

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

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			5. Lease Serial No. NMNM61582 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. IRONHORSE 35 FED COM 171H 9. API Well No. 30-015-55611
2. Name of Operator Colgate Operating LLC			
3a. Address 300 N MARIENFELD ST SUITE 1000, MIDLAND, TX 79701	3b. Phone No. (include area code) (432) 695-4222		
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SENE / 1422 FNL / 199 FEL / LAT 32.6205069 / LONG -104.0547853 At proposed prod. zone NENE / 990 FNL / 100 FEL / LAT 32.6214728 / LONG -104.0201469			
10. Field and Pool, or Exploratory Parkway/Bone Spring		11. Sec., T. R. M. or Blk. and Survey or Area SEC 34/T19S/R29E/NMP	
14. Distance in miles and direction from nearest town or post office* 14 miles		12. County or Parish EDDY	
13. State NM			
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 199 feet	16. No of acres in lease 	17. Spacing Unit dedicated to this well 640.0	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 33 feet	19. Proposed Depth 8624 feet / 19190 feet	20. BLM/BIA Bond No. in file FED: NMB001841	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3314 feet	22. Approximate date work will start* 06/30/2024	23. 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) KANICIA SCHLICHTING / Ph: (432) 695-4222	Date 01/10/2024
Title Regulatory Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) CODY LAYTON / Ph: (575) 234-5959	Date 09/26/2024
Title Assistant Field Manager Lands & Minerals 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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 09/26/2024

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 an 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: SENE / 1422 FNL / 199 FEL / TWSP: 19S / RANGE: 29E / SECTION: 34 / LAT: 32.6205069 / LONG: -104.0547853 (TVD: 0 feet, MD: 0 feet)
PPP: NWNW / 990 FNL / 100 FWL / TWSP: 19S / RANGE: 29E / SECTION: 35 / LAT: 32.6216892 / LONG: -104.053812 (TVD: 8580 feet, MD: 8719 feet)
PPP: NWNW / 990 FNL / 0 FWL / TWSP: 19S / RANGE: 29E / SECTION: 36 / LAT: 32.621581 / LONG: -104.0369958 (TVD: 8624 feet, MD: 14003 feet)
PPP: NWNW / 990 FNL / 2644 FEL / TWSP: 19S / RANGE: 29E / SECTION: 36 / LAT: 32.6215261 / LONG: -104.0284083 (TVD: 8624 feet, MD: 16647 feet)
BHL: NENE / 990 FNL / 100 FEL / TWSP: 19S / RANGE: 29E / SECTION: 36 / LAT: 32.6214728 / LONG: -104.0201469 (TVD: 8624 feet, MD: 19190 feet)

BLM Point of Contact

Name: JANET D ESTES
Title: ADJUDICATOR
Phone: (575) 234-6233
Email: JESTES@BLM.GOV

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.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazon Road, Artec, NM 87410
District IV
1220 S. St Francis Dr., 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

¹ API Number 30-015-55611	² Pool Code	³ Pool Name
⁴ Property Code 336450	⁵ Property Name IRONHORSE 35 FED COM	
⁷ OGRID No.	⁸ Operator Name COLGATE OPERATING, LLC	⁶ Well Number #171H
		⁹ Elevation 3,314'

¹⁰ Surface Location

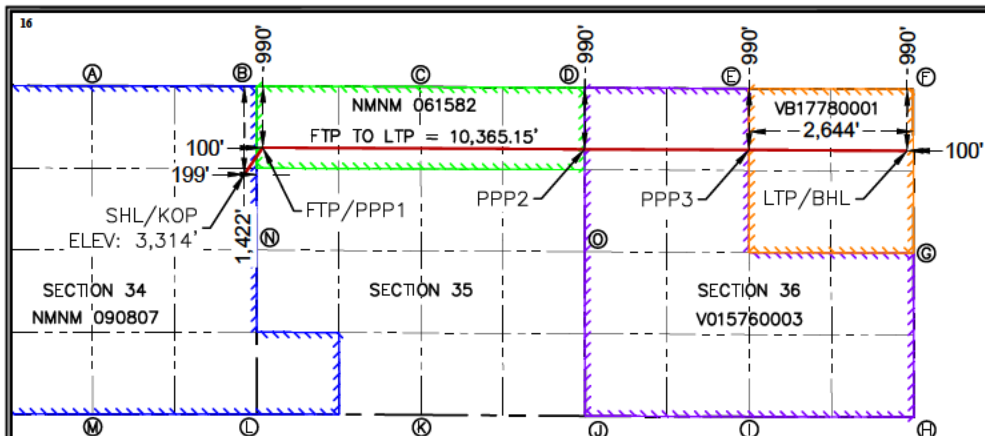
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	34	19 S	29 E		1,422'	NORTH	199'	EAST	EDDY

¹¹ 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
A	36	19 S	29 E		990'	NORTH	100'	EAST	EDDY

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.

¹⁷ OPERATOR CERTIFICATION

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

Signature _____ Date _____

Printed Name _____ Date _____

Email Address _____ Date _____

¹⁸ SURVEYOR CERTIFICATION

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

Date: 12/22/2023



MARK J. MURRAY P.L.S. NO. 12177

SURFACE HOLE LOCATION & KICK-OFF POINT
1,422' FNL & 199' FEL
NM EAST-NAD 83
NORTH: 589,583.60'
EAST: 627,037.62'
LAT: 32.62050690
LONG: -104.05478536
NM EAST-NAD 27
NORTH: 589,521.56'
EAST: 585,917.58'
LAT: 32.62038853
LONG: -104.05428036

FIRST TAKE POINT & PENETRATION POINT 1
990' FNL & 100' FWL
NM EAST-NAD 83
NORTH: 590,014.52'
EAST: 627,396.16'
LAT: 32.62168923
LONG: -104.03381305
NM EAST-NAD 27
NORTH: 589,952.47'
EAST: 586,216.12'
LAT: 32.62157086
LONG: -104.0330704

PENETRATION POINT 2
990' FNL & 0' FWL
NM EAST-NAD 83
NORTH: 589,989.17'
EAST: 632,573.63'
LAT: 32.62158100
LONG: -104.03699587
NM EAST-NAD 27
NORTH: 589,927.09'
EAST: 591,393.99'
LAT: 32.62146245
LONG: -104.03649128

PENETRATION POINT 3
990' FNL & 2,644' FEL
NM EAST-NAD 83
NORTH: 589,976.70'
EAST: 635,217.63'
LAT: 32.62152615
LONG: -104.02840832
NM EAST-NAD 27
NORTH: 589,914.59'
EAST: 594,037.58'
LAT: 32.62140751
LONG: -104.02703394

LAST TAKE POINT & BOTTOM HOLE LOCATION
990' FSL & 100' FEL
NM EAST-NAD 83
NORTH: 589,964.70'
EAST: 637,761.19'
LAT: 32.62147283
LONG: -104.02014699
NM EAST-NAD 27
NORTH: 589,902.57'
EAST: 596,581.13'
LAT: 32.62135411
LONG: -104.01964282

CORNER COORDINATES	H-FOUND IRON PIPE
NEW MEXICO EAST - NAD 83	N: 585,677.60' E: 637,869.26'
A- CALCULATED CORNER	N: 585,685.41' E: 635,223.20'
N- 591,009.51' E: 624,651.10'	I- FOUND IRON PIPE
R- FOUND IRON ROD	N: 585,696.70' E: 632,580.53'
N: 591,005.03' E: 627,295.65'	C- FOUND IRON ROD
C- FOUND NAIL	N: 585,715.65' E: 629,950.81'
N: 590,982.09' E: 629,952.85'	L- FOUND IRON PIPE
D- FOUND IRON ROD	N: 585,728.26' E: 627,298.35'
N: 590,979.17' E: 632,572.41'	M- FOUND IRON PIPE
E- FOUND IRON ROD	N: 585,726.61' E: 624,639.03'
N: 590,963.34' E: 635,216.34'	N- CALCULATED CORNER
F- FOUND IRON PIPE	N: 585,366.64' E: 627,297.00'
N: 590,959.37' E: 632,859.25'	O- FOUND IRON ROD
G- FOUND IRON PIPE	N: 583,339.27' E: 632,575.67'
N: 588,317.17' E: 637,864.40'	

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:** Colgate Operating LLC **OGRID:** 371449 **Date:** 9/30/24**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

Delivery Point Name: Black Diamond 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
Ironhorse 35 Fed Com 131H	TBD	1/5/25	TBD	TBD	TBD	TBD
Ironhorse 35 Fed Com 132H	TBD	1/5/25	TBD	TBD	TBD	TBD
Ironhorse 35 Fed Com 171H	TBD	1/5/25	TBD	TBD	TBD	TBD
Ironhorse 35 Fed Com 172H	TBD	1/5/25	TBD	TBD	TBD	TBD
Ironhorse 35 Fed Com 200H	TBD	1/5/25	TBD	TBD	TBD	TBD
Ironhorse 35 Fed Com 201H	TBD	1/5/25	TBD	TBD	TBD	TBD

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>Jessica Dooling</i>
Printed Name: Jessica Dooling
Title: Regulatory Specialist
E-mail Address: Jessica.dooling@permianres.com
Date: 9/30/24
Phone: 432-999-3072
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

Colgate Operating, LLC (371449)

Natural Gas Management Plan Descriptions

VI. Separation Equipment:

Colgate utilizes a production forecast from our Reservoir Engineering team to appropriately size each permanent, 3-phase separator and heater treater utilized for production operations. Our goal is to maintain 5 minutes of retention time in the test vessel and 20 minutes in the heater treater at peak production rates. The gas produced is routed from the separator to the gas sales line.

VII. Operational Practices:*Drilling*

During Colgate's drilling operations it is uncommon for venting or flaring to occur. If flaring is needed due to safety concerns, gas will be routed to a flare and volumes will be estimated.

Flowback

During completion/recompletion flowback operations, after separation flowback begins and as soon as it is technically feasible, Colgate routes gas through a permanent separator and the controlled facility where the gas is either sold or flared through a high-pressure flare if needed.

Production

Per 19.15.27.8.D, Colgate's facilities are designed to minimize waste. Our produced gas will only be vented or flared in an emergency or malfunction situation, except as allowed for normal operations noted in 19.15.27.8.D(2) & (4). All gas that is flared is metered. All gas that may be vented will be estimated.

Performance Standards

Colgate utilizes a production forecast from our Reservoir Engineering team to appropriately size each permanent, 3-phase separator and heater treater utilized for production operations.

All of Permian's permanent storage tanks associated with production operations which are routed to a flare or control device are equipped with an automatic gauging system.

All of Permian's flare stacks, both currently installed and for future installation, are:

- 1) Appropriately sized and designed to ensure proper combustion efficiency.
- 2) Equipped with an automatic ignitor or continuous pilot.
- 3) Anchored and located at least 100 feet from the well and storage tanks.

Colgate's field operations and HSE teams have implemented an AVO inspection schedule that adheres to the requirements of 19.15.27.8.E(5).

All of our operations and facilities are designed to minimize waste. We routinely employ the following methods and practices:

- Closed-loop systems
- Enclosed and properly sized tanks

Colgate Operating, LLC (371449)

- Vapor recovery units to maximize recovery of low-pressure gas streams and potential unauthorized emissions
- Low-emitting or electric engines whenever practical
- Combustors and flare stacks in the event of a malfunction or emergency
- Routine facility inspections to identify leaking components, functioning control devices, such as flares and combustors, and repair / replacement of malfunctioning components where applicable

Measurement or estimation

Colgate measures or estimates the volumes of natural gas vented, flared and/or beneficially used for all of our drilling, completing and producing wells. We utilize accepted industry standards and methodology which can be independently verified. Annual GOR testing is completed on our wells and will be submitted as required by the OCD. None of our equipment is designed to allow diversion around metering elements except during inspection, maintenance and repair operations.

VIII. Best Management Practices:

Colgate utilizes the following BMPs to minimize venting during active and planned maintenance activities:

- Use a closed-loop process wherever possible during planned maintenance activities, such as blowdowns, liquid removal, and work over operations.
- Employ low-emitting or electric engines for equipment, such as compressors
- Adhere to a strict preventative maintenance program which includes routine facility inspections, identification of component malfunctions, and repairing or replacing components such as hatches, seals, valves, etc. where applicable
- Utilize vapor recovery units (VRU's) to maximize recovery of volumes of low-pressure gas streams and potential unauthorized emissions
- Route low pressure gas and emissions streams to a combustion device to prevent venting where necessary



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

Drilling Plan Data Report

09/30/2024

APD ID: 10400096613

Submission Date: 01/10/2024

Highlighted data
reflects the most
recent changes

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 171H

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
14220653	RUSTLER	3182	162	162	SANDSTONE	USEABLE WATER	N
14220654	TOP SALT	2293	889	889	SALT	NONE	N
14220655	TANSILL	1928	1254	1254	ANHYDRITE, SHALE	NONE	N
14220656	YATES	1778	1404	1404	ANHYDRITE, SHALE	NONE	N
14220657	SEVEN RIVERS	1572	1610	1610	LIMESTONE	NONE	N
14220658	CAPITAN REEF	408	2774	2774	LIMESTONE	NONE	N
14220659	CHERRY CANYON	-228	3410	3410	SANDSTONE	NATURAL GAS, OIL	N
14220660	BRUSHY CANYON	-388	3570	3570	SANDSTONE	NATURAL GAS, OIL	N
14220661	BONE SPRING LIME	-2526	5708	5708	LIMESTONE	NATURAL GAS, OIL	N
14220662	BONE SPRING 1ST	-3923	7105	7105	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
14220663	BONE SPRING 2ND	-4692	7874	7874	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
14220664	BONE SPRING 3RD	-5418	8600	8600	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 8624

Equipment: BOPE will meet all requirements for above listed system per 43 CFR 3172. BOPE with working pressure ratings in excess of anticipated maximum surface pressure will be utilized for well control from drill out of surface casing to TMD. The system may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all of the components installed will be functional, tested, and will meet all requirements per 43 CFR 3172. The wellhead will be a multibowl speed head allowing for hangoff of intermediate casing of the surface x intermediate annulus without breaking the connection between the BOP & wellhead. A variance is requested to utilize a flexible choke line (flexhose)

Operator Name: COLGATE OPERATING LLC**Well Name:** IRONHORSE 35 FED COM**Well Number:** 171H

from the BOP to choke manifold.

Requesting Variance? YES**Variance request:** Multibowl Wellhead, Flexhose, Breaktesting, Offline Cementing Variances. Attachments in Section 8.

Testing Procedure: Operator requests to ONLY test broken pressure seals per API Standard 53 and the attachments in Section 8. The BOP test shall be performed before drilling out of the surface casing shoe and will occur at a minimum: a. when initially installed, b. whenever any seal subject to test pressure is broken, c. following related repairs, d. at 21-day intervals. Testing of the ram type preventer(s) and annual type preventer(s) shall be tested per 43 CFR 3172. The BOPE configuration, choke manifold layout, and accumulator system will be in compliance with 43 CFR 3172. Bleed lines will discharge 100' from wellhead in non-H2S scenarios and 150' from wellhead in H2S scenarios.

Choke Diagram Attachment:

Ironhorse_35_Fed_5MCM_20240729045941.pdf

BOP Diagram Attachment:

Ironhorse_35_Fed_5MBOP_20240729045944.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	26	20.0	NEW	API	N	0	187	0	187	3314	3127	187	J-55	94	ST&C	5.63	2.85	DRY	4.94	DRY	9.16
2	INTERMEDIATE	17.5	13.375	NEW	API	N	0	1279	0	1279	3314	2035	1279	J-55	40	BUTT	5.12	3.23	DRY	5.64	DRY	6.01
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3360	0	3360	3314	-46	3360	J-55	40	BUTT	3.55	1.78	DRY	3.05	DRY	2.69
4	PRODUCTION	8.75	5.5	NEW	API	N	0	8924	0	8624	3314	-5310	8924	P-110	17	OTHER - GEOCONN	1.67	1.74	DRY	2.21	DRY	2.21
5	PRODUCTION	7.875	5.5	NEW	API	N	8924	19190	8624	8624	-5310	-5310	10266	P-110	17	OTHER - GEOCONN	1.67	1.74	DRY	2.21	DRY	2.21

Casing Attachments

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 171H

Casing Attachments

Casing ID: 1StringSURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_171H_Csg_Assump_20240729050055.pdf

Casing ID: 2StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_171H_Csg_Assump_20240729050041.pdf

Casing ID: 3StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_171H_Csg_Assump_20240729050048.pdf

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 171H

Casing Attachments

Casing ID: 4StringPRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_171H_Csg_Assump_20240729050122.pdf

Casing ID: 5StringPRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_171H_Csg_Assump_20240729050103.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	187	330	1.34	14.8	430	50	Class C	Accelerator
INTERMEDIATE	Lead		0	1020	570	1.88	12.9	1060	50	Class C	EconoCem-HLC + 5% Salt + 5% Kol-Seal
INTERMEDIATE	Tail		1020	1279	210	1.34	14.8	270	50	Class C	Retarder
INTERMEDIATE	Lead		0	2680	610	1.88	12.9	1130	50	Class C	EconoCem-HLC + 5% Salt + 5% Kol-Seal

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 171H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Tail		2680	3360	210	1.33	14.8	270	25	Class C	Salt
PRODUCTION	Lead		2860	8174	770	2.41	11.5	1840	40	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
PRODUCTION	Tail		8174	19190	1430	1.73	12.5	2470	25	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder

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: Sufficient quantities of mud materials will be on the well site at all times for the purpose of assuring well control and maintaining wellbore integrity. Surface interval will employ fresh water mud. The intermediate hole will utilize a saturated brine fluid to inhibit salt washout. The production hole will employ brine based and oil base fluid to inhibit formation reactivity and of the appropriate density to maintain well control.

Describe the mud monitoring system utilized: Centrifuge separation system. Open tank monitoring with EDR will be used for drilling fluids and return volumes. Open tank monitoring will be used for cement and cuttings return volumes. Mud properties will be monitored at least every 24 hours using industry accepted mud check practices.

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	187	SPUD MUD	8.6	9.5							
187	1279	SALT SATURATED	10	10							
1279	8924	WATER-BASED MUD	9	10							
8924	19190	OIL-BASED MUD	9	10							

Operator Name: COLGATE OPERATING LLC**Well Name:** IRONHORSE 35 FED COM**Well Number:** 171H

Section 6 - Test, Logging, Coring

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

Will utilize MWD/LWD (Gamma Ray logging) from intermediate hole to TD of the well.

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

GAMMA RAY LOG,DIRECTIONAL SURVEY,

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4490**Anticipated Surface Pressure:** 2592**Anticipated Bottom Hole Temperature(F):** 143**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**

Black_Diamond_Ironhorse_H2S_Plan_20240105083527.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

IRONHORSE_35_FED_171H_PWP0_SVY_RPT_20240108140405.pdf

IRONHORSE_35_FED_171H_PWP0_AC_RPT_20240108140405.pdf

Other proposed operations facets description:**Other proposed operations facets attachment:****Other Variance attachment:**

Ironhorse_35_Fed_MBS_20240729050154.pdf

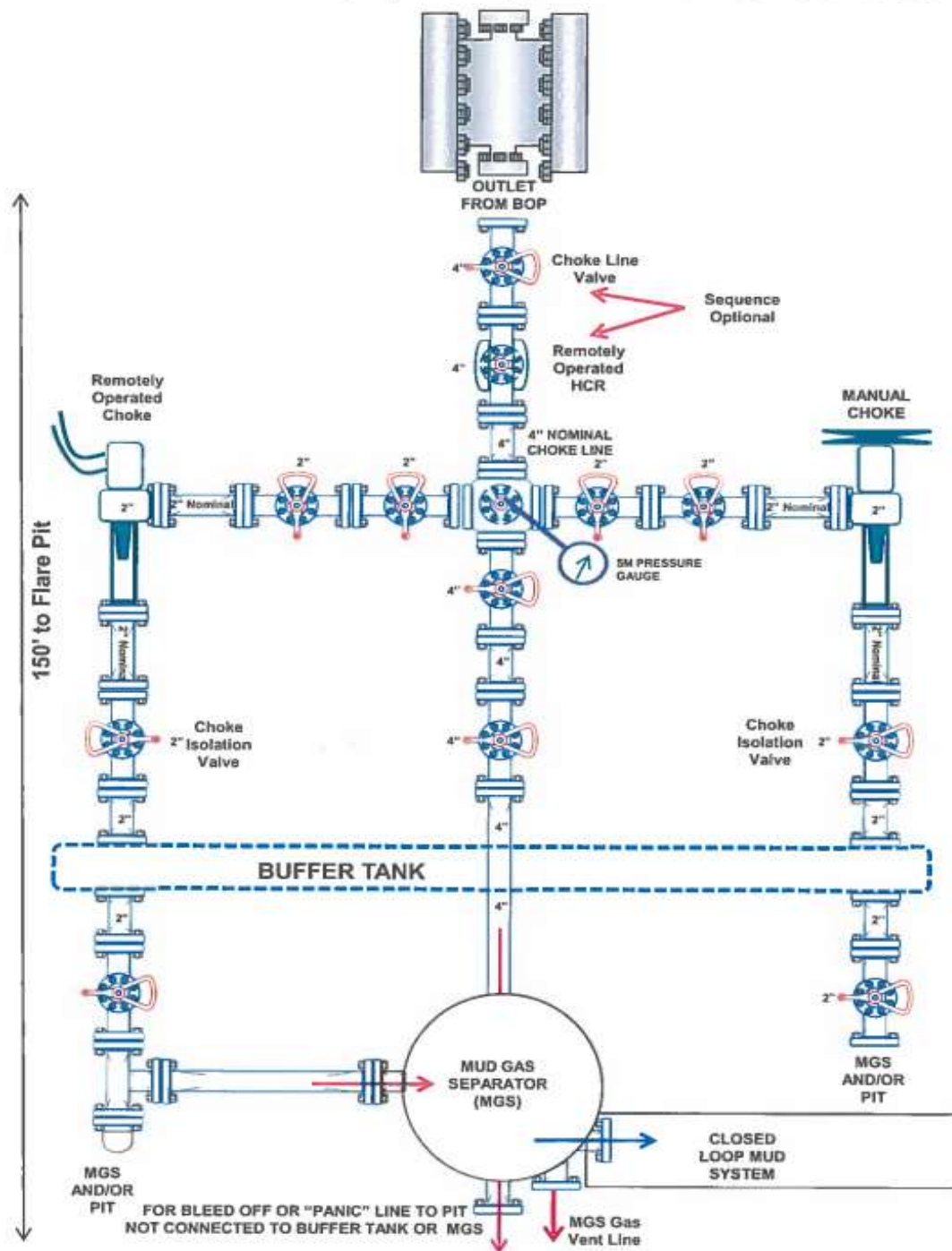
Ironhorse_35_Fed_Break_20240729050154.pdf

Ironhorse_35_Fed_FH_20240729050154.pdf

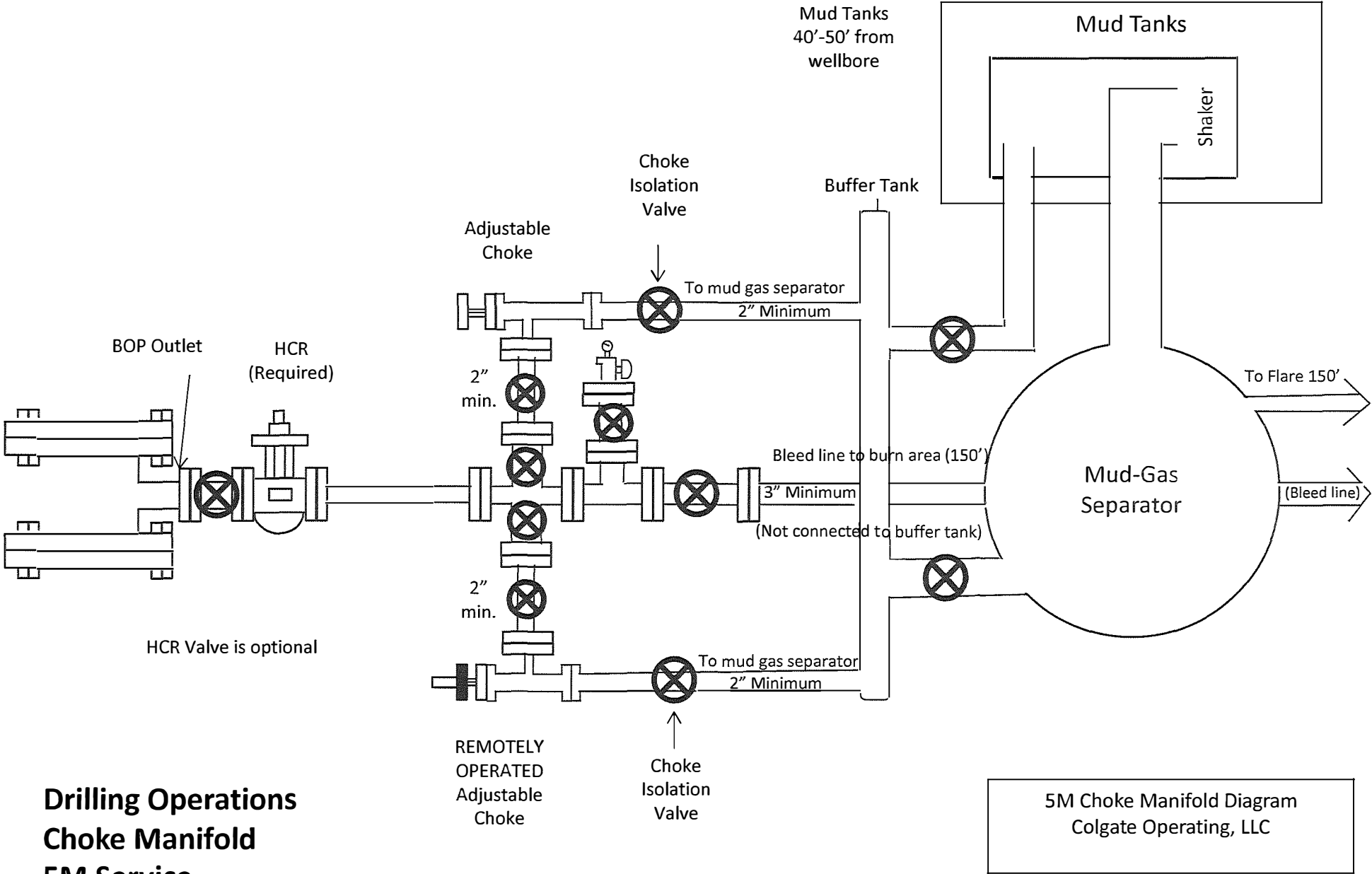
Ironhorse_35_Fed_Batch_20240729050154.pdf

Ironhorse_35_Fed_OLCV_20240729050154.pdf

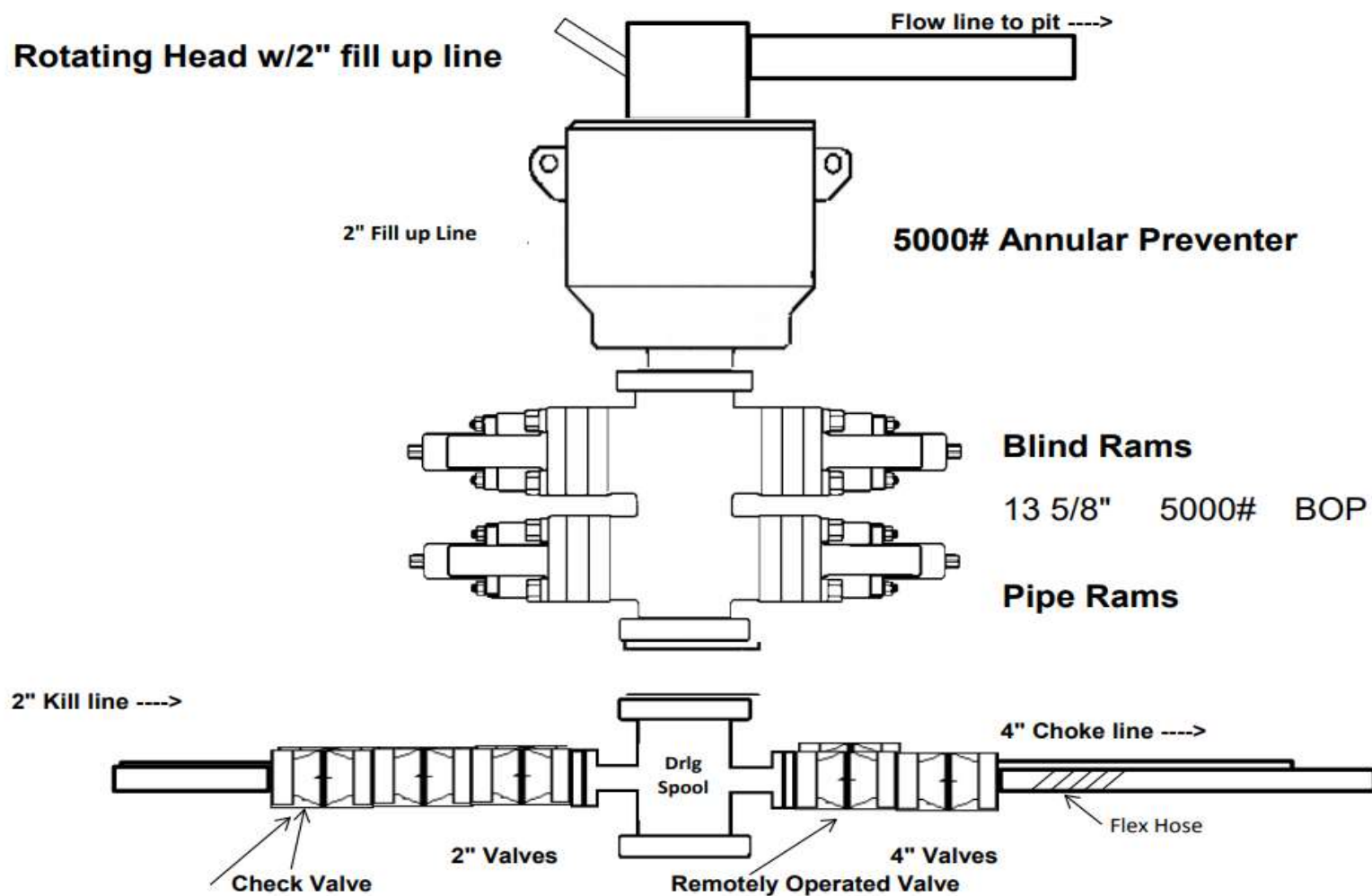
5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)

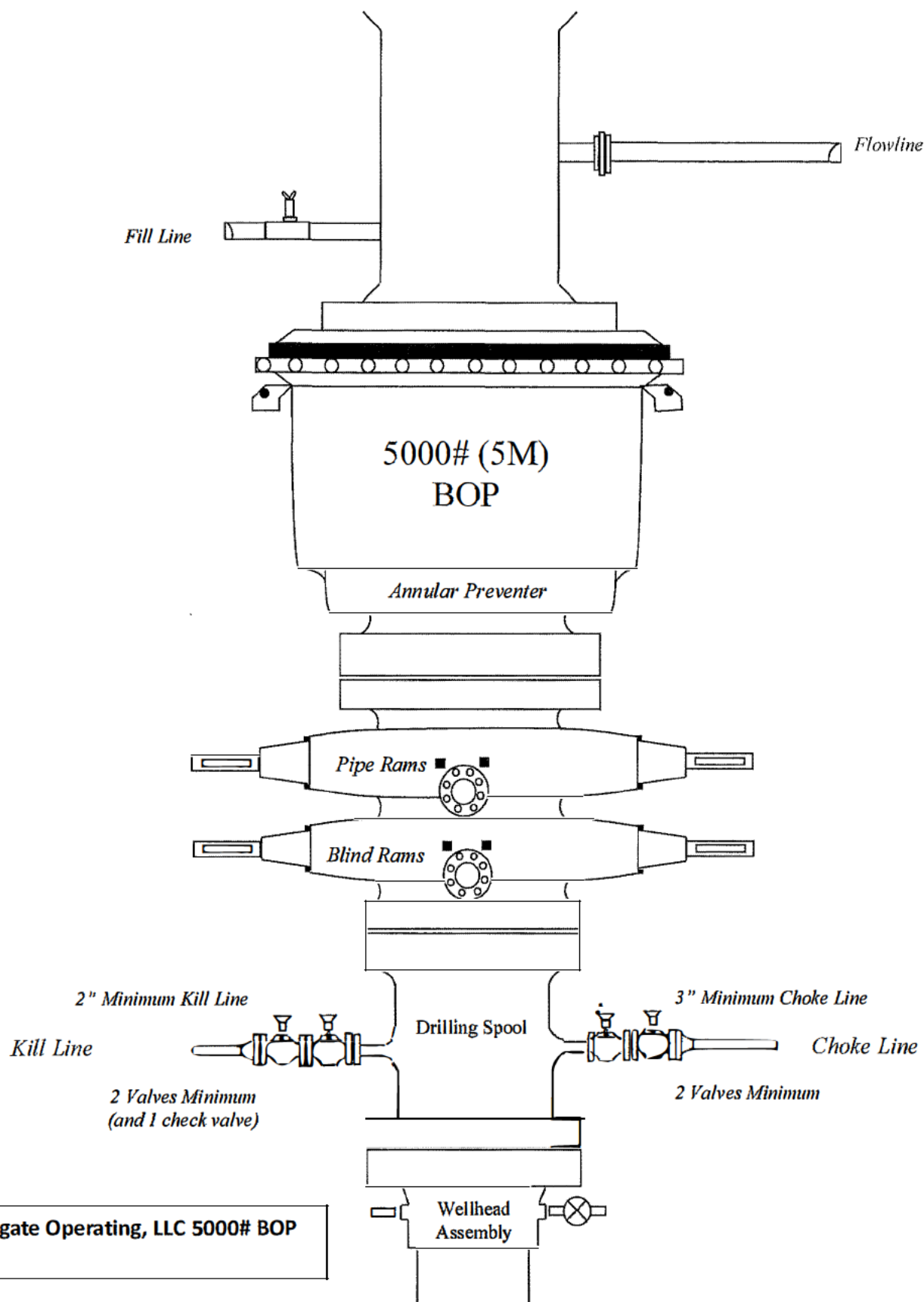


Bleed lines will discharge 100' from WH in non-H2S scenarios and 150' from WH in H2S scenarios.



5,000 psi BOP Schematic



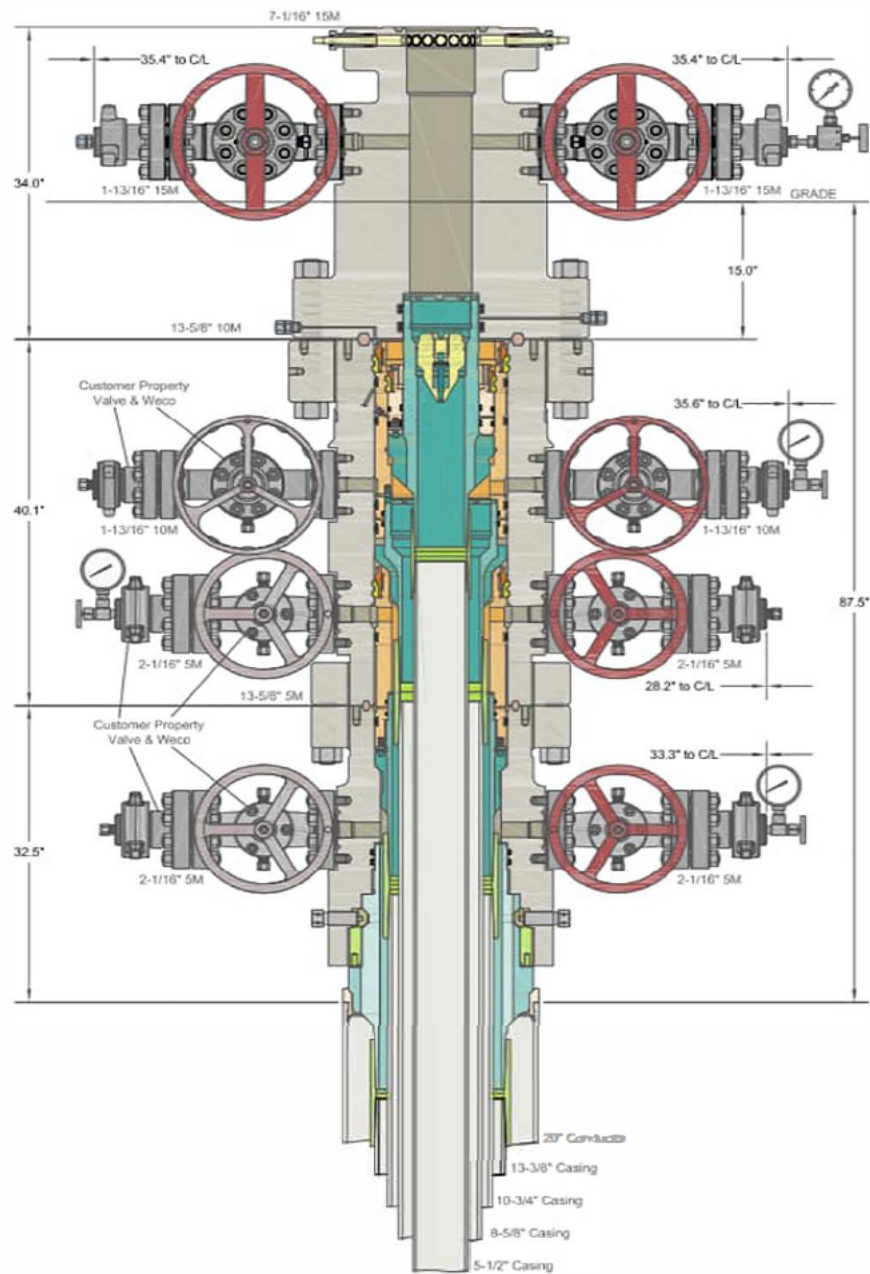


Bleed lines will discharge 100' from WH in non-H2S scenarios
and 150' from WH in H2S scenarios.

3. Casing

String	Hole Size	Casing Size	Top	Bottom	Top TVD	Bottom TVD	Length	Grade	Weight	Connection	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	26	20	0	187	0	187	187	J55	94	STC	5.63	2.85	Dry	4.94	Dry	9.16
Intermediate 1	17.5	13.375	0	1279	0	1279	1279	J55	40	BTC	5.12	3.23	Dry	5.64	Dry	6.01
Intermediate 2	12.25	9.625	0	3360	0	3360	3360	J55	40	BTC	3.55	1.78	Dry	3.05	Dry	2.69
Production	8.75	5.5	0	8924	0	8624	8924	P110RY	17	GeoConn	1.67	1.74	Dry	2.21	Dry	2.21
Production	7.875	5.5	8924	19190	8624	8624	10266	P110RY	17	GeoConn	1.67	1.74	Dry	2.21	Dry	2.21
BLM Min Safety Factor											1.125	1		1.6		1.6

Non API casing spec sheets and casing design assumptions attached.



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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC		Colgate Operating LLC NEW MEXICO	
20" x 13-3/8" x 10-3/4" x 8-5/8" x 5-1/2" MBU-4T-CFL-R-DBLO Sys. With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head And 10-3/4" & 7-5/8" & 5-1/2" Fluted Mandrel Casing Hangers	DRAWN	DLE	26OCT23
	APPRV		
	DRAWING NO. HBE0001038		

Colgate Operating LLC

BOP Break Testing Variance Procedure

Subject: Request for a Variance Allowing break Testing of the Blowout Preventer Equipment (BOPE). Colgate Operating (Colgate) requests a variance to ONLY test broken pressure seals on the BOPE and function test BOP when skidding a drilling rig between multiple wells on a pad.

Background

Title 43 CFR 3172, Drilling Operations, Sections 6.b.9.iv states that the BOP test must be performed whenever any seal subject to test pressure is broken. The current interpretation of the Bureau of Land Management (BLM) requires a complete BOP test and not just a test of the affected component. 43 CFR 3172.13, Variances from minimum standards states, "An operator may request the authorized officer to approve a variance from any of the minimum standards prescribed in [§§ 3172.6](#) through [3172.12](#). All such requests shall be submitted in writing to the appropriate authorized officer and provide information as to the circumstances which warrant approval of the variance(s) requested and the proposed alternative methods by which the related minimum standard(s) are to be satisfied. The authorized officer, after considering all relevant factors, if appropriate, may approve the requested variance(s) if it is determined that the proposed alternative(s) meet or exceed the objectives of the applicable minimum standard(s)". Colgate Operating feels the break testing the BOPE is such a situation. Therefore, as per 43 CFR 3172.13, Colgate submits this request for the variance.

Supporting Documentation

The language used in 43 CFR 3172 became effective on December 19, 1988 and has remained the standard for regulating BLM onshore drilling operations for over 30 years. During this time, there have been significant changes in drilling technology. The BLM continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since 43 CFR 3172 was originally released. The Colgate drilling rig fleet has many modern upgrades that allow the intact BOP stack to be moved between well slots on a multi-well pad, as well as, wellhead designs that incorporate quick connects facilitating release of the BOP from the wellhead without breaking any BOP stack components apart. These technologies have been used extensively offshore, and other regulators, API, and many operators around the world have endorsed break testing as safe and reliable.

Figure 1: Winch System attached to BOP Stack



Figure 2: BOP Winch System



American Petroleum Institute (API) standards, specification and recommended practices are considered the industry standard and are consistently utilized and referenced by the industry. 43 CFR 3172 recognizes API recommended Practices (RP) 53 in its original development. API Standard 53, Well Control Equipment Systems for Drilling Wells (Fifth Edition, December 2018, Annex C, Table C.4) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 5.3.7.1 states "A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component." See Table C.4 below for reference.

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API STANDARD 53

Table C.4—Initial Pressure Testing, Surface BOP Stacks

Component to be Pressure Tested	Pressure Test—Low Pressure ^{a,c} psig (MPa)	Pressure Test—High Pressure ^{a,c}	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer ^b	250 to 350 (1.72 to 2.41)	RWP of annular preventer	MASP or 70% annular RWP, whichever is lower.
Fixed pipe, variable bore, blind, and BSR preventers ^{a,c}	250 to 350 (1.72 to 2.41)	RWP of ram preventer or wellhead system, whichever is lower	ITP
Choke and kill line and BOP side outlet valves below ram preventers (both sides)	250 to 350 (1.72 to 2.41)	RWP of side outlet valve or wellhead system, whichever is lower	ITP
Choke manifold—upstream of chokes ^a	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes ^a	250 to 350 (1.72 to 2.41)	RWP of valve(s), line(s), or MASP for the well program, whichever is lower	
Kelly, kelly valves, drill pipe safety valves, IBOPs	250 to 350 (1.72 to 2.41)	MASP for the well program	

^a Pressure test evaluation periods shall be a minimum of five minutes.

No visible leaks.

The pressure shall remain stable during the evaluation period. The pressure shall not decrease below the intended test pressure.

^b Annular(s) and VBR(s) shall be pressure tested on the largest and smallest OD drill pipe to be used in well program.

^c For pad drilling operations, moving from one wellhead to another within the 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

^d For surface offshore operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented during the initial test. For land operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented at commissioning and annually.

^e Adjustable chokes are not required to be full sealing devices. Pressure testing against a closed choke is not required.

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specification and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations.

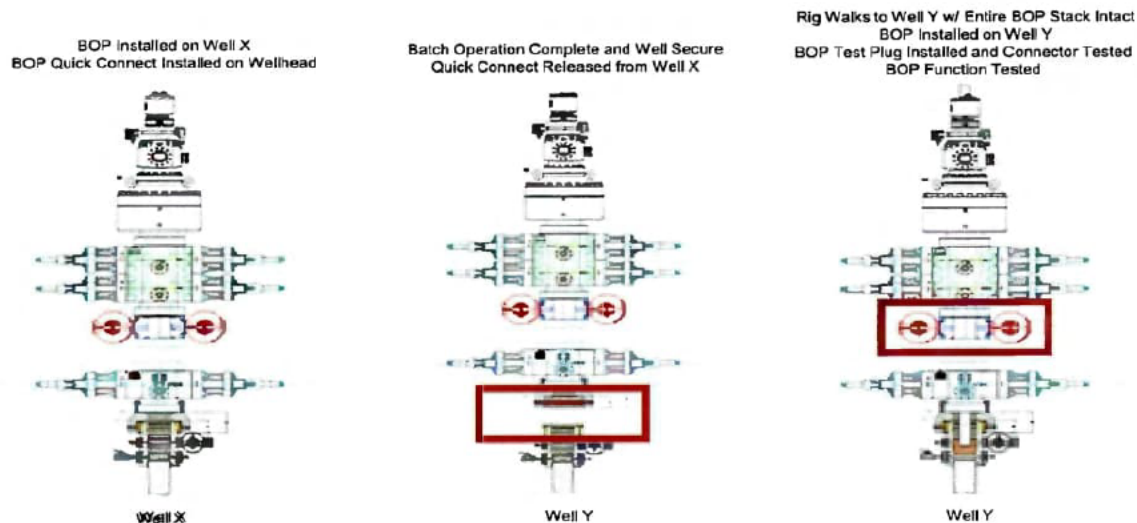
Break testing has been approved by the BLM in the past with other operators based on the detailed information provided in this document.

Colgate feels break testing and our current procedures meet the intent of 43 CFR 3172 and often exceed it. There has been no evidence that break testing results in more components failing than seen on full BOP tests. Colgate internal standards require complete BOPE tests more often than that of 43 CFR 3172 (every 21 days). In addition to function testing the annular, pipe rams and blind rams after each BOP nipple up, Colgate performs a choke drill with the rig crew prior to drilling out every casing shoe. This is additional training for the rig crew that exceeds the requirements of 43 CFR 3172.

Procedures

- 1) Colgate will use this document for our break testing plan for New Mexico Delaware Basin. The summary below will be referenced in the APD or Sundry Notice and receive approval prior to implementing this variance.
- 2) Colgate will perform BOP break testing on multi-wells pads where multiple intermediate sections can be drilled and cased within the 21-day BOP test window.
 - a) A full BOP test will be conducted on the first well on the pad.
 - b) The first intermediate hole section drilled on the pad will be the deepest. All the remaining hole sections will be the same formation depth or shallower.
 - c) A full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
 - d) A full BOP test will be required prior to drilling any production hole.
- 3) After performing a complete BOP test on the first well, the intermediate hole section will be drilled and cased, two breaks would be made on the BOP equipment.
 - a) Between the HCV valve and choke line connection
 - b) Between the BOP quick connect and the wellhead
- 4) The BOP is then lifted and removed from the wellhead by a hydraulic system.
- 5) After skidding to the next well, the BOP is moved to the wellhead by the same hydraulic system and installed.
- 6) The connections mentioned in 3a and 3b will then be reconnected.
- 7) Install test plug into the wellhead using test joint or drill pipe.
- 8) A shell test is performed against the upper pipe rams testing the two breaks.
- 9) The shell test will consist of a 250 psi low test and a high test to the value submitted in the APD or Sundry (e.g. 5,000 psi or 10,000psi).
- 10) Function tests will be performed on the following components: lower pipe rams, blind rams, and annular.
- 11) For a multi-well pad the same two breaks on the BOP would be made and on the next wells and steps 4 through 10 would be repeated.
- 12) A second break test would only be done if the intermediate hole section being drilled could not be completed within the 21 day BOP test window.

Note: Picture below highlights BOP components that will be tested during batch operations



Summary

A variance is requested to ONLY test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API Standard 53 states, that for pad drilling operations, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

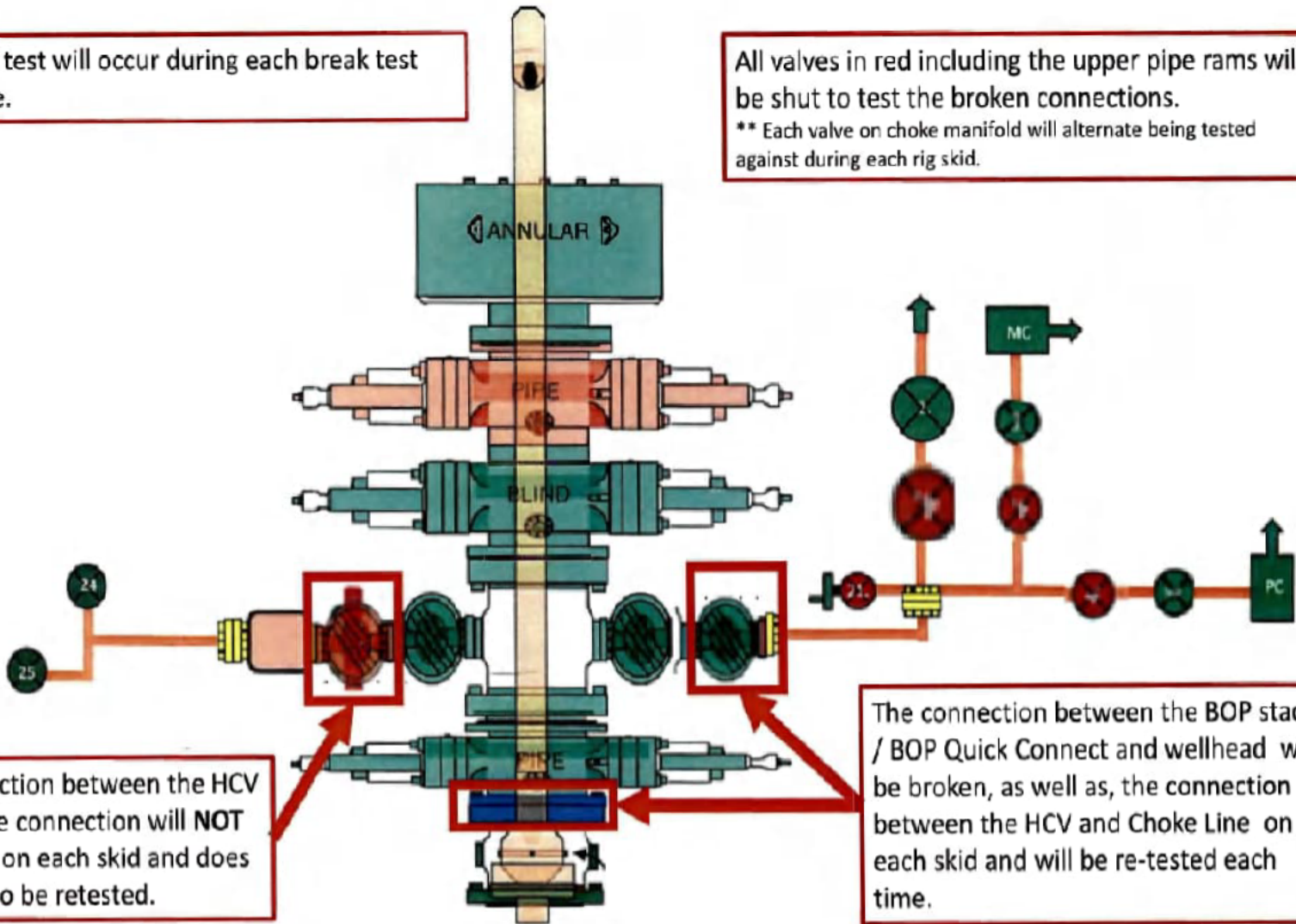
The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

Based on public data and the supporting documentation submitted herein to the BLM, we will request permission to ONLY retest broken pressure seals if the following conditions are met:

- 1) After a full BOP test is conducted on the first well on the pad.
- 2) The first intermediate hole section drilled on the pad will be the deepest. All the remaining hole sections will be the same depth or shallower.
- 3) A full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
- 4) A full BOP test will be required prior to drilling the production hole.

Only **ONE** test will occur during each break test procedure.

All valves in red including the upper pipe rams will be shut to test the broken connections.
 ** Each valve on choke manifold will alternate being tested against during each rig skid.



The connection between the HCV and kill line connection will **NOT** be broken on each skid and does not need to be retested.

The connection between the BOP stack / BOP Quick Connect and wellhead will be broken, as well as, the connection between the HCV and Choke Line on each skid and will be re-tested each time.



ContiTech Fluid Technology

ContiTech Oil & Marine Corp. # 11535 Brittmoore Park Dr., Houston, TX 77041-6916 USA CONSIGNEE / Ship-to address: HELMERICH & PAYNE INT'L DRILLING CO ATTN: FLEX RIG WHSE - B-BAY 210 MAGNOLIA DRIVE GALENA PARK TX 77547		Packing list / Delivery note Document No. 71461553 Document Date 28.01.2022 Customer Number 11697 Customer VAT No. Supplier Number Purchase Order No. 740362040 Purchase Order Date 18.01.2022 Sales Order Number 1388153 Sales Order Date 18.01.2022 Unloading Point RAN-No.		
Buyer: HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER 74119 TULSA		Page 1 of 2 Weights (Gross / Net) Total Gross Weight 2,507.000 LB Total Net Weight 2,507.000 LB		
Conditions Incoterms EXW Houston Ex Works				
Item	Material/Description	Quantity	Net Weight	Gross Weight
20	Buyer: Jack Peebles E-mail: Jackie.Peebles@hpinc.com Tel: 832-782-6000 Rlg/Whse: HOW 00RECERTIFY Recert of HP Hoses Serial# 67094 Commodity Code: 3" X 35 FT 10K Choke & Kill Hoses API 16C End 1: 4 - 1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 4 - 1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX155 ring groove each end Standard: API Spec 16C - Monogrammed Working Pressure: 10.000psi Test Pressure: 15.000psi Inspection & Certification includes: External inspection of the hose & couplings Internal boroscopic inspection of hose liner Hydrostatic pressure test of hose assembly Repair of any external damage to hose body and end connections (limited to minor repairs). Clean & protect end connections Inspection Report Disposal of hose assembly if hose fails inspection and recertification process. Please Flush Hoses before sending them to our Facility.	1 PC	2,507.000 LB	2,507.000 LB

ContiTech Rubber Industrial Kft.
 H-6728 Szeged Budapesti út 10.
 P. O. Box 152 Szeged H-6701
 Phone: (62)566-700, Fax: (62)566-713
 Tax Number: 11087209-2-06
 EU Community VAT: HU11087209
 Registration No.: Cg. 0609-002502
 Registry Court: Csongrád Megyei Cégbíróság

COMMERZBANK ZRT. (HUF)
 H-1054 Budapest, Széchenyi rakpart 8.
 H-1245 Budapest P.O. Box 1070
 Account No.: 14220108-26830003
 IBAN: HU83 1422 0108 2683 0003 0000 0000
 SWIFT: COBA HU XXXX

COMMERZBANK AG Hannover (EUR)
 30159 Hannover, Theaterstr. 11-12.
 Account No.: 3 066 156 00
 Sort Code: 250 400 66
 BIC: COBAEFF250
 IBAN: DE4125040060306615600

Record Rotary Hose sleeve number on the CBC Made Hose List!!!!!!!!!!!!!!!!!!!!!!!!!!!!



