13,672.55	7,655.00	62.16	61.89	-90.078	-6,250.06	-831.96	1,969.27	1,856.45	112.82	17.455	
15,200.00	9,130.00	13,772.55	7,655.00	62.90	62.66	-90.078	-6,350.06	-831.83	1,969.23	1,854.91	114.32	17.226	
15,300.00	9,130.00	13,872.55	7,655.00	63.64	63.44	-90.078	-6,450.06	-831.69	1,969.19	1,853.37	115.82	17.002	
15,400.00	9,130.00	13,972.55	7,655.00	64.38	64.21	-90.078	-6,550.06	-831.55	1,969.14	1,851.82	117.32	16.784	
15,500.00	9,130.00	14,072.55	7,655.00	65.13	64.99	-90.078	-6,650.06	-831.42	1,969.10	1,850.27	118.83	16.570	
15,600.00	9,130.00	14,172.55	7,655.00	65.87	65.77	-90.078	-6,750.06	-831.28	1,969.06	1,848.71	120.35	16.362	
15,700.00	9,130.00	14,272.55	7,655.00	66.63	66.55	-90.078	-6,850.06	-831.15	1,969.01	1,847.15	121.86	16.158	
15,800.00	9,130.00	14,372.55	7,655.00	67.38	67.33	-90.078	-6,950.06	-831.01	1,968.97	1,845.59	123.38	15.958	
15,900.00	9,130.00	14,472.55	7,655.00	68.14	68.12	-90.078	-7,050.06	-830.87	1,968.93	1,844.03	124.90	15.764	
16,000.00	9,130.00	14,572.55	7,655.00	68.90	68.90	-90.078	-7,150.06	-830.74	1,968.89	1,842.46	126.43	15.573	
16,100.00	9,130.00	14,672.55	7,655.00	69.66	69.69	-90.078	-7,250.06	-830.60	1,968.84	1,840.89	127.95	15.387	
16,200.00	9,130.00	14,772.55	7,655.00	70.42	70.48	-90.078	-7,350.06	-830.47	1,968.80	1,839.31	129.48	15.205	
16,300.00	9,130.00	14,872.55	7,655.00	71.19	71.28	-90.078	-7,450.06	-830.33	1,968.76	1,837.74	131.02	15.027	
16,400.00	9,130.00	14,972.55	7,655.00	71.95	72.07	-90.078	-7,550.06	-830.20	1,968.71	1,836.16	132.55	14.852	
16,500.00	9,130.00	15,072.55	7,655.00	72.73	72.86	-90.078	-7,650.06	-830.06	1,968.67	1,834.58	134.09	14.682	
16,600.00	9,130.00	15,172.55	7,655.00	73.50	73.66	-90.078	-7,750.06	-829.92	1,968.63	1,833.00	135.63	14.515	
16,662.52	9,130.00	15,235.08	7,655.00	73.98	74.16	-90.078	-7,812.58	-829.84	1,968.60	1,832.01	136.59	14.412 SF	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 302H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+FDIR													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-6.843	250.00	-30.00	251.79					
100.00	100.00	100.00	100.00	0.14	0.14	-6.843	250.00	-30.00	251.79	251.52	0.27	918.180		
200.00	200.00	200.00	200.00	0.50	0.50	-6.843	250.00	-30.00	251.79	250.80	0.99	254.036		
300.00	300.00	300.00	300.00	0.85	0.85	-6.843	250.00	-30.00	251.79	250.09	1.71	147.410		
400.00	400.00	400.00	400.00	1.21	1.21	-6.843	250.00	-30.00	251.79	249.37	2.43	103.830		
500.00	500.00	500.00	500.00	1.57	1.57	-6.843	250.00	-30.00	251.79	248.65	3.14	80.138		
600.00	600.00	600.00	600.00	1.93	1.93	-6.843	250.00	-30.00	251.79	247.93	3.86	65.249		
700.00	700.00	700.00	700.00	2.29	2.29	-6.843	250.00	-30.00	251.79	247.22	4.58	55.026		
800.00	800.00	800.00	800.00	2.65	2.65	-6.843	250.00	-30.00	251.79	246.50	5.29	47.573		
900.00	900.00	900.00	900.00	3.00	3.00	-6.843	250.00	-30.00	251.79	245.78	6.01	41.897		
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	-6.843	250.00	-30.00	251.79	245.07	6.73	37.432		
1,100.00	1,100.00	1,100.00	1,100.00	3.72	3.72	-6.843	250.00	-30.00	251.79	244.35	7.44	33.827		
1,200.00	1,200.00	1,200.00	1,200.00	4.08	4.08	-6.843	250.00	-30.00	251.79	243.63	8.16	30.855		
1,300.00	1,300.00	1,300.00	1,300.00	4.44	4.44	-6.843	250.00	-30.00	251.79	242.92	8.88	28.363		
1,400.00	1,400.00	1,400.00	1,400.00	4.80	4.80	-6.843	250.00	-30.00	251.79	242.20	9.59	26.244		
1,500.00	1,500.00	1,500.00	1,500.00	5.16	5.16	-6.843	250.00	-30.00	251.79	241.48	10.31	24.419		
1,600.00	1,599.98	1,606.02	1,606.00	5.50	5.52	-6.879	248.92	-28.36	251.15	240.13	11.02	22.786		
1,700.00	1,699.84	1,712.01	1,711.82	5.84	5.88	-6.989	245.67	-23.46	249.23	237.52	11.71	21.287		
1,800.00	1,799.45	1,817.92	1,817.27	6.19	6.23	-7.179	240.28	-15.30	246.04	233.65	12.39	19.852		
1,900.00	1,898.70	1,923.72	1,922.18	6.53	6.59	-7.458	232.74	-3.91	241.59	228.51	13.08	18.473		
2,000.00	1,997.47	2,029.37	2,026.36	6.88	6.96	-7.839	223.10	10.68	235.91	222.15	13.76	17.146		
2,100.00	2,095.62	2,134.83	2,129.65	7.23	7.33	-8.344	211.35	28.43	229.02	214.59	14.44	15.863		
2,200.00	2,193.06	2,240.08	2,231.88	7.59	7.70	-8.999	197.56	49.29	220.98	205.87	15.11	14.624		
2,249.82	2,241.29	2,290.21	2,280.30	7.77	7.88	-9.565	190.41	60.10	216.75	201.29	15.46	14.023		
2,300.00	2,289.76	2,340.15	2,328.54	7.95	8.06	-10.291	183.27	70.88	212.68	196.87	15.81	13.452		
2,400.00	2,386.35	2,439.67	2,424.67	8.32	8.42	-11.825	169.06	92.38	204.69	188.17	16.52	12.390		
2,500.00	2,482.95	2,539.19	2,520.80	8.69	8.79	-13.485	154.84	113.87	196.85	179.61	17.24	11.420		
2,600.00	2,579.54	2,638.72	2,616.93	9.06	9.16	-15.285	140.63	135.36	189.19	171.23	17.96	10.535		
2,700.00	2,676.14	2,738.24	2,713.05	9.44	9.54	-17.240	126.42	156.85	181.73	163.04	18.68	9.727		
2,800.00	2,772.73	2,837.76	2,809.18	9.82	9.91	-19.364	112.20	178.34	174.49	155.08	19.41	8.990		
2,900.00	2,869.32	2,937.29	2,905.31	10.20	10.29	-21.674	97.99	199.83	167.52	147.38	20.14	8.318		
3,000.00	2,965.92	3,036.81	3,001.44	10.58	10.67	-24.187	83.77	221.32	160.83	139.96	20.87	7.705		
3,015.31	2,980.71	3,052.05	3,016.17	10.64	10.73	-24.591	81.59	224.61	159.83	138.85	20.98	7.617		
3,100.00	3,062.82	3,136.34	3,097.58	10.96	11.06	-26.558	69.56	242.82	153.66	132.05	21.61	7.111		
3,200.00	3,160.52	3,235.83	3,193.68	11.34	11.44	-28.131	55.35	264.30	144.47	122.13	22.35	6.465		
3,300.00	3,258.91	3,335.16	3,289.62	11.72	11.83	-28.795	41.16	285.75	133.06	109.97	23.09	5.762		
3,400.00	3,357.85	3,434.21	3,385.29	12.09	12.21	-28.324	27.01	307.14	119.35	95.51	23.84	5.007		
3,500.00	3,457.24	3,532.85	3,480.57	12.45	12.60	-26.241	12.92	328.44	103.44	78.85	24.59	4.207		
3,600.00	3,556.96	3,630.97	3,575.34	12.81	12.99	-21.518	-1.09	349.63	85.73	60.37	25.36	3.381		
3,700.00	3,656.87	3,728.44	3,669.49	13.16	13.37	-11.854	-15.01	370.67	67.40	41.23	26.17	2.575		
3,765.14	3,722.00	3,791.53	3,730.43	13.38	13.62	-0.719	-24.02	384.30	56.57	29.82	26.76	2.114		
3,800.00	3,756.87	3,825.05	3,762.82	13.50	13.75	7.220	-28.78	391.48	51.94	24.85	27.09	1.917		
3,899.93	3,856.79	3,921.75	3,856.79	13.84	14.13	33.482	-41.37	410.53	46.27	18.31	27.95	1.655 CC		
3,900.00	3,856.87	3,921.83	3,856.86	13.84	14.13	33.502	-41.38	410.54	46.27	18.31	27.95	1.655 ES, SF		
4,000.00	3,956.87	4,020.10	3,953.09	14.19	14.51	56.806	-52.38	427.16	50.53	21.92	28.61	1.766		
4,100.00	4,056.87	4,119.67	4,051.22	14.53	14.88	71.955	-61.65	441.19	59.37	30.13	29.23	2.031		
4,200.00	4,156.87	4,220.31	4,150.94	14.87	15.25	80.868	-69.11	452.47	68.59	38.71	29.88	2.296		
4,300.00	4,256.87	4,321.79	4,251.92	15.22	15.62	86.016	-74.68	460.88	76.22	45.69	30.53	2.496		
4,400.00	4,356.87	4,423.86	4,353.77	15.57	15.98	88.814	-78.28	466.32	81.40	50.22	31.18	2.611		
4,500.00	4,456.87	4,526.27	4,456.14	15.91	16.33	89.941	-79.87	468.74	83.74	51.95	31.80	2.634		
4,600.00	4,556.87	4,627.00	4,556.87	16.26	16.67	90.000	-79.96	468.87	83.87	51.42	32.45	2.584		
4,700.00	4,656.87	4,727.00	4,656.87	16.61	17.00	90.000	-79.96	468.87	83.87	50.74	33.13	2.532		