Hydrostatic Test Certificate

ContiTech

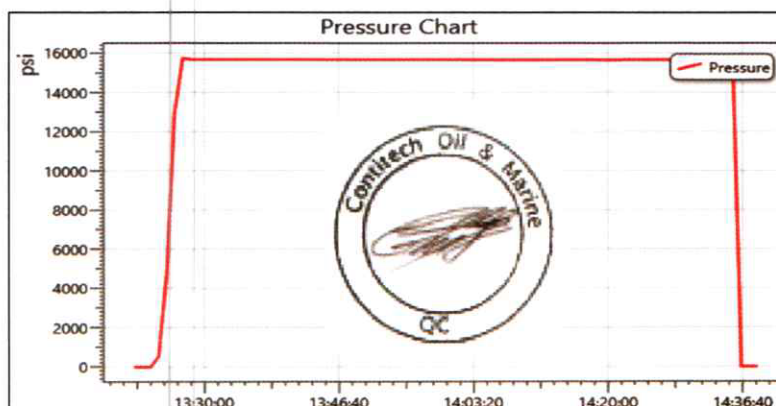
Certificate Number H100122	COM Order Reference 1388153	Customer Name & Address HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
Customer Purchase Order No: 740362040		
Project:		
Test Center Address ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	Accepted by COM Inspection Signed: Gerson Mejia-Lazo Date: 02/09/22	Accepted by Client Inspection

We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
20	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 35ft OAL	1	67094	10,000	15,000	60

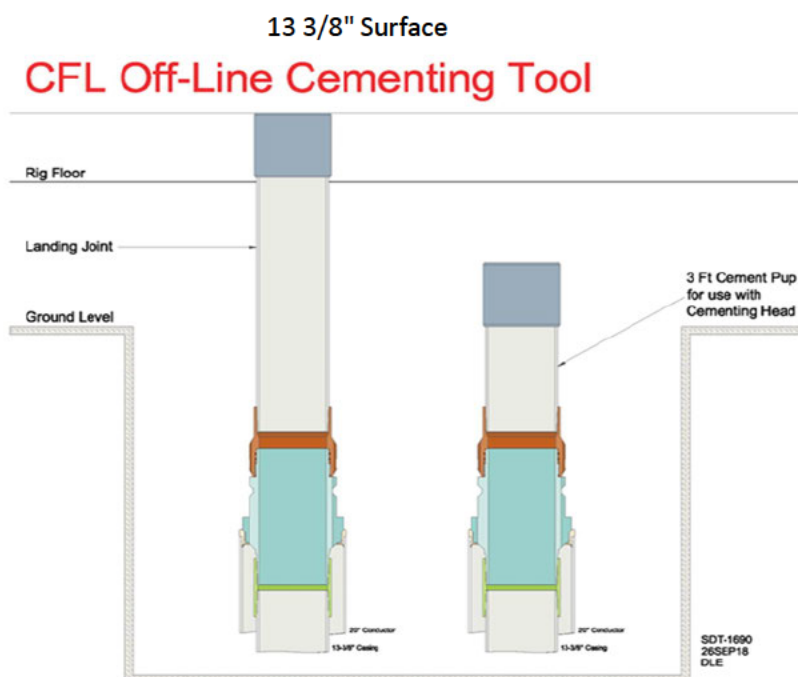
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End Time	1/27/2022 14:38:28
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MaxValue	15849
MinValue	-3
AvgValue	14240
RecordName	67094-sh
RecordNumber	199

Gauge Information	
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SN	21817380014
Range	(0-40000)psi
Unit	psi

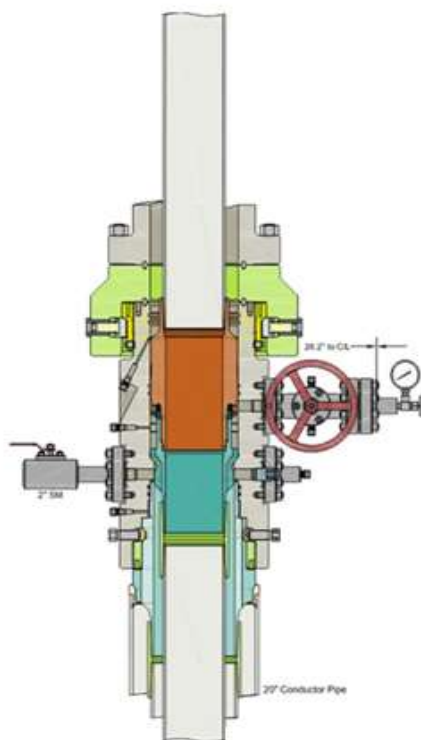


Colgate Operating Offline Cementing Procedure Surface & Intermediate Casing

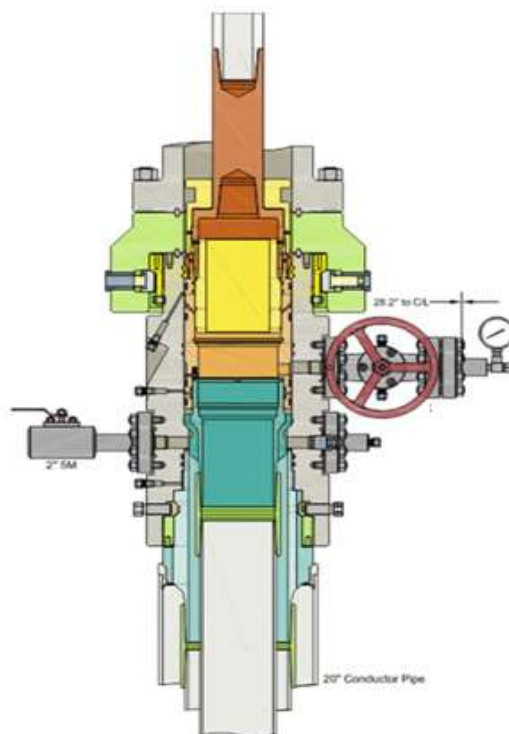
1. Drill hole to Total Depth with Rig and perform wellbore cleanup cycles.
2. Run and casing to Depth.
3. Land casing with mandrel.
4. Circulate 1.5 csg capacity.
5. Flow test – Confirm well is static and floats are holding.
6. Set Annular packoff and pressure test. Test to 5k.
7. Nipple down BOP and install cap flange.
8. Skid rig to next well on pad
9. Remove cap flange (confirm well is static before removal)
 - a) If well is not static use the casing outlet valves to kill well
 - b) Drillers method will be used in well control event
 - c) High pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
 - d) Kill mud will be circulated once influx is circulated out of hole
 - e) Confirm well is static and remove cap flange to start offline cement operations
10. Install offline cement tool.
11. Rig up cementers.
12. Circulate bottoms up with cement truck
13. Commence planned cement job, take returns through the annulus wellhead valve
14. After plug is bumped confirm floats hold and well is static
15. Rig down cementers and equipment
16. Install night cap with pressure gauge to monitor.



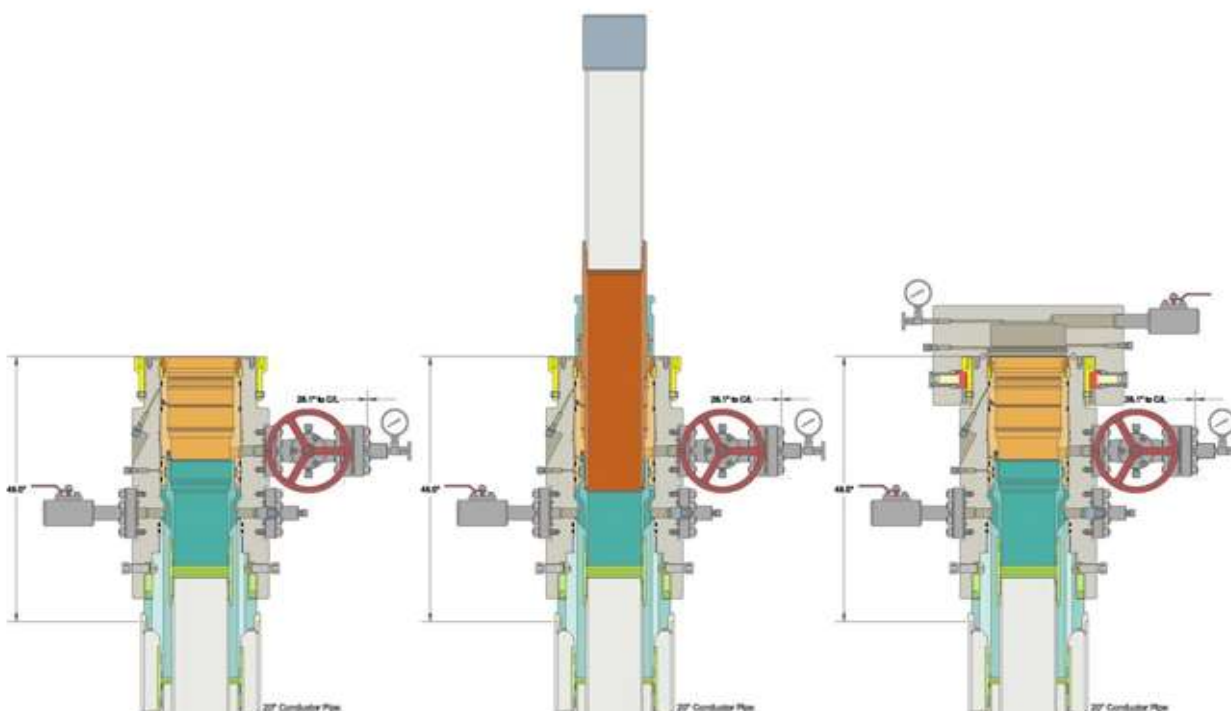
Intermediate



Run 7 5/8" Casing
Land Casing on 7 5/8" Mandrel Hanger
Cement 7 5/8" Casing
Retrieve Running Tool



Run 9 5/8" Packoff
Test Upper and Lower Seals
Engage Lockring
Retrieve Running Tool



Colgate Operating Multi-Well Pad Batch Drilling Procedure

Surface Casing - Colgate intends to Batch set all surface casing to a depth approved in the APD. Surface Holes will be batch drilled by a rig. Appropriate notifications will be made prior to spudding the well, running and cementing casing and prior to skidding to the rig to the next well on pad.

1. Drill Surface hole to Approved Depth with Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land planned surface casing see Illustration 1-1 Below to depth approved in APD.
3. Set packoff and test to 5k psi
4. Offline Cement
5. Install wellhead with pressure gauge and nightcap. Nightcap is shown on final wellhead Stack up Illustration #2-2.
6. Skid Rig to adjacent well to drill Surface hole.
7. Surface casing test will be performed by the rig in order to allow ample time for Cement to develop 500psi compressive strength. Casing test to 0.22 psi/ft or 1500 psi whichever is greater - not to exceed 70% casing burst.

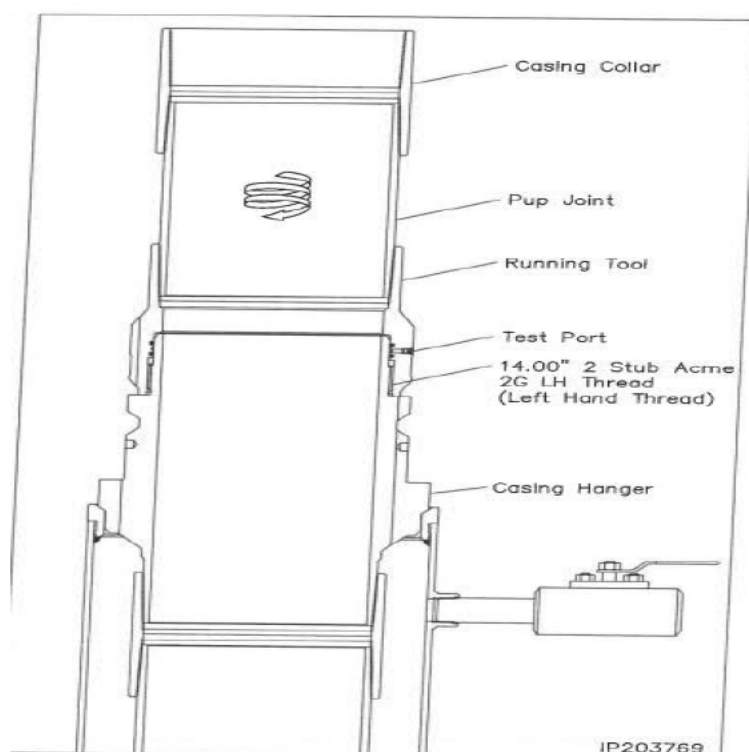


Illustration 1-1

Intermediate Casing – Colgate intends to Batch set all intermediate casing strings to a depth approved in the APD. Intermediate Holes will be batch drilled by the rig. Appropriate notifications will be made prior to testing BOPE, and prior to running/ cementing all casing strings.

1. Rig will remove the nightcap and install and test BOPE.
2. Test Surface casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
3. Install wear bushing then drill out surface casing shoe-track plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
4. Drill Intermediate hole to approved casing point. Trip out of hole with BHA to run Casing.
5. Remove wear bushing then run and land Intermediate Casing with mandrel hanger in wellhead.
6. Cement casing to surface with floats holding.
7. Washout stack then run wash tool in wellhead and wash hanger and pack-off setting area.
8. Install pack-off and test void to 5,000 psi for 15 minutes. Nightcap shown on final wellhead stack up illustration 2-2 on page 3.
9. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
10. Install nightcap – skid rig to adjacent well to drill Intermediate hole.

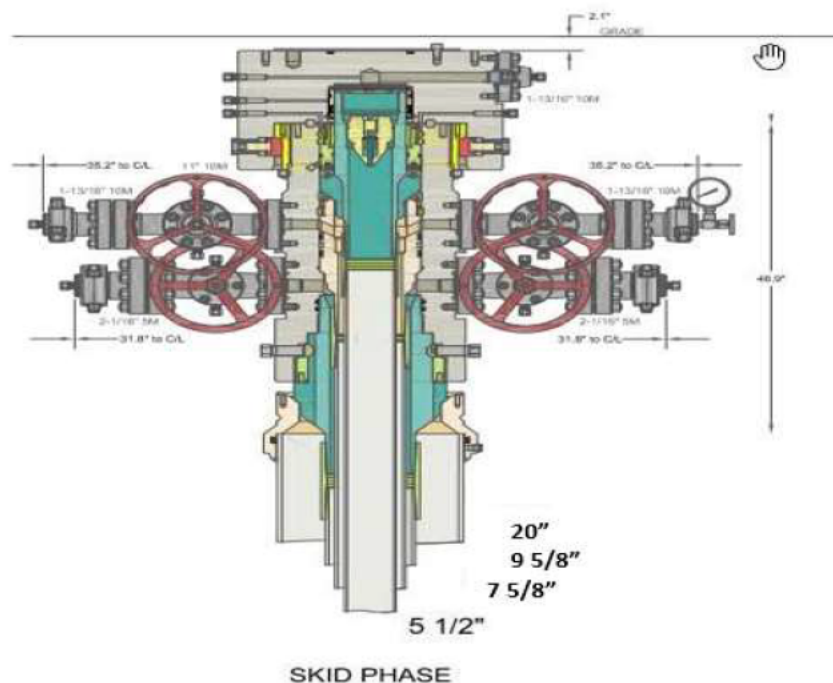


Illustration 2-2

Production Casing – Colgate intends to Batch set all Production casings with Rig. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. Drilling Rig will remove the nightcap and install and test BOPE.
2. Install wear bushing then drill Intermediate shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
3. Drill Vertical hole to KOP – Trip out for Curve BHA.
4. Drill Curve, landing in production interval – Trip for Lateral BHA.
5. Drill Lateral / Production hole to Permitted BHL, perform cleanup cycles and trip out to run Production Casing.
6. Remove wear bushing then run Production casing to TD landing casing mandrel in wellhead.
7. Cement Production string with floats holding.
8. Run in with wash tool and wash wellhead area – install pack-off and test void to 5,000psi for 15 minutes.
9. Install BPV in Production mandrel hanger – Nipple down BOPE and install nightcap.
10. Test nightcap void to 5,000 psi for 30 minutes per illustration 2-2
11. Skid rig to adjacent well on pad to drill production hole.

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Colgate Operations LLC
WELL NAME & NO.:	Ironhorse 35 Fed Com 171H
LOCATION:	Sec 34-19S-29E-NMP
COUNTY:	Eddy County, New Mexico ▼

COA

H₂S	☐ No ☒ Yes			
Potash / WIPP	☒ None	☐ Secretary	☐ R-111-Q	☐ Open Annulus ☐ WIPP
Cave / Karst	☐ Low	☐ Medium	☒ High	☐ Critical
Wellhead	☐ Conventional	☒ Multibowl	☐ Both	☐ Diverter
Cementing	☐ Primary Squeeze	☐ Cont. Squeeze	☐ EchoMeter	☐ DV Tool
Special Req	☒ Capitan Reef	☐ Water Disposal	☒ COM	☐ Unit
Waste Prev.	☐ Self-Certification	☐ Waste Min. Plan	☒ APD Submitted prior to 06/10/2024	
Additional Language	☒ Flex Hose	☐ Casing Clearance	☐ Pilot Hole	☒ Break Testing
	☒ Four-String	☒ Offline Cementing	☒ Fluid-Filled	

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the **Cherry Canyon and Brushy Canyon** formation. As a result, the Hydrogen Sulfide area must meet all requirements from 43 CFR 3176, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **20** inch surface casing shall be set at approximately **232** 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. *Set depth adjusted per BLM geologist.*
 - 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.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the **13-3/8** inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**
 - ❖ 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.
 - ❖ In Capitan Reef 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.
 - ❖ **Special Capitan Reef requirements:** Ensure freshwater based mud is utilized across the Capitan interval.
3. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
- Cement should tie-back at least **50 feet** on top of Capitan Reef top or **200 feet** into the previous casing, whichever is greater. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**
4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
- 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, Capitan Reef, 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. 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.
 - 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 43 CFR 3172 must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in 43 CFR 3171 and 3172.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

BOPE Break Testing Variance

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

Offline Cementing

Contact the BLM prior to the commencement of any offline cementing procedure.

GENERAL REQUIREMENTS

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

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

Contact Eddy County Petroleum Engineering Inspection Staff:

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220;

BLM NM CFO DrillingNotifications@BLM.GOV; (575) 361-2822

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following

- conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
 4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
 5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
 6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
 7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
 8. Whenever a casing string is cemented in the R-111-Q potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR 3172**.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

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

- iv. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- v. The results of the test shall be reported to the appropriate BLM office.
- vi. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- vii. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- viii. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR 3172**.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

NEW MEXICO

(SP) EDDY

IRONHORSE 35-36 FED STATE

IRONHORSE 35 FED 171H

OWB

Plan: PWP0

Standard Planning Report - Geographic

03 October, 2023

Colgate Operating
Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Company:	NEW MEXICO	TVD Reference:	KB=30' @ 3344.0usft
Project:	(SP) EDDY	MD Reference:	KB=30' @ 3344.0usft
Site:	IRONHORSE 35-36 FED STATE	North Reference:	Grid
Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Project	(SP) EDDY		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		IRONHORSE 35-36 FED STATE			
Site Position:		Northing:	589,616.60 usft	Latitude:	32° 37' 14.151 N
From:	Map	Easting:	627,097.69 usft	Longitude:	104° 3' 17.225 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well	IRONHORSE 35 FED 171H					
Well Position	+N/-S	0.0 usft	Northing:	589,583.60 usft	Latitude:	32° 37' 13.825 N
	+E/-W	0.0 usft	Easting:	627,097.62 usft	Longitude:	104° 3' 17.227 W
Position Uncertainty	0.0 usft	Wellhead Elevation:		Ground Level:	3,314.0 usft	

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	8.00	60.52	48,978.36947897

Design	PWP0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	8,624.0	0.0	0.0	87.95

Plan Survey Tool Program	Date	10/3/2023		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,190.0 PWP0 (OWB)	MWD	
			OWSG_Rev2_ MWD - Star	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,800.0	8.00	349.72	3,797.4	54.9	-10.0	1.00	1.00	0.00	349.72	
6,175.3	8.00	349.72	6,149.6	380.1	-68.9	0.00	0.00	0.00	0.00	
6,975.3	0.00	0.00	6,947.0	435.0	-78.9	1.00	-1.00	0.00	180.00	
8,174.8	0.00	0.00	8,146.5	435.0	-78.9	0.00	0.00	0.00	0.00	
8,924.8	90.00	90.29	8,624.0	432.6	398.6	12.00	12.00	12.04	90.29	
19,190.0	90.00	90.29	8,624.0	381.1	10,663.6	0.00	0.00	0.00	0.00	LTP/BHL-IRONHOF

Colgate Operating

Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Company:	NEW MEXICO	TVD Reference:	KB=30' @ 3344.0usft
Project:	(SP) EDDY	MD Reference:	KB=30' @ 3344.0usft
Site:	IRONHORSE 35-36 FED STATE	North Reference:	Grid
Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
100.0	0.00	0.00	100.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
162.0	0.00	0.00	162.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Rustler									
200.0	0.00	0.00	200.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
300.0	0.00	0.00	300.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
400.0	0.00	0.00	400.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
500.0	0.00	0.00	500.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
600.0	0.00	0.00	600.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
700.0	0.00	0.00	700.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
800.0	0.00	0.00	800.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
889.0	0.00	0.00	889.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Salado									
900.0	0.00	0.00	900.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,254.0	0.00	0.00	1,254.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Tansill									
1,300.0	0.00	0.00	1,300.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,404.0	0.00	0.00	1,404.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Yates									
1,500.0	0.00	0.00	1,500.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,610.0	0.00	0.00	1,610.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Seven Rivers									
1,700.0	0.00	0.00	1,700.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,572.0	0.00	0.00	2,572.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Queen									
2,600.0	0.00	0.00	2,600.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,774.0	0.00	0.00	2,774.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
Capitan									
2,800.0	0.00	0.00	2,800.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	589,583.60	627,097.62	32° 37' 13.825 N	104° 3' 17.227 W
3,100.0	1.00	349.72	3,100.0	0.9	-0.2	589,584.46	627,097.47	32° 37' 13.833 N	104° 3' 17.229 W
3,200.0	2.00	349.72	3,200.0	3.4	-0.6	589,587.04	627,097.00	32° 37' 13.859 N	104° 3' 17.234 W
3,300.0	3.00	349.72	3,299.9	7.7	-1.4	589,591.33	627,096.22	32° 37' 13.901 N	104° 3' 17.243 W
3,400.0	4.00	349.72	3,399.7	13.7	-2.5	589,597.34	627,095.13	32° 37' 13.961 N	104° 3' 17.256 W
3,410.4	4.10	349.72	3,410.0	14.5	-2.6	589,598.06	627,095.00	32° 37' 13.968 N	104° 3' 17.258 W
Delaware Sands									
3,500.0	5.00	349.72	3,499.4	21.5	-3.9	589,605.06	627,093.73	32° 37' 14.037 N	104° 3' 17.272 W
3,600.0	6.00	349.72	3,598.9	30.9	-5.6	589,614.49	627,092.02	32° 37' 14.131 N	104° 3' 17.292 W
3,700.0	7.00	349.72	3,698.3	42.0	-7.6	589,625.62	627,090.00	32° 37' 14.241 N	104° 3' 17.315 W

Colgate Operating Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Company:	NEW MEXICO	TVD Reference:	KB=30' @ 3344.0usft
Project:	(SP) EDDY	MD Reference:	KB=30' @ 3344.0usft
Site:	IRONHORSE 35-36 FED STATE	North Reference:	Grid
Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
3,800.0	8.00	349.72	3,797.4	54.9	-10.0	589,638.47	627,087.67	32° 37' 14.368 N	104° 3' 17.342 W	
3,900.0	8.00	349.72	3,896.4	68.6	-12.4	589,652.16	627,085.19	32° 37' 14.504 N	104° 3' 17.371 W	
3,917.7	8.00	349.72	3,914.0	71.0	-12.9	589,654.59	627,084.75	32° 37' 14.528 N	104° 3' 17.376 W	
BYCN										
4,000.0	8.00	349.72	3,995.5	82.3	-14.9	589,665.86	627,082.71	32° 37' 14.639 N	104° 3' 17.399 W	
4,100.0	8.00	349.72	4,094.5	95.9	-17.4	589,679.55	627,080.22	32° 37' 14.775 N	104° 3' 17.428 W	
4,200.0	8.00	349.72	4,193.5	109.6	-19.9	589,693.24	627,077.74	32° 37' 14.910 N	104° 3' 17.456 W	
4,300.0	8.00	349.72	4,292.5	123.3	-22.4	589,706.94	627,075.25	32° 37' 15.046 N	104° 3' 17.485 W	
4,400.0	8.00	349.72	4,391.6	137.0	-24.9	589,720.63	627,072.77	32° 37' 15.181 N	104° 3' 17.514 W	
4,500.0	8.00	349.72	4,490.6	150.7	-27.3	589,734.33	627,070.29	32° 37' 15.317 N	104° 3' 17.542 W	
4,600.0	8.00	349.72	4,589.6	164.4	-29.8	589,748.02	627,067.80	32° 37' 15.453 N	104° 3' 17.571 W	
4,700.0	8.00	349.72	4,688.6	178.1	-32.3	589,761.71	627,065.32	32° 37' 15.588 N	104° 3' 17.600 W	
4,800.0	8.00	349.72	4,787.7	191.8	-34.8	589,775.41	627,062.83	32° 37' 15.724 N	104° 3' 17.628 W	
4,900.0	8.00	349.72	4,886.7	205.5	-37.3	589,789.10	627,060.35	32° 37' 15.859 N	104° 3' 17.657 W	
5,000.0	8.00	349.72	4,985.7	219.2	-39.8	589,802.79	627,057.87	32° 37' 15.995 N	104° 3' 17.685 W	
5,100.0	8.00	349.72	5,084.8	232.9	-42.2	589,816.49	627,055.38	32° 37' 16.130 N	104° 3' 17.714 W	
5,200.0	8.00	349.72	5,183.8	246.6	-44.7	589,830.18	627,052.90	32° 37' 16.266 N	104° 3' 17.743 W	
5,300.0	8.00	349.72	5,282.8	260.3	-47.2	589,843.88	627,050.42	32° 37' 16.402 N	104° 3' 17.771 W	
5,400.0	8.00	349.72	5,381.8	274.0	-49.7	589,857.57	627,047.93	32° 37' 16.537 N	104° 3' 17.800 W	
5,500.0	8.00	349.72	5,480.9	287.7	-52.2	589,871.26	627,045.45	32° 37' 16.673 N	104° 3' 17.829 W	
5,600.0	8.00	349.72	5,579.9	301.4	-54.7	589,884.96	627,042.96	32° 37' 16.808 N	104° 3' 17.857 W	
5,700.0	8.00	349.72	5,678.9	315.0	-57.1	589,898.65	627,040.48	32° 37' 16.944 N	104° 3' 17.886 W	
5,729.4	8.00	349.72	5,708.0	319.1	-57.9	589,902.67	627,039.75	32° 37' 16.984 N	104° 3' 17.894 W	
Bone Spring										
5,800.0	8.00	349.72	5,777.9	328.7	-59.6	589,912.35	627,038.00	32° 37' 17.079 N	104° 3' 17.914 W	
5,900.0	8.00	349.72	5,877.0	342.4	-62.1	589,926.04	627,035.51	32° 37' 17.215 N	104° 3' 17.943 W	
6,000.0	8.00	349.72	5,976.0	356.1	-64.6	589,939.73	627,033.03	32° 37' 17.351 N	104° 3' 17.972 W	
6,100.0	8.00	349.72	6,075.0	369.8	-67.1	589,953.43	627,030.55	32° 37' 17.486 N	104° 3' 18.000 W	
6,175.3	8.00	349.72	6,149.6	380.1	-68.9	589,963.74	627,028.68	32° 37' 17.588 N	104° 3' 18.022 W	
6,200.0	7.75	349.72	6,174.1	383.5	-69.6	589,967.07	627,028.07	32° 37' 17.621 N	104° 3' 18.029 W	
6,300.0	6.75	349.72	6,273.3	395.9	-71.8	589,979.49	627,025.82	32° 37' 17.744 N	104° 3' 18.055 W	
6,400.0	5.75	349.72	6,372.7	406.6	-73.7	589,990.21	627,023.87	32° 37' 17.850 N	104° 3' 18.077 W	
6,500.0	4.75	349.72	6,472.2	415.6	-75.4	589,999.22	627,022.24	32° 37' 17.939 N	104° 3' 18.096 W	
6,600.0	3.75	349.72	6,572.0	422.9	-76.7	590,006.51	627,020.92	32° 37' 18.012 N	104° 3' 18.111 W	
6,700.0	2.75	349.72	6,671.8	428.5	-77.7	590,012.10	627,019.90	32° 37' 18.067 N	104° 3' 18.123 W	
6,800.0	1.75	349.72	6,771.7	432.4	-78.4	590,015.96	627,019.20	32° 37' 18.105 N	104° 3' 18.131 W	
6,900.0	0.75	349.72	6,871.7	434.5	-78.8	590,018.12	627,018.81	32° 37' 18.127 N	104° 3' 18.136 W	
6,975.3	0.00	0.00	6,947.0	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,000.0	0.00	0.00	6,971.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,100.0	0.00	0.00	7,071.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,133.3	0.00	0.00	7,105.0	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
FBSG										
7,200.0	0.00	0.00	7,171.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,300.0	0.00	0.00	7,271.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,400.0	0.00	0.00	7,371.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,500.0	0.00	0.00	7,471.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,600.0	0.00	0.00	7,571.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,700.0	0.00	0.00	7,671.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,800.0	0.00	0.00	7,771.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,900.0	0.00	0.00	7,871.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
7,902.3	0.00	0.00	7,874.0	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
SBSG										
8,000.0	0.00	0.00	7,971.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
8,100.0	0.00	0.00	8,071.7	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	

Colgate Operating

Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Company:	NEW MEXICO	TVD Reference:	KB=30' @ 3344.0usft
Project:	(SP) EDDY	MD Reference:	KB=30' @ 3344.0usft
Site:	IRONHORSE 35-36 FED STATE	North Reference:	Grid
Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,174.8	0.00	0.00	8,146.5	435.0	-78.9	590,018.60	627,018.72	32° 37' 18.131 N	104° 3' 18.137 W	
8,200.0	3.02	90.29	8,171.7	435.0	-78.2	590,018.60	627,019.39	32° 37' 18.131 N	104° 3' 18.129 W	
8,300.0	15.02	90.29	8,270.3	434.9	-62.6	590,018.52	627,035.04	32° 37' 18.130 N	104° 3' 17.946 W	
8,400.0	27.02	90.29	8,363.4	434.7	-26.8	590,018.34	627,070.85	32° 37' 18.127 N	104° 3' 17.527 W	
8,500.0	39.02	90.29	8,447.1	434.5	27.6	590,018.07	627,125.25	32° 37' 18.123 N	104° 3' 16.891 W	
8,600.0	51.02	90.29	8,517.7	434.1	98.2	590,017.71	627,195.86	32° 37' 18.118 N	104° 3' 16.065 W	
8,700.0	63.02	90.29	8,572.0	433.7	182.0	590,017.29	627,279.59	32° 37' 18.112 N	104° 3' 15.086 W	
8,800.0	75.02	90.29	8,607.7	433.2	275.2	590,016.83	627,372.79	32° 37' 18.105 N	104° 3' 13.997 W	
8,900.0	87.02	90.29	8,623.3	432.7	373.8	590,016.33	627,471.38	32° 37' 18.097 N	104° 3' 12.844 W	
8,924.8	90.00	90.29	8,624.0	432.6	398.6	590,016.21	627,496.18	32° 37' 18.095 N	104° 3' 12.554 W	
9,000.0	90.00	90.29	8,624.0	432.2	473.7	590,015.83	627,571.37	32° 37' 18.090 N	104° 3' 11.675 W	
9,100.0	90.00	90.29	8,624.0	431.7	573.7	590,015.33	627,671.37	32° 37' 18.082 N	104° 3' 10.505 W	
9,200.0	90.00	90.29	8,624.0	431.2	673.7	590,014.83	627,771.37	32° 37' 18.074 N	104° 3' 9.336 W	
9,300.0	90.00	90.29	8,624.0	430.7	773.7	590,014.33	627,871.37	32° 37' 18.067 N	104° 3' 8.167 W	
9,400.0	90.00	90.29	8,624.0	430.2	873.7	590,013.82	627,971.37	32° 37' 18.059 N	104° 3' 6.998 W	
9,500.0	90.00	90.29	8,624.0	429.7	973.7	590,013.32	628,071.37	32° 37' 18.052 N	104° 3' 5.828 W	
9,600.0	90.00	90.29	8,624.0	429.2	1,073.7	590,012.82	628,171.36	32° 37' 18.044 N	104° 3' 4.659 W	
9,700.0	90.00	90.29	8,624.0	428.7	1,173.7	590,012.32	628,271.36	32° 37' 18.036 N	104° 3' 3.490 W	
9,800.0	90.00	90.29	8,624.0	428.2	1,273.7	590,011.82	628,371.36	32° 37' 18.029 N	104° 3' 2.321 W	
9,900.0	90.00	90.29	8,624.0	427.7	1,373.7	590,011.31	628,471.36	32° 37' 18.021 N	104° 3' 1.151 W	
10,000.0	90.00	90.29	8,624.0	427.2	1,473.7	590,010.81	628,571.36	32° 37' 18.014 N	104° 2' 59.982 W	
10,100.0	90.00	90.29	8,624.0	426.7	1,573.7	590,010.31	628,671.36	32° 37' 18.006 N	104° 2' 58.813 W	
10,200.0	90.00	90.29	8,624.0	426.2	1,673.7	590,009.81	628,771.36	32° 37' 17.998 N	104° 2' 57.644 W	
10,300.0	90.00	90.29	8,624.0	425.7	1,773.7	590,009.31	628,871.36	32° 37' 17.991 N	104° 2' 56.474 W	
10,400.0	90.00	90.29	8,624.0	425.2	1,873.7	590,008.81	628,971.35	32° 37' 17.983 N	104° 2' 55.305 W	
10,500.0	90.00	90.29	8,624.0	424.7	1,973.7	590,008.30	629,071.35	32° 37' 17.976 N	104° 2' 54.136 W	
10,600.0	90.00	90.29	8,624.0	424.2	2,073.7	590,007.80	629,171.35	32° 37' 17.968 N	104° 2' 52.967 W	
10,700.0	90.00	90.29	8,624.0	423.7	2,173.7	590,007.30	629,271.35	32° 37' 17.960 N	104° 2' 51.797 W	
10,800.0	90.00	90.29	8,624.0	423.2	2,273.7	590,006.80	629,371.35	32° 37' 17.953 N	104° 2' 50.628 W	
10,900.0	90.00	90.29	8,624.0	422.7	2,373.7	590,006.30	629,471.35	32° 37' 17.945 N	104° 2' 49.459 W	
11,000.0	90.00	90.29	8,624.0	422.2	2,473.7	590,005.80	629,571.35	32° 37' 17.938 N	104° 2' 48.290 W	
11,100.0	90.00	90.29	8,624.0	421.7	2,573.7	590,005.29	629,671.35	32° 37' 17.930 N	104° 2' 47.120 W	
11,200.0	90.00	90.29	8,624.0	421.2	2,673.7	590,004.79	629,771.34	32° 37' 17.922 N	104° 2' 45.951 W	
11,300.0	90.00	90.29	8,624.0	420.7	2,773.7	590,004.29	629,871.34	32° 37' 17.915 N	104° 2' 44.782 W	
11,400.0	90.00	90.29	8,624.0	420.2	2,873.7	590,003.79	629,971.34	32° 37' 17.907 N	104° 2' 43.613 W	
11,500.0	90.00	90.29	8,624.0	419.7	2,973.7	590,003.29	630,071.34	32° 37' 17.899 N	104° 2' 42.443 W	
11,600.0	90.00	90.29	8,624.0	419.2	3,073.7	590,002.79	630,171.34	32° 37' 17.892 N	104° 2' 41.274 W	
11,700.0	90.00	90.29	8,624.0	418.7	3,173.7	590,002.28	630,271.34	32° 37' 17.884 N	104° 2' 40.105 W	
11,800.0	90.00	90.29	8,624.0	418.2	3,273.7	590,001.78	630,371.34	32° 37' 17.876 N	104° 2' 38.936 W	
11,900.0	90.00	90.29	8,624.0	417.7	3,373.7	590,001.28	630,471.34	32° 37' 17.869 N	104° 2' 37.766 W	
12,000.0	90.00	90.29	8,624.0	417.2	3,473.7	590,000.78	630,571.33	32° 37' 17.861 N	104° 2' 36.597 W	
12,100.0	90.00	90.29	8,624.0	416.7	3,573.7	590,000.28	630,671.33	32° 37' 17.853 N	104° 2' 35.428 W	
12,200.0	90.00	90.29	8,624.0	416.2	3,673.7	589,999.77	630,771.33	32° 37' 17.846 N	104° 2' 34.259 W	
12,300.0	90.00	90.29	8,624.0	415.7	3,773.7	589,999.27	630,871.33	32° 37' 17.838 N	104° 2' 33.089 W	
12,400.0	90.00	90.29	8,624.0	415.2	3,873.7	589,998.77	630,971.33	32° 37' 17.830 N	104° 2' 31.920 W	
12,500.0	90.00	90.29	8,624.0	414.7	3,973.7	589,998.27	631,071.33	32° 37' 17.823 N	104° 2' 30.751 W	
12,600.0	90.00	90.29	8,624.0	414.2	4,073.7	589,997.77	631,171.33	32° 37' 17.815 N	104° 2' 29.582 W	
12,700.0	90.00	90.29	8,624.0	413.7	4,173.7	589,997.27	631,271.33	32° 37' 17.807 N	104° 2' 28.412 W	
12,800.0	90.00	90.29	8,624.0	413.2	4,273.7	589,996.76	631,371.32	32° 37' 17.800 N	104° 2' 27.243 W	
12,900.0	90.00	90.29	8,624.0	412.7	4,373.7	589,996.26	631,471.32	32° 37' 17.792 N	104° 2' 26.074 W	
13,000.0	90.00	90.29	8,624.0	412.2	4,473.7	589,995.76	631,571.32	32° 37' 17.784 N	104° 2' 24.905 W	
13,100.0	90.00	90.29	8,624.0	411.7	4,573.7	589,995.26	631,671.32	32° 37' 17.777 N	104° 2' 23.735 W	
13,200.0	90.00	90.29	8,624.0	411.2	4,673.7	589,994.76	631,771.32	32° 37' 17.769 N	104° 2' 22.566 W	
13,300.0	90.00	90.29	8,624.0	410.7	4,773.7	589,994.26	631,871.32	32° 37' 17.761 N	104° 2' 21.397 W	
13,400.0	90.00	90.29	8,624.0	410.2	4,873.7	589,993.75	631,971.32	32° 37' 17.753 N	104° 2' 20.228 W	

Colgate Operating Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Company:	NEW MEXICO	TVD Reference:	KB=30' @ 3344.0usft
Project:	(SP) EDDY	MD Reference:	KB=30' @ 3344.0usft
Site:	IRONHORSE 35-36 FED STATE	North Reference:	Grid
Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
13,500.0	90.00	90.29	8,624.0	409.6	4,973.7	589,993.25	632,071.32	32° 37' 17.746 N	104° 2' 19.058 W	
13,600.0	90.00	90.29	8,624.0	409.1	5,073.7	589,992.75	632,171.31	32° 37' 17.738 N	104° 2' 17.889 W	
13,700.0	90.00	90.29	8,624.0	408.6	5,173.7	589,992.25	632,271.31	32° 37' 17.730 N	104° 2' 16.720 W	
13,800.0	90.00	90.29	8,624.0	408.1	5,273.7	589,991.75	632,371.31	32° 37' 17.723 N	104° 2' 15.551 W	
13,900.0	90.00	90.29	8,624.0	407.6	5,373.7	589,991.25	632,471.31	32° 37' 17.715 N	104° 2' 14.382 W	
14,000.0	90.00	90.29	8,624.0	407.1	5,473.7	589,990.74	632,571.31	32° 37' 17.707 N	104° 2' 13.212 W	
14,100.0	90.00	90.29	8,624.0	406.6	5,573.7	589,990.24	632,671.31	32° 37' 17.699 N	104° 2' 12.043 W	
14,200.0	90.00	90.29	8,624.0	406.1	5,673.7	589,989.74	632,771.31	32° 37' 17.692 N	104° 2' 10.874 W	
14,300.0	90.00	90.29	8,624.0	405.6	5,773.7	589,989.24	632,871.31	32° 37' 17.684 N	104° 2' 9.705 W	
14,400.0	90.00	90.29	8,624.0	405.1	5,873.7	589,988.74	632,971.30	32° 37' 17.676 N	104° 2' 8.535 W	
14,500.0	90.00	90.29	8,624.0	404.6	5,973.7	589,988.23	633,071.30	32° 37' 17.669 N	104° 2' 7.366 W	
14,600.0	90.00	90.29	8,624.0	404.1	6,073.7	589,987.73	633,171.30	32° 37' 17.661 N	104° 2' 6.197 W	
14,700.0	90.00	90.29	8,624.0	403.6	6,173.7	589,987.23	633,271.30	32° 37' 17.653 N	104° 2' 5.028 W	
14,800.0	90.00	90.29	8,624.0	403.1	6,273.7	589,986.73	633,371.30	32° 37' 17.645 N	104° 2' 3.858 W	
14,900.0	90.00	90.29	8,624.0	402.6	6,373.7	589,986.23	633,471.30	32° 37' 17.638 N	104° 2' 2.689 W	
15,000.0	90.00	90.29	8,624.0	402.1	6,473.7	589,985.73	633,571.30	32° 37' 17.630 N	104° 2' 1.520 W	
15,100.0	90.00	90.29	8,624.0	401.6	6,573.7	589,985.22	633,671.30	32° 37' 17.622 N	104° 2' 0.351 W	
15,200.0	90.00	90.29	8,624.0	401.1	6,673.7	589,984.72	633,771.29	32° 37' 17.614 N	104° 1' 59.181 W	
15,300.0	90.00	90.29	8,624.0	400.6	6,773.7	589,984.22	633,871.29	32° 37' 17.607 N	104° 1' 58.012 W	
15,400.0	90.00	90.29	8,624.0	400.1	6,873.7	589,983.72	633,971.29	32° 37' 17.599 N	104° 1' 56.843 W	
15,500.0	90.00	90.29	8,624.0	399.6	6,973.7	589,983.22	634,071.29	32° 37' 17.591 N	104° 1' 55.674 W	
15,600.0	90.00	90.29	8,624.0	399.1	7,073.7	589,982.72	634,171.29	32° 37' 17.583 N	104° 1' 54.504 W	
15,700.0	90.00	90.29	8,624.0	398.6	7,173.7	589,982.21	634,271.29	32° 37' 17.575 N	104° 1' 53.335 W	
15,800.0	90.00	90.29	8,624.0	398.1	7,273.7	589,981.71	634,371.29	32° 37' 17.568 N	104° 1' 52.166 W	
15,900.0	90.00	90.29	8,624.0	397.6	7,373.7	589,981.21	634,471.29	32° 37' 17.560 N	104° 1' 50.997 W	
16,000.0	90.00	90.29	8,624.0	397.1	7,473.7	589,980.71	634,571.28	32° 37' 17.552 N	104° 1' 49.827 W	
16,100.0	90.00	90.29	8,624.0	396.6	7,573.7	589,980.21	634,671.28	32° 37' 17.544 N	104° 1' 48.658 W	
16,200.0	90.00	90.29	8,624.0	396.1	7,673.7	589,979.70	634,771.28	32° 37' 17.537 N	104° 1' 47.489 W	
16,300.0	90.00	90.29	8,624.0	395.6	7,773.7	589,979.20	634,871.28	32° 37' 17.529 N	104° 1' 46.320 W	
16,400.0	90.00	90.29	8,624.0	395.1	7,873.7	589,978.70	634,971.28	32° 37' 17.521 N	104° 1' 45.150 W	
16,500.0	90.00	90.29	8,624.0	394.6	7,973.7	589,978.20	635,071.28	32° 37' 17.513 N	104° 1' 43.981 W	
16,600.0	90.00	90.29	8,624.0	394.1	8,073.7	589,977.70	635,171.28	32° 37' 17.505 N	104° 1' 42.812 W	
16,700.0	90.00	90.29	8,624.0	393.6	8,173.7	589,977.20	635,271.28	32° 37' 17.498 N	104° 1' 41.643 W	
16,800.0	90.00	90.29	8,624.0	393.1	8,273.6	589,976.69	635,371.27	32° 37' 17.490 N	104° 1' 40.473 W	
16,900.0	90.00	90.29	8,624.0	392.6	8,373.6	589,976.19	635,471.27	32° 37' 17.482 N	104° 1' 39.304 W	
17,000.0	90.00	90.29	8,624.0	392.1	8,473.6	589,975.69	635,571.27	32° 37' 17.474 N	104° 1' 38.135 W	
17,100.0	90.00	90.29	8,624.0	391.6	8,573.6	589,975.19	635,671.27	32° 37' 17.466 N	104° 1' 36.966 W	
17,200.0	90.00	90.29	8,624.0	391.1	8,673.6	589,974.69	635,771.27	32° 37' 17.458 N	104° 1' 35.796 W	
17,300.0	90.00	90.29	8,624.0	390.6	8,773.6	589,974.19	635,871.27	32° 37' 17.451 N	104° 1' 34.627 W	
17,400.0	90.00	90.29	8,624.0	390.1	8,873.6	589,973.68	635,971.27	32° 37' 17.443 N	104° 1' 33.458 W	
17,500.0	90.00	90.29	8,624.0	389.6	8,973.6	589,973.18	636,071.27	32° 37' 17.435 N	104° 1' 32.289 W	
17,600.0	90.00	90.29	8,624.0	389.1	9,073.6	589,972.68	636,171.26	32° 37' 17.427 N	104° 1' 31.119 W	
17,700.0	90.00	90.29	8,624.0	388.6	9,173.6	589,972.18	636,271.26	32° 37' 17.419 N	104° 1' 29.950 W	
17,800.0	90.00	90.29	8,624.0	388.1	9,273.6	589,971.68	636,371.26	32° 37' 17.411 N	104° 1' 28.781 W	
17,900.0	90.00	90.29	8,624.0	387.6	9,373.6	589,971.18	636,471.26	32° 37' 17.404 N	104° 1' 27.612 W	
18,000.0	90.00	90.29	8,624.0	387.1	9,473.6	589,970.67	636,571.26	32° 37' 17.396 N	104° 1' 26.443 W	
18,100.0	90.00	90.29	8,624.0	386.6	9,573.6	589,970.17	636,671.26	32° 37' 17.388 N	104° 1' 25.273 W	
18,200.0	90.00	90.29	8,624.0	386.1	9,673.6	589,969.67	636,771.26	32° 37' 17.380 N	104° 1' 24.104 W	
18,300.0	90.00	90.29	8,624.0	385.6	9,773.6	589,969.17	636,871.26	32° 37' 17.372 N	104° 1' 22.935 W	
18,400.0	90.00	90.29	8,624.0	385.1	9,873.6	589,968.67	636,971.25	32° 37' 17.364 N	104° 1' 21.766 W	
18,500.0	90.00	90.29	8,624.0	384.6	9,973.6	589,968.16	637,071.25	32° 37' 17.357 N	104° 1' 20.596 W	
18,600.0	90.00	90.29	8,624.0	384.1	10,073.6	589,967.66	637,171.25	32° 37' 17.349 N	104° 1' 19.427 W	
18,700.0	90.00	90.29	8,624.0	383.6	10,173.6	589,967.16	637,271.25	32° 37' 17.341 N	104° 1' 18.258 W	
18,800.0	90.00	90.29	8,624.0	383.1	10,273.6	589,966.66	637,371.25	32° 37' 17.333 N	104° 1' 17.089 W	
18,900.0	90.00	90.29	8,624.0	382.6	10,373.6	589,966.16	637,471.25	32° 37' 17.325 N	104° 1' 15.919 W	

Colgate Operating

Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Company:	NEW MEXICO	TVD Reference:	KB=30' @ 3344.0usft
Project:	(SP) EDDY	MD Reference:	KB=30' @ 3344.0usft
Site:	IRONHORSE 35-36 FED STATE	North Reference:	Grid
Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
19,000.0	90.00	90.29	8,624.0	382.1	10,473.6	589,965.66	637,571.25	32° 37' 17.317 N	104° 1' 14.750 W
19,100.0	90.00	90.29	8,624.0	381.6	10,573.6	589,965.15	637,671.25	32° 37' 17.309 N	104° 1' 13.581 W
19,190.0	90.00	90.29	8,624.0	381.1	10,663.6	589,964.70	637,761.19	32° 37' 17.302 N	104° 1' 12.529 W

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude
LTP/BHL-IRONHORS	0.00	0.00	8,624.0	381.1	10,663.6	589,964.70	637,761.19	32° 37' 17.302 N	104° 1' 12.529 W
- plan hits target center									
- Point									
FTP/PP-IRONHORSE	0.00	0.01	8,624.0	430.9	298.5	590,014.52	627,396.16	32° 37' 18.081 N	104° 3' 13.723 W
- plan misses target center by 10.6usft at 8825.7usft MD (8613.7 TVD, 433.1 N, 300.1 E)									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
162.0	162.0	Rustler				
889.0	889.0	Salado				
1,254.0	1,254.0	Tansill				
1,404.0	1,404.0	Yates				
1,610.0	1,610.0	Seven Rivers				
2,572.0	2,572.0	Queen				
2,774.0	2,774.0	Capitan				
3,410.4	3,410.0	Delaware Sands				
3,917.7	3,914.0	BYCN		0.00		
5,729.4	5,708.0	Bone Spring				
7,133.3	7,105.0	FBSG				
7,902.3	7,874.0	SBSG				
19,190.0	8,624.0	Formation 18				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
3,000.0	3,000.0	0.0	0.0	Start Build 1.00
3,800.0	3,797.4	54.9	-10.0	Start 2375.3 hold at 3800.0 MD
6,175.3	6,149.6	380.1	-68.9	Start Drop -1.00
6,975.3	6,947.0	435.0	-78.9	Start 1199.5 hold at 6975.3 MD
8,174.8	8,146.5	435.0	-78.9	Start DLS 12.00 TFO 90.29
8,924.8	8,624.0	432.6	398.6	Start 10265.1 hold at 8924.8 MD
19,190.0	8,624.0	381.1	10,663.6	TD at 19190.0

NEW MEXICO

(SP) EDDY

IRONHORSE 35-36 FED STATE

IRONHORSE 35 FED 171H

OWB

PWP0

Anticollision Report

03 October, 2023

Colgate Operating

Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Reference	PWP0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 20,000.0usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	10/3/2023		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	19,190.0	PWP0 (OWB)	MWD	OWSG_Rev2_ MWD - Standard	

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						
IRONHORSE 35-36 FED STATE						
Black Diamond 34 Fed Com 122H - AWP - FINAL MWD	2,846.0	2,850.8	80.0	60.2	4.030	CC
Black Diamond 34 Fed Com 122H - AWP - FINAL MWD	3,100.8	3,107.3	81.0	59.3	3.734	ES
Black Diamond 34 Fed Com 122H - AWP - FINAL MWD	3,300.0	3,307.2	84.8	61.7	3.671	SF
Black Diamond 34 Fed Com 131H - AWP - FINAL MWD	967.3	968.7	153.0	146.4	23.279	CC
Black Diamond 34 Fed Com 131H - AWP - FINAL MWD	8,661.5	8,577.7	161.4	100.1	2.633	ES, SF
Black Diamond 34 Fed Com 132H - AWP - FINAL MWD	2,149.8	2,152.0	63.7	48.8	4.251	CC
Black Diamond 34 Fed Com 132H - AWP - FINAL MWD	2,200.0	2,202.0	63.9	48.5	4.160	ES
Black Diamond 34 Fed Com 132H - AWP - FINAL MWD	2,300.0	2,300.7	65.9	49.8	4.102	SF
IRONHORSE 35 FED 131H - OWB - PWP0	1,700.0	1,700.0	132.0	120.3	11.261	CC, ES
IRONHORSE 35 FED 131H - OWB - PWP0	19,190.6	19,818.1	872.1	466.0	2.148	SF
IRONHORSE 35 FED 132H - OWB - PWP0	3,484.6	3,485.3	22.1	-2.2	0.908	Level 3, CC, ES, SF
IRONHORSE 35 FED 172H - OWB - PWP0	2,000.0	2,000.0	33.0	19.1	2.379	CC, ES, SF
IRONHORSE 35 FED 200H - OWB - PWP0	2,000.0	2,000.0	99.0	85.1	7.136	CC
IRONHORSE 35 FED 200H - OWB - PWP0	8,174.8	8,177.2	100.0	41.0	1.694	ES, SF
IRONHORSE 35-36 FED 201H - OWB - PWP0	2,429.8	2,431.4	7.0	-9.9	0.414	Level 3, CC, ES, SF
Osage 34 Fed #1H - AWP - FINAL MWD	7,593.7	7,550.3	529.5	476.2	9.942	CC
Osage 34 Fed #1H - AWP - FINAL MWD	7,600.0	7,555.9	529.5	476.2	9.934	ES
Osage 34 Fed #1H - AWP - FINAL MWD	7,700.0	7,632.8	531.7	477.7	9.859	SF
Parkway ST 36 #1 - AWP - INC ONLY	15,988.6	8,635.4	990.5	600.7	2.541	CC
Parkway ST 36 #1 - AWP - INC ONLY	16,000.0	8,635.4	990.6	600.6	2.540	ES, SF

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 122H - AWP - FINAL MWD														Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS														Offset Well Error:	0.0 usft
Reference	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:		Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)							
0.0	0.0	1.0	1.0	0.0	0.0	-54.54	72.2	-101.3			124.4				
100.0	100.0	102.7	102.7	0.1	0.2	-54.12	72.5	-100.2			123.7	123.3	0.37	336.558	
200.0	200.0	203.9	203.9	0.5	0.6	-52.84	73.5	-97.0			121.7	120.7	1.09	111.945	
300.0	300.0	303.5	303.3	0.8	1.0	-50.98	75.3	-92.9			119.6	117.8	1.80	66.402	
400.0	400.0	403.0	402.7	1.2	1.3	-48.67	77.8	-88.5			117.9	115.4	2.52	46.867	
500.0	500.0	503.0	502.5	1.6	1.7	-45.56	81.6	-83.2			116.6	113.3	3.23	36.066	
600.0	600.0	603.2	602.4	1.9	2.0	-41.52	86.3	-76.4			115.3	111.3	3.95	29.182	
700.0	700.0	702.5	701.3	2.3	2.4	-37.51	90.9	-69.8			114.6	109.9	4.67	24.555	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 122H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
800.0	800.0	803.3	802.0	2.6	2.8	-35.16	93.1	-65.6	113.9	108.5	5.39	21.148		
900.0	900.0	902.7	901.3	3.0	3.1	-33.32	94.7	-62.2	113.3	107.2	6.10	18.566		
1,000.0	1,000.0	1,003.5	1,002.1	3.4	3.5	-33.29	94.1	-61.8	112.6	105.8	6.80	16.553		
1,100.0	1,100.0	1,104.2	1,102.8	3.7	3.8	-33.16	93.2	-60.9	111.4	103.8	7.51	14.823		
1,200.0	1,200.0	1,204.6	1,203.2	4.1	4.2	-32.93	91.9	-59.5	109.5	101.3	8.22	13.320		
1,300.0	1,300.0	1,304.3	1,302.9	4.4	4.5	-32.66	90.6	-58.0	107.6	98.6	8.93	12.045		
1,400.0	1,400.0	1,403.3	1,401.9	4.8	4.9	-31.98	90.1	-56.3	106.2	96.6	9.64	11.015		
1,500.0	1,500.0	1,502.6	1,501.1	5.1	5.2	-30.92	90.8	-54.4	105.8	95.5	10.36	10.219		
1,600.0	1,600.0	1,602.9	1,601.4	5.5	5.6	-29.86	91.7	-52.6	105.7	94.6	11.07	9.545		
1,700.0	1,700.0	1,705.9	1,704.4	5.9	5.9	-30.14	89.2	-51.8	103.2	91.4	11.78	8.759		
1,800.0	1,800.0	1,805.1	1,803.5	6.2	6.3	-31.39	85.7	-52.3	100.5	88.0	12.48	8.049		
1,900.0	1,900.0	1,904.9	1,903.3	6.6	6.6	-32.79	82.4	-53.1	98.0	84.8	13.18	7.437		
2,000.0	2,000.0	2,004.7	2,003.0	6.9	7.0	-34.47	79.0	-54.2	95.8	81.9	13.88	6.904		
2,100.0	2,100.0	2,104.4	2,102.7	7.3	7.3	-35.98	76.0	-55.2	93.9	79.3	14.58	6.442		
2,200.0	2,200.0	2,204.3	2,202.5	7.7	7.6	-37.46	73.2	-56.1	92.2	76.9	15.28	6.033		
2,300.0	2,300.0	2,306.0	2,304.1	8.0	8.0	-39.76	69.5	-57.8	90.4	74.4	15.99	5.656		
2,400.0	2,400.0	2,405.7	2,403.5	8.4	8.3	-43.96	62.7	-60.4	87.1	70.4	16.69	5.218		
2,500.0	2,500.0	2,505.6	2,503.1	8.7	8.7	-48.91	55.5	-63.6	84.4	67.0	17.40	4.851		
2,600.0	2,600.0	2,605.3	2,602.5	9.1	9.0	-54.25	48.0	-66.7	82.2	64.1	18.11	4.540		
2,700.0	2,700.0	2,705.0	2,701.8	9.4	9.4	-60.22	40.1	-70.1	80.8	61.9	18.82	4.291		
2,800.0	2,800.0	2,804.9	2,801.3	9.8	9.7	-66.72	31.7	-73.6	80.1	60.6	19.53	4.102		
2,846.0	2,846.0	2,850.8	2,847.0	10.0	9.9	-69.86	27.6	-75.1	80.0	60.2	19.86	4.030 CC		
2,900.0	2,900.0	2,904.6	2,900.5	10.2	10.1	-73.67	22.5	-77.0	80.2	60.0	20.24	3.963		
3,000.0	3,000.0	3,004.9	3,000.2	10.5	10.4	-81.46	12.0	-80.2	81.1	60.2	20.95	3.871		
3,100.0	3,100.0	3,106.4	3,100.8	10.9	10.8	-81.41	-1.5	-81.1	81.0	59.3	21.67	3.735		
3,100.8	3,100.8	3,107.3	3,101.6	10.9	10.8	-81.51	-1.7	-81.1	81.0	59.3	21.68	3.734 ES		
3,200.0	3,200.0	3,205.6	3,198.8	11.2	11.2	-93.83	-16.7	-80.5	82.4	60.0	22.38	3.683		
3,300.0	3,299.9	3,307.2	3,299.2	11.6	11.5	-107.73	-32.2	-76.2	84.8	61.7	23.10	3.671 SF		
3,400.0	3,399.7	3,403.4	3,393.7	12.0	11.9	-121.96	-48.5	-70.2	92.2	68.4	23.75	3.882		
3,500.0	3,499.4	3,503.3	3,492.1	12.3	12.2	-134.40	-64.8	-64.1	105.5	81.1	24.46	4.315		
3,600.0	3,598.9	3,608.4	3,596.3	12.7	12.6	-144.22	-75.8	-55.9	118.0	92.8	25.23	4.678		
3,700.0	3,698.3	3,706.4	3,693.7	13.0	13.0	-151.62	-82.8	-47.7	131.3	105.3	25.93	5.062		
3,800.0	3,797.4	3,804.4	3,791.1	13.4	13.3	-157.80	-89.7	-39.5	147.7	121.1	26.63	5.548		
3,900.0	3,896.4	3,904.3	3,890.5	13.8	13.7	-162.73	-95.7	-31.8	165.5	138.2	27.34	6.053		
4,000.0	3,995.5	4,005.8	3,991.8	14.1	14.0	-166.26	-99.6	-25.3	182.2	154.2	28.07	6.493		
4,100.0	4,094.5	4,102.4	4,088.1	14.5	14.4	-168.72	-102.6	-20.3	198.7	169.9	28.76	6.909		
4,200.0	4,193.5	4,191.6	4,177.0	14.9	14.7	-170.77	-108.1	-15.2	218.5	189.1	29.39	7.434		
4,300.0	4,292.5	4,289.5	4,274.4	15.3	15.1	-172.81	-115.8	-8.9	240.3	210.2	30.09	7.984		
4,400.0	4,391.6	4,388.7	4,373.1	15.6	15.4	-174.55	-123.0	-2.4	261.7	230.9	30.81	8.493		
4,500.0	4,490.6	4,491.5	4,475.5	16.0	15.8	-176.17	-129.1	4.6	282.1	250.5	31.56	8.938		
4,600.0	4,589.6	4,593.3	4,577.0	16.4	16.2	-177.70	-133.4	12.1	301.0	268.7	32.30	9.320		
4,700.0	4,688.6	4,693.4	4,676.6	16.8	16.5	-179.21	-136.2	20.3	318.9	285.9	33.02	9.659		
4,800.0	4,787.7	4,780.7	4,763.6	17.2	16.8	-179.55	-139.6	28.0	338.2	304.6	33.64	10.055		
4,900.0	4,886.7	4,872.3	4,854.6	17.5	17.2	-178.44	-146.5	36.3	361.1	326.9	34.29	10.533		
5,000.0	4,985.7	4,971.7	4,953.3	17.9	17.5	-177.41	-153.6	45.0	383.8	348.8	35.01	10.962		
5,100.0	5,084.8	5,066.5	5,047.6	18.3	17.9	-176.83	-160.6	51.3	406.3	370.6	35.69	11.382		
5,200.0	5,183.8	5,163.5	5,144.1	18.7	18.2	-176.76	-169.8	54.8	430.0	393.6	36.40	11.814		
5,300.0	5,282.8	5,262.2	5,246.4	19.1	18.6	-176.74	-178.4	57.9	452.6	415.5	37.16	12.180		
5,400.0	5,381.8	5,367.7	5,347.6	19.5	19.0	-176.71	-185.8	60.7	474.2	436.3	37.90	12.510		
5,500.0	5,480.9	5,458.7	5,438.3	19.9	19.3	-176.78	-192.4	62.5	495.5	456.9	38.55	12.852		
5,600.0	5,579.9	5,550.3	5,529.5	20.3	19.6	-177.02	-201.6	63.2	519.2	480.0	39.21	13.242		
5,700.0	5,678.9	5,657.9	5,636.6	20.7	20.0	-177.26	-211.3	64.0	541.8	501.8	40.01	13.544		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 122H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Rule Assigned: Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)						
5,800.0	5,777.9	5,752.5	5,731.0	21.1	20.4	177.40	-218.7	65.0	563.5	522.8		40.69	13.847	
5,900.0	5,877.0	5,826.4	5,804.4	21.5	20.6	177.54	-227.0	65.9	588.2	547.1		41.17	14.287	
6,000.0	5,976.0	5,932.0	5,909.2	21.9	21.0	177.62	-239.2	68.5	613.7	571.8		41.97	14.622	
6,100.0	6,075.0	6,037.5	6,014.1	22.3	21.4	177.66	-250.0	71.1	638.0	595.3		42.76	14.920	
6,175.3	6,149.6	6,118.6	6,094.9	22.6	21.7	177.72	-257.1	72.5	655.1	611.7		43.36	15.107	
6,200.0	6,174.1	6,141.9	6,118.1	22.7	21.8	177.74	-259.1	72.8	660.6	617.0		43.53	15.174	
6,300.0	6,273.3	6,220.9	6,196.7	23.1	22.1	177.88	-266.5	73.4	682.5	638.4		44.08	15.485	
6,400.0	6,372.7	6,311.4	6,286.6	23.5	22.4	178.04	-277.5	74.2	705.3	660.6		44.72	15.773	
6,500.0	6,472.2	6,428.3	6,402.7	23.8	22.8	178.22	-290.8	75.3	725.7	680.1		45.61	15.913	
6,600.0	6,572.0	6,544.9	6,518.9	24.2	23.2	178.34	-300.5	76.1	741.3	694.9		46.47	15.954	
6,700.0	6,671.8	6,667.2	6,641.0	24.6	23.7	178.30	-307.4	78.4	752.9	705.6		47.33	15.907	
6,800.0	6,771.7	6,747.4	6,721.1	24.9	24.0	178.27	-311.5	79.8	762.3	714.4		47.92	15.906	
6,900.0	6,871.7	6,826.0	6,799.3	25.3	24.2	178.21	-317.9	82.1	772.9	724.4		48.48	15.944	
6,975.3	6,947.0	6,896.7	6,869.7	25.6	24.5	167.87	-324.5	84.3	780.8	731.8		48.98	15.942	
7,000.0	6,971.7	6,921.5	6,894.4	25.6	24.6	167.86	-326.9	85.0	783.3	734.1		49.16	15.934	
7,100.0	7,071.7	7,023.0	6,995.4	26.0	25.0	167.78	-336.5	88.2	793.1	743.2		49.89	15.898	
7,200.0	7,171.7	7,125.5	7,097.3	26.3	25.3	167.50	-345.3	94.1	802.8	752.1		50.63	15.856	
7,300.0	7,271.7	7,240.0	7,211.3	26.7	25.8	167.14	-353.7	101.2	811.3	759.9		51.46	15.766	
7,400.0	7,371.7	7,341.0	7,312.0	27.0	26.1	166.88	-359.9	106.4	818.4	766.2		52.19	15.683	
7,500.0	7,471.7	7,527.0	7,497.6	27.4	26.8	166.90	-367.0	107.7	823.8	770.6		53.27	15.464	
7,572.8	7,544.5	7,575.0	7,545.5	27.6	26.9	166.85	-366.0	108.3	822.6	768.9		53.71	15.314	
7,600.0	7,571.7	7,589.7	7,560.2	27.7	27.0	166.80	-365.9	109.0	822.7	768.9		53.86	15.276	
7,700.0	7,671.7	7,641.7	7,612.0	28.1	27.2	166.54	-366.9	113.0	826.8	772.5		54.29	15.228	
7,800.0	7,771.7	7,692.5	7,662.4	28.4	27.4	166.28	-371.5	118.0	837.5	782.9		54.58	15.343	
7,900.0	7,871.7	8,056.9	7,989.3	28.8	28.4	175.32	-393.1	-11.1	839.1	783.1		55.94	14.998	
8,000.0	7,971.7	8,115.9	8,028.6	29.1	28.5	178.35	-391.2	-55.0	828.5	771.7		56.78	14.591	
8,074.5	8,046.1	8,147.9	8,047.1	29.4	28.5	-179.84	-390.9	-81.2	825.9	768.7		57.24	14.429	
8,100.0	8,071.7	8,158.1	8,052.6	29.4	28.6	-179.24	-390.9	-89.8	826.2	768.9		57.35	14.408	
8,174.8	8,146.5	8,187.5	8,066.9	29.7	28.6	-177.47	-391.0	-115.4	830.7	773.2		57.50	14.447	
8,200.0	8,171.7	8,195.5	8,070.5	29.8	28.6	92.41	-391.0	-122.6	833.5	776.0		57.49	14.499	
8,225.0	8,196.6	8,202.4	8,073.4	29.9	28.6	92.43	-391.0	-128.8	837.0	779.5		57.43	14.573	
8,250.0	8,221.4	8,208.2	8,075.8	30.0	28.6	92.31	-391.1	-134.1	841.2	783.8		57.35	14.668	
8,275.0	8,246.0	8,212.1	8,077.4	30.0	28.6	91.97	-391.1	-137.7	846.1	788.9		57.22	14.786	
8,300.0	8,270.3	8,215.6	8,078.7	30.1	28.6	91.51	-391.1	-140.9	851.8	794.7		57.07	14.925	
8,325.0	8,294.2	8,217.5	8,079.5	30.2	28.6	90.85	-391.1	-142.7	858.1	801.3		56.88	15.087	
8,350.0	8,317.8	8,218.4	8,079.8	30.3	28.6	90.02	-391.1	-143.5	865.2	808.5		56.66	15.269	
8,375.0	8,340.9	8,218.3	8,079.8	30.3	28.6	89.04	-391.1	-143.4	872.9	816.5		56.42	15.471	
8,400.0	8,363.4	8,217.4	8,079.4	30.4	28.6	87.92	-391.1	-142.6	881.3	825.1		56.16	15.692	
8,425.0	8,385.4	8,215.8	8,078.8	30.5	28.6	86.66	-391.1	-141.1	890.2	834.3		55.89	15.929	
8,450.0	8,406.7	8,212.1	8,077.4	30.5	28.6	85.19	-391.1	-137.7	899.7	844.1		55.59	16.185	
8,475.0	8,427.3	8,212.1	8,077.4	30.6	28.6	83.90	-391.1	-137.7	909.6	854.3		55.32	16.441	
8,500.0	8,447.1	8,207.7	8,075.6	30.6	28.6	82.25	-391.1	-133.7	919.9	864.9		55.02	16.721	
8,525.0	8,466.1	8,204.1	8,074.2	30.7	28.6	80.61	-391.1	-130.4	930.7	875.9		54.73	17.005	
8,550.0	8,484.3	8,198.6	8,071.8	30.7	28.6	78.80	-391.0	-125.4	941.7	887.3		54.43	17.302	
8,575.0	8,501.5	8,198.6	8,071.8	30.8	28.6	77.31	-391.0	-125.4	953.1	898.8		54.21	17.581	
8,600.0	8,517.7	8,191.9	8,068.9	30.8	28.6	75.39	-391.0	-119.4	964.6	910.7		53.93	17.886	
8,625.0	8,532.9	8,185.0	8,065.8	30.9	28.6	73.46	-391.0	-113.2	976.3	922.6		53.66	18.193	
8,650.0	8,547.0	8,185.0	8,065.8	30.9	28.6	71.92	-391.0	-113.2	988.1	934.6		53.51	18.465	
8,675.0	8,560.1	8,178.3	8,062.7	31.0	28.6	70.03	-390.9	-107.3	1,000.0	946.7		53.30	18.762	
8,700.0	8,572.0	8,171.6	8,059.4	31.1	28.6	68.16	-390.9	-101.4	1,012.0	958.8		53.11	19.054	
8,725.0	8,582.8	8,171.6	8,059.4	31.2	28.6	66.66	-390.9	-101.4	1,023.9	970.8		53.05	19.301	
8,750.0	8,592.3	8,158.1	8,052.6	31.3	28.6	64.57	-390.9	-89.8	1,035.7	982.9		52.82	19.610	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 122H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS Offset												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
8,775.0	8,600.7	8,158.1	8,052.6	31.4	28.6	63.14	-390.9	-89.8	1,047.4	994.6	52.82	19.831	
8,800.0	8,607.7	8,150.7	8,048.7	31.6	28.5	61.45	-390.9	-83.5	1,059.0	1,006.3	52.73	20.082	
8,825.0	8,613.6	8,144.7	8,045.4	31.7	28.5	59.88	-390.9	-78.5	1,070.4	1,017.7	52.70	20.311	
8,850.0	8,618.1	8,139.8	8,042.7	31.9	28.5	58.41	-390.9	-74.4	1,081.6	1,028.9	52.72	20.517	
8,875.0	8,621.4	8,131.3	8,037.8	32.0	28.5	56.90	-391.0	-67.4	1,092.6	1,039.9	52.70	20.731	
8,900.0	8,623.3	8,131.3	8,037.8	32.2	28.5	55.72	-391.0	-67.4	1,103.3	1,050.4	52.86	20.873	
8,924.8	8,624.0	8,117.9	8,029.8	32.4	28.5	54.23	-391.2	-56.6	1,113.6	1,060.8	52.81	21.085	
9,000.0	8,624.0	8,104.4	8,021.5	33.0	28.5	53.86	-391.5	-46.1	1,145.8	1,092.6	53.20	21.538	
9,100.0	8,624.0	8,082.4	8,007.0	33.9	28.4	53.23	-392.1	-29.5	1,193.5	1,139.8	53.69	22.228	
9,200.0	8,624.0	8,059.4	7,991.1	34.9	28.4	52.55	-393.0	-12.9	1,246.0	1,191.8	54.19	22.992	
9,300.0	8,624.0	8,036.7	7,974.8	36.1	28.4	51.88	-394.0	2.8	1,302.8	1,248.1	54.71	23.815	
9,400.0	8,624.0	8,009.6	7,954.3	37.4	28.3	51.04	-395.0	20.5	1,363.4	1,308.2	55.14	24.727	
9,500.0	8,624.0	7,987.5	7,936.9	38.8	28.3	50.34	-395.4	34.1	1,427.2	1,371.6	55.62	25.660	
9,600.0	8,624.0	7,969.1	7,922.0	40.3	28.2	49.73	-395.6	44.8	1,494.4	1,438.3	56.13	26.625	
9,700.0	8,624.0	7,955.7	7,910.8	41.9	28.2	49.29	-395.7	52.3	1,564.4	1,507.8	56.66	27.609	
9,800.0	8,624.0	7,936.9	7,894.8	43.6	28.1	48.65	-395.5	62.1	1,637.0	1,579.9	57.08	28.677	
9,900.0	8,624.0	7,928.9	7,887.8	45.3	28.1	48.38	-395.4	66.2	1,711.9	1,654.3	57.60	29.721	
10,000.0	8,624.0	7,915.4	7,876.0	47.1	28.1	47.92	-395.1	72.6	1,788.9	1,730.9	58.00	30.843	
10,100.0	8,624.0	7,902.0	7,864.0	49.0	28.0	47.45	-394.8	78.6	1,868.0	1,809.6	58.37	32.004	
10,200.0	8,624.0	7,902.0	7,864.0	50.9	28.0	47.45	-394.8	78.6	1,948.7	1,889.9	58.84	33.119	
10,300.0	8,624.0	7,888.6	7,851.8	52.8	28.0	46.98	-394.4	84.2	2,031.0	1,971.8	59.13	34.346	
10,400.0	8,624.0	7,880.8	7,844.7	54.8	28.0	46.71	-394.1	87.3	2,114.6	2,055.2	59.45	35.569	
10,500.0	8,624.0	7,875.1	7,839.4	56.8	28.0	46.51	-393.9	89.4	2,199.5	2,139.7	59.76	36.806	
10,600.0	8,624.0	7,861.7	7,827.0	58.8	27.9	46.03	-393.2	94.3	2,285.4	2,225.5	59.97	38.110	
10,700.0	8,624.0	7,854.8	7,820.5	60.9	27.9	45.78	-392.7	96.6	2,372.4	2,312.1	60.22	39.398	
10,800.0	8,624.0	7,848.3	7,814.4	63.0	27.9	45.55	-392.3	98.8	2,460.2	2,399.7	60.44	40.703	
10,900.0	8,624.0	7,841.9	7,808.3	65.1	27.9	45.32	-391.8	100.8	2,548.8	2,488.2	60.65	42.024	
11,000.0	8,624.0	7,834.9	7,801.6	67.3	27.9	45.06	-391.1	102.9	2,638.2	2,577.3	60.84	43.366	
11,100.0	8,624.0	7,834.9	7,801.6	69.4	27.9	45.06	-391.1	102.9	2,728.2	2,667.2	61.06	44.682	
11,200.0	8,624.0	7,827.3	7,794.4	71.6	27.8	44.79	-390.4	105.1	2,818.9	2,757.7	61.21	46.054	
11,300.0	8,624.0	7,821.4	7,788.8	73.8	27.8	44.57	-389.8	106.7	2,910.2	2,848.8	61.36	47.428	
11,400.0	8,624.0	7,821.4	7,788.8	76.0	27.8	44.57	-389.8	106.7	3,001.9	2,940.4	61.54	48.781	
11,500.0	8,624.0	7,821.4	7,788.8	78.2	27.8	44.57	-389.8	106.7	3,094.2	3,032.5	61.71	50.144	
11,600.0	8,624.0	7,814.1	7,781.8	80.4	27.8	44.31	-389.0	108.5	3,186.9	3,125.1	61.82	51.554	
11,700.0	8,624.0	7,808.0	7,775.9	82.7	27.8	44.08	-388.2	110.0	3,280.0	3,218.1	61.93	52.967	
11,800.0	8,624.0	7,808.0	7,775.9	84.9	27.8	44.08	-388.2	110.0	3,373.5	3,311.4	62.07	54.353	
11,900.0	8,624.0	7,808.0	7,775.9	87.2	27.8	44.08	-388.2	110.0	3,467.3	3,405.1	62.20	55.746	
12,000.0	8,624.0	7,808.0	7,775.9	89.5	27.8	44.08	-388.2	110.0	3,561.5	3,499.2	62.33	57.144	
12,100.0	8,624.0	7,801.5	7,769.6	91.7	27.7	43.84	-387.5	111.4	3,655.9	3,593.5	62.41	58.583	
12,200.0	8,624.0	7,794.4	7,762.7	94.0	27.7	43.58	-386.5	112.8	3,750.7	3,688.2	62.48	60.031	
12,300.0	8,624.0	7,794.4	7,762.7	96.3	27.7	43.58	-386.5	112.8	3,845.7	3,783.1	62.59	61.442	
12,400.0	8,624.0	7,794.4	7,762.7	98.6	27.7	43.58	-386.5	112.8	3,940.9	3,878.2	62.70	62.857	
12,500.0	8,624.0	7,794.4	7,762.7	100.9	27.7	43.58	-386.5	112.8	4,036.3	3,973.5	62.80	64.276	
12,600.0	8,624.0	7,794.4	7,762.7	103.2	27.7	43.58	-386.5	112.8	4,132.0	4,069.1	62.89	65.697	
12,700.0	8,624.0	7,794.4	7,762.7	105.5	27.7	43.58	-386.5	112.8	4,227.8	4,164.9	62.99	67.121	
12,800.0	8,624.0	7,794.4	7,762.7	107.8	27.7	43.58	-386.5	112.8	4,323.9	4,260.8	63.08	68.547	
12,900.0	8,624.0	7,787.5	7,756.0	110.2	27.7	43.32	-385.6	114.1	4,420.0	4,356.9	63.13	70.013	
13,000.0	8,624.0	7,780.9	7,749.5	112.5	27.7	43.08	-384.6	115.2	4,516.4	4,453.3	63.18	71.481	
13,100.0	8,624.0	7,780.9	7,749.5	114.8	27.7	43.08	-384.6	115.2	4,612.9	4,549.7	63.27	72.910	
13,200.0	8,624.0	7,780.9	7,749.5	117.1	27.7	43.08	-384.6	115.2	4,709.6	4,646.2	63.35	74.341	
13,300.0	8,624.0	7,780.9	7,749.5	119.5	27.7	43.08	-384.6	115.2	4,806.3	4,742.9	63.43	75.772	
13,400.0	8,624.0	7,780.9	7,749.5	121.8	27.7	43.08	-384.6	115.2	4,903.2	4,839.7	63.51	77.203	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 122H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)					
13,500.0	8,624.0	7,780.9	7,749.5	124.2	27.7	43.08	-384.6	115.2	5,000.3	4,936.7	63.59	78.634	
13,600.0	8,624.0	7,780.9	7,749.5	126.5	27.7	43.08	-384.6	115.2	5,097.4	5,033.7	63.67	80.066	
13,700.0	8,624.0	7,780.9	7,749.5	128.9	27.7	43.08	-384.6	115.2	5,194.7	5,130.9	63.74	81.497	
13,800.0	8,624.0	7,780.9	7,749.5	131.2	27.7	43.08	-384.6	115.2	5,292.0	5,228.2	63.81	82.928	
13,900.0	8,624.0	7,780.9	7,749.5	133.6	27.7	43.08	-384.6	115.2	5,389.5	5,325.6	63.89	84.358	
14,000.0	8,624.0	7,780.9	7,749.5	135.9	27.7	43.08	-384.6	115.2	5,487.0	5,423.0	63.96	85.787	
14,100.0	8,624.0	7,780.9	7,749.5	138.3	27.7	43.08	-384.6	115.2	5,584.6	5,520.6	64.03	87.216	
14,200.0	8,624.0	7,773.7	7,742.5	140.6	27.7	42.81	-383.6	116.2	5,682.3	5,618.2	64.07	88.687	
14,300.0	8,624.0	7,767.3	7,736.2	143.0	27.6	42.58	-382.6	117.0	5,780.1	5,716.0	64.11	90.155	
14,400.0	8,624.0	7,767.3	7,736.2	145.4	27.6	42.58	-382.6	117.0	5,877.9	5,813.7	64.18	91.580	
14,500.0	8,624.0	7,767.3	7,736.2	147.7	27.6	42.58	-382.6	117.0	5,975.8	5,911.6	64.25	93.003	
14,600.0	8,624.0	7,767.3	7,736.2	150.1	27.6	42.58	-382.6	117.0	6,073.8	6,009.5	64.32	94.425	
14,700.0	8,624.0	7,767.3	7,736.2	152.5	27.6	42.58	-382.6	117.0	6,171.8	6,107.4	64.39	95.845	
14,800.0	8,624.0	7,767.3	7,736.2	154.8	27.6	42.58	-382.6	117.0	6,269.9	6,205.5	64.46	97.263	
14,900.0	8,624.0	7,767.3	7,736.2	157.2	27.6	42.58	-382.6	117.0	6,368.1	6,303.6	64.53	98.679	
15,000.0	8,624.0	7,767.3	7,736.2	159.6	27.6	42.58	-382.6	117.0	6,466.3	6,401.7	64.60	100.093	
15,100.0	8,624.0	7,767.3	7,736.2	162.0	27.6	42.58	-382.6	117.0	6,564.6	6,499.9	64.67	101.505	
15,200.0	8,624.0	7,767.3	7,736.2	164.3	27.6	42.58	-382.6	117.0	6,662.9	6,598.2	64.74	102.915	
15,300.0	8,624.0	7,767.3	7,736.2	166.7	27.6	42.58	-382.6	117.0	6,761.3	6,696.5	64.81	104.323	
15,400.0	8,624.0	7,767.3	7,736.2	169.1	27.6	42.58	-382.6	117.0	6,859.7	6,794.8	64.88	105.728	
15,500.0	8,624.0	7,767.3	7,736.2	171.5	27.6	42.58	-382.6	117.0	6,958.1	6,893.2	64.95	107.130	
15,600.0	8,624.0	7,767.3	7,736.2	173.9	27.6	42.58	-382.6	117.0	7,056.6	6,991.6	65.02	108.531	
15,700.0	8,624.0	7,767.3	7,736.2	176.2	27.6	42.58	-382.6	117.0	7,155.2	7,090.1	65.09	109.928	
15,800.0	8,624.0	7,767.3	7,736.2	178.6	27.6	42.58	-382.6	117.0	7,253.8	7,188.6	65.16	111.323	
15,900.0	8,624.0	7,767.3	7,736.2	181.0	27.6	42.58	-382.6	117.0	7,352.4	7,287.2	65.23	112.715	
16,000.0	8,624.0	7,767.3	7,736.2	183.4	27.6	42.58	-382.6	117.0	7,451.1	7,385.8	65.30	114.104	
16,100.0	8,624.0	7,767.3	7,736.2	185.8	27.6	42.58	-382.6	117.0	7,549.8	7,484.4	65.37	115.490	
16,200.0	8,624.0	7,767.3	7,736.2	188.2	27.6	42.58	-382.6	117.0	7,648.5	7,583.1	65.44	116.874	
16,300.0	8,624.0	7,767.3	7,736.2	190.6	27.6	42.58	-382.6	117.0	7,747.3	7,681.7	65.51	118.254	
16,400.0	8,624.0	7,767.3	7,736.2	193.0	27.6	42.58	-382.6	117.0	7,846.1	7,780.5	65.59	119.631	
16,500.0	8,624.0	7,760.4	7,729.4	195.3	27.6	42.32	-381.5	117.7	7,944.8	7,879.2	65.63	121.056	
16,600.0	8,624.0	7,753.7	7,722.9	197.7	27.6	42.08	-380.4	118.3	8,043.7	7,978.0	65.67	122.480	
16,700.0	8,624.0	7,753.7	7,722.9	200.1	27.6	42.08	-380.4	118.3	8,142.6	8,076.8	65.75	123.848	
16,800.0	8,624.0	7,753.7	7,722.9	202.5	27.6	42.08	-380.4	118.3	8,241.5	8,175.6	65.82	125.213	
16,900.0	8,624.0	7,753.7	7,722.9	204.9	27.6	42.08	-380.4	118.3	8,340.4	8,274.5	65.89	126.574	
17,000.0	8,624.0	7,753.7	7,722.9	207.3	27.6	42.08	-380.4	118.3	8,439.3	8,373.4	65.97	127.932	
17,100.0	8,624.0	7,753.7	7,722.9	209.7	27.6	42.08	-380.4	118.3	8,538.3	8,472.3	66.04	129.287	
17,200.0	8,624.0	7,753.7	7,722.9	212.1	27.6	42.08	-380.4	118.3	8,637.3	8,571.2	66.12	130.638	
17,300.0	8,624.0	7,753.7	7,722.9	214.5	27.6	42.08	-380.4	118.3	8,736.3	8,670.1	66.19	131.986	
17,400.0	8,624.0	7,753.7	7,722.9	216.9	27.6	42.08	-380.4	118.3	8,835.4	8,769.1	66.27	133.330	
17,500.0	8,624.0	7,753.7	7,722.9	219.3	27.6	42.08	-380.4	118.3	8,934.4	8,868.1	66.34	134.671	
17,600.0	8,624.0	7,753.7	7,722.9	221.7	27.6	42.08	-380.4	118.3	9,033.5	8,967.1	66.42	136.008	
17,700.0	8,624.0	7,753.7	7,722.9	224.1	27.6	42.08	-380.4	118.3	9,132.6	9,066.1	66.50	137.342	
17,800.0	8,624.0	7,753.7	7,722.9	226.5	27.6	42.08	-380.4	118.3	9,231.7	9,165.1	66.57	138.671	
17,900.0	8,624.0	7,753.7	7,722.9	228.9	27.6	42.08	-380.4	118.3	9,330.9	9,264.2	66.65	139.997	
18,000.0	8,624.0	7,753.7	7,722.9	231.3	27.6	42.08	-380.4	118.3	9,430.0	9,363.3	66.73	141.320	
18,100.0	8,624.0	7,753.7	7,722.9	233.7	27.6	42.08	-380.4	118.3	9,529.2	9,462.4	66.81	142.638	
18,200.0	8,624.0	7,753.7	7,722.9	236.1	27.6	42.08	-380.4	118.3	9,628.4	9,561.5	66.89	143.953	
18,300.0	8,624.0	7,753.7	7,722.9	238.5	27.6	42.08	-380.4	118.3	9,727.6	9,660.6	66.96	145.264	
18,400.0	8,624.0	7,753.7	7,722.9	240.9	27.6	42.08	-380.4	118.3	9,826.8	9,759.8	67.04	146.571	
18,500.0	8,624.0	7,753.7	7,722.9	243.3	27.6	42.08	-380.4	118.3	9,926.0	9,858.9	67.12	147.874	
18,600.0	8,624.0	7,753.7	7,722.9	245.7	27.6	42.08	-380.4	118.3	10,025.3	9,958.1	67.21	149.174	

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

Colgate Operating
Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 122H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:		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)				
18,700.0	8,624.0	7,753.7	7,722.9	248.1	27.6	42.08	-380.4	118.3	10,124.6	10,057.3	67.29	150.469		
18,800.0	8,624.0	7,753.7	7,722.9	250.5	27.6	42.08	-380.4	118.3	10,223.9	10,156.5	67.37	151.760		
18,900.0	8,624.0	7,753.7	7,722.9	252.9	27.6	42.08	-380.4	118.3	10,323.2	10,255.7	67.45	153.048		
19,000.0	8,624.0	7,753.7	7,722.9	255.3	27.6	42.08	-380.4	118.3	10,422.5	10,354.9	67.53	154.331		
19,100.0	8,624.0	7,753.7	7,722.9	257.7	27.6	42.08	-380.4	118.3	10,521.8	10,454.2	67.62	155.610		
19,190.0	8,624.0	7,753.7	7,722.9	259.9	27.6	42.08	-380.4	118.3	10,611.1	10,543.5	67.69	156.758		
19,190.6	8,624.0	7,753.7	7,722.9	259.9	27.6	42.08	-380.4	118.3	10,611.8	10,539.8	72.04	147.311		

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 131H - AWP - FINAL MWD														Offset Site Error:	0.0 usft
Survey Program: Reference		14-MWD+IFR1+MS Offset		Semi Major Axis			Offset Wellbore Centre		Rule Assigned: Distance				Offset Well Error:	0.0 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.0	0.0	1.0	1.0	0.0	0.0	-37.48	132.2	-101.3	166.5						
100.0	100.0	102.4	102.4	0.1	0.2	-37.38	132.0	-100.8	166.1	165.7	0.37	454.196			
200.0	200.0	203.3	203.3	0.5	0.6	-37.11	131.5	-99.5	164.9	163.8	1.09	151.945			
300.0	300.0	303.2	303.2	0.8	1.0	-36.74	131.0	-97.8	163.5	161.7	1.80	90.787			
400.0	400.0	403.8	403.7	1.2	1.3	-36.30	130.5	-95.8	161.9	159.4	2.52	64.261			
500.0	500.0	503.8	503.7	1.6	1.7	-35.82	129.9	-93.8	160.3	157.0	3.24	49.516			
600.0	600.0	603.7	603.6	1.9	2.0	-35.09	129.7	-91.1	158.6	154.6	3.95	40.118			
700.0	700.0	703.4	703.2	2.3	2.4	-34.10	130.0	-88.1	157.1	152.4	4.67	33.655			
800.0	800.0	804.1	803.9	2.6	2.8	-32.84	130.6	-84.3	155.4	150.1	5.39	28.863			
900.0	900.0	903.5	903.1	3.0	3.1	-31.20	131.4	-79.6	153.6	147.5	6.10	25.191			
967.3	967.3	968.7	968.3	3.2	3.3	-29.93	132.6	-76.3	153.0	146.4	6.57	23.279 CC			
1,000.0	1,000.0	1,000.0	999.5	3.4	3.5	-29.24	133.7	-74.9	153.2	146.4	6.80	22.537			
1,100.0	1,100.0	1,099.5	1,098.7	3.7	3.8	-26.64	138.0	-69.2	154.4	146.9	7.51	20.554			
1,200.0	1,200.0	1,198.1	1,197.1	4.1	4.2	-24.11	142.7	-63.9	156.4	148.2	8.22	19.033			
1,300.0	1,300.0	1,297.3	1,296.1	4.4	4.5	-22.33	147.2	-60.5	159.2	150.3	8.92	17.839			
1,400.0	1,400.0	1,396.4	1,395.1	4.8	4.9	-21.11	151.5	-58.5	162.5	152.9	9.63	16.876			
1,500.0	1,500.0	1,494.7	1,493.3	5.1	5.2	-19.95	156.4	-56.8	166.6	156.3	10.33	16.126			
1,600.0	1,600.0	1,594.4	1,592.8	5.5	5.6	-18.43	162.5	-54.1	171.4	160.4	11.04	15.529			
1,700.0	1,700.0	1,693.1	1,691.2	5.9	5.9	-17.08	168.6	-51.8	176.7	164.9	11.74	15.042			
1,800.0	1,800.0	1,791.7	1,789.6	6.2	6.3	-15.90	175.2	-49.9	182.6	170.1	12.45	14.666			
1,900.0	1,900.0	1,890.6	1,888.3	6.6	6.6	-14.89	182.3	-48.5	189.1	176.0	13.15	14.377			
2,000.0	2,000.0	1,991.3	1,988.7	6.9	7.0	-13.86	189.6	-46.8	195.7	181.8	13.87	14.104			
2,100.0	2,100.0	2,092.3	2,089.4	7.3	7.3	-12.67	196.5	-44.2	201.7	187.1	14.59	13.821			
2,200.0	2,200.0	2,194.8	2,191.6	7.7	7.7	-11.47	202.4	-41.1	206.8	191.5	15.33	13.493			
2,300.0	2,300.0	2,293.9	2,290.6	8.0	8.0	-10.32	207.7	-37.8	211.4	195.4	16.04	13.181			
2,400.0	2,400.0	2,391.0	2,387.4	8.4	8.4	-9.12	213.8	-34.3	217.0	200.3	16.74	12.964			
2,500.0	2,500.0	2,489.0	2,485.1	8.7	8.7	-7.96	221.0	-30.9	223.7	206.3	17.44	12.826			
2,600.0	2,600.0	2,587.7	2,583.4	9.1	9.1	-6.84	228.8	-27.5	231.1	213.0	18.15	12.732			
2,700.0	2,700.0	2,687.0	2,682.3	9.4	9.5	-5.84	236.9	-24.2	238.8	220.0	18.86	12.660			
2,800.0	2,800.0	2,785.8	2,780.7	9.8	9.8	-4.95	245.1	-21.2	246.8	227.2	19.57	12.608			
2,900.0	2,900.0	2,884.0	2,878.6	10.2	10.2	-4.14	253.7	-18.4	255.3	235.1	20.28	12.590			
3,000.0	3,000.0	2,982.9	2,977.0	10.5	10.5	-3.40	262.7	-15.6	264.3	243.3	20.99	12.589			
3,100.0	3,100.0	3,081.1	3,074.7	10.9	10.9	7.59	272.0	-12.8	272.7	251.0	21.70	12.569			
3,200.0	3,200.0	3,179.5	3,172.6	11.2	11.2	8.27	281.9	-10.3	280.1	257.7	22.40	12.502			
3,300.0	3,299.9	3,278.4	3,271.0	11.6	11.6	8.95	292.1	-7.8	286.0	262.9	23.11	12.376			
3,400.0	3,399.7	3,376.5	3,368.4	12.0	11.9	9.62	302.7	-5.5	290.8	267.0	23.81	12.210			
3,500.0	3,499.4	3,476.7	3,467.9	12.3	12.3	10.32	313.9	-3.4	294.3	269.8	24.54	11.994			
3,600.0	3,598.9	3,581.6	3,572.3	12.7	12.7	11.34	324.6	0.1	295.0	269.7	25.30	11.661			
3,700.0	3,698.3	3,685.0	3,675.1	13.0	13.1	12.63	333.8	4.5	293.0	266.9	26.05	11.247			
3,800.0	3,797.4	3,790.9	3,780.7	13.4	13.4	14.36	340.9	10.4	287.3	260.5	26.81	10.714			
3,900.0	3,896.4	3,891.9	3,881.3	13.8	13.8	16.17	346.4	16.1	279.8	252.2	27.54	10.158			
4,000.0	3,995.5	3,992.7	3,981.9	14.1	14.2	17.78	351.5	20.4	272.0	243.7	28.27	9.621			
4,100.0	4,094.5	4,093.4	4,082.4	14.5	14.5	19.38	356.2	24.1	263.9	234.9	29.00	9.100			
4,200.0	4,193.5	4,193.9	4,182.7	14.9	14.9	21.58	360.0	29.9	255.5	225.8	29.72	8.595			
4,300.0	4,292.5	4,292.4	4,280.9	15.3	15.2	23.91	363.6	35.7	247.5	217.0	30.45	8.128			
4,400.0	4,391.6	4,391.4	4,379.7	15.6	15.6	26.42	367.3	41.6	240.0	208.9	31.17	7.701			
4,500.0	4,490.6	4,489.3	4,477.3	16.0	16.0	29.23	371.1	48.3	233.4	201.5	31.89	7.319			
4,600.0	4,589.6	4,587.2	4,574.8	16.4	16.3	32.42	375.0	56.1	228.0	195.4	32.62	6.989			
4,700.0	4,688.6	4,685.9	4,673.1	16.8	16.7	35.78	379.2	64.0	223.6	190.2	33.35	6.703			
4,800.0	4,787.7	4,784.1	4,771.0	17.2	17.0	38.90	384.2	70.8	220.2	186.1	34.09	6.461			
4,900.0	4,886.7	4,883.7	4,870.2	17.5	17.4	42.01	389.7	77.3	217.7	182.9	34.83	6.250			
5,000.0	4,985.7	4,983.4	4,969.6	17.9	17.7	45.09	395.3	83.5	215.6	180.0	35.58	6.059			