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 302H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Rule Assigned:		Distance		Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Reference	Offset	from North (°)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,800.00	4,756.87	4,827.00	4,756.87	16.95	17.33	90.000	-79.96	468.87	83.87	50.06	33.81	2.481	
4,900.00	4,856.87	4,927.00	4,856.87	17.30	17.66	90.000	-79.96	468.87	83.87	49.38	34.49	2.432	
5,000.00	4,956.87	5,027.00	4,956.87	17.65	18.00	90.000	-79.96	468.87	83.87	48.70	35.17	2.385	
5,100.00	5,056.87	5,127.00	5,056.87	18.00	18.33	90.000	-79.96	468.87	83.87	48.02	35.85	2.339	
5,200.00	5,156.87	5,227.00	5,156.87	18.35	18.67	90.000	-79.96	468.87	83.87	47.34	36.53	2.296	
5,300.00	5,256.87	5,327.00	5,256.87	18.70	19.00	90.000	-79.96	468.87	83.87	46.65	37.22	2.253	
5,400.00	5,356.87	5,427.00	5,356.87	19.05	19.34	90.000	-79.96	468.87	83.87	45.97	37.90	2.213	
5,500.00	5,456.87	5,527.00	5,456.87	19.40	19.68	90.000	-79.96	468.87	83.87	45.28	38.59	2.173	
5,600.00	5,556.87	5,627.00	5,556.87	19.75	20.02	90.000	-79.96	468.87	83.87	44.59	39.28	2.135	
5,700.00	5,656.87	5,727.00	5,656.87	20.10	20.36	90.000	-79.96	468.87	83.87	43.90	39.97	2.098	
5,800.00	5,756.87	5,827.00	5,756.87	20.45	20.70	90.000	-79.96	468.87	83.87	43.21	40.66	2.063	
5,900.00	5,856.87	5,927.00	5,856.87	20.80	21.04	90.000	-79.96	468.87	83.87	42.52	41.35	2.028	
6,000.00	5,956.87	6,027.00	5,956.87	21.16	21.38	90.000	-79.96	468.87	83.87	41.83	42.04	1.995	
6,100.00	6,056.87	6,127.00	6,056.87	21.51	21.72	90.000	-79.96	468.87	83.87	41.13	42.74	1.963	
6,200.00	6,156.87	6,227.00	6,156.87	21.86	22.06	90.000	-79.96	468.87	83.87	40.44	43.43	1.931	
6,300.00	6,256.87	6,327.00	6,256.87	22.21	22.41	90.000	-79.96	468.87	83.87	39.75	44.12	1.901	
6,400.00	6,356.87	6,427.00	6,356.87	22.57	22.75	90.000	-79.96	468.87	83.87	39.05	44.82	1.871	
6,500.00	6,456.87	6,527.00	6,456.87	22.92	23.09	90.000	-79.96	468.87	83.87	38.36	45.51	1.843	
6,600.00	6,556.87	6,627.00	6,556.87	23.27	23.44	90.000	-79.96	468.87	83.87	37.66	46.21	1.815	
6,700.00	6,656.87	6,727.00	6,656.87	23.62	23.78	90.000	-79.96	468.87	83.87	36.96	46.91	1.788	
6,800.00	6,756.87	6,827.00	6,756.87	23.98	24.13	90.000	-79.96	468.87	83.87	36.27	47.60	1.762	
6,900.00	6,856.87	6,927.00	6,856.87	24.33	24.47	90.000	-79.96	468.87	83.87	35.57	48.30	1.736	
7,000.00	6,956.87	7,027.00	6,956.87	24.68	24.82	90.000	-79.96	468.87	83.87	34.87	49.00	1.712	
7,100.00	7,056.87	7,127.00	7,056.87	25.04	25.17	90.000	-79.96	468.87	83.87	34.17	49.70	1.687	
7,106.22	7,063.08	7,133.22	7,063.08	25.06	25.19	90.000	-79.96	468.87	83.87	34.13	49.74	1.686	
7,200.00	7,156.87	7,226.57	7,156.23	25.39	25.51	93.291	-84.78	468.87	84.01	33.62	50.39	1.667	
7,300.00	7,256.87	7,321.84	7,249.24	25.75	25.83	106.556	-104.90	468.89	87.85	36.76	51.09	1.720	
7,400.00	7,356.87	7,408.41	7,329.82	26.10	26.12	123.882	-136.30	468.91	104.63	53.62	51.01	2.051	
7,500.00	7,456.87	7,484.07	7,395.69	26.45	26.36	138.078	-173.43	468.93	139.73	90.33	49.40	2.829	
7,600.00	7,556.87	7,550.00	7,448.66	26.81	26.57	147.670	-212.61	468.96	190.66	143.47	47.19	4.040	
7,700.00	7,656.87	7,600.00	7,485.64	27.16	26.71	153.204	-246.24	468.98	253.02	208.60	44.42	5.696	
7,800.00	7,756.87	7,650.00	7,519.55	27.52	26.86	157.520	-282.96	469.00	323.40	280.65	42.74	7.566	
7,900.00	7,856.87	7,687.33	7,542.71	27.87	26.96	160.113	-312.23	469.02	399.63	358.74	40.89	9.772	
8,000.00	7,956.87	7,719.93	7,561.34	28.23	27.05	162.024	-338.98	469.04	480.20	440.77	39.44	12.177	
8,100.00	8,056.87	7,750.00	7,577.15	28.58	27.13	163.545	-364.56	469.06	564.08	525.73	38.36	14.707	
8,200.00	8,156.87	7,771.55	7,587.64	28.94	27.19	164.513	-383.37	469.07	650.50	613.24	37.26	17.460	
8,300.00	8,256.87	7,800.00	7,600.39	29.29	27.27	165.657	-408.80	469.08	739.03	702.25	36.78	20.095	
8,400.00	8,356.87	7,800.00	7,600.39	29.65	27.27	165.657	-408.80	469.08	829.13	793.67	35.46	23.382	
8,500.00	8,456.87	7,825.92	7,610.90	30.00	27.34	166.582	-432.49	469.10	920.33	885.02	35.31	26.065	
8,600.00	8,556.87	7,850.00	7,619.70	30.36	27.41	167.356	-454.91	469.11	1,012.89	977.69	35.20	28.775	
8,600.18	8,557.04	7,850.00	7,619.70	30.36	27.41	167.356	-454.91	469.11	1,013.05	977.85	35.20	28.781	
8,650.00	8,606.80	7,850.00	7,619.70	30.53	27.41	167.321	-454.91	469.11	1,058.48	1,023.69	34.79	30.424	
8,700.00	8,656.36	7,850.00	7,619.70	30.69	27.41	167.215	-454.91	469.11	1,102.62	1,068.28	34.34	32.109	
8,750.00	8,705.16	7,850.00	7,619.70	30.86	27.41	167.031	-454.91	469.11	1,145.16	1,111.30	33.86	33.817	
8,800.00	8,752.84	7,873.46	7,627.35	31.01	27.47	167.537	-477.08	469.13	1,185.25	1,151.33	33.92	34.947	
8,850.00	8,799.02	7,900.00	7,634.91	31.17	27.54	168.069	-502.52	469.15	1,223.78	1,189.80	33.98	36.018	
8,900.00	8,843.37	7,900.00	7,634.91	31.31	27.54	167.720	-502.52	469.15	1,259.38	1,225.97	33.41	37.698	
8,950.00	8,885.53	7,900.00	7,634.91	31.45	27.54	167.251	-502.52	469.15	1,292.87	1,260.02	32.85	39.359	
9,000.00	8,925.20	7,917.93	7,639.34	31.58	27.58	167.349	-519.90	469.16	1,323.76	1,291.12	32.64	40.554	
9,050.00	8,962.06	7,930.20	7,642.06	31.69	27.62	167.159	-531.86	469.16	1,352.04	1,319.72	32.32	41.837	
9,100.00	8,995.84	7,950.00	7,645.91	31.81	27.67	167.214	-551.28	469.18	1,377.64	1,345.52	32.12	42.890	
9,150.00	9,026.28	7,950.00	7,645.91	31.91	27.67	166.167	-551.28	469.18	1,400.32	1,368.71	31.61	44.301	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 302H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Reference	Offset	from North (°)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
9,200.00	9,053.15	7,968.90	7,648.96	32.01	27.71	165.924	-569.93	469.19	1,420.08	1,388.67	31.41	45.207	
9,250.00	9,076.24	8,000.00	7,652.63	32.11	27.79	166.412	-600.81	469.21	1,437.30	1,405.91	31.39	45.787	
9,300.00	9,095.38	8,000.00	7,652.63	32.21	27.79	164.282	-600.81	469.21	1,450.76	1,419.79	30.97	46.837	
9,350.00	9,110.43	8,000.00	7,652.63	32.30	27.79	160.149	-600.81	469.21	1,461.61	1,430.97	30.63	47.713	
9,400.00	9,121.26	8,023.33	7,654.27	32.39	27.85	157.752	-624.08	469.22	1,469.16	1,438.58	30.58	48.043	
9,450.00	9,127.80	8,052.18	7,655.00	32.48	27.92	155.314	-652.92	469.24	1,473.98	1,443.38	30.60	48.176	
9,500.00	9,130.00	8,052.18	7,655.00	32.55	27.92	101.695	-652.92	469.24	1,475.12	1,444.70	30.42	48.492	
9,500.18	9,130.00	8,052.18	7,655.00	32.55	27.92	101.201	-652.92	469.24	1,475.12	1,444.70	30.42	48.493	
9,600.00	9,130.00	8,147.78	7,655.00	32.71	28.15	89.963	-748.52	469.31	1,475.03	1,444.18	30.85	47.816	
9,700.00	9,130.00	8,247.59	7,655.00	32.89	28.42	89.963	-848.33	469.37	1,475.00	1,443.61	31.39	46.995	
9,800.00	9,130.00	8,347.55	7,655.00	33.09	28.70	89.963	-948.29	469.44	1,475.00	1,442.99	32.01	46.078	
9,822.50	9,130.00	8,370.05	7,655.00	33.13	28.77	89.963	-970.79	469.45	1,475.00	1,442.84	32.16	45.862	
9,825.64	9,130.00	8,373.19	7,655.00	33.14	28.78	89.963	-973.93	469.45	1,475.00	1,442.81	32.18	45.832	
9,900.00	9,130.00	8,447.55	7,655.00	33.30	29.01	89.963	-1,048.29	469.50	1,475.00	1,442.29	32.71	45.092	
10,000.00	9,130.00	8,547.55	7,655.00	33.53	29.35	89.963	-1,148.29	469.57	1,475.00	1,441.53	33.47	44.069	
10,100.00	9,130.00	8,647.55	7,655.00	33.78	29.70	89.963	-1,248.29	469.63	1,475.00	1,440.71	34.28	43.022	
10,200.00	9,130.00	8,747.55	7,655.00	34.05	30.07	89.963	-1,348.29	469.70	1,475.00	1,439.85	35.15	41.963	
10,300.00	9,130.00	8,847.55	7,655.00	34.33	30.46	89.963	-1,448.29	469.76	1,475.00	1,438.94	36.06	40.901	
10,400.00	9,130.00	8,947.55	7,655.00	34.64	30.87	89.963	-1,548.29	469.83	1,475.00	1,437.98	37.02	39.844	
10,500.00	9,130.00	9,047.55	7,655.00	34.97	31.30	89.963	-1,648.29	469.89	1,475.00	1,436.98	38.02	38.799	
10,600.00	9,130.00	9,147.55	7,655.00	35.31	31.75	89.963	-1,748.29	469.96	1,475.00	1,435.95	39.05	37.771	
10,700.00	9,130.00	9,247.55	7,655.00	35.67	32.21	89.963	-1,848.29	470.02	1,475.00	1,434.88	40.12	36.765	
10,800.00	9,130.00	9,347.55	7,655.00	36.05	32.69	89.963	-1,948.29	470.09	1,475.00	1,433.78	41.22	35.783	
10,900.00	9,130.00	9,447.55	7,655.00	36.44	33.18	89.963	-2,048.29	470.15	1,475.00	1,432.65	42.35	34.829	
11,000.00	9,130.00	9,547.55	7,655.00	36.85	33.69	89.963	-2,148.29	470.22	1,475.00	1,431.49	43.51	33.903	
11,100.00	9,130.00	9,647.55	7,655.00	37.28	34.22	89.963	-2,248.29	470.28	1,475.00	1,430.31	44.69	33.006	
11,200.00	9,130.00	9,747.55	7,655.00	37.72	34.75	89.963	-2,348.29	470.35	1,475.00	1,429.10	45.89	32.139	
11,300.00	9,130.00	9,847.55	7,655.00	38.17	35.30	89.963	-2,448.29	470.41	1,475.00	1,427.88	47.12	31.303	
11,400.00	9,130.00	9,947.55	7,655.00	38.64	35.86	89.963	-2,548.29	470.48	1,475.00	1,426.63	48.37	30.497	
11,500.00	9,130.00	10,047.55	7,655.00	39.12	36.43	89.963	-2,648.29	470.54	1,475.00	1,425.37	49.63	29.720	
11,600.00	9,130.00	10,147.55	7,655.00	39.62	37.02	89.963	-2,748.29	470.61	1,475.00	1,424.09	50.91	28.972	
11,700.00	9,130.00	10,247.55	7,655.00	40.12	37.61	89.963	-2,848.29	470.67	1,475.00	1,422.79	52.21	28.253	
11,800.00	9,130.00	10,347.55	7,655.00	40.64	38.21	89.963	-2,948.29	470.74	1,475.00	1,421.48	53.52	27.561	
11,900.00	9,130.00	10,447.55	7,655.00	41.17	38.83	89.963	-3,048.29	470.81	1,475.00	1,420.16	54.84	26.895	
12,000.00	9,130.00	10,547.55	7,655.00	41.71	39.45	89.963	-3,148.29	470.87	1,475.00	1,418.82	56.18	26.255	
12,100.00	9,130.00	10,647.55	7,655.00	42.26	40.08	89.963	-3,248.29	470.94	1,475.00	1,417.47	57.53	25.640	
12,200.00	9,130.00	10,747.55	7,655.00	42.83	40.72	89.963	-3,348.29	471.00	1,475.00	1,416.11	58.89	25.048	
12,300.00	9,130.00	10,847.55	7,655.00	43.40	41.37	89.963	-3,448.29	471.07	1,475.00	1,414.74	60.26	24.478	
12,400.00	9,130.00	10,947.55	7,655.00	43.98	42.02	89.963	-3,548.29	471.13	1,475.00	1,413.36	61.64	23.931	
12,500.00	9,130.00	11,047.55	7,655.00	44.57	42.69	89.963	-3,648.29	471.20	1,475.00	1,411.97	63.02	23.404	
12,600.00	9,130.00	11,147.55	7,655.00	45.17	43.36	89.963	-3,748.29	471.26	1,475.00	1,410.58	64.42	22.896	
12,700.00	9,130.00	11,247.55	7,655.00	45.77	44.03	89.963	-3,848.29	471.33	1,475.00	1,409.17	65.82	22.408	
12,800.00	9,130.00	11,347.55	7,655.00	46.39	44.71	89.963	-3,948.29	471.39	1,475.00	1,407.76	67.24	21.938	
12,900.00	9,130.00	11,447.55	7,655.00	47.01	45.40	89.963	-4,048.29	471.46	1,475.00	1,406.34	68.65	21.485	
13,000.00	9,130.00	11,547.55	7,655.00	47.64	46.10	89.963	-4,148.29	471.52	1,475.00	1,404.92	70.08	21.048	
13,100.00	9,130.00	11,647.55	7,655.00	48.28	46.80	89.963	-4,248.29	471.59	1,475.00	1,403.49	71.51	20.627	
13,200.00	9,130.00	11,747.55	7,655.00	48.92	47.50	89.963	-4,348.29	471.65	1,475.00	1,402.05	72.95	20.221	
13,300.00	9,130.00	11,847.55	7,655.00	49.57	48.21	89.963	-4,448.29	471.72	1,475.00	1,400.61	74.39	19.829	
13,400.00	9,130.00	11,947.55	7,655.00	50.23	48.93	89.963	-4,548.29	471.78	1,475.00	1,399.17	75.83	19.450	
13,500.00	9,130.00	12,047.55	7,655.00	50.89	49.65	89.963	-4,648.29	471.85	1,475.00	1,397.71	77.28	19.085	
13,600.00	9,130.00	12,147.55	7,655.00	51.56	50.37	89.963	-4,748.29	471.91	1,475.00	1,396.26	78.74	18.732	
13,700.00	9,130.00	12,247.55	7,655.00	52.24	51.10	89.963	-4,848.29	471.98	1,475.00	1,394.80	80.20	18.391	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 302H - Wellbore #1 - Design #1													Offset Site Error:
Survey Program: 0-MWD+IFR1+FDIR													Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,800.00	9,130.00	12,347.55	7,655.00	52.91	51.83	89.963	-4,948.29	472.04	1,475.00	1,393.33	81.67	18.062	
13,900.00	9,130.00	12,447.55	7,655.00	53.60	52.57	89.963	-5,048.29	472.11	1,475.00	1,391.87	83.13	17.743	
14,000.00	9,130.00	12,547.55	7,655.00	54.29	53.31	89.963	-5,148.29	472.17	1,475.00	1,390.39	84.61	17.434	
14,100.00	9,130.00	12,647.55	7,655.00	54.98	54.05	89.963	-5,248.29	472.24	1,475.00	1,388.92	86.08	17.135	
14,200.00	9,130.00	12,747.55	7,655.00	55.68	54.80	89.963	-5,348.29	472.30	1,475.00	1,387.44	87.56	16.846	
14,300.00	9,130.00	12,847.55	7,655.00	56.39	55.55	89.963	-5,448.29	472.37	1,475.00	1,385.96	89.04	16.566	
14,400.00	9,130.00	12,947.55	7,655.00	57.10	56.30	89.963	-5,548.29	472.43	1,475.00	1,384.47	90.52	16.294	
14,500.00	9,130.00	13,047.55	7,655.00	57.81	57.05	89.963	-5,648.29	472.50	1,475.00	1,382.99	92.01	16.031	
14,600.00	9,130.00	13,147.55	7,655.00	58.52	57.81	89.963	-5,748.29	472.57	1,475.00	1,381.50	93.50	15.775	
14,700.00	9,130.00	13,247.55	7,655.00	59.24	58.58	89.963	-5,848.29	472.63	1,475.00	1,380.01	94.99	15.527	
14,800.00	9,130.00	13,347.55	7,655.00	59.97	59.34	89.963	-5,948.29	472.70	1,475.00	1,378.51	96.49	15.287	
14,900.00	9,130.00	13,447.55	7,655.00	60.69	60.11	89.963	-6,048.29	472.76	1,475.00	1,377.01	97.99	15.053	
15,000.00	9,130.00	13,547.55	7,655.00	61.42	60.88	89.963	-6,148.29	472.83	1,475.00	1,375.51	99.49	14.826	
15,100.00	9,130.00	13,647.55	7,655.00	62.16	61.65	89.963	-6,248.29	472.89	1,475.00	1,374.01	100.99	14.606	
15,200.00	9,130.00	13,747.55	7,655.00	62.90	62.42	89.963	-6,348.29	472.96	1,475.00	1,372.51	102.49	14.391	
15,300.00	9,130.00	13,847.55	7,655.00	63.64	63.20	89.963	-6,448.29	473.02	1,475.00	1,371.00	104.00	14.183	
15,400.00	9,130.00	13,947.55	7,655.00	64.38	63.98	89.963	-6,548.29	473.09	1,475.00	1,369.50	105.50	13.980	
15,500.00	9,130.00	14,047.55	7,655.00	65.13	64.76	89.963	-6,648.29	473.15	1,475.00	1,367.99	107.01	13.783	
15,600.00	9,130.00	14,147.55	7,655.00	65.87	65.54	89.963	-6,748.29	473.22	1,475.00	1,366.48	108.52	13.591	
15,700.00	9,130.00	14,247.55	7,655.00	66.63	66.33	89.963	-6,848.29	473.28	1,475.00	1,364.96	110.04	13.405	
15,800.00	9,130.00	14,347.55	7,655.00	67.38	67.11	89.963	-6,948.29	473.35	1,475.00	1,363.45	111.55	13.223	
15,900.00	9,130.00	14,447.55	7,655.00	68.14	67.90	89.963	-7,048.29	473.41	1,475.00	1,361.93	113.07	13.045	
16,000.00	9,130.00	14,547.55	7,655.00	68.90	68.69	89.963	-7,148.29	473.48	1,475.00	1,360.42	114.58	12.873	
16,100.00	9,130.00	14,647.55	7,655.00	69.66	69.48	89.963	-7,248.29	473.54	1,475.00	1,358.90	116.10	12.704	
16,200.00	9,130.00	14,747.55	7,655.00	70.42	70.28	89.963	-7,348.29	473.61	1,475.00	1,357.38	117.62	12.540	
16,300.00	9,130.00	14,847.55	7,655.00	71.19	71.07	89.963	-7,448.29	473.67	1,475.00	1,355.86	119.14	12.380	
16,400.00	9,130.00	14,947.55	7,655.00	71.95	71.87	89.963	-7,548.29	473.74	1,475.00	1,354.33	120.67	12.224	
16,500.00	9,130.00	15,047.55	7,655.00	72.73	72.66	89.963	-7,648.29	473.80	1,475.00	1,352.81	122.19	12.071	
16,600.00	9,130.00	15,147.55	7,655.00	73.50	73.46	89.963	-7,748.29	473.87	1,475.00	1,351.29	123.71	11.923	
16,662.52	9,130.00	15,210.07	7,655.00	73.98	73.96	0.000	-7,810.81	473.91	1,475.00	1,350.33	124.67	11.831	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 551H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Reference	Offset	from North (°)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
0.00	0.00	0.00	0.00	0.00	-90.045		-0.07	-90.03	90.03				
100.00	100.00	100.00	0.14	0.14	-90.045		-0.07	-90.03	90.03	89.76	0.27	328.300	
200.00	200.00	200.00	0.50	0.50	-90.045		-0.07	-90.03	90.03	89.04	0.99	90.832	
300.00	300.00	300.00	0.85	0.85	-90.045		-0.07	-90.03	90.03	88.32	1.71	52.707	
400.00	400.00	400.00	1.21	1.21	-90.045		-0.07	-90.03	90.03	87.60	2.43	37.125	
500.00	500.00	500.00	1.57	1.57	-90.045		-0.07	-90.03	90.03	86.89	3.14	28.654	
600.00	600.00	600.00	1.93	1.93	-90.045		-0.07	-90.03	90.03	86.17	3.86	23.330	
700.00	700.00	700.00	2.29	2.29	-90.045		-0.07	-90.03	90.03	85.45	4.58	19.675	
800.00	800.00	800.00	2.65	2.65	-90.045		-0.07	-90.03	90.03	84.74	5.29	17.010	
900.00	900.00	900.00	3.00	3.00	-90.045		-0.07	-90.03	90.03	84.02	6.01	14.981	
1,000.00	1,000.00	1,000.00	3.36	3.36	-90.045		-0.07	-90.03	90.03	83.30	6.73	13.384	
1,100.00	1,100.00	1,100.00	3.72	3.72	-90.045		-0.07	-90.03	90.03	82.59	7.44	12.095	
1,200.00	1,200.00	1,200.00	4.08	4.08	-90.045		-0.07	-90.03	90.03	81.87	8.16	11.032	
1,300.00	1,300.00	1,300.00	4.44	4.44	-90.045		-0.07	-90.03	90.03	81.15	8.88	10.141	
1,400.00	1,400.00	1,400.00	4.80	4.80	-90.045		-0.07	-90.03	90.03	80.44	9.59	9.384	
1,500.00	1,500.00	1,500.00	5.16	5.16	-90.045		-0.07	-90.03	90.03	79.72	10.31	8.731 CC, ES	
1,600.00	1,599.98	1,596.85	5.50	5.49	-89.886		-0.17	-91.66	93.43	82.43	10.99	8.499 SF	
1,700.00	1,699.84	1,693.03	5.84	5.82	-89.472		-0.47	-96.52	103.59	91.94	11.65	8.894	
1,800.00	1,799.45	1,787.89	6.19	6.15	-88.929		-0.95	-104.46	120.45	108.16	12.29	9.803	
1,900.00	1,898.70	1,880.83	6.53	6.47	-88.369		-1.61	-115.26	143.87	130.96	12.91	11.144	
2,000.00	1,997.47	1,971.28	6.88	6.79	-87.852		-2.43	-128.64	173.69	160.18	13.51	12.854	
2,100.00	2,095.62	2,058.74	7.23	7.10	-87.395		-3.38	-144.24	209.68	195.59	14.09	14.880	
2,200.00	2,193.06	2,142.80	7.59	7.40	-86.996		-4.45	-161.71	251.59	236.95	14.65	17.180	
2,249.82	2,241.29	2,183.29	7.77	7.54	-86.815		-5.01	-170.98	274.60	259.68	14.91	18.413	
2,300.00	2,289.76	2,223.29	7.95	7.69	-86.657		-5.60	-180.68	298.76	283.59	15.17	19.690	
2,400.00	2,386.35	2,307.35	8.32	7.99	-86.453		-6.92	-202.28	348.20	332.45	15.76	22.099	
2,500.00	2,482.95	2,394.19	8.69	8.31	-86.314		-8.29	-224.72	397.78	381.40	16.39	24.275	
2,600.00	2,579.54	2,481.03	9.06	8.64	-86.206		-9.66	-247.15	447.36	430.34	17.02	26.281	
2,700.00	2,676.14	2,567.87	9.44	8.96	-86.120		-11.03	-269.59	496.95	479.28	17.66	28.133	
2,800.00	2,772.73	2,654.70	9.82	9.29	-86.050		-12.40	-292.03	546.53	528.22	18.31	29.847	
2,900.00	2,869.32	2,741.54	10.20	9.62	-85.991		-13.77	-314.46	596.12	577.16	18.96	31.438	
3,000.00	2,965.92	2,828.38	10.58	9.95	-85.941		-15.14	-336.90	645.70	626.09	19.62	32.915	
3,015.31	2,980.71	2,841.68	10.64	10.00	-85.934		-15.35	-340.34	653.30	633.58	19.72	33.132	
3,100.00	3,062.82	2,915.83	10.96	10.28	-85.914		-16.52	-359.49	694.21	673.93	20.28	34.238	
3,200.00	3,160.52	3,004.87	11.34	10.62	-85.930		-17.92	-382.50	739.70	718.76	20.94	35.319	
3,300.00	3,258.91	3,095.44	11.72	10.97	-85.983		-19.35	-405.90	782.09	760.47	21.62	36.173	
3,400.00	3,357.85	3,187.40	12.09	11.33	-86.068		-20.80	-429.66	821.33	799.02	22.31	36.820	
3,500.00	3,457.24	3,280.66	12.45	11.69	-86.181		-22.27	-453.76	857.37	834.37	23.00	37.278	
3,600.00	3,556.96	3,375.11	12.81	12.06	-86.319		-23.76	-478.16	890.16	866.47	23.70	37.563	
3,700.00	3,656.87	3,470.61	13.16	12.44	-86.482		-25.27	-502.83	919.69	895.29	24.40	37.692	
3,765.14	3,722.00	3,533.34	13.38	12.68	-86.600		-26.26	-519.04	937.14	912.28	24.86	37.701	
3,800.00	3,756.87	3,567.01	13.50	12.82	-86.666		-26.79	-527.74	946.10	921.00	25.10	37.691	
3,900.00	3,856.87	3,663.60	13.84	13.20	-86.847		-28.31	-552.70	971.82	946.01	25.81	37.655	
4,000.00	3,956.87	3,760.20	14.19	13.58	-87.019		-29.83	-577.65	997.55	971.03	26.52	37.619	
4,100.00	4,056.87	3,856.79	14.53	13.96	-87.183		-31.36	-602.61	1,023.28	996.05	27.23	37.583	
4,200.00	4,156.87	3,953.38	14.87	14.34	-87.338		-32.88	-627.57	1,049.02	1,021.09	27.94	37.547	
4,300.00	4,256.87	4,049.97	15.22	14.73	-87.486		-34.40	-652.52	1,074.77	1,046.12	28.65	37.511	
4,400.00	4,356.87	4,146.56	15.57	15.11	-87.627		-35.93	-677.48	1,100.53	1,071.16	29.37	37.476	
4,500.00	4,456.87	4,243.15	15.91	15.49	-87.761		-37.45	-702.44	1,126.29	1,096.21	30.08	37.441	
4,600.00	4,556.87	4,339.75	16.26	15.88	-87.890		-38.97	-727.39	1,152.06	1,121.26	30.80	37.406	
4,700.00	4,656.87	4,436.34	16.61	16.27	-88.013		-40.50	-752.35	1,177.83	1,146.31	31.52	37.372	
4,800.00	4,756.87	4,532.93	16.95	16.65	-88.130		-42.02	-777.31	1,203.61	1,171.37	32.24	37.338	

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 551H - Wellbore #1 - Design #1														Offset Site Error: 0.00 usft	
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error: 0.00 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
4,900.00	4,856.87	4,629.52	4,539.88	17.30	17.04	-88.243	-43.54	-802.26	1,229.39	1,196.43	32.96	37.305			
5,000.00	4,956.87	4,726.11	4,633.18	17.65	17.43	-88.351	-45.07	-827.22	1,255.17	1,221.50	33.68	37.272			
5,100.00	5,056.87	4,822.70	4,726.48	18.00	17.81	-88.455	-46.59	-852.18	1,280.96	1,246.57	34.40	37.240			
5,200.00	5,156.87	4,919.30	4,819.78	18.35	18.20	-88.555	-48.11	-877.13	1,306.76	1,271.64	35.12	37.209			
5,300.00	5,256.87	5,015.89	4,913.08	18.70	18.59	-88.650	-49.64	-902.09	1,332.55	1,296.71	35.84	37.178			
5,400.00	5,356.87	5,112.48	5,006.38	19.05	18.98	-88.743	-51.16	-927.04	1,358.36	1,321.79	36.57	37.148			
5,500.00	5,456.87	5,209.07	5,099.68	19.40	19.37	-88.831	-52.68	-952.00	1,384.16	1,346.87	37.29	37.118			
5,600.00	5,556.87	5,305.66	5,192.98	19.75	19.76	-88.917	-54.21	-976.96	1,409.97	1,371.95	38.02	37.089			
5,700.00	5,656.87	5,402.25	5,286.28	20.10	20.14	-88.999	-55.73	-1,001.91	1,435.78	1,397.03	38.74	37.061			
5,800.00	5,756.87	5,498.85	5,379.58	20.45	20.53	-89.079	-57.25	-1,026.87	1,461.59	1,422.12	39.47	37.033			
5,900.00	5,856.87	5,595.44	5,472.88	20.80	20.92	-89.155	-58.78	-1,051.83	1,487.40	1,447.21	40.19	37.006			
6,000.00	5,956.87	5,692.03	5,566.18	21.16	21.31	-89.229	-60.30	-1,076.78	1,513.22	1,472.30	40.92	36.979			
6,100.00	6,056.87	5,788.62	5,659.48	21.51	21.70	-89.301	-61.82	-1,101.74	1,539.04	1,497.39	41.65	36.953			
6,200.00	6,156.87	5,885.21	5,752.78	21.86	22.09	-89.370	-63.35	-1,126.70	1,564.86	1,522.48	42.38	36.927			
6,300.00	6,256.87	5,981.81	5,846.08	22.21	22.49	-89.437	-64.87	-1,151.65	1,590.68	1,547.58	43.11	36.902			
6,400.00	6,356.87	6,078.40	5,939.38	22.57	22.88	-89.502	-66.39	-1,176.61	1,616.51	1,572.68	43.83	36.877			
6,500.00	6,456.87	6,174.99	6,032.68	22.92	23.27	-89.565	-67.92	-1,201.57	1,642.34	1,597.77	44.56	36.853			
6,600.00	6,556.87	6,271.58	6,125.98	23.27	23.66	-89.626	-69.44	-1,226.52	1,668.17	1,622.87	45.29	36.830			
6,700.00	6,656.87	6,368.17	6,219.27	23.62	24.05	-89.685	-70.96	-1,251.48	1,694.00	1,647.97	46.02	36.806			
6,800.00	6,756.87	6,464.76	6,312.57	23.98	24.44	-89.742	-72.49	-1,276.43	1,719.83	1,673.07	46.76	36.784			
6,900.00	6,856.87	6,561.36	6,405.87	24.33	24.83	-89.798	-74.01	-1,301.39	1,745.66	1,698.18	47.49	36.761			
7,000.00	6,956.87	6,657.95	6,499.17	24.68	25.22	-89.852	-75.53	-1,326.35	1,771.50	1,723.28	48.22	36.739			
7,100.00	7,056.87	6,754.54	6,592.47	25.04	25.62	-89.904	-77.06	-1,351.30	1,797.34	1,748.39	48.95	36.718			
7,200.00	7,156.87	6,851.13	6,685.77	25.39	26.01	-89.955	-78.58	-1,376.26	1,823.18	1,773.49	49.68	36.697			
7,300.00	7,256.87	6,947.72	6,779.07	25.75	26.40	-90.005	-80.10	-1,401.22	1,849.02	1,798.60	50.41	36.676			
7,400.00	7,356.87	7,135.77	6,961.54	26.10	27.15	-90.091	-82.87	-1,446.49	1,873.67	1,821.84	51.83	36.152			
7,500.00	7,456.87	7,374.76	7,197.02	26.45	28.06	-90.164	-85.33	-1,486.80	1,889.76	1,836.37	53.38	35.999			
7,600.00	7,556.87	7,715.95	7,537.13	26.81	29.24	-90.207	-86.80	-1,510.92	1,896.04	1,841.14	54.90	34.534			
7,700.00	7,656.87	7,835.69	7,656.87	27.16	29.63	-90.207	-86.81	-1,511.08	1,896.09	1,840.48	55.61	34.097			
7,800.00	7,756.87	7,935.69	7,756.87	27.52	29.95	-90.207	-86.81	-1,511.08	1,896.09	1,839.81	56.28	33.690			
7,900.00	7,856.87	8,035.69	7,856.87	27.87	30.27	-90.207	-86.81	-1,511.08	1,896.09	1,839.14	56.95	33.291			
8,000.00	7,956.87	8,135.69	7,956.87	28.23	30.59	-90.207	-86.81	-1,511.08	1,896.09	1,838.46	57.63	32.901			
8,100.00	8,056.87	8,235.69	8,056.87	28.58	30.91	-90.207	-86.81	-1,511.08	1,896.09	1,837.79	58.31	32.520			
8,200.00	8,156.87	8,335.69	8,156.87	28.94	31.24	-90.207	-86.81	-1,511.08	1,896.09	1,837.11	58.98	32.147			
8,300.00	8,256.87	8,435.69	8,256.87	29.29	31.56	-90.207	-86.81	-1,511.08	1,896.09	1,836.43	59.66	31.782			
8,400.00	8,356.87	8,535.69	8,356.87	29.65	31.89	-90.207	-86.81	-1,511.08	1,896.09	1,835.75	60.34	31.424			
8,500.00	8,456.87	8,635.69	8,456.87	30.00	32.21	-90.207	-86.81	-1,511.08	1,896.09	1,835.07	61.02	31.074			
8,600.00	8,556.87	8,735.69	8,556.87	30.36	32.54	-90.207	-86.81	-1,511.08	1,896.09	1,834.39	61.70	30.732			
8,600.18	8,557.04	8,735.87	8,557.04	30.36	32.54	-90.207	-86.81	-1,511.08	1,896.09	1,834.39	61.70	30.731			
8,650.00	8,606.80	8,785.46	8,606.57	30.53	32.69	-90.207	-88.95	-1,511.08	1,896.33	1,834.31	62.03	30.572			
8,700.00	8,656.36	8,835.22	8,655.90	30.69	32.85	-90.206	-95.40	-1,511.06	1,897.06	1,834.71	62.35	30.427			
8,750.00	8,705.16	8,884.97	8,704.47	30.86	33.00	-90.205	-106.10	-1,511.04	1,898.27	1,835.61	62.67	30.292			
8,800.00	8,752.84	8,934.71	8,751.92	31.01	33.14	-90.203	-120.97	-1,511.00	1,899.95	1,836.97	62.98	30.169			
8,850.00	8,799.02	8,984.43	8,797.88	31.17	33.28	-90.201	-139.88	-1,510.96	1,902.09	1,838.81	63.28	30.057			
8,900.00	8,843.37	9,034.12	8,842.01	31.31	33.42	-90.198	-162.70	-1,510.91	1,904.67	1,841.09	63.58	29.957			
8,950.00	8,885.53	9,083.80	8,883.98	31.45	33.54	-90.193	-189.24	-1,510.85	1,907.67	1,843.81	63.87	29.869			
9,000.00	8,925.20	9,133.45	8,923.47	31.58	33.66	-90.188	-219.30	-1,510.79	1,911.08	1,846.93	64.14	29.793			
9,050.00	8,962.06	9,183.07	8,960.20	31.69	33.76	-90.182	-252.65	-1,510.71	1,914.85	1,850.44	64.41	29.728			
9,100.00	8,995.84	9,232.68	8,993.89	31.81	33.86	-90.176	-289.04	-1,510.63	1,918.98	1,854.31	64.67	29.674			
9,150.00	9,026.28	9,282.26	9,024.30	31.91	33.95	-90.168	-328.19	-1,510.55	1,923.41	1,858.50	64.91	29.631			
9,200.00	9,053.15	9,331.84	9,051.21	32.01	34.03	-90.160	-369.80	-1,510.46	1,928.13	1,862.98	65.14	29.597			
9,250.00	9,076.24	9,381.41	9,074.42	32.11	34.10	-90.152	-413.59	-1,510.36	1,933.09	1,867.72	65.36	29.574			