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 131H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS Offset												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)					
5,100.0	5,084.8	5,083.9	5,069.7	18.3	18.1	48.08	401.0	88.9	213.8	177.5	36.34	5.884	
5,200.0	5,183.8	5,184.9	5,170.5	18.7	18.5	50.93	406.6	93.4	211.9	174.8	37.10	5.711	
5,300.0	5,282.8	5,285.7	5,271.1	19.1	18.8	53.69	412.0	97.0	209.7	171.9	37.86	5.540	
5,400.0	5,381.8	5,387.9	5,373.1	19.5	19.2	56.40	417.3	99.7	207.3	168.7	38.62	5.366	
5,500.0	5,480.9	5,489.9	5,475.0	19.9	19.6	58.99	422.1	100.8	203.7	164.3	39.38	5.173	
5,600.0	5,579.9	5,591.6	5,576.6	20.3	19.9	61.55	426.4	100.8	199.6	159.4	40.13	4.973	
5,700.0	5,678.9	5,689.6	5,674.4	20.7	20.3	64.18	430.2	100.7	195.5	154.6	40.88	4.781	
5,800.0	5,777.9	5,784.8	5,769.6	21.1	20.6	66.81	435.2	102.3	194.0	152.4	41.63	4.660	
5,900.0	5,877.0	5,885.1	5,869.7	21.5	21.0	69.60	440.6	104.3	193.4	151.0	42.39	4.563	
6,000.0	5,976.0	5,986.4	5,970.9	21.9	21.3	72.51	445.5	105.8	192.6	149.4	43.15	4.462	
6,058.8	6,034.2	6,043.5	6,027.9	22.1	21.5	74.14	448.4	106.6	192.2	148.6	43.60	4.409	
6,100.0	6,075.0	6,082.9	6,067.2	22.3	21.7	75.22	450.6	107.3	192.4	148.5	43.90	4.383	
6,175.3	6,149.6	6,154.4	6,138.4	22.6	21.9	77.06	455.5	109.9	194.4	150.0	44.45	4.374	
6,200.0	6,174.1	6,179.9	6,163.9	22.7	22.0	77.73	457.2	110.8	195.2	150.5	44.64	4.372	
6,300.0	6,273.3	6,287.1	6,270.9	23.1	22.4	80.51	462.2	113.1	196.4	151.0	45.43	4.324	
6,389.7	6,362.5	6,377.1	6,360.9	23.4	22.7	82.71	464.7	113.5	196.1	150.1	46.09	4.255	
6,400.0	6,372.7	6,386.6	6,370.4	23.5	22.8	82.91	465.0	113.5	196.2	150.0	46.17	4.249	
6,500.0	6,472.2	6,486.3	6,470.1	23.8	23.1	84.64	468.6	114.5	197.1	150.2	46.90	4.203	
6,600.0	6,572.0	6,583.8	6,567.5	24.2	23.5	85.83	472.0	115.2	198.2	150.6	47.62	4.162	
6,700.0	6,671.8	6,681.2	6,664.8	24.6	23.8	86.79	475.1	118.1	201.4	153.1	48.33	4.167	
6,800.0	6,771.7	6,775.6	6,759.1	24.9	24.2	87.61	477.1	122.4	206.2	157.2	49.00	4.208	
6,900.0	6,871.7	6,870.1	6,853.2	25.3	24.5	87.43	481.6	129.0	214.0	164.4	49.63	4.312	
6,975.3	6,947.0	6,941.4	6,924.1	25.6	24.8	76.40	486.8	135.2	221.6	171.4	50.11	4.422	
7,000.0	6,971.7	6,966.4	6,948.8	25.6	24.9	75.99	489.0	137.4	224.2	173.9	50.29	4.458	
7,100.0	7,071.7	7,071.0	7,052.6	26.0	25.2	74.06	499.0	145.2	233.9	182.8	51.08	4.579	
7,200.0	7,171.7	7,170.8	7,151.8	26.3	25.6	71.94	510.0	151.0	242.7	190.9	51.79	4.686	
7,300.0	7,271.7	7,274.1	7,254.3	26.7	26.0	69.66	521.9	155.5	250.7	198.1	52.54	4.771	
7,400.0	7,371.7	7,373.6	7,353.0	27.0	26.3	67.47	533.7	159.0	258.3	205.1	53.25	4.851	
7,500.0	7,471.7	7,477.5	7,456.2	27.4	26.7	65.63	544.3	162.3	265.4	211.4	53.99	4.915	
7,600.0	7,571.7	7,581.1	7,559.4	27.7	27.1	63.76	554.6	163.7	270.8	216.1	54.72	4.949	
7,700.0	7,671.7	7,683.0	7,660.9	28.1	27.4	62.31	562.8	164.7	275.4	219.9	55.43	4.968	
7,800.0	7,771.7	7,780.1	7,757.6	28.4	27.8	60.78	571.7	165.5	280.4	224.3	56.12	4.997	
7,900.0	7,871.7	7,883.5	7,860.6	28.8	28.2	59.31	580.5	166.3	285.4	228.5	56.84	5.021	
8,000.0	7,971.7	7,990.3	7,967.2	29.1	28.6	58.08	587.4	165.8	288.4	230.8	57.55	5.010	
8,100.0	8,071.7	8,092.3	8,069.0	29.4	28.9	57.14	592.3	164.7	290.0	231.7	58.25	4.978	
8,174.8	8,146.5	8,169.7	8,146.4	29.7	29.2	56.63	594.8	163.8	290.6	231.8	58.77	4.944	
8,200.0	8,171.7	8,195.0	8,171.7	29.8	29.3	-33.88	595.4	163.5	290.1	231.2	58.94	4.922	
8,225.0	8,196.6	8,220.0	8,196.7	29.9	29.4	-34.30	595.8	163.3	288.5	229.4	59.10	4.882	
8,250.0	8,221.4	8,244.4	8,221.1	30.0	29.4	-34.94	596.3	163.1	285.9	226.7	59.27	4.825	
8,275.0	8,246.0	8,268.7	8,245.4	30.0	29.5	-35.82	596.8	162.9	282.3	222.9	59.43	4.751	
8,300.0	8,270.3	8,293.4	8,270.1	30.1	29.6	-36.96	597.2	162.8	277.7	218.1	59.58	4.661	
8,325.0	8,294.2	8,318.2	8,294.8	30.2	29.7	-38.39	597.5	162.6	272.1	212.3	59.73	4.555	
8,350.0	8,317.8	8,342.3	8,319.0	30.3	29.8	-40.09	597.8	162.4	265.5	205.6	59.87	4.434	
8,375.0	8,340.9	8,366.2	8,342.9	30.3	29.9	-42.15	597.9	162.3	257.9	197.9	60.00	4.299	
8,400.0	8,363.4	8,390.0	8,366.7	30.4	29.9	-44.60	597.9	162.0	249.6	189.5	60.12	4.152	
8,425.0	8,385.4	8,413.4	8,390.1	30.5	30.0	-47.50	597.8	161.8	240.5	180.2	60.22	3.993	
8,450.0	8,406.7	8,436.3	8,412.9	30.5	30.1	-50.87	597.6	161.4	230.7	170.4	60.32	3.825	
8,475.0	8,427.3	8,458.2	8,434.8	30.6	30.2	-54.73	597.3	160.9	220.4	160.0	60.40	3.649	
8,500.0	8,447.1	8,478.6	8,455.2	30.6	30.2	-58.98	596.8	160.4	209.9	149.4	60.48	3.470	
8,525.0	8,466.1	8,500.6	8,477.2	30.7	30.3	-64.19	596.3	159.6	199.3	138.8	60.50	3.294	
8,550.0	8,484.3	8,521.6	8,498.1	30.7	30.4	-70.06	595.9	158.0	188.8	128.3	60.50	3.121	
8,575.0	8,501.5	8,538.7	8,515.1	30.8	30.4	-75.64	595.6	156.0	179.1	118.6	60.57	2.958	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 131H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,600.0	8,517.7	8,553.0	8,529.3	30.8	30.5	-80.74	595.4	154.0	171.0	110.2	60.72	2.816		
8,625.0	8,532.9	8,564.9	8,541.0	30.9	30.5	-85.15	595.3	152.0	164.9	104.0	60.93	2.707		
8,650.0	8,547.0	8,574.0	8,549.9	30.9	30.5	-88.47	595.2	150.3	161.8	100.6	61.18	2.644		
8,661.5	8,553.2	8,577.7	8,553.6	31.0	30.5	-89.74	595.3	149.6	161.4	100.1	61.30	2.633 ES, SF		
8,675.0	8,560.1	8,581.7	8,557.5	31.0	30.6	-91.02	595.3	148.8	161.9	100.5	61.41	2.636		
8,700.0	8,572.0	8,587.8	8,563.5	31.1	30.6	-92.68	595.3	147.5	165.6	104.0	61.59	2.688		
8,725.0	8,582.8	8,592.6	8,568.1	31.2	30.6	-93.41	595.4	146.4	172.6	111.0	61.69	2.798		
8,750.0	8,592.3	8,595.9	8,571.4	31.3	30.6	-93.24	595.4	145.7	182.9	121.1	61.73	2.962		
8,775.0	8,600.7	8,598.0	8,573.4	31.4	30.6	-92.18	595.5	145.2	195.8	134.1	61.71	3.172		
8,800.0	8,607.7	8,599.0	8,574.4	31.6	30.6	-90.24	595.5	144.9	210.9	149.2	61.66	3.420		
8,825.0	8,613.6	8,599.0	8,574.3	31.7	30.6	-87.48	595.5	145.0	227.7	166.1	61.61	3.697		
8,850.0	8,618.1	8,598.0	8,573.4	31.9	30.6	-83.94	595.5	145.2	245.9	184.4	61.55	3.996		
8,875.0	8,621.4	8,596.1	8,571.6	32.0	30.6	-79.73	595.4	145.6	265.2	203.7	61.51	4.311		
8,900.0	8,623.3	8,593.5	8,569.0	32.2	30.6	-74.97	595.4	146.2	285.1	223.6	61.49	4.637		
8,924.8	8,624.0	8,590.1	8,565.8	32.4	30.6	-69.87	595.4	147.0	305.4	244.0	61.48	4.968		
9,000.0	8,624.0	8,580.4	8,556.3	33.0	30.6	-66.94	595.3	149.0	369.8	308.3	61.50	6.012		
9,100.0	8,624.0	8,569.6	8,545.6	33.9	30.5	-63.82	595.2	151.2	460.0	398.5	61.56	7.472		
9,200.0	8,624.0	8,563.0	8,539.2	34.9	30.5	-62.01	595.3	152.3	553.3	491.6	61.67	8.973		
9,300.0	8,624.0	8,549.6	8,525.9	36.1	30.5	-58.49	595.4	154.5	648.4	586.7	61.64	10.519		
9,400.0	8,624.0	8,549.6	8,525.9	37.4	30.5	-58.49	595.4	154.5	744.6	682.8	61.77	12.054		
9,500.0	8,624.0	8,540.8	8,517.2	38.8	30.4	-56.32	595.5	155.7	841.6	779.8	61.78	13.622		
9,600.0	8,624.0	8,536.1	8,512.6	40.3	30.4	-55.22	595.6	156.3	939.1	877.3	61.82	15.191		
9,700.0	8,624.0	8,531.5	8,507.9	41.9	30.4	-54.14	595.7	156.9	1,037.1	975.2	61.85	16.767		
9,800.0	8,624.0	8,527.7	8,504.2	43.6	30.4	-53.29	595.8	157.3	1,135.3	1,073.5	61.89	18.346		
9,900.0	8,624.0	8,522.7	8,499.3	45.3	30.4	-52.20	595.9	157.9	1,233.9	1,172.0	61.91	19.931		
10,000.0	8,624.0	8,522.7	8,499.3	47.1	30.4	-52.20	595.9	157.9	1,332.6	1,270.6	61.95	21.509		
10,100.0	8,624.0	8,522.7	8,499.3	49.0	30.4	-52.20	595.9	157.9	1,431.5	1,369.5	62.00	23.090		
10,200.0	8,624.0	8,516.9	8,493.5	50.9	30.4	-50.97	596.0	158.4	1,530.5	1,468.5	62.00	24.683		
10,300.0	8,624.0	8,515.0	8,491.5	52.8	30.3	-50.56	596.0	158.6	1,629.6	1,567.5	62.03	26.270		
10,400.0	8,624.0	8,509.3	8,485.9	54.8	30.3	-49.41	596.1	159.0	1,728.8	1,666.8	62.04	27.866		
10,500.0	8,624.0	8,509.3	8,485.9	56.8	30.3	-49.41	596.1	159.0	1,828.1	1,766.0	62.08	29.450		
10,600.0	8,624.0	8,509.3	8,485.9	58.8	30.3	-49.41	596.1	159.0	1,927.4	1,865.3	62.11	31.033		
10,700.0	8,624.0	8,509.3	8,485.9	60.9	30.3	-49.41	596.1	159.0	2,026.8	1,964.7	62.14	32.617		
10,800.0	8,624.0	8,509.3	8,485.9	63.0	30.3	-49.41	596.1	159.0	2,126.3	2,064.1	62.17	34.200		
10,900.0	8,624.0	8,509.3	8,485.9	65.1	30.3	-49.41	596.1	159.0	2,225.8	2,163.6	62.21	35.782		
11,000.0	8,624.0	8,509.3	8,485.9	67.3	30.3	-49.41	596.1	159.0	2,325.4	2,263.1	62.24	37.364		
11,100.0	8,624.0	8,509.3	8,485.9	69.4	30.3	-49.41	596.1	159.0	2,425.0	2,362.7	62.27	38.944		
11,200.0	8,624.0	8,502.8	8,479.4	71.6	30.3	-48.14	596.3	159.5	2,524.6	2,462.3	62.28	40.538		
11,300.0	8,624.0	8,501.8	8,478.5	73.8	30.3	-47.96	596.3	159.5	2,624.2	2,561.9	62.31	42.118		
11,400.0	8,624.0	8,495.9	8,472.5	76.0	30.3	-46.85	596.4	159.8	2,723.9	2,661.6	62.32	43.710		
11,500.0	8,624.0	8,495.9	8,472.5	78.2	30.3	-46.85	596.4	159.8	2,823.6	2,761.2	62.35	45.285		
11,600.0	8,624.0	8,495.9	8,472.5	80.4	30.3	-46.85	596.4	159.8	2,923.3	2,860.9	62.38	46.859		
11,700.0	8,624.0	8,495.9	8,472.5	82.7	30.3	-46.85	596.4	159.8	3,023.0	2,960.6	62.42	48.431		
11,800.0	8,624.0	8,495.9	8,472.5	84.9	30.3	-46.85	596.4	159.8	3,122.7	3,060.3	62.45	50.001		
11,900.0	8,624.0	8,495.9	8,472.5	87.2	30.3	-46.85	596.4	159.8	3,222.5	3,160.0	62.49	51.569		
12,000.0	8,624.0	8,495.9	8,472.5	89.5	30.3	-46.85	596.4	159.8	3,322.2	3,259.7	62.52	53.135		
12,100.0	8,624.0	8,495.9	8,472.5	91.7	30.3	-46.85	596.4	159.8	3,422.0	3,359.5	62.56	54.699		
12,200.0	8,624.0	8,495.9	8,472.5	94.0	30.3	-46.85	596.4	159.8	3,521.8	3,459.2	62.60	56.260		
12,300.0	8,624.0	8,495.9	8,472.5	96.3	30.3	-46.85	596.4	159.8	3,621.6	3,559.0	62.64	57.820		
12,400.0	8,624.0	8,495.9	8,472.5	98.6	30.3	-46.85	596.4	159.8	3,721.4	3,658.8	62.68	59.377		
12,500.0	8,624.0	8,495.9	8,472.5	100.9	30.3	-46.85	596.4	159.8	3,821.3	3,758.5	62.71	60.931		
12,600.0	8,624.0	8,495.9	8,472.5	103.2	30.3	-46.85	596.4	159.8	3,921.1	3,858.3	62.75	62.483		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 131H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 14-MWD+IFR1+MS												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)		Ellipses (usft)			
12,700.0	8,624.0	8,495.9	8,472.5	105.5	30.3	-46.85	596.4	159.8	4,020.9	3,958.1	62.80	64.033	
12,800.0	8,624.0	8,495.9	8,472.5	107.8	30.3	-46.85	596.4	159.8	4,120.8	4,057.9	62.84	65.579	
12,900.0	8,624.0	8,495.9	8,472.5	110.2	30.3	-46.85	596.4	159.8	4,220.6	4,157.8	62.88	67.124	
13,000.0	8,624.0	8,490.0	8,466.7	112.5	30.3	-45.80	596.6	160.1	4,320.5	4,257.6	62.90	68.683	
13,100.0	8,624.0	8,489.5	8,466.1	114.8	30.3	-45.70	596.6	160.1	4,420.3	4,357.4	62.95	70.223	
13,200.0	8,624.0	8,489.0	8,465.6	117.1	30.3	-45.61	596.6	160.1	4,520.2	4,457.2	62.99	71.761	
13,300.0	8,624.0	8,488.5	8,465.1	119.5	30.3	-45.52	596.6	160.1	4,620.1	4,557.1	63.03	73.295	
13,400.0	8,624.0	8,482.4	8,459.1	121.8	30.2	-44.49	596.7	160.3	4,720.0	4,656.9	63.06	74.846	
13,500.0	8,624.0	8,482.4	8,459.1	124.2	30.2	-44.49	596.7	160.3	4,819.9	4,756.8	63.11	76.373	
13,600.0	8,624.0	8,482.4	8,459.1	126.5	30.2	-44.49	596.7	160.3	4,919.8	4,856.6	63.16	77.897	
13,700.0	8,624.0	8,482.4	8,459.1	128.9	30.2	-44.49	596.7	160.3	5,019.6	4,956.4	63.21	79.417	
13,800.0	8,624.0	8,482.4	8,459.1	131.2	30.2	-44.49	596.7	160.3	5,119.5	5,056.3	63.26	80.935	
13,900.0	8,624.0	8,482.4	8,459.1	133.6	30.2	-44.49	596.7	160.3	5,219.4	5,156.1	63.31	82.449	
14,000.0	8,624.0	8,482.4	8,459.1	135.9	30.2	-44.49	596.7	160.3	5,319.3	5,256.0	63.36	83.959	
14,100.0	8,624.0	8,482.4	8,459.1	138.3	30.2	-44.49	596.7	160.3	5,419.3	5,355.8	63.41	85.467	
14,200.0	8,624.0	8,482.4	8,459.1	140.6	30.2	-44.49	596.7	160.3	5,519.2	5,455.7	63.46	86.971	
14,300.0	8,624.0	8,482.4	8,459.1	143.0	30.2	-44.49	596.7	160.3	5,619.1	5,555.6	63.51	88.471	
14,400.0	8,624.0	8,482.4	8,459.1	145.4	30.2	-44.49	596.7	160.3	5,719.0	5,655.4	63.57	89.968	
14,500.0	8,624.0	8,482.4	8,459.1	147.7	30.2	-44.49	596.7	160.3	5,818.9	5,755.3	63.62	91.461	
14,600.0	8,624.0	8,482.4	8,459.1	150.1	30.2	-44.49	596.7	160.3	5,918.8	5,855.2	63.68	92.951	
14,700.0	8,624.0	8,482.4	8,459.1	152.5	30.2	-44.49	596.7	160.3	6,018.8	5,955.0	63.73	94.437	
14,800.0	8,624.0	8,482.4	8,459.1	154.8	30.2	-44.49	596.7	160.3	6,118.7	6,054.9	63.79	95.919	
14,900.0	8,624.0	8,482.4	8,459.1	157.2	30.2	-44.49	596.7	160.3	6,218.6	6,154.8	63.85	97.398	
15,000.0	8,624.0	8,482.4	8,459.1	159.6	30.2	-44.49	596.7	160.3	6,318.5	6,254.6	63.91	98.872	
15,100.0	8,624.0	8,482.4	8,459.1	162.0	30.2	-44.49	596.7	160.3	6,418.5	6,354.5	63.97	100.343	
15,200.0	8,624.0	8,478.7	8,455.4	164.3	30.2	-43.87	596.8	160.4	6,518.4	6,454.4	64.02	101.826	
15,300.0	8,624.0	8,477.5	8,454.2	166.7	30.2	-43.67	596.9	160.4	6,618.3	6,554.3	64.07	103.294	
15,400.0	8,624.0	8,476.3	8,453.0	169.1	30.2	-43.48	596.9	160.5	6,718.3	6,654.1	64.13	104.759	
15,500.0	8,624.0	8,475.2	8,451.8	171.5	30.2	-43.29	596.9	160.5	6,818.2	6,754.0	64.19	106.219	
15,600.0	8,624.0	8,474.0	8,450.6	173.9	30.2	-43.10	596.9	160.5	6,918.2	6,853.9	64.25	107.676	
15,700.0	8,624.0	8,472.9	8,449.5	176.2	30.2	-42.92	597.0	160.6	7,018.1	6,953.8	64.31	109.128	
15,800.0	8,624.0	8,469.0	8,445.6	178.6	30.2	-42.31	597.0	160.7	7,118.0	7,053.7	64.37	110.589	
15,900.0	8,624.0	8,469.0	8,445.6	181.0	30.2	-42.31	597.0	160.7	7,218.0	7,153.6	64.43	112.028	
16,000.0	8,624.0	8,469.0	8,445.6	183.4	30.2	-42.31	597.0	160.7	7,317.9	7,253.4	64.50	113.463	
16,100.0	8,624.0	8,469.0	8,445.6	185.8	30.2	-42.31	597.0	160.7	7,417.9	7,353.3	64.56	114.894	
16,200.0	8,624.0	8,469.0	8,445.6	188.2	30.2	-42.31	597.0	160.7	7,517.8	7,453.2	64.63	116.321	
16,300.0	8,624.0	8,469.0	8,445.6	190.6	30.2	-42.31	597.0	160.7	7,617.8	7,553.1	64.70	117.743	
16,400.0	8,624.0	8,469.0	8,445.6	193.0	30.2	-42.31	597.0	160.7	7,717.7	7,653.0	64.77	119.162	
16,500.0	8,624.0	8,464.3	8,441.0	195.3	30.2	-41.60	597.1	160.8	7,817.7	7,752.8	64.82	120.598	
16,600.0	8,624.0	8,463.3	8,440.0	197.7	30.2	-41.45	597.2	160.8	7,917.6	7,852.7	64.89	122.013	
16,700.0	8,624.0	8,462.3	8,439.0	200.1	30.2	-41.30	597.2	160.8	8,017.6	7,952.6	64.96	123.423	
16,800.0	8,624.0	8,461.4	8,438.0	202.5	30.2	-41.16	597.2	160.8	8,117.5	8,052.5	65.03	124.829	
16,900.0	8,624.0	8,460.4	8,437.1	204.9	30.2	-41.01	597.2	160.9	8,217.5	8,152.4	65.10	126.231	
17,000.0	8,624.0	8,455.6	8,432.3	207.3	30.2	-40.31	597.3	161.0	8,317.4	8,252.3	65.16	127.647	
17,100.0	8,624.0	8,455.6	8,432.3	209.7	30.2	-40.31	597.3	161.0	8,417.4	8,352.2	65.23	129.035	
17,200.0	8,624.0	8,455.6	8,432.3	212.1	30.2	-40.31	597.3	161.0	8,517.3	8,452.0	65.31	130.419	
17,300.0	8,624.0	8,455.6	8,432.3	214.5	30.2	-40.31	597.3	161.0	8,617.3	8,551.9	65.38	131.798	
17,400.0	8,624.0	8,455.6	8,432.3	216.9	30.2	-40.31	597.3	161.0	8,717.3	8,651.8	65.46	133.173	
17,500.0	8,624.0	8,455.6	8,432.3	219.3	30.2	-40.31	597.3	161.0	8,817.2	8,751.7	65.53	134.543	
17,600.0	8,624.0	8,455.6	8,432.3	221.7	30.2	-40.31	597.3	161.0	8,917.2	8,851.6	65.61	135.909	
17,700.0	8,624.0	8,455.6	8,432.3	224.1	30.2	-40.31	597.3	161.0	9,017.1	8,951.4	65.69	137.270	
17,800.0	8,624.0	8,455.6	8,432.3	226.5	30.2	-40.31	597.3	161.0	9,117.1	9,051.3	65.77	138.626	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 131H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program:		14-MWD+IFR1+MS		Semi Major Axis			Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.0 usft
Reference	Offset	Reference	Offset	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	(usft)	(usft)									
17,900.0	8,624.0	8,455.6	8,432.3	228.9	30.2	-40.31	597.3	161.0	9,217.1	9,151.2	65.85	139.978		
18,000.0	8,624.0	8,450.9	8,427.6	231.3	30.1	-39.66	597.4	161.1	9,317.0	9,251.1	65.91	141.351		
18,100.0	8,624.0	8,450.2	8,426.8	233.7	30.1	-39.55	597.4	161.1	9,417.0	9,351.0	65.99	142.698		
18,200.0	8,624.0	8,449.4	8,426.1	236.1	30.1	-39.44	597.4	161.1	9,516.9	9,450.9	66.07	144.040		
18,300.0	8,624.0	8,448.7	8,425.3	238.5	30.1	-39.34	597.4	161.1	9,616.9	9,550.8	66.15	145.378		
18,400.0	8,624.0	8,447.9	8,424.6	240.9	30.1	-39.24	597.4	161.1	9,716.9	9,650.6	66.23	146.711		
18,500.0	8,624.0	8,447.2	8,423.8	243.3	30.1	-39.14	597.5	161.2	9,816.8	9,750.5	66.31	148.039		
18,600.0	8,624.0	8,442.2	8,418.9	245.7	30.1	-38.47	597.5	161.3	9,916.8	9,850.4	66.38	149.388		
18,700.0	8,624.0	8,442.2	8,418.9	248.1	30.1	-38.47	597.5	161.3	10,016.8	9,950.3	66.47	150.703		
18,800.0	8,624.0	8,442.2	8,418.9	250.5	30.1	-38.47	597.5	161.3	10,116.7	10,050.2	66.55	152.013		
18,900.0	8,624.0	8,442.2	8,418.9	252.9	30.1	-38.47	597.5	161.3	10,216.7	10,150.1	66.64	153.319		
19,000.0	8,624.0	8,442.2	8,418.9	255.3	30.1	-38.47	597.5	161.3	10,316.7	10,249.9	66.72	154.619		
19,100.0	8,624.0	8,442.2	8,418.9	257.7	30.1	-38.47	597.5	161.3	10,416.6	10,349.8	66.81	155.916		
19,190.0	8,624.0	8,442.2	8,418.9	259.9	30.1	-38.47	597.5	161.3	10,506.6	10,439.7	66.89	157.077		
19,190.6	8,624.0	8,442.2	8,418.9	259.9	30.1	-38.47	597.5	161.3	10,507.2	10,435.2	71.99	145.961		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 132H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 15-MWD+IFR1+MS												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	-75.02	27.1	-101.3	104.9				
100.0	100.0	100.9	100.9	0.1	0.3	-75.39	26.3	-101.1	104.5	104.1	0.38	273.693	
200.0	200.0	201.8	201.7	0.5	0.6	-76.52	24.0	-100.3	103.2	102.1	1.10	93.577	
300.0	300.0	301.9	301.8	0.8	1.0	-78.12	20.9	-99.2	101.4	99.6	1.82	55.702	
400.0	400.0	401.9	401.8	1.2	1.3	-79.97	17.3	-98.1	99.6	97.1	2.54	39.223	
500.0	500.0	501.5	501.3	1.6	1.7	-81.72	14.1	-97.0	98.0	94.8	3.26	30.104	
600.0	600.0	601.4	601.1	1.9	2.1	-82.94	11.9	-96.1	96.8	92.9	3.97	24.371	
700.0	700.0	701.7	701.5	2.3	2.4	-84.00	10.0	-95.0	95.5	90.8	4.69	20.352	
800.0	800.0	802.2	801.9	2.6	2.8	-84.65	8.7	-93.3	93.7	88.3	5.41	17.328	
900.0	900.0	903.0	902.7	3.0	3.1	-84.80	8.3	-90.9	91.3	85.2	6.12	14.920	
1,000.0	1,000.0	1,004.5	1,004.1	3.4	3.5	-84.82	7.9	-87.1	87.6	80.8	6.83	12.818	
1,100.0	1,100.0	1,105.2	1,104.6	3.7	3.8	-85.05	7.1	-81.7	82.1	74.6	7.55	10.880	
1,200.0	1,200.0	1,203.8	1,203.1	4.1	4.2	-85.11	6.6	-77.1	77.4	69.2	8.26	9.376	
1,300.0	1,300.0	1,302.4	1,301.7	4.4	4.5	-84.87	6.7	-74.1	74.5	65.5	8.97	8.304	
1,400.0	1,400.0	1,401.6	1,400.8	4.8	4.9	-84.99	6.4	-72.6	72.9	63.2	9.68	7.533	
1,500.0	1,500.0	1,501.4	1,500.7	5.1	5.2	-83.68	7.9	-71.5	71.9	61.6	10.38	6.933	
1,600.0	1,600.0	1,601.5	1,600.7	5.5	5.6	-81.30	10.7	-70.2	71.0	59.9	11.08	6.408	
1,700.0	1,700.0	1,701.6	1,700.7	5.9	5.9	-78.95	13.4	-68.6	69.9	58.1	11.78	5.935	
1,800.0	1,800.0	1,802.0	1,801.1	6.2	6.3	-79.48	12.5	-67.4	68.6	56.1	12.49	5.492	
1,900.0	1,900.0	1,902.5	1,901.5	6.6	6.6	-81.81	9.5	-65.8	66.5	53.3	13.21	5.036	
2,000.0	2,000.0	2,002.2	2,000.7	6.9	7.0	-90.29	-0.3	-64.4	64.4	50.5	13.92	4.624	
2,100.0	2,100.0	2,102.1	2,100.2	7.3	7.3	-99.28	-10.3	-63.0	63.8	49.2	14.64	4.360	
2,149.8	2,149.8	2,152.0	2,149.8	7.5	7.5	-103.34	-14.7	-62.0	63.7	48.8	15.00	4.251 CC	
2,200.0	2,200.0	2,202.0	2,199.6	7.7	7.7	-107.44	-19.1	-60.9	63.9	48.5	15.35	4.160 ES	
2,300.0	2,300.0	2,300.7	2,297.6	8.0	8.1	-117.63	-30.5	-58.3	65.9	49.8	16.06	4.102 SF	
2,400.0	2,400.0	2,399.4	2,395.4	8.4	8.4	-128.15	-43.7	-55.7	71.0	54.2	16.75	4.237	
2,500.0	2,500.0	2,498.2	2,493.2	8.7	8.8	-137.16	-57.4	-53.2	78.6	61.2	17.44	4.507	
2,600.0	2,600.0	2,597.1	2,591.2	9.1	9.1	-144.21	-71.0	-51.2	88.0	69.8	18.13	4.851	
2,700.0	2,700.0	2,696.2	2,689.4	9.4	9.5	-149.55	-84.3	-49.6	98.4	79.6	18.83	5.224	
2,800.0	2,800.0	2,795.1	2,787.4	9.8	9.8	-153.60	-97.4	-48.4	109.5	90.0	19.54	5.606	
2,900.0	2,900.0	2,893.6	2,884.9	10.2	10.2	-156.81	-110.8	-47.5	121.5	101.2	20.23	6.004	
3,000.0	3,000.0	2,992.2	2,982.6	10.5	10.6	-159.44	-124.6	-46.7	134.2	113.3	20.93	6.411	
3,100.0	3,100.0	3,090.9	3,080.3	10.9	10.9	-151.50	-138.6	-45.9	148.1	126.5	21.64	6.845	
3,200.0	3,200.0	3,189.5	3,177.8	11.2	11.3	-153.72	-152.7	-45.0	163.8	141.5	22.35	7.331	
3,300.0	3,299.9	3,287.8	3,275.2	11.6	11.6	-155.70	-166.7	-44.3	181.3	158.2	23.06	7.862	
3,400.0	3,399.7	3,385.6	3,372.0	12.0	12.0	-157.43	-180.5	-43.9	200.5	176.7	23.76	8.438	
3,500.0	3,499.4	3,482.7	3,468.0	12.3	12.4	-158.99	-194.4	-43.5	221.7	197.2	24.46	9.062	
3,600.0	3,598.9	3,580.1	3,564.4	12.7	12.7	-160.37	-208.4	-43.3	244.7	219.5	25.17	9.723	
3,700.0	3,698.3	3,681.8	3,665.2	13.0	13.1	-161.78	-222.2	-42.6	268.5	242.6	25.93	10.357	
3,800.0	3,797.4	3,779.1	3,761.8	13.4	13.4	-163.18	-234.3	-40.9	292.9	266.3	26.64	10.997	
3,900.0	3,896.4	3,880.8	3,862.7	13.8	13.8	-164.45	-246.4	-39.4	317.9	290.5	27.39	11.608	
4,000.0	3,995.5	3,991.4	3,972.9	14.1	14.2	-165.74	-255.9	-36.9	339.6	311.4	28.20	12.044	
4,100.0	4,094.5	4,091.7	4,072.9	14.5	14.6	-166.71	-262.2	-34.8	359.2	330.3	28.92	12.423	
4,200.0	4,193.5	4,190.6	4,171.6	14.9	14.9	-167.54	-268.2	-32.8	378.6	349.0	29.63	12.779	
4,300.0	4,292.5	4,289.9	4,270.8	15.3	15.3	-168.30	-273.8	-30.8	397.8	367.5	30.35	13.110	
4,400.0	4,391.6	4,390.4	4,371.1	15.6	15.7	-169.02	-279.1	-28.6	416.6	385.6	31.07	13.411	
4,500.0	4,490.6	4,489.1	4,469.7	16.0	16.0	-169.76	-283.4	-25.8	434.6	402.9	31.78	13.677	
4,600.0	4,589.6	4,588.5	4,568.9	16.4	16.4	-170.69	-288.2	-21.0	453.2	420.7	32.49	13.946	
4,700.0	4,688.6	4,689.5	4,649.5	16.8	16.7	-171.59	-293.4	-15.4	473.4	440.3	33.09	14.306	
4,800.0	4,787.7	4,768.5	4,747.8	17.2	17.0	-172.81	-301.1	-6.9	495.3	461.5	33.81	14.649	
4,900.0	4,886.7	4,867.5	4,846.1	17.5	17.4	-174.03	-308.3	2.6	516.9	482.4	34.53	14.971	
5,000.0	4,985.7	4,961.6	4,939.5	17.9	17.7	-175.11	-315.2	11.7	538.8	503.6	35.21	15.305	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 132H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 15-MWD+IFR1+MS												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Ellipses (usft)			
5,100.0	5,084.8	5,047.3	5,024.5	18.3	18.0	-175.93	-323.0	19.2	562.5	526.7	35.82	15.704	
5,200.0	5,183.8	5,141.4	5,117.8	18.7	18.4	-176.66	-332.5	26.6	587.2	550.7	36.50	16.085	
5,300.0	5,282.8	5,221.0	5,196.7	19.1	18.7	-177.14	-342.0	32.1	613.5	576.5	37.05	16.559	
5,400.0	5,381.8	5,322.7	5,297.3	19.5	19.1	-177.57	-355.2	37.8	640.8	603.0	37.81	16.946	
5,500.0	5,480.9	5,439.4	5,413.1	19.9	19.5	-177.93	-368.3	43.0	666.3	627.6	38.70	17.219	
5,600.0	5,579.9	5,545.2	5,518.4	20.3	19.9	-178.15	-377.9	46.5	689.4	650.0	39.47	17.466	
5,700.0	5,678.9	5,635.1	5,608.0	20.7	20.2	-178.29	-385.7	48.9	712.3	672.2	40.13	17.749	
5,800.0	5,777.9	5,729.9	5,702.2	21.1	20.6	-178.40	-395.7	51.5	736.8	695.9	40.82	18.048	
5,900.0	5,877.0	5,816.0	5,787.8	21.5	20.9	-178.48	-404.6	53.6	761.2	719.7	41.45	18.366	
6,000.0	5,976.0	5,883.0	5,854.2	21.9	21.1	-178.56	-413.9	55.8	788.9	747.0	41.88	18.835	
6,100.0	6,075.0	5,993.1	5,963.0	22.3	21.5	-178.61	-429.9	58.6	817.2	774.5	42.73	19.126	
6,175.3	6,149.6	6,082.3	6,051.5	22.6	21.9	-178.60	-441.2	59.9	837.1	793.7	43.41	19.284	
6,200.0	6,174.1	6,111.6	6,080.6	22.7	22.0	-178.59	-444.5	60.1	843.3	799.6	43.63	19.329	
6,300.0	6,273.3	6,217.0	6,185.5	23.1	22.4	-178.56	-455.2	61.0	865.8	821.4	44.40	19.500	
6,400.0	6,372.7	6,289.5	6,257.4	23.5	22.6	-178.61	-464.0	62.8	888.7	843.8	44.91	19.788	
6,500.0	6,472.2	6,414.1	6,381.2	23.8	23.1	-178.60	-477.7	64.5	908.8	862.9	45.84	19.824	
6,600.0	6,572.0	6,490.4	6,457.1	24.2	23.4	-178.58	-485.7	65.2	926.8	880.4	46.39	19.980	
6,700.0	6,671.8	6,549.2	6,515.3	24.6	23.6	-178.63	-494.0	67.0	946.8	900.0	46.74	20.256	
6,800.0	6,771.7	6,709.0	6,673.7	24.9	24.2	-178.73	-514.0	71.7	963.2	915.2	47.99	20.072	
6,900.0	6,871.7	6,778.2	6,742.5	25.3	24.4	-178.72	-521.6	72.6	976.6	928.1	48.47	20.149	
6,975.3	6,947.0	6,813.7	6,777.6	25.6	24.5	-171.01	-526.9	73.2	988.5	939.9	48.64	20.322	
7,000.0	6,971.7	6,827.1	6,790.8	25.6	24.6	171.02	-529.3	73.5	992.9	944.2	48.71	20.385	
7,100.0	7,071.7	6,925.6	6,887.4	26.0	25.0	171.09	-548.3	75.2	1,012.2	962.8	49.43	20.479	
7,200.0	7,171.7	7,072.8	7,032.7	26.3	25.5	171.30	-571.7	75.1	1,027.8	977.2	50.60	20.312	
7,300.0	7,271.7	7,189.0	7,148.0	26.7	25.9	171.48	-586.7	74.1	1,040.5	989.1	51.46	20.221	
7,400.0	7,371.7	7,299.1	7,257.3	27.0	26.3	171.64	-599.5	73.1	1,051.8	999.6	52.25	20.129	
7,500.0	7,471.7	7,390.2	7,347.8	27.4	26.7	171.65	-610.1	74.5	1,063.6	1,010.6	52.91	20.101	
7,600.0	7,571.7	7,506.6	7,463.5	27.7	27.1	171.58	-622.0	77.5	1,074.0	1,020.2	53.75	19.980	
7,700.0	7,671.7	7,572.3	7,528.8	28.1	27.4	171.51	-629.4	79.9	1,085.6	1,031.4	54.21	20.025	
7,800.0	7,771.7	7,642.7	7,598.4	28.4	27.6	171.40	-638.6	83.5	1,099.6	1,044.9	54.68	20.108	
7,900.0	7,871.7	7,798.4	7,752.3	28.8	28.2	171.09	-659.8	92.7	1,114.6	1,058.7	55.87	19.951	
8,000.0	7,971.7	7,893.0	7,846.3	29.1	28.5	170.88	-669.0	98.4	1,125.1	1,068.6	56.55	19.896	
8,100.0	8,071.7	7,946.7	7,899.5	29.4	28.7	170.72	-675.3	102.5	1,138.2	1,081.3	56.90	20.003	
8,174.8	8,146.5	8,039.4	7,991.0	29.7	29.1	170.42	-687.8	110.6	1,149.2	1,091.6	57.60	19.952	
8,200.0	8,171.7	8,072.7	8,024.0	29.8	29.2	79.72	-691.9	112.7	1,152.4	1,094.6	57.84	19.923	
8,225.0	8,196.6	8,103.8	8,054.9	29.9	29.3	79.46	-695.5	114.4	1,155.2	1,097.1	58.07	19.894	
8,250.0	8,221.4	8,132.4	8,083.2	30.0	29.4	79.32	-698.8	115.7	1,157.6	1,099.4	58.27	19.866	
8,275.0	8,246.0	8,160.0	8,110.6	30.0	29.5	79.29	-701.9	116.8	1,159.8	1,101.3	58.47	19.836	
8,300.0	8,270.3	8,187.1	8,137.5	30.1	29.6	79.36	-705.0	117.7	1,161.6	1,103.0	58.66	19.802	
8,325.0	8,294.2	8,214.7	8,164.9	30.2	29.7	79.54	-708.0	118.4	1,163.2	1,104.4	58.86	19.763	
8,350.0	8,317.8	8,241.9	8,192.0	30.3	29.8	79.82	-710.9	119.0	1,164.6	1,105.5	59.05	19.721	
8,375.0	8,340.9	8,262.2	8,212.2	30.3	29.9	80.06	-713.1	119.3	1,165.7	1,106.5	59.20	19.691	
8,400.0	8,363.4	8,274.5	8,224.4	30.4	30.0	80.19	-714.5	119.6	1,166.8	1,107.5	59.28	19.681	
8,425.0	8,385.4	8,284.6	8,234.4	30.5	30.0	80.27	-715.7	119.8	1,168.0	1,108.7	59.35	19.679	
8,450.0	8,406.7	8,298.1	8,247.8	30.5	30.0	80.45	-717.4	120.2	1,169.3	1,109.9	59.45	19.670	
8,475.0	8,427.3	8,311.7	8,261.3	30.6	30.1	80.65	-719.3	120.8	1,170.7	1,111.2	59.54	19.661	
8,500.0	8,447.1	8,328.6	8,278.0	30.6	30.2	80.95	-721.7	121.6	1,172.2	1,112.5	59.67	19.644	
8,525.0	8,466.1	8,354.9	8,303.9	30.7	30.3	81.58	-725.3	122.8	1,173.6	1,113.7	59.89	19.597	
8,550.0	8,484.3	8,380.1	8,328.9	30.7	30.3	82.24	-728.6	124.0	1,174.9	1,114.8	60.10	19.551	
8,575.0	8,501.5	8,403.4	8,352.0	30.8	30.4	82.88	-731.6	125.1	1,176.2	1,115.9	60.29	19.508	
8,600.0	8,517.7	8,424.7	8,373.1	30.8	30.5	83.48	-734.2	126.1	1,177.6	1,117.1	60.48	19.470	
8,625.0	8,532.9	8,443.7	8,391.9	30.9	30.6	84.01	-736.5	127.0	1,179.0	1,118.3	60.66	19.436	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 132H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 15-MWD+IFR1+MS													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)						
8,650.0	8,547.0	8,459.9	8,408.1	30.9	30.6	84.46	-738.4	127.7	1,180.6	1,119.8	60.82	19.410		
8,675.0	8,560.1	8,474.0	8,422.1	31.0	30.7	84.81	-740.1	128.3	1,182.4	1,121.4	60.98	19.391		
8,700.0	8,572.0	8,486.6	8,434.5	31.1	30.7	85.09	-741.6	128.7	1,184.5	1,123.3	61.13	19.377		
8,725.0	8,582.8	8,497.7	8,445.5	31.2	30.8	85.28	-742.9	129.1	1,186.8	1,125.6	61.28	19.368		
8,750.0	8,592.3	8,507.4	8,455.2	31.3	30.8	85.39	-744.0	129.5	1,189.5	1,128.1	61.43	19.365		
8,775.0	8,600.7	8,516.1	8,463.9	31.4	30.9	85.42	-745.1	129.7	1,192.5	1,130.9	61.58	19.367		
8,800.0	8,607.7	8,521.0	8,468.7	31.6	30.9	85.24	-745.6	129.9	1,195.9	1,134.2	61.70	19.381		
8,825.0	8,613.6	8,521.0	8,468.7	31.7	30.9	84.78	-745.6	129.9	1,199.7	1,137.9	61.80	19.411		
8,850.0	8,618.1	8,527.0	8,474.7	31.9	30.9	84.56	-746.4	130.0	1,203.8	1,141.8	61.96	19.429		
8,875.0	8,621.4	8,528.6	8,476.2	32.0	30.9	84.09	-746.6	130.1	1,208.3	1,146.2	62.08	19.462		
8,900.0	8,623.3	8,529.7	8,477.3	32.2	30.9	83.55	-746.7	130.1	1,213.2	1,150.9	62.21	19.500		
8,924.8	8,624.0	8,530.2	8,477.8	32.4	30.9	82.94	-746.8	130.1	1,218.3	1,156.0	62.34	19.542		
9,000.0	8,624.0	8,535.0	8,482.6	33.0	30.9	83.17	-747.4	130.2	1,236.7	1,173.9	62.80	19.695		
9,100.0	8,624.0	8,535.0	8,482.6	33.9	30.9	83.17	-747.4	130.2	1,267.7	1,204.3	63.39	19.998		
9,200.0	8,624.0	8,535.0	8,482.6	34.9	30.9	83.17	-747.4	130.2	1,305.6	1,241.6	64.01	20.396		
9,300.0	8,624.0	8,535.0	8,482.6	36.1	30.9	83.17	-747.4	130.2	1,349.9	1,285.2	64.63	20.886		
9,400.0	8,624.0	8,535.0	8,482.6	37.4	30.9	83.17	-747.4	130.2	1,399.9	1,334.6	65.22	21.463		
9,500.0	8,624.0	8,535.0	8,482.6	38.8	30.9	83.17	-747.4	130.2	1,455.0	1,389.3	65.78	22.119		
9,600.0	8,624.0	8,535.0	8,482.6	40.3	30.9	83.17	-747.4	130.2	1,514.8	1,448.5	66.30	22.848		
9,700.0	8,624.0	8,535.0	8,482.6	41.9	30.9	83.17	-747.4	130.2	1,578.7	1,511.9	66.77	23.643		
9,800.0	8,624.0	8,535.0	8,482.6	43.6	30.9	83.17	-747.4	130.2	1,646.1	1,578.9	67.20	24.496		
9,900.0	8,624.0	8,535.0	8,482.6	45.3	30.9	83.17	-747.4	130.2	1,716.8	1,649.2	67.58	25.402		
10,000.0	8,624.0	8,535.0	8,482.6	47.1	30.9	83.17	-747.4	130.2	1,790.2	1,722.3	67.93	26.355		
10,100.0	8,624.0	8,535.0	8,482.6	49.0	30.9	83.17	-747.4	130.2	1,866.1	1,797.9	68.23	27.348		
10,200.0	8,624.0	8,535.0	8,482.6	50.9	30.9	83.17	-747.4	130.2	1,944.2	1,875.7	68.51	28.378		
10,300.0	8,624.0	8,535.0	8,482.6	52.8	30.9	83.17	-747.4	130.2	2,024.2	1,955.4	68.76	29.441		
10,400.0	8,624.0	8,535.0	8,482.6	54.8	30.9	83.17	-747.4	130.2	2,105.9	2,036.9	68.98	30.531		
10,500.0	8,624.0	8,535.0	8,482.6	56.8	30.9	83.17	-747.4	130.2	2,189.2	2,120.0	69.17	31.648		
10,600.0	8,624.0	8,535.0	8,482.6	58.8	30.9	83.17	-747.4	130.2	2,273.7	2,204.4	69.35	32.786		
10,700.0	8,624.0	8,535.0	8,482.6	60.9	30.9	83.17	-747.4	130.2	2,359.5	2,290.0	69.51	33.945		
10,800.0	8,624.0	8,535.0	8,482.6	63.0	30.9	83.17	-747.4	130.2	2,446.4	2,376.8	69.66	35.121		
10,900.0	8,624.0	8,535.0	8,482.6	65.1	30.9	83.17	-747.4	130.2	2,534.3	2,464.5	69.79	36.313		
11,000.0	8,624.0	8,535.0	8,482.6	67.3	30.9	83.17	-747.4	130.2	2,623.0	2,553.1	69.91	37.519		
11,100.0	8,624.0	8,535.0	8,482.6	69.4	30.9	83.17	-747.4	130.2	2,712.5	2,642.5	70.02	38.738		
11,200.0	8,624.0	8,535.0	8,482.6	71.6	30.9	83.17	-747.4	130.2	2,802.7	2,732.6	70.12	39.968		
11,300.0	8,624.0	8,535.0	8,482.6	73.8	30.9	83.17	-747.4	130.2	2,893.5	2,823.3	70.22	41.208		
11,400.0	8,624.0	8,535.0	8,482.6	76.0	30.9	83.17	-747.4	130.2	2,985.0	2,914.7	70.31	42.457		
11,500.0	8,624.0	8,535.0	8,482.6	78.2	30.9	83.17	-747.4	130.2	3,076.9	3,006.6	70.39	43.714		
11,600.0	8,624.0	8,535.0	8,482.6	80.4	30.9	83.17	-747.4	130.2	3,169.4	3,098.9	70.47	44.978		
11,700.0	8,624.0	8,541.0	8,488.5	82.7	30.9	83.46	-748.2	130.3	3,262.3	3,191.7	70.58	46.223		
11,800.0	8,624.0	8,541.2	8,488.7	84.9	30.9	83.47	-748.3	130.3	3,355.6	3,284.9	70.65	47.498		
11,900.0	8,624.0	8,541.4	8,488.9	87.2	30.9	83.48	-748.3	130.3	3,449.3	3,378.6	70.71	48.779		
12,000.0	8,624.0	8,541.5	8,489.0	89.5	30.9	83.49	-748.3	130.3	3,543.3	3,472.5	70.78	50.063		
12,100.0	8,624.0	8,541.7	8,489.2	91.7	30.9	83.50	-748.3	130.3	3,637.6	3,566.8	70.84	51.352		
12,200.0	8,624.0	8,541.9	8,489.4	94.0	30.9	83.50	-748.4	130.3	3,732.3	3,661.4	70.90	52.644		
12,300.0	8,624.0	8,542.0	8,489.5	96.3	30.9	83.51	-748.4	130.3	3,827.2	3,756.2	70.95	53.940		
12,400.0	8,624.0	8,542.2	8,489.7	98.6	30.9	83.52	-748.4	130.3	3,922.4	3,851.4	71.01	55.238		
12,500.0	8,624.0	8,542.3	8,489.8	100.9	30.9	83.53	-748.4	130.3	4,017.8	3,946.7	71.06	56.538		
12,600.0	8,624.0	8,542.4	8,489.9	103.2	30.9	83.53	-748.4	130.3	4,113.4	4,042.3	71.12	57.841		
12,700.0	8,624.0	8,542.6	8,490.1	105.5	31.0	83.54	-748.5	130.3	4,209.2	4,138.0	71.17	59.146		
12,800.0	8,624.0	8,542.7	8,490.2	107.8	31.0	83.55	-748.5	130.3	4,305.2	4,234.0	71.22	60.452		
12,900.0	8,624.0	8,549.0	8,496.4	110.2	31.0	83.85	-749.5	130.4	4,401.4	4,330.1	71.30	61.727		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 132H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program:		15-MWD+IFR1+MS		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:		0.0 usft
Reference	Offset	Reference	Offset	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	(usft)	(usft)									
13,000.0	8,624.0	8,549.0	8,496.4	112.5	31.0	83.85	-749.5	130.4	4,497.8	4,426.5	71.35	63.036		
13,100.0	8,624.0	8,549.0	8,496.4	114.8	31.0	83.85	-749.5	130.4	4,594.3	4,522.9	71.40	64.345		
13,200.0	8,624.0	8,549.0	8,496.4	117.1	31.0	83.85	-749.5	130.4	4,691.0	4,619.5	71.45	65.655		
13,300.0	8,624.0	8,549.0	8,496.4	119.5	31.0	83.85	-749.5	130.4	4,787.8	4,716.3	71.50	66.965		
13,400.0	8,624.0	8,549.0	8,496.4	121.8	31.0	83.85	-749.5	130.4	4,884.7	4,813.1	71.54	68.276		
13,500.0	8,624.0	8,549.0	8,496.4	124.2	31.0	83.85	-749.5	130.4	4,981.7	4,910.1	71.59	69.587		
13,600.0	8,624.0	8,549.0	8,496.4	126.5	31.0	83.85	-749.5	130.4	5,078.9	5,007.3	71.64	70.897		
13,700.0	8,624.0	8,549.0	8,496.4	128.9	31.0	83.85	-749.5	130.4	5,176.2	5,104.5	71.68	72.208		
13,800.0	8,624.0	8,549.0	8,496.4	131.2	31.0	83.85	-749.5	130.4	5,273.5	5,201.8	71.73	73.518		
13,900.0	8,624.0	8,549.0	8,496.4	133.6	31.0	83.85	-749.5	130.4	5,371.0	5,299.2	71.78	74.828		
14,000.0	8,624.0	8,549.0	8,496.4	135.9	31.0	83.85	-749.5	130.4	5,468.6	5,396.7	71.83	76.137		
14,100.0	8,624.0	8,549.0	8,496.4	138.3	31.0	83.85	-749.5	130.4	5,566.2	5,494.3	71.87	77.445		
14,200.0	8,624.0	8,549.0	8,496.4	140.6	31.0	83.85	-749.5	130.4	5,663.9	5,592.0	71.92	78.752		
14,300.0	8,624.0	8,549.0	8,496.4	143.0	31.0	83.85	-749.5	130.4	5,761.7	5,689.8	71.97	80.059		
14,400.0	8,624.0	8,549.0	8,496.4	145.4	31.0	83.85	-749.5	130.4	5,859.6	5,787.6	72.02	81.364		
14,500.0	8,624.0	8,549.0	8,496.4	147.7	31.0	83.85	-749.5	130.4	5,957.6	5,885.5	72.07	82.669		
14,600.0	8,624.0	8,549.0	8,496.4	150.1	31.0	83.85	-749.5	130.4	6,055.6	5,983.5	72.11	83.972		
14,700.0	8,624.0	8,549.0	8,496.4	152.5	31.0	83.85	-749.5	130.4	6,153.7	6,081.5	72.16	85.274		
14,800.0	8,624.0	8,549.0	8,496.4	154.8	31.0	83.85	-749.5	130.4	6,251.8	6,179.6	72.21	86.574		
14,900.0	8,624.0	8,549.0	8,496.4	157.2	31.0	83.85	-749.5	130.4	6,350.0	6,277.7	72.26	87.873		
15,000.0	8,624.0	8,549.0	8,496.4	159.6	31.0	83.85	-749.5	130.4	6,448.3	6,375.9	72.31	89.171		
15,100.0	8,624.0	8,549.0	8,496.4	162.0	31.0	83.85	-749.5	130.4	6,546.6	6,474.2	72.36	90.466		
15,200.0	8,624.0	8,549.0	8,496.4	164.3	31.0	83.85	-749.5	130.4	6,644.9	6,572.5	72.42	91.760		
15,300.0	8,624.0	8,549.0	8,496.4	166.7	31.0	83.85	-749.5	130.4	6,743.3	6,670.9	72.47	93.053		
15,400.0	8,624.0	8,549.0	8,496.4	169.1	31.0	83.85	-749.5	130.4	6,841.8	6,769.3	72.52	94.343		
15,500.0	8,624.0	8,549.0	8,496.4	171.5	31.0	83.85	-749.5	130.4	6,940.3	6,867.7	72.57	95.632		
15,600.0	8,624.0	8,549.0	8,496.4	173.9	31.0	83.85	-749.5	130.4	7,038.8	6,966.2	72.63	96.919		
15,700.0	8,624.0	8,549.0	8,496.4	176.2	31.0	83.85	-749.5	130.4	7,137.4	7,064.7	72.68	98.203		
15,800.0	8,624.0	8,549.0	8,496.4	178.6	31.0	83.85	-749.5	130.4	7,236.0	7,163.3	72.73	99.486		
15,900.0	8,624.0	8,549.0	8,496.4	181.0	31.0	83.85	-749.5	130.4	7,334.7	7,261.9	72.79	100.766		
16,000.0	8,624.0	8,549.0	8,496.4	183.4	31.0	83.85	-749.5	130.4	7,433.4	7,360.5	72.84	102.045		
16,100.0	8,624.0	8,549.0	8,496.4	185.8	31.0	83.85	-749.5	130.4	7,532.1	7,459.2	72.90	103.321		
16,200.0	8,624.0	8,549.0	8,496.4	188.2	31.0	83.85	-749.5	130.4	7,630.9	7,557.9	72.96	104.595		
16,300.0	8,624.0	8,549.0	8,496.4	190.6	31.0	83.85	-749.5	130.4	7,729.6	7,656.6	73.01	105.866		
16,400.0	8,624.0	8,549.0	8,496.4	193.0	31.0	83.85	-749.5	130.4	7,828.5	7,755.4	73.07	107.136		
16,500.0	8,624.0	8,549.0	8,496.4	195.3	31.0	83.85	-749.5	130.4	7,927.3	7,854.2	73.13	108.402		
16,600.0	8,624.0	8,549.0	8,496.4	197.7	31.0	83.85	-749.5	130.4	8,026.2	7,953.0	73.19	109.667		
16,700.0	8,624.0	8,549.0	8,496.4	200.1	31.0	83.85	-749.5	130.4	8,125.1	8,051.9	73.25	110.929		
16,800.0	8,624.0	8,549.0	8,496.4	202.5	31.0	83.85	-749.5	130.4	8,224.0	8,150.7	73.31	112.188		
16,900.0	8,624.0	8,549.0	8,496.4	204.9	31.0	83.85	-749.5	130.4	8,323.0	8,249.6	73.37	113.445		
17,000.0	8,624.0	8,549.0	8,496.4	207.3	31.0	83.85	-749.5	130.4	8,422.0	8,348.6	73.43	114.699		
17,100.0	8,624.0	8,549.0	8,496.4	209.7	31.0	83.85	-749.5	130.4	8,521.0	8,447.5	73.49	115.951		
17,200.0	8,624.0	8,549.0	8,496.4	212.1	31.0	83.85	-749.5	130.4	8,620.0	8,546.5	73.55	117.200		
17,300.0	8,624.0	8,549.0	8,496.4	214.5	31.0	83.85	-749.5	130.4	8,719.1	8,645.5	73.61	118.446		
17,400.0	8,624.0	8,549.0	8,496.4	216.9	31.0	83.85	-749.5	130.4	8,818.2	8,744.5	73.68	119.690		
17,500.0	8,624.0	8,549.0	8,496.4	219.3	31.0	83.85	-749.5	130.4	8,917.2	8,843.5	73.74	120.930		
17,600.0	8,624.0	8,549.0	8,496.4	221.7	31.0	83.85	-749.5	130.4	9,016.4	8,942.6	73.80	122.168		
17,700.0	8,624.0	8,549.0	8,496.4	224.1	31.0	83.85	-749.5	130.4	9,115.5	9,041.6	73.87	123.404		
17,800.0	8,624.0	8,549.0	8,496.4	226.5	31.0	83.85	-749.5	130.4	9,214.7	9,140.7	73.93	124.636		
17,900.0	8,624.0	8,549.0	8,496.4	228.9	31.0	83.85	-749.5	130.4	9,313.8	9,239.8	74.00	125.865		
18,000.0	8,624.0	8,549.0	8,496.4	231.3	31.0	83.85	-749.5	130.4	9,413.0	9,338.9	74.06	127.092		
18,100.0	8,624.0	8,549.0	8,496.4	233.7	31.0	83.85	-749.5	130.4	9,512.2	9,438.1	74.13	128.315		

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

Colgate Operating

Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Black Diamond 34 Fed Com 132H - AWP - FINAL MWD													Offset Site Error:	0.0 usft	
Survey Program:		15-MWD+IFR1+MS		Reference		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
18,200.0	8,624.0	8,549.0	8,496.4	236.1	31.0	83.85	-749.5	130.4	9,611.4	9,537.2	74.20	129.536			
18,300.0	8,624.0	8,549.0	8,496.4	238.5	31.0	83.85	-749.5	130.4	9,710.7	9,636.4	74.27	130.754			
18,400.0	8,624.0	8,549.0	8,496.4	240.9	31.0	83.85	-749.5	130.4	9,809.9	9,735.6	74.34	131.968			
18,500.0	8,624.0	8,549.0	8,496.4	243.3	31.0	83.85	-749.5	130.4	9,909.2	9,834.8	74.40	133.180			
18,600.0	8,624.0	8,549.0	8,496.4	245.7	31.0	83.85	-749.5	130.4	10,008.5	9,934.0	74.47	134.389			
18,700.0	8,624.0	8,549.0	8,496.4	248.1	31.0	83.85	-749.5	130.4	10,107.8	10,033.2	74.54	135.594			
18,800.0	8,624.0	8,549.0	8,496.4	250.5	31.0	83.85	-749.5	130.4	10,207.1	10,132.5	74.62	136.797			
18,900.0	8,624.0	8,549.0	8,496.4	252.9	31.0	83.85	-749.5	130.4	10,306.4	10,231.7	74.69	137.996			
19,000.0	8,624.0	8,549.0	8,496.4	255.3	31.0	83.85	-749.5	130.4	10,405.8	10,331.0	74.76	139.192			
19,100.0	8,624.0	8,549.0	8,496.4	257.7	31.0	83.85	-749.5	130.4	10,505.1	10,430.3	74.83	140.385			
19,190.0	8,624.0	8,549.0	8,496.4	259.9	31.0	83.85	-749.5	130.4	10,594.5	10,519.6	74.90	141.456			
19,190.6	8,624.0	8,549.0	8,496.4	259.9	31.0	83.85	-749.5	130.4	10,595.1	10,515.9	79.22	133.751			

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 131H - OWB - PWP0														Offset Site Error:	0.0 usft	
Survey Program: Reference		0-MWD		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned: Distance				Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	0.12	132.0	0.3	132.0							
100.0	100.0	100.0	100.0	0.1	0.1	0.12	132.0	0.3	132.0	131.7	0.25	526.043				
200.0	200.0	200.0	200.0	0.5	0.5	0.12	132.0	0.3	132.0	131.0	0.97	136.382				
300.0	300.0	300.0	300.0	0.8	0.8	0.12	132.0	0.3	132.0	130.3	1.68	78.347				
400.0	400.0	400.0	400.0	1.2	1.2	0.12	132.0	0.3	132.0	129.6	2.40	54.960				
500.0	500.0	500.0	500.0	1.6	1.6	0.12	132.0	0.3	132.0	128.9	3.12	42.325				
600.0	600.0	600.0	600.0	1.9	1.9	0.12	132.0	0.3	132.0	128.2	3.84	34.414				
700.0	700.0	700.0	700.0	2.3	2.3	0.12	132.0	0.3	132.0	127.4	4.55	28.995				
800.0	800.0	800.0	800.0	2.6	2.6	0.12	132.0	0.3	132.0	126.7	5.27	25.050				
900.0	900.0	900.0	900.0	3.0	3.0	0.12	132.0	0.3	132.0	126.0	5.99	22.050				
1,000.0	1,000.0	1,000.0	1,000.0	3.4	3.4	0.12	132.0	0.3	132.0	125.3	6.70	19.691				
1,100.0	1,100.0	1,100.0	1,100.0	3.7	3.7	0.12	132.0	0.3	132.0	124.6	7.42	17.789				
1,200.0	1,200.0	1,200.0	1,200.0	4.1	4.1	0.12	132.0	0.3	132.0	123.9	8.14	16.222				
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	0.12	132.0	0.3	132.0	123.1	8.85	14.908				
1,400.0	1,400.0	1,400.0	1,400.0	4.8	4.8	0.12	132.0	0.3	132.0	122.4	9.57	13.791				
1,500.0	1,500.0	1,500.0	1,500.0	5.1	5.1	0.12	132.0	0.3	132.0	121.7	10.29	12.830				
1,600.0	1,600.0	1,600.0	1,600.0	5.5	5.5	0.12	132.0	0.3	132.0	121.0	11.01	11.994				
1,700.0	1,700.0	1,700.0	1,700.0	5.9	5.9	0.12	132.0	0.3	132.0	120.3	11.72	11.261	CC, ES			
1,800.0	1,800.0	1,795.6	1,795.6	6.2	6.2	0.07	133.6	0.2	133.7	121.2	12.42	10.764				
1,900.0	1,900.0	1,890.9	1,890.8	6.6	6.5	-0.08	138.3	-0.2	138.6	125.5	13.10	10.584				
2,000.0	2,000.0	1,985.9	1,985.4	6.9	6.9	-0.30	146.2	-0.8	146.9	133.2	13.77	10.673				
2,100.0	2,100.0	2,080.2	2,079.1	7.3	7.2	-0.56	157.1	-1.5	158.5	144.1	14.42	10.994				
2,200.0	2,200.0	2,173.7	2,171.5	7.7	7.6	-0.86	171.0	-2.6	173.3	158.3	15.05	11.517				
2,300.0	2,300.0	2,266.2	2,262.5	8.0	7.9	-1.15	187.6	-3.8	191.4	175.7	15.66	12.216				
2,400.0	2,400.0	2,361.7	2,356.0	8.4	8.3	-1.44	207.2	-5.2	211.9	195.6	16.33	12.977				
2,500.0	2,500.0	2,459.5	2,451.7	8.7	8.7	-1.68	227.5	-6.7	232.7	215.7	17.04	13.659				
2,600.0	2,600.0	2,557.3	2,547.3	9.1	9.1	-1.88	247.8	-8.1	253.5	235.7	17.74	14.285				
2,700.0	2,700.0	2,655.2	2,643.0	9.4	9.5	-2.06	268.1	-9.6	274.2	255.8	18.45	14.862				
2,800.0	2,800.0	2,753.0	2,738.7	9.8	9.9	-2.20	288.4	-11.1	295.0	275.9	19.16	15.394				
2,900.0	2,900.0	2,850.8	2,834.4	10.2	10.3	-2.33	308.7	-12.6	315.8	295.9	19.88	15.888				
3,000.0	3,000.0	2,948.6	2,930.1	10.5	10.7	-2.45	328.9	-14.0	336.6	316.0	20.59	16.346				
3,100.0	3,100.0	3,046.6	3,025.9	10.9	11.1	7.73	349.3	-15.5	356.5	335.2	21.31	16.733				
3,200.0	3,200.0	3,144.9	3,122.1	11.2	11.5	7.67	369.6	-17.0	374.8	352.7	22.02	17.016				
3,300.0	3,299.9	3,243.5	3,218.5	11.6	12.0	7.65	390.1	-18.5	391.3	368.5	22.75	17.203				
3,400.0	3,399.7	3,342.4	3,315.3	12.0	12.4	7.66	410.6	-20.0	406.1	382.6	23.47	17.304				
3,500.0	3,499.4	3,441.6	3,412.2	12.3	12.9	7.71	431.2	-21.5	419.2	395.0	24.20	17.326				
3,600.0	3,598.9	3,540.9	3,509.4	12.7	13.3	7.78	451.8	-23.0	430.6	405.7	24.93	17.277				
3,700.0	3,698.3	3,640.4	3,606.8	13.0	13.7	7.89	472.4	-24.5	440.3	414.7	25.66	17.162				
3,800.0	3,797.4	3,740.1	3,704.3	13.4	14.2	8.02	493.1	-26.0	448.3	421.9	26.39	16.986				
3,900.0	3,896.4	3,839.8	3,801.8	13.8	14.6	8.18	513.7	-27.5	455.4	428.3	27.13	16.787				
4,000.0	3,995.5	3,939.6	3,899.4	14.1	15.1	8.33	534.4	-29.0	462.5	434.6	27.86	16.598				
4,100.0	4,094.5	4,039.3	3,996.9	14.5	15.6	8.48	555.1	-30.5	469.6	441.0	28.60	16.418				
4,200.0	4,193.5	4,139.1	4,094.5	14.9	16.0	8.62	575.8	-32.0	476.7	447.4	29.34	16.247				
4,300.0	4,292.5	4,238.8	4,192.1	15.3	16.5	8.76	596.5	-33.5	483.8	453.7	30.08	16.083				
4,400.0	4,391.6	4,338.5	4,289.6	15.6	16.9	8.89	617.2	-35.0	490.9	460.1	30.82	15.927				
4,500.0	4,490.6	4,438.3	4,387.2	16.0	17.4	9.02	637.8	-36.5	498.1	466.5	31.57	15.778				
4,600.0	4,589.6	4,538.0	4,484.7	16.4	17.8	9.15	658.5	-38.0	505.2	472.9	32.31	15.636				
4,700.0	4,688.6	4,637.8	4,582.3	16.8	18.3	9.27	679.2	-39.5	512.3	479.3	33.05	15.499				
4,800.0	4,787.7	4,737.5	4,679.9	17.2	18.8	9.39	699.9	-41.0	519.4	485.6	33.80	15.368				
4,900.0	4,886.7	4,837.2	4,777.4	17.5	19.2	9.51	720.6	-42.5	526.6	492.0	34.55	15.243				
5,000.0	4,985.7	4,937.0	4,875.0	17.9	19.7	9.62	741.3	-44.1	533.7	498.4	35.29	15.122				
5,100.0	5,084.8	5,036.7	4,972.5	18.3	20.2	9.73	761.9	-45.6	540.8	504.8	36.04	15.007				

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 131H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
5,200.0	5,183.8	5,136.5	5,070.1	18.7	20.6	9.84	782.6	-47.1	548.0	511.2	36.79	14.896		
5,300.0	5,282.8	5,236.2	5,167.7	19.1	21.1	9.94	803.3	-48.6	555.1	517.6	37.54	14.789		
5,400.0	5,381.8	5,335.9	5,265.2	19.5	21.6	10.04	824.0	-50.1	562.2	524.0	38.28	14.686		
5,500.0	5,480.9	5,435.7	5,362.8	19.9	22.0	10.14	844.7	-51.6	569.4	530.3	39.03	14.587		
5,600.0	5,579.9	5,535.4	5,460.3	20.3	22.5	10.24	865.3	-53.1	576.5	536.7	39.78	14.491		
5,700.0	5,678.9	5,635.2	5,557.9	20.7	23.0	10.33	886.0	-54.6	583.7	543.1	40.54	14.399		
5,800.0	5,777.9	5,734.9	5,655.5	21.1	23.4	10.42	906.7	-56.1	590.8	549.5	41.29	14.310		
5,900.0	5,877.0	5,834.6	5,753.0	21.5	23.9	10.51	927.4	-57.6	598.0	555.9	42.04	14.224		
6,000.0	5,976.0	5,934.4	5,850.6	21.9	24.4	10.60	948.1	-59.1	605.1	562.3	42.79	14.141		
6,100.0	6,075.0	6,034.1	5,948.1	22.3	24.8	10.69	968.8	-60.6	612.3	568.7	43.54	14.061		
6,175.3	6,149.6	6,109.2	6,021.6	22.6	25.2	10.75	984.3	-61.7	617.6	573.5	44.11	14.003		
6,200.0	6,174.1	6,133.9	6,045.7	22.7	25.3	10.77	989.4	-62.1	619.5	575.2	44.30	13.985		
6,300.0	6,273.3	6,233.5	6,143.2	23.1	25.8	10.85	1,010.1	-63.6	627.9	582.8	45.05	13.939		
6,400.0	6,372.7	6,333.0	6,240.5	23.5	26.3	10.90	1,030.7	-65.1	638.0	592.2	45.80	13.932		
6,500.0	6,472.2	6,460.0	6,365.3	23.8	26.8	10.93	1,054.5	-66.8	647.8	601.1	46.78	13.849		
6,600.0	6,572.0	6,589.0	6,492.9	24.2	27.4	10.97	1,072.9	-68.2	654.9	607.2	47.69	13.733		
6,700.0	6,671.8	6,718.5	6,621.8	24.6	27.9	11.00	1,085.7	-69.1	659.2	610.7	48.50	13.590		
6,800.0	6,771.7	6,848.3	6,751.3	24.9	28.3	11.04	1,092.6	-69.6	660.6	611.4	49.23	13.420		
6,900.0	6,871.7	6,968.7	6,871.7	25.3	28.7	11.07	1,094.0	-69.7	659.5	609.7	49.89	13.220		
6,975.3	6,947.0	7,044.0	6,947.0	25.6	28.9	0.80	1,094.0	-69.7	659.1	608.7	50.41	13.073		
7,000.0	6,971.7	7,068.7	6,971.7	25.6	29.0	0.80	1,094.0	-69.7	659.1	608.5	50.59	13.029		
7,100.0	7,071.7	7,168.7	7,071.7	26.0	29.3	0.80	1,094.0	-69.7	659.1	607.8	51.28	12.852		
7,200.0	7,171.7	7,268.7	7,171.7	26.3	29.6	0.80	1,094.0	-69.7	659.1	607.1	51.98	12.680		
7,300.0	7,271.7	7,368.7	7,271.7	26.7	29.9	0.80	1,094.0	-69.7	659.1	606.4	52.68	12.512		
7,400.0	7,371.7	7,468.7	7,371.7	27.0	30.2	0.80	1,094.0	-69.7	659.1	605.7	53.37	12.348		
7,500.0	7,471.7	7,568.7	7,471.7	27.4	30.5	0.80	1,094.0	-69.7	659.1	605.0	54.07	12.189		
7,600.0	7,571.7	7,668.7	7,571.7	27.7	30.8	0.80	1,094.0	-69.7	659.1	604.3	54.77	12.033		
7,700.0	7,671.7	7,768.7	7,671.7	28.1	31.1	0.80	1,094.0	-69.7	659.1	603.6	55.47	11.882		
7,800.0	7,771.7	7,868.7	7,771.7	28.4	31.4	0.80	1,094.0	-69.7	659.1	602.9	56.17	11.734		
7,900.0	7,871.7	7,968.7	7,871.7	28.8	31.8	0.80	1,094.0	-69.7	659.1	602.2	56.87	11.589		
8,000.0	7,971.7	8,068.7	7,971.7	29.1	32.1	0.80	1,094.0	-69.7	659.1	601.5	57.57	11.448		
8,100.0	8,071.7	8,168.7	8,071.7	29.4	32.4	0.80	1,094.0	-69.7	659.1	600.8	58.27	11.311		
8,174.8	8,146.5	8,243.5	8,146.5	29.7	32.6	0.80	1,094.0	-69.7	659.1	600.3	58.79	11.210		
8,200.0	8,171.7	8,268.6	8,171.7	29.8	32.7	-89.55	1,094.0	-69.7	659.1	600.1	58.97	11.177		
8,225.0	8,196.6	8,293.6	8,196.6	29.9	32.8	-89.72	1,094.0	-69.7	659.0	599.9	59.13	11.145		
8,249.8	8,221.2	8,318.1	8,221.2	30.0	32.9	-90.00	1,094.0	-69.7	659.0	599.7	59.30	11.114		
8,250.0	8,221.4	8,318.4	8,221.4	30.0	32.9	-90.00	1,094.0	-69.7	659.0	599.7	59.30	11.114		
8,275.0	8,246.0	8,342.9	8,246.0	30.0	32.9	-90.39	1,094.0	-69.7	659.1	599.6	59.46	11.084		
8,300.0	8,270.3	8,367.2	8,270.3	30.1	33.0	-90.88	1,094.0	-69.7	659.1	599.5	59.62	11.056		
8,325.0	8,294.2	8,391.2	8,294.2	30.2	33.1	-91.45	1,094.0	-69.7	659.3	599.5	59.77	11.029		
8,350.0	8,317.8	8,414.8	8,317.8	30.3	33.2	-92.10	1,094.0	-69.7	659.5	599.6	59.93	11.005		
8,375.0	8,340.9	8,437.8	8,340.9	30.3	33.2	-92.82	1,094.0	-69.7	660.0	599.9	60.08	10.985		
8,400.0	8,363.4	8,460.4	8,363.4	30.4	33.3	-93.58	1,094.0	-69.7	660.7	600.4	60.24	10.968		
8,425.0	8,385.4	8,482.4	8,385.4	30.5	33.4	-94.37	1,094.0	-69.7	661.6	601.2	60.39	10.955		
8,450.0	8,406.7	8,503.7	8,406.7	30.5	33.4	-95.18	1,094.0	-69.7	662.9	602.3	60.55	10.948		
8,475.0	8,427.3	8,524.3	8,427.3	30.6	33.5	-95.98	1,094.0	-69.7	664.6	603.8	60.70	10.947		
8,500.0	8,447.1	8,544.1	8,447.1	30.6	33.6	-96.77	1,094.0	-69.7	666.7	605.8	60.87	10.953		
8,525.0	8,466.1	8,563.1	8,466.1	30.7	33.6	-97.51	1,094.0	-69.7	669.3	608.3	61.03	10.967		
8,550.0	8,484.3	8,581.2	8,484.3	30.7	33.7	-98.18	1,094.0	-69.7	672.5	611.3	61.20	10.988		
8,575.0	8,501.5	8,598.4	8,501.5	30.8	33.7	-98.78	1,094.0	-69.7	676.4	615.0	61.38	11.019		
8,600.0	8,517.7	8,614.7	8,517.7	30.8	33.8	-99.28	1,094.0	-69.7	680.9	619.4	61.57	11.060		
8,625.0	8,532.9	8,629.9	8,532.9	30.9	33.8	-99.67	1,094.0	-69.7	686.2	624.4	61.76	11.111		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 131H - OWB - PWP0													Offset Site Error:	0.0 usft	
Survey Program:		0-MWD		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.0 usft
Reference	Vertical	Measured	Vertical	Reference	Offset	Highside			Distance						
Measured	Depth	Depth	Depth	Depth	Depth	Toolface	+N/-S	+E/-W	Between	Between	Minimum	Separation	Warning		
Depth	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	Centres	Ellipses	Separation	Factor			
(usft)									(usft)	(usft)	(usft)				
8,650.0	8,547.0	8,644.0	8,547.0	30.9	33.9	-99.92	1,094.0	-69.7	692.2	630.2	61.96	11.172			
8,675.0	8,560.1	8,657.1	8,560.1	31.0	33.9	-100.02	1,094.0	-69.7	699.0	636.9	62.16	11.245			
8,700.0	8,572.0	8,669.0	8,572.0	31.1	34.0	-99.96	1,094.0	-69.7	706.6	644.3	62.37	11.329			
8,725.0	8,582.8	8,679.7	8,582.8	31.2	34.0	-99.71	1,094.0	-69.7	715.1	652.5	62.59	11.425			
8,750.0	8,592.3	8,689.3	8,592.3	31.3	34.0	-99.28	1,094.0	-69.7	724.4	661.6	62.81	11.533			
8,775.0	8,600.7	8,697.6	8,600.7	31.4	34.1	-98.63	1,094.0	-69.7	734.5	671.4	63.03	11.653			
8,800.0	8,607.7	8,704.7	8,607.7	31.6	34.1	-97.78	1,094.0	-69.7	745.4	682.1	63.25	11.784			
8,825.0	8,613.6	8,710.5	8,613.6	31.7	34.1	-96.69	1,094.0	-69.7	757.0	693.6	63.47	11.927			
8,850.0	8,618.1	8,715.1	8,618.1	31.9	34.1	-95.37	1,094.0	-69.7	769.4	705.7	63.69	12.081			
8,875.0	8,621.4	8,718.3	8,621.4	32.0	34.1	-93.81	1,094.0	-69.7	782.5	718.6	63.90	12.246			
8,900.0	8,623.3	8,720.3	8,623.3	32.2	34.1	-92.02	1,094.0	-69.7	796.2	732.1	64.10	12.421			
8,924.8	8,624.0	8,720.9	8,624.0	32.4	34.1	-90.00	1,094.0	-69.7	810.4	746.1	64.30	12.604			
9,000.0	8,624.0	8,720.9	8,624.0	33.0	34.1	-90.00	1,094.0	-69.7	856.3	791.5	64.86	13.202			
9,100.0	8,624.0	9,732.7	9,194.0	33.9	37.2	-130.85	1,090.8	577.0	871.4	817.5	53.90	16.167			
9,200.0	8,624.0	9,832.7	9,194.0	34.9	38.0	-130.85	1,090.3	677.0	871.4	816.0	55.39	15.733			
9,300.0	8,624.0	9,932.7	9,194.0	36.1	39.1	-130.85	1,089.8	777.0	871.4	814.3	57.09	15.264			
9,400.0	8,624.0	10,032.7	9,194.0	37.4	40.2	-130.85	1,089.3	877.0	871.4	812.4	58.98	14.773			
9,500.0	8,624.0	10,132.7	9,194.0	38.8	41.5	-130.85	1,088.8	977.0	871.4	810.3	61.06	14.272			
9,600.0	8,624.0	10,232.7	9,194.0	40.3	42.9	-130.85	1,088.3	1,077.0	871.4	808.1	63.29	13.768			
9,700.0	8,624.0	10,332.7	9,194.0	41.9	44.4	-130.85	1,087.9	1,177.0	871.4	805.7	65.67	13.269			
9,800.0	8,624.0	10,432.7	9,194.0	43.6	46.0	-130.85	1,087.4	1,277.0	871.4	803.2	68.18	12.781			
9,900.0	8,624.0	10,532.7	9,194.0	45.3	47.6	-130.85	1,086.9	1,377.0	871.4	800.6	70.80	12.308			
10,000.0	8,624.0	10,632.7	9,194.0	47.1	49.3	-130.85	1,086.4	1,477.0	871.4	797.9	73.53	11.852			
10,100.0	8,624.0	10,732.7	9,194.0	49.0	51.1	-130.85	1,085.9	1,577.0	871.4	795.1	76.34	11.415			
10,200.0	8,624.0	10,832.7	9,194.0	50.9	52.9	-130.85	1,085.4	1,677.0	871.5	792.2	79.24	10.997			
10,300.0	8,624.0	10,932.7	9,194.0	52.8	54.7	-130.85	1,084.9	1,777.0	871.5	789.2	82.21	10.600			
10,400.0	8,624.0	11,032.7	9,194.0	54.8	56.7	-130.85	1,084.4	1,877.0	871.5	786.2	85.25	10.222			
10,500.0	8,624.0	11,132.7	9,194.0	56.8	58.6	-130.85	1,083.9	1,977.0	871.5	783.1	88.35	9.864			
10,600.0	8,624.0	11,232.7	9,194.0	58.8	60.6	-130.85	1,083.4	2,077.0	871.5	780.0	91.50	9.524			
10,700.0	8,624.0	11,332.7	9,194.0	60.9	62.6	-130.85	1,082.9	2,177.0	871.5	776.8	94.70	9.203			
10,800.0	8,624.0	11,432.7	9,194.0	63.0	64.6	-130.85	1,082.4	2,277.0	871.5	773.6	97.94	8.899			
10,900.0	8,624.0	11,532.7	9,194.0	65.1	66.7	-130.85	1,081.9	2,377.0	871.5	770.3	101.22	8.610			
11,000.0	8,624.0	11,632.7	9,194.0	67.3	68.8	-130.85	1,081.4	2,477.0	871.5	767.0	104.53	8.337			
11,100.0	8,624.0	11,732.7	9,194.0	69.4	70.9	-130.85	1,081.0	2,577.0	871.5	763.6	107.88	8.079			
11,200.0	8,624.0	11,832.7	9,194.0	71.6	73.0	-130.85	1,080.5	2,677.0	871.5	760.3	111.25	7.834			
11,300.0	8,624.0	11,932.7	9,194.0	73.8	75.2	-130.85	1,080.0	2,777.0	871.5	756.9	114.66	7.601			
11,400.0	8,624.0	12,032.7	9,194.0	76.0	77.3	-130.85	1,079.5	2,877.0	871.5	753.5	118.08	7.381			
11,500.0	8,624.0	12,132.7	9,194.0	78.2	79.5	-130.84	1,079.0	2,977.0	871.5	750.0	121.53	7.171			
11,600.0	8,624.0	12,232.7	9,194.0	80.4	81.7	-130.84	1,078.5	3,077.0	871.5	746.5	125.00	6.972			
11,700.0	8,624.0	12,332.7	9,194.0	82.7	83.9	-130.84	1,078.0	3,177.0	871.6	743.1	128.49	6.783			
11,800.0	8,624.0	12,432.7	9,194.0	84.9	86.1	-130.84	1,077.5	3,277.0	871.6	739.6	131.99	6.603			
11,900.0	8,624.0	12,532.7	9,194.0	87.2	88.3	-130.84	1,077.0	3,377.0	871.6	736.1	135.51	6.432			
12,000.0	8,624.0	12,632.7	9,194.0	89.5	90.6	-130.84	1,076.5	3,477.0	871.6	732.5	139.05	6.268			
12,100.0	8,624.0	12,732.7	9,194.0	91.7	92.8	-130.84	1,076.0	3,577.0	871.6	729.0	142.60	6.112			
12,200.0	8,624.0	12,832.7	9,194.0	94.0	95.1	-130.84	1,075.5	3,677.0	871.6	725.4	146.16	5.963			
12,300.0	8,624.0	12,932.7	9,194.0	96.3	97.3	-130.84	1,075.0	3,777.0	871.6	721.9	149.73	5.821			
12,400.0	8,624.0	13,032.7	9,194.0	98.6	99.6	-130.84	1,074.5	3,877.0	871.6	718.3	153.32	5.685			
12,500.0	8,624.0	13,132.7	9,194.0	100.9	101.9	-130.84	1,074.1	3,977.0	871.6	714.7	156.91	5.555			
12,600.0	8,624.0	13,232.7	9,194.0	103.2	104.2	-130.84	1,073.6	4,077.0	871.6	711.1	160.52	5.430			
12,700.0	8,624.0	13,332.7	9,194.0	105.5	106.5	-130.84	1,073.1	4,176.9	871.6	707.5	164.13	5.311			
12,800.0	8,624.0	13,432.7	9,194.0	107.8	108.8	-130.84	1,072.6	4,276.9	871.6	703.9	167.75	5.196			
12,900.0	8,624.0	13,532.7	9,194.0	110.2	111.1	-130.84	1,072.1	4,376.9	871.6	700.3	171.38	5.086			