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 551H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft	
Survey Program:		Reference		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
9,300.00	9,095.38	9,430.98	9,093.75	32.21	34.17	-90.144	-459.21	-1,510.26	1,938.25	1,872.68	65.57	29.559			
9,350.00	9,110.43	9,480.55	9,109.08	32.30	34.24	-90.137	-506.34	-1,510.16	1,943.58	1,877.82	65.76	29.554			
9,400.00	9,121.26	9,530.15	9,120.27	32.39	34.32	-90.132	-554.64	-1,510.05	1,949.04	1,883.10	65.94	29.557			
9,450.00	9,127.80	9,579.77	9,127.26	32.48	34.39	-90.128	-603.76	-1,509.94	1,954.59	1,888.49	66.10	29.569			
9,500.00	9,130.00	9,629.43	9,129.96	32.55	34.47	-90.126	-653.32	-1,509.83	1,960.17	1,893.93	66.25	29.590			
9,500.18	9,130.00	9,629.60	9,129.97	32.55	34.47	-90.126	-653.50	-1,509.83	1,960.19	1,893.95	66.25	29.590			
9,600.00	9,130.00	9,728.97	9,130.00	32.71	34.64	-90.126	-752.87	-1,509.61	1,969.63	1,903.09	66.54	29.601			
9,700.00	9,130.00	9,828.79	9,130.00	32.89	34.84	-90.126	-852.69	-1,509.39	1,975.61	1,908.73	66.88	29.542			
9,800.00	9,130.00	9,928.75	9,130.00	33.09	35.05	-90.126	-952.65	-1,509.17	1,978.10	1,910.85	67.25	29.413			
9,825.64	9,130.00	9,954.40	9,130.00	33.14	35.11	-90.126	-978.29	-1,509.12	1,978.18	1,910.82	67.36	29.369			
9,900.00	9,130.00	10,028.75	9,130.00	33.30	35.29	-90.126	-1,052.65	-1,508.95	1,978.07	1,910.40	67.67	29.231			
10,000.00	9,130.00	10,128.75	9,130.00	33.53	35.54	-90.126	-1,152.65	-1,508.73	1,977.92	1,909.79	68.13	29.032			
10,100.00	9,130.00	10,228.75	9,130.00	33.78	35.81	-90.126	-1,252.65	-1,508.51	1,977.77	1,909.14	68.63	28.819			
10,200.00	9,130.00	10,328.75	9,130.00	34.05	36.09	-90.126	-1,352.65	-1,508.29	1,977.62	1,908.45	69.17	28.592			
10,300.00	9,130.00	10,428.75	9,130.00	34.33	36.39	-90.126	-1,452.65	-1,508.07	1,977.47	1,907.72	69.74	28.353			
10,400.00	9,130.00	10,528.75	9,130.00	34.64	36.71	-90.126	-1,552.65	-1,507.85	1,977.32	1,906.96	70.36	28.104			
10,500.00	9,130.00	10,628.75	9,130.00	34.97	37.05	-90.126	-1,652.65	-1,507.63	1,977.17	1,906.16	71.01	27.844			
10,600.00	9,130.00	10,728.75	9,130.00	35.31	37.40	-90.126	-1,752.65	-1,507.41	1,977.02	1,905.32	71.70	27.575			
10,700.00	9,130.00	10,828.75	9,130.00	35.67	37.76	-90.126	-1,852.65	-1,507.19	1,976.87	1,904.45	72.42	27.299			
10,800.00	9,130.00	10,928.75	9,130.00	36.05	38.14	-90.126	-1,952.65	-1,506.97	1,976.72	1,903.55	73.17	27.016			
10,900.00	9,130.00	11,028.75	9,130.00	36.44	38.53	-90.126	-2,052.65	-1,506.75	1,976.57	1,902.62	73.96	26.726			
11,000.00	9,130.00	11,128.75	9,130.00	36.85	38.94	-90.126	-2,152.65	-1,506.53	1,976.42	1,901.65	74.77	26.432			
11,100.00	9,130.00	11,228.75	9,130.00	37.28	39.37	-90.126	-2,252.65	-1,506.31	1,976.27	1,900.65	75.62	26.134			
11,200.00	9,130.00	11,328.75	9,130.00	37.72	39.80	-90.126	-2,352.64	-1,506.09	1,976.12	1,899.62	76.50	25.832			
11,300.00	9,130.00	11,428.75	9,130.00	38.17	40.25	-90.126	-2,452.64	-1,505.87	1,975.97	1,898.57	77.40	25.528			
11,400.00	9,130.00	11,528.75	9,130.00	38.64	40.71	-90.126	-2,552.64	-1,505.65	1,975.82	1,897.49	78.34	25.222			
11,500.00	9,130.00	11,626.55	9,130.00	39.12	41.17	-90.062	-2,650.44	-1,505.45	1,975.70	1,896.41	79.29	24.918			
11,600.00	9,130.00	11,726.55	9,130.00	39.62	41.66	-90.062	-2,750.44	-1,505.34	1,975.66	1,895.39	80.27	24.612			
11,700.00	9,130.00	11,826.55	9,130.00	40.12	42.16	-90.062	-2,850.44	-1,505.24	1,975.62	1,894.34	81.28	24.306			
11,800.00	9,130.00	11,926.55	9,130.00	40.64	42.66	-90.062	-2,950.44	-1,505.13	1,975.59	1,893.27	82.31	24.000			
11,900.00	9,130.00	12,026.55	9,130.00	41.17	43.18	-90.062	-3,050.44	-1,505.02	1,975.55	1,892.18	83.37	23.696			
12,000.00	9,130.00	12,126.55	9,130.00	41.71	43.71	-90.062	-3,150.44	-1,504.91	1,975.51	1,891.06	84.45	23.393			
12,100.00	9,130.00	12,226.55	9,130.00	42.26	44.25	-90.062	-3,250.44	-1,504.80	1,975.47	1,889.93	85.55	23.093			
12,200.00	9,130.00	12,326.55	9,130.00	42.83	44.80	-90.062	-3,350.44	-1,504.69	1,975.43	1,888.77	86.66	22.794			
12,300.00	9,130.00	12,426.55	9,130.00	43.40	45.36	-90.062	-3,450.44	-1,504.58	1,975.40	1,887.59	87.80	22.498			
12,400.00	9,130.00	12,526.55	9,130.00	43.98	45.93	-90.062	-3,550.44	-1,504.47	1,975.36	1,886.40	88.96	22.205			
12,500.00	9,130.00	12,626.55	9,130.00	44.57	46.50	-90.062	-3,650.44	-1,504.36	1,975.32	1,885.19	90.13	21.916			
12,600.00	9,130.00	12,726.55	9,130.00	45.17	47.09	-90.062	-3,750.44	-1,504.25	1,975.28	1,883.96	91.33	21.629			
12,700.00	9,130.00	12,826.55	9,130.00	45.77	47.68	-90.062	-3,850.44	-1,504.15	1,975.24	1,882.71	92.53	21.346			
12,800.00	9,130.00	12,926.55	9,130.00	46.39	48.28	-90.062	-3,950.44	-1,504.04	1,975.21	1,881.45	93.76	21.067			
12,900.00	9,130.00	13,026.55	9,130.00	47.01	48.89	-90.062	-4,050.44	-1,503.93	1,975.17	1,880.17	95.00	20.792			
13,000.00	9,130.00	13,126.55	9,130.00	47.64	49.51	-90.062	-4,150.44	-1,503.82	1,975.13	1,878.88	96.25	20.520			
13,100.00	9,130.00	13,226.55	9,130.00	48.28	50.13	-90.062	-4,250.44	-1,503.71	1,975.09	1,877.57	97.52	20.253			
13,200.00	9,130.00	13,326.55	9,130.00	48.92	50.76	-90.062	-4,350.44	-1,503.60	1,975.05	1,876.25	98.80	19.990			
13,300.00	9,130.00	13,426.55	9,130.00	49.57	51.40	-90.062	-4,450.44	-1,503.49	1,975.01	1,874.91	100.10	19.730			
13,400.00	9,130.00	13,526.55	9,130.00	50.23	52.04	-90.062	-4,550.44	-1,503.38	1,974.98	1,873.57	101.41	19.475			
13,500.00	9,130.00	13,626.55	9,130.00	50.89	52.69	-90.062	-4,650.44	-1,503.27	1,974.94	1,872.21	102.73	19.225			
13,600.00	9,130.00	13,726.55	9,130.00	51.56	53.34	-90.062	-4,750.44	-1,503.16	1,974.90	1,870.84	104.06	18.978			
13,700.00	9,130.00	13,826.55	9,130.00	52.24	54.00	-90.062	-4,850.44	-1,503.05	1,974.86	1,869.46	105.40	18.736			
13,800.00	9,130.00	13,926.55	9,130.00	52.91	54.67	-90.062	-4,950.44	-1,502.95	1,974.82	1,868.07	106.76	18.498			
13,900.00	9,130.00	14,026.55	9,130.00	53.60	55.34	-90.062	-5,050.44	-1,502.84	1,974.79	1,866.66	108.12	18.264			
14,000.00	9,130.00	14,126.55	9,130.00	54.29	56.02	-90.062	-5,150.44	-1,502.73	1,974.75	1,865.25	109.50	18.035			

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 551H - Wellbore #1 - Design #1													Offset Site Error:
Survey Program: 0-MWD+IFR1+FDIR													Offset Well Error:
Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,100.00	9,130.00	14,226.55	9,130.00	54.98	56.70	-90.062	-5,250.44	-1,502.62	1,974.71	1,863.83	110.88	17.809	
14,200.00	9,130.00	14,326.55	9,130.00	55.68	57.39	-90.062	-5,350.44	-1,502.51	1,974.67	1,862.40	112.28	17.588	
14,300.00	9,130.00	14,426.55	9,130.00	56.39	58.08	-90.062	-5,450.44	-1,502.40	1,974.63	1,860.96	113.68	17.370	
14,400.00	9,130.00	14,526.55	9,130.00	57.10	58.77	-90.062	-5,550.44	-1,502.29	1,974.60	1,859.51	115.09	17.157	
14,500.00	9,130.00	14,626.55	9,130.00	57.81	59.47	-90.062	-5,650.44	-1,502.18	1,974.56	1,858.05	116.51	16.948	
14,600.00	9,130.00	14,726.55	9,130.00	58.52	60.17	-90.062	-5,750.44	-1,502.07	1,974.52	1,856.58	117.94	16.742	
14,700.00	9,130.00	14,826.55	9,130.00	59.24	60.88	-90.062	-5,850.44	-1,501.96	1,974.48	1,855.11	119.37	16.541	
14,800.00	9,130.00	14,926.55	9,130.00	59.97	61.59	-90.062	-5,950.44	-1,501.86	1,974.44	1,853.63	120.81	16.343	
14,900.00	9,130.00	15,026.55	9,130.00	60.69	62.31	-90.062	-6,050.44	-1,501.75	1,974.41	1,852.14	122.26	16.149	
15,000.00	9,130.00	15,126.55	9,130.00	61.42	63.03	-90.062	-6,150.44	-1,501.64	1,974.37	1,850.65	123.72	15.958	
15,100.00	9,130.00	15,226.55	9,130.00	62.16	63.75	-90.062	-6,250.44	-1,501.53	1,974.33	1,849.15	125.18	15.771	
15,200.00	9,130.00	15,326.55	9,130.00	62.90	64.47	-90.062	-6,350.44	-1,501.42	1,974.29	1,847.64	126.65	15.588	
15,300.00	9,130.00	15,426.55	9,130.00	63.64	65.20	-90.062	-6,450.44	-1,501.31	1,974.25	1,846.12	128.13	15.408	
15,400.00	9,130.00	15,526.55	9,130.00	64.38	65.93	-90.062	-6,550.44	-1,501.20	1,974.22	1,844.60	129.61	15.232	
15,500.00	9,130.00	15,626.55	9,130.00	65.13	66.67	-90.062	-6,650.44	-1,501.09	1,974.18	1,843.08	131.10	15.058	
15,600.00	9,130.00	15,726.55	9,130.00	65.87	67.41	-90.062	-6,750.44	-1,500.98	1,974.14	1,841.55	132.59	14.889	
15,700.00	9,130.00	15,826.55	9,130.00	66.63	68.15	-90.062	-6,850.44	-1,500.87	1,974.10	1,840.01	134.09	14.722	
15,800.00	9,130.00	15,926.55	9,130.00	67.38	68.89	-90.062	-6,950.44	-1,500.77	1,974.06	1,838.47	135.60	14.558	
15,900.00	9,130.00	16,026.55	9,130.00	68.14	69.64	-90.062	-7,050.44	-1,500.66	1,974.03	1,836.92	137.11	14.398	
16,000.00	9,130.00	16,126.55	9,130.00	68.90	70.39	-90.062	-7,150.44	-1,500.55	1,973.99	1,835.37	138.62	14.240	
16,100.00	9,130.00	16,226.55	9,130.00	69.66	71.14	-90.062	-7,250.44	-1,500.44	1,973.95	1,833.81	140.14	14.085	
16,200.00	9,130.00	16,326.55	9,130.00	70.42	71.89	-90.062	-7,350.44	-1,500.33	1,973.91	1,832.25	141.66	13.934	
16,300.00	9,130.00	16,426.55	9,130.00	71.19	72.65	-90.062	-7,450.44	-1,500.22	1,973.87	1,830.68	143.19	13.785	
16,400.00	9,130.00	16,526.55	9,130.00	71.95	73.40	-90.062	-7,550.44	-1,500.11	1,973.84	1,829.11	144.73	13.639	
16,500.00	9,130.00	16,626.55	9,130.00	72.73	74.17	-90.062	-7,650.44	-1,500.00	1,973.80	1,827.54	146.26	13.495	
16,600.00	9,130.00	16,726.55	9,130.00	73.50	74.93	-90.062	-7,750.44	-1,499.89	1,973.76	1,825.96	147.80	13.354	
16,662.52	9,130.00	16,789.07	9,130.00	73.98	75.41	-90.062	-7,812.96	-1,499.82	1,973.74	1,824.97	148.77	13.267	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 552H - Wellbore #1 - Design #1														Offset Site Error:	0.00 usft
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	-89.990	0.01	-60.00	60.00						
100.00	100.00	100.00	100.00	0.14	0.14	-89.990	0.01	-60.00	60.00	59.73	0.27	218.794			
200.00	200.00	200.00	200.00	0.50	0.50	-89.990	0.01	-60.00	60.00	59.01	0.99	60.534			
300.00	300.00	300.00	300.00	0.85	0.85	-89.990	0.01	-60.00	60.00	58.29	1.71	35.126			
400.00	400.00	400.00	400.00	1.21	1.21	-89.990	0.01	-60.00	60.00	57.57	2.43	24.742			
500.00	500.00	500.00	500.00	1.57	1.57	-89.990	0.01	-60.00	60.00	56.86	3.14	19.096			
600.00	600.00	600.00	600.00	1.93	1.93	-89.990	0.01	-60.00	60.00	56.14	3.86	15.548			
700.00	700.00	700.00	700.00	2.29	2.29	-89.990	0.01	-60.00	60.00	55.42	4.58	13.112			
800.00	800.00	800.00	800.00	2.65	2.65	-89.990	0.01	-60.00	60.00	54.71	5.29	11.336			
900.00	900.00	900.00	900.00	3.00	3.00	-89.990	0.01	-60.00	60.00	53.99	6.01	9.984			
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	-89.990	0.01	-60.00	60.00	53.27	6.73	8.920			
1,100.00	1,100.00	1,100.00	1,100.00	3.72	3.72	-89.990	0.01	-60.00	60.00	52.56	7.44	8.061			
1,200.00	1,200.00	1,200.00	1,200.00	4.08	4.08	-89.990	0.01	-60.00	60.00	51.84	8.16	7.352			
1,300.00	1,300.00	1,300.00	1,300.00	4.44	4.44	-89.990	0.01	-60.00	60.00	51.12	8.88	6.759			
1,400.00	1,400.00	1,400.00	1,400.00	4.80	4.80	-89.990	0.01	-60.00	60.00	50.41	9.59	6.254			
1,500.00	1,500.00	1,500.00	1,500.00	5.16	5.16	-89.990	0.01	-60.00	60.00	49.69	10.31	5.819 CC, ES			
1,600.00	1,599.98	1,597.85	1,597.83	5.50	5.50	-89.831	-0.17	-61.66	63.41	52.41	11.00	5.766 SF			
1,700.00	1,699.84	1,695.02	1,694.86	5.84	5.83	-89.435	-0.70	-66.60	73.60	61.95	11.65	6.317			
1,800.00	1,799.45	1,790.85	1,790.35	6.19	6.16	-88.960	-1.56	-74.67	90.51	78.21	12.30	7.361			
1,900.00	1,898.70	1,884.73	1,883.57	6.53	6.49	-88.510	-2.73	-85.65	113.99	101.07	12.92	8.822			
2,000.00	1,997.47	1,976.08	1,973.89	6.88	6.80	-88.116	-4.18	-99.24	143.88	130.35	13.52	10.638			
2,100.00	2,095.62	2,064.40	2,060.76	7.23	7.12	-87.776	-5.88	-115.10	179.94	165.84	14.11	12.757			
2,200.00	2,193.06	2,149.27	2,143.72	7.59	7.42	-87.476	-7.77	-132.84	221.93	207.26	14.66	15.137			
2,249.82	2,241.29	2,190.14	2,183.49	7.77	7.57	-87.337	-8.78	-142.26	244.96	230.03	14.93	16.407			
2,300.00	2,289.76	2,230.52	2,222.63	7.95	7.71	-87.219	-9.83	-152.11	269.17	253.98	15.19	17.719			
2,400.00	2,386.35	2,315.62	2,304.84	8.32	8.02	-87.101	-12.17	-173.95	318.53	302.74	15.79	20.177			
2,500.00	2,482.95	2,402.54	2,388.80	8.69	8.34	-87.028	-14.56	-196.33	367.97	351.55	16.42	22.414			
2,600.00	2,579.54	2,489.47	2,472.76	9.06	8.66	-86.972	-16.95	-218.70	417.40	400.35	17.05	24.475			
2,700.00	2,676.14	2,576.39	2,556.73	9.44	8.99	-86.928	-19.34	-241.08	466.84	449.14	17.70	26.381			
2,800.00	2,772.73	2,663.32	2,640.69	9.82	9.32	-86.892	-21.73	-263.45	516.28	497.93	18.34	28.145			
2,900.00	2,869.32	2,750.24	2,724.65	10.20	9.64	-86.863	-24.12	-285.83	565.72	546.72	19.00	29.781			
3,000.00	2,965.92	2,837.16	2,808.61	10.58	9.98	-86.838	-26.51	-308.20	615.15	595.50	19.65	31.303			
3,015.31	2,980.71	2,850.48	2,821.47	10.64	10.03	-86.835	-26.88	-311.63	622.72	602.97	19.75	31.526			
3,100.00	3,062.82	2,924.69	2,893.15	10.96	10.31	-86.836	-28.92	-330.73	663.51	643.20	20.31	32.667			
3,200.00	3,160.52	3,013.81	2,979.23	11.34	10.65	-86.881	-31.37	-353.67	708.86	687.88	20.98	33.788			
3,300.00	3,258.91	3,104.43	3,066.76	11.72	11.00	-86.966	-33.87	-377.00	751.12	729.46	21.66	34.682			
3,400.00	3,357.85	3,196.44	3,155.64	12.09	11.36	-87.086	-36.40	-400.69	790.23	767.89	22.34	35.367			
3,500.00	3,457.24	3,289.74	3,245.76	12.45	11.72	-87.237	-38.96	-424.70	826.15	803.12	23.04	35.862			
3,600.00	3,556.96	3,384.21	3,337.00	12.81	12.09	-87.416	-41.56	-449.02	858.85	835.11	23.74	36.184			
3,700.00	3,656.87	3,479.72	3,429.27	13.16	12.47	-87.622	-44.19	-473.60	888.27	863.84	24.44	36.348			
3,765.14	3,722.00	3,542.45	3,489.85	13.38	12.71	-87.771	-45.92	-489.75	905.67	880.78	24.90	36.380			
3,800.00	3,756.87	3,576.13	3,522.38	13.50	12.85	-87.853	-46.84	-498.42	914.61	889.47	25.14	36.381			
3,900.00	3,856.87	3,672.72	3,615.68	13.84	13.23	-88.079	-49.50	-523.28	940.25	914.41	25.85	36.378			
4,000.00	3,956.87	3,769.31	3,708.98	14.19	13.61	-88.293	-52.16	-548.15	965.91	939.35	26.56	36.374			
4,100.00	4,056.87	3,865.90	3,802.28	14.53	13.99	-88.496	-54.81	-573.01	991.58	964.31	27.27	36.368			
4,200.00	4,156.87	3,962.49	3,895.58	14.87	14.37	-88.689	-57.47	-597.87	1,017.26	989.28	27.98	36.360			
4,300.00	4,256.87	4,059.08	3,988.88	15.22	14.76	-88.873	-60.13	-622.74	1,042.95	1,014.26	28.69	36.352			
4,400.00	4,356.87	4,155.67	4,082.17	15.57	15.14	-89.047	-62.78	-647.60	1,068.65	1,039.25	29.40	36.343			
4,500.00	4,456.87	4,252.27	4,175.47	15.91	15.53	-89.213	-65.44	-672.46	1,094.36	1,064.24	30.12	36.333			
4,600.00	4,556.87	4,348.86	4,268.77	16.26	15.91	-89.372	-68.10	-697.33	1,120.08	1,089.24	30.84	36.322			
4,700.00	4,656.87	4,445.45	4,362.07	16.61	16.30	-89.524	-70.76	-722.19	1,145.80	1,114.25	31.55	36.311			
4,800.00	4,756.87	4,542.04	4,455.37	16.95	16.68	-89.669	-73.41	-747.05	1,171.53	1,139.26	32.27	36.300			