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 131H - OWB - PWP0														Offset Site Error:	0.0 usft
Survey Program:		0-MWD		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
13,000.0	8,624.0	13,632.7	9,194.0	112.5	113.4	-130.84	1,071.6	4,476.9	871.6	696.6	175.02	4.980			
13,100.0	8,624.0	13,732.7	9,194.0	114.8	115.7	-130.84	1,071.1	4,576.9	871.6	693.0	178.66	4.879			
13,200.0	8,624.0	13,832.7	9,194.0	117.1	118.0	-130.84	1,070.6	4,676.9	871.7	689.3	182.31	4.781			
13,300.0	8,624.0	13,932.7	9,194.0	119.5	120.3	-130.84	1,070.1	4,776.9	871.7	685.7	185.96	4.687			
13,400.0	8,624.0	14,032.7	9,194.0	121.8	122.6	-130.84	1,069.6	4,876.9	871.7	682.0	189.63	4.597			
13,500.0	8,624.0	14,132.7	9,194.0	124.2	125.0	-130.84	1,069.1	4,976.9	871.7	678.4	193.29	4.510			
13,600.0	8,624.0	14,232.7	9,194.0	126.5	127.3	-130.84	1,068.6	5,076.9	871.7	674.7	196.96	4.426			
13,700.0	8,624.0	14,332.7	9,194.0	128.9	129.6	-130.84	1,068.1	5,176.9	871.7	671.0	200.64	4.345			
13,800.0	8,624.0	14,432.7	9,194.0	131.2	132.0	-130.84	1,067.6	5,276.9	871.7	667.4	204.32	4.266			
13,900.0	8,624.0	14,532.7	9,194.0	133.6	134.3	-130.84	1,067.2	5,376.9	871.7	663.7	208.01	4.191			
14,000.0	8,624.0	14,632.7	9,194.0	135.9	136.6	-130.84	1,066.7	5,476.9	871.7	660.0	211.70	4.118			
14,100.0	8,624.0	14,732.7	9,194.0	138.3	139.0	-130.84	1,066.2	5,576.9	871.7	656.3	215.39	4.047			
14,200.0	8,624.0	14,832.7	9,194.0	140.6	141.3	-130.83	1,065.7	5,676.9	871.7	652.6	219.09	3.979			
14,300.0	8,624.0	14,932.7	9,194.0	143.0	143.7	-130.83	1,065.2	5,776.9	871.7	648.9	222.79	3.913			
14,400.0	8,624.0	15,032.7	9,194.0	145.4	146.0	-130.83	1,064.7	5,876.9	871.7	645.2	226.49	3.849			
14,500.0	8,624.0	15,132.7	9,194.0	147.7	148.4	-130.83	1,064.2	5,976.9	871.7	641.5	230.20	3.787			
14,600.0	8,624.0	15,232.7	9,194.0	150.1	150.7	-130.83	1,063.7	6,076.9	871.7	637.8	233.91	3.727			
14,700.0	8,624.0	15,332.7	9,194.0	152.5	153.1	-130.83	1,063.2	6,176.9	871.8	634.1	237.62	3.669			
14,800.0	8,624.0	15,432.7	9,194.0	154.8	155.5	-130.83	1,062.7	6,276.9	871.8	630.4	241.34	3.612			
14,900.0	8,624.0	15,532.7	9,194.0	157.2	157.8	-130.83	1,062.2	6,376.9	871.8	626.7	245.06	3.557			
15,000.0	8,624.0	15,632.7	9,194.0	159.6	160.2	-130.83	1,061.7	6,476.9	871.8	623.0	248.78	3.504			
15,100.0	8,624.0	15,732.7	9,194.0	162.0	162.6	-130.83	1,061.2	6,576.9	871.8	619.3	252.50	3.453			
15,200.0	8,624.0	15,832.7	9,194.0	164.3	164.9	-130.83	1,060.7	6,676.9	871.8	615.6	256.23	3.402			
15,300.0	8,624.0	15,932.7	9,194.0	166.7	167.3	-130.83	1,060.3	6,776.9	871.8	611.8	259.95	3.354			
15,400.0	8,624.0	16,032.7	9,194.0	169.1	169.7	-130.83	1,059.8	6,876.9	871.8	608.1	263.68	3.306			
15,500.0	8,624.0	16,132.7	9,194.0	171.5	172.0	-130.83	1,059.3	6,976.9	871.8	604.4	267.42	3.260			
15,600.0	8,624.0	16,232.7	9,194.0	173.9	174.4	-130.83	1,058.8	7,076.9	871.8	600.7	271.15	3.215			
15,700.0	8,624.0	16,332.7	9,194.0	176.2	176.8	-130.83	1,058.3	7,176.9	871.8	596.9	274.89	3.172			
15,800.0	8,624.0	16,432.7	9,194.0	178.6	179.2	-130.83	1,057.8	7,276.9	871.8	593.2	278.62	3.129			
15,900.0	8,624.0	16,532.7	9,194.0	181.0	181.5	-130.83	1,057.3	7,376.9	871.8	589.5	282.36	3.088			
16,000.0	8,624.0	16,632.7	9,194.0	183.4	183.9	-130.83	1,056.8	7,476.9	871.8	585.7	286.10	3.047			
16,100.0	8,624.0	16,732.7	9,194.0	185.8	186.3	-130.83	1,056.3	7,576.9	871.8	582.0	289.85	3.008			
16,200.0	8,624.0	16,832.7	9,194.0	188.2	188.7	-130.83	1,055.8	7,676.9	871.9	578.3	293.59	2.970			
16,300.0	8,624.0	16,932.7	9,194.0	190.6	191.1	-130.83	1,055.3	7,776.9	871.9	574.5	297.34	2.932			
16,400.0	8,624.0	17,032.7	9,194.0	193.0	193.4	-130.83	1,054.8	7,876.9	871.9	570.8	301.08	2.896			
16,500.0	8,624.0	17,132.7	9,194.0	195.3	195.8	-130.83	1,054.3	7,976.9	871.9	567.0	304.83	2.860			
16,600.0	8,624.0	17,232.7	9,194.0	197.7	198.2	-130.83	1,053.8	8,076.9	871.9	563.3	308.58	2.825			
16,700.0	8,624.0	17,332.7	9,194.0	200.1	200.6	-130.83	1,053.4	8,176.9	871.9	559.6	312.33	2.792			
16,800.0	8,624.0	17,432.7	9,194.0	202.5	203.0	-130.82	1,052.9	8,276.9	871.9	555.8	316.09	2.758			
16,900.0	8,624.0	17,532.7	9,194.0	204.9	205.4	-130.82	1,052.4	8,376.9	871.9	552.1	319.84	2.726			
17,000.0	8,624.0	17,632.7	9,194.0	207.3	207.8	-130.82	1,051.9	8,476.9	871.9	548.3	323.59	2.694			
17,100.0	8,624.0	17,732.7	9,194.0	209.7	210.1	-130.82	1,051.4	8,576.9	871.9	544.6	327.35	2.664			
17,200.0	8,624.0	17,832.7	9,194.0	212.1	212.5	-130.82	1,050.9	8,676.9	871.9	540.8	331.11	2.633			
17,300.0	8,624.0	17,932.7	9,194.0	214.5	214.9	-130.82	1,050.4	8,776.9	871.9	537.1	334.86	2.604			
17,400.0	8,624.0	18,032.7	9,194.0	216.9	217.3	-130.82	1,049.9	8,876.9	871.9	533.3	338.62	2.575			
17,500.0	8,624.0	18,132.7	9,194.0	219.3	219.7	-130.82	1,049.4	8,976.9	871.9	529.6	342.38	2.547			
17,600.0	8,624.0	18,232.7	9,194.0	221.7	222.1	-130.82	1,048.9	9,076.9	871.9	525.8	346.14	2.519			
17,700.0	8,624.0	18,332.7	9,194.0	224.1	224.5	-130.82	1,048.4	9,176.9	872.0	522.1	349.90	2.492			
17,800.0	8,624.0	18,432.7	9,194.0	226.5	226.9	-130.82	1,047.9	9,276.9	872.0	518.3	353.67	2.465			
17,900.0	8,624.0	18,532.7	9,194.0	228.9	229.3	-130.82	1,047.4	9,376.9	872.0	514.5	357.43	2.440			
18,000.0	8,624.0	18,632.7	9,194.0	231.3	231.7	-130.82	1,046.9	9,476.9	872.0	510.8	361.19	2.414			
18,100.0	8,624.0	18,732.7	9,194.0	233.7	234.1	-130.82	1,046.5	9,576.9	872.0	507.0	364.96	2.389			

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 131H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,200.0	8,624.0	18,832.7	9,194.0	236.1	236.5	-130.82	1,046.0	9,676.9	872.0	503.3	368.73	2.365		
18,300.0	8,624.0	18,932.7	9,194.0	238.5	238.9	-130.82	1,045.5	9,776.9	872.0	499.5	372.49	2.341		
18,400.0	8,624.0	19,032.7	9,194.0	240.9	241.3	-130.82	1,045.0	9,876.9	872.0	495.7	376.26	2.318		
18,500.0	8,624.0	19,132.7	9,194.0	243.3	243.7	-130.82	1,044.5	9,976.9	872.0	492.0	380.03	2.295		
18,600.0	8,624.0	19,232.7	9,194.0	245.7	246.1	-130.82	1,044.0	10,076.9	872.0	488.2	383.80	2.272		
18,700.0	8,624.0	19,332.7	9,194.0	248.1	248.5	-130.82	1,043.5	10,176.9	872.0	484.5	387.57	2.250		
18,800.0	8,624.0	19,432.7	9,194.0	250.5	250.9	-130.82	1,043.0	10,276.9	872.0	480.7	391.34	2.228		
18,900.0	8,624.0	19,532.7	9,194.0	252.9	253.2	-130.82	1,042.5	10,376.9	872.0	476.9	395.11	2.207		
19,000.0	8,624.0	19,632.7	9,194.0	255.3	255.6	-130.82	1,042.0	10,476.9	872.0	473.2	398.88	2.186		
19,100.0	8,624.0	19,732.7	9,194.0	257.7	258.0	-130.82	1,041.5	10,576.9	872.0	469.4	402.65	2.166		
19,107.8	8,624.0	19,740.5	9,194.0	257.9	258.2	-130.82	1,041.5	10,584.7	872.1	469.1	402.94	2.164		
19,190.0	8,624.0	19,818.1	9,194.0	259.9	260.1	-130.82	1,041.1	10,662.3	872.1	466.1	406.00	2.148		
19,190.6	8,624.0	19,818.1	9,194.0	259.9	260.1	-130.82	1,041.1	10,662.3	872.1	466.0	406.02	2.148 SF		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 132H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 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)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	0.12	66.0	0.1	66.0				
100.0	100.0	100.0	100.0	0.1	0.1	0.12	66.0	0.1	66.0	65.7	0.25	263.022	
200.0	200.0	200.0	200.0	0.5	0.5	0.12	66.0	0.1	66.0	65.0	0.97	68.191	
300.0	300.0	300.0	300.0	0.8	0.8	0.12	66.0	0.1	66.0	64.3	1.68	39.173	
400.0	400.0	400.0	400.0	1.2	1.2	0.12	66.0	0.1	66.0	63.6	2.40	27.480	
500.0	500.0	500.0	500.0	1.6	1.6	0.12	66.0	0.1	66.0	62.9	3.12	21.163	
600.0	600.0	600.0	600.0	1.9	1.9	0.12	66.0	0.1	66.0	62.2	3.84	17.207	
700.0	700.0	700.0	700.0	2.3	2.3	0.12	66.0	0.1	66.0	61.4	4.55	14.497	
800.0	800.0	800.0	800.0	2.6	2.6	0.12	66.0	0.1	66.0	60.7	5.27	12.525	
900.0	900.0	900.0	900.0	3.0	3.0	0.12	66.0	0.1	66.0	60.0	5.99	11.025	
1,000.0	1,000.0	1,000.0	1,000.0	3.4	3.4	0.12	66.0	0.1	66.0	59.3	6.70	9.846	
1,100.0	1,100.0	1,100.0	1,100.0	3.7	3.7	0.12	66.0	0.1	66.0	58.6	7.42	8.894	
1,200.0	1,200.0	1,200.0	1,200.0	4.1	4.1	0.12	66.0	0.1	66.0	57.9	8.14	8.111	
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	0.12	66.0	0.1	66.0	57.1	8.85	7.454	
1,400.0	1,400.0	1,400.0	1,400.0	4.8	4.8	0.12	66.0	0.1	66.0	56.4	9.57	6.896	
1,500.0	1,500.0	1,500.0	1,500.0	5.1	5.1	0.12	66.0	0.1	66.0	55.7	10.29	6.415	
1,600.0	1,600.0	1,600.0	1,600.0	5.5	5.5	0.12	66.0	0.1	66.0	55.0	11.01	5.997	
1,700.0	1,700.0	1,700.0	1,700.0	5.9	5.9	0.12	66.0	0.1	66.0	54.3	11.72	5.630	
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	0.12	66.0	0.1	66.0	53.6	12.44	5.306	
1,900.0	1,900.0	1,900.0	1,900.0	6.6	6.6	0.12	66.0	0.1	66.0	52.8	13.16	5.017	
2,000.0	2,000.0	2,000.0	2,000.0	6.9	6.9	0.12	66.0	0.1	66.0	52.1	13.87	4.758	
2,100.0	2,100.0	2,100.0	2,100.0	7.3	7.3	0.12	66.0	0.1	66.0	51.4	14.59	4.524	
2,200.0	2,200.0	2,200.0	2,200.0	7.7	7.7	0.12	66.0	0.1	66.0	50.7	15.31	4.312	
2,300.0	2,300.0	2,300.0	2,300.0	8.0	8.0	0.12	66.0	0.1	66.0	50.0	16.02	4.119	
2,400.0	2,400.0	2,400.0	2,400.0	8.4	8.4	0.12	66.0	0.1	66.0	49.3	16.74	3.943	
2,500.0	2,500.0	2,500.0	2,500.0	8.7	8.7	0.12	66.0	0.1	66.0	48.5	17.46	3.781	
2,600.0	2,600.0	2,600.0	2,600.0	9.1	9.1	0.12	66.0	0.1	66.0	47.8	18.17	3.631	
2,700.0	2,700.0	2,700.0	2,700.0	9.4	9.4	0.12	66.0	0.1	66.0	47.1	18.89	3.494	
2,800.0	2,800.0	2,800.0	2,800.0	9.8	9.8	0.12	66.0	0.1	66.0	46.4	19.61	3.366	
2,900.0	2,900.0	2,902.0	2,901.9	10.2	10.2	-0.72	64.5	-0.8	64.5	44.2	20.31	3.176	
3,000.0	3,000.0	3,003.7	3,003.5	10.5	10.5	-3.48	59.8	-3.6	60.0	39.1	20.98	2.862	
3,100.0	3,100.0	3,104.0	3,103.5	10.9	10.8	1.67	52.7	-8.0	52.5	30.9	21.65	2.426	
3,200.0	3,200.0	3,203.4	3,202.5	11.2	11.1	-5.61	45.3	-12.5	43.6	21.2	22.35	1.950	
3,300.0	3,299.9	3,302.7	3,301.4	11.6	11.5	-17.17	37.9	-17.0	34.0	11.0	23.05	1.476 Level 3	
3,400.0	3,399.7	3,401.7	3,400.1	12.0	11.8	-38.39	30.5	-21.5	25.4	1.7	23.76	1.070 Level 3	
3,484.6	3,484.0	3,485.3	3,483.3	12.3	12.1	-68.72	24.3	-25.3	22.1	-2.2	24.34	0.908 Level 3, CC, ES, SF	
3,500.0	3,499.4	3,500.5	3,498.5	12.3	12.1	-75.06	23.2	-26.0	22.2	-2.2	24.43	0.910 Level 3	
3,600.0	3,598.9	3,599.1	3,596.6	12.7	12.5	-110.24	15.9	-30.5	29.2	4.1	25.07	1.163 Level 3	
3,700.0	3,698.3	3,697.3	3,694.5	13.0	12.8	-129.76	8.6	-35.0	43.4	17.6	25.75	1.685	
3,800.0	3,797.4	3,795.2	3,792.1	13.4	13.2	-140.17	1.3	-39.4	61.4	34.9	26.43	2.322	
3,900.0	3,896.4	3,893.0	3,889.4	13.8	13.5	-146.20	-6.0	-43.9	81.2	54.1	27.13	2.993	
4,000.0	3,995.5	3,990.7	3,986.8	14.1	13.9	-149.85	-13.2	-48.3	101.5	73.7	27.82	3.650	
4,100.0	4,094.5	4,088.4	4,084.2	14.5	14.2	-152.28	-20.5	-52.8	122.1	93.6	28.51	4.284	
4,200.0	4,193.5	4,186.2	4,181.6	14.9	14.6	-154.01	-27.8	-57.2	142.9	113.7	29.21	4.893	
4,300.0	4,292.5	4,283.9	4,278.9	15.3	14.9	-155.30	-35.0	-61.7	163.7	133.8	29.90	5.476	
4,400.0	4,391.6	4,381.7	4,376.3	15.6	15.3	-156.29	-42.3	-66.1	184.7	154.1	30.60	6.034	
4,500.0	4,490.6	4,479.4	4,473.7	16.0	15.6	-157.09	-49.6	-70.6	205.6	174.3	31.30	6.569	
4,600.0	4,589.6	4,577.2	4,571.0	16.4	16.0	-157.74	-56.8	-75.0	226.6	194.6	32.00	7.081	
4,700.0	4,688.6	4,674.9	4,668.4	16.8	16.3	-158.27	-64.1	-79.4	247.6	214.9	32.70	7.571	
4,800.0	4,787.7	4,772.7	4,765.8	17.2	16.7	-158.73	-71.4	-83.9	268.6	235.2	33.41	8.041	
4,900.0	4,886.7	4,870.4	4,863.2	17.5	17.0	-159.11	-78.6	-88.3	289.7	255.5	34.11	8.492	
5,000.0	4,985.7	4,968.1	4,960.5	17.9	17.4	-159.45	-85.9	-92.8	310.7	275.9	34.81	8.925	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 132H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
5,100.0	5,084.8	5,065.9	5,057.9	18.3	17.7	-159.74	-93.2	-97.2	331.8	296.2	35.52	9.340		
5,200.0	5,183.8	5,163.6	5,155.3	18.7	18.1	-160.00	-100.5	-101.7	352.8	316.6	36.23	9.739		
5,300.0	5,282.8	5,261.4	5,252.7	19.1	18.5	-160.23	-107.7	-106.1	373.9	337.0	36.93	10.123		
5,400.0	5,381.8	5,359.1	5,350.0	19.5	18.8	-160.43	-115.0	-110.6	395.0	357.3	37.64	10.493		
5,500.0	5,480.9	5,456.9	5,447.4	19.9	19.2	-160.62	-122.3	-115.0	416.0	377.7	38.35	10.848		
5,600.0	5,579.9	5,554.6	5,544.8	20.3	19.5	-160.78	-129.5	-119.4	437.1	398.1	39.06	11.191		
5,700.0	5,678.9	5,652.4	5,642.1	20.7	19.9	-160.93	-136.8	-123.9	458.2	418.4	39.77	11.521		
5,800.0	5,777.9	5,750.1	5,739.5	21.1	20.3	-161.07	-144.1	-128.3	479.3	438.8	40.48	11.839		
5,900.0	5,877.0	5,847.9	5,836.9	21.5	20.6	-161.20	-151.3	-132.8	500.4	459.2	41.20	12.147		
6,000.0	5,976.0	5,945.6	5,934.3	21.9	21.0	-161.31	-158.6	-137.2	521.5	479.6	41.91	12.444		
6,100.0	6,075.0	6,043.3	6,031.6	22.3	21.4	-161.42	-165.9	-141.7	542.6	500.0	42.62	12.730		
6,175.3	6,149.6	6,116.9	6,105.0	22.6	21.6	-161.49	-171.3	-145.0	558.5	515.3	43.16	12.940		
6,200.0	6,174.1	6,141.1	6,129.0	22.7	21.7	-161.53	-173.1	-146.1	563.6	520.3	43.34	13.006		
6,300.0	6,273.3	6,239.1	6,226.6	23.1	22.1	-161.65	-180.4	-150.6	583.5	539.5	44.05	13.247		
6,400.0	6,372.7	6,337.4	6,324.6	23.5	22.5	-161.70	-187.7	-155.0	601.8	557.0	44.76	13.443		
6,500.0	6,472.2	6,436.0	6,422.8	23.8	22.8	-161.70	-195.1	-159.5	618.4	572.9	45.48	13.598		
6,600.0	6,572.0	6,534.9	6,521.3	24.2	23.2	-161.64	-202.4	-164.0	633.4	587.2	46.20	13.712		
6,700.0	6,671.8	6,634.0	6,620.0	24.6	23.6	-161.53	-209.8	-168.5	646.8	599.9	46.91	13.787		
6,800.0	6,771.7	6,734.9	6,720.5	24.9	23.9	-161.37	-217.3	-173.1	658.5	610.8	47.64	13.823		
6,900.0	6,871.7	6,861.5	6,846.9	25.3	24.4	-161.21	-224.0	-177.2	666.3	617.7	48.55	13.724		
6,975.3	6,947.0	6,957.4	6,942.7	25.6	24.7	-171.44	-225.9	-178.4	668.4	619.2	49.19	13.588		
7,000.0	6,971.7	6,986.3	6,971.7	25.6	24.8	-171.43	-226.0	-178.5	668.5	619.1	49.38	13.537		
7,100.0	7,071.7	7,086.3	7,071.7	26.0	25.2	-171.43	-226.0	-178.5	668.5	618.4	50.08	13.348		
7,200.0	7,171.7	7,186.3	7,171.7	26.3	25.5	-171.43	-226.0	-178.5	668.5	617.7	50.78	13.165		
7,300.0	7,271.7	7,286.3	7,271.7	26.7	25.9	-171.43	-226.0	-178.5	668.5	617.0	51.47	12.986		
7,400.0	7,371.7	7,386.3	7,371.7	27.0	26.2	-171.43	-226.0	-178.5	668.5	616.3	52.17	12.812		
7,500.0	7,471.7	7,486.3	7,471.7	27.4	26.5	-171.43	-226.0	-178.5	668.5	615.6	52.87	12.643		
7,600.0	7,571.7	7,586.3	7,571.7	27.7	26.9	-171.43	-226.0	-178.5	668.5	614.9	53.57	12.478		
7,700.0	7,671.7	7,686.3	7,671.7	28.1	27.2	-171.43	-226.0	-178.5	668.5	614.2	54.27	12.317		
7,800.0	7,771.7	7,786.3	7,771.7	28.4	27.5	-171.43	-226.0	-178.5	668.5	613.5	54.97	12.160		
7,900.0	7,871.7	7,886.3	7,871.7	28.8	27.9	-171.43	-226.0	-178.5	668.5	612.8	55.67	12.007		
8,000.0	7,971.7	7,986.3	7,971.7	29.1	28.2	-171.43	-226.0	-178.5	668.5	612.1	56.37	11.857		
8,100.0	8,071.7	8,086.3	8,071.7	29.4	28.6	-171.43	-226.0	-178.5	668.5	611.4	57.08	11.712		
8,174.8	8,146.5	8,161.1	8,146.5	29.7	28.8	-171.43	-226.0	-178.5	668.5	610.9	57.60	11.605		
8,200.0	8,171.7	8,186.3	8,171.7	29.8	28.9	98.32	-226.0	-178.5	668.6	610.8	57.78	11.572		
8,225.0	8,196.6	8,211.2	8,196.6	29.9	29.0	98.46	-226.0	-178.5	668.8	610.9	57.94	11.543		
8,250.0	8,221.4	8,236.0	8,221.4	30.0	29.1	98.67	-226.0	-178.5	669.3	611.2	58.11	11.518		
8,275.0	8,246.0	8,260.6	8,246.0	30.0	29.2	98.97	-226.0	-178.5	670.0	611.8	58.28	11.497		
8,300.0	8,270.3	8,284.9	8,270.3	30.1	29.3	99.33	-226.0	-178.5	671.0	612.6	58.44	11.481		
8,325.0	8,294.2	8,308.9	8,294.2	30.2	29.3	99.76	-226.0	-178.5	672.2	613.6	58.60	11.471		
8,350.0	8,317.8	8,332.4	8,317.8	30.3	29.4	100.24	-226.0	-178.5	673.8	615.0	58.76	11.466		
8,375.0	8,340.9	8,355.5	8,340.9	30.3	29.5	100.76	-226.0	-178.5	675.7	616.7	58.92	11.467		
8,400.0	8,363.4	8,378.1	8,363.4	30.4	29.6	101.30	-226.0	-178.5	677.9	618.9	59.07	11.476		
8,425.0	8,385.4	8,400.0	8,385.4	30.5	29.6	101.85	-226.0	-178.5	680.6	621.4	59.22	11.493		
8,450.0	8,406.7	8,421.3	8,406.7	30.5	29.7	102.39	-226.0	-178.5	683.8	624.5	59.37	11.518		
8,475.0	8,427.3	8,441.9	8,427.3	30.6	29.8	102.91	-226.0	-178.5	687.6	628.1	59.51	11.553		
8,500.0	8,447.1	8,461.8	8,447.1	30.6	29.9	103.40	-226.0	-178.5	691.9	632.2	59.65	11.599		
8,525.0	8,466.1	8,480.8	8,466.1	30.7	29.9	103.82	-226.0	-178.5	696.8	637.0	59.79	11.655		
8,550.0	8,484.3	8,498.9	8,484.3	30.7	30.0	104.17	-226.0	-178.5	702.4	642.5	59.92	11.722		
8,575.0	8,501.5	8,516.1	8,501.5	30.8	30.0	104.42	-226.0	-178.5	708.7	648.7	60.05	11.802		
8,600.0	8,517.7	8,532.3	8,517.7	30.8	30.1	104.57	-226.0	-178.5	715.8	655.6	60.17	11.895		
8,625.0	8,532.9	8,547.5	8,532.9	30.9	30.2	104.60	-226.0	-178.5	723.6	663.3	60.30	12.000		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 132H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	+N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,650.0	8,547.0	8,561.7	8,547.0	30.9	30.2	104.48	-226.0	-178.5	732.2	671.7	60.41	12.119		
8,675.0	8,560.1	8,574.7	8,560.1	31.0	30.2	104.21	-226.0	-178.5	741.5	681.0	60.53	12.252		
8,700.0	8,572.0	8,586.6	8,572.0	31.1	30.3	103.76	-226.0	-178.5	751.7	691.1	60.63	12.398		
8,725.0	8,582.8	8,597.4	8,582.8	31.2	30.3	103.13	-226.0	-178.5	762.7	702.0	60.74	12.557		
8,750.0	8,592.3	8,606.9	8,592.3	31.3	30.4	102.30	-226.0	-178.5	774.5	713.6	60.83	12.731		
8,775.0	8,600.7	8,615.3	8,600.7	31.4	30.4	101.25	-226.0	-178.5	787.0	726.1	60.93	12.917		
8,800.0	8,607.7	8,622.4	8,607.7	31.6	30.4	99.98	-226.0	-178.5	800.2	739.2	61.01	13.116		
8,825.0	8,613.6	8,628.2	8,613.6	31.7	30.4	98.47	-226.0	-178.5	814.1	753.1	61.09	13.327		
8,850.0	8,618.1	8,632.7	8,618.1	31.9	30.4	96.72	-226.0	-178.5	828.7	767.6	61.16	13.550		
8,875.0	8,621.4	8,636.0	8,621.4	32.0	30.5	94.72	-226.0	-178.5	843.9	782.7	61.22	13.784		
8,900.0	8,623.3	8,637.9	8,623.3	32.2	30.5	92.47	-226.0	-178.5	859.6	798.3	61.28	14.028		
8,924.8	8,624.0	9,577.5	9,194.0	32.4	33.9	130.75	-228.8	395.3	873.1	818.5	54.67	15.972		
9,000.0	8,624.0	9,652.6	9,194.0	33.0	34.6	130.75	-229.2	470.5	873.1	817.5	55.60	15.705		
9,100.0	8,624.0	9,752.6	9,194.0	33.9	35.6	130.76	-229.7	570.5	873.1	816.1	57.03	15.310		
9,200.0	8,624.0	9,852.6	9,194.0	34.9	36.7	130.76	-230.1	670.5	873.1	814.4	58.68	14.880		
9,300.0	8,624.0	9,952.6	9,194.0	36.1	37.9	130.76	-230.6	770.5	873.1	812.6	60.52	14.427		
9,400.0	8,624.0	10,052.6	9,194.0	37.4	39.2	130.76	-231.1	870.5	873.1	810.5	62.54	13.961		
9,500.0	8,624.0	10,152.6	9,194.0	38.8	40.7	130.76	-231.6	970.5	873.1	808.4	64.72	13.490		
9,600.0	8,624.0	10,252.6	9,194.0	40.3	42.2	130.76	-232.1	1,070.5	873.1	806.0	67.05	13.021		
9,700.0	8,624.0	10,352.6	9,194.0	41.9	43.8	130.76	-232.6	1,170.5	873.1	803.5	69.51	12.560		
9,800.0	8,624.0	10,452.6	9,194.0	43.6	45.5	130.76	-233.1	1,270.5	873.0	801.0	72.09	12.110		
9,900.0	8,624.0	10,552.6	9,194.0	45.3	47.2	130.76	-233.6	1,370.5	873.0	798.3	74.77	11.676		
10,000.0	8,624.0	10,652.6	9,194.0	47.1	49.0	130.76	-234.0	1,470.5	873.0	795.5	77.55	11.257		
10,100.0	8,624.0	10,752.6	9,194.0	49.0	50.9	130.76	-234.5	1,570.5	873.0	792.6	80.42	10.856		
10,200.0	8,624.0	10,852.6	9,194.0	50.9	52.8	130.76	-235.0	1,670.5	873.0	789.6	83.36	10.473		
10,300.0	8,624.0	10,952.6	9,194.0	52.8	54.7	130.76	-235.5	1,770.5	873.0	786.6	86.37	10.108		
10,400.0	8,624.0	11,052.6	9,194.0	54.8	56.7	130.76	-236.0	1,870.5	873.0	783.5	89.44	9.761		
10,500.0	8,624.0	11,152.6	9,194.0	56.8	58.7	130.76	-236.5	1,970.5	873.0	780.4	92.56	9.431		
10,600.0	8,624.0	11,252.6	9,194.0	58.8	60.7	130.76	-237.0	2,070.5	873.0	777.2	95.74	9.118		
10,700.0	8,624.0	11,352.6	9,194.0	60.9	62.8	130.77	-237.5	2,170.5	873.0	774.0	98.96	8.821		
10,800.0	8,624.0	11,452.6	9,194.0	63.0	64.9	130.77	-237.9	2,270.5	872.9	770.7	102.22	8.540		
10,900.0	8,624.0	11,552.6	9,194.0	65.1	67.0	130.77	-238.4	2,370.5	872.9	767.4	105.52	8.273		
11,000.0	8,624.0	11,652.6	9,194.0	67.3	69.1	130.77	-238.9	2,470.5	872.9	764.1	108.85	8.020		
11,100.0	8,624.0	11,752.6	9,194.0	69.4	71.3	130.77	-239.4	2,570.5	872.9	760.7	112.21	7.779		
11,200.0	8,624.0	11,852.6	9,194.0	71.6	73.5	130.77	-239.9	2,670.5	872.9	757.3	115.60	7.551		
11,300.0	8,624.0	11,952.6	9,194.0	73.8	75.6	130.77	-240.4	2,770.5	872.9	753.9	119.02	7.334		
11,400.0	8,624.0	12,052.6	9,194.0	76.0	77.8	130.77	-240.9	2,870.5	872.9	750.4	122.46	7.128		
11,500.0	8,624.0	12,152.6	9,194.0	78.2	80.0	130.77	-241.4	2,970.5	872.9	746.9	125.92	6.932		
11,600.0	8,624.0	12,252.6	9,194.0	80.4	82.3	130.77	-241.9	3,070.5	872.9	743.5	129.40	6.745		
11,700.0	8,624.0	12,352.6	9,194.0	82.7	84.5	130.77	-242.3	3,170.5	872.8	739.9	132.90	6.568		
11,800.0	8,624.0	12,452.6	9,194.0	84.9	86.7	130.77	-242.8	3,270.5	872.8	736.4	136.41	6.398		
11,900.0	8,624.0	12,552.6	9,194.0	87.2	89.0	130.77	-243.3	3,370.5	872.8	732.9	139.94	6.237		
12,000.0	8,624.0	12,652.6	9,194.0	89.5	91.3	130.77	-243.8	3,470.5	872.8	729.3	143.49	6.083		
12,100.0	8,624.0	12,752.6	9,194.0	91.7	93.5	130.77	-244.3	3,570.5	872.8	725.8	147.05	5.935		
12,200.0	8,624.0	12,852.6	9,194.0	94.0	95.8	130.77	-244.8	3,670.5	872.8	722.2	150.62	5.795		
12,300.0	8,624.0	12,952.6	9,194.0	96.3	98.1	130.77	-245.3	3,770.5	872.8	718.6	154.20	5.660		
12,400.0	8,624.0	13,052.6	9,194.0	98.6	100.4	130.78	-245.8	3,870.5	872.8	715.0	157.80	5.531		
12,500.0	8,624.0	13,152.6	9,194.0	100.9	102.7	130.78	-246.2	3,970.5	872.8	711.4	161.40	5.407		
12,600.0	8,624.0	13,252.6	9,194.0	103.2	105.0	130.78	-246.7	4,070.5	872.8	707.7	165.01	5.289		
12,700.0	8,624.0	13,352.6	9,194.0	105.5	107.3	130.78	-247.2	4,170.5	872.7	704.1	168.64	5.175		
12,800.0	8,624.0	13,452.6	9,194.0	107.8	109.6	130.78	-247.7	4,270.5	872.7	700.5	172.27	5.066		
12,900.0	8,624.0	13,552.6	9,194.0	110.2	111.9	130.78	-248.2	4,370.5	872.7	696.8	175.90	4.961		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 132H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	+N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,000.0	8,624.0	13,652.6	9,194.0	112.5	114.2	130.78	-248.7	4,470.5	872.7	693.2	179.55	4.861		
13,100.0	8,624.0	13,752.6	9,194.0	114.8	116.6	130.78	-249.2	4,570.5	872.7	689.5	183.20	4.764		
13,200.0	8,624.0	13,852.6	9,194.0	117.1	118.9	130.78	-249.7	4,670.5	872.7	685.8	186.86	4.670		
13,300.0	8,624.0	13,952.6	9,194.0	119.5	121.2	130.78	-250.1	4,770.5	872.7	682.2	190.52	4.580		
13,400.0	8,624.0	14,052.6	9,194.0	121.8	123.6	130.78	-250.6	4,870.5	872.7	678.5	194.19	4.494		
13,500.0	8,624.0	14,152.6	9,194.0	124.2	125.9	130.78	-251.1	4,970.5	872.7	674.8	197.87	4.410		
13,600.0	8,624.0	14,252.6	9,194.0	126.5	128.3	130.78	-251.6	5,070.5	872.6	671.1	201.55	4.330		
13,700.0	8,624.0	14,352.6	9,194.0	128.9	130.6	130.78	-252.1	5,170.5	872.6	667.4	205.23	4.252		
13,800.0	8,624.0	14,452.6	9,194.0	131.2	132.9	130.78	-252.6	5,270.5	872.6	663.7	208.92	4.177		
13,900.0	8,624.0	14,552.6	9,194.0	133.6	135.3	130.78	-253.1	5,370.5	872.6	660.0	212.62	4.104		
14,000.0	8,624.0	14,652.6	9,194.0	135.9	137.6	130.78	-253.6	5,470.5	872.6	656.3	216.31	4.034		
14,100.0	8,624.0	14,752.6	9,194.0	138.3	140.0	130.79	-254.1	5,570.5	872.6	652.6	220.02	3.966		
14,200.0	8,624.0	14,852.6	9,194.0	140.6	142.4	130.79	-254.5	5,670.5	872.6	648.9	223.72	3.900		
14,300.0	8,624.0	14,952.6	9,194.0	143.0	144.7	130.79	-255.0	5,770.5	872.6	645.1	227.43	3.837		
14,400.0	8,624.0	15,052.6	9,194.0	145.4	147.1	130.79	-255.5	5,870.5	872.6	641.4	231.14	3.775		
14,500.0	8,624.0	15,152.6	9,194.0	147.7	149.4	130.79	-256.0	5,970.5	872.6	637.7	234.86	3.715		
14,600.0	8,624.0	15,252.6	9,194.0	150.1	151.8	130.79	-256.5	6,070.5	872.5	634.0	238.58	3.657		
14,700.0	8,624.0	15,352.6	9,194.0	152.5	154.2	130.79	-257.0	6,170.5	872.5	630.2	242.30	3.601		
14,800.0	8,624.0	15,452.6	9,194.0	154.8	156.5	130.79	-257.5	6,270.4	872.5	626.5	246.02	3.547		
14,900.0	8,624.0	15,552.6	9,194.0	157.2	158.9	130.79	-258.0	6,370.4	872.5	622.8	249.75	3.494		
15,000.0	8,624.0	15,652.6	9,194.0	159.6	161.3	130.79	-258.4	6,470.4	872.5	619.0	253.48	3.442		
15,100.0	8,624.0	15,752.6	9,194.0	162.0	163.7	130.79	-258.9	6,570.4	872.5	615.3	257.21	3.392		
15,200.0	8,624.0	15,852.6	9,194.0	164.3	166.0	130.79	-259.4	6,670.4	872.5	611.5	260.94	3.344		
15,300.0	8,624.0	15,952.6	9,194.0	166.7	168.4	130.79	-259.9	6,770.4	872.5	607.8	264.68	3.296		
15,400.0	8,624.0	16,052.6	9,194.0	169.1	170.8	130.79	-260.4	6,870.4	872.5	604.0	268.41	3.250		
15,500.0	8,624.0	16,152.6	9,194.0	171.5	173.2	130.79	-260.9	6,970.4	872.4	600.3	272.15	3.206		
15,600.0	8,624.0	16,252.6	9,194.0	173.9	175.6	130.79	-261.4	7,070.4	872.4	596.5	275.90	3.162		
15,700.0	8,624.0	16,352.6	9,194.0	176.2	177.9	130.79	-261.9	7,170.4	872.4	592.8	279.64	3.120		
15,800.0	8,624.0	16,452.6	9,194.0	178.6	180.3	130.80	-262.3	7,270.4	872.4	589.0	283.38	3.079		
15,900.0	8,624.0	16,552.6	9,194.0	181.0	182.7	130.80	-262.8	7,370.4	872.4	585.3	287.13	3.038		
16,000.0	8,624.0	16,652.6	9,194.0	183.4	185.1	130.80	-263.3	7,470.4	872.4	581.5	290.88	2.999		
16,100.0	8,624.0	16,752.6	9,194.0	185.8	187.5	130.80	-263.8	7,570.4	872.4	577.8	294.63	2.961		
16,200.0	8,624.0	16,852.6	9,194.0	188.2	189.9	130.80	-264.3	7,670.4	872.4	574.0	298.38	2.924		
16,300.0	8,624.0	16,952.6	9,194.0	190.6	192.2	130.80	-264.8	7,770.4	872.4	570.2	302.13	2.887		
16,400.0	8,624.0	17,052.6	9,194.0	193.0	194.6	130.80	-265.3	7,870.4	872.4	566.5	305.89	2.852		
16,500.0	8,624.0	17,152.6	9,194.0	195.3	197.0	130.80	-265.8	7,970.4	872.3	562.7	309.64	2.817		
16,600.0	8,624.0	17,252.6	9,194.0	197.7	199.4	130.80	-266.3	8,070.4	872.3	558.9	313.40	2.783		
16,700.0	8,624.0	17,352.6	9,194.0	200.1	201.8	130.80	-266.7	8,170.4	872.3	555.2	317.16	2.750		
16,800.0	8,624.0	17,452.6	9,194.0	202.5	204.2	130.80	-267.2	8,270.4	872.3	551.4	320.92	2.718		
16,900.0	8,624.0	17,552.6	9,194.0	204.9	206.6	130.80	-267.7	8,370.4	872.3	547.6	324.68	2.687		
17,000.0	8,624.0	17,652.6	9,194.0	207.3	209.0	130.80	-268.2	8,470.4	872.3	543.9	328.44	2.656		
17,100.0	8,624.0	17,752.6	9,194.0	209.7	211.4	130.80	-268.7	8,570.4	872.3	540.1	332.20	2.626		
17,200.0	8,624.0	17,852.6	9,194.0	212.1	213.8	130.80	-269.2	8,670.4	872.3	536.3	335.97	2.596		
17,300.0	8,624.0	17,952.6	9,194.0	214.5	216.2	130.80	-269.7	8,770.4	872.3	532.5	339.73	2.567		
17,400.0	8,624.0	18,052.6	9,194.0	216.9	218.5	130.80	-270.2	8,870.4	872.3	528.8	343.50	2.539		
17,500.0	8,624.0	18,152.6	9,194.0	219.3	220.9	130.81	-270.6	8,970.4	872.2	525.0	347.26	2.512		
17,600.0	8,624.0	18,252.6	9,194.0	221.7	223.3	130.81	-271.1	9,070.4	872.2	521.2	351.03	2.485		
17,700.0	8,624.0	18,352.6	9,194.0	224.1	225.7	130.81	-271.6	9,170.4	872.2	517.4	354.80	2.458		
17,800.0	8,624.0	18,452.6	9,194.0	226.5	228.1	130.81	-272.1	9,270.4	872.2	513.6	358.57	2.432		
17,900.0	8,624.0	18,552.6	9,194.0	228.9	230.5	130.81	-272.6	9,370.4	872.2	509.9	362.34	2.407		
18,000.0	8,624.0	18,652.6	9,194.0	231.3	232.9	130.81	-273.1	9,470.4	872.2	506.1	366.11	2.382		
18,100.0	8,624.0	18,752.6	9,194.0	233.7	235.3	130.81	-273.6	9,570.4	872.2	502.3	369.88	2.358		

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

Colgate Operating

Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 132H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program:	0-MWD											Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Rule Assigned:								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
18,200.0	8,624.0	18,852.6	9,194.0	236.1	237.7	130.81	-274.1	9,670.4	872.2	498.5	373.65	2.334	
18,300.0	8,624.0	18,952.6	9,194.0	238.5	240.1	130.81	-274.5	9,770.4	872.2	494.7	377.43	2.311	
18,400.0	8,624.0	19,052.6	9,194.0	240.9	242.5	130.81	-275.0	9,870.4	872.1	490.9	381.20	2.288	
18,500.0	8,624.0	19,152.6	9,194.0	243.3	244.9	130.81	-275.5	9,970.4	872.1	487.2	384.97	2.265	
18,600.0	8,624.0	19,252.6	9,194.0	245.7	247.3	130.81	-276.0	10,070.4	872.1	483.4	388.75	2.243	
18,700.0	8,624.0	19,352.6	9,194.0	248.1	249.7	130.81	-276.5	10,170.4	872.1	479.6	392.52	2.222	
18,800.0	8,624.0	19,452.6	9,194.0	250.5	252.1	130.81	-277.0	10,270.4	872.1	475.8	396.30	2.201	
18,900.0	8,624.0	19,552.6	9,194.0	252.9	254.5	130.81	-277.5	10,370.4	872.1	472.0	400.08	2.180	
19,000.0	8,624.0	19,652.6	9,194.0	255.3	256.9	130.81	-278.0	10,470.4	872.1	468.2	403.85	2.159	
19,100.0	8,624.0	19,752.6	9,194.0	257.7	259.3	130.81	-278.4	10,570.4	872.1	464.4	407.63	2.139	
19,190.0	8,624.0	19,842.6	9,194.0	259.9	261.5	130.82	-278.9	10,660.3	872.1	461.0	411.03	2.122	
19,190.6	8,624.0	19,843.2	9,194.0	259.9	261.5	130.82	-278.9	10,661.0	872.1	461.0	411.05	2.122	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 172H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
0.0	0.0	0.0	0.0	0.0	0.0	-179.88	-33.0	-0.1	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.88	-33.0	-0.1	33.0	32.7	0.25	131.511		
200.0	200.0	200.0	200.0	0.5	0.5	-179.88	-33.0	-0.1	33.0	32.0	0.97	34.095		
300.0	300.0	300.0	300.0	0.8	0.8	-179.88	-33.0	-0.1	33.0	31.3	1.68	19.587		
400.0	400.0	400.0	400.0	1.2	1.2	-179.88	-33.0	-0.1	33.0	30.6	2.40	13.740		
500.0	500.0	500.0	500.0	1.6	1.6	-179.88	-33.0	-0.1	33.0	29.9	3.12	10.581		
600.0	600.0	600.0	600.0	1.9	1.9	-179.88	-33.0	-0.1	33.0	29.2	3.84	8.604		
700.0	700.0	700.0	700.0	2.3	2.3	-179.88	-33.0	-0.1	33.0	28.4	4.55	7.249		
800.0	800.0	800.0	800.0	2.6	2.6	-179.88	-33.0	-0.1	33.0	27.7	5.27	6.262		
900.0	900.0	900.0	900.0	3.0	3.0	-179.88	-33.0	-0.1	33.0	27.0	5.99	5.512		
1,000.0	1,000.0	1,000.0	1,000.0	3.4	3.4	-179.88	-33.0	-0.1	33.0	26.3	6.70	4.923		
1,100.0	1,100.0	1,100.0	1,100.0	3.7	3.7	-179.88	-33.0	-0.1	33.0	25.6	7.42	4.447		
1,200.0	1,200.0	1,200.0	1,200.0	4.1	4.1	-179.88	-33.0	-0.1	33.0	24.9	8.14	4.055		
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	-179.88	-33.0	-0.1	33.0	24.1	8.85	3.727		
1,400.0	1,400.0	1,400.0	1,400.0	4.8	4.8	-179.88	-33.0	-0.1	33.0	23.4	9.57	3.448		
1,500.0	1,500.0	1,500.0	1,500.0	5.1	5.1	-179.88	-33.0	-0.1	33.0	22.7	10.29	3.208		
1,600.0	1,600.0	1,600.0	1,600.0	5.5	5.5	-179.88	-33.0	-0.1	33.0	22.0	11.01	2.999		
1,700.0	1,700.0	1,700.0	1,700.0	5.9	5.9	-179.88	-33.0	-0.1	33.0	21.3	11.72	2.815		
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	-179.88	-33.0	-0.1	33.0	20.6	12.44	2.653		
1,900.0	1,900.0	1,900.0	1,900.0	6.6	6.6	-179.88	-33.0	-0.1	33.0	19.8	13.16	2.508		
2,000.0	2,000.0	2,000.0	2,000.0	6.9	6.9	-179.88	-33.0	-0.1	33.0	19.1	13.87	2.379 CC, ES, SF		
2,100.0	2,100.0	2,098.8	2,098.8	7.3	7.3	-179.63	-34.7	-0.2	34.7	20.2	14.56	2.384		
2,200.0	2,200.0	2,197.4	2,197.3	7.7	7.6	-179.01	-39.8	-0.7	39.9	24.7	15.22	2.620		
2,300.0	2,300.0	2,295.5	2,295.0	8.0	7.9	-178.27	-48.2	-1.5	48.4	32.6	15.86	3.055		
2,400.0	2,400.0	2,393.0	2,391.7	8.4	8.2	-177.59	-59.8	-2.5	60.4	43.9	16.48	3.666		
2,500.0	2,500.0	2,489.5	2,487.1	8.7	8.6	-177.03	-74.5	-3.9	75.7	58.7	17.09	4.434		
2,600.0	2,600.0	2,587.7	2,583.8	9.1	8.9	-176.61	-91.5	-5.4	93.1	75.3	17.76	5.242		
2,700.0	2,700.0	2,686.2	2,680.8	9.4	9.3	-176.32	-108.5	-7.0	110.4	92.0	18.45	5.988		
2,800.0	2,800.0	2,784.7	2,777.8	9.8	9.6	-176.11	-125.6	-8.5	127.8	108.7	19.13	6.679		
2,900.0	2,900.0	2,883.2	2,874.8	10.2	10.0	-175.95	-142.6	-10.1	145.2	125.3	19.83	7.321		
3,000.0	3,000.0	2,981.6	2,971.8	10.5	10.4	-175.83	-159.6	-11.6	162.5	142.0	20.52	7.920		
3,100.0	3,100.0	3,080.0	3,068.6	10.9	10.8	-165.47	-176.6	-13.2	180.7	159.5	21.22	8.517		
3,200.0	3,200.0	3,178.0	3,165.1	11.2	11.1	-165.52	-193.6	-14.8	200.6	178.7	21.92	9.152		
3,300.0	3,299.9	3,275.6	3,261.3	11.6	11.5	-165.66	-210.5	-16.3	222.1	199.5	22.61	9.821		
3,400.0	3,399.7	3,372.9	3,357.1	12.0	11.9	-165.87	-227.3	-17.8	245.2	221.9	23.31	10.522		
3,500.0	3,499.4	3,469.8	3,452.5	12.3	12.3	-166.12	-244.0	-19.4	270.0	246.0	24.00	11.251		
3,600.0	3,598.9	3,566.2	3,547.5	12.7	12.7	-166.40	-260.7	-20.9	296.5	271.8	24.70	12.006		
3,700.0	3,698.3	3,662.1	3,642.0	13.0	13.1	-166.69	-277.3	-22.4	324.6	299.2	25.39	12.786		
3,800.0	3,797.4	3,757.6	3,736.0	13.4	13.5	-166.99	-293.8	-23.9	354.3	328.3	26.08	13.588		
3,900.0	3,896.4	3,852.8	3,829.7	13.8	13.9	-167.33	-310.3	-25.4	384.9	358.1	26.77	14.380		
4,000.0	3,995.5	3,948.0	3,923.4	14.1	14.3	-167.62	-326.7	-26.9	415.5	388.0	27.46	15.132		
4,100.0	4,094.5	4,043.2	4,017.2	14.5	14.7	-167.87	-343.2	-28.4	446.0	417.9	28.15	15.847		
4,200.0	4,193.5	4,138.4	4,110.9	14.9	15.1	-168.09	-359.7	-29.9	476.6	447.8	28.84	16.527		
4,300.0	4,292.5	4,233.6	4,204.7	15.3	15.5	-168.28	-376.1	-31.4	507.2	477.7	29.53	17.174		
4,400.0	4,391.6	4,328.8	4,298.4	15.6	15.9	-168.45	-392.6	-32.9	537.8	507.6	30.23	17.791		
4,500.0	4,490.6	4,423.9	4,392.2	16.0	16.3	-168.61	-409.0	-34.5	568.4	537.5	30.93	18.380		
4,600.0	4,589.6	4,519.1	4,485.9	16.4	16.7	-168.74	-425.5	-36.0	599.0	567.4	31.62	18.942		
4,700.0	4,688.6	4,614.3	4,579.7	16.8	17.1	-168.87	-442.0	-37.5	629.6	597.3	32.32	19.479		
4,800.0	4,787.7	4,709.5	4,673.4	17.2	17.5	-168.98	-458.4	-39.0	660.2	627.2	33.02	19.993		
4,900.0	4,886.7	4,804.7	4,767.2	17.5	18.0	-169.08	-474.9	-40.5	690.8	657.1	33.72	20.485		
5,000.0	4,985.7	4,899.9	4,860.9	17.9	18.4	-169.17	-491.4	-42.0	721.4	687.0	34.42	20.957		
5,100.0	5,084.8	4,995.1	4,954.7	18.3	18.8	-169.26	-507.8	-43.5	752.0	716.9	35.13	21.409		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 172H - OWB - PWPO													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
5,200.0	5,183.8	5,090.3	5,048.4	18.7	19.2	-169.34	-524.3	-45.0	782.6	746.8	35.83	21.843		
5,300.0	5,282.8	5,185.5	5,142.2	19.1	19.6	-169.41	-540.7	-46.5	813.3	776.7	36.53	22.260		
5,400.0	5,381.8	5,280.7	5,235.9	19.5	20.0	-169.48	-557.2	-48.0	843.9	806.6	37.24	22.661		
5,500.0	5,480.9	5,375.9	5,329.7	19.9	20.5	-169.54	-573.7	-49.5	874.5	836.5	37.95	23.046		
5,600.0	5,579.9	5,471.1	5,423.4	20.3	20.9	-169.60	-590.1	-51.0	905.1	866.5	38.65	23.417		
5,700.0	5,678.9	5,566.3	5,517.2	20.7	21.3	-169.66	-606.6	-52.5	935.7	896.4	39.36	23.775		
5,800.0	5,777.9	5,661.5	5,610.9	21.1	21.7	-169.71	-623.0	-54.0	966.3	926.3	40.07	24.119		
5,900.0	5,877.0	5,756.7	5,704.6	21.5	22.1	-169.76	-639.5	-55.5	997.0	956.2	40.77	24.451		
6,000.0	5,976.0	5,851.9	5,798.4	21.9	22.5	-169.80	-656.0	-57.0	1,027.6	986.1	41.48	24.771		
6,100.0	6,075.0	5,947.0	5,892.1	22.3	23.0	-169.85	-672.4	-58.5	1,058.2	1,016.0	42.19	25.080		
6,175.3	6,149.6	6,018.7	5,962.7	22.6	23.3	-169.88	-684.8	-59.7	1,081.3	1,038.5	42.73	25.306		
6,200.0	6,174.1	6,042.3	5,985.9	22.7	23.4	-169.90	-688.9	-60.0	1,088.8	1,045.9	42.90	25.378		
6,300.0	6,273.3	6,137.8	6,080.0	23.1	23.8	-169.98	-705.4	-61.6	1,118.2	1,074.6	43.61	25.638		
6,400.0	6,372.7	6,233.9	6,174.6	23.5	24.2	-170.04	-722.0	-63.1	1,145.9	1,101.6	44.33	25.852		
6,500.0	6,472.2	6,330.4	6,269.7	23.8	24.7	-170.08	-738.7	-64.6	1,172.0	1,127.0	45.04	26.021		
6,600.0	6,572.0	6,427.4	6,365.2	24.2	25.1	-170.10	-755.5	-66.1	1,196.5	1,150.7	45.76	26.147		
6,700.0	6,671.8	6,524.8	6,461.1	24.6	25.5	-170.10	-772.3	-67.7	1,219.2	1,172.7	46.48	26.233		
6,800.0	6,771.7	6,622.5	6,557.4	24.9	26.0	-170.09	-789.2	-69.2	1,240.3	1,193.1	47.19	26.280		
6,900.0	6,871.7	6,720.6	6,654.0	25.3	26.4	-170.07	-806.2	-70.8	1,259.7	1,211.8	47.91	26.291		
6,975.3	6,947.0	6,794.7	6,726.9	25.6	26.7	179.68	-819.0	-71.9	1,273.2	1,224.7	48.46	26.276		
7,000.0	6,971.7	6,819.0	6,750.9	25.6	26.8	179.70	-823.2	-72.3	1,277.5	1,228.8	48.63	26.267		
7,100.0	7,071.7	6,917.5	6,847.8	26.0	27.3	179.77	-840.2	-73.9	1,294.8	1,245.4	49.35	26.234		
7,200.0	7,171.7	7,091.5	7,019.9	26.3	28.0	179.88	-865.6	-76.2	1,309.4	1,258.8	50.62	25.869		
7,300.0	7,271.7	7,274.9	7,202.7	26.7	28.7	179.94	-881.0	-77.6	1,317.9	1,266.1	51.77	25.455		
7,400.0	7,371.7	7,444.0	7,371.7	27.0	29.3	179.96	-885.0	-78.0	1,320.0	1,267.3	52.70	25.047		
7,500.0	7,471.7	7,544.0	7,471.7	27.4	29.6	179.96	-885.0	-78.0	1,320.0	1,266.6	53.38	24.727		
7,600.0	7,571.7	7,644.0	7,571.7	27.7	29.9	179.96	-885.0	-78.0	1,320.0	1,265.9	54.07	24.415		
7,700.0	7,671.7	7,744.0	7,671.7	28.1	30.2	179.96	-885.0	-78.0	1,320.0	1,265.3	54.75	24.110		
7,800.0	7,771.7	7,844.0	7,771.7	28.4	30.5	179.96	-885.0	-78.0	1,320.0	1,264.6	55.43	23.812		
7,900.0	7,871.7	7,944.0	7,871.7	28.8	30.8	179.96	-885.0	-78.0	1,320.0	1,263.9	56.12	23.521		
8,000.0	7,971.7	8,044.0	7,971.7	29.1	31.1	179.96	-885.0	-78.0	1,320.0	1,263.2	56.81	23.237		
8,100.0	8,071.7	8,144.0	8,071.7	29.4	31.4	179.96	-885.0	-78.0	1,320.0	1,262.5	57.49	22.960		
8,174.8	8,146.5	8,218.8	8,146.5	29.7	31.6	179.96	-885.0	-78.0	1,320.0	1,262.0	58.01	22.756		
8,200.0	8,171.7	8,243.6	8,171.3	29.8	31.7	89.67	-885.0	-77.3	1,320.0	1,261.8	58.18	22.690		
8,225.0	8,196.6	8,268.2	8,195.8	29.9	31.7	89.67	-885.0	-75.4	1,320.0	1,261.7	58.34	22.626		
8,250.0	8,221.4	8,292.8	8,220.2	30.0	31.8	89.68	-885.0	-72.2	1,320.0	1,261.5	58.50	22.563		
8,275.0	8,246.0	8,317.4	8,244.4	30.0	31.9	89.68	-885.1	-67.8	1,320.0	1,261.3	58.66	22.501		
8,300.0	8,270.3	8,342.1	8,268.4	30.1	32.0	89.68	-885.1	-62.1	1,320.0	1,261.2	58.82	22.440		
8,325.0	8,294.2	8,366.7	8,292.0	30.2	32.0	89.69	-885.1	-55.2	1,320.0	1,261.0	58.98	22.380		
8,350.0	8,317.8	8,391.3	8,315.3	30.3	32.1	89.69	-885.2	-47.1	1,320.0	1,260.9	59.14	22.322		
8,375.0	8,340.9	8,416.0	8,338.1	30.3	32.2	89.70	-885.2	-37.8	1,320.0	1,260.7	59.29	22.264		
8,400.0	8,363.4	8,440.6	8,360.4	30.4	32.2	89.71	-885.3	-27.4	1,320.0	1,260.6	59.44	22.207		
8,425.0	8,385.4	8,465.3	8,382.2	30.5	32.3	89.72	-885.3	-15.8	1,320.0	1,260.4	59.59	22.151		
8,450.0	8,406.7	8,489.9	8,403.3	30.5	32.4	89.72	-885.4	-3.0	1,320.0	1,260.3	59.74	22.095		
8,475.0	8,427.3	8,514.6	8,423.7	30.6	32.4	89.73	-885.4	10.8	1,320.0	1,260.1	59.89	22.039		
8,500.0	8,447.1	8,539.3	8,443.5	30.6	32.5	89.74	-885.5	25.6	1,320.0	1,259.9	60.05	21.982		
8,525.0	8,466.1	8,564.0	8,462.4	30.7	32.5	89.76	-885.6	41.5	1,320.0	1,259.8	60.20	21.925		
8,550.0	8,484.3	8,588.7	8,480.5	30.7	32.6	89.77	-885.7	58.3	1,320.0	1,259.6	60.37	21.866		
8,575.0	8,501.5	8,613.4	8,497.7	30.8	32.6	89.78	-885.8	76.0	1,320.0	1,259.5	60.53	21.806		
8,600.0	8,517.7	8,638.2	8,514.0	30.8	32.7	89.79	-885.9	94.7	1,320.0	1,259.3	60.71	21.743		
8,625.0	8,532.9	8,662.9	8,529.3	30.9	32.7	89.81	-886.0	114.1	1,320.0	1,259.1	60.89	21.678		
8,650.0	8,547.0	8,687.7	8,543.6	30.9	32.7	89.82	-886.1	134.4	1,320.0	1,258.9	61.08	21.610		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 172H - OWB - PWPO													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)						
8,675.0	8,560.1	8,712.5	8,556.8	31.0	32.8	89.83	-886.2	155.3	1,320.0	1,258.7	61.29	21.538		
8,700.0	8,572.0	8,737.3	8,568.9	31.1	32.8	89.85	-886.3	177.0	1,320.0	1,258.5	61.50	21.462		
8,725.0	8,582.8	8,762.1	8,579.9	31.2	32.9	89.86	-886.4	199.2	1,320.0	1,258.3	61.73	21.383		
8,750.0	8,592.3	8,787.0	8,589.8	31.3	32.9	89.88	-886.5	222.0	1,320.0	1,258.0	61.98	21.298		
8,775.0	8,600.7	8,811.8	8,598.4	31.4	33.0	89.90	-886.6	245.3	1,320.0	1,257.7	62.23	21.210		
8,800.0	8,607.7	8,836.7	8,605.8	31.6	33.0	89.91	-886.7	269.1	1,320.0	1,257.5	62.51	21.117		
8,825.0	8,613.6	8,861.6	8,612.0	31.7	33.1	89.93	-886.9	293.2	1,320.0	1,257.2	62.80	21.019		
8,850.0	8,618.1	8,886.6	8,616.9	31.9	33.1	89.95	-887.0	317.6	1,320.0	1,256.9	63.10	20.918		
8,875.0	8,621.4	8,911.5	8,620.5	32.0	33.2	89.96	-887.1	342.3	1,320.0	1,256.6	63.42	20.812		
8,900.0	8,623.3	8,936.5	8,622.9	32.2	33.3	89.98	-887.2	367.2	1,320.0	1,256.2	63.76	20.704		
8,922.8	8,624.0	8,959.3	8,623.9	32.4	33.4	90.00	-887.3	389.9	1,320.0	1,255.9	64.07	20.602		
8,924.8	8,624.0	8,961.2	8,623.9	32.4	33.4	90.00	-887.4	391.9	1,320.0	1,255.9	64.10	20.593		
9,000.0	8,624.0	9,036.4	8,624.0	33.0	33.8	90.00	-887.7	467.1	1,320.0	1,254.7	65.27	20.225		
9,100.0	8,624.0	9,136.4	8,624.0	33.9	34.5	90.00	-888.2	567.1	1,320.0	1,252.9	67.07	19.680		
9,200.0	8,624.0	9,236.4	8,624.0	34.9	35.4	90.00	-888.7	667.1	1,320.0	1,250.8	69.17	19.082		
9,300.0	8,624.0	9,336.4	8,624.0	36.1	36.5	90.00	-889.2	767.1	1,320.0	1,248.4	71.54	18.451		
9,400.0	8,624.0	9,436.4	8,624.0	37.4	37.7	90.00	-889.7	867.1	1,320.0	1,245.8	74.15	17.802		
9,500.0	8,624.0	9,536.4	8,624.0	38.8	39.1	90.00	-890.2	967.1	1,320.0	1,243.0	76.97	17.149		
9,600.0	8,624.0	9,636.4	8,624.0	40.3	40.6	90.00	-890.7	1,067.1	1,320.0	1,240.0	79.99	16.502		
9,700.0	8,624.0	9,736.4	8,624.0	41.9	42.1	90.00	-891.2	1,167.1	1,320.0	1,236.8	83.18	15.869		
9,800.0	8,624.0	9,836.4	8,624.0	43.6	43.8	90.00	-891.8	1,267.1	1,320.0	1,233.5	86.53	15.255		
9,900.0	8,624.0	9,936.4	8,624.0	45.3	45.5	90.00	-892.3	1,367.1	1,320.0	1,230.0	90.01	14.665		
10,000.0	8,624.0	10,036.4	8,624.0	47.1	47.2	90.00	-892.8	1,467.1	1,320.0	1,226.4	93.61	14.101		
10,100.0	8,624.0	10,136.4	8,624.0	49.0	49.1	90.00	-893.3	1,567.1	1,320.0	1,222.7	97.32	13.563		
10,200.0	8,624.0	10,236.4	8,624.0	50.9	50.9	90.00	-893.8	1,667.1	1,320.0	1,218.9	101.13	13.053		
10,300.0	8,624.0	10,336.4	8,624.0	52.8	52.9	90.00	-894.3	1,767.1	1,320.0	1,215.0	105.02	12.569		
10,400.0	8,624.0	10,436.4	8,624.0	54.8	54.8	90.00	-894.8	1,867.1	1,320.0	1,211.0	108.98	12.112		
10,500.0	8,624.0	10,536.4	8,624.0	56.8	56.8	90.00	-895.3	1,967.1	1,320.0	1,207.0	113.02	11.679		
10,600.0	8,624.0	10,636.4	8,624.0	58.8	58.9	90.00	-895.8	2,067.1	1,320.0	1,202.9	117.12	11.271		
10,700.0	8,624.0	10,736.4	8,624.0	60.9	60.9	90.00	-896.3	2,167.1	1,320.0	1,198.7	121.27	10.885		
10,800.0	8,624.0	10,836.4	8,624.0	63.0	63.0	90.00	-896.8	2,267.1	1,320.0	1,194.5	125.47	10.520		
10,900.0	8,624.0	10,936.4	8,624.0	65.1	65.1	90.00	-897.3	2,367.1	1,320.0	1,190.3	129.72	10.176		
11,000.0	8,624.0	11,036.4	8,624.0	67.3	67.3	90.00	-897.8	2,467.1	1,320.0	1,186.0	134.01	9.850		
11,100.0	8,624.0	11,136.4	8,624.0	69.4	69.4	90.00	-898.3	2,567.1	1,320.0	1,181.7	138.33	9.542		
11,200.0	8,624.0	11,236.4	8,624.0	71.6	71.6	90.00	-898.8	2,667.1	1,320.0	1,177.3	142.69	9.251		
11,300.0	8,624.0	11,336.4	8,624.0	73.8	73.8	90.00	-899.3	2,767.1	1,320.0	1,172.9	147.07	8.975		
11,400.0	8,624.0	11,436.4	8,624.0	76.0	76.0	90.00	-899.8	2,867.1	1,320.0	1,168.5	151.49	8.713		
11,500.0	8,624.0	11,536.4	8,624.0	78.2	78.2	90.00	-900.3	2,967.1	1,320.0	1,164.1	155.93	8.465		
11,600.0	8,624.0	11,636.4	8,624.0	80.4	80.4	90.00	-900.8	3,067.1	1,320.0	1,159.6	160.39	8.230		
11,700.0	8,624.0	11,736.4	8,624.0	82.7	82.6	90.00	-901.3	3,167.1	1,320.0	1,155.1	164.88	8.006		
11,800.0	8,624.0	11,836.4	8,624.0	84.9	84.9	90.00	-901.8	3,267.1	1,320.0	1,150.6	169.38	7.793		
11,900.0	8,624.0	11,936.4	8,624.0	87.2	87.1	90.00	-902.3	3,367.1	1,320.0	1,146.1	173.91	7.590		
12,000.0	8,624.0	12,036.4	8,624.0	89.5	89.4	90.00	-902.8	3,467.1	1,320.0	1,141.5	178.45	7.397		
12,100.0	8,624.0	12,136.4	8,624.0	91.7	91.7	90.00	-903.3	3,567.1	1,320.0	1,137.0	183.00	7.213		
12,200.0	8,624.0	12,236.4	8,624.0	94.0	93.9	90.00	-903.8	3,667.1	1,320.0	1,132.4	187.57	7.037		
12,300.0	8,624.0	12,336.4	8,624.0	96.3	96.2	90.00	-904.3	3,767.1	1,320.0	1,127.8	192.16	6.869		
12,400.0	8,624.0	12,436.4	8,624.0	98.6	98.5	90.00	-904.8	3,867.1	1,320.0	1,123.2	196.75	6.709		
12,500.0	8,624.0	12,536.4	8,624.0	100.9	100.8	90.00	-905.3	3,967.1	1,320.0	1,118.6	201.36	6.555		
12,600.0	8,624.0	12,636.4	8,624.0	103.2	103.1	90.00	-905.8	4,067.1	1,320.0	1,114.0	205.98	6.408		
12,700.0	8,624.0	12,736.4	8,624.0	105.5	105.4	90.00	-906.3	4,167.1	1,320.0	1,109.4	210.61	6.268		
12,800.0	8,624.0	12,836.4	8,624.0	107.8	107.7	90.00	-906.8	4,267.1	1,320.0	1,104.7	215.24	6.132		
12,900.0	8,624.0	12,936.4	8,624.0	110.2	110.1	90.00	-907.3	4,367.1	1,320.0	1,100.1	219.89	6.003		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 172H - OWB - PWPO													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)						
13,000.0	8,624.0	13,036.4	8,624.0	112.5	112.4	90.00	-907.8	4,467.1	1,320.0	1,095.4	224.55	5.878		
13,100.0	8,624.0	13,136.4	8,624.0	114.8	114.7	90.00	-908.3	4,567.1	1,320.0	1,090.8	229.21	5.759		
13,200.0	8,624.0	13,236.4	8,624.0	117.1	117.0	90.00	-908.8	4,667.1	1,320.0	1,086.1	233.88	5.644		
13,300.0	8,624.0	13,336.4	8,624.0	119.5	119.4	90.00	-909.3	4,767.1	1,320.0	1,081.4	238.56	5.533		
13,400.0	8,624.0	13,436.4	8,624.0	121.8	121.7	90.00	-909.8	4,867.1	1,320.0	1,076.7	243.24	5.427		
13,500.0	8,624.0	13,536.4	8,624.0	124.2	124.1	90.00	-910.3	4,967.1	1,320.0	1,072.1	247.93	5.324		
13,600.0	8,624.0	13,636.4	8,624.0	126.5	126.4	90.00	-910.8	5,067.1	1,320.0	1,067.4	252.62	5.225		
13,700.0	8,624.0	13,736.4	8,624.0	128.9	128.7	90.00	-911.3	5,167.1	1,320.0	1,062.7	257.33	5.130		
13,800.0	8,624.0	13,836.4	8,624.0	131.2	131.1	90.00	-911.8	5,267.1	1,320.0	1,058.0	262.03	5.038		
13,900.0	8,624.0	13,936.4	8,624.0	133.6	133.4	90.00	-912.3	5,367.1	1,320.0	1,053.2	266.74	4.949		
14,000.0	8,624.0	14,036.4	8,624.0	135.9	135.8	90.00	-912.8	5,467.1	1,320.0	1,048.5	271.46	4.863		
14,100.0	8,624.0	14,136.4	8,624.0	138.3	138.2	90.00	-913.3	5,567.1	1,320.0	1,043.8	276.18	4.779		
14,200.0	8,624.0	14,236.4	8,624.0	140.6	140.5	90.00	-913.8	5,667.1	1,320.0	1,039.1	280.90	4.699		
14,300.0	8,624.0	14,336.4	8,624.0	143.0	142.9	90.00	-914.3	5,767.1	1,320.0	1,034.4	285.63	4.621		
14,400.0	8,624.0	14,436.4	8,624.0	145.4	145.2	90.00	-914.8	5,867.1	1,320.0	1,029.6	290.36	4.546		
14,500.0	8,624.0	14,536.4	8,624.0	147.7	147.6	90.00	-915.3	5,967.1	1,320.0	1,024.9	295.10	4.473		
14,600.0	8,624.0	14,636.4	8,624.0	150.1	150.0	90.00	-915.8	6,067.1	1,320.0	1,020.1	299.84	4.402		
14,700.0	8,624.0	14,736.4	8,624.0	152.5	152.3	90.00	-916.3	6,167.1	1,320.0	1,015.4	304.58	4.334		
14,800.0	8,624.0	14,836.4	8,624.0	154.8	154.7	90.00	-916.8	6,267.1	1,320.0	1,010.7	309.32	4.267		
14,900.0	8,624.0	14,936.4	8,624.0	157.2	157.1	90.00	-917.3	6,367.0	1,320.0	1,005.9	314.07	4.203		
15,000.0	8,624.0	15,036.4	8,624.0	159.6	159.5	90.00	-917.8	6,467.0	1,320.0	1,001.2	318.82	4.140		
15,100.0	8,624.0	15,136.4	8,624.0	162.0	161.8	90.00	-918.3	6,567.0	1,320.0	996.4	323.58	4.079		
15,200.0	8,624.0	15,236.4	8,624.0	164.3	164.2	90.00	-918.9	6,667.0	1,320.0	991.7	328.33	4.020		
15,300.0	8,624.0	15,336.4	8,624.0	166.7	166.6	90.00	-919.4	6,767.0	1,320.0	986.9	333.09	3.963		
15,400.0	8,624.0	15,436.4	8,624.0	169.1	169.0	90.00	-919.9	6,867.0	1,320.0	982.1	337.85	3.907		
15,500.0	8,624.0	15,536.4	8,624.0	171.5	171.3	90.00	-920.4	6,967.0	1,320.0	977.4	342.62	3.853		
15,600.0	8,624.0	15,636.4	8,624.0	173.9	173.7	90.00	-920.9	7,067.0	1,320.0	972.6	347.38	3.800		
15,700.0	8,624.0	15,736.4	8,624.0	176.2	176.1	90.00	-921.4	7,167.0	1,320.0	967.8	352.15	3.748		
15,800.0	8,624.0	15,836.4	8,624.0	178.6	178.5	90.00	-921.9	7,267.0	1,320.0	963.1	356.92	3.698		
15,900.0	8,624.0	15,936.4	8,624.0	181.0	180.9	90.00	-922.4	7,367.0	1,320.0	958.3	361.69	3.649		
16,000.0	8,624.0	16,036.4	8,624.0	183.4	183.3	90.00	-922.9	7,467.0	1,320.0	953.5	366.47	3.602		
16,100.0	8,624.0	16,136.4	8,624.0	185.8	185.6	90.00	-923.4	7,567.0	1,320.0	948.7	371.24	3.556		
16,200.0	8,624.0	16,236.4	8,624.0	188.2	188.0	90.00	-923.9	7,667.0	1,320.0	944.0	376.02	3.510		
16,300.0	8,624.0	16,336.4	8,624.0	190.6	190.4	90.00	-924.4	7,767.0	1,320.0	939.2	380.80	3.466		
16,400.0	8,624.0	16,436.4	8,624.0	193.0	192.8	90.00	-924.9	7,867.0	1,320.0	934.4	385.58	3.423		
16,500.0	8,624.0	16,536.4	8,624.0	195.3	195.2	90.00	-925.4	7,967.0	1,320.0	929.6	390.36	3.381		
16,600.0	8,624.0	16,636.4	8,624.0	197.7	197.6	90.00	-925.9	8,067.0	1,320.0	924.8	395.15	3.340		
16,700.0	8,624.0	16,736.4	8,624.0	200.1	200.0	90.00	-926.4	8,167.0	1,320.0	920.1	399.93	3.301		
16,800.0	8,624.0	16,836.4	8,624.0	202.5	202.4	90.00	-926.9	8,267.0	1,320.0	915.3	404.72	3.261		
16,900.0	8,624.0	16,936.4	8,624.0	204.9	204.8	90.00	-927.4	8,367.0	1,320.0	910.5	409.51	3.223		
17,000.0	8,624.0	17,036.4	8,624.0	207.3	207.2	90.00	-927.9	8,467.0	1,320.0	905.7	414.30	3.186		
17,100.0	8,624.0	17,136.4	8,624.0	209.7	209.6	90.00	-928.4	8,567.0	1,320.0	900.9	419.09	3.150		
17,200.0	8,624.0	17,236.4	8,624.0	212.1	211.9	90.00	-928.9	8,667.0	1,320.0	896.1	423.88	3.114		
17,300.0	8,624.0	17,336.4	8,624.0	214.5	214.3	90.00	-929.4	8,767.0	1,320.0	891.3	428.67	3.079		
17,400.0	8,624.0	17,436.4	8,624.0	216.9	216.7	90.00	-929.9	8,867.0	1,320.0	886.5	433.46	3.045		
17,500.0	8,624.0	17,536.4	8,624.0	219.3	219.1	90.00	-930.4	8,967.0	1,320.0	881.7	438.26	3.012		
17,600.0	8,624.0	17,636.4	8,624.0	221.7	221.5	90.00	-930.9	9,067.0	1,320.0	876.9	443.05	2.979		
17,700.0	8,624.0	17,736.4	8,624.0	224.1	223.9	90.00	-931.4	9,167.0	1,320.0	872.1	447.85	2.947		
17,800.0	8,624.0	17,836.4	8,624.0	226.5	226.3	90.00	-931.9	9,267.0	1,320.0	867.3	452.65	2.916		
17,900.0	8,624.0	17,936.4	8,624.0	228.9	228.7	90.00	-932.4	9,367.0	1,320.0	862.5	457.45	2.886		
18,000.0	8,624.0	18,036.4	8,624.0	231.3	231.1	90.00	-932.9	9,467.0	1,320.0	857.7	462.25	2.856		
18,100.0	8,624.0	18,136.4	8,624.0	233.7	233.5	90.00	-933.4	9,567.0	1,320.0	852.9	467.05	2.826		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 172H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,200.0	8,624.0	18,236.4	8,624.0	236.1	235.9	90.00	-933.9	9,667.0	1,320.0	848.1	471.85	2.797		
18,300.0	8,624.0	18,336.4	8,624.0	238.5	238.3	90.00	-934.4	9,767.0	1,320.0	843.3	476.65	2.769		
18,400.0	8,624.0	18,436.4	8,624.0	240.9	240.7	90.00	-934.9	9,867.0	1,320.0	838.5	481.46	2.742		
18,500.0	8,624.0	18,536.4	8,624.0	243.3	243.1	90.00	-935.4	9,967.0	1,320.0	833.7	486.26	2.715		
18,600.0	8,624.0	18,636.4	8,624.0	245.7	245.5	90.00	-935.9	10,067.0	1,320.0	828.9	491.06	2.688		
18,700.0	8,624.0	18,736.4	8,624.0	248.1	247.9	90.00	-936.4	10,167.0	1,320.0	824.1	495.87	2.662		
18,800.0	8,624.0	18,836.4	8,624.0	250.5	250.3	90.00	-936.9	10,267.0	1,320.0	819.3	500.68	2.636		
18,900.0	8,624.0	18,936.4	8,624.0	252.9	252.7	90.00	-937.4	10,367.0	1,320.0	814.5	505.48	2.611		
19,000.0	8,624.0	19,036.4	8,624.0	255.3	255.1	90.00	-937.9	10,467.0	1,320.0	809.7	510.29	2.587		
19,100.0	8,624.0	19,136.4	8,624.0	257.7	257.5	90.00	-938.4	10,567.0	1,320.0	804.9	515.10	2.563		
19,190.0	8,624.0	19,226.4	8,624.0	259.9	259.7	90.00	-938.9	10,656.9	1,320.0	800.6	519.42	2.541		
19,190.6	8,624.0	19,227.0	8,624.0	259.9	259.7	90.00	-938.9	10,657.6	1,320.0	800.5	519.45	2.541		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 200H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
0.0	0.0	0.0	0.0	0.0	0.0	0.12	99.0	0.2	99.0					
100.0	100.0	100.0	100.0	0.1	0.1	0.12	99.0	0.2	99.0	98.7	0.25	394.533		
200.0	200.0	200.0	200.0	0.5	0.5	0.12	99.0	0.2	99.0	98.0	0.97	102.286		
300.0	300.0	300.0	300.0	0.8	0.8	0.12	99.0	0.2	99.0	97.3	1.68	58.760		
400.0	400.0	400.0	400.0	1.2	1.2	0.12	99.0	0.2	99.0	96.6	2.40	41.220		
500.0	500.0	500.0	500.0	1.6	1.6	0.12	99.0	0.2	99.0	95.9	3.12	31.744		
600.0	600.0	600.0	600.0	1.9	1.9	0.12	99.0	0.2	99.0	95.2	3.84	25.811		
700.0	700.0	700.0	700.0	2.3	2.3	0.12	99.0	0.2	99.0	94.4	4.55	21.746		
800.0	800.0	800.0	800.0	2.6	2.6	0.12	99.0	0.2	99.0	93.7	5.27	18.787		
900.0	900.0	900.0	900.0	3.0	3.0	0.12	99.0	0.2	99.0	93.0	5.99	16.537		
1,000.0	1,000.0	1,000.0	1,000.0	3.4	3.4	0.12	99.0	0.2	99.0	92.3	6.70	14.769		
1,100.0	1,100.0	1,100.0	1,100.0	3.7	3.7	0.12	99.0	0.2	99.0	91.6	7.42	13.342		
1,200.0	1,200.0	1,200.0	1,200.0	4.1	4.1	0.12	99.0	0.2	99.0	90.9	8.14	12.166		
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	0.12	99.0	0.2	99.0	90.1	8.85	11.181		
1,400.0	1,400.0	1,400.0	1,400.0	4.8	4.8	0.12	99.0	0.2	99.0	89.4	9.57	10.344		
1,500.0	1,500.0	1,500.0	1,500.0	5.1	5.1	0.12	99.0	0.2	99.0	88.7	10.29	9.623		
1,600.0	1,600.0	1,600.0	1,600.0	5.5	5.5	0.12	99.0	0.2	99.0	88.0	11.01	8.996		
1,700.0	1,700.0	1,700.0	1,700.0	5.9	5.9	0.12	99.0	0.2	99.0	87.3	11.72	8.446		
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	0.12	99.0	0.2	99.0	86.6	12.44	7.959		
1,900.0	1,900.0	1,900.0	1,900.0	6.6	6.6	0.12	99.0	0.2	99.0	85.8	13.16	7.525		
2,000.0	2,000.0	2,000.0	2,000.0	6.9	6.9	0.12	99.0	0.2	99.0	85.1	13.87	7.136 CC		
2,100.0	2,100.0	2,097.0	2,097.0	7.3	7.3	-0.32	100.4	-0.6	100.5	85.9	14.57	6.896		
2,200.0	2,200.0	2,193.8	2,193.6	7.7	7.6	-1.57	104.8	-2.9	105.0	89.8	15.26	6.882		
2,300.0	2,300.0	2,290.1	2,289.6	8.0	8.0	-3.43	111.9	-6.7	112.6	96.7	15.93	7.070		
2,400.0	2,400.0	2,385.8	2,384.7	8.4	8.3	-5.63	121.9	-12.0	123.4	106.8	16.58	7.443		
2,500.0	2,500.0	2,480.7	2,478.4	8.7	8.7	-7.94	134.5	-18.8	137.5	120.3	17.21	7.987		
2,600.0	2,600.0	2,578.3	2,574.6	9.1	9.0	-10.14	149.4	-26.7	153.9	136.0	17.90	8.596		
2,700.0	2,700.0	2,676.8	2,671.5	9.4	9.4	-11.94	164.4	-34.8	170.5	151.9	18.60	9.164		
2,800.0	2,800.0	2,775.2	2,768.5	9.8	9.8	-13.42	179.5	-42.8	187.2	167.9	19.31	9.696		
2,900.0	2,900.0	2,873.7	2,865.5	10.2	10.2	-14.66	194.6	-50.9	204.1	184.1	20.02	10.195		
3,000.0	3,000.0	2,972.2	2,962.5	10.5	10.6	-15.71	209.7	-59.0	221.0	200.3	20.73	10.662		
3,100.0	3,100.0	3,070.8	3,059.6	10.9	10.9	-6.33	224.8	-67.0	237.2	215.7	21.44	11.061		
3,200.0	3,200.0	3,169.7	3,157.0	11.2	11.3	-7.17	239.9	-75.1	251.7	229.5	22.16	11.359		
3,300.0	3,299.9	3,268.8	3,254.6	11.6	11.7	-7.97	255.1	-83.3	264.5	241.6	22.87	11.564		
3,400.0	3,399.7	3,368.1	3,352.4	12.0	12.2	-8.74	270.3	-91.4	275.6	252.0	23.59	11.685		
3,500.0	3,499.4	3,467.6	3,450.3	12.3	12.6	-9.52	285.6	-99.5	285.1	260.8	24.31	11.730		
3,600.0	3,598.9	3,567.2	3,548.4	12.7	13.0	-10.30	300.8	-107.7	293.0	267.9	25.03	11.705		
3,700.0	3,698.3	3,666.9	3,646.6	13.0	13.4	-11.11	316.1	-115.8	299.1	273.4	25.75	11.617		
3,800.0	3,797.4	3,766.7	3,744.9	13.4	13.8	-11.96	331.4	-124.0	303.7	277.2	26.47	11.470		
3,900.0	3,896.4	3,866.5	3,843.2	13.8	14.2	-12.83	346.6	-132.2	307.4	280.2	27.20	11.302		
4,000.0	3,995.5	3,966.3	3,941.5	14.1	14.6	-13.67	361.9	-140.4	311.2	283.3	27.93	11.145		
4,100.0	4,094.5	4,066.2	4,039.8	14.5	15.1	-14.50	377.2	-148.5	315.1	286.5	28.65	10.998		
4,200.0	4,193.5	4,166.0	4,138.2	14.9	15.5	-15.30	392.5	-156.7	319.1	289.7	29.38	10.859		
4,300.0	4,292.5	4,275.9	4,246.6	15.3	16.0	-16.16	408.1	-165.1	321.8	291.6	30.23	10.645		
4,400.0	4,391.6	4,388.4	4,358.3	15.6	16.4	-17.01	420.4	-171.6	320.8	289.7	31.08	10.323		
4,500.0	4,490.6	4,500.7	4,470.1	16.0	16.8	-17.87	428.7	-176.1	315.9	284.0	31.87	9.912		
4,600.0	4,589.6	4,612.4	4,581.7	16.4	17.2	-18.77	433.2	-178.4	307.2	274.6	32.62	9.417		
4,700.0	4,688.6	4,719.3	4,688.6	16.8	17.6	-19.70	434.0	-178.9	294.9	261.6	33.33	8.848		
4,800.0	4,787.7	4,818.4	4,787.7	17.2	17.9	-20.66	434.0	-178.9	281.8	247.8	34.04	8.279		
4,900.0	4,886.7	4,917.4	4,886.7	17.5	18.3	-21.70	434.0	-178.9	268.8	234.1	34.76	7.735		
5,000.0	4,985.7	5,016.4	4,985.7	17.9	18.6	-22.85	434.0	-178.9	255.9	220.5	35.47	7.215		
5,100.0	5,084.8	5,115.4	5,084.8	18.3	18.9	-24.12	434.0	-178.9	243.1	207.0	36.19	6.718		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 200H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
5,200.0	5,183.8	5,214.5	5,183.8	18.7	19.3	-25.53	434.0	-178.9	230.5	193.6	36.91	6.244		
5,300.0	5,282.8	5,313.5	5,282.8	19.1	19.6	-27.11	434.0	-178.9	218.0	180.4	37.64	5.791		
5,400.0	5,381.8	5,412.5	5,381.8	19.5	19.9	-28.87	434.0	-178.9	205.7	167.3	38.37	5.360		
5,500.0	5,480.9	5,511.5	5,480.9	19.9	20.3	-30.85	434.0	-178.9	193.6	154.5	39.11	4.950		
5,600.0	5,579.9	5,610.6	5,579.9	20.3	20.6	-33.10	434.0	-178.9	181.7	141.9	39.86	4.560		
5,700.0	5,678.9	5,709.6	5,678.9	20.7	21.0	-35.65	434.0	-178.9	170.2	129.6	40.61	4.191		
5,800.0	5,777.9	5,808.6	5,777.9	21.1	21.3	-38.56	434.0	-178.9	159.1	117.7	41.38	3.845		
5,900.0	5,877.0	5,907.7	5,877.0	21.5	21.6	-41.90	434.0	-178.9	148.4	106.2	42.16	3.520		
6,000.0	5,976.0	6,006.7	5,976.0	21.9	22.0	-45.73	434.0	-178.9	138.3	95.3	42.95	3.220		
6,100.0	6,075.0	6,105.7	6,075.0	22.3	22.3	-50.14	434.0	-178.9	128.9	85.1	43.77	2.945		
6,175.3	6,149.6	6,180.3	6,149.6	22.6	22.6	-53.88	434.0	-178.9	122.4	78.0	44.40	2.757		
6,200.0	6,174.1	6,204.7	6,174.1	22.7	22.7	-55.16	434.0	-178.9	120.5	75.8	44.61	2.700		
6,300.0	6,273.3	6,303.9	6,273.3	23.1	23.0	-60.30	434.0	-178.9	113.7	68.2	45.46	2.500		
6,400.0	6,372.7	6,403.3	6,372.7	23.5	23.3	-65.23	434.0	-178.9	108.7	62.4	46.30	2.347		
6,500.0	6,472.2	6,502.9	6,472.2	23.8	23.7	-69.71	434.0	-178.9	105.1	58.0	47.12	2.231		
6,600.0	6,572.0	6,602.6	6,572.0	24.2	24.0	-73.56	434.0	-178.9	102.8	54.9	47.92	2.145		
6,700.0	6,671.8	6,702.5	6,671.8	24.6	24.4	-76.62	434.0	-178.9	101.3	52.6	48.69	2.081		
6,800.0	6,771.7	6,802.4	6,771.7	24.9	24.7	-78.79	434.0	-178.9	100.5	51.0	49.43	2.033		
6,900.0	6,871.7	6,902.4	6,871.7	25.3	25.1	-80.01	434.0	-178.9	100.1	49.9	50.15	1.995		
6,975.3	6,947.0	6,977.7	6,947.0	25.6	25.3	-90.57	434.0	-178.9	100.0	49.3	50.68	1.973		
7,000.0	6,971.7	7,002.4	6,971.7	25.6	25.4	-90.57	434.0	-178.9	100.0	49.1	50.85	1.966		
7,100.0	7,071.7	7,102.4	7,071.7	26.0	25.8	-90.57	434.0	-178.9	100.0	48.4	51.55	1.940		
7,200.0	7,171.7	7,202.4	7,171.7	26.3	26.1	-90.57	434.0	-178.9	100.0	47.8	52.24	1.914		
7,300.0	7,271.7	7,302.4	7,271.7	26.7	26.5	-90.57	434.0	-178.9	100.0	47.1	52.94	1.889		
7,400.0	7,371.7	7,402.4	7,371.7	27.0	26.8	-90.57	434.0	-178.9	100.0	46.4	53.63	1.864		
7,500.0	7,471.7	7,502.4	7,471.7	27.4	27.2	-90.57	434.0	-178.9	100.0	45.7	54.33	1.841		
7,600.0	7,571.7	7,602.4	7,571.7	27.7	27.5	-90.57	434.0	-178.9	100.0	45.0	55.03	1.817		
7,700.0	7,671.7	7,702.4	7,671.7	28.1	27.9	-90.57	434.0	-178.9	100.0	44.3	55.72	1.795		
7,800.0	7,771.7	7,802.4	7,771.7	28.4	28.2	-90.57	434.0	-178.9	100.0	43.6	56.42	1.772		
7,900.0	7,871.7	7,902.4	7,871.7	28.8	28.6	-90.57	434.0	-178.9	100.0	42.9	57.12	1.751		
8,000.0	7,971.7	8,002.4	7,971.7	29.1	28.9	-90.57	434.0	-178.9	100.0	42.2	57.82	1.729		
8,100.0	8,071.7	8,102.4	8,071.7	29.4	29.3	-90.57	434.0	-178.9	100.0	41.5	58.52	1.709		
8,174.8	8,146.5	8,177.2	8,146.5	29.7	29.5	-90.57	434.0	-178.9	100.0	41.0	59.04	1.694 ES, SF		
8,200.0	8,171.7	8,202.4	8,171.7	29.8	29.6	-90.57	434.0	-178.9	100.7	41.4	59.21	1.700		
8,225.0	8,196.6	8,227.3	8,196.6	29.9	29.7	-90.57	434.0	-178.9	102.6	43.2	59.38	1.728		
8,250.0	8,221.4	8,252.1	8,221.4	30.0	29.8	-90.57	434.0	-178.9	105.9	46.3	59.55	1.778		
8,275.0	8,246.0	8,276.6	8,246.0	30.0	29.9	-90.57	434.0	-178.9	110.5	50.7	59.72	1.850		
8,300.0	8,270.3	8,300.9	8,270.3	30.1	30.0	-90.57	434.0	-178.9	116.3	56.4	59.88	1.942		
8,325.0	8,294.2	8,324.9	8,294.2	30.2	30.0	-90.57	434.0	-178.9	123.4	63.4	60.05	2.055		
8,350.0	8,317.8	8,348.5	8,317.8	30.3	30.1	-90.57	434.0	-178.9	131.8	71.6	60.20	2.189		
8,375.0	8,340.9	8,371.6	8,340.9	30.3	30.2	-90.57	434.0	-178.9	141.3	81.0	60.36	2.342		
8,400.0	8,363.4	8,394.1	8,363.4	30.4	30.3	-90.57	434.0	-178.9	152.1	91.6	60.51	2.514		
8,425.0	8,385.4	8,416.1	8,385.4	30.5	30.4	-90.57	434.0	-178.9	164.1	103.4	60.65	2.705		
8,450.0	8,406.7	8,437.4	8,406.7	30.5	30.4	-90.57	434.0	-178.9	177.1	116.3	60.79	2.914		
8,475.0	8,427.3	8,458.0	8,427.3	30.6	30.5	-90.57	434.0	-178.9	191.3	130.4	60.92	3.140		
8,500.0	8,447.1	8,477.8	8,447.1	30.6	30.6	-90.57	434.0	-178.9	206.5	145.5	61.05	3.383		
8,525.0	8,466.1	8,496.8	8,466.1	30.7	30.6	-90.57	434.0	-178.9	222.8	161.6	61.17	3.642		
8,550.0	8,484.3	8,514.9	8,484.3	30.7	30.7	-90.57	434.0	-178.9	240.0	178.7	61.28	3.916		
8,575.0	8,501.5	8,532.1	8,501.5	30.8	30.8	-90.57	434.0	-178.9	258.1	196.7	61.38	4.205		
8,600.0	8,517.7	8,548.4	8,517.7	30.8	30.8	-90.57	434.0	-178.9	277.1	215.6	61.48	4.507		
8,625.0	8,532.9	8,563.6	8,532.9	30.9	30.9	-90.57	434.0	-178.9	297.0	235.4	61.57	4.823		
8,650.0	8,547.0	8,577.7	8,547.0	30.9	30.9	-90.57	434.0	-178.9	317.6	255.9	61.66	5.151		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 200H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,675.0	8,560.1	8,590.8	8,560.1	31.0	31.0	179.49	434.0	-178.9	338.9	277.2	61.73	5.490	
8,700.0	8,572.0	8,602.7	8,572.0	31.1	31.0	179.47	434.0	-178.9	360.9	299.1	61.80	5.839	
8,725.0	8,582.8	8,613.5	8,582.8	31.2	31.1	179.45	434.0	-178.9	383.4	321.6	61.86	6.198	
8,750.0	8,592.3	8,623.0	8,592.3	31.3	31.1	179.41	434.0	-178.9	406.5	344.6	61.91	6.566	
8,775.0	8,600.7	8,631.3	8,600.7	31.4	31.1	179.35	434.0	-178.9	430.1	368.1	61.96	6.942	
8,800.0	8,607.7	8,638.4	8,607.7	31.6	31.1	179.27	434.0	-178.9	454.1	392.1	61.99	7.324	
8,825.0	8,613.6	8,644.3	8,613.6	31.7	31.2	179.13	434.0	-178.9	478.4	416.3	62.02	7.713	
8,850.0	8,618.1	8,648.8	8,618.1	31.9	31.2	178.90	434.0	-178.9	502.9	440.9	62.05	8.106	
8,875.0	8,621.4	8,652.1	8,621.4	32.0	31.2	178.43	434.0	-178.9	527.7	465.7	62.06	8.503	
8,900.0	8,623.3	8,654.0	8,623.3	32.2	31.2	177.01	434.0	-178.9	552.7	490.6	62.07	8.903	
8,924.8	8,624.0	8,654.7	8,624.0	32.4	31.2	90.08	434.0	-178.9	577.4	515.4	62.08	9.302	
9,000.0	8,624.0	8,654.7	8,624.0	33.0	31.2	90.09	434.0	-178.9	652.6	590.6	62.08	10.513	
9,100.0	8,624.0	8,654.7	8,624.0	33.9	31.2	90.10	434.0	-178.9	752.6	690.6	62.09	12.123	
9,200.0	8,624.0	10,079.3	9,400.2	34.9	38.0	179.90	429.8	674.2	776.3	742.2	34.10	22.761	
9,300.0	8,624.0	10,179.3	9,400.2	36.1	39.2	179.90	429.3	774.2	776.2	741.5	34.68	22.379	
9,400.0	8,624.0	10,279.3	9,400.1	37.4	40.5	179.90	428.9	874.2	776.1	740.8	35.33	21.971	
9,500.0	8,624.0	10,379.3	9,400.0	38.8	41.9	179.90	428.4	974.2	776.1	740.1	36.02	21.544	
9,600.0	8,624.0	10,479.3	9,400.0	40.3	43.4	179.90	427.9	1,074.2	776.0	739.2	36.77	21.102	
9,700.0	8,624.0	10,579.3	9,399.9	41.9	45.0	179.90	427.4	1,174.2	776.0	738.4	37.58	20.649	
9,800.0	8,624.0	10,679.3	9,399.9	43.6	46.7	179.90	426.9	1,274.2	775.9	737.5	38.43	20.191	
9,900.0	8,624.0	10,779.3	9,399.8	45.3	48.4	179.90	426.4	1,374.2	775.8	736.5	39.32	19.730	
10,000.0	8,624.0	10,879.3	9,399.7	47.1	50.1	179.91	425.9	1,474.2	775.8	735.5	40.26	19.270	
10,100.0	8,624.0	10,979.3	9,399.7	49.0	52.0	179.91	425.4	1,574.2	775.7	734.5	41.23	18.813	
10,200.0	8,624.0	11,079.3	9,399.6	50.9	53.8	179.91	425.0	1,674.2	775.6	733.4	42.24	18.362	
10,300.0	8,624.0	11,179.3	9,399.5	52.8	55.7	179.91	424.5	1,774.2	775.6	732.3	43.29	17.917	
10,400.0	8,624.0	11,279.3	9,399.5	54.8	57.7	179.91	424.0	1,874.2	775.5	731.2	44.36	17.482	
10,500.0	8,624.0	11,379.3	9,399.4	56.8	59.7	179.91	423.5	1,974.2	775.5	730.0	45.46	17.056	
10,600.0	8,624.0	11,479.3	9,399.4	58.8	61.7	179.91	423.0	2,074.2	775.4	728.8	46.59	16.641	
10,700.0	8,624.0	11,579.3	9,399.3	60.9	63.7	179.91	422.5	2,174.2	775.3	727.6	47.75	16.237	
10,800.0	8,624.0	11,679.3	9,399.2	63.0	65.8	179.91	422.0	2,274.2	775.3	726.3	48.93	15.845	
10,900.0	8,624.0	11,779.3	9,399.2	65.1	67.9	179.92	421.5	2,374.2	775.2	725.1	50.13	15.465	
11,000.0	8,624.0	11,879.3	9,399.1	67.3	70.0	179.92	421.1	2,474.2	775.1	723.8	51.35	15.096	
11,100.0	8,624.0	11,979.3	9,399.0	69.4	72.1	179.92	420.6	2,574.2	775.1	722.5	52.58	14.740	
11,200.0	8,624.0	12,079.3	9,399.0	71.6	74.3	179.92	420.1	2,674.2	775.0	721.2	53.84	14.395	
11,300.0	8,624.0	12,179.3	9,398.9	73.8	76.5	179.92	419.6	2,774.2	774.9	719.8	55.11	14.062	
11,400.0	8,624.0	12,279.3	9,398.9	76.0	78.6	179.92	419.1	2,874.2	774.9	718.5	56.40	13.740	
11,500.0	8,624.0	12,379.3	9,398.8	78.2	80.8	179.92	418.6	2,974.2	774.8	717.1	57.70	13.429	
11,600.0	8,624.0	12,479.3	9,398.7	80.4	83.0	179.92	418.1	3,074.2	774.8	715.7	59.01	13.129	
11,700.0	8,624.0	12,579.3	9,398.7	82.7	85.3	179.92	417.6	3,174.2	774.7	714.4	60.34	12.840	
11,800.0	8,624.0	12,679.3	9,398.6	84.9	87.5	179.92	417.2	3,274.2	774.6	713.0	61.67	12.560	
11,900.0	8,624.0	12,779.3	9,398.5	87.2	89.7	179.93	416.7	3,374.2	774.6	711.6	63.02	12.291	
12,000.0	8,624.0	12,879.3	9,398.5	89.5	92.0	179.93	416.2	3,474.2	774.5	710.1	64.38	12.030	
12,100.0	8,624.0	12,979.3	9,398.4	91.7	94.2	179.93	415.7	3,574.2	774.4	708.7	65.75	11.779	
12,200.0	8,624.0	13,079.3	9,398.4	94.0	96.5	179.93	415.2	3,674.2	774.4	707.3	67.12	11.537	
12,300.0	8,624.0	13,179.3	9,398.3	96.3	98.8	179.93	414.7	3,774.2	774.3	705.8	68.51	11.303	
12,400.0	8,624.0	13,279.3	9,398.2	98.6	101.1	179.93	414.2	3,874.2	774.3	704.4	69.90	11.077	
12,500.0	8,624.0	13,379.3	9,398.2	100.9	103.3	179.93	413.7	3,974.2	774.2	702.9	71.30	10.859	
12,600.0	8,624.0	13,479.3	9,398.1	103.2	105.6	179.93	413.2	4,074.2	774.1	701.4	72.70	10.648	
12,700.0	8,624.0	13,579.3	9,398.0	105.5	107.9	179.93	412.8	4,174.2	774.1	700.0	74.12	10.444	
12,800.0	8,624.0	13,679.3	9,398.0	107.8	110.2	179.93	412.3	4,274.2	774.0	698.5	75.54	10.247	
12,900.0	8,624.0	13,779.3	9,397.9	110.2	112.6	179.94	411.8	4,374.2	773.9	697.0	76.96	10.056	
13,000.0	8,624.0	13,879.3	9,397.9	112.5	114.9	179.94	411.3	4,474.2	773.9	695.5	78.39	9.872	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 200H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)						
13,100.0	8,624.0	13,979.3	9,397.8	114.8	117.2	179.94	410.8	4,574.2	773.8	694.0	79.83	9.694		
13,200.0	8,624.0	14,079.3	9,397.7	117.1	119.5	179.94	410.3	4,674.2	773.8	692.5	81.27	9.521		
13,300.0	8,624.0	14,179.3	9,397.7	119.5	121.8	179.94	409.8	4,774.2	773.7	691.0	82.71	9.354		
13,400.0	8,624.0	14,279.3	9,397.6	121.8	124.2	179.94	409.3	4,874.2	773.6	689.5	84.16	9.192		
13,500.0	8,624.0	14,379.3	9,397.5	124.2	126.5	179.94	408.9	4,974.2	773.6	688.0	85.62	9.035		
13,600.0	8,624.0	14,479.3	9,397.5	126.5	128.8	179.94	408.4	5,074.2	773.5	686.4	87.08	8.883		
13,700.0	8,624.0	14,579.3	9,397.4	128.9	131.2	179.94	407.9	5,174.2	773.4	684.9	88.54	8.736		
13,800.0	8,624.0	14,679.3	9,397.4	131.2	133.5	179.94	407.4	5,274.2	773.4	683.4	90.00	8.593		
13,900.0	8,624.0	14,779.3	9,397.3	133.6	135.9	179.95	406.9	5,374.2	773.3	681.8	91.47	8.454		
14,000.0	8,624.0	14,879.3	9,397.2	135.9	138.2	179.95	406.4	5,474.2	773.3	680.3	92.94	8.320		
14,100.0	8,624.0	14,979.3	9,397.2	138.3	140.5	179.95	405.9	5,574.2	773.2	678.8	94.42	8.189		
14,200.0	8,624.0	15,079.3	9,397.1	140.6	142.9	179.95	405.4	5,674.2	773.1	677.2	95.90	8.062		
14,300.0	8,624.0	15,179.3	9,397.0	143.0	145.3	179.95	405.0	5,774.2	773.1	675.7	97.38	7.939		
14,400.0	8,624.0	15,279.3	9,397.0	145.4	147.6	179.95	404.5	5,874.2	773.0	674.1	98.86	7.819		
14,500.0	8,624.0	15,379.3	9,396.9	147.7	150.0	179.95	404.0	5,974.2	772.9	672.6	100.35	7.703		
14,600.0	8,624.0	15,479.3	9,396.9	150.1	152.3	179.95	403.5	6,074.2	772.9	671.0	101.84	7.589		
14,700.0	8,624.0	15,579.3	9,396.8	152.5	154.7	179.95	403.0	6,174.2	772.8	669.5	103.33	7.479		
14,800.0	8,624.0	15,679.3	9,396.7	154.8	157.1	179.95	402.5	6,274.2	772.8	667.9	104.82	7.372		
14,900.0	8,624.0	15,779.3	9,396.7	157.2	159.4	179.96	402.0	6,374.2	772.7	666.4	106.32	7.268		
15,000.0	8,624.0	15,879.3	9,396.6	159.6	161.8	179.96	401.5	6,474.2	772.6	664.8	107.82	7.166		
15,100.0	8,624.0	15,979.3	9,396.6	162.0	164.2	179.96	401.1	6,574.2	772.6	663.2	109.32	7.067		
15,200.0	8,624.0	16,079.3	9,396.5	164.3	166.5	179.96	400.6	6,674.1	772.5	661.7	110.82	6.971		
15,300.0	8,624.0	16,179.3	9,396.4	166.7	168.9	179.96	400.1	6,774.1	772.4	660.1	112.32	6.877		
15,400.0	8,624.0	16,279.3	9,396.4	169.1	171.3	179.96	399.6	6,874.1	772.4	658.6	113.83	6.786		
15,500.0	8,624.0	16,379.3	9,396.3	171.5	173.7	179.96	399.1	6,974.1	772.3	657.0	115.33	6.696		
15,600.0	8,624.0	16,479.3	9,396.2	173.9	176.0	179.96	398.6	7,074.1	772.3	655.4	116.84	6.609		
15,700.0	8,624.0	16,579.3	9,396.2	176.2	178.4	179.96	398.1	7,174.1	772.2	653.8	118.35	6.525		
15,800.0	8,624.0	16,679.3	9,396.1	178.6	180.8	179.97	397.6	7,274.1	772.1	652.3	119.86	6.442		
15,900.0	8,624.0	16,779.3	9,396.1	181.0	183.2	179.97	397.1	7,374.1	772.1	650.7	121.38	6.361		
16,000.0	8,624.0	16,879.3	9,396.0	183.4	185.5	179.97	396.7	7,474.1	772.0	649.1	122.89	6.282		
16,100.0	8,624.0	16,979.3	9,395.9	185.8	187.9	179.97	396.2	7,574.1	771.9	647.5	124.41	6.205		
16,200.0	8,624.0	17,079.3	9,395.9	188.2	190.3	179.97	395.7	7,674.1	771.9	646.0	125.93	6.130		
16,300.0	8,624.0	17,179.3	9,395.8	190.6	192.7	179.97	395.2	7,774.1	771.8	644.4	127.44	6.056		
16,400.0	8,624.0	17,279.3	9,395.7	193.0	195.1	179.97	394.7	7,874.1	771.7	642.8	128.96	5.984		
16,500.0	8,624.0	17,379.3	9,395.7	195.3	197.5	179.97	394.2	7,974.1	771.7	641.2	130.48	5.914		
16,600.0	8,624.0	17,479.3	9,395.6	197.7	199.9	179.97	393.7	8,074.1	771.6	639.6	132.01	5.845		
16,700.0	8,624.0	17,579.3	9,395.6	200.1	202.2	179.97	393.2	8,174.1	771.6	638.0	133.53	5.778		
16,800.0	8,624.0	17,679.3	9,395.5	202.5	204.6	179.98	392.8	8,274.1	771.5	636.4	135.05	5.713		
16,900.0	8,624.0	17,779.3	9,395.4	204.9	207.0	179.98	392.3	8,374.1	771.4	634.9	136.58	5.648		
17,000.0	8,624.0	17,879.3	9,395.4	207.3	209.4	179.98	391.8	8,474.1	771.4	633.3	138.11	5.585		
17,100.0	8,624.0	17,979.3	9,395.3	209.7	211.8	179.98	391.3	8,574.1	771.3	631.7	139.63	5.524		
17,200.0	8,624.0	18,079.3	9,395.2	212.1	214.2	179.98	390.8	8,674.1	771.2	630.1	141.16	5.464		
17,300.0	8,624.0	18,179.3	9,395.2	214.5	216.6	179.98	390.3	8,774.1	771.2	628.5	142.69	5.405		
17,400.0	8,624.0	18,279.3	9,395.1	216.9	219.0	179.98	389.8	8,874.1	771.1	626.9	144.22	5.347		
17,500.0	8,624.0	18,379.3	9,395.1	219.3	221.4	179.98	389.3	8,974.1	771.1	625.3	145.75	5.290		
17,600.0	8,624.0	18,479.3	9,395.0	221.7	223.8	179.98	388.9	9,074.1	771.0	623.7	147.28	5.235		
17,700.0	8,624.0	18,579.3	9,394.9	224.1	226.2	179.98	388.4	9,174.1	770.9	622.1	148.81	5.181		
17,800.0	8,624.0	18,679.3	9,394.9	226.5	228.5	179.99	387.9	9,274.1	770.9	620.5	150.35	5.127		
17,900.0	8,624.0	18,779.3	9,394.8	228.9	230.9	179.99	387.4	9,374.1	770.8	618.9	151.88	5.075		
18,000.0	8,624.0	18,879.3	9,394.7	231.3	233.3	179.99	386.9	9,474.1	770.7	617.3	153.42	5.024		
18,100.0	8,624.0	18,979.3	9,394.7	233.7	235.7	179.99	386.4	9,574.1	770.7	615.7	154.95	4.974		
18,200.0	8,624.0	19,079.3	9,394.6	236.1	238.1	179.99	385.9	9,674.1	770.6	614.1	156.49	4.924		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35 FED 200H - OWB - PWP0													Offset Site Error:	0.0 usft	
Survey Program:		0-MWD		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
18,300.0	8,624.0	19,179.3	9,394.6	238.5	240.5	179.99	385.4	9,774.1	770.6	612.5	158.02	4.876			
18,400.0	8,624.0	19,279.3	9,394.5	240.9	242.9	179.99	385.0	9,874.1	770.5	610.9	159.56	4.829			
18,500.0	8,624.0	19,379.3	9,394.4	243.3	245.3	179.99	384.5	9,974.1	770.4	609.3	161.10	4.782			
18,600.0	8,624.0	19,479.3	9,394.4	245.7	247.7	179.99	384.0	10,074.1	770.4	607.7	162.64	4.737			
18,700.0	8,624.0	19,579.3	9,394.3	248.1	250.1	179.99	383.5	10,174.1	770.3	606.1	164.18	4.692			
18,800.0	8,624.0	19,679.3	9,394.2	250.5	252.5	180.00	383.0	10,274.1	770.2	604.5	165.72	4.648			
18,900.0	8,624.0	19,779.3	9,394.2	252.9	254.9	180.00	382.5	10,374.1	770.2	602.9	167.26	4.605			
19,000.0	8,624.0	19,879.3	9,394.1	255.3	257.3	180.00	382.0	10,474.1	770.1	601.3	168.80	4.562			
19,100.0	8,624.0	19,979.3	9,394.1	257.7	259.7	180.00	381.5	10,574.1	770.1	599.7	170.34	4.521			
19,190.0	8,624.0	20,068.8	9,394.0	259.9	261.9	180.00	381.1	10,663.6	770.0	598.3	171.72	4.484			
19,190.0	8,624.0	20,068.8	9,394.0	259.9	261.9	180.00	381.1	10,663.6	770.0	598.3	171.72	4.484			
19,190.6	8,624.0	20,068.8	9,394.0	259.9	261.9	180.00	381.1	10,663.6	770.0	598.3	171.72	4.484			