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 552H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Measured	Vertical	Measured	Vertical	Reference	Offset	from North	+N/-S	+E/-W	Between	Between	Separation	Factor	
Depth	Depth	Depth	Depth	(usft)	(usft)	(°)	(usft)	(usft)	Centres	Ellipses	(usft)		
(usft)	(usft)	(usft)	(usft)						(usft)	(usft)			
4,900.00	4,856.87	4,688.10	4,597.05	17.30	17.26	-89.863	-77.17	-782.26	1,195.83	1,162.42	33.42	35.787	
5,000.00	4,956.87	4,856.93	4,762.80	17.65	17.91	-90.029	-80.58	-814.10	1,214.70	1,180.05	34.65	35.058	
5,100.00	5,056.87	5,029.07	4,933.43	18.00	18.54	-90.141	-82.97	-836.50	1,227.73	1,191.95	35.78	34.313	
5,200.00	5,156.87	5,203.33	5,107.23	18.35	19.16	-90.201	-84.28	-848.76	1,234.77	1,197.98	36.79	33.561	
5,300.00	5,256.87	5,353.00	5,256.87	18.70	19.66	-90.212	-84.53	-851.09	1,236.10	1,198.48	37.62	32.862	
5,400.00	5,356.87	5,453.00	5,356.87	19.05	19.99	-90.212	-84.53	-851.09	1,236.10	1,197.80	38.29	32.279	
5,500.00	5,456.87	5,553.00	5,456.87	19.40	20.33	-90.212	-84.53	-851.09	1,236.10	1,197.12	38.97	31.716	
5,600.00	5,556.87	5,653.00	5,556.87	19.75	20.66	-90.212	-84.53	-851.09	1,236.10	1,196.44	39.66	31.171	
5,700.00	5,656.87	5,753.00	5,656.87	20.10	20.99	-90.212	-84.53	-851.09	1,236.10	1,195.76	40.34	30.643	
5,800.00	5,756.87	5,853.00	5,756.87	20.45	21.32	-90.212	-84.53	-851.09	1,236.10	1,195.08	41.02	30.133	
5,900.00	5,856.87	5,953.00	5,856.87	20.80	21.66	-90.212	-84.53	-851.09	1,236.10	1,194.39	41.71	29.638	
6,000.00	5,956.87	6,053.00	5,956.87	21.16	21.99	-90.212	-84.53	-851.09	1,236.10	1,193.71	42.39	29.158	
6,100.00	6,056.87	6,153.00	6,056.87	21.51	22.33	-90.212	-84.53	-851.09	1,236.10	1,193.02	43.08	28.693	
6,200.00	6,156.87	6,253.00	6,156.87	21.86	22.67	-90.212	-84.53	-851.09	1,236.10	1,192.33	43.77	28.242	
6,300.00	6,256.87	6,353.00	6,256.87	22.21	23.00	-90.212	-84.53	-851.09	1,236.10	1,191.64	44.46	27.805	
6,400.00	6,356.87	6,453.00	6,356.87	22.57	23.34	-90.212	-84.53	-851.09	1,236.10	1,190.95	45.15	27.380	
6,500.00	6,456.87	6,553.00	6,456.87	22.92	23.68	-90.212	-84.53	-851.09	1,236.10	1,190.26	45.84	26.968	
6,600.00	6,556.87	6,653.00	6,556.87	23.27	24.02	-90.212	-84.53	-851.09	1,236.10	1,189.57	46.53	26.567	
6,700.00	6,656.87	6,753.00	6,656.87	23.62	24.36	-90.212	-84.53	-851.09	1,236.10	1,188.88	47.22	26.178	
6,800.00	6,756.87	6,853.00	6,756.87	23.98	24.70	-90.212	-84.53	-851.09	1,236.10	1,188.19	47.91	25.799	
6,900.00	6,856.87	6,953.00	6,856.87	24.33	25.04	-90.212	-84.53	-851.09	1,236.10	1,187.49	48.61	25.431	
7,000.00	6,956.87	7,053.00	6,956.87	24.68	25.38	-90.212	-84.53	-851.09	1,236.10	1,186.80	49.30	25.073	
7,100.00	7,056.87	7,153.00	7,056.87	25.04	25.72	-90.212	-84.53	-851.09	1,236.10	1,186.10	49.99	24.725	
7,200.00	7,156.87	7,253.00	7,156.87	25.39	26.07	-90.212	-84.53	-851.09	1,236.10	1,185.41	50.69	24.386	
7,300.00	7,256.87	7,353.00	7,256.87	25.75	26.41	-90.212	-84.53	-851.09	1,236.10	1,184.71	51.39	24.055	
7,400.00	7,356.87	7,453.00	7,356.87	26.10	26.75	-90.212	-84.53	-851.09	1,236.10	1,184.02	52.08	23.734	
7,500.00	7,456.87	7,553.00	7,456.87	26.45	27.10	-90.212	-84.53	-851.09	1,236.10	1,183.32	52.78	23.420	
7,600.00	7,556.87	7,653.00	7,556.87	26.81	27.44	-90.212	-84.53	-851.09	1,236.10	1,182.62	53.48	23.115	
7,700.00	7,656.87	7,753.00	7,656.87	27.16	27.78	-90.212	-84.53	-851.09	1,236.10	1,181.92	54.18	22.817	
7,800.00	7,756.87	7,853.00	7,756.87	27.52	28.13	-90.212	-84.53	-851.09	1,236.10	1,181.22	54.87	22.526	
7,900.00	7,856.87	7,953.00	7,856.87	27.87	28.47	-90.212	-84.53	-851.09	1,236.10	1,180.53	55.57	22.243	
8,000.00	7,956.87	8,053.00	7,956.87	28.23	28.82	-90.212	-84.53	-851.09	1,236.10	1,179.83	56.27	21.966	
8,100.00	8,056.87	8,153.00	8,056.87	28.58	29.16	-90.212	-84.53	-851.09	1,236.10	1,179.13	56.97	21.697	
8,200.00	8,156.87	8,253.00	8,156.87	28.94	29.51	-90.212	-84.53	-851.09	1,236.10	1,178.43	57.67	21.433	
8,300.00	8,256.87	8,353.00	8,256.87	29.29	29.86	-90.212	-84.53	-851.09	1,236.10	1,177.73	58.37	21.176	
8,400.00	8,356.87	8,453.00	8,356.87	29.65	30.20	-90.212	-84.53	-851.09	1,236.10	1,177.02	59.07	20.925	
8,500.00	8,456.87	8,553.00	8,456.87	30.00	30.55	-90.212	-84.53	-851.09	1,236.10	1,176.32	59.78	20.679	
8,600.00	8,556.87	8,653.00	8,556.87	30.36	30.90	-90.212	-84.53	-851.09	1,236.10	1,175.62	60.48	20.439	
8,600.18	8,557.04	8,653.17	8,557.04	30.36	30.90	-90.212	-84.53	-851.09	1,236.10	1,175.62	60.48	20.439	
8,650.00	8,606.80	8,702.76	8,606.56	30.53	31.06	-90.211	-86.67	-851.09	1,236.34	1,175.53	60.82	20.329	
8,700.00	8,656.36	8,752.51	8,655.88	30.69	31.22	-90.210	-93.12	-851.08	1,237.08	1,175.93	61.14	20.233	
8,750.00	8,705.16	8,802.25	8,704.44	30.86	31.38	-90.208	-103.82	-851.06	1,238.29	1,176.83	61.46	20.147	
8,800.00	8,752.84	8,851.98	8,751.88	31.01	31.53	-90.206	-118.68	-851.04	1,239.98	1,178.20	61.78	20.071	
8,850.00	8,799.02	8,901.69	8,797.84	31.17	31.68	-90.201	-137.59	-851.01	1,242.14	1,180.05	62.09	20.006	
8,900.00	8,843.37	8,951.38	8,841.96	31.31	31.82	-90.196	-160.40	-850.98	1,244.73	1,182.35	62.39	19.952	
8,950.00	8,885.53	9,001.04	8,883.93	31.45	31.95	-90.189	-186.93	-850.94	1,247.76	1,185.08	62.68	19.908	
9,000.00	8,925.20	9,050.68	8,923.42	31.58	32.07	-90.181	-216.98	-850.90	1,251.18	1,188.23	62.96	19.874	
9,050.00	8,962.06	9,100.30	8,960.15	31.69	32.18	-90.172	-250.32	-850.85	1,254.98	1,191.76	63.23	19.849	
9,100.00	8,995.84	9,150.00	8,993.91	31.81	32.28	-90.164	-286.77	-850.80	1,259.13	1,195.65	63.48	19.834	
9,150.00	9,026.28	9,199.47	9,024.25	31.91	32.37	-90.149	-325.83	-850.74	1,263.60	1,199.87	63.73	19.828	
9,200.00	9,053.15	9,249.04	9,051.16	32.01	32.45	-90.136	-367.43	-850.68	1,268.34	1,204.38	63.96	19.830	
9,250.00	9,076.24	9,298.60	9,074.37	32.11	32.52	-90.124	-411.20	-850.61	1,273.34	1,209.15	64.18	19.839	

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



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 552H - Wellbore #1 - Design #1														Offset Site Error:	0.00 usft
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
9,300.00	9,095.38	9,348.16	9,093.71	32.21	32.59	-90.111	-456.82	-850.55	1,278.54	1,214.15	64.39	19.856			
9,350.00	9,110.43	9,397.73	9,109.04	32.30	32.66	-90.101	-503.94	-850.48	1,283.90	1,219.32	64.58	19.880			
9,400.00	9,121.26	9,447.32	9,120.25	32.39	32.73	-90.092	-552.23	-850.41	1,289.40	1,224.64	64.76	19.911			
9,450.00	9,127.80	9,496.93	9,127.24	32.48	32.80	-90.086	-601.33	-850.34	1,294.98	1,230.06	64.92	19.948			
9,500.00	9,130.00	9,546.59	9,129.96	32.55	32.87	-90.083	-650.90	-850.27	1,300.60	1,235.54	65.06	19.991			
9,500.18	9,130.00	9,546.76	9,129.96	32.55	32.87	-90.083	-651.07	-850.27	1,300.62	1,235.56	65.06	19.991			
9,600.00	9,130.00	9,646.13	9,130.00	32.71	33.03	-90.083	-750.44	-850.12	1,310.14	1,244.78	65.35	20.047			
9,700.00	9,130.00	9,745.94	9,130.00	32.89	33.21	-90.083	-850.25	-849.98	1,316.19	1,250.50	65.69	20.037			
9,800.00	9,130.00	9,845.90	9,130.00	33.09	33.40	-90.083	-950.21	-849.83	1,318.75	1,252.69	66.06	19.962			
9,825.64	9,130.00	9,871.54	9,130.00	33.14	33.46	-90.083	-975.85	-849.79	1,318.85	1,252.68	66.17	19.932			
9,900.00	9,130.00	9,945.90	9,130.00	33.30	33.62	-90.083	-1,050.21	-849.68	1,318.79	1,252.31	66.48	19.837			
10,000.00	9,130.00	10,045.90	9,130.00	33.53	33.86	-90.083	-1,150.21	-849.54	1,318.72	1,251.78	66.94	19.700			
10,100.00	9,130.00	10,145.90	9,130.00	33.78	34.12	-90.083	-1,250.21	-849.39	1,318.65	1,251.20	67.44	19.553			
10,200.00	9,130.00	10,245.90	9,130.00	34.05	34.40	-90.083	-1,350.21	-849.25	1,318.57	1,250.59	67.98	19.396			
10,300.00	9,130.00	10,345.90	9,130.00	34.33	34.69	-90.083	-1,450.21	-849.10	1,318.50	1,249.93	68.56	19.231			
10,400.00	9,130.00	10,445.90	9,130.00	34.64	35.00	-90.083	-1,550.21	-848.96	1,318.42	1,249.24	69.18	19.058			
10,500.00	9,130.00	10,545.90	9,130.00	34.97	35.33	-90.083	-1,650.21	-848.81	1,318.35	1,248.51	69.83	18.879			
10,600.00	9,130.00	10,645.90	9,130.00	35.31	35.68	-90.083	-1,750.21	-848.67	1,318.27	1,247.75	70.52	18.693			
10,700.00	9,130.00	10,745.90	9,130.00	35.67	36.05	-90.083	-1,850.21	-848.52	1,318.20	1,246.95	71.25	18.501			
10,800.00	9,130.00	10,845.90	9,130.00	36.05	36.43	-90.083	-1,950.21	-848.37	1,318.12	1,246.12	72.01	18.305			
10,900.00	9,130.00	10,945.90	9,130.00	36.44	36.82	-90.083	-2,050.21	-848.23	1,318.05	1,245.25	72.80	18.105			
11,000.00	9,130.00	11,045.90	9,130.00	36.85	37.23	-90.083	-2,150.21	-848.08	1,317.97	1,244.35	73.62	17.902			
11,100.00	9,130.00	11,145.90	9,130.00	37.28	37.66	-90.083	-2,250.21	-847.94	1,317.90	1,243.42	74.48	17.695			
11,200.00	9,130.00	11,245.90	9,130.00	37.72	38.10	-90.083	-2,350.21	-847.79	1,317.83	1,242.46	75.36	17.487			
11,300.00	9,130.00	11,345.90	9,130.00	38.17	38.56	-90.083	-2,450.21	-847.65	1,317.75	1,241.48	76.27	17.277			
11,400.00	9,130.00	11,445.90	9,130.00	38.64	39.03	-90.083	-2,550.21	-847.50	1,317.68	1,240.46	77.21	17.066			
11,500.00	9,130.00	11,545.90	9,130.00	39.12	39.51	-90.083	-2,650.21	-847.36	1,317.60	1,239.42	78.18	16.854			
11,600.00	9,130.00	11,645.90	9,130.00	39.62	40.00	-90.083	-2,750.21	-847.21	1,317.53	1,238.36	79.17	16.642			
11,700.00	9,130.00	11,745.90	9,130.00	40.12	40.51	-90.083	-2,850.21	-847.06	1,317.45	1,237.26	80.19	16.430			
11,800.00	9,130.00	11,845.90	9,130.00	40.64	41.03	-90.083	-2,950.21	-846.92	1,317.38	1,236.15	81.23	16.218			
11,900.00	9,130.00	11,945.90	9,130.00	41.17	41.56	-90.083	-3,050.21	-846.77	1,317.30	1,235.01	82.29	16.008			
12,000.00	9,130.00	12,045.90	9,130.00	41.71	42.10	-90.083	-3,150.21	-846.63	1,317.23	1,233.85	83.38	15.799			
12,100.00	9,130.00	12,145.90	9,130.00	42.26	42.65	-90.083	-3,250.21	-846.48	1,317.15	1,232.67	84.48	15.591			
12,200.00	9,130.00	12,245.90	9,130.00	42.83	43.21	-90.083	-3,350.21	-846.34	1,317.08	1,231.47	85.61	15.385			
12,300.00	9,130.00	12,345.90	9,130.00	43.40	43.78	-90.083	-3,450.21	-846.19	1,317.00	1,230.25	86.76	15.181			
12,400.00	9,130.00	12,445.90	9,130.00	43.98	44.36	-90.083	-3,550.21	-846.04	1,316.93	1,229.01	87.92	14.979			
12,500.00	9,130.00	12,545.90	9,130.00	44.57	44.94	-90.083	-3,650.21	-845.90	1,316.86	1,227.75	89.10	14.779			
12,600.00	9,130.00	12,645.90	9,130.00	45.17	45.54	-90.083	-3,750.21	-845.75	1,316.78	1,226.48	90.30	14.582			
12,700.00	9,130.00	12,745.90	9,130.00	45.77	46.15	-90.083	-3,850.21	-845.61	1,316.71	1,225.19	91.52	14.387			
12,800.00	9,130.00	12,845.90	9,130.00	46.39	46.76	-90.083	-3,950.21	-845.46	1,316.63	1,223.88	92.75	14.195			
12,900.00	9,130.00	12,945.90	9,130.00	47.01	47.38	-90.083	-4,050.21	-845.32	1,316.56	1,222.56	94.00	14.006			
13,000.00	9,130.00	13,045.90	9,130.00	47.64	48.01	-90.083	-4,150.21	-845.17	1,316.48	1,221.22	95.26	13.820			
13,100.00	9,130.00	13,145.90	9,130.00	48.28	48.64	-90.083	-4,250.21	-845.03	1,316.41	1,219.87	96.54	13.636			
13,200.00	9,130.00	13,245.90	9,130.00	48.92	49.29	-90.083	-4,350.21	-844.88	1,316.33	1,218.50	97.83	13.455			
13,300.00	9,130.00	13,345.90	9,130.00	49.57	49.94	-90.083	-4,450.21	-844.73	1,316.26	1,217.13	99.13	13.278			
13,400.00	9,130.00	13,445.90	9,130.00	50.23	50.59	-90.083	-4,550.21	-844.59	1,316.18	1,215.74	100.45	13.103			
13,500.00	9,130.00	13,545.90	9,130.00	50.89	51.25	-90.083	-4,650.21	-844.44	1,316.11	1,214.33	101.78	12.931			
13,600.00	9,130.00	13,645.90	9,130.00	51.56	51.92	-90.083	-4,750.20	-844.30	1,316.04	1,212.92	103.12	12.763			
13,700.00	9,130.00	13,745.90	9,130.00	52.24	52.59	-90.083	-4,850.20	-844.15	1,315.96	1,211.49	104.47	12.597			
13,800.00	9,130.00	13,845.90	9,130.00	52.91	53.27	-90.083	-4,950.20	-844.01	1,315.89	1,210.06	105.83	12.434			
13,900.00	9,130.00	13,945.90	9,130.00	53.60	53.95	-90.083	-5,050.20	-843.86	1,315.81	1,208.61	107.20	12.274			
14,000.00	9,130.00	14,045.90	9,130.00	54.29	54.64	-90.083	-5,150.20	-843.72	1,315.74	1,207.15	108.58	12.117			

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 552H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth from North (°)	Offset Wellbore Centre		Rule Assigned:		Distance			Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Reference	Offset		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	0.00 usft
14,100.00	9,130.00	14,145.90	9,130.00	54.98	55.33	-90.083	-5,250.20	-843.57	1,315.66	1,205.69	109.97	11.963	
14,200.00	9,130.00	14,245.90	9,130.00	55.68	56.03	-90.083	-5,350.20	-843.42	1,315.59	1,204.21	111.37	11.812	
14,300.00	9,130.00	14,345.90	9,130.00	56.39	56.73	-90.083	-5,450.20	-843.28	1,315.51	1,202.73	112.78	11.664	
14,400.00	9,130.00	14,445.90	9,130.00	57.10	57.44	-90.083	-5,550.20	-843.13	1,315.44	1,201.24	114.20	11.519	
14,500.00	9,130.00	14,545.90	9,130.00	57.81	58.15	-90.083	-5,650.20	-842.99	1,315.36	1,199.74	115.63	11.376	
14,600.00	9,130.00	14,645.90	9,130.00	58.52	58.86	-90.083	-5,750.20	-842.84	1,315.29	1,198.23	117.06	11.236	
14,700.00	9,130.00	14,745.90	9,130.00	59.24	59.58	-90.083	-5,850.20	-842.70	1,315.21	1,196.71	118.50	11.098	
14,800.00	9,130.00	14,845.90	9,130.00	59.97	60.30	-90.083	-5,950.20	-842.55	1,315.14	1,195.19	119.95	10.964	
14,900.00	9,130.00	14,945.90	9,130.00	60.69	61.03	-90.083	-6,050.20	-842.41	1,315.07	1,193.66	121.41	10.832	
15,000.00	9,130.00	15,045.90	9,130.00	61.42	61.76	-90.083	-6,150.20	-842.26	1,314.99	1,192.12	122.87	10.702	
15,100.00	9,130.00	15,145.90	9,130.00	62.16	62.49	-90.083	-6,250.20	-842.11	1,314.92	1,190.57	124.34	10.575	
15,200.00	9,130.00	15,245.90	9,130.00	62.90	63.22	-90.083	-6,350.20	-841.97	1,314.84	1,189.02	125.82	10.450	
15,300.00	9,130.00	15,345.90	9,130.00	63.64	63.96	-90.083	-6,450.20	-841.82	1,314.77	1,187.47	127.30	10.328	
15,400.00	9,130.00	15,445.90	9,130.00	64.38	64.70	-90.083	-6,550.20	-841.68	1,314.69	1,185.91	128.79	10.208	
15,500.00	9,130.00	15,545.90	9,130.00	65.13	65.45	-90.083	-6,650.20	-841.53	1,314.62	1,184.34	130.28	10.091	
15,600.00	9,130.00	15,645.90	9,130.00	65.87	66.20	-90.083	-6,750.20	-841.39	1,314.54	1,182.76	131.78	9.975	
15,700.00	9,130.00	15,745.90	9,130.00	66.63	66.95	-90.083	-6,850.20	-841.24	1,314.47	1,181.18	133.29	9.862	
15,800.00	9,130.00	15,845.90	9,130.00	67.38	67.70	-90.083	-6,950.20	-841.10	1,314.39	1,179.60	134.79	9.751	
15,900.00	9,130.00	15,945.90	9,130.00	68.14	68.45	-90.083	-7,050.20	-840.95	1,314.32	1,178.01	136.31	9.642	
16,000.00	9,130.00	16,045.90	9,130.00	68.90	69.21	-90.083	-7,150.20	-840.80	1,314.25	1,176.42	137.83	9.535	
16,100.00	9,130.00	16,145.90	9,130.00	69.66	69.97	-90.083	-7,250.20	-840.66	1,314.17	1,174.82	139.35	9.430	
16,200.00	9,130.00	16,245.90	9,130.00	70.42	70.73	-90.083	-7,350.20	-840.51	1,314.10	1,173.21	140.88	9.328	
16,300.00	9,130.00	16,345.90	9,130.00	71.19	71.50	-90.083	-7,450.20	-840.37	1,314.02	1,171.61	142.42	9.227	
16,400.00	9,130.00	16,445.90	9,130.00	71.95	72.26	-90.083	-7,550.20	-840.22	1,313.95	1,169.99	143.95	9.128	
16,500.00	9,130.00	16,545.90	9,130.00	72.73	73.03	-90.083	-7,650.20	-840.08	1,313.87	1,168.38	145.49	9.030	
16,600.00	9,130.00	16,645.90	9,130.00	73.50	73.80	-90.083	-7,750.20	-839.93	1,313.80	1,166.76	147.04	8.935	
16,662.52	9,130.00	16,708.42	9,130.00	73.98	74.29	-90.083	-7,812.72	-839.84	1,313.75	1,165.74	148.01	8.876	



# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 553H - Wellbore #1 - Design #1														Offset Site Error:	0.00 usft
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	-90.000	0.00	-30.00	30.02						
100.00	100.00	99.00	99.00	0.14	0.14	-90.000	0.00	-30.00	30.00	29.73	0.27	109.947			
200.00	200.00	199.00	199.00	0.50	0.49	-90.000	0.00	-30.00	30.00	29.01	0.99	30.377			
300.00	300.00	299.00	299.00	0.85	0.85	-90.000	0.00	-30.00	30.00	28.30	1.70	17.600			
400.00	400.00	399.00	399.00	1.21	1.21	-90.000	0.00	-30.00	30.00	27.58	2.42	12.389			
500.00	500.00	499.00	499.00	1.57	1.57	-90.000	0.00	-30.00	30.00	26.86	3.14	9.559			
600.00	600.00	599.00	599.00	1.93	1.93	-90.000	0.00	-30.00	30.00	26.14	3.86	7.781			
700.00	700.00	699.00	699.00	2.29	2.28	-90.000	0.00	-30.00	30.00	25.43	4.57	6.561			
800.00	800.00	799.00	799.00	2.65	2.64	-90.000	0.00	-30.00	30.00	24.71	5.29	5.672			
900.00	900.00	899.00	899.00	3.00	3.00	-90.000	0.00	-30.00	30.00	23.99	6.01	4.995			
1,000.00	1,000.00	999.00	999.00	3.36	3.36	-90.000	0.00	-30.00	30.00	23.28	6.72	4.462			
1,100.00	1,100.00	1,099.00	1,099.00	3.72	3.72	-90.000	0.00	-30.00	30.00	22.56	7.44	4.032			
1,200.00	1,200.00	1,199.00	1,199.00	4.08	4.08	-90.000	0.00	-30.00	30.00	21.84	8.16	3.678			
1,300.00	1,300.00	1,299.00	1,299.00	4.44	4.44	-90.000	0.00	-30.00	30.00	21.13	8.87	3.381			
1,400.00	1,400.00	1,399.00	1,399.00	4.80	4.79	-90.000	0.00	-30.00	30.00	20.41	9.59	3.128			
1,500.00	1,500.00	1,499.00	1,499.00	5.16	5.15	-90.000	0.00	-30.00	30.00	19.69	10.31	2.910	CC, ES, SF		
1,600.00	1,599.98	1,597.98	1,597.96	5.50	5.49	-90.702	-0.76	-31.49	33.22	22.23	10.99	3.022			
1,700.00	1,699.84	1,696.32	1,696.17	5.84	5.83	-92.191	-3.06	-35.99	42.94	31.29	11.65	3.685			
1,800.00	1,799.45	1,793.42	1,792.91	6.19	6.15	-93.541	-6.83	-43.37	59.11	46.81	12.30	4.807			
1,900.00	1,898.70	1,888.68	1,887.49	6.53	6.48	-94.462	-11.97	-53.45	81.63	68.71	12.93	6.316			
2,000.00	1,997.47	1,981.58	1,979.32	6.88	6.80	-95.005	-18.36	-65.97	110.34	96.80	13.54	8.152			
2,100.00	2,095.62	2,075.00	2,071.33	7.23	7.13	-95.235	-25.71	-80.37	144.15	129.97	14.18	10.164			
2,200.00	2,193.06	2,167.91	2,162.82	7.59	7.45	-95.053	-33.05	-94.74	181.13	166.29	14.84	12.204			
2,249.82	2,241.29	2,213.72	2,207.94	7.77	7.61	-94.873	-36.66	-101.83	200.70	185.53	15.17	13.229			
2,300.00	2,289.76	2,259.70	2,253.21	7.95	7.78	-94.689	-40.30	-108.94	220.79	205.29	15.50	14.246			
2,400.00	2,386.35	2,351.32	2,343.44	8.32	8.10	-94.408	-47.53	-123.11	260.84	244.69	16.15	16.148			
2,500.00	2,482.95	2,442.94	2,433.67	8.69	8.43	-94.202	-54.77	-137.29	300.90	284.08	16.81	17.896			
2,600.00	2,579.54	2,534.56	2,523.90	9.06	8.76	-94.044	-62.00	-151.46	340.95	323.48	17.48	19.507			
2,700.00	2,676.14	2,638.17	2,626.20	9.44	9.13	-93.945	-69.43	-166.02	379.66	361.39	18.26	20.787			
2,800.00	2,772.73	2,745.27	2,732.51	9.82	9.52	-93.683	-75.34	-177.59	415.22	396.16	19.06	21.782			
2,900.00	2,869.32	2,855.00	2,841.84	10.20	9.91	-93.268	-79.52	-185.78	447.54	427.68	19.86	22.535			
3,000.00	2,965.92	2,967.10	2,953.83	10.58	10.31	-92.707	-81.82	-190.28	476.53	455.88	20.65	23.075			
3,015.31	2,980.71	2,984.46	2,971.19	10.64	10.37	-92.609	-81.99	-190.63	480.67	459.90	20.77	23.140			
3,100.00	3,062.82	3,075.11	3,061.82	10.96	10.68	-92.048	-82.24	-191.11	501.17	479.76	21.41	23.413			
3,200.00	3,160.52	3,172.80	3,159.52	11.34	11.02	-91.491	-82.24	-191.11	521.89	499.78	22.11	23.603			
3,300.00	3,258.91	3,271.19	3,257.91	11.72	11.37	-91.056	-82.24	-191.11	539.31	516.49	22.82	23.635			
3,400.00	3,357.85	3,370.13	3,356.85	12.09	11.71	-90.725	-82.24	-191.11	553.40	529.88	23.53	23.523			
3,500.00	3,457.24	3,469.52	3,456.24	12.45	12.06	-90.485	-82.24	-191.11	564.13	539.89	24.23	23.279			
3,600.00	3,556.96	3,569.24	3,555.96	12.81	12.41	-90.326	-82.24	-191.11	571.46	546.52	24.94	22.915			
3,700.00	3,656.87	3,669.15	3,655.87	13.16	12.76	-90.242	-82.24	-191.11	575.39	549.75	25.64	22.441			
3,765.14	3,722.00	3,734.28	3,721.00	13.38	12.99	-90.227	-82.24	-191.11	576.11	550.02	26.09	22.080			
3,800.00	3,756.87	3,769.15	3,755.87	13.50	13.12	-90.227	-82.24	-191.11	576.11	549.78	26.33	21.877			
3,900.00	3,856.87	3,869.15	3,855.87	13.84	13.47	-90.227	-82.24	-191.11	576.11	549.09	27.03	21.316			
4,000.00	3,956.87	3,969.15	3,955.87	14.19	13.82	-90.227	-82.24	-191.11	576.11	548.39	27.72	20.782			
4,100.00	4,056.87	4,069.15	4,055.87	14.53	14.17	-90.227	-82.24	-191.11	576.11	547.70	28.42	20.274			
4,200.00	4,156.87	4,169.15	4,155.87	14.87	14.53	-90.227	-82.24	-191.11	576.11	547.00	29.11	19.789			
4,300.00	4,256.87	4,269.15	4,255.87	15.22	14.88	-90.227	-82.24	-191.11	576.11	546.30	29.81	19.326			
4,400.00	4,356.87	4,369.15	4,355.87	15.57	15.23	-90.227	-82.24	-191.11	576.11	545.61	30.51	18.884			
4,500.00	4,456.87	4,469.15	4,455.87	15.91	15.59	-90.227	-82.24	-191.11	576.11	544.91	31.21	18.461			
4,600.00	4,556.87	4,569.15	4,555.87	16.26	15.94	-90.227	-82.24	-191.11	576.11	544.21	31.91	18.056			
4,700.00	4,656.87	4,669.15	4,655.87	16.61	16.30	-90.227	-82.24	-191.11	576.11	543.51	32.61	17.668			
4,800.00	4,756.87	4,769.15	4,755.87	16.95	16.65	-90.227	-82.24	-191.11	576.11	542.81	33.31	17.296			

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





# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 553H - Wellbore #1 - Design #1													Offset Site Error:
													0.00 usft
Survey Program:	Reference	Offset	Semi Major Axis		Azimuth		Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Reference	Offset	from North (°)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
4,900.00	4,856.87	4,869.15	4,855.87	17.30	17.00	-90.227	-82.24	-191.11	576.11	542.10	34.01	16.939	
5,000.00	4,956.87	4,969.15	4,955.87	17.65	17.36	-90.227	-82.24	-191.11	576.11	541.40	34.71	16.596	
5,100.00	5,056.87	5,069.15	5,055.87	18.00	17.71	-90.227	-82.24	-191.11	576.11	540.70	35.42	16.267	
5,200.00	5,156.87	5,169.15	5,155.87	18.35	18.07	-90.227	-82.24	-191.11	576.11	539.99	36.12	15.950	
5,300.00	5,256.87	5,269.15	5,255.87	18.70	18.42	-90.227	-82.24	-191.11	576.11	539.29	36.82	15.645	
5,400.00	5,356.87	5,369.15	5,355.87	19.05	18.78	-90.227	-82.24	-191.11	576.11	538.59	37.53	15.351	
5,500.00	5,456.87	5,469.15	5,455.87	19.40	19.14	-90.227	-82.24	-191.11	576.11	537.88	38.23	15.068	
5,600.00	5,556.87	5,569.15	5,555.87	19.75	19.49	-90.227	-82.24	-191.11	576.11	537.17	38.94	14.795	
5,700.00	5,656.87	5,669.15	5,655.87	20.10	19.85	-90.227	-82.24	-191.11	576.11	536.47	39.65	14.531	
5,800.00	5,756.87	5,769.15	5,755.87	20.45	20.20	-90.227	-82.24	-191.11	576.11	535.76	40.35	14.277	
5,900.00	5,856.87	5,869.15	5,855.87	20.80	20.56	-90.227	-82.24	-191.11	576.11	535.06	41.06	14.031	
6,000.00	5,956.87	5,969.15	5,955.87	21.16	20.91	-90.227	-82.24	-191.11	576.11	534.35	41.77	13.794	
6,100.00	6,056.87	6,069.15	6,055.87	21.51	21.27	-90.227	-82.24	-191.11	576.11	533.64	42.47	13.564	
6,200.00	6,156.87	6,169.15	6,155.87	21.86	21.63	-90.227	-82.24	-191.11	576.11	532.93	43.18	13.342	
6,300.00	6,256.87	6,269.15	6,255.87	22.21	21.98	-90.227	-82.24	-191.11	576.11	532.23	43.89	13.127	
6,400.00	6,356.87	6,369.15	6,355.87	22.57	22.34	-90.227	-82.24	-191.11	576.11	531.52	44.60	12.918	
6,500.00	6,456.87	6,469.15	6,455.87	22.92	22.70	-90.227	-82.24	-191.11	576.11	530.81	45.31	12.716	
6,600.00	6,556.87	6,569.15	6,555.87	23.27	23.05	-90.227	-82.24	-191.11	576.11	530.10	46.01	12.520	
6,700.00	6,656.87	6,669.15	6,655.87	23.62	23.41	-90.227	-82.24	-191.11	576.11	529.39	46.72	12.330	
6,800.00	6,756.87	6,769.15	6,755.87	23.98	23.76	-90.227	-82.24	-191.11	576.11	528.68	47.43	12.146	
6,900.00	6,856.87	6,869.15	6,855.87	24.33	24.12	-90.227	-82.24	-191.11	576.11	527.97	48.14	11.967	
7,000.00	6,956.87	6,969.15	6,955.87	24.68	24.48	-90.227	-82.24	-191.11	576.11	527.26	48.85	11.793	
7,100.00	7,056.87	7,069.15	7,055.87	25.04	24.83	-90.227	-82.24	-191.11	576.11	526.55	49.56	11.624	
7,200.00	7,156.87	7,169.15	7,155.87	25.39	25.19	-90.227	-82.24	-191.11	576.11	525.84	50.27	11.460	
7,300.00	7,256.87	7,269.15	7,255.87	25.75	25.55	-90.227	-82.24	-191.11	576.11	525.13	50.98	11.300	
7,400.00	7,356.87	7,369.15	7,355.87	26.10	25.90	-90.227	-82.24	-191.11	576.11	524.42	51.69	11.145	
7,500.00	7,456.87	7,469.15	7,455.87	26.45	26.26	-90.227	-82.24	-191.11	576.11	523.71	52.40	10.994	
7,600.00	7,556.87	7,569.15	7,555.87	26.81	26.62	-90.227	-82.24	-191.11	576.11	523.00	53.12	10.847	
7,700.00	7,656.87	7,669.15	7,655.87	27.16	26.98	-90.227	-82.24	-191.11	576.11	522.29	53.83	10.703	
7,800.00	7,756.87	7,769.15	7,755.87	27.52	27.33	-90.227	-82.24	-191.11	576.11	521.58	54.54	10.564	
7,900.00	7,856.87	7,869.15	7,855.87	27.87	27.69	-90.227	-82.24	-191.11	576.11	520.87	55.25	10.428	
8,000.00	7,956.87	7,969.15	7,955.87	28.23	28.05	-90.227	-82.24	-191.11	576.11	520.15	55.96	10.295	
8,100.00	8,056.87	8,069.15	8,055.87	28.58	28.40	-90.227	-82.24	-191.11	576.11	519.44	56.67	10.166	
8,200.00	8,156.87	8,169.15	8,155.87	28.94	28.76	-90.227	-82.24	-191.11	576.11	518.73	57.38	10.040	
8,300.00	8,256.87	8,269.15	8,255.87	29.29	29.12	-90.227	-82.24	-191.11	576.11	518.02	58.10	9.917	
8,400.00	8,356.87	8,369.15	8,355.87	29.65	29.48	-90.227	-82.24	-191.11	576.11	517.31	58.81	9.797	
8,500.00	8,456.87	8,469.15	8,455.87	30.00	29.83	-90.227	-82.24	-191.11	576.11	516.60	59.52	9.679	
8,600.00	8,556.87	8,569.15	8,555.87	30.36	30.19	-90.227	-82.24	-191.11	576.11	515.88	60.23	9.565	
8,600.18	8,557.04	8,569.32	8,556.04	30.36	30.19	-90.227	-82.24	-191.11	576.11	515.88	60.23	9.565	
8,650.00	8,606.80	8,619.03	8,605.69	30.53	30.36	-90.218	-84.31	-191.11	576.36	515.79	60.57	9.515	
8,700.00	8,656.36	8,668.91	8,655.14	30.69	30.52	-90.211	-90.70	-191.10	577.09	516.19	60.90	9.477	
8,750.00	8,705.16	8,718.78	8,703.84	30.86	30.68	-90.204	-101.37	-191.08	578.31	517.09	61.22	9.447	
8,800.00	8,752.84	8,768.64	8,751.42	31.01	30.84	-90.197	-116.22	-191.06	580.00	518.46	61.53	9.426	
8,850.00	8,799.02	8,818.49	8,797.52	31.17	30.99	-90.190	-135.15	-191.03	582.15	520.31	61.84	9.413	
8,900.00	8,843.37	8,868.32	8,841.78	31.31	31.13	-90.183	-158.00	-191.00	584.75	522.61	62.14	9.410	
8,950.00	8,885.53	8,918.13	8,883.88	31.45	31.27	-90.175	-184.60	-190.96	587.77	525.34	62.43	9.415	
9,000.00	8,925.20	8,967.91	8,923.48	31.58	31.39	-90.167	-214.74	-190.92	591.20	528.49	62.71	9.427	
9,050.00	8,962.06	9,017.67	8,960.31	31.69	31.51	-90.157	-248.18	-190.87	595.00	532.02	62.98	9.447	
9,100.00	8,995.84	9,067.41	8,994.07	31.81	31.62	-90.145	-284.68	-190.82	599.15	535.91	63.24	9.475	
9,150.00	9,026.28	9,117.13	9,024.54	31.91	31.73	-90.133	-323.95	-190.76	603.61	540.13	63.48	9.508	
9,200.00	9,053.15	9,166.83	9,051.48	32.01	31.85	-90.120	-365.70	-190.70	608.36	544.65	63.71	9.548	
9,250.00	9,076.24	9,216.52	9,074.70	32.11	31.95	-90.108	-409.61	-190.63	613.35	549.42	63.93	9.594	

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



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<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 553H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+IFR1+FDIR		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
9,300.00	9,095.38	9,266.20	9,094.02	32.21	32.05	-90.096	-455.37	-190.57	618.55	554.41	64.14	9.644			
9,350.00	9,110.43	9,315.89	9,109.31	32.30	32.15	-90.086	-502.63	-190.50	623.92	559.59	64.33	9.699			
9,400.00	9,121.26	9,365.59	9,120.45	32.39	32.24	-90.080	-551.04	-190.43	629.42	564.91	64.51	9.757			
9,450.00	9,127.80	9,415.31	9,127.36	32.48	32.32	-90.079	-600.26	-190.36	635.00	570.33	64.67	9.820			
9,500.00	9,130.00	9,465.05	9,129.98	32.55	32.39	-90.083	-649.93	-190.28	640.62	575.81	64.81	9.885			
9,500.18	9,130.00	9,465.23	9,129.98	32.55	32.39	-90.083	-650.10	-190.28	640.64	575.83	64.81	9.885			
9,600.00	9,130.00	9,564.60	9,130.00	32.71	32.53	-90.083	-749.48	-190.14	650.15	585.06	65.10	9.988			
9,700.00	9,130.00	9,664.41	9,130.00	32.89	32.70	-90.083	-849.29	-189.99	656.21	590.78	65.43	10.030			
9,800.00	9,130.00	9,764.38	9,130.00	33.09	32.88	-90.083	-949.25	-189.85	658.77	592.97	65.80	10.012			
9,825.64	9,130.00	9,790.02	9,130.00	33.14	32.93	-90.083	-974.89	-189.81	658.87	592.97	65.90	9.998			
9,900.00	9,130.00	9,864.38	9,130.00	33.30	33.09	-90.083	-1,049.25	-189.70	658.81	592.60	66.21	9.950			
10,000.00	9,130.00	9,964.38	9,130.00	33.53	33.32	-90.083	-1,149.25	-189.56	658.74	592.07	66.67	9.881			
10,100.00	9,130.00	10,064.38	9,130.00	33.78	33.57	-90.083	-1,249.25	-189.41	658.66	591.50	67.17	9.806			
10,200.00	9,130.00	10,164.38	9,130.00	34.05	33.84	-90.083	-1,349.25	-189.27	658.59	590.88	67.71	9.727			
10,300.00	9,130.00	10,264.38	9,130.00	34.33	34.13	-90.083	-1,449.25	-189.12	658.51	590.23	68.28	9.644			
10,400.00	9,130.00	10,364.38	9,130.00	34.64	34.43	-90.083	-1,549.25	-188.97	658.44	589.54	68.90	9.557			
10,500.00	9,130.00	10,464.38	9,130.00	34.97	34.76	-90.083	-1,649.25	-188.83	658.36	588.81	69.55	9.466			
10,600.00	9,130.00	10,564.38	9,130.00	35.31	35.10	-90.083	-1,749.25	-188.68	658.29	588.05	70.24	9.372			
10,700.00	9,130.00	10,664.38	9,130.00	35.67	35.47	-90.083	-1,849.25	-188.54	658.22	587.25	70.96	9.275			
10,800.00	9,130.00	10,764.38	9,130.00	36.05	35.84	-90.083	-1,949.25	-188.39	658.14	586.42	71.72	9.176			
10,900.00	9,130.00	10,864.38	9,130.00	36.44	36.24	-90.083	-2,049.25	-188.25	658.07	585.55	72.51	9.075			
11,000.00	9,130.00	10,964.38	9,130.00	36.85	36.65	-90.083	-2,149.25	-188.10	657.99	584.66	73.33	8.973			
11,100.00	9,130.00	11,064.38	9,130.00	37.28	37.08	-90.083	-2,249.25	-187.95	657.92	583.73	74.19	8.868			
11,200.00	9,130.00	11,164.38	9,130.00	37.72	37.52	-90.083	-2,349.25	-187.81	657.84	582.77	75.07	8.763			
11,300.00	9,130.00	11,264.38	9,130.00	38.17	37.97	-90.083	-2,449.25	-187.66	657.77	581.79	75.98	8.657			
11,400.00	9,130.00	11,364.38	9,130.00	38.64	38.44	-90.083	-2,549.25	-187.52	657.69	580.77	76.92	8.550			
11,500.00	9,130.00	11,464.38	9,130.00	39.12	38.92	-90.083	-2,649.25	-187.37	657.62	579.73	77.89	8.443			
11,600.00	9,130.00	11,564.38	9,130.00	39.62	39.42	-90.083	-2,749.25	-187.23	657.54	578.67	78.88	8.336			
11,700.00	9,130.00	11,664.38	9,130.00	40.12	39.93	-90.083	-2,849.25	-187.08	657.47	577.58	79.89	8.229			
11,800.00	9,130.00	11,764.38	9,130.00	40.64	40.45	-90.083	-2,949.25	-186.94	657.39	576.46	80.93	8.123			
11,900.00	9,130.00	11,864.38	9,130.00	41.17	40.98	-90.083	-3,049.25	-186.79	657.32	575.32	82.00	8.016			
12,000.00	9,130.00	11,964.38	9,130.00	41.71	41.52	-90.083	-3,149.25	-186.64	657.25	574.16	83.08	7.911			
12,100.00	9,130.00	12,064.38	9,130.00	42.26	42.07	-90.083	-3,249.25	-186.50	657.17	572.98	84.19	7.806			
12,200.00	9,130.00	12,164.38	9,130.00	42.83	42.64	-90.083	-3,349.25	-186.35	657.10	571.78	85.32	7.702			
12,300.00	9,130.00	12,264.38	9,130.00	43.40	43.21	-90.083	-3,449.25	-186.21	657.02	570.56	86.46	7.599			
12,400.00	9,130.00	12,364.38	9,130.00	43.98	43.79	-90.083	-3,549.25	-186.06	656.95	569.32	87.63	7.497			
12,500.00	9,130.00	12,464.38	9,130.00	44.57	44.38	-90.083	-3,649.25	-185.92	656.87	568.06	88.81	7.396			
12,600.00	9,130.00	12,564.38	9,130.00	45.17	44.98	-90.083	-3,749.25	-185.77	656.80	566.79	90.01	7.297			
12,700.00	9,130.00	12,664.38	9,130.00	45.77	45.59	-90.083	-3,849.25	-185.62	656.72	565.50	91.23	7.199			
12,800.00	9,130.00	12,764.38	9,130.00	46.39	46.21	-90.083	-3,949.25	-185.48	656.65	564.19	92.46	7.102			
12,900.00	9,130.00	12,864.38	9,130.00	47.01	46.83	-90.083	-4,049.25	-185.33	656.57	562.87	93.71	7.007			
13,000.00	9,130.00	12,964.38	9,130.00	47.64	47.46	-90.083	-4,149.25	-185.19	656.50	561.53	94.97	6.913			
13,100.00	9,130.00	13,064.38	9,130.00	48.28	48.10	-90.083	-4,249.25	-185.04	656.42	560.18	96.25	6.820			
13,200.00	9,130.00	13,164.38	9,130.00	48.92	48.75	-90.083	-4,349.24	-184.90	656.35	558.81	97.54	6.729			
13,300.00	9,130.00	13,264.38	9,130.00	49.57	49.40	-90.083	-4,449.24	-184.75	656.28	557.43	98.84	6.639			
13,400.00	9,130.00	13,364.38	9,130.00	50.23	50.06	-90.083	-4,549.24	-184.61	656.20	556.04	100.16	6.551			
13,500.00	9,130.00	13,464.38	9,130.00	50.89	50.72	-90.083	-4,649.24	-184.46	656.13	554.64	101.49	6.465			
13,600.00	9,130.00	13,564.38	9,130.00	51.56	51.39	-90.083	-4,749.24	-184.31	656.05	553.22	102.83	6.380			
13,700.00	9,130.00	13,664.38	9,130.00	52.24	52.07	-90.083	-4,849.24	-184.17	655.98	551.80	104.18	6.296			
13,800.00	9,130.00	13,764.38	9,130.00	52.91	52.75	-90.083	-4,949.24	-184.02	655.90	550.36	105.54	6.215			
13,900.00	9,130.00	13,864.38	9,130.00	53.60	53.43	-90.083	-5,049.24	-183.88	655.83	548.91	106.92	6.134			
14,000.00	9,130.00	13,964.38	9,130.00	54.29	54.13	-90.083	-5,149.24	-183.73	655.75	547.45	108.30	6.055			