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35-36 FED 201H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	0.12	33.0	0.1	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	0.12	33.0	0.1	33.0	32.7	0.25	131.511		
200.0	200.0	200.0	200.0	0.5	0.5	0.12	33.0	0.1	33.0	32.0	0.97	34.095		
300.0	300.0	300.0	300.0	0.8	0.8	0.12	33.0	0.1	33.0	31.3	1.68	19.587		
400.0	400.0	400.0	400.0	1.2	1.2	0.12	33.0	0.1	33.0	30.6	2.40	13.740		
500.0	500.0	500.0	500.0	1.6	1.6	0.12	33.0	0.1	33.0	29.9	3.12	10.581		
600.0	600.0	600.0	600.0	1.9	1.9	0.12	33.0	0.1	33.0	29.2	3.84	8.604		
700.0	700.0	700.0	700.0	2.3	2.3	0.12	33.0	0.1	33.0	28.4	4.55	7.249		
800.0	800.0	800.0	800.0	2.6	2.6	0.12	33.0	0.1	33.0	27.7	5.27	6.262		
900.0	900.0	900.0	900.0	3.0	3.0	0.12	33.0	0.1	33.0	27.0	5.99	5.512		
1,000.0	1,000.0	1,000.0	1,000.0	3.4	3.4	0.12	33.0	0.1	33.0	26.3	6.70	4.923		
1,100.0	1,100.0	1,100.0	1,100.0	3.7	3.7	0.12	33.0	0.1	33.0	25.6	7.42	4.447		
1,200.0	1,200.0	1,200.0	1,200.0	4.1	4.1	0.12	33.0	0.1	33.0	24.9	8.14	4.055		
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	0.12	33.0	0.1	33.0	24.1	8.85	3.727		
1,400.0	1,400.0	1,400.0	1,400.0	4.8	4.8	0.12	33.0	0.1	33.0	23.4	9.57	3.448		
1,500.0	1,500.0	1,500.0	1,500.0	5.1	5.1	0.12	33.0	0.1	33.0	22.7	10.29	3.208		
1,600.0	1,600.0	1,600.0	1,600.0	5.5	5.5	0.12	33.0	0.1	33.0	22.0	11.01	2.999		
1,700.0	1,700.0	1,700.0	1,700.0	5.9	5.9	0.12	33.0	0.1	33.0	21.3	11.72	2.815		
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	0.12	33.0	0.1	33.0	20.6	12.44	2.653		
1,900.0	1,900.0	1,900.0	1,900.0	6.6	6.6	0.12	33.0	0.1	33.0	19.8	13.16	2.508		
2,000.0	2,000.0	2,000.0	2,000.0	6.9	6.9	0.12	33.0	0.1	33.0	19.1	13.87	2.379		
2,100.0	2,100.0	2,101.1	2,101.1	7.3	7.3	-0.57	31.3	-0.3	31.3	16.7	14.57	2.147		
2,200.0	2,200.0	2,201.9	2,201.8	7.7	7.6	-3.18	26.0	-1.4	26.1	10.9	15.23	1.717		
2,300.0	2,300.0	2,302.3	2,301.7	8.0	7.9	-10.81	17.4	-3.3	17.8	1.9	15.89	1.122 Level 3		
2,400.0	2,400.0	2,401.9	2,400.6	8.4	8.3	-47.16	5.5	-5.9	8.1	-8.5	16.61	0.489 Level 3		
2,429.8	2,429.8	2,431.4	2,429.8	8.5	8.4	-77.68	1.5	-6.8	7.0	-9.9	16.85	0.414 Level 3, CC, ES, SF		
2,500.0	2,500.0	2,500.9	2,498.6	8.7	8.6	-131.89	-8.0	-8.9	12.0	-5.2	17.24	0.696 Level 3		
2,600.0	2,600.0	2,599.9	2,596.7	9.1	9.0	-151.12	-21.4	-11.8	24.7	6.8	17.89	1.380 Level 3		
2,700.0	2,700.0	2,699.0	2,694.8	9.4	9.3	-157.07	-34.9	-14.8	38.2	19.7	18.57	2.059		
2,800.0	2,800.0	2,798.0	2,792.8	9.8	9.7	-159.90	-48.4	-17.7	52.0	32.7	19.27	2.698		
2,900.0	2,900.0	2,897.0	2,890.9	10.2	10.0	-161.54	-61.8	-20.6	65.8	45.8	19.96	3.297		
3,000.0	3,000.0	2,996.1	2,989.0	10.5	10.4	-162.61	-75.3	-23.6	79.7	59.0	20.66	3.856		
3,100.0	3,100.0	3,095.0	3,086.9	10.9	10.8	-153.26	-88.7	-26.5	94.3	72.9	21.35	4.416		
3,200.0	3,200.0	3,193.6	3,184.6	11.2	11.1	-154.31	-102.1	-29.4	110.5	88.5	22.05	5.011		
3,300.0	3,299.9	3,292.0	3,282.0	11.6	11.5	-155.41	-115.5	-32.4	128.3	105.6	22.75	5.640		
3,400.0	3,399.7	3,390.0	3,379.1	12.0	11.9	-156.49	-128.9	-35.3	147.7	124.3	23.45	6.301		
3,500.0	3,499.4	3,487.8	3,475.9	12.3	12.3	-157.54	-142.1	-38.2	168.8	144.6	24.15	6.990		
3,600.0	3,598.9	3,585.1	3,572.3	12.7	12.6	-158.52	-155.4	-41.1	191.5	166.6	24.84	7.707		
3,700.0	3,698.3	3,682.0	3,668.3	13.0	13.0	-159.45	-168.6	-44.0	215.8	190.2	25.54	8.450		
3,800.0	3,797.4	3,778.5	3,763.8	13.4	13.4	-160.31	-181.7	-46.8	241.7	215.5	26.23	9.216		
3,900.0	3,896.4	3,874.8	3,859.2	13.8	13.8	-161.14	-194.8	-49.7	268.5	241.6	26.92	9.974		
4,000.0	3,995.5	3,971.1	3,954.5	14.1	14.2	-161.82	-207.9	-52.5	295.4	267.8	27.62	10.695		
4,100.0	4,094.5	4,067.4	4,049.8	14.5	14.5	-162.38	-220.9	-55.4	322.3	294.0	28.31	11.382		
4,200.0	4,193.5	4,163.6	4,145.2	14.9	14.9	-162.86	-234.0	-58.3	349.2	320.2	29.01	12.036		
4,300.0	4,292.5	4,259.9	4,240.5	15.3	15.3	-163.27	-247.1	-61.1	376.1	346.4	29.71	12.659		
4,400.0	4,391.6	4,356.2	4,335.8	15.6	15.7	-163.63	-260.2	-64.0	403.0	372.6	30.41	13.254		
4,500.0	4,490.6	4,452.5	4,431.2	16.0	16.1	-163.94	-273.3	-66.8	430.0	398.9	31.11	13.822		
4,600.0	4,589.6	4,548.7	4,526.5	16.4	16.5	-164.22	-286.4	-69.7	456.9	425.1	31.81	14.364		
4,700.0	4,688.6	4,645.0	4,621.9	16.8	16.9	-164.46	-299.5	-72.5	483.9	451.4	32.51	14.884		
4,800.0	4,787.7	4,741.3	4,717.2	17.2	17.3	-164.68	-312.6	-75.4	510.9	477.7	33.22	15.381		
4,900.0	4,886.7	4,837.6	4,812.5	17.5	17.6	-164.88	-325.7	-78.3	537.9	504.0	33.92	15.857		
5,000.0	4,985.7	4,933.8	4,907.9	17.9	18.0	-165.05	-338.8	-81.1	564.9	530.2	34.63	16.313		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35-36 FED 201H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,100.0	5,084.8	5,030.1	5,003.2	18.3	18.4	-165.22	-351.8	-84.0	591.9	556.5	35.33	16.751		
5,200.0	5,183.8	5,126.4	5,098.6	18.7	18.8	-165.36	-364.9	-86.8	618.9	582.8	36.04	17.172		
5,300.0	5,282.8	5,222.7	5,193.9	19.1	19.2	-165.50	-378.0	-89.7	645.9	609.1	36.75	17.576		
5,400.0	5,381.8	5,318.9	5,289.2	19.5	19.6	-165.62	-391.1	-92.6	672.9	635.4	37.45	17.965		
5,500.0	5,480.9	5,415.2	5,384.6	19.9	20.0	-165.74	-404.2	-95.4	699.9	661.7	38.16	18.339		
5,600.0	5,579.9	5,511.5	5,479.9	20.3	20.4	-165.84	-417.3	-98.3	726.9	688.0	38.87	18.699		
5,700.0	5,678.9	5,607.8	5,575.2	20.7	20.8	-165.94	-430.4	-101.1	753.9	714.3	39.58	19.046		
5,800.0	5,777.9	5,704.0	5,670.6	21.1	21.2	-166.03	-443.5	-104.0	780.9	740.6	40.29	19.381		
5,900.0	5,877.0	5,800.3	5,765.9	21.5	21.6	-166.12	-456.6	-106.9	807.9	766.9	41.00	19.704		
6,000.0	5,976.0	5,896.6	5,861.3	21.9	22.0	-166.20	-469.7	-109.7	834.9	793.2	41.72	20.015		
6,100.0	6,075.0	5,992.9	5,956.6	22.3	22.4	-166.27	-482.8	-112.6	862.0	819.5	42.43	20.316		
6,175.3	6,149.6	6,065.4	6,028.4	22.6	22.7	-166.33	-492.6	-114.7	882.3	839.3	42.96	20.536		
6,200.0	6,174.1	6,089.1	6,051.9	22.7	22.8	-166.36	-495.8	-115.4	888.9	845.8	43.14	20.606		
6,300.0	6,273.3	6,185.8	6,147.6	23.1	23.2	-166.47	-509.0	-118.3	914.7	870.9	43.85	20.859		
6,400.0	6,372.7	6,282.8	6,243.7	23.5	23.6	-166.55	-522.2	-121.2	938.9	894.3	44.57	21.066		
6,500.0	6,472.2	6,380.2	6,340.2	23.8	24.0	-166.59	-535.4	-124.1	961.4	916.1	45.28	21.230		
6,600.0	6,572.0	6,478.0	6,437.0	24.2	24.4	-166.61	-548.7	-127.0	982.2	936.2	46.00	21.353		
6,700.0	6,671.8	6,576.2	6,534.2	24.6	24.8	-166.60	-562.1	-129.9	1,001.4	954.7	46.72	21.436		
6,800.0	6,771.7	6,674.6	6,631.7	24.9	25.2	-166.57	-575.4	-132.8	1,018.9	971.5	47.43	21.481		
6,900.0	6,871.7	6,773.3	6,729.5	25.3	25.6	-166.51	-588.9	-135.7	1,034.8	986.6	48.15	21.490		
6,975.3	6,947.0	6,847.8	6,803.2	25.6	25.9	-176.73	-599.0	-138.0	1,045.6	996.9	48.69	21.474		
7,000.0	6,971.7	6,872.3	6,827.5	25.6	26.0	-176.70	-602.3	-138.7	1,049.0	1,000.1	48.87	21.466		
7,100.0	7,071.7	6,971.3	6,925.5	26.0	26.5	-176.58	-615.8	-141.6	1,062.8	1,013.2	49.59	21.433		
7,200.0	7,171.7	7,070.3	7,023.6	26.3	26.9	-176.47	-629.3	-144.6	1,076.5	1,026.2	50.30	21.401		
7,300.0	7,271.7	7,169.4	7,121.7	26.7	27.3	-176.36	-642.7	-147.5	1,090.3	1,039.3	51.02	21.370		
7,400.0	7,371.7	7,268.4	7,219.7	27.0	27.7	-176.25	-656.2	-150.5	1,104.0	1,052.3	51.74	21.339		
7,500.0	7,471.7	7,367.4	7,317.8	27.4	28.1	-176.14	-669.6	-153.4	1,117.8	1,065.3	52.46	21.310		
7,600.0	7,571.7	7,466.5	7,415.8	27.7	28.5	-176.04	-683.1	-156.3	1,131.6	1,078.4	53.17	21.281		
7,700.0	7,671.7	7,565.5	7,513.9	28.1	28.9	-175.94	-696.6	-159.3	1,145.3	1,091.5	53.89	21.253		
7,800.0	7,771.7	7,664.5	7,612.0	28.4	29.4	-175.84	-710.0	-162.2	1,159.1	1,104.5	54.61	21.226		
7,900.0	7,871.7	7,763.5	7,710.0	28.8	29.8	-175.74	-723.5	-165.2	1,172.9	1,117.6	55.33	21.199		
8,000.0	7,971.7	7,862.6	7,808.1	29.1	30.2	-175.65	-737.0	-168.1	1,186.7	1,130.6	56.05	21.173		
8,100.0	8,071.7	7,961.6	7,906.2	29.4	30.6	-175.56	-750.4	-171.0	1,200.5	1,143.7	56.77	21.148		
8,174.8	8,146.5	8,066.1	8,009.8	29.7	31.0	-175.47	-763.8	-173.9	1,210.3	1,152.7	57.53	21.037		
8,200.0	8,171.7	8,109.2	8,052.6	29.8	31.2	94.00	-768.2	-174.9	1,213.0	1,155.1	57.83	20.976		
8,225.0	8,196.6	8,151.9	8,095.2	29.9	31.4	93.90	-772.1	-175.8	1,215.4	1,157.3	58.11	20.916		
8,250.0	8,221.4	8,194.5	8,137.6	30.0	31.5	93.92	-775.3	-176.5	1,217.5	1,159.1	58.38	20.856		
8,275.0	8,246.0	8,236.8	8,179.9	30.0	31.7	94.08	-777.8	-177.0	1,219.4	1,160.8	58.63	20.797		
8,300.0	8,270.3	8,278.8	8,221.8	30.1	31.8	94.35	-779.8	-177.4	1,221.1	1,162.2	58.88	20.740		
8,325.0	8,294.2	8,320.2	8,263.2	30.2	32.0	94.74	-781.1	-177.7	1,222.5	1,163.4	59.11	20.683		
8,350.0	8,317.8	8,361.1	8,304.1	30.3	32.1	95.23	-781.8	-177.9	1,223.7	1,164.4	59.31	20.632		
8,375.0	8,340.9	8,397.9	8,340.9	30.3	32.2	95.75	-782.0	-177.9	1,224.9	1,165.4	59.50	20.585		
8,400.0	8,363.4	8,420.5	8,363.4	30.4	32.3	96.06	-782.0	-177.9	1,226.1	1,166.4	59.65	20.554		
8,425.0	8,385.4	8,442.4	8,385.4	30.5	32.4	96.37	-782.0	-177.9	1,227.6	1,167.8	59.80	20.529		
8,450.0	8,406.7	8,463.7	8,406.7	30.5	32.4	96.68	-782.0	-177.9	1,229.3	1,169.4	59.94	20.509		
8,475.0	8,427.3	8,484.3	8,427.3	30.6	32.5	96.98	-782.0	-177.9	1,231.3	1,171.3	60.08	20.495		
8,500.0	8,447.1	8,504.2	8,447.1	30.6	32.5	97.25	-782.0	-177.9	1,233.7	1,173.5	60.22	20.487		
8,525.0	8,466.1	8,523.2	8,466.1	30.7	32.6	97.50	-782.0	-177.9	1,236.4	1,176.1	60.36	20.486		
8,550.0	8,484.3	8,541.3	8,484.3	30.7	32.7	97.70	-782.0	-177.9	1,239.6	1,179.1	60.49	20.491		
8,575.0	8,501.5	8,558.5	8,501.5	30.8	32.7	97.85	-782.0	-177.9	1,243.1	1,182.5	60.63	20.504		
8,600.0	8,517.7	8,574.7	8,517.7	30.8	32.8	97.94	-782.0	-177.9	1,247.1	1,186.3	60.76	20.524		
8,625.0	8,532.9	8,589.9	8,532.9	30.9	32.8	97.96	-782.0	-177.9	1,251.5	1,190.6	60.89	20.552		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35-36 FED 201H - OWB - PWP0														Offset Site Error:	0.0 usft	
Survey Program:		0-MWD		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:		0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
8,650.0	8,547.0	8,604.1	8,547.0	30.9	32.8	97.90	-782.0	-177.9	1,256.5	1,195.4	61.03	20.588				
8,675.0	8,560.1	8,617.1	8,560.1	31.0	32.9	97.75	-782.0	-177.9	1,261.9	1,200.7	61.16	20.633				
8,700.0	8,572.0	8,629.0	8,572.0	31.1	32.9	97.51	-782.0	-177.9	1,267.8	1,206.6	61.29	20.685				
8,725.0	8,582.8	8,639.8	8,582.8	31.2	33.0	97.16	-782.0	-177.9	1,274.3	1,212.9	61.43	20.746				
8,750.0	8,592.3	8,649.4	8,592.3	31.3	33.0	96.70	-782.0	-177.9	1,281.3	1,219.8	61.56	20.815				
8,775.0	8,600.7	8,657.7	8,600.7	31.4	33.0	96.12	-782.0	-177.9	1,288.9	1,227.2	61.69	20.893				
8,800.0	8,607.7	8,664.8	8,607.7	31.6	33.0	95.42	-782.0	-177.9	1,296.9	1,235.1	61.82	20.979				
8,825.0	8,613.6	8,670.6	8,613.6	31.7	33.0	94.59	-782.0	-177.9	1,305.5	1,243.6	61.95	21.074				
8,850.0	8,618.1	8,675.1	8,618.1	31.9	33.1	93.64	-782.0	-177.9	1,314.6	1,252.5	62.08	21.177				
8,875.0	8,621.4	8,678.4	8,621.4	32.0	33.1	92.55	-782.0	-177.9	1,324.1	1,261.9	62.20	21.288				
8,900.0	8,623.3	8,680.4	8,623.3	32.2	33.1	91.33	-782.0	-177.9	1,334.1	1,271.8	62.32	21.407				
8,924.8	8,624.0	8,681.0	8,624.0	32.4	33.1	90.00	-782.0	-177.9	1,344.5	1,282.0	62.44	21.533				
9,000.0	8,624.0	8,681.0	8,624.0	33.0	33.1	90.00	-782.0	-177.9	1,378.1	1,315.3	62.80	21.943				
9,100.0	8,624.0	8,681.0	8,624.0	33.9	33.1	90.00	-782.0	-177.9	1,427.6	1,364.3	63.32	22.545				
9,200.0	8,624.0	8,681.0	8,624.0	34.9	33.1	90.00	-782.0	-177.9	1,482.3	1,418.4	63.87	23.209				
9,300.0	8,624.0	10,198.6	9,394.0	36.1	39.9	120.25	-889.8	767.2	1,528.6	1,462.4	66.24	23.078				
9,400.0	8,624.0	10,298.6	9,394.0	37.4	41.2	120.25	-890.3	867.2	1,528.6	1,460.1	68.49	22.319				
9,500.0	8,624.0	10,398.6	9,394.0	38.8	42.5	120.25	-890.8	967.2	1,528.6	1,457.7	70.93	21.551				
9,600.0	8,624.0	10,498.6	9,394.0	40.3	44.0	120.25	-891.3	1,067.2	1,528.6	1,455.1	73.53	20.788				
9,700.0	8,624.0	10,598.6	9,394.0	41.9	45.5	120.25	-891.7	1,167.2	1,528.6	1,452.3	76.29	20.038				
9,800.0	8,624.0	10,698.6	9,394.0	43.6	47.1	120.25	-892.2	1,267.2	1,528.6	1,449.4	79.17	19.307				
9,900.0	8,624.0	10,798.6	9,394.0	45.3	48.8	120.25	-892.7	1,367.2	1,528.6	1,446.4	82.18	18.600				
10,000.0	8,624.0	10,898.6	9,394.0	47.1	50.5	120.25	-893.2	1,467.2	1,528.6	1,443.3	85.29	17.921				
10,100.0	8,624.0	10,998.6	9,394.0	49.0	52.3	120.25	-893.7	1,567.2	1,528.6	1,440.1	88.50	17.271				
10,200.0	8,624.0	11,098.6	9,394.0	50.9	54.1	120.25	-894.2	1,667.2	1,528.6	1,436.8	91.80	16.651				
10,300.0	8,624.0	11,198.6	9,394.0	52.8	56.0	120.25	-894.7	1,767.2	1,528.6	1,433.4	95.17	16.061				
10,400.0	8,624.0	11,298.6	9,394.0	54.8	58.0	120.25	-895.2	1,867.2	1,528.6	1,429.9	98.61	15.500				
10,500.0	8,624.0	11,398.6	9,394.0	56.8	59.9	120.25	-895.7	1,967.2	1,528.5	1,426.4	102.12	14.969				
10,600.0	8,624.0	11,498.6	9,394.0	58.8	61.9	120.25	-896.2	2,067.2	1,528.5	1,422.9	105.68	14.464				
10,700.0	8,624.0	11,598.6	9,394.0	60.9	63.9	120.25	-896.7	2,167.2	1,528.5	1,419.3	109.29	13.987				
10,800.0	8,624.0	11,698.6	9,394.0	63.0	66.0	120.25	-897.2	2,267.2	1,528.5	1,415.6	112.94	13.534				
10,900.0	8,624.0	11,798.6	9,394.0	65.1	68.1	120.25	-897.7	2,367.2	1,528.5	1,411.9	116.64	13.105				
11,000.0	8,624.0	11,898.6	9,394.0	67.3	70.2	120.25	-898.2	2,467.2	1,528.5	1,408.2	120.37	12.698				
11,100.0	8,624.0	11,998.6	9,394.0	69.4	72.3	120.25	-898.7	2,567.2	1,528.5	1,404.4	124.14	12.313				
11,200.0	8,624.0	12,098.6	9,394.0	71.6	74.4	120.25	-899.2	2,667.2	1,528.5	1,400.6	127.94	11.947				
11,300.0	8,624.0	12,198.6	9,394.0	73.8	76.6	120.25	-899.7	2,767.2	1,528.5	1,396.7	131.76	11.600				
11,400.0	8,624.0	12,298.6	9,394.0	76.0	78.8	120.25	-900.2	2,867.2	1,528.5	1,392.9	135.62	11.271				
11,500.0	8,624.0	12,398.6	9,394.0	78.2	80.9	120.25	-900.7	2,967.2	1,528.5	1,389.0	139.49	10.957				
11,600.0	8,624.0	12,498.6	9,394.0	80.4	83.1	120.25	-901.2	3,067.2	1,528.5	1,385.1	143.39	10.660				
11,700.0	8,624.0	12,598.6	9,394.0	82.7	85.4	120.25	-901.7	3,167.2	1,528.5	1,381.2	147.31	10.376				
11,800.0	8,624.0	12,698.6	9,394.0	84.9	87.6	120.25	-902.2	3,267.2	1,528.5	1,377.2	151.25	10.106				
11,900.0	8,624.0	12,798.6	9,394.0	87.2	89.8	120.25	-902.7	3,367.2	1,528.5	1,373.3	155.20	9.848				
12,000.0	8,624.0	12,898.6	9,394.0	89.5	92.0	120.25	-903.2	3,467.2	1,528.5	1,369.3	159.17	9.603				
12,100.0	8,624.0	12,998.6	9,394.0	91.7	94.3	120.25	-903.7	3,567.1	1,528.5	1,365.3	163.16	9.368				
12,200.0	8,624.0	13,098.6	9,394.0	94.0	96.6	120.25	-904.2	3,667.1	1,528.5	1,361.3	167.16	9.144				
12,300.0	8,624.0	13,198.6	9,394.0	96.3	98.8	120.25	-904.7	3,767.1	1,528.5	1,357.3	171.17	8.930				
12,400.0	8,624.0	13,298.6	9,394.0	98.6	101.1	120.25	-905.2	3,867.1	1,528.5	1,353.3	175.19	8.724				
12,500.0	8,624.0	13,398.6	9,394.0	100.9	103.4	120.25	-905.7	3,967.1	1,528.5	1,349.2	179.23	8.528				
12,600.0	8,624.0	13,498.6	9,394.0	103.2	105.7	120.25	-906.1	4,067.1	1,528.5	1,345.2	183.27	8.340				
12,700.0	8,624.0	13,598.6	9,394.0	105.5	107.9	120.25	-906.6	4,167.1	1,528.4	1,341.1	187.33	8.159				
12,800.0	8,624.0	13,698.6	9,394.0	107.8	110.2	120.25	-907.1	4,267.1	1,528.4	1,337.1	191.39	7.986				
12,900.0	8,624.0	13,798.6	9,394.0	110.2	112.5	120.25	-907.6	4,367.1	1,528.4	1,333.0	195.46	7.820				

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35-36 FED 201H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program:		0-MWD		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
13,000.0	8,624.0	13,898.6	9,394.0	112.5	114.9	120.25	-908.1	4,467.1	1,528.4	1,328.9	199.54	7.660		
13,100.0	8,624.0	13,998.6	9,394.0	114.8	117.2	120.25	-908.6	4,567.1	1,528.4	1,324.8	203.63	7.506		
13,200.0	8,624.0	14,098.6	9,394.0	117.1	119.5	120.25	-909.1	4,667.1	1,528.4	1,320.7	207.72	7.358		
13,300.0	8,624.0	14,198.6	9,394.0	119.5	121.8	120.25	-909.6	4,767.1	1,528.4	1,316.6	211.82	7.216		
13,400.0	8,624.0	14,298.6	9,394.0	121.8	124.1	120.25	-910.1	4,867.1	1,528.4	1,312.5	215.93	7.078		
13,500.0	8,624.0	14,398.6	9,394.0	124.2	126.5	120.25	-910.6	4,967.1	1,528.4	1,308.4	220.04	6.946		
13,600.0	8,624.0	14,498.6	9,394.0	126.5	128.8	120.25	-911.1	5,067.1	1,528.4	1,304.2	224.16	6.818		
13,700.0	8,624.0	14,598.6	9,394.0	128.9	131.1	120.25	-911.6	5,167.1	1,528.4	1,300.1	228.29	6.695		
13,800.0	8,624.0	14,698.6	9,394.0	131.2	133.5	120.25	-912.1	5,267.1	1,528.4	1,296.0	232.42	6.576		
13,900.0	8,624.0	14,798.6	9,394.0	133.6	135.8	120.25	-912.6	5,367.1	1,528.4	1,291.8	236.55	6.461		
14,000.0	8,624.0	14,898.6	9,394.0	135.9	138.1	120.25	-913.1	5,467.1	1,528.4	1,287.7	240.69	6.350		
14,100.0	8,624.0	14,998.6	9,394.0	138.3	140.5	120.25	-913.6	5,567.1	1,528.4	1,283.6	244.83	6.243		
14,200.0	8,624.0	15,098.6	9,394.0	140.6	142.8	120.25	-914.1	5,667.1	1,528.4	1,279.4	248.98	6.139		
14,300.0	8,624.0	15,198.6	9,394.0	143.0	145.2	120.25	-914.6	5,767.1	1,528.4	1,275.3	253.13	6.038		
14,400.0	8,624.0	15,298.6	9,394.0	145.4	147.5	120.25	-915.1	5,867.1	1,528.4	1,271.1	257.28	5.940		
14,500.0	8,624.0	15,398.6	9,394.0	147.7	149.9	120.25	-915.6	5,967.1	1,528.4	1,266.9	261.44	5.846		
14,600.0	8,624.0	15,498.6	9,394.0	150.1	152.3	120.25	-916.1	6,067.1	1,528.4	1,262.8	265.60	5.754		
14,700.0	8,624.0	15,598.6	9,394.0	152.5	154.6	120.25	-916.6	6,167.1	1,528.4	1,258.6	269.76	5.666		
14,800.0	8,624.0	15,698.6	9,394.0	154.8	157.0	120.25	-917.1	6,267.1	1,528.4	1,254.4	273.93	5.579		
14,900.0	8,624.0	15,798.6	9,394.0	157.2	159.3	120.25	-917.6	6,367.1	1,528.4	1,250.3	278.10	5.496		
15,000.0	8,624.0	15,898.6	9,394.0	159.6	161.7	120.25	-918.1	6,467.1	1,528.3	1,246.1	282.27	5.414		
15,100.0	8,624.0	15,998.6	9,394.0	162.0	164.1	120.25	-918.6	6,567.1	1,528.3	1,241.9	286.45	5.336		
15,200.0	8,624.0	16,098.6	9,394.0	164.3	166.4	120.25	-919.1	6,667.1	1,528.3	1,237.7	290.62	5.259		
15,300.0	8,624.0	16,198.6	9,394.0	166.7	168.8	120.25	-919.6	6,767.1	1,528.3	1,233.5	294.80	5.184		
15,400.0	8,624.0	16,298.6	9,394.0	169.1	171.2	120.25	-920.1	6,867.1	1,528.3	1,229.3	298.99	5.112		
15,500.0	8,624.0	16,398.6	9,394.0	171.5	173.6	120.25	-920.6	6,967.1	1,528.3	1,225.2	303.17	5.041		
15,600.0	8,624.0	16,498.6	9,394.0	173.9	175.9	120.25	-921.0	7,067.1	1,528.3	1,221.0	307.36	4.972		
15,700.0	8,624.0	16,598.6	9,394.0	176.2	178.3	120.25	-921.5	7,167.1	1,528.3	1,216.8	311.55	4.906		
15,800.0	8,624.0	16,698.6	9,394.0	178.6	180.7	120.25	-922.0	7,267.1	1,528.3	1,212.6	315.74	4.840		
15,900.0	8,624.0	16,798.6	9,394.0	181.0	183.1	120.25	-922.5	7,367.1	1,528.3	1,208.4	319.93	4.777		
16,000.0	8,624.0	16,898.6	9,394.0	183.4	185.4	120.25	-923.0	7,467.1	1,528.3	1,204.2	324.12	4.715		
16,100.0	8,624.0	16,998.6	9,394.0	185.8	187.8	120.25	-923.5	7,567.1	1,528.3	1,200.0	328.32	4.655		
16,200.0	8,624.0	17,098.6	9,394.0	188.2	190.2	120.25	-924.0	7,667.1	1,528.3	1,195.8	332.52	4.596		
16,300.0	8,624.0	17,198.6	9,394.0	190.6	192.6	120.25	-924.5	7,767.1	1,528.3	1,191.6	336.72	4.539		
16,400.0	8,624.0	17,298.6	9,394.0	193.0	195.0	120.25	-925.0	7,867.1	1,528.3	1,187.4	340.92	4.483		
16,500.0	8,624.0	17,398.6	9,394.0	195.3	197.3	120.25	-925.5	7,967.1	1,528.3	1,183.2	345.12	4.428		
16,600.0	8,624.0	17,498.6	9,394.0	197.7	199.7	120.25	-926.0	8,067.1	1,528.3	1,179.0	349.32	4.375		
16,700.0	8,624.0	17,598.6	9,394.0	200.1	202.1	120.25	-926.5	8,167.1	1,528.3	1,174.7	353.53	4.323		
16,800.0	8,624.0	17,698.6	9,394.0	202.5	204.5	120.25	-927.0	8,267.1	1,528.3	1,170.5	357.74	4.272		
16,900.0	8,624.0	17,798.6	9,394.0	204.9	206.9	120.25	-927.5	8,367.1	1,528.3	1,166.3	361.94	4.222		
17,000.0	8,624.0	17,898.6	9,394.0	207.3	209.3	120.25	-928.0	8,467.1	1,528.3	1,162.1	366.15	4.174		
17,100.0	8,624.0	17,998.6	9,394.0	209.7	211.7	120.25	-928.5	8,567.1	1,528.3	1,157.9	370.36	4.126		
17,200.0	8,624.0	18,098.6	9,394.0	212.1	214.1	120.25	-929.0	8,667.1	1,528.2	1,153.7	374.57	4.080		
17,300.0	8,624.0	18,198.6	9,394.0	214.5	216.4	120.25	-929.5	8,767.1	1,528.2	1,149.5	378.79	4.035		
17,400.0	8,624.0	18,298.6	9,394.0	216.9	218.8	120.25	-930.0	8,867.1	1,528.2	1,145.2	383.00	3.990		
17,500.0	8,624.0	18,398.6	9,394.0	219.3	221.2	120.25	-930.5	8,967.1	1,528.2	1,141.0	387.22	3.947		
17,600.0	8,624.0	18,498.6	9,394.0	221.7	223.6	120.26	-931.0	9,067.1	1,528.2	1,136.8	391.43	3.904		
17,700.0	8,624.0	18,598.6	9,394.0	224.1	226.0	120.26	-931.5	9,167.1	1,528.2	1,132.6	395.65	3.863		
17,800.0	8,624.0	18,698.6	9,394.0	226.5	228.4	120.26	-932.0	9,267.1	1,528.2	1,128.4	399.87	3.822		
17,900.0	8,624.0	18,798.6	9,394.0	228.9	230.8	120.26	-932.5	9,367.1	1,528.2	1,124.1	404.08	3.782		
18,000.0	8,624.0	18,898.6	9,394.0	231.3	233.2	120.26	-933.0	9,467.1	1,528.2	1,119.9	408.30	3.743		
18,100.0	8,624.0	18,998.6	9,394.0	233.7	235.6	120.26	-933.5	9,567.1	1,528.2	1,115.7	412.52	3.705		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - IRONHORSE 35-36 FED 201H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance			Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)			
18,200.0	8,624.0	19,098.6	9,394.0	236.1	238.0	120.26	-934.0	9,667.1	1,528.2	1,111.5	416.75	3.667		
18,300.0	8,624.0	19,198.6	9,394.0	238.5	240.4	120.26	-934.5	9,767.1	1,528.2	1,107.2	420.97	3.630		
18,400.0	8,624.0	19,298.6	9,394.0	240.9	242.8	120.26	-935.0	9,867.1	1,528.2	1,103.0	425.19	3.594		
18,500.0	8,624.0	19,398.6	9,394.0	243.3	245.2	120.26	-935.4	9,967.1	1,528.2	1,098.8	429.41	3.559		
18,600.0	8,624.0	19,498.6	9,394.0	245.7	247.6	120.26	-935.9	10,067.1	1,528.2	1,094.5	433.64	3.524		
18,700.0	8,624.0	19,598.6	9,394.0	248.1	250.0	120.26	-936.4	10,167.1	1,528.2	1,090.3	437.86	3.490		
18,800.0	8,624.0	19,698.6	9,394.0	250.5	252.4	120.26	-936.9	10,267.1	1,528.2	1,086.1	442.09	3.457		
18,900.0	8,624.0	19,798.6	9,394.0	252.9	254.8	120.26	-937.4	10,367.1	1,528.2	1,081.9	446.32	3.424		
19,000.0	8,624.0	19,898.6	9,394.0	255.3	257.2	120.26	-937.9	10,467.1	1,528.2	1,077.6	450.54	3.392		
19,100.0	8,624.0	19,998.6	9,394.0	257.7	259.6	120.26	-938.4	10,567.1	1,528.2	1,073.4	454.77	3.360		
19,190.0	8,624.0	20,088.6	9,394.0	259.9	261.7	120.26	-938.9	10,657.0	1,528.2	1,069.6	458.57	3.332		
19,190.6	8,624.0	20,089.2	9,394.0	259.9	261.7	120.26	-938.9	10,657.7	1,528.2	1,069.6	458.60	3.332		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Osage 34 Fed #1H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 100-MWD+IFR1													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-7.68	972.1	-131.0	981.0					
100.0	100.0	85.2	85.2	0.1	0.1	-7.67	972.0	-130.9	980.8	980.5	0.25	3,909.549		
200.0	200.0	190.0	190.0	0.5	0.5	-7.64	971.6	-130.4	980.3	979.3	0.95	1,027.995		
300.0	300.0	290.1	290.1	0.8	0.8	-7.56	971.0	-128.9	979.6	977.9	1.67	586.671		
400.0	400.0	391.4	391.4	1.2	1.2	-7.45	970.5	-126.8	978.8	976.4	2.39	409.420		
500.0	500.0	490.1	490.0	1.6	1.5	-7.33	969.9	-124.8	978.0	974.9	3.10	315.225		
600.0	600.0	586.2	586.1	1.9	1.9	-7.22	969.7	-122.9	977.4	973.6	3.80	256.913		
665.3	665.3	648.4	648.3	2.2	2.1	-7.16	969.7	-121.7	977.3	973.1	4.26	229.384		
700.0	700.0	681.4	681.3	2.3	2.2	-7.12	969.8	-121.1	977.4	972.9	4.50	217.057		
800.0	800.0	780.7	780.6	2.6	2.6	-7.01	970.3	-119.3	977.6	972.4	5.22	187.459		
900.0	900.0	880.8	880.7	3.0	2.9	-6.89	970.8	-117.3	977.9	971.9	5.93	164.882		
1,000.0	1,000.0	981.4	981.2	3.4	3.3	-6.77	971.2	-115.3	978.1	971.4	6.65	147.112		
1,100.0	1,100.0	1,083.3	1,083.2	3.7	3.7	-6.64	971.6	-113.1	978.2	970.8	7.37	132.685		
1,200.0	1,200.0	1,185.4	1,185.2	4.1	4.0	-6.51	971.7	-110.8	978.0	969.9	8.10	120.798		
1,300.0	1,300.0	1,288.0	1,287.8	4.4	4.4	-6.38	971.6	-108.6	977.7	968.9	8.82	110.814		
1,400.0	1,400.0	1,387.8	1,387.6	4.8	4.8	-6.27	971.3	-106.7	977.2	967.7	9.54	102.439		
1,500.0	1,500.0	1,483.7	1,483.4	5.1	5.1	-6.18	971.2	-105.2	976.9	966.7	10.24	95.390		
1,600.0	1,600.0	1,585.2	1,585.0	5.5	5.5	-6.09	971.3	-103.7	976.8	965.9	10.96	89.099		
1,700.0	1,700.0	1,686.9	1,686.7	5.9	5.8	-6.01	971.2	-102.3	976.6	964.9	11.69	83.562		
1,800.0	1,800.0	1,789.3	1,789.0	6.2	6.2	-5.94	970.8	-101.0	976.1	963.7	12.41	78.642		
1,900.0	1,900.0	1,889.2	1,888.9	6.6	6.6	-5.89	970.3	-100.0	975.4	962.3	13.13	74.312		
2,000.0	2,000.0	1,987.9	1,987.6	6.9	6.9	-5.87	969.8	-99.7	974.9	961.1	13.83	70.502		
2,100.0	2,100.0	2,089.1	2,088.8	7.3	7.2	-5.89	969.2	-100.0	974.4	959.8	14.53	67.075		
2,200.0	2,200.0	2,191.4	2,191.1	7.7	7.6	-5.95	968.4	-100.9	973.7	958.4	15.23	63.945		
2,300.0	2,300.0	2,292.2	2,291.9	8.0	7.9	-6.01	967.4	-101.8	972.8	956.9	15.92	61.089		
2,400.0	2,400.0	2,395.9	2,395.6	8.4	8.3	-6.06	966.2	-102.5	971.7	955.1	16.64	58.409		
2,500.0	2,500.0	2,495.2	2,494.9	8.7	8.6	-6.11	964.8	-103.3	970.4	953.1	17.33	55.982		
2,600.0	2,600.0	2,595.4	2,595.0	9.1	9.0	-6.18	963.5	-104.3	969.2	951.2	18.04	53.737		
2,700.0	2,700.0	2,696.0	2,695.7	9.4	9.3	-6.25	962.1	-105.3	967.9	949.2	18.74	51.649		
2,800.0	2,800.0	2,794.8	2,794.4	9.8	9.6	-6.31	960.7	-106.2	966.7	947.2	19.44	49.726		
2,900.0	2,900.0	2,895.5	2,895.1	10.2	10.0	-6.37	959.4	-107.1	965.5	945.3	20.15	47.922		
3,000.0	3,000.0	2,995.5	2,995.0	10.5	10.3	-6.44	958.1	-108.1	964.2	943.4	20.85	46.241		
3,100.0	3,100.0	3,096.1	3,095.7	10.9	10.7	3.79	956.7	-109.0	962.1	940.5	21.56	44.621		
3,200.0	3,200.0	3,194.9	3,194.5	11.2	11.0	3.73	955.3	-109.9	958.2	935.9	22.26	43.039		
3,300.0	3,299.9	3,292.7	3,292.3	11.6	11.4	3.69	954.1	-110.8	952.7	929.8	22.96	41.490		
3,400.0	3,399.7	3,393.5	3,393.0	12.0	11.7	3.67	953.0	-111.6	945.6	921.9	23.67	39.946		
3,500.0	3,499.4	3,494.3	3,493.8	12.3	12.1	3.63	951.7	-112.6	936.6	912.2	24.38	38.416		
3,600.0	3,598.9	3,591.7	3,591.2	12.7	12.4	3.59	950.4	-113.9	925.9	900.9	25.08	36.921		
3,700.0	3,698.3	3,691.2	3,690.7	13.0	12.8	3.54	949.2	-115.4	913.6	887.9	25.78	35.437		
3,800.0	3,797.4	3,789.0	3,788.5	13.4	13.1	3.49	948.1	-116.9	899.6	873.2	26.48	33.975		
3,900.0	3,896.4	3,888.6	3,888.0	13.8	13.5	3.46	947.0	-118.1	884.8	857.6	27.18	32.551		
4,000.0	3,995.5	3,984.3	3,983.8	14.1	13.8	3.44	946.1	-119.1	870.1	842.3	27.87	31.216		
4,100.0	4,094.5	4,080.8	4,080.3	14.5	14.1	3.42	945.5	-120.2	855.8	827.2	28.57	29.955		
4,200.0	4,193.5	4,180.2	4,179.7	14.9	14.5	3.41	945.1	-121.1	841.6	812.3	29.27	28.748		
4,300.0	4,292.5	4,280.2	4,279.7	15.3	14.8	3.40	944.5	-122.0	827.2	797.3	29.98	27.592		
4,400.0	4,391.6	4,379.3	4,378.7	15.6	15.2	3.38	943.9	-123.0	812.8	782.2	30.69	26.489		
4,500.0	4,490.6	4,475.6	4,475.1	16.0	15.5	3.34	943.4	-124.3	798.6	767.2	31.38	25.448		
4,600.0	4,589.6	4,571.4	4,570.9	16.4	15.8	3.31	943.3	-125.4	784.7	752.6	32.07	24.466		
4,700.0	4,688.6	4,667.4	4,666.8	16.8	16.2	3.31	943.6	-126.2	771.2	738.5	32.77	23.538		
4,800.0	4,787.7	4,766.4	4,765.8	17.2	16.5	3.33	944.2	-126.9	758.0	724.6	33.47	22.650		
4,900.0	4,886.7	4,864.7	4,864.1	17.5	16.8	3.37	944.8	-127.3	744.8	710.6	34.16	21.800		
5,000.0	4,985.7	4,963.4	4,962.8	17.9	17.2	3.39	945.5	-127.9	731.7	696.8	34.86	20.987		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Osage 34 Fed #1H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 100-MWD+IFR1													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)						
5,100.0	5,084.8	5,062.1	5,061.5	18.3	17.5	3.40	946.2	-128.7	718.6	683.0	35.57	20.205		
5,200.0	5,183.8	5,159.5	5,158.9	18.7	17.9	3.41	947.1	-129.5	705.7	669.4	36.26	19.459		
5,300.0	5,282.8	5,258.3	5,257.7	19.1	18.2	3.39	948.2	-130.6	693.0	656.0	36.97	18.745		
5,400.0	5,381.8	5,358.5	5,357.9	19.5	18.5	3.38	949.1	-131.8	680.2	642.5	37.68	18.052		
5,500.0	5,480.9	5,458.9	5,458.2	19.9	18.9	3.33	949.9	-133.3	667.2	628.8	38.39	17.380		
5,600.0	5,579.9	5,556.6	5,555.9	20.3	19.2	3.22	950.5	-135.4	654.2	615.1	39.09	16.733		
5,700.0	5,678.9	5,653.9	5,653.2	20.7	19.6	3.09	951.4	-137.7	641.5	601.7	39.80	16.120		
5,800.0	5,777.9	5,753.0	5,752.2	21.1	19.9	3.00	952.6	-139.6	629.0	588.5	40.51	15.529		
5,900.0	5,877.0	5,852.3	5,851.5	21.5	20.3	2.99	953.8	-140.6	616.5	575.2	41.21	14.957		
6,000.0	5,976.0	5,950.8	5,950.0	21.9	20.6	2.98	955.1	-141.5	604.0	562.0	41.92	14.407		
6,100.0	6,075.0	6,049.2	6,048.4	22.3	20.9	2.95	956.5	-142.7	591.6	549.0	42.63	13.878		
6,175.3	6,149.6	6,123.9	6,123.1	22.6	21.2	2.91	957.6	-143.9	582.4	539.2	43.16	13.492		
6,200.0	6,174.1	6,148.7	6,147.9	22.7	21.3	2.89	957.9	-144.3	579.4	536.1	43.34	13.368		
6,300.0	6,273.3	6,248.7	6,247.9	23.1	21.6	2.79	959.3	-146.0	568.3	524.2	44.05	12.900		
6,400.0	6,372.7	6,350.7	6,349.8	23.5	22.0	2.65	960.4	-148.0	558.8	514.0	44.77	12.480		
6,500.0	6,472.2	6,453.7	6,452.8	23.8	22.4	2.49	960.8	-150.0	550.3	504.8	45.49	12.097		
6,600.0	6,572.0	6,553.9	6,553.0	24.2	22.7	2.33	960.9	-151.9	543.2	497.0	46.20	11.757		
6,700.0	6,671.8	6,651.5	6,650.6	24.6	23.1	2.12	961.1	-154.1	538.1	491.2	46.91	11.470		
6,800.0	6,771.7	6,751.9	6,751.0	24.9	23.4	1.91	961.7	-156.3	535.1	487.4	47.62	11.235		
6,900.0	6,871.7	6,852.4	6,851.5	25.3	23.8	1.85	962.1	-157.0	533.4	485.0	48.33	11.035		
6,931.7	6,903.4	6,883.3	6,882.3	25.4	23.9	1.84	962.3	-157.2	533.2	484.7	48.55	10.982		
6,975.3	6,947.0	6,927.9	6,927.0	25.6	24.0	-8.47	962.6	-157.5	533.4	484.5	48.86	10.916		
7,000.0	6,971.7	6,954.0	6,953.0	25.6	24.1	-8.50	962.7	-157.7	533.5	484.5	49.04	10.879		
7,100.0	7,071.7	7,056.6	7,055.7	26.0	24.5	-8.67	962.4	-159.3	533.5	483.7	49.75	10.722		
7,200.0	7,171.7	7,156.4	7,155.4	26.3	24.8	-8.87	961.9	-161.1	533.3	482.8	50.46	10.568		
7,300.0	7,271.7	7,257.7	7,256.7	26.7	25.2	-9.08	961.4	-163.0	533.1	481.9	51.17	10.418		
7,400.0	7,371.7	7,362.0	7,361.0	27.0	25.6	-9.28	960.4	-164.8	532.4	480.5	51.88	10.261		
7,500.0	7,471.7	7,466.4	7,465.3	27.4	25.9	-9.72	958.0	-168.5	530.8	478.2	52.59	10.092		
7,593.7	7,565.4	7,550.3	7,548.4	27.7	26.2	-10.85	955.0	-178.6	529.5	476.2	53.25	9.942 CC		
7,600.0	7,571.7	7,555.9	7,553.9	27.7	26.3	-10.98	954.8	-179.7	529.5	476.2	53.30	9.934 ES		
7,700.0	7,671.7	7,632.8	7,627.8	28.1	26.5	-13.23	951.9	-200.4	531.7	477.7	53.93	9.859 SF		
7,800.0	7,771.7	7,700.7	7,690.4	28.4	26.8	-16.02	950.3	-226.8	539.9	485.6	54.35	9.934		
7,900.0	7,871.7	7,757.3	7,739.8	28.8	26.9	-18.81	950.2	-254.4	556.3	501.9	54.39	10.228		
8,000.0	7,971.7	7,822.2	7,793.1	29.1	27.2	-22.39	950.3	-291.2	580.2	526.0	54.28	10.690		
8,100.0	8,071.7	7,870.3	7,830.9	29.4	27.3	-25.15	950.7	-321.1	612.2	558.5	53.62	11.416		
8,174.8	8,146.5	7,897.8	7,851.5	29.7	27.4	-26.72	952.0	-339.1	642.1	589.3	52.80	12.161		
8,200.0	8,171.7	7,911.0	7,861.3	29.8	27.5	-116.41	952.9	-348.0	653.5	600.9	52.61	12.423		
8,225.0	8,196.6	7,911.0	7,861.3	29.9	27.5	-114.87	952.9	-348.0	665.9	613.8	52.08	12.787		
8,250.0	8,221.4	7,923.2	7,870.1	30.0	27.5	-113.96	953.9	-356.4	679.2	627.3	51.88	13.092		
8,275.0	8,246.0	7,930.7	7,875.5	30.0	27.5	-112.59	954.6	-361.5	693.5	641.9	51.57	13.446		
8,300.0	8,270.3	7,943.0	7,884.1	30.1	27.6	-111.44	955.7	-370.2	708.6	657.2	51.42	13.780		
8,325.0	8,294.2	7,943.0	7,884.1	30.2	27.6	-109.13	955.7	-370.2	724.5	673.5	50.95	14.219		
8,350.0	8,317.8	7,943.0	7,884.1	30.3	27.6	-106.58	955.7	-370.2	741.2	690.7	50.50	14.675		
8,375.0	8,340.9	7,943.0	7,884.1	30.3	27.6	-103.77	955.7	-370.2	758.6	708.5	50.09	15.145		
8,400.0	8,363.4	7,943.0	7,884.1	30.4	27.6	-100.71	955.7	-370.2	776.6	726.9	49.70	15.625		
8,425.0	8,385.4	7,955.4	7,892.7	30.5	27.6	-98.70	957.0	-379.1	794.9	745.2	49.72	15.987		
8,450.0	8,406.7	7,957.1	7,893.8	30.5	27.6	-95.42	957.2	-380.4	813.9	764.4	49.47	16.452		
8,475.0	8,427.3	7,958.4	7,894.7	30.6	27.6	-91.90	957.4	-381.3	833.2	783.9	49.24	16.921		
8,500.0	8,447.1	7,959.1	7,895.2	30.6	27.6	-88.17	957.5	-381.8	852.8	803.8	49.04	17.390		
8,525.0	8,466.1	7,959.4	7,895.4	30.7	27.6	-84.26	957.5	-382.1	872.7	823.9	48.87	17.858		
8,550.0	8,484.3	7,959.3	7,895.3	30.7	27.6	-80.24	957.5	-382.0	892.8	844.1	48.73	18.321		
8,575.0	8,501.5	7,958.8	7,894.9	30.8	27.6	-76.16	957.4	-381.6	913.0	864.4	48.62	18.777		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Osage 34 Fed #1H - AWP - FINAL MWD												Offset Site Error:	0.0 usft
Survey Program: 100-MWD+IFR1												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)					
8,600.0	8,517.7	7,957.8	7,894.3	30.8	27.6	-72.08	957.3	-380.9	933.3	884.7	48.55	19.225	
8,625.0	8,532.9	7,956.5	7,893.4	30.9	27.6	-68.07	957.2	-379.9	953.5	905.0	48.50	19.661	
8,650.0	8,547.0	7,954.8	7,892.3	30.9	27.6	-64.17	957.0	-378.7	973.7	925.2	48.48	20.085	
8,675.0	8,560.1	7,943.0	7,884.1	31.0	27.6	-59.61	955.7	-370.2	993.9	945.6	48.22	20.611	
8,700.0	8,572.0	7,943.0	7,884.1	31.1	27.6	-56.31	955.7	-370.2	1,013.7	965.3	48.32	20.978	
8,725.0	8,582.8	7,943.0	7,884.1	31.2	27.6	-53.22	955.7	-370.2	1,033.3	984.8	48.46	21.323	
8,750.0	8,592.3	7,943.0	7,884.1	31.3	27.6	-50.35	955.7	-370.2	1,052.6	1,004.0	48.62	21.648	
8,775.0	8,600.7	7,943.0	7,884.1	31.4	27.6	-47.68	955.7	-370.2	1,071.6	1,022.8	48.82	21.952	
8,800.0	8,607.7	7,943.0	7,884.1	31.6	27.6	-45.23	955.7	-370.2	1,090.3	1,041.3	49.04	22.234	
8,825.0	8,613.6	7,932.2	7,876.6	31.7	27.5	-42.46	954.7	-362.6	1,108.6	1,059.5	49.02	22.615	
8,850.0	8,618.1	7,927.2	7,873.0	31.9	27.5	-40.23	954.3	-359.1	1,126.4	1,077.2	49.17	22.908	
8,875.0	8,621.4	7,921.8	7,869.1	32.0	27.5	-38.19	953.8	-355.4	1,143.7	1,094.3	49.34	23.181	
8,900.0	8,623.3	7,911.0	7,861.3	32.2	27.5	-36.18	952.9	-348.0	1,160.5	1,111.1	49.40	23.493	
8,924.8	8,624.0	7,911.0	7,861.3	32.4	27.5	-34.71	952.9	-348.0	1,176.5	1,126.8	49.73	23.656	
9,000.0	8,624.0	7,892.5	7,847.6	33.0	27.4	-34.16	951.7	-335.6	1,225.4	1,175.0	50.34	24.339	
9,100.0	8,624.0	7,879.0	7,837.5	33.9	27.4	-33.78	951.0	-326.7	1,293.3	1,242.0	51.35	25.188	
9,200.0	8,624.0	7,848.0	7,813.6	34.9	27.2	-32.95	950.4	-307.0	1,364.1	1,312.2	51.92	26.274	
9,300.0	8,624.0	7,825.0	7,795.4	36.1	27.2	-32.36	950.3	-292.9	1,437.5	1,384.9	52.59	27.333	
9,400.0	8,624.0	7,802.8	7,777.6	37.4	27.1	-31.80	950.3	-279.7	1,512.8	1,459.6	53.21	28.429	
9,500.0	8,624.0	7,784.0	7,762.2	38.8	27.0	-31.33	950.3	-268.9	1,590.2	1,536.4	53.83	29.541	
9,600.0	8,624.0	7,767.7	7,748.5	40.3	27.0	-30.93	950.3	-259.9	1,669.4	1,615.0	54.42	30.677	
9,700.0	8,624.0	7,752.0	7,735.2	41.9	26.9	-30.54	950.1	-251.6	1,750.3	1,695.3	54.96	31.847	
9,800.0	8,624.0	7,738.9	7,724.0	43.6	26.9	-30.21	950.0	-244.9	1,832.6	1,777.1	55.47	33.035	
9,900.0	8,624.0	7,720.0	7,707.5	45.3	26.8	-29.76	950.0	-235.7	1,916.3	1,860.4	55.87	34.301	
10,000.0	8,624.0	7,720.0	7,707.5	47.1	26.8	-29.76	950.0	-235.7	2,001.1	1,944.7	56.44	35.458	
10,100.0	8,624.0	7,707.3	7,696.3	49.0	26.8	-29.46	950.2	-229.8	2,087.1	2,030.3	56.81	36.737	
10,200.0	8,624.0	7,689.0	7,679.8	50.9	26.7	-29.04	950.5	-221.8	2,174.3	2,117.2	57.10	38.080	
10,300.0	8,624.0	7,689.0	7,679.8	52.8	26.7	-29.04	950.5	-221.8	2,262.1	2,204.6	57.53	39.321	
10,400.0	8,624.0	7,689.0	7,679.8	54.8	26.7	-29.04	950.5	-221.8	2,350.9	2,293.0	57.92	40.590	
10,500.0	8,624.0	7,674.4	7,666.5	56.8	26.7	-28.71	950.8	-215.8	2,440.4	2,382.2	58.15	41.966	
10,600.0	8,624.0	7,657.0	7,650.4	58.8	26.6	-28.32	951.2	-209.1	2,530.6	2,472.2	58.34	43.374	
10,700.0	8,624.0	7,657.0	7,650.4	60.9	26.6	-28.32	951.2	-209.1	2,621.3	2,562.6	58.65	44.692	
10,800.0	8,624.0	7,657.0	7,650.4	63.0	26.6	-28.32	951.2	-209.1	2,712.6	2,653.6	58.93	46.028	
10,900.0	8,624.0	7,657.0	7,650.4	65.1	26.6	-28.32	951.2	-209.1	2,804.5	2,745.3	59.19	47.381	
11,000.0	8,624.0	7,639.1	7,633.7	67.3	26.5	-27.94	951.7	-202.6	2,896.6	2,837.3	59.32	48.834	
11,100.0	8,624.0	7,625.0	7,620.5	69.4	26.5	-27.64	952.1	-197.9	2,989.4	2,929.9	59.46	50.278	
11,200.0	8,624.0	7,625.0	7,620.5	71.6	26.5	-27.64	952.1	-197.9	3,082.4	3,022.7	59.67	51.657	
11,300.0	8,624.0	7,625.0	7,620.5	73.8	26.5	-27.64	952.1	-197.9	3,175.8	3,116.0	59.87	53.047	
11,400.0	8,624.0	7,625.0	7,620.5	76.0	26.5	-27.64	952.1	-197.9	3,269.7	3,209.6	60.05	54.446	
11,500.0	8,624.0	7,625.0	7,620.5	78.2	26.5	-27.64	952.1	-197.9	3,363.9	3,303.7	60.23	55.853	
11,600.0	8,624.0	7,610.9	7,607.1	80.4	26.5	-27.34	952.6	-193.5	3,458.2	3,397.9	60.32	57.328	
11,700.0	8,624.0	7,607.2	7,603.6	82.7	26.4	-27.27	952.7	-192.4	3,552.9	3,492.4	60.46	58.762	
11,800.0	8,624.0	7,593.0	7,589.9	84.9	26.4	-26.98	953.3	-188.5	3,647.9	3,587.4	60.55	60.250	
11,900.0	8,624.0	7,593.0	7,589.9	87.2	26.4	-26.98	953.3	-188.5	3,743.1	3,682.4	60.69	61.676	
12,000.0	8,624.0	7,593.0	7,589.9	89.5	26.4	-26.98	953.3	-188.5	3,838.4	3,777.6	60.83	63.106	
12,100.0	8,624.0	7,593.0	7,589.9	91.7	26.4	-26.98	953.3	-188.5	3,934.0	3,873.0	60.95	64.540	
12,200.0	8,624.0	7,593.0	7,589.9	94.0	26.4	-26.98	953.3	-188.5	4,029.8	3,968.7	61.08	65.979	
12,300.0	8,624.0	7,593.0	7,589.9	96.3	26.4	-26.98	953.3	-188.5	4,125.8	4,064.6	61.20	67.420	
12,400.0	8,624.0	7,593.0	7,589.9	98.6	26.4	-26.98	953.3	-188.5	4,222.0	4,160.7	61.31	68.865	
12,500.0	8,624.0	7,593.0	7,589.9	100.9	26.4	-26.98	953.3	-188.5	4,318.4	4,256.9	61.42	70.312	
12,600.0	8,624.0	7,577.5	7,575.0	103.2	26.3	-26.67	953.9	-184.6	4,414.7	4,353.2	61.47	71.818	
12,700.0	8,624.0	7,561.0	7,558.9	105.5	26.3	-26.35	954.6	-180.8	4,511.4	4,449.9	61.52	73.336	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Osage 34 Fed #1H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: Reference		100-MWD+IFR1 Offset		Semi Major Axis			Offset Wellbore Centre		Rule Assigned: Distance				Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
12,800.0	8,624.0	7,561.0	7,558.9	107.8	26.3	-26.35	954.6	-180.8	4,608.1	4,546.5	61.62	74.783		
12,900.0	8,624.0	7,561.0	7,558.9	110.2	26.3	-26.35	954.6	-180.8	4,704.9	4,643.1	61.72	76.233		
13,000.0	8,624.0	7,561.0	7,558.9	112.5	26.3	-26.35	954.6	-180.8	4,801.8	4,740.0	61.81	77.683		
13,100.0	8,624.0	7,561.0	7,558.9	114.8	26.3	-26.35	954.6	-180.8	4,898.8	4,836.9	61.91	79.134		
13,200.0	8,624.0	7,561.0	7,558.9	117.1	26.3	-26.35	954.6	-180.8	4,996.0	4,934.0	62.00	80.586		
13,300.0	8,624.0	7,561.0	7,558.9	119.5	26.3	-26.35	954.6	-180.8	5,093.3	5,031.2	62.08	82.038		
13,400.0	8,624.0	7,561.0	7,558.9	121.8	26.3	-26.35	954.6	-180.8	5,190.7	5,128.5	62.17	83.490		
13,500.0	8,624.0	7,561.0	7,558.9	124.2	26.3	-26.35	954.6	-180.8	5,288.1	5,225.9	62.26	84.941		
13,600.0	8,624.0	7,561.0	7,558.9	126.5	26.3	-26.35	954.6	-180.8	5,385.7	5,323.4	62.34	86.393		
13,700.0	8,624.0	7,561.0	7,558.9	128.9	26.3	-26.35	954.6	-180.8	5,483.4	5,420.9	62.42	87.844		
13,800.0	8,624.0	7,561.0	7,558.9	131.2	26.3	-26.35	954.6	-180.8	5,581.1	5,518.6	62.50	89.294		
13,900.0	8,624.0	7,546.6	7,544.7	133.6	26.2	-26.07	955.1	-177.9	5,678.7	5,616.2	62.55	90.793		
14,000.0	8,624.0	7,544.7	7,542.9	135.9	26.2	-26.03	955.2	-177.5	5,776.6	5,714.0	62.62	92.247		
14,100.0	8,624.0	7,529.0	7,527.5	138.3	26.2	-25.73	955.8	-174.8	5,874.7	5,812.0	62.66	93.754		
14,200.0	8,624.0	7,529.0	7,527.5	140.6	26.2	-25.73	955.8	-174.8	5,972.6	5,909.9	62.74	95.197		
14,300.0	8,624.0	7,529.0	7,527.5	143.0	26.2	-25.73	955.8	-174.8	6,070.6	6,007.8	62.82	96.640		
14,400.0	8,624.0	7,529.0	7,527.5	145.4	26.2	-25.73	955.8	-174.8	6,168.7	6,105.8	62.89	98.080		
14,500.0	8,624.0	7,529.0	7,527.5	147.7	26.2	-25.73	955.8	-174.8	6,266.8	6,203.8	62.97	99.519		
14,600.0	8,624.0	7,529.0	7,527.5	150.1	26.2	-25.73	955.8	-174.8	6,365.0	6,301.9	63.05	100.957		
14,700.0	8,624.0	7,529.0	7,527.5	152.5	26.2	-25.73	955.8	-174.8	6,463.2	6,400.1	63.12	102.393		
14,800.0	8,624.0	7,529.0	7,527.5	154.8	26.2	-25.73	955.8	-174.8	6,561.5	6,498.3	63.20	103.826		
14,900.0	8,624.0	7,529.0	7,527.5	157.2	26.2	-25.73	955.8	-174.8	6,659.8	6,596.6	63.27	105.258		
15,000.0	8,624.0	7,529.0	7,527.5	159.6	26.2	-25.73	955.8	-174.8	6,758.2	6,694.9	63.35	106.687		
15,100.0	8,624.0	7,529.0	7,527.5	162.0	26.2	-25.73	955.8	-174.8	6,856.7	6,793.2	63.42	108.114		
15,200.0	8,624.0	7,529.0	7,527.5	164.3	26.2	-25.73	955.8	-174.8	6,955.2	6,891.7	63.49	109.539		
15,300.0	8,624.0	7,529.0	7,527.5	166.7	26.2	-25.73	955.8	-174.8	7,053.7	6,990.1	63.57	110.962		
15,400.0	8,624.0	7,529.0	7,527.5	169.1	26.2	-25.73	955.8	-174.8	7,152.2	7,088.6	63.64	112.382		
15,500.0	8,624.0	7,529.0	7,527.5	171.5	26.2	-25.73	955.8	-174.8	7,250.8	7,187.1	63.72	113.799		
15,600.0	8,624.0	7,529.0	7,527.5	173.9	26.2	-25.73	955.8	-174.8	7,349.5	7,285.7	63.79	115.214		
15,700.0	8,624.0	7,529.0	7,527.5	176.2	26.2	-25.73	955.8	-174.8	7,448.2	7,384.3	63.86	116.626		
15,800.0	8,624.0	7,529.0	7,527.5	178.6	26.2	-25.73	955.8	-174.8	7,546.9	7,482.9	63.94	118.035		
15,900.0	8,624.0	7,529.0	7,527.5	181.0	26.2	-25.73	955.8	-174.8	7,645.6	7,581.6	64.01	119.441		
16,000.0	8,624.0	7,529.0	7,527.5	183.4	26.2	-25.73	955.8	-174.8	7,744.4	7,680.3	64.09	120.844		
16,100.0	8,624.0	7,529.0	7,527.5	185.8	26.2	-25.73	955.8	-174.8	7,843.2	7,779.1	64.16	122.245		
16,200.0	8,624.0	7,529.0	7,527.5	188.2	26.2	-25.73	955.8	-174.8	7,942.1	7,877.8	64.23	123.642		
16,300.0	8,624.0	7,529.0	7,527.5	190.6	26.2	-25.73	955.8	-174.8	8,040.9	7,976.6	64.31	125.036		
16,400.0	8,624.0	7,529.0	7,527.5	193.0	26.2	-25.73	955.8	-174.8	8,139.8	8,075.4	64.38	126.427		
16,500.0	8,624.0	7,529.0	7,527.5	195.3	26.2	-25.73	955.8	-174.8	8,238.8	8,174.3	64.46	127.815		
16,600.0	8,624.0	7,513.6	7,512.3	197.7	26.1	-25.45	956.3	-172.5	8,337.5	8,273.0	64.51	129.252		
16,700.0	8,624.0	7,512.9	7,511.5	200.1	26.1	-25.43	956.4	-172.4	8,436.4	8,371.8	64.58	130.635		
16,800.0	8,624.0	7,498.0	7,496.8	202.5	26.1	-25.16	957.0	-170.6	8,535.6	8,471.0	64.63	132.069		
16,900.0	8,624.0	7,498.0	7,496.8	204.9	26.1	-25.16	957.0	-170.6	8,634.6	8,569.9	64.71	133.443		
17,000.0	8,624.0	7,498.0	7,496.8	207.3	26.1	-25.16	957.0	-170.6	8,733.6	8,668.8	64.78	134.814		
17,100.0	8,624.0	7,498.0	7,496.8	209.7	26.1	-25.16	957.0	-170.6	8,832.6	8,767.7	64.86	136.181		
17,200.0	8,624.0	7,498.0	7,496.8	212.1	26.1	-25.16	957.0	-170.6	8,931.6	8,866.7	64.94	137.544		
17,300.0	8,624.0	7,498.0	7,496.8	214.5	26.1	-25.16	957.0	-170.6	9,030.7	8,965.7	65.01	138.904		
17,400.0	8,624.0	7,498.0	7,496.8	216.9	26.1	-25.16	957.0	-170.6	9,129.8	9,064.7	65.09	140.260		
17,500.0	8,624.0	7,498.0	7,496.8	219.3	26.1	-25.16	957.0	-170.6	9,228.9	9,163.7	65.17	141.613		
17,600.0	8,624.0	7,498.0	7,496.8	221.7	26.1	-25.16	957.0	-170.6	9,328.0	9,262.7	65.25	142.961		
17,700.0	8,624.0	7,498.0	7,496.8	224.1	26.1	-25.16	957.0	-170.6	9,427.1	9,361.8	65.33	144.307		
17,800.0	8,624.0	7,498.0	7,496.8	226.5	26.1	-25.16	957.0	-170.6	9,526.3	9,460.9	65.41	145.648		
17,900.0	8,624.0	7,498.0	7,496.8	228.9	26.1	-25.16	957.0	-170.6	9,625.5	9,560.0	65.49	146.986		