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



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<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design: Sweet Tea EBS Fed Com - Sweet Tea EBS Fed Com 553H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+FDIR													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Azimuth from North (°)	+N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,100.00	9,130.00	14,064.38	9,130.00	54.98	54.82	-90.083	-5,249.24	-183.59	655.68	545.99	109.69	5.978		
14,200.00	9,130.00	14,164.38	9,130.00	55.68	55.52	-90.083	-5,349.24	-183.44	655.60	544.51	111.09	5.901		
14,300.00	9,130.00	14,264.38	9,130.00	56.39	56.23	-90.083	-5,449.24	-183.30	655.53	543.03	112.50	5.827		
14,400.00	9,130.00	14,364.38	9,130.00	57.10	56.94	-90.083	-5,549.24	-183.15	655.45	541.53	113.92	5.754		
14,500.00	9,130.00	14,464.38	9,130.00	57.81	57.65	-90.083	-5,649.24	-183.00	655.38	540.03	115.35	5.682		
14,600.00	9,130.00	14,564.38	9,130.00	58.52	58.37	-90.083	-5,749.24	-182.86	655.31	538.52	116.78	5.611		
14,700.00	9,130.00	14,664.37	9,130.00	59.24	59.09	-90.083	-5,849.24	-182.71	655.23	537.01	118.22	5.542		
14,800.00	9,130.00	14,764.37	9,130.00	59.97	59.81	-90.083	-5,949.24	-182.57	655.16	535.48	119.67	5.474		
14,900.00	9,130.00	14,864.37	9,130.00	60.69	60.54	-90.083	-6,049.24	-182.42	655.08	533.95	121.13	5.408		
15,000.00	9,130.00	14,964.37	9,130.00	61.42	61.27	-90.083	-6,149.24	-182.28	655.01	532.41	122.60	5.343		
15,100.00	9,130.00	15,064.37	9,130.00	62.16	62.01	-90.083	-6,249.24	-182.13	654.93	530.87	124.07	5.279		
15,200.00	9,130.00	15,164.37	9,130.00	62.90	62.75	-90.083	-6,349.24	-181.98	654.86	529.32	125.54	5.216		
15,300.00	9,130.00	15,264.37	9,130.00	63.64	63.49	-90.083	-6,449.24	-181.84	654.78	527.76	127.02	5.155		
15,400.00	9,130.00	15,364.37	9,130.00	64.38	64.23	-90.083	-6,549.24	-181.69	654.71	526.20	128.51	5.094		
15,500.00	9,130.00	15,464.37	9,130.00	65.13	64.98	-90.083	-6,649.24	-181.55	654.63	524.63	130.01	5.035		
15,600.00	9,130.00	15,564.37	9,130.00	65.87	65.73	-90.083	-6,749.24	-181.40	654.56	523.05	131.51	4.977		
15,700.00	9,130.00	15,664.37	9,130.00	66.63	66.48	-90.083	-6,849.24	-181.26	654.48	521.47	133.01	4.920		
15,800.00	9,130.00	15,764.37	9,130.00	67.38	67.24	-90.083	-6,949.24	-181.11	654.41	519.89	134.52	4.865		
15,900.00	9,130.00	15,864.37	9,130.00	68.14	67.99	-90.083	-7,049.24	-180.97	654.34	518.30	136.04	4.810		
16,000.00	9,130.00	15,964.37	9,130.00	68.90	68.75	-90.083	-7,149.24	-180.82	654.26	516.70	137.56	4.756		
16,100.00	9,130.00	16,064.37	9,130.00	69.66	69.52	-90.083	-7,249.24	-180.67	654.19	515.10	139.08	4.704		
16,200.00	9,130.00	16,164.37	9,130.00	70.42	70.28	-90.083	-7,349.24	-180.53	654.11	513.50	140.61	4.652		
16,300.00	9,130.00	16,264.37	9,130.00	71.19	71.05	-90.083	-7,449.24	-180.38	654.04	511.89	142.15	4.601		
16,400.00	9,130.00	16,364.37	9,130.00	71.95	71.82	-90.083	-7,549.24	-180.24	653.96	510.28	143.69	4.551		
16,500.00	9,130.00	16,464.37	9,130.00	72.73	72.59	-90.083	-7,649.24	-180.09	653.89	508.66	145.23	4.503		
16,600.00	9,130.00	16,564.37	9,130.00	73.50	73.36	-90.083	-7,749.24	-179.95	653.81	507.04	146.77	4.455		
16,662.52	9,130.00	16,626.90	9,130.00	73.98	73.84	-90.083	-7,811.76	-179.85	653.77	506.03	147.74	4.425		

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

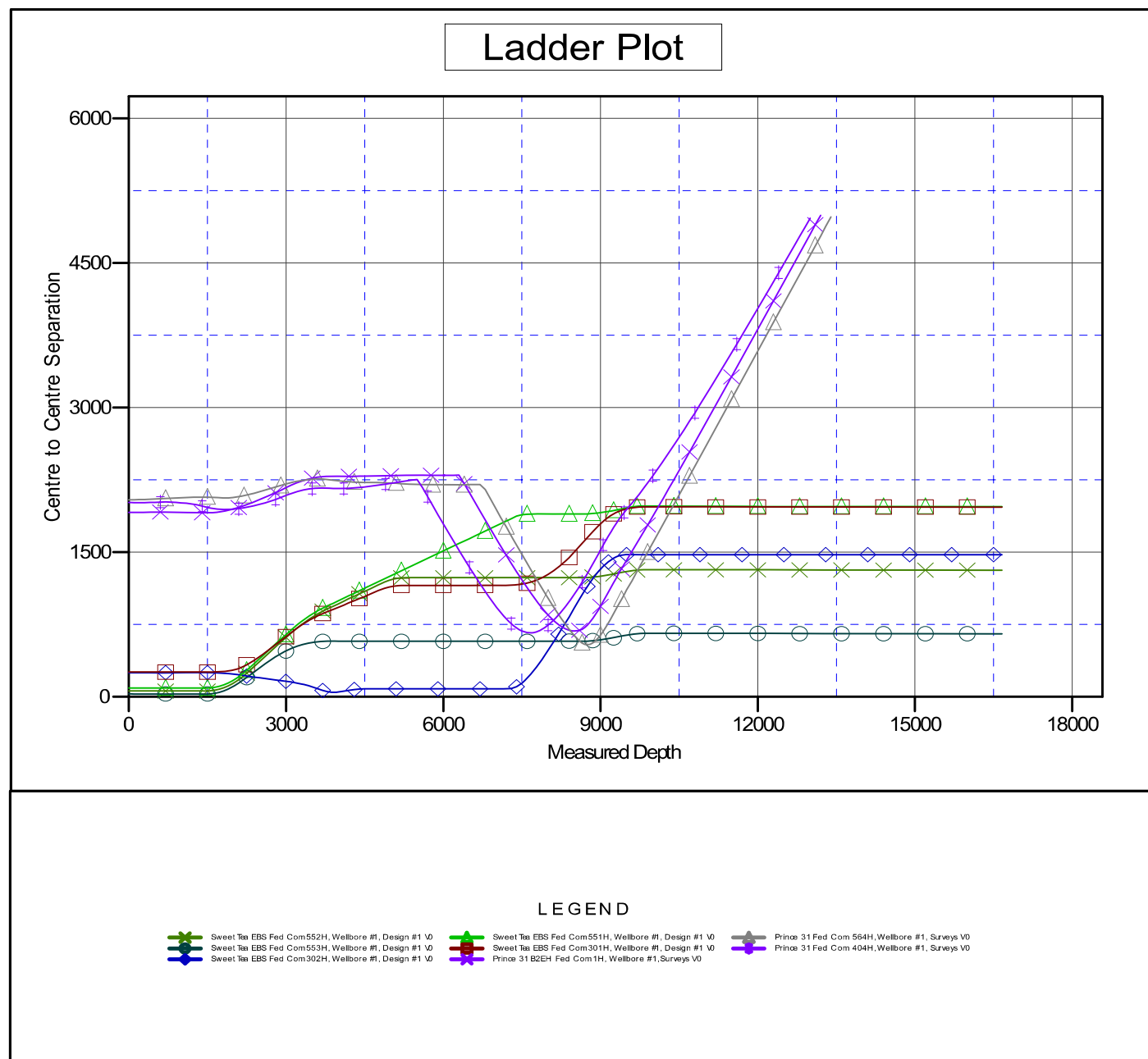


## MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 2927.50usft (Precision 580) Coordinates are relative to: Sweet Tea EBS Fed Com 554H  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30  
Central Meridian is -104.333334 Grid Convergence at Surface is: 0.164°





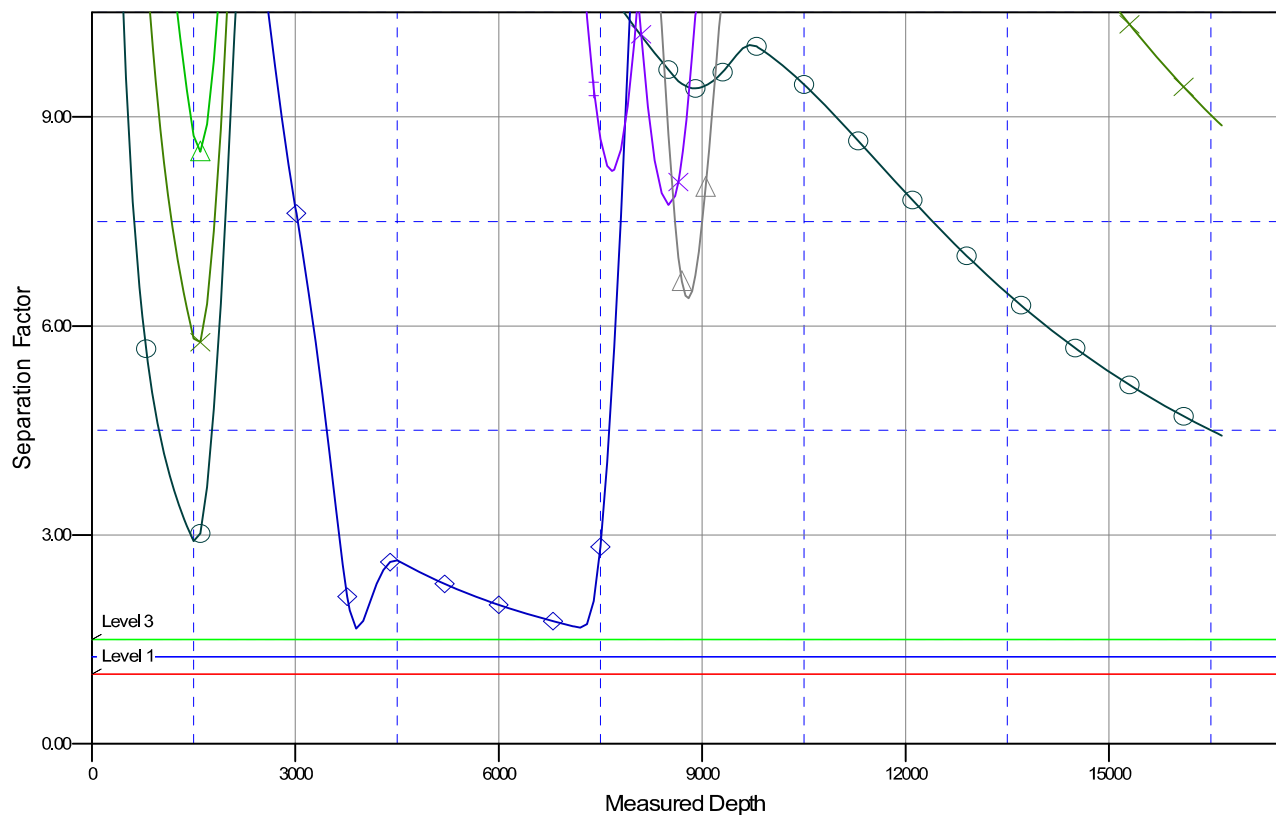
# MS Directional Anticollision Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Reference Site:</b>	Sweet Tea EBS Fed Com	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Conroe DB
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 2927.50usft (Precision 580) Coordinates are relative to: Sweet Tea EBS Fed Com 554H  
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30  
 Central Meridian is -104.333334 Grid Convergence at Surface is: 0.164°

## Separation Factor Plot



### LEGEND

Sweet Tea EBS Fed Com 552H, Wellbore #1, Design #1 V0	Sweet Tea EBS Fed Com 553H, Wellbore #1, Design #1 V0	Prince 31 Fed Com 564H, Wellbore #1, Surveys V0
Sweet Tea EBS Fed Com 302H, Wellbore #1, Design #1 V0	Sweet Tea EBS Fed Com 551H, Wellbore #1, Design #1 V0	Prince 31 Fed Com 404H, Wellbore #1, Surveys V0
	Prince 31 B2EH Fed Com 1H, Wellbore #1, Surveys V0	

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









## **Marathon Oil**

**Eddy County, New Mexico (NAD 27)**

**Sweet Tea EBS Fed Com**

**Sweet Tea EBS Fed Com 554H**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**13 November, 2023**





# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site:</b>	Sweet Tea EBS Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Eddy County, New Mexico (NAD 27)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		

<b>Site</b>	Sweet Tea EBS Fed Com		
<b>Site Position:</b>		<b>Northing:</b>	427,248.10 usft
<b>From:</b>	Map	<b>Easting:</b>	595,092.19 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	32.174249
		<b>Longitude:</b>	-104.025997

Well	Sweet Tea EBS Fed Com 554H					
Well Position	+N/-S	0.00 usft	Northing:	426,998.10 usft	Latitude:	32.173561
	+E/-W	0.00 usft	Easting:	595,152.19 usft	Longitude:	-104.025806
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,904.00 usft
Grid Convergence:		0.164 °				

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2023	12/31/2023	6.550	59.733	47,391,400

<b>Design</b>	Design #1				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	179.96	

<b>Plan Survey Tool Program</b>	<b>Date</b>	11/13/2023			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	16,662.52	Design #1 (Wellbore #1)	MWD+IFR1+FDIR	
				OWSG MWD + IFR1 + FDIR	



MS Directional  
Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Sweet Tea EBS Fed Com 554H
Company:	Marathon Oil	TVD Reference:	WELL @ 2927.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2927.50usft (Precision 580)
Site:	Sweet Tea EBS Fed Com	North Reference:	Grid
Well:	Sweet Tea EBS Fed Com 554H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,249.82	15.00	101.73	2,241.29	-19.84	95.53	2.00	2.00	0.00	101.733	
3,015.31	15.00	101.73	2,980.71	-60.12	289.47	0.00	0.00	0.00	0.000	
3,765.14	0.00	0.00	3,722.00	-79.96	385.00	2.00	-2.00	0.00	180.000	
8,600.18	0.00	0.00	8,557.04	-79.96	385.00	0.00	0.00	0.00	0.000	
9,500.18	90.00	173.45	9,130.00	-649.18	450.36	10.00	10.00	0.00	173.450	
9,825.64	90.00	179.96	9,130.00	-973.93	469.06	2.00	0.00	2.00	90.000	
16,662.52	90.00	179.96	9,130.00	-7,810.81	473.91	0.00	0.00	0.00	0.000	LTP/PBHL_Sweet 1



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site:</b>	Sweet Tea EBS Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>KOP, 2.00°/100' Build</b>									
1,600.00	2.00	101.73	1,599.98	-0.35	1.71	0.36	2.00	2.00	0.00
1,700.00	4.00	101.73	1,699.84	-1.42	6.83	1.42	2.00	2.00	0.00
1,800.00	6.00	101.73	1,799.45	-3.19	15.37	3.20	2.00	2.00	0.00
1,900.00	8.00	101.73	1,898.70	-5.67	27.30	5.69	2.00	2.00	0.00
2,000.00	10.00	101.73	1,997.47	-8.85	42.61	8.88	2.00	2.00	0.00
2,100.00	12.00	101.73	2,095.62	-12.73	61.29	12.77	2.00	2.00	0.00
2,200.00	14.00	101.73	2,193.06	-17.30	83.32	17.36	2.00	2.00	0.00
2,249.82	15.00	101.73	2,241.29	-19.84	95.53	19.91	2.00	2.00	0.00
<b>Begin 15.00° Tangent</b>									
2,300.00	15.00	101.73	2,289.76	-22.48	108.24	22.56	0.00	0.00	0.00
2,400.00	15.00	101.73	2,386.35	-27.74	133.58	27.84	0.00	0.00	0.00
2,500.00	15.00	101.73	2,482.95	-33.00	158.91	33.12	0.00	0.00	0.00
2,600.00	15.00	101.73	2,579.54	-38.27	184.25	38.39	0.00	0.00	0.00
2,700.00	15.00	101.73	2,676.14	-43.53	209.58	43.67	0.00	0.00	0.00
2,800.00	15.00	101.73	2,772.73	-48.79	234.92	48.95	0.00	0.00	0.00
2,900.00	15.00	101.73	2,869.32	-54.05	260.25	54.23	0.00	0.00	0.00
3,000.00	15.00	101.73	2,965.92	-59.31	285.59	59.51	0.00	0.00	0.00
3,015.31	15.00	101.73	2,980.71	-60.12	289.47	60.32	0.00	0.00	0.00
<b>Begin 2.00°/100' Drop</b>									
3,100.00	13.30	101.73	3,062.82	-64.33	309.74	64.55	2.00	-2.00	0.00
3,200.00	11.30	101.73	3,160.52	-68.66	330.60	68.89	2.00	-2.00	0.00
3,300.00	9.30	101.73	3,258.91	-72.30	348.11	72.54	2.00	-2.00	0.00
3,400.00	7.30	101.73	3,357.85	-75.23	362.25	75.49	2.00	-2.00	0.00
3,500.00	5.30	101.73	3,457.24	-77.47	373.00	77.73	2.00	-2.00	0.00
3,600.00	3.30	101.73	3,556.96	-78.99	380.34	79.26	2.00	-2.00	0.00
3,700.00	1.30	101.73	3,656.87	-79.81	384.28	80.08	2.00	-2.00	0.00
3,765.14	0.00	0.00	3,722.00	-79.96	385.00	80.23	2.00	-2.00	-156.19
<b>Begin Vertical Hold</b>									
3,800.00	0.00	0.00	3,756.87	-79.96	385.00	80.23	0.00	0.00	0.00
3,900.00	0.00	0.00	3,856.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,000.00	0.00	0.00	3,956.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,100.00	0.00	0.00	4,056.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,200.00	0.00	0.00	4,156.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,300.00	0.00	0.00	4,256.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,400.00	0.00	0.00	4,356.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,500.00	0.00	0.00	4,456.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,600.00	0.00	0.00	4,556.87	-79.96	385.00	80.23	0.00	0.00	0.00



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site:</b>	Sweet Tea EBS Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
4,700.00	0.00	0.00	4,656.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,800.00	0.00	0.00	4,756.87	-79.96	385.00	80.23	0.00	0.00	0.00
4,900.00	0.00	0.00	4,856.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,000.00	0.00	0.00	4,956.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,100.00	0.00	0.00	5,056.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,200.00	0.00	0.00	5,156.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,300.00	0.00	0.00	5,256.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,400.00	0.00	0.00	5,356.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,500.00	0.00	0.00	5,456.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,600.00	0.00	0.00	5,556.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,700.00	0.00	0.00	5,656.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,800.00	0.00	0.00	5,756.87	-79.96	385.00	80.23	0.00	0.00	0.00
5,900.00	0.00	0.00	5,856.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,000.00	0.00	0.00	5,956.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,100.00	0.00	0.00	6,056.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,200.00	0.00	0.00	6,156.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,256.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,356.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,456.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,556.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,656.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,800.00	0.00	0.00	6,756.87	-79.96	385.00	80.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,856.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,000.00	0.00	0.00	6,956.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,100.00	0.00	0.00	7,056.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,200.00	0.00	0.00	7,156.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,300.00	0.00	0.00	7,256.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,400.00	0.00	0.00	7,356.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,500.00	0.00	0.00	7,456.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,600.00	0.00	0.00	7,556.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,700.00	0.00	0.00	7,656.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,800.00	0.00	0.00	7,756.87	-79.96	385.00	80.23	0.00	0.00	0.00
7,900.00	0.00	0.00	7,856.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,000.00	0.00	0.00	7,956.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,100.00	0.00	0.00	8,056.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,200.00	0.00	0.00	8,156.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,300.00	0.00	0.00	8,256.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,400.00	0.00	0.00	8,356.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,500.00	0.00	0.00	8,456.87	-79.96	385.00	80.23	0.00	0.00	0.00
8,600.18	0.00	0.00	8,557.04	-79.96	385.00	80.23	0.00	0.00	0.00
<b>KOP, 10.00°/100° Build</b>									
8,650.00	4.98	173.45	8,606.80	-82.11	385.25	82.38	10.00	10.00	0.00
8,700.00	9.98	173.45	8,656.36	-88.58	385.99	88.85	10.00	10.00	0.00
8,750.00	14.98	173.45	8,705.16	-99.31	387.22	99.58	10.00	10.00	0.00
8,800.00	19.98	173.45	8,752.84	-114.23	388.93	114.50	10.00	10.00	0.00
8,850.00	24.98	173.45	8,799.02	-133.22	391.12	133.49	10.00	10.00	0.00
8,900.00	29.98	173.45	8,843.37	-156.13	393.75	156.41	10.00	10.00	0.00
8,950.00	34.98	173.45	8,885.53	-182.80	396.81	183.08	10.00	10.00	0.00
9,000.00	39.98	173.45	8,925.20	-213.02	400.28	213.30	10.00	10.00	0.00
9,050.00	44.98	173.45	8,962.06	-246.56	404.13	246.84	10.00	10.00	0.00
9,100.00	49.98	173.45	8,995.84	-283.16	408.33	283.44	10.00	10.00	0.00
9,150.00	54.98	173.45	9,026.28	-322.55	412.85	322.83	10.00	10.00	0.00
9,200.00	59.98	173.45	9,053.15	-364.42	417.66	364.71	10.00	10.00	0.00



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site:</b>	Sweet Tea EBS Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
9,250.00	64.98	173.45	9,076.24	-408.46	422.72	408.75	10.00	10.00	0.00
9,300.00	69.98	173.45	9,095.38	-454.33	427.99	454.63	10.00	10.00	0.00
9,350.00	74.98	173.45	9,110.43	-501.69	433.42	501.99	10.00	10.00	0.00
9,400.00	79.98	173.45	9,121.26	-550.16	438.99	550.47	10.00	10.00	0.00
9,450.00	84.98	173.45	9,127.80	-599.39	444.64	599.70	10.00	10.00	0.00
9,500.18	90.00	173.45	9,130.00	-649.18	450.36	649.49	10.00	10.00	0.00
<b>Begin 90.00° Lateral</b>									
9,600.00	90.00	175.45	9,130.00	-748.53	460.01	748.85	2.00	0.00	2.00
9,700.00	90.00	177.45	9,130.00	-848.33	466.21	848.66	2.00	0.00	2.00
9,800.00	90.00	179.45	9,130.00	-948.29	468.92	948.62	2.00	0.00	2.00
9,825.64	90.00	179.96	9,130.00	-973.93	469.06	974.26	2.00	0.00	2.00
<b>Hold 90.00° Inc, 179.96° Azm</b>									
9,900.00	90.00	179.96	9,130.00	-1,048.29	469.11	1,048.62	0.00	0.00	0.00
10,000.00	90.00	179.96	9,130.00	-1,148.29	469.18	1,148.62	0.00	0.00	0.00
10,100.00	90.00	179.96	9,130.00	-1,248.29	469.25	1,248.62	0.00	0.00	0.00
10,200.00	90.00	179.96	9,130.00	-1,348.29	469.32	1,348.62	0.00	0.00	0.00
10,300.00	90.00	179.96	9,130.00	-1,448.29	469.39	1,448.62	0.00	0.00	0.00
10,400.00	90.00	179.96	9,130.00	-1,548.29	469.46	1,548.62	0.00	0.00	0.00
10,500.00	90.00	179.96	9,130.00	-1,648.29	469.53	1,648.62	0.00	0.00	0.00
10,600.00	90.00	179.96	9,130.00	-1,748.29	469.61	1,748.62	0.00	0.00	0.00
10,700.00	90.00	179.96	9,130.00	-1,848.29	469.68	1,848.62	0.00	0.00	0.00
10,800.00	90.00	179.96	9,130.00	-1,948.29	469.75	1,948.62	0.00	0.00	0.00
10,900.00	90.00	179.96	9,130.00	-2,048.29	469.82	2,048.62	0.00	0.00	0.00
11,000.00	90.00	179.96	9,130.00	-2,148.29	469.89	2,148.62	0.00	0.00	0.00
11,100.00	90.00	179.96	9,130.00	-2,248.29	469.96	2,248.62	0.00	0.00	0.00
11,200.00	90.00	179.96	9,130.00	-2,348.29	470.03	2,348.62	0.00	0.00	0.00
11,300.00	90.00	179.96	9,130.00	-2,448.29	470.10	2,448.62	0.00	0.00	0.00
11,400.00	90.00	179.96	9,130.00	-2,548.29	470.17	2,548.62	0.00	0.00	0.00
11,500.00	90.00	179.96	9,130.00	-2,648.29	470.24	2,648.62	0.00	0.00	0.00
11,600.00	90.00	179.96	9,130.00	-2,748.29	470.32	2,748.62	0.00	0.00	0.00
11,700.00	90.00	179.96	9,130.00	-2,848.29	470.39	2,848.62	0.00	0.00	0.00
11,800.00	90.00	179.96	9,130.00	-2,948.29	470.46	2,948.62	0.00	0.00	0.00
11,900.00	90.00	179.96	9,130.00	-3,048.29	470.53	3,048.62	0.00	0.00	0.00
12,000.00	90.00	179.96	9,130.00	-3,148.29	470.60	3,148.62	0.00	0.00	0.00
12,100.00	90.00	179.96	9,130.00	-3,248.29	470.67	3,248.62	0.00	0.00	0.00
12,200.00	90.00	179.96	9,130.00	-3,348.29	470.74	3,348.62	0.00	0.00	0.00
12,300.00	90.00	179.96	9,130.00	-3,448.29	470.81	3,448.62	0.00	0.00	0.00
12,400.00	90.00	179.96	9,130.00	-3,548.29	470.88	3,548.62	0.00	0.00	0.00
12,500.00	90.00	179.96	9,130.00	-3,648.29	470.95	3,648.62	0.00	0.00	0.00
12,600.00	90.00	179.96	9,130.00	-3,748.29	471.03	3,748.62	0.00	0.00	0.00
12,700.00	90.00	179.96	9,130.00	-3,848.29	471.10	3,848.62	0.00	0.00	0.00
12,800.00	90.00	179.96	9,130.00	-3,948.29	471.17	3,948.62	0.00	0.00	0.00
12,900.00	90.00	179.96	9,130.00	-4,048.29	471.24	4,048.62	0.00	0.00	0.00
13,000.00	90.00	179.96	9,130.00	-4,148.29	471.31	4,148.62	0.00	0.00	0.00
13,100.00	90.00	179.96	9,130.00	-4,248.29	471.38	4,248.62	0.00	0.00	0.00
13,200.00	90.00	179.96	9,130.00	-4,348.29	471.45	4,348.62	0.00	0.00	0.00
13,300.00	90.00	179.96	9,130.00	-4,448.29	471.52	4,448.62	0.00	0.00	0.00
13,400.00	90.00	179.96	9,130.00	-4,548.29	471.59	4,548.62	0.00	0.00	0.00
13,500.00	90.00	179.96	9,130.00	-4,648.29	471.66	4,648.62	0.00	0.00	0.00
13,600.00	90.00	179.96	9,130.00	-4,748.29	471.74	4,748.62	0.00	0.00	0.00
13,700.00	90.00	179.96	9,130.00	-4,848.29	471.81	4,848.62	0.00	0.00	0.00
13,800.00	90.00	179.96	9,130.00	-4,948.29	471.88	4,948.62	0.00	0.00	0.00
13,900.00	90.00	179.96	9,130.00	-5,048.29	471.95	5,048.62	0.00	0.00	0.00
14,000.00	90.00	179.96	9,130.00	-5,148.29	472.02	5,148.62	0.00	0.00	0.00





# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Sweet Tea EBS Fed Com 554H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 2927.50usft (Precision 580)
<b>Site:</b>	Sweet Tea EBS Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Sweet Tea EBS Fed Com 554H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
14,100.00	90.00	179.96	9,130.00	-5,248.29	472.09	5,248.62	0.00	0.00	0.00
14,200.00	90.00	179.96	9,130.00	-5,348.29	472.16	5,348.62	0.00	0.00	0.00
14,300.00	90.00	179.96	9,130.00	-5,448.29	472.23	5,448.62	0.00	0.00	0.00
14,400.00	90.00	179.96	9,130.00	-5,548.29	472.30	5,548.62	0.00	0.00	0.00
14,500.00	90.00	179.96	9,130.00	-5,648.29	472.37	5,648.62	0.00	0.00	0.00
14,600.00	90.00	179.96	9,130.00	-5,748.29	472.45	5,748.62	0.00	0.00	0.00
14,700.00	90.00	179.96	9,130.00	-5,848.29	472.52	5,848.62	0.00	0.00	0.00
14,800.00	90.00	179.96	9,130.00	-5,948.29	472.59	5,948.62	0.00	0.00	0.00
14,900.00	90.00	179.96	9,130.00	-6,048.29	472.66	6,048.62	0.00	0.00	0.00
15,000.00	90.00	179.96	9,130.00	-6,148.29	472.73	6,148.62	0.00	0.00	0.00
15,100.00	90.00	179.96	9,130.00	-6,248.29	472.80	6,248.62	0.00	0.00	0.00
15,200.00	90.00	179.96	9,130.00	-6,348.29	472.87	6,348.62	0.00	0.00	0.00
15,300.00	90.00	179.96	9,130.00	-6,448.29	472.94	6,448.62	0.00	0.00	0.00
15,400.00	90.00	179.96	9,130.00	-6,548.29	473.01	6,548.62	0.00	0.00	0.00
15,500.00	90.00	179.96	9,130.00	-6,648.29	473.08	6,648.62	0.00	0.00	0.00
15,600.00	90.00	179.96	9,130.00	-6,748.29	473.16	6,748.62	0.00	0.00	0.00
15,700.00	90.00	179.96	9,130.00	-6,848.29	473.23	6,848.62	0.00	0.00	0.00
15,800.00	90.00	179.96	9,130.00	-6,948.29	473.30	6,948.62	0.00	0.00	0.00
15,900.00	90.00	179.96	9,130.00	-7,048.29	473.37	7,048.62	0.00	0.00	0.00
16,000.00	90.00	179.96	9,130.00	-7,148.29	473.44	7,148.62	0.00	0.00	0.00
16,100.00	90.00	179.96	9,130.00	-7,248.29	473.51	7,248.62	0.00	0.00	0.00
16,200.00	90.00	179.96	9,130.00	-7,348.29	473.58	7,348.62	0.00	0.00	0.00
16,300.00	90.00	179.96	9,130.00	-7,448.29	473.65	7,448.62	0.00	0.00	0.00
16,400.00	90.00	179.96	9,130.00	-7,548.29	473.72	7,548.62	0.00	0.00	0.00
16,500.00	90.00	179.96	9,130.00	-7,648.29	473.79	7,648.62	0.00	0.00	0.00
16,600.00	90.00	179.96	9,130.00	-7,748.29	473.87	7,748.62	0.00	0.00	0.00
16,662.52	90.00	179.96	9,130.00	-7,810.81	473.91	7,811.14	0.00	0.00	0.00
PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP/FTP/PPP-1_Swe	0.00	0.00	0.00	-79.96	468.87	426,918.14	595,621.06	32.173338	-104.024291
- plan misses target center by 475.64usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
LTP/PBHL_Sweet Tea	0.00	0.00	9,130.00	-7,810.81	473.91	419,187.29	595,626.10	32.152086	-104.024347
- plan hits target center									
- Point									



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Sweet Tea EBS Fed Com 554H
Company:	Marathon Oil	TVD Reference:	WELL @ 2927.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2927.50usft (Precision 580)
Site:	Sweet Tea EBS Fed Com	North Reference:	Grid
Well:	Sweet Tea EBS Fed Com 554H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	KOP, 2.00°/100' Build
2,249.82	2,241.29	-19.84	95.53	Begin 15.00° Tangent
3,015.31	2,980.71	-60.12	289.47	Begin 2.00°/100' Drop
3,765.14	3,722.00	-79.96	385.00	Begin Vertical Hold
8,600.18	8,557.04	-79.96	385.00	KOP, 10.00°/100' Build
9,500.18	9,130.00	-649.18	450.36	Begin 90.00° Lateral
9,825.64	9,130.00	-973.93	469.06	Hold 90.00° Inc, 179.96° Azm
16,662.52	9,130.00	-7,810.81	473.91	PBHL

State of New Mexico  
Energy, Minerals and Natural Resources DepartmentSubmit Electronically  
Via E-permittingOil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505**NATURAL GAS MANAGEMENT PLAN**

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

**Section 1 – Plan Description****Effective May 25, 2021****I. Operator:** Marathon Oil Permian LLC **OGRID:** 972098 **Date:** 11 / 13 / 2023**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Please see attached						

**IV. Central Delivery Point Name:** Sweet Tea EBS Fed Com CTB [See 19.15.27.9(D)(1) NMAC]**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Please see attached						

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

**Section 2 – Enhanced Plan****EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

**X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.



I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	<i>Terri Stathem</i>
Printed Name:	Terri Stathem
Title:	Manager Regulatory Compliance
E-mail Address:	tstathem@marathonoil.com
Date:	11/13/2023
Phone:	713-817-0224
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>	
Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

**III. Wells**

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Sweet Tea EBS Federal Com 301H		F-31-24S-29E	2464' FNL & 1782' FWL	2300	4200	3500
Sweet Tea EBS Federal Com 302H		F-31-24S-29E	2464' FNL & 1812' FWL	2300	4200	3500
Sweet Tea EBS Federal Com 551H		F-31-24S-29E	2622' FSL & 1751' FWL	2300	4200	3500
Sweet Tea EBS Federal Com 552H		F-31-24S-29E	2622' FSL & 1781' FWL	2300	4200	3500
Sweet Tea EBS Federal Com 553H		F-31-24S-29E	2622' FSL & 1811' FWL	2300	4200	3500
Sweet Tea EBS Federal Com 554H		F-31-24S-29E	2622' FSL & 1841' FWL	2300	4200	3500

**V. Anticipated Schedule**

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Sweet Tea EBS Federal Com 301H		11/1/2024	12/1/2024	6/1/2025	6/15/2025	6/15/2025
Sweet Tea EBS Federal Com 302H		11/5/2024	12/5/2024	6/1/2025	6/15/2025	6/15/2025
Sweet Tea EBS Federal Com 551H		11/10/2024	12/10/2024	6/1/2025	6/15/2025	6/15/2025
Sweet Tea EBS Federal Com 552H		12/1/2024	1/4/2025	6/1/2025	6/15/2025	6/15/2025
Sweet Tea EBS Federal Com 553H		12/5/2024	1/5/2025	6/1/2025	6/15/2025	6/15/2025
Sweet Tea EBS Federal Com 554H		12/10/2024	1/10/2025	6/1/2025	6/15/2025	6/15/2025

**APPENDIX**

## Section 1 - Parts VI, VII, and VIII

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

- Separation equipment is sized to allow for retention time and velocity to adequately separate oil, gas, and water at anticipated peak rates.
- All central tank battery equipment is designed to efficiently capture the remaining gas from the liquid phase.
- Valves and meters are designed to service without flow interruption or venting of gas.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

◆ **19.15.27.8 (A) – Venting and Flaring Of Natural Gas**

- Marathon Oil Permian's field operations are designed with the goal of minimizing flaring and preventing venting of natural gas. If capturing the gas is not possible then the gas is combusted/flared using properly sized flares or combustors in accordance with state air permit rules.

◆ **19.15.27.8 (B) – Venting and Flaring During Drilling Operations**

- A properly-sized flare stack will be located at a minimum 100' from the nearest surface hole location on the pad.
- All natural gas produced during drilling operations will be flared. Venting will only occur if there is an equipment malfunction and/or to avoid risk of an immediate and substantial adverse impact on safety, public health, or the environment.

◆ **19.15.27.8 (C) – Venting and Flaring During Completion or Recompletion Operations**

- During all phases of flowback, wells will flow through a sand separator, or other appropriate flowback separation equipment, and the well stream will be directed to a central tank battery (CTB) through properly sized flowlines.
- The CTB will have properly sized separation equipment for maximum anticipated flow rates.
- Multiple stages of separation will be used to separate gas from liquids. All gas will be routed to a sales outlet. Fluids will be routed to tanks equipped with a closed loop system that will recover any residual gas from the tanks and route such gas to a sales outlet.

◆ **19.15.27.8 (D) – Venting and Flaring During Production Operations**

- During production, the well stream will be routed to the CTB where multiple stages of separation will separate gas from liquids. All gas will be routed to a sales outlet. Fluids will be routed to tanks equipped with a closed loop system that will recover any residual gas from the tanks and route such gas to a sales outlet, minimizing tank emissions.
- Flares are equipped with auto-ignition systems and continuous pilot operations.
- Automatic gauging equipment is installed on all tanks.

◆ **19.15.27.8 (E) – Performance Standards**

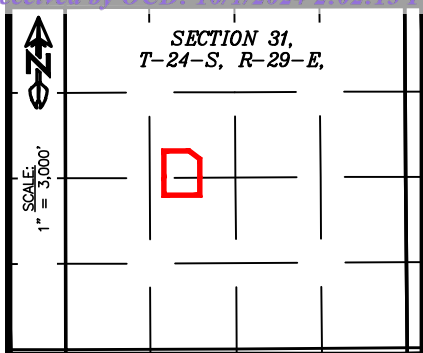
- Production equipment will be designed to handle maximum anticipated rates and pressure.
- Automatic gauging equipment is installed on all tanks to minimize venting.
- All flared gas will be combusted in a flare stack that is properly sized and designed to ensure proper combustion.
- Flares are equipped with continuous pilots and auto-ignitors along with remote monitoring of the pilot status.
- Weekly AVOs and monthly LDAR inspections will be performed on all wells and facilities that produce more than 60 MCFD.
- Gas/H<sub>2</sub>S detectors will be installed throughout the facilities and wellheads to detect leaks and enable timely repairs.

**◆ 19.15.27.8 (F) – Measurement or Estimation of Vented and Flared Natural Gas**

- All high pressure flared gas is measured by equipment conforming to API 14.10.
- No meter bypasses are installed.
- When metering is not practical due to low pressure/low rate, the vented or flared volume will be estimated through flare flow curves with the assistance of air emissions consultants, as necessary.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

- Marathon Oil Permian will use best management practices to vent as minimally as possible during well intervention operations and downhole well maintenance.
- All natural gas is routed into the gas gathering system and directed to one of Marathon Oil Permian's multiple gas sales outlets.
- All venting events will be recorded and all start-up, shutdown, maintenance logs will be kept for control equipment.
- All control equipment will be maintained to provide highest run-time possible.
- All procedures are drafted to keep venting and flaring to the absolute minimum.

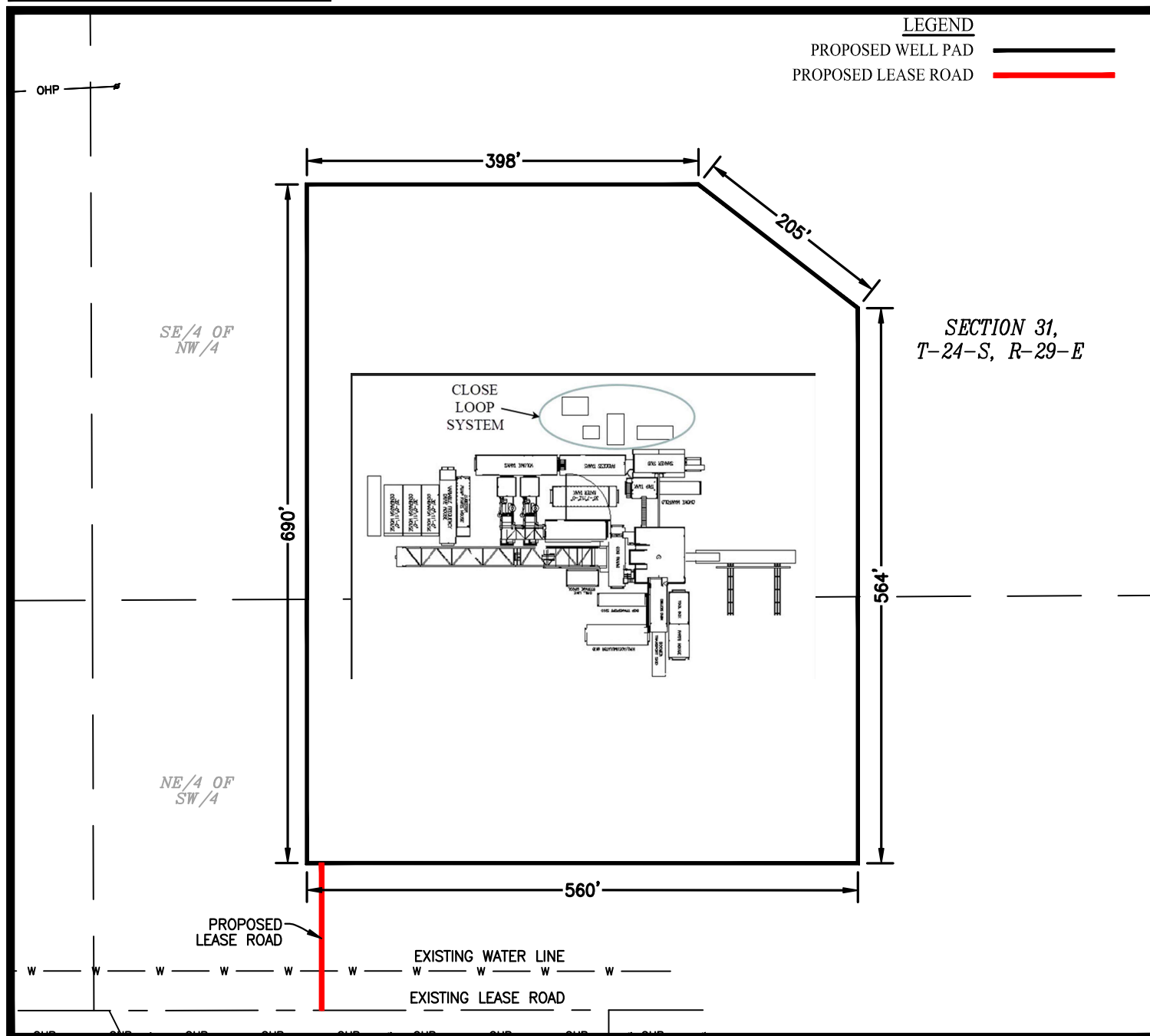
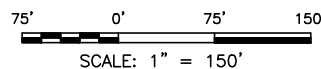


# RIG LAYOUT

SWEET TEA FED COM  
SEC. 31 TWP. 24-S RGE. 29-E  
SURVEY: N.M.P.M.

COUNTY: EDDY

OPERATOR: MARATHON OIL PERMIAN LLC  
U.S.G.S. TOPOGRAPHIC MAP: MALAGA, N.M.



## NOTE:

THIS IS NOT A BOUNDARY SURVEY, APPARENT PROPERTY CORNERS AND PROPERTY LINES ARE SHOWN FOR INFORMATION ONLY. BOUNDARY DATA SHOWN IS FROM STATE OF NEW MEXICO OIL CONSERVATION DIVISION FORM C-102 INCLUDED IN THIS SUBMITTAL.

1	11/09/2023	ANC
REV.	DATE	BY

SHEET 5 OF 6

PREPARED BY:  
DELTA FIELD SERVICES, LLC  
510 TRENTON ST.  
WEST MONROE, LA 71291  
318-323-6900 OFFICE  
JOB No. R3615\_012



MARATHON OIL PERMIAN, LLC.  
**DRILLING AND OPERATIONS PLAN**



WELL NAME & NUMBER: **SWEET TEA EBS FED COM 554H**  
LOCATION: SECTION **31** TOWNSHIP **24S** RANGE **29E**  
**EDDY** COUNTY, **NEW MEXICO**

**Section 1: GEOLOGICAL FORMATIONS**

Name of Surface Formation: Permian  
Elevation: 2904 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	na	na	#VALUE!	Anhydrite	Brine	No
Salado	652	679	2252	Salt/Anhydrite	Brine	No
Castile	1292	1319	1612	Salt/Anhydrite	Brine	No
Base of Salt (BX)	2561	2588	343	Salt/Anhydrite	Brine	No
Lamar	2786	2813	118	Sandstone/Shale	None	No
Bell Canyon	2821	2848	83	Sandstone	Oil	No
Cherry Canyon	3719	3746	-815	Sandstone	Oil	No
Brushy Canyon	4924	4951	-2020	Sandstone	Oil	No
Bone Spring Lime	6590	6617	-3686	Limestone	None	No
Upper Avalon Shale	6590	6617	-3686	Shale	Oil	Yes
1st Bone Spring Sand	7473	7500	-4569	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	7728	7755	-4824	Limestone/Shale	None	No
2nd Bone Spring Sand	8277	8304	-5373	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	8566	8593	-5662	Limestone	Oil	No
3rd Bone Spring Sand	9380	9407	-6476	Sandstone	Oil	Yes
Wolfcamp	9738	9765	-6834	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9880	9907	-6976	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	10204	10231	-7300	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	10440	10467	-7536	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp D	10958	10985	-8054	Sandstone/Shale/Carbonates	Natural Gas / Oil	No

**Section 2: BLOWOUT PREVENTER TESTING PROCEDURE**

Pressure Rating (PSI): 10M  
Rating Depth: 10000  
Equipment: 13 5/8 BOP Annular (5,000 psi WP) and BOP Stack (10,000 psi WP) will be installed and tested before drilling all holes.  
  
Requesting Variance? Yes  
Variance Request: 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.

Testing Procedure: BOP/BOPE will be tested to 250 psi low and a high of 100% WP for the Annular and 5,000psi for the BOP Stacking before drilling the intermediate hole, 10,000psi for the BOP Stacking before drilling the production hole. Testing will be conducted by an independent service company per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the Equipment Description 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, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.  
Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. See attached schematic.

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 2 of 3

Section 3: CASING PROGRAM

String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	17.5	13.375	0	500	0	500	2904	2404	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	8500	0	8457	2904	-5553	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	16662	0	9130	2904	-6226	23	P110HC	TLW	2.53	1.26	BUOY	2.22	BUOY	2.22
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h												Safety Factors will Meet or Exceed					

Casing Condition: New  
Casing Standard: API  
Tapered String? No

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

Section 4: CEMENT PROGRAM

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sks)	Yield (ft³/sks)	Density (ppg)	Slurry Volume (ft³)	Excess (%)	Cement Type	Additives
Surface	Lead	0	350	166	2.12	12.5	353	25	Class C	Extender,Accelerator,LCM
Surface	Tail	350	500	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	8000	1451	2.18	12.4	3163	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	8000	8500	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	8200	16662	1631	1.68	13	2740	25	Class H	Retarder, Extender, Fluid Loss, Suspension Agent

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

Pilot Hole? No  
Pilot Hole Depth: N/A  
KOP Depth: N/A  
Plugging Procedure for Pilot Hole: N/A

Plug Top	Plug Bottom	Excess (%)	Quantity (sx)	Density (ppg)	Yield (ft3/sks)	Water gal/sk	Slurry Description and Cement Type

Section 5:

CIRCULATING MEDIUM

Mud System Type: Closed

Will an air or gas system be used? No

Describe what will be on location to control well or mitigate other conditions:

The necessary mud products for additional weight and fluid loss control will be on location at all times.

Describe the mud monitoring system utilized:

Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT.

Circulating Medium Table:

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max Weight (ppg)
0	500	Water Based Mud	8.4	8.8
500	8500	Brine or Oil Based Mud	9.2	10.2
8500	16662	Oil Based Mud	10.5	12.5

Section 6:

TESTING, LOGGING, CORING

List of production tests including testing procedures, equipment and safety measures:

GR from TD to surface (horizontal well - vertical portion of hole)

List of open and cased hole logs run in the well:

GR while drilling from Intermediate casing shoe to TD.

Coring operation description for the well:

Run gamma-ray (GR) and corrected neutron log (CNL) or analogous to surface for future development of the area, one per shared well pad not to exceed 200’ radial distance.

Section 7:

ANTICIPATED PRESSURE

Anticipated Bottom Hole Pressure: 5935 PSI

Anticipated Bottom Hole Temperature: 195 °F

Anticipated Abnormal Pressure? No

Anticipated Abnormal Temperature? No

Potential Hazards:

H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. See attached H2S Contingency Plan.

Section 8:

OTHER INFORMATION

Auxiliary Well Control and Monitoring Equipment:

A Kelly cock will be in the drill string at all times. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.

Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM.

Anticipated Starting Date and Duration of Operations:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.

## Batch Drilling Plan

- Marathon Oil Permian LLC. respectfully requests the option to “batch” drill sections of a well with intentions of returning to the well for later completion.
- When it is determined that the use of a “batch” drilling process to increase overall efficiency and reduce rig time on location, the following steps will be utilized to ensure compliant well control before releasing drilling rig during the batch process.
- Succeeding a successful cement job, fluid levels will be monitored in both the annulus and casing string to be verified static.
- A mandrel hanger packoff will be ran and installed in the multi-bowl wellhead isolating and creating a barrier on the annulus. This packoff will be tested to 5,000 PSI validating the seals.
- At this point the well is secure and the drilling adapter will be removed from the wellhead.
- A 13-5/8” 5M temporary abandonment cap will be installed on the wellhead by stud and nut flange. The seals of the TA cap will then be pressure tested to 5,000 PSI.
- The drilling rig will skid to the next well on the pad to continue the batch drilling process.
- When returning to the well with the TA cap, the TA cap will be removed and the BOP will be nipped up on the wellhead.
- A BOP test will then be conducted according to Onshore Order #2 and drilling operations will resume on the subject well.

## Request for Surface Rig

- Marathon Oil Permian LLC. Requests the option to contract a surface rig to drill, set surface casing and cement on the subject well. If the timing between rigs is such that Marathon Oil Permian LLC. would not be able to preset the surface section, the primary drilling rig will drill the well in its entirety per the APD.

## 1. DRILLING WELL CONTROL PLAN

---

### 1.1 WELL CONTROL - CERTIFICATIONS

#### Required IADC/IWCF Well Control Certifications Supervisor Level:

Any personnel who supervises or operates the BOP must possess a valid current IADC training certification and photo identification. This would include the onsite drilling supervisor, tool pusher/rig manager, driller, and any personnel that will be acting in these capacities. Another example of this may be a wireline or snubbing crew rigged up on the rig to assist the rig, the operator of each system must also have a valid control certification for their level of operation.

BLM recognizes IADC training as the industry approved accredited training. Online self-certifications will not be acceptable. Enforcement actions for the lack of a valid Supervisory Level certificate shall be prompt action to correct the deficiency. **Enforcement actions include but are not limited to immediate replacement of personnel lacking certifications, drilling operations being shut down or installment of a 10M annular.**

IADC Driller Level for all Drillers and general knowledge for the Assistant Driller, Derrick Hands, Floor Hands and Motor Hands is recognized by the BLM; however, a Driller Level certification will need to be presented only if acting in a temporary Driller Level certification capacity.

#### **Well Control-Position/Roles**

IADC Well control training and certification is targeted toward each role, e.g., Supervisor Level toward those who direct, Driller Level to those who act, Introductory to those who need to know.

- **Supervisor Level**
  - Specifies and has oversight that the correct actions are carried out
  - Role is to supervise well control equipment, training, testing, and well control events
  - Directs the testing of BOP and other well control equipment
  - Regularly direct well control crew drills
  - Land based rigs – usually runs the choke during a well kill operation
  - Due to role on the rig, training and certification is targeted more toward management of well control and managing an influx out of the well
- **Driller Level**
  - Performs an action to prevent or respond to well control accident
  - Role is to monitor the well via electronic devices while drilling and detect unplanned influxes
  - Assist with the testing of BOP and other well control equipment
  - Regularly assist with well control crew drills
  - When influx is detected, responsible to close the BOP
  - Due to role on the rig, training and certification is targeted more toward monitoring and shutting the well in (closing the BOP) when an influx is detected

**(Well Control-Positions/Roles Continued)**

- **Derrick Hand, Assistant Driller Introductory Level**
  - Role is to assist Driller with kick detection by physically monitoring the well at the mixing pits/tanks
  - Regularly record mud weights/viscosity for analysis by the Supervisor level and mud engineer so pre-influx signs can be detected
  - Mix required kill fluids as directed by Supervisor or Driller
  - Due to role on the rig, training and certification is targeted more toward monitoring for influxes, either via mud samples or visual signs on the pits/tanks
- **Motorman, Floor Hand Introductory Level**
  - Role is to assist the Supervisor, Driller, or Derrick Hand with detecting influxes
  - Be certain all valves are aligned for proper well control as directed by Supervisor
  - Perform Supervisor or Driller assigned tasks during a well control event
  - Due to role on the rig, training and certification is targeted more toward monitoring for influxes

**1.2 WELL CONTROL-COMPONENT AND PREVENTER COMPATIBILITY CHECKLIST**

The table below, which covers the drilling and casing of the 10M Stack portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

- Example 6-1/8" Production hole section, 10M requirement

Component	OD	Preventer	RWP
Drill pipe	4"	Upper and Lower 3.5-5.5" VBRs	10M
HWDP	4"	Upper and Lower 3.5-5.5" VBRs	10M
Drill collars and MWD tools	4.75-5"	Upper and Lower 3.5-5.5" VBRs	10M
Mud Motor	4.75-5.25"	Upper and Lower 3.5-5.5" VBRs	10M
Production casing	4.5"	Upper and Lower 3.5-5.5" VBRs	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

- VBR = Variable Bore Ram. Compatible range listed in chart.

**1.3 WELL CONTROL-BOP TESTING**

BOP Test will be completed per Onshore Oil and Gas Order #2 Well Control requirements. The 5M Annular Preventer on a required 10M BOP stack will be tested to 70 % of rated working



pressure including a 10 minute low pressure test. Pressure shall be maintained at least 10 minutes.

## 1.4 WELL CONTROL - DRILLS

The following drills are conducted and recorded in the Daily Drilling Report and the Contractor's reporting system while engaged in drilling operations:

Type	Frequency	Objective	Comments
Shallow gas kick drill - drilling	Once per well with crew on tour	Response training to a shallow gas influx	To be done prior to drilling surface hole if shallow gas is noted
Kick drill - drilling	Once per week per crew	Response training to an influx while drilling (bit on bottom)	Only one kick drill per week per crew is required, alternating between drilling and tripping.
Kick drill - tripping	Once per week per crew	Response training to an influx while tripping (bit off bottom). Practice stabbing TIW valve	

## 1.5 WELL CONTROL – MONITORING

- Drilling operations which utilize static fluid levels in the wellbore as the active barrier element, a means of accurately monitoring fill-up and displacement volumes during trips are available to the driller and operator. A recirculating trip tank is installed and equipped with a volume indicator easily read from the driller's / operator's position. This data is recorded on a calibrated chart recorder or digitally. The actual volumes are compared to the calculated volumes.
- The On-Site Supervisor ensures hole-filling and pit monitoring procedures are established and documented for every rig operation.
- The well is kept full of fluid with a known density and monitored at all times even when out of the hole.
- Flow checks are a minimum of 15 minutes.
- A flow check is made:
  - In the event of a drilling break.
  - After indications of down hole gains or losses.
  - Prior to all trips out of the hole.
  - After pulling into the casing shoe.
  - Before the BHA enters the BOP stack.
  - If trip displacement is incorrect.

### Well Control-Monitoring (Continued)

- Prior to dropping a survey instrument.
- Prior to dropping a core ball.

- After a well kill operation.
- When the mud density is reduced in the well.
- Flow checks may be made at any time at the sole discretion of the driller or his designate. The Onsite Supervisor ensures that personnel are aware of this authority and the authority to close the well in immediately without further consultation.
- Record slow circulating rates ( SCR ) after each crew change, bit trip, and 500' of new hole drilled and after any variance greater than 0.2 ppg in MW. Slow pump rate recordings should include return flow percent, TVD, MD & pressure. SCR's will be done on all pumps at 30, 40 & 50 SPM. Pressures will be recorded at the choke panel. SCR will be recorded in the IADC daily report and ORB Wellview daily report
- Drilling blind (i.e. without returns) is permissible only in known lithology where the absence of hydrocarbons has been predetermined and written approval of the Drilling Manager.
- All open hole logs to be run with pack-off or lubricator.
- The Drilling Contractor has a fully working pit level totalizer / monitoring system with read out for the driller and an audible alarm set to 10 BBL gain / loss volume. Systems are selectable to enable monitoring of all pits in use. Pit volumes are monitored at all times, especially when transferring fluids. Both systems data is recorded on a calibrated chart recorder or electronically.
- The Drilling Contractor has a fully working return mud flow indicator with drillers display and an audible alarm, and is adjustable to record any variance in return volumes.

## 1.6 WELL CONTROL – SHUT IN

- The “hard shut in” method (i.e. against a closed choke using either an annular or ram type preventer) is the Company standard.
- The HCR(s) or failsafe valves are left closed during drilling to prevent any erosion and buildup of solids. The adjustable choke should also be left closed.
- The rig specific shut in procedure, the BOP configuration along with space-out position for the tool joints is posted in the Driller's control cabin or doghouse.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Manager.
- During a well kill by circulation, constant bottom hole pressure is maintained throughout.
- Kill sheets are maintained by the Driller and posted in the Driller's control cabin or doghouse. The sheet is updated at a minimum every 500 feet.

## 2. SHUT-IN PROCEDURES:

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### 2.1 PROCEDURE WHILE DRILLING

- Sound alarm (alert crew)

- Space out drill string – Stop rotating, pick the drill string up off bottom, and space out to ensure no tool joint is located in the BOP element selected for initial closure.
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
  - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify toolpusher/company representative
- Gather all relevant data required:
  - SIDPP and SICP
  - Hole Depth and Hole TVD
  - Pit gain
  - Time
  - Kick Volume
  - Pipe depth
  - MW in, MW out
  - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- If pressure has built or is anticipated during the kill to reach 1,000 psi or greater, the annular preventer will not be used as the primary pressure control device and operations will swap to the upper BOP pipe ram.

## 2.2 PROCEDURE WHILE TRIPPING

- Sound alarm (alert crew)
- Stab full opening safety valve in the drill string and close.
- Space out drill string (ensure no tool joint is located in the BOP element selected for initial closure).
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
  - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify tool pusher/company representative
- Gather all relevant data required:
  - SIDPP and SICP
  - Hole Depth and Hole TVD
  - Pit gain

### Procedure While Tripping (Continued)

- Time
- Kick Volume
- Pipe depth

- MW in, MW out
- SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- If pressure has built or is anticipated during the kill to reach 1,000 psi or greater, the annular preventer will not be used as the primary pressure control device and operations will swap to the upper BOP pipe ram.

## 2.3 PROCEDURE WHILE RUNNING CASING

- Sound alarm (alert crew)
- Stab crossover and full opening safety valve and close
- Space out casing (ensure no coupling is located in the BOP element selected for initial closure).
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
  - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify tool pusher/company representative
- Gather all relevant data required:
  - SIDPP and SICP
  - Hole Depth and Hole TVD
  - Pit gain
  - Time
  - Kick Volume
  - Pipe depth
  - MW in, MW out
  - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- If pressure has built or is anticipated during the kill to reach 1,000 psi or greater, the annular preventer will not be used as the primary pressure control device and operations will swap to the upper BOP pipe ram.

## 2.4 PROCEDURE WITH NO PIPE IN HOLE (OPEN HOLE)

- Sound alarm (alert crew)
- Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)
- Confirm shut-in

- Notify toolpusher/company representative
- Gather all relevant data required:
  - Shut-In Pressure
  - Hole Depth and Hole TVD
  - Pit gain
  - Time
  - Kick Volume
  - MW in, MW out
  - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit.

## 2.5 PROCEDURE WHILE PULLING BHA THRU STACK

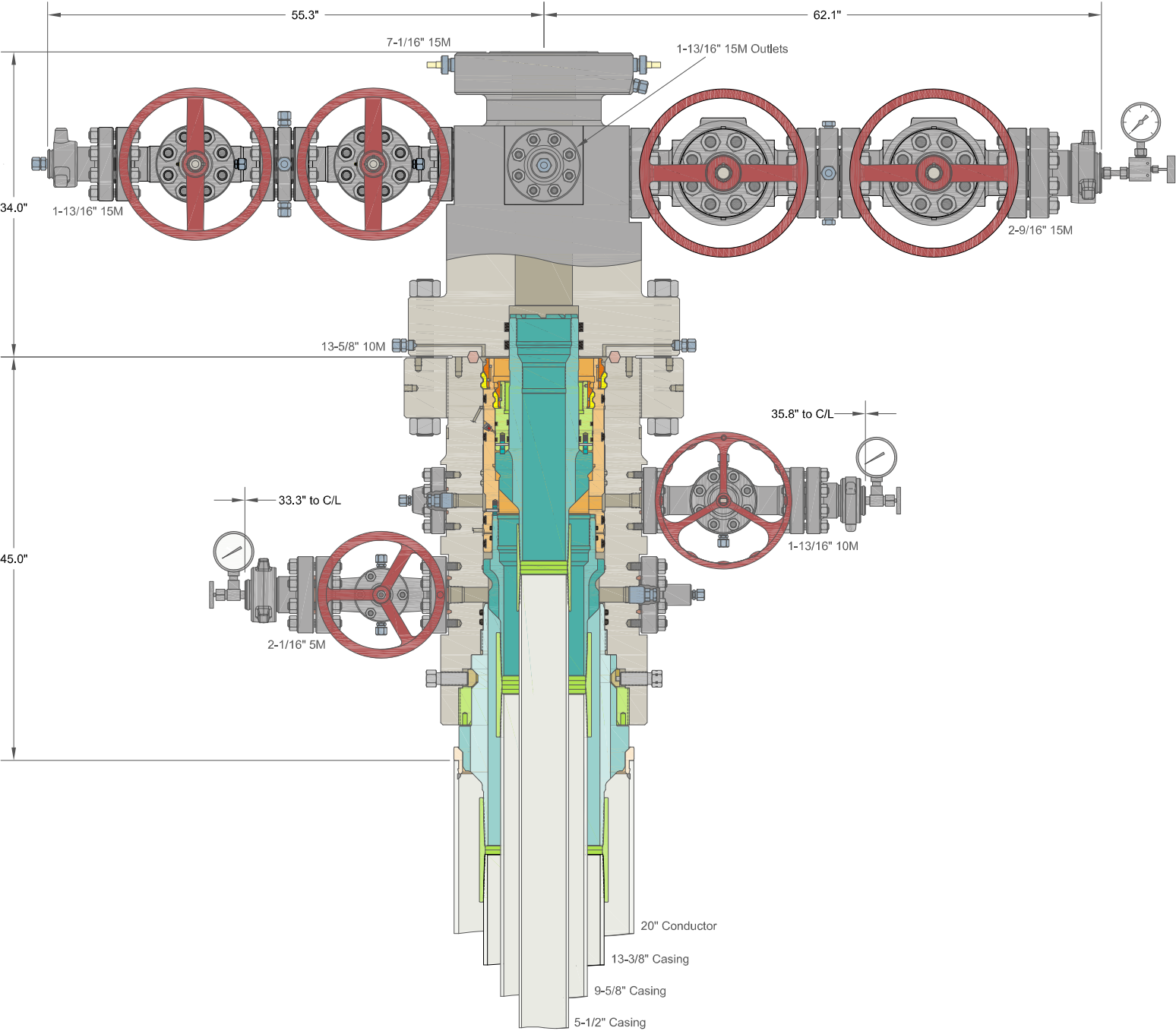
- PRIOR to pulling last joint of drill pipe thru the stack.
- Perform flow check, if flowing.
- Sound alarm (alert crew).
- Stab full opening safety valve and close
- Space out drill string with tool joint just beneath the upper pipe ram.
- Shut-in using upper pipe ram. (HCR and choke will already be in the closed position).
- Confirm shut-in.
- Notify toolpusher/company representative
- Read and record the following:
  - SIDPP and SICP
  - Pit gain
  - Time
- Regroup and identify forward plan
- **With BHA in the stack and compatible ram preventer and pipe combo immediately available.**
  - Sound alarm (alert crew)
  - Stab crossover and full opening safety valve and close
  - Space out drill string with upset just beneath the compatible pipe ram.
  - Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
  - Confirm shut-in
  - Notify toolpusher/company representative
  - Read and record the following:
    - SIDPP and SICP
    - Pit gain

### Procedures While Pulling BHA thru Stack (Continued)

- Time
- Regroup and identify forward plan

- **With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.**
  - Sound alarm (alert crew)
  - If possible to pick up high enough, pull string clear of the stack and follow “Open Hole” scenario.
  - If impossible to pick up high enough to pull the string clear of the stack:
  - Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
  - Space out drill string with tool joint just beneath the upper pipe ram.
  - Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
  - Confirm shut-in
  - Notify toolpusher/company representative
  - Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time





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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

MARATHON OIL & GAS

20" x 13-3/8" x 9-5/8" x 5-1/2" MBU-3T-CFL-R-DBLO System  
With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS-SB Tubing Head  
And 9-5/8" & 5-1/2" Mandrel Casing Hangers

DRAWN	DLE	20OCT21
APPRV		
DRAWING NO.	HBE0000621	

Santa Fe Main Office Phone: (505) 476-3441 Fax: (55) 476-3462 General Information Phone: (505) 629-6116  Online Phone Directory Visit: <a href="https://www.emnrd.nm.gov/ocd/contact-us/">https://www.emnrd.nm.gov/ocd/contact-us/</a>	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DMSION	C-102 Revised July 9, 2024 Submit Electronically via OCD Permitting
		Submittal Type: <input type="checkbox"/> Initial Submittal <input checked="" type="checkbox"/> Amended Report <input type="checkbox"/> As Drilled

## WELL LOCATION INFORMATION

API Number	Pool Code 64450	Pool Name WILLOW LAKE BONE SPRING
Property Code	Property Name SWEET TEA EBS FED COM	Well Number 554H
OGRID No. 372098	Operator Name MARATHON OIL PERMIAN LLC	Ground Level Elevation 2904
Surface Owner: <input type="checkbox"/> State <input type="checkbox"/> Fee <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Federal		Mineral Owner: <input type="checkbox"/> State <input type="checkbox"/> Fee <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Federal

## Surface Location

UL K	Section 31	Township 24S	Range 29E	Lot	Ft. from N/S 2622 S	Ft. from F/W 1841 W	Latitude 32.1736839	Longitude -104.026294	County EDDY
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## Bottom Hole Location

UL N	Section 6	Township 25S	Range 29E	Lot	Ft. from N/S 100 S	Ft. from F/W 2304 W	Latitude 32.1522086	Longitude -104.024834	County EDDY
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Dedicated Acres 475.67	Infill or Defining Well INFILL	Defining Well API 301H	Overlapping Spacing Unit (YIN) Y	Consolidation Code C
Order Numbers.			Well setbacks are under Common Ownership: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

## Kick Off Point (KOP)

UL K	Section 31	Township 24S	Range 29E	Lot	Ft. from N/S 2540 S	Ft. from F/W 2310 W	Latitude 32.1734604	Longitude -104.024779	County EDDY
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## First Take Point (FTP)

UL K	Section 31	Township 24S	Range 29E	Lot	Ft. from N/S 2540 S	Ft. from F/W 2310 W	Latitude 32.1734604	Longitude -104.024779	County EDDY
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## Last Take Point (LTP)

UL N	Section 6	Township 25S	Range 29E	Lot	Ft. from N/S 100 S	Ft. from F/W 2304 W	Latitude 32.1522086	Longitude -104.024834	County EDDY
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Unitized Area or Area of Uniform Interest Yes Com Agreement	Spacing Unit Type <input checked="" type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	Ground Floor Elevation: 2904
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<b>OPERATOR CERTIFICATIONS</b>  <i>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.</i>  <i>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.</i>  <b>Terri Stathem</b> 10/1/2024 Signature Date  TERRI STATHEM Printed Name  TSTATHEM@MARATHON OIL.COM Email Address	<b>SURVEYOR CERTIFICATIONS</b>  <i>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</i>  Signature and Seal of Professional Surveyor  Certificate Number Date of Survey
--	---

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.

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.



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS  
  
Action 388881

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID:
	372098
	Action Number:
	388881
Action Type:	
[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)	

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify the OCD 24 hours prior to casing & cement.	11/1/2024
ward.rikala	File As Drilled C-102 and a directional Survey with C-104 completion packet.	11/1/2024
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string.	11/1/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing.	11/1/2024
ward.rikala	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	11/1/2024
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.	11/1/2024
ward.rikala	Submit C-102 on new C-102 form.	11/1/2024