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

Colgate Operating

Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Osage 34 Fed #1H - AWP - FINAL MWD													Offset Site Error:	0.0 usft
Survey Program: 100-MWD+IFR1													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,000.0	8,624.0	7,498.0	7,496.8	231.3	26.1	-25.16	957.0	-170.6	9,724.7	9,659.1	65.57	148.319		
18,100.0	8,624.0	7,498.0	7,496.8	233.7	26.1	-25.16	957.0	-170.6	9,823.9	9,758.2	65.65	149.649		
18,200.0	8,624.0	7,498.0	7,496.8	236.1	26.1	-25.16	957.0	-170.6	9,923.1	9,857.4	65.73	150.975		
18,300.0	8,624.0	7,498.0	7,496.8	238.5	26.1	-25.16	957.0	-170.6	10,022.3	9,956.5	65.81	152.298		
18,400.0	8,624.0	7,498.0	7,496.8	240.9	26.1	-25.16	957.0	-170.6	10,121.6	10,055.7	65.89	153.616		
18,500.0	8,624.0	7,498.0	7,496.8	243.3	26.1	-25.16	957.0	-170.6	10,220.9	10,154.9	65.97	154.930		
18,600.0	8,624.0	7,498.0	7,496.8	245.7	26.1	-25.16	957.0	-170.6	10,320.1	10,254.1	66.05	156.240		
18,700.0	8,624.0	7,498.0	7,496.8	248.1	26.1	-25.16	957.0	-170.6	10,419.4	10,353.3	66.14	157.546		
18,800.0	8,624.0	7,498.0	7,496.8	250.5	26.1	-25.16	957.0	-170.6	10,518.8	10,452.5	66.22	158.849		
18,900.0	8,624.0	7,498.0	7,496.8	252.9	26.1	-25.16	957.0	-170.6	10,618.1	10,551.8	66.30	160.147		
19,000.0	8,624.0	7,498.0	7,496.8	255.3	26.1	-25.16	957.0	-170.6	10,717.4	10,651.0	66.39	161.441		
19,100.0	8,624.0	7,498.0	7,496.8	257.7	26.1	-25.16	957.0	-170.6	10,816.8	10,750.3	66.47	162.731		
19,190.0	8,624.0	7,498.0	7,496.8	259.9	26.1	-25.16	957.0	-170.6	10,906.1	10,839.6	66.55	163.888		
19,190.6	8,624.0	7,498.0	7,496.8	259.9	26.1	-25.16	957.0	-170.6	10,906.8	10,836.0	70.81	154.027		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Parkway ST 36 #1 - AWP - INC ONLY													Offset Site Error:	0.0 usft
Survey Program: 355-INC-ONLY													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)						
0.0	0.0	8.3	8.3	0.0	0.1	94.57	-596.3	7,457.3	7,481.1					
100.0	100.0	108.3	108.3	0.1	1.0	94.57	-596.3	7,457.3	7,481.1	7,479.9	1.13	6,608.123		
200.0	200.0	208.3	208.3	0.5	1.9	94.57	-596.3	7,457.3	7,481.1	7,478.6	2.42	3,091.270		
300.0	300.0	308.3	308.3	0.8	2.9	94.57	-596.3	7,457.3	7,481.1	7,477.3	3.71	2,017.535		
400.0	400.0	408.3	408.3	1.2	4.4	94.57	-596.3	7,457.3	7,481.1	7,475.5	5.59	1,338.307		
500.0	500.0	508.3	508.3	1.6	6.4	94.57	-596.3	7,457.3	7,481.1	7,473.1	7.99	936.081		
531.1	531.1	538.6	538.6	1.7	7.1	94.57	-595.8	7,457.3	7,481.0	7,472.3	8.72	857.610		
600.0	600.0	605.9	605.9	1.9	8.4	94.57	-596.0	7,457.3	7,481.0	7,470.7	10.34	723.202		
700.0	700.0	708.3	708.3	2.3	10.8	94.57	-596.3	7,457.3	7,481.1	7,467.9	13.11	570.536		
800.0	800.0	808.3	808.3	2.6	13.6	94.57	-596.3	7,457.3	7,481.1	7,464.8	16.23	461.043		
829.5	829.5	836.9	836.8	2.7	14.4	94.57	-595.7	7,457.3	7,481.0	7,463.9	17.12	437.032		
900.0	900.0	904.9	904.9	3.0	16.3	94.57	-596.0	7,457.3	7,481.0	7,461.8	19.25	388.689		
1,000.0	1,000.0	1,008.5	1,008.3	3.4	19.6	94.57	-596.3	7,457.3	7,481.1	7,458.1	22.91	326.562		
1,068.9	1,068.9	1,077.4	1,077.2	3.6	22.0	94.56	-594.9	7,457.3	7,480.9	7,455.3	25.63	291.841		
1,100.0	1,100.0	1,105.3	1,105.0	3.7	23.0	94.56	-594.9	7,457.3	7,480.9	7,454.2	26.75	279.698		
1,200.0	1,200.0	1,208.8	1,208.3	4.1	26.7	94.57	-596.3	7,457.3	7,481.1	7,450.3	30.79	242.947		
1,281.2	1,281.2	1,290.0	1,289.4	4.4	29.3	94.56	-595.3	7,457.3	7,481.0	7,447.3	33.69	222.047		
1,300.0	1,300.0	1,306.2	1,305.7	4.4	29.9	94.56	-595.3	7,457.3	7,481.0	7,446.7	34.28	218.223		
1,400.0	1,400.0	1,408.9	1,408.3	4.8	32.9	94.57	-596.3	7,457.3	7,481.1	7,443.4	37.67	198.576		
1,500.0	1,500.0	1,508.9	1,508.3	5.1	35.2	94.57	-596.3	7,457.3	7,481.1	7,440.7	40.33	185.515		
1,531.8	1,531.8	1,539.7	1,539.0	5.3	35.9	94.56	-595.3	7,457.3	7,481.0	7,439.8	41.14	181.820		
1,600.0	1,600.0	1,603.8	1,603.1	5.5	37.4	94.57	-595.6	7,457.3	7,481.0	7,438.1	42.86	174.544		
1,700.0	1,700.0	1,709.0	1,708.3	5.9	39.7	94.57	-596.3	7,457.3	7,481.1	7,435.5	45.54	164.283		
1,800.0	1,800.0	1,809.0	1,808.3	6.2	41.8	94.57	-596.3	7,457.3	7,481.1	7,433.1	47.97	155.938		
1,832.1	1,832.1	1,840.5	1,839.8	6.3	42.4	94.57	-595.8	7,457.3	7,481.0	7,432.3	48.74	153.475		
1,900.0	1,900.0	1,906.7	1,906.0	6.6	43.8	94.57	-596.0	7,457.3	7,481.0	7,430.7	50.36	148.538		
2,000.0	2,000.0	2,009.1	2,008.3	6.9	45.9	94.57	-596.3	7,457.3	7,481.1	7,428.2	52.86	141.539		
2,100.0	2,100.0	2,109.1	2,108.3	7.3	48.0	94.57	-596.3	7,457.3	7,481.1	7,425.7	55.31	135.267		
2,154.8	2,154.8	2,163.8	2,163.0	7.5	49.2	94.56	-595.3	7,457.3	7,481.0	7,424.3	56.65	132.062		
2,200.0	2,200.0	2,207.6	2,206.8	7.7	50.1	94.56	-595.3	7,457.3	7,481.0	7,423.3	57.73	129.595		
2,300.0	2,300.0	2,304.4	2,303.6	8.0	52.1	94.57	-595.8	7,457.3	7,481.0	7,420.9	60.11	124.457		
2,400.0	2,400.0	2,409.1	2,408.3	8.4	54.2	94.57	-596.3	7,457.3	7,481.1	7,418.4	62.61	119.487		
2,500.0	2,500.0	2,509.1	2,508.3	8.7	56.2	94.57	-596.3	7,457.3	7,481.1	7,416.1	64.97	115.154		
2,539.2	2,539.2	2,548.3	2,547.4	8.9	57.0	94.57	-595.7	7,457.3	7,481.0	7,415.1	65.89	113.541		
2,600.0	2,600.0	2,607.9	2,607.0	9.1	58.2	94.57	-595.8	7,457.3	7,481.0	7,413.7	67.30	111.164		
2,700.0	2,700.0	2,705.9	2,705.0	9.4	60.2	94.57	-596.1	7,457.3	7,481.0	7,411.4	69.61	107.466		
2,800.0	2,800.0	2,809.2	2,808.3	9.8	62.2	94.57	-596.3	7,457.3	7,481.1	7,409.0	72.04	103.840		
2,900.0	2,900.0	2,909.2	2,908.3	10.2	64.2	94.57	-596.3	7,457.3	7,481.1	7,406.6	74.41	100.536		
2,989.3	2,989.3	2,998.5	2,997.6	10.5	66.0	94.56	-595.2	7,457.3	7,481.0	7,404.4	76.53	97.755		
3,000.0	3,000.0	3,009.0	3,008.1	10.5	66.3	94.56	-595.2	7,457.3	7,481.0	7,404.2	76.78	97.439		
3,100.0	3,100.0	3,107.0	3,106.1	10.9	68.2	104.85	-595.4	7,457.3	7,481.2	7,402.1	79.10	94.573		
3,200.0	3,200.0	3,205.0	3,204.2	11.2	70.2	104.87	-595.9	7,457.3	7,481.9	7,400.5	81.43	91.879		
3,300.0	3,299.9	3,309.1	3,308.2	11.6	72.3	104.89	-596.3	7,457.3	7,483.1	7,399.2	83.88	89.207		
3,400.0	3,399.7	3,408.9	3,408.0	12.0	74.3	104.92	-596.3	7,457.3	7,484.6	7,398.4	86.25	86.774		
3,500.0	3,499.4	3,506.1	3,505.2	12.3	76.3	104.96	-596.0	7,457.3	7,486.6	7,398.1	88.57	84.525		
3,600.0	3,598.9	3,608.2	3,607.2	12.7	78.3	105.01	-596.3	7,457.3	7,489.2	7,398.2	90.99	82.305		
3,700.0	3,698.3	3,707.5	3,706.6	13.0	80.3	105.06	-596.3	7,457.3	7,492.1	7,398.8	93.36	80.247		
3,800.0	3,797.4	3,806.5	3,805.6	13.4	82.3	105.11	-595.3	7,457.3	7,495.5	7,399.7	95.73	78.300		
3,900.0	3,896.4	3,903.2	3,902.3	13.8	84.3	105.22	-595.5	7,457.3	7,499.1	7,401.1	98.05	76.484		
4,000.0	3,995.5	3,999.8	3,998.8	14.1	86.2	105.32	-596.0	7,457.3	7,502.9	7,402.5	100.37	74.752		
4,100.0	4,094.5	4,103.8	4,102.8	14.5	88.2	105.43	-596.3	7,457.3	7,506.6	7,403.9	102.72	73.076		
4,200.0	4,193.5	4,202.8	4,201.8	14.9	90.1	105.53	-596.3	7,457.3	7,510.4	7,405.5	104.92	71.585		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Parkway ST 36 #1 - AWP - INC ONLY													Offset Site Error:	0.0 usft
Survey Program: 355-INC-ONLY													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	Distance Between Centres (usft)	Rule Assigned:	Minimum Separation (usft)	Separation Factor	Warning		
							+N/-S (usft)	+E/-W (usft)	Between Ellipses (usft)					
4,300.0	4,292.5	4,300.5	4,299.5	15.3	91.8	105.62	-595.7	7,457.3	7,514.1	7,407.0	107.08	70.170		
4,400.0	4,391.6	4,397.2	4,396.2	15.6	93.6	105.73	-596.1	7,457.3	7,517.9	7,408.7	109.24	68.821		
4,500.0	4,490.6	4,499.9	4,498.9	16.0	95.4	105.83	-596.3	7,457.3	7,521.8	7,410.4	111.41	67.512		
4,600.0	4,589.6	4,599.0	4,597.9	16.4	97.1	105.93	-596.3	7,457.3	7,525.6	7,412.2	113.45	66.336		
4,700.0	4,688.6	4,698.0	4,696.9	16.8	98.7	106.03	-596.3	7,457.3	7,529.5	7,414.0	115.48	65.200		
4,800.0	4,787.7	4,796.8	4,795.8	17.2	100.4	106.13	-595.6	7,457.3	7,533.3	7,415.8	117.52	64.104		
4,900.0	4,886.7	4,894.8	4,893.7	17.5	102.0	106.23	-595.7	7,457.3	7,537.2	7,417.7	119.54	63.053		
5,000.0	4,985.7	4,992.7	4,991.7	17.9	103.7	106.33	-595.9	7,457.3	7,541.2	7,419.6	121.56	62.037		
5,100.0	5,084.8	5,090.7	5,089.6	18.3	105.3	106.43	-596.3	7,457.3	7,545.2	7,421.6	123.58	61.054		
5,200.0	5,183.8	5,193.1	5,192.1	18.7	107.2	106.54	-596.3	7,457.3	7,549.2	7,423.3	125.85	59.985		
5,300.0	5,282.8	5,292.2	5,291.1	19.1	109.0	106.64	-596.3	7,457.3	7,553.2	7,425.1	128.09	58.969		
5,400.0	5,381.8	5,390.9	5,389.9	19.5	110.9	106.74	-596.1	7,457.3	7,557.2	7,426.9	130.32	57.990		
5,500.0	5,480.9	5,489.2	5,488.1	19.9	112.7	106.84	-596.1	7,457.3	7,561.3	7,428.7	132.54	57.048		
5,600.0	5,579.9	5,587.4	5,586.4	20.3	114.5	106.94	-596.3	7,457.3	7,565.4	7,430.6	134.77	56.137		
5,700.0	5,678.9	5,688.3	5,687.2	20.7	116.7	107.04	-596.3	7,457.3	7,569.5	7,432.1	137.33	55.119		
5,800.0	5,777.9	5,787.3	5,786.2	21.1	118.9	107.14	-596.3	7,457.3	7,573.6	7,433.7	139.92	54.129		
5,900.0	5,877.0	5,884.8	5,883.7	21.5	121.1	107.23	-595.3	7,457.3	7,577.6	7,435.1	142.47	53.188		
6,000.0	5,976.0	5,980.4	5,979.3	21.9	123.2	107.33	-595.7	7,457.3	7,581.8	7,436.8	144.98	52.296		
6,100.0	6,075.0	6,084.5	6,083.3	22.3	125.5	107.44	-596.3	7,457.3	7,586.1	7,438.4	147.73	51.352		
6,175.3	6,149.6	6,159.1	6,157.9	22.6	127.5	107.51	-596.3	7,457.3	7,589.3	7,439.3	150.01	50.593		
6,200.0	6,174.1	6,183.5	6,182.4	22.7	128.2	107.55	-596.3	7,457.3	7,590.3	7,439.6	150.76	50.349		
6,300.0	6,273.3	6,282.7	6,281.6	23.1	130.8	107.67	-596.3	7,457.3	7,594.2	7,440.4	153.78	49.382		
6,400.0	6,372.7	6,378.9	6,377.7	23.5	133.4	107.77	-595.2	7,457.3	7,597.3	7,440.6	156.73	48.474		
6,500.0	6,472.2	6,474.1	6,472.8	23.8	135.9	107.86	-595.7	7,457.3	7,600.2	7,440.6	159.64	47.609		
6,600.0	6,572.0	6,581.7	6,580.3	24.2	138.9	107.95	-596.3	7,457.3	7,602.6	7,439.6	163.01	46.638		
6,700.0	6,671.8	6,681.5	6,680.1	24.6	141.9	108.01	-596.3	7,457.3	7,604.3	7,437.9	166.42	45.694		
6,800.0	6,771.7	6,771.7	6,770.2	24.9	144.7	108.04	-595.2	7,457.3	7,605.4	7,435.9	169.52	44.864		
6,900.0	6,871.7	6,881.6	6,880.0	25.3	148.1	108.07	-596.3	7,457.3	7,606.2	7,432.9	173.32	43.885		
6,975.3	6,947.0	6,956.9	6,955.3	25.6	150.6	97.79	-596.3	7,457.3	7,606.4	7,430.3	176.11	43.192		
6,988.6	6,960.3	6,970.1	6,968.5	25.6	151.1	97.78	-595.2	7,457.3	7,606.2	7,429.6	176.60	43.072		
7,000.0	6,971.7	6,979.9	6,978.2	25.6	151.4	97.78	-595.2	7,457.3	7,606.2	7,429.3	176.96	42.982		
7,100.0	7,071.7	7,065.5	7,063.8	26.0	154.3	97.79	-595.9	7,457.3	7,606.4	7,426.2	180.18	42.216		
7,200.0	7,171.7	7,182.0	7,180.0	26.3	158.1	97.79	-596.3	7,457.3	7,606.4	7,422.0	184.39	41.251		
7,300.0	7,271.7	7,282.0	7,280.0	26.7	161.1	97.79	-596.3	7,457.3	7,606.4	7,418.8	187.64	40.537		
7,393.8	7,365.5	7,375.6	7,373.5	27.0	163.8	97.78	-594.3	7,457.3	7,606.1	7,415.4	190.68	39.889		
7,400.0	7,371.7	7,381.2	7,379.2	27.0	163.9	97.78	-594.3	7,457.3	7,606.1	7,415.3	190.87	39.851		
7,500.0	7,471.7	7,472.2	7,470.2	27.4	166.6	97.78	-594.8	7,457.3	7,606.2	7,412.3	193.85	39.237		
7,600.0	7,571.7	7,582.2	7,580.0	27.7	169.8	97.79	-596.3	7,457.3	7,606.4	7,409.0	197.41	38.531		
7,700.0	7,671.7	7,682.2	7,680.0	28.1	173.0	97.79	-596.3	7,457.3	7,606.4	7,405.4	200.98	37.847		
7,800.0	7,771.7	7,782.2	7,780.0	28.4	176.2	97.79	-596.3	7,457.3	7,606.4	7,401.8	204.54	37.187		
7,840.9	7,812.6	7,822.7	7,820.4	28.5	177.5	97.78	-594.5	7,457.3	7,606.1	7,400.2	205.99	36.925		
7,900.0	7,871.7	7,878.1	7,875.9	28.8	179.3	97.78	-594.6	7,457.3	7,606.2	7,398.2	207.98	36.571		
8,000.0	7,971.7	7,972.0	7,969.7	29.1	182.3	97.78	-595.3	7,457.3	7,606.3	7,394.9	211.35	35.989		
8,100.0	8,071.7	8,082.6	8,080.0	29.4	186.0	97.79	-596.3	7,457.3	7,606.4	7,391.0	215.41	35.311		
8,174.8	8,146.5	8,154.7	8,152.0	29.7	188.7	97.78	-595.2	7,457.3	7,606.2	7,387.9	218.37	34.831		
8,200.0	8,171.7	8,174.1	8,171.4	29.8	189.5	7.51	-595.3	7,457.3	7,605.6	7,386.4	219.19	34.699		
8,202.7	8,174.4	8,176.2	8,173.5	29.8	189.6	7.51	-595.3	7,457.3	7,605.4	7,386.2	219.28	34.684		
8,225.0	8,196.6	8,193.3	8,190.6	29.9	190.2	7.54	-595.5	7,457.3	7,603.7	7,383.7	219.99	34.563		
8,250.0	8,221.4	8,212.5	8,209.7	30.0	190.9	7.60	-595.8	7,457.3	7,600.5	7,379.7	220.79	34.424		
8,275.0	8,246.0	8,257.1	8,254.3	30.0	192.6	7.68	-596.3	7,457.3	7,596.0	7,373.4	222.56	34.130		
8,300.0	8,270.3	8,281.5	8,278.6	30.1	193.5	7.78	-596.3	7,457.3	7,590.2	7,366.7	223.56	33.952		
8,325.0	8,294.2	8,305.4	8,302.5	30.2	194.4	7.91	-596.3	7,457.3	7,583.2	7,358.6	224.54	33.772		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Parkway ST 36 #1 - AWP - INC ONLY													Offset Site Error:	0.0 usft
Survey Program: 355-INC-ONLY													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	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	
8,350.0	8,317.8	8,327.2	8,324.2	30.3	195.2	8.06	-595.2	7,457.3	7,574.7	7,349.3	225.44	33.600		
8,375.0	8,340.9	8,344.7	8,341.8	30.3	195.9	8.24	-595.3	7,457.3	7,565.3	7,339.1	226.18	33.448		
8,400.0	8,363.4	8,361.9	8,359.0	30.4	196.6	8.46	-595.5	7,457.3	7,554.6	7,327.7	226.90	33.295		
8,425.0	8,385.4	8,378.6	8,375.7	30.5	197.2	8.71	-595.7	7,457.3	7,542.8	7,315.2	227.60	33.140		
8,450.0	8,406.7	8,418.1	8,415.0	30.5	198.7	9.02	-596.3	7,457.3	7,529.9	7,300.8	229.15	32.860		
8,475.0	8,427.3	8,438.7	8,435.6	30.6	199.4	9.36	-596.3	7,457.3	7,515.9	7,285.9	229.98	32.681		
8,500.0	8,447.1	8,458.6	8,455.4	30.6	200.2	9.76	-596.3	7,457.3	7,500.8	7,270.0	230.77	32.503		
8,525.0	8,466.1	8,477.6	8,474.4	30.7	200.9	10.22	-596.3	7,457.3	7,484.7	7,253.2	231.54	32.326		
8,550.0	8,484.3	8,495.7	8,492.6	30.7	201.5	10.75	-596.3	7,457.3	7,467.6	7,235.4	232.26	32.152		
8,575.0	8,501.5	8,512.9	8,509.8	30.8	202.2	11.38	-596.3	7,457.3	7,449.7	7,216.7	232.95	31.980		
8,600.0	8,517.7	8,529.1	8,526.0	30.8	202.8	12.11	-596.3	7,457.3	7,430.8	7,197.2	233.60	31.810		
8,625.0	8,532.9	8,544.3	8,541.2	30.9	203.3	12.97	-596.3	7,457.3	7,411.2	7,176.9	234.20	31.644		
8,650.0	8,547.0	8,558.5	8,555.3	30.9	203.9	13.99	-596.3	7,457.3	7,390.7	7,156.0	234.77	31.481		
8,675.0	8,560.1	8,571.5	8,568.4	31.0	204.3	15.23	-596.3	7,457.3	7,369.6	7,134.3	235.29	31.322		
8,700.0	8,572.0	8,583.4	8,580.3	31.1	204.8	16.74	-596.3	7,457.3	7,347.8	7,112.1	235.76	31.166		
8,725.0	8,582.8	8,594.2	8,591.1	31.2	205.2	18.62	-596.3	7,457.3	7,325.5	7,089.3	236.19	31.015		
8,750.0	8,592.3	8,603.7	8,600.6	31.3	205.5	20.99	-596.3	7,457.3	7,302.6	7,066.0	236.57	30.868		
8,775.0	8,600.7	8,612.1	8,609.0	31.4	205.8	24.06	-596.3	7,457.3	7,279.2	7,042.3	236.91	30.726		
8,800.0	8,607.7	8,619.2	8,616.0	31.6	206.1	28.14	-596.3	7,457.3	7,255.5	7,018.3	237.19	30.589		
8,825.0	8,613.6	8,625.0	8,621.9	31.7	206.3	33.76	-596.3	7,457.3	7,231.4	6,994.0	237.43	30.457		
8,850.0	8,618.1	8,629.5	8,626.4	31.9	206.5	41.73	-596.3	7,457.3	7,207.1	6,969.5	237.62	30.330		
8,875.0	8,621.4	8,632.8	8,629.7	32.0	206.6	53.29	-596.3	7,457.3	7,182.5	6,944.8	237.76	30.210		
8,900.0	8,623.3	8,634.7	8,631.6	32.2	206.7	69.67	-596.3	7,457.3	7,157.8	6,920.0	237.84	30.095		
8,924.8	8,624.0	8,635.4	8,632.2	32.4	206.7	89.99	-593.3	7,457.3	7,132.9	6,895.0	237.88	29.985		
9,000.0	8,624.0	8,635.4	8,632.2	33.0	206.7	89.99	-593.3	7,457.3	7,058.4	6,820.5	237.93	29.666		
9,100.0	8,624.0	8,635.4	8,632.2	33.9	206.7	89.99	-593.3	7,457.3	6,959.4	6,721.4	238.00	29.241		
9,200.0	8,624.0	8,635.4	8,632.2	34.9	206.7	89.99	-593.3	7,457.3	6,860.4	6,622.4	238.08	28.816		
9,300.0	8,624.0	8,635.4	8,632.2	36.1	206.7	89.99	-593.3	7,457.3	6,761.5	6,523.3	238.16	28.391		
9,400.0	8,624.0	8,635.4	8,632.2	37.4	206.7	89.99	-593.3	7,457.3	6,662.6	6,424.4	238.25	27.965		
9,500.0	8,624.0	8,635.4	8,632.2	38.8	206.7	89.99	-593.3	7,457.3	6,563.7	6,325.4	238.35	27.538		
9,600.0	8,624.0	8,635.4	8,632.2	40.3	206.7	89.99	-593.3	7,457.3	6,464.9	6,226.4	238.46	27.111		
9,700.0	8,624.0	8,635.4	8,632.2	41.9	206.7	89.99	-593.3	7,457.3	6,366.1	6,127.5	238.58	26.684		
9,800.0	8,624.0	8,635.4	8,632.2	43.6	206.7	89.99	-593.3	7,457.3	6,267.3	6,028.6	238.70	26.256		
9,900.0	8,624.0	8,635.4	8,632.2	45.3	206.7	89.99	-593.3	7,457.3	6,168.6	5,929.8	238.84	25.827		
10,000.0	8,624.0	8,635.4	8,632.2	47.1	206.7	89.99	-593.3	7,457.3	6,069.9	5,830.9	238.99	25.398		
10,100.0	8,624.0	8,635.4	8,632.2	49.0	206.7	89.99	-593.3	7,457.3	5,971.3	5,732.1	239.16	24.968		
10,200.0	8,624.0	8,635.4	8,632.2	50.9	206.7	89.99	-593.3	7,457.3	5,872.7	5,633.4	239.33	24.538		
10,300.0	8,624.0	8,635.4	8,632.2	52.8	206.7	89.99	-593.3	7,457.3	5,774.2	5,534.6	239.52	24.107		
10,400.0	8,624.0	8,635.4	8,632.2	54.8	206.7	89.99	-593.3	7,457.3	5,675.7	5,435.9	239.72	23.676		
10,500.0	8,624.0	8,635.4	8,632.2	56.8	206.7	89.99	-593.3	7,457.3	5,577.2	5,337.3	239.94	23.244		
10,600.0	8,624.0	8,635.4	8,632.2	58.8	206.7	89.99	-593.3	7,457.3	5,478.8	5,238.7	240.18	22.812		
10,700.0	8,624.0	8,635.4	8,632.2	60.9	206.7	89.99	-593.3	7,457.3	5,380.5	5,140.1	240.43	22.379		
10,800.0	8,624.0	8,635.4	8,632.2	63.0	206.7	89.99	-593.3	7,457.3	5,282.3	5,041.6	240.70	21.945		
10,900.0	8,624.0	8,635.4	8,632.2	65.1	206.7	89.99	-593.3	7,457.3	5,184.1	4,943.1	240.99	21.511		
11,000.0	8,624.0	8,635.4	8,632.2	67.3	206.7	89.99	-593.3	7,457.3	5,085.9	4,844.6	241.31	21.077		
11,100.0	8,624.0	8,635.4	8,632.2	69.4	206.7	89.99	-593.3	7,457.3	4,987.9	4,746.3	241.65	20.641		
11,200.0	8,624.0	8,635.4	8,632.2	71.6	206.7	89.99	-593.3	7,457.3	4,889.9	4,647.9	242.01	20.206		
11,300.0	8,624.0	8,635.4	8,632.2	73.8	206.7	89.99	-593.3	7,457.3	4,792.0	4,549.7	242.40	19.769		
11,400.0	8,624.0	8,635.4	8,632.2	76.0	206.7	89.99	-593.3	7,457.3	4,694.3	4,451.4	242.81	19.333		
11,500.0	8,624.0	8,635.4	8,632.2	78.2	206.7	89.99	-593.3	7,457.3	4,596.6	4,353.3	243.26	18.895		
11,600.0	8,624.0	8,635.4	8,632.2	80.4	206.7	89.99	-593.3	7,457.3	4,499.0	4,255.2	243.74	18.458		
11,700.0	8,624.0	8,635.4	8,632.2	82.7	206.7	89.99	-593.3	7,457.3	4,401.5	4,157.2	244.26	18.020		

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Parkway ST 36 #1 - AWP - INC ONLY												Offset Site Error:	0.0 usft
Survey Program: 355-INC-ONLY												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)					
11,800.0	8,624.0	8,635.4	8,632.2	84.9	206.7	89.99	-593.3	7,457.3	4,304.1	4,059.3	244.81	17.581	
11,900.0	8,624.0	8,635.4	8,632.2	87.2	206.7	89.99	-593.3	7,457.3	4,206.8	3,961.4	245.41	17.142	
12,000.0	8,624.0	8,635.4	8,632.2	89.5	206.7	89.99	-593.3	7,457.3	4,109.7	3,863.7	246.05	16.703	
12,100.0	8,624.0	8,635.4	8,632.2	91.7	206.7	89.99	-593.3	7,457.3	4,012.7	3,766.0	246.73	16.263	
12,200.0	8,624.0	8,635.4	8,632.2	94.0	206.7	89.99	-593.3	7,457.3	3,915.9	3,668.4	247.47	15.824	
12,300.0	8,624.0	8,635.4	8,632.2	96.3	206.7	89.99	-593.3	7,457.3	3,819.2	3,571.0	248.26	15.384	
12,400.0	8,624.0	8,635.4	8,632.2	98.6	206.7	89.99	-593.3	7,457.3	3,722.8	3,473.6	249.12	14.944	
12,500.0	8,624.0	8,635.4	8,632.2	100.9	206.7	89.99	-593.3	7,457.3	3,626.5	3,376.4	250.03	14.504	
12,600.0	8,624.0	8,635.4	8,632.2	103.2	206.7	89.99	-593.3	7,457.3	3,530.4	3,279.3	251.02	14.064	
12,700.0	8,624.0	8,635.4	8,632.2	105.5	206.7	89.99	-593.3	7,457.3	3,434.5	3,182.4	252.08	13.625	
12,800.0	8,624.0	8,635.4	8,632.2	107.8	206.7	89.99	-593.3	7,457.3	3,338.9	3,085.7	253.22	13.186	
12,900.0	8,624.0	8,635.4	8,632.2	110.2	206.7	89.99	-593.3	7,457.3	3,243.5	2,989.1	254.45	12.747	
13,000.0	8,624.0	8,635.4	8,632.2	112.5	206.7	89.99	-593.3	7,457.3	3,148.4	2,892.7	255.78	12.309	
13,100.0	8,624.0	8,635.4	8,632.2	114.8	206.7	89.99	-593.3	7,457.3	3,053.7	2,796.5	257.21	11.872	
13,200.0	8,624.0	8,635.4	8,632.2	117.1	206.7	89.99	-593.3	7,457.3	2,959.3	2,700.5	258.75	11.437	
13,300.0	8,624.0	8,635.4	8,632.2	119.5	206.7	89.99	-593.3	7,457.3	2,865.2	2,604.8	260.42	11.002	
13,400.0	8,624.0	8,635.4	8,632.2	121.8	206.7	89.99	-593.3	7,457.3	2,771.6	2,509.4	262.22	10.570	
13,500.0	8,624.0	8,635.4	8,632.2	124.2	206.7	89.99	-593.3	7,457.3	2,678.4	2,414.3	264.18	10.139	
13,600.0	8,624.0	8,635.4	8,632.2	126.5	206.7	89.99	-593.3	7,457.3	2,585.8	2,319.5	266.29	9.710	
13,700.0	8,624.0	8,635.4	8,632.2	128.9	206.7	89.99	-593.3	7,457.3	2,493.7	2,225.1	268.58	9.285	
13,800.0	8,624.0	8,635.4	8,632.2	131.2	206.7	89.99	-593.3	7,457.3	2,402.3	2,131.2	271.06	8.862	
13,900.0	8,624.0	8,635.4	8,632.2	133.6	206.7	89.99	-593.3	7,457.3	2,311.5	2,037.8	273.76	8.444	
14,000.0	8,624.0	8,635.4	8,632.2	135.9	206.7	89.99	-593.3	7,457.3	2,221.6	1,944.9	276.69	8.029	
14,100.0	8,624.0	8,635.4	8,632.2	138.3	206.7	89.99	-593.3	7,457.3	2,132.6	1,852.7	279.88	7.620	
14,200.0	8,624.0	8,635.4	8,632.2	140.6	206.7	89.99	-593.3	7,457.3	2,044.5	1,761.2	283.35	7.216	
14,300.0	8,624.0	8,635.4	8,632.2	143.0	206.7	89.99	-593.3	7,457.3	1,957.6	1,670.5	287.12	6.818	
14,400.0	8,624.0	8,635.4	8,632.2	145.4	206.7	89.99	-593.3	7,457.3	1,872.1	1,580.8	291.23	6.428	
14,500.0	8,624.0	8,635.4	8,632.2	147.7	206.7	89.99	-593.3	7,457.3	1,788.0	1,492.3	295.70	6.047	
14,600.0	8,624.0	8,635.4	8,632.2	150.1	206.7	89.99	-593.3	7,457.3	1,705.6	1,405.1	300.57	5.675	
14,700.0	8,624.0	8,635.4	8,632.2	152.5	206.7	89.99	-593.3	7,457.3	1,625.3	1,319.4	305.86	5.314	
14,800.0	8,624.0	8,635.4	8,632.2	154.8	206.7	89.99	-593.3	7,457.3	1,547.2	1,235.6	311.60	4.965	
14,900.0	8,624.0	8,635.4	8,632.2	157.2	206.7	89.99	-593.3	7,457.3	1,471.8	1,154.0	317.80	4.631	
15,000.0	8,624.0	8,635.4	8,632.2	159.6	206.7	89.99	-593.3	7,457.3	1,399.4	1,075.0	324.46	4.313	
15,100.0	8,624.0	8,635.4	8,632.2	162.0	206.7	89.99	-593.3	7,457.3	1,330.7	999.1	331.57	4.013	
15,200.0	8,624.0	8,635.4	8,632.2	164.3	206.7	89.99	-593.3	7,457.3	1,266.1	927.0	339.07	3.734	
15,300.0	8,624.0	8,635.4	8,632.2	166.7	206.7	89.99	-593.3	7,457.3	1,206.3	859.5	346.87	3.478	
15,400.0	8,624.0	8,635.4	8,632.2	169.1	206.7	89.99	-593.3	7,457.3	1,152.2	797.4	354.83	3.247	
15,500.0	8,624.0	8,635.4	8,632.2	171.5	206.7	89.99	-593.3	7,457.3	1,104.5	741.7	362.73	3.045	
15,600.0	8,624.0	8,635.4	8,632.2	173.9	206.7	89.99	-593.3	7,457.3	1,064.0	693.7	370.28	2.874	
15,700.0	8,624.0	8,635.4	8,632.2	176.2	206.7	89.99	-593.3	7,457.3	1,031.7	654.6	377.13	2.736	
15,800.0	8,624.0	8,635.4	8,632.2	178.6	206.7	89.99	-593.3	7,457.3	1,008.3	625.4	382.92	2.633	
15,900.0	8,624.0	8,635.4	8,632.2	181.0	206.7	89.99	-593.3	7,457.3	994.5	607.2	387.30	2.568	
15,988.6	8,624.0	8,635.4	8,632.2	183.1	206.7	89.99	-593.3	7,457.3	990.5	600.7	389.79	2.541 CC	
16,000.0	8,624.0	8,635.4	8,632.2	183.4	206.7	89.99	-593.3	7,457.3	990.6	600.6	390.01	2.540 ES, SF	
16,100.0	8,624.0	8,635.4	8,632.2	185.8	206.7	89.99	-593.3	7,457.3	996.8	605.8	390.92	2.550	
16,200.0	8,624.0	8,635.4	8,632.2	188.2	206.7	89.99	-593.3	7,457.3	1,012.8	622.8	390.08	2.597	
16,300.0	8,624.0	8,635.4	8,632.2	190.6	206.7	89.99	-593.3	7,457.3	1,038.3	650.7	387.66	2.678	
16,400.0	8,624.0	8,635.4	8,632.2	193.0	206.7	89.99	-593.3	7,457.3	1,072.6	688.6	383.95	2.794	
16,500.0	8,624.0	8,635.4	8,632.2	195.3	206.7	89.99	-593.3	7,457.3	1,114.8	735.5	379.29	2.939	
16,600.0	8,624.0	8,635.4	8,632.2	197.7	206.7	89.99	-593.3	7,457.3	1,164.0	790.1	373.99	3.113	
16,700.0	8,624.0	8,635.4	8,632.2	200.1	206.7	89.99	-593.3	7,457.3	1,219.5	851.2	368.33	3.311	
16,800.0	8,624.0	8,635.4	8,632.2	202.5	206.7	89.99	-593.3	7,457.3	1,280.5	917.9	362.55	3.532	

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

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Offset Design: IRONHORSE 35-36 FED STATE - Parkway ST 36 #1 - AWP - INC ONLY												Offset Site Error:	0.0 usft
Survey Program: 355-INC-ONLY												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance Between Centres (usft)		Minimum Separation (usft)	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor		
16,900.0	8,624.0	8,635.4	8,632.2	204.9	206.7	89.99	-593.3	7,457.3	1,346.1	989.2	356.81	3.772	
17,000.0	8,624.0	8,635.4	8,632.2	207.3	206.7	89.99	-593.3	7,457.3	1,415.7	1,064.4	351.23	4.031	
17,100.0	8,624.0	8,635.4	8,632.2	209.7	206.7	89.99	-593.3	7,457.3	1,488.8	1,142.9	345.88	4.304	
17,200.0	8,624.0	8,635.4	8,632.2	212.1	206.7	89.99	-593.3	7,457.3	1,564.8	1,224.0	340.80	4.592	
17,300.0	8,624.0	8,635.4	8,632.2	214.5	206.7	89.99	-593.3	7,457.3	1,643.5	1,307.4	336.02	4.891	
17,400.0	8,624.0	8,635.4	8,632.2	216.9	206.7	89.99	-593.3	7,457.3	1,724.3	1,392.8	331.55	5.201	
17,500.0	8,624.0	8,635.4	8,632.2	219.3	206.7	89.99	-593.3	7,457.3	1,807.1	1,479.7	327.37	5.520	
17,600.0	8,624.0	8,635.4	8,632.2	221.7	206.7	89.99	-593.3	7,457.3	1,891.5	1,568.0	323.49	5.847	
17,700.0	8,624.0	8,635.4	8,632.2	224.1	206.7	89.99	-593.3	7,457.3	1,977.4	1,657.5	319.87	6.182	
17,800.0	8,624.0	8,635.4	8,632.2	226.5	206.7	89.99	-593.3	7,457.3	2,064.6	1,748.1	316.51	6.523	
17,900.0	8,624.0	8,635.4	8,632.2	228.9	206.7	89.99	-593.3	7,457.3	2,152.8	1,839.5	313.38	6.870	
18,000.0	8,624.0	8,635.4	8,632.2	231.3	206.7	89.99	-593.3	7,457.3	2,242.1	1,931.6	310.47	7.222	
18,100.0	8,624.0	8,635.4	8,632.2	233.7	206.7	89.99	-593.3	7,457.3	2,332.2	2,024.5	307.77	7.578	
18,200.0	8,624.0	8,635.4	8,632.2	236.1	206.7	89.99	-593.3	7,457.3	2,423.1	2,117.9	305.25	7.938	
18,300.0	8,624.0	8,635.4	8,632.2	238.5	206.7	89.99	-593.3	7,457.3	2,514.7	2,211.8	302.91	8.302	
18,400.0	8,624.0	8,635.4	8,632.2	240.9	206.7	89.99	-593.3	7,457.3	2,606.9	2,306.2	300.72	8.669	
18,500.0	8,624.0	8,635.4	8,632.2	243.3	206.7	89.99	-593.3	7,457.3	2,699.7	2,401.0	298.68	9.039	
18,600.0	8,624.0	8,635.4	8,632.2	245.7	206.7	89.99	-593.3	7,457.3	2,793.0	2,496.2	296.77	9.411	
18,700.0	8,624.0	8,635.4	8,632.2	248.1	206.7	89.99	-593.3	7,457.3	2,886.7	2,591.7	294.98	9.786	
18,800.0	8,624.0	8,635.4	8,632.2	250.5	206.7	89.99	-593.3	7,457.3	2,980.8	2,687.5	293.30	10.163	
18,900.0	8,624.0	8,635.4	8,632.2	252.9	206.7	89.99	-593.3	7,457.3	3,075.3	2,783.6	291.73	10.542	
19,000.0	8,624.0	8,635.4	8,632.2	255.3	206.7	89.99	-593.3	7,457.3	3,170.2	2,879.9	290.26	10.922	
19,100.0	8,624.0	8,635.4	8,632.2	257.7	206.7	89.99	-593.3	7,457.3	3,265.3	2,976.4	288.88	11.304	
19,190.0	8,624.0	8,635.4	8,632.2	259.9	206.7	89.99	-593.3	7,457.3	3,351.1	3,063.4	287.70	11.648	
19,190.6	8,624.0	8,635.4	8,632.2	259.9	206.7	89.99	-593.3	7,457.3	3,351.7	3,061.8	289.94	11.560	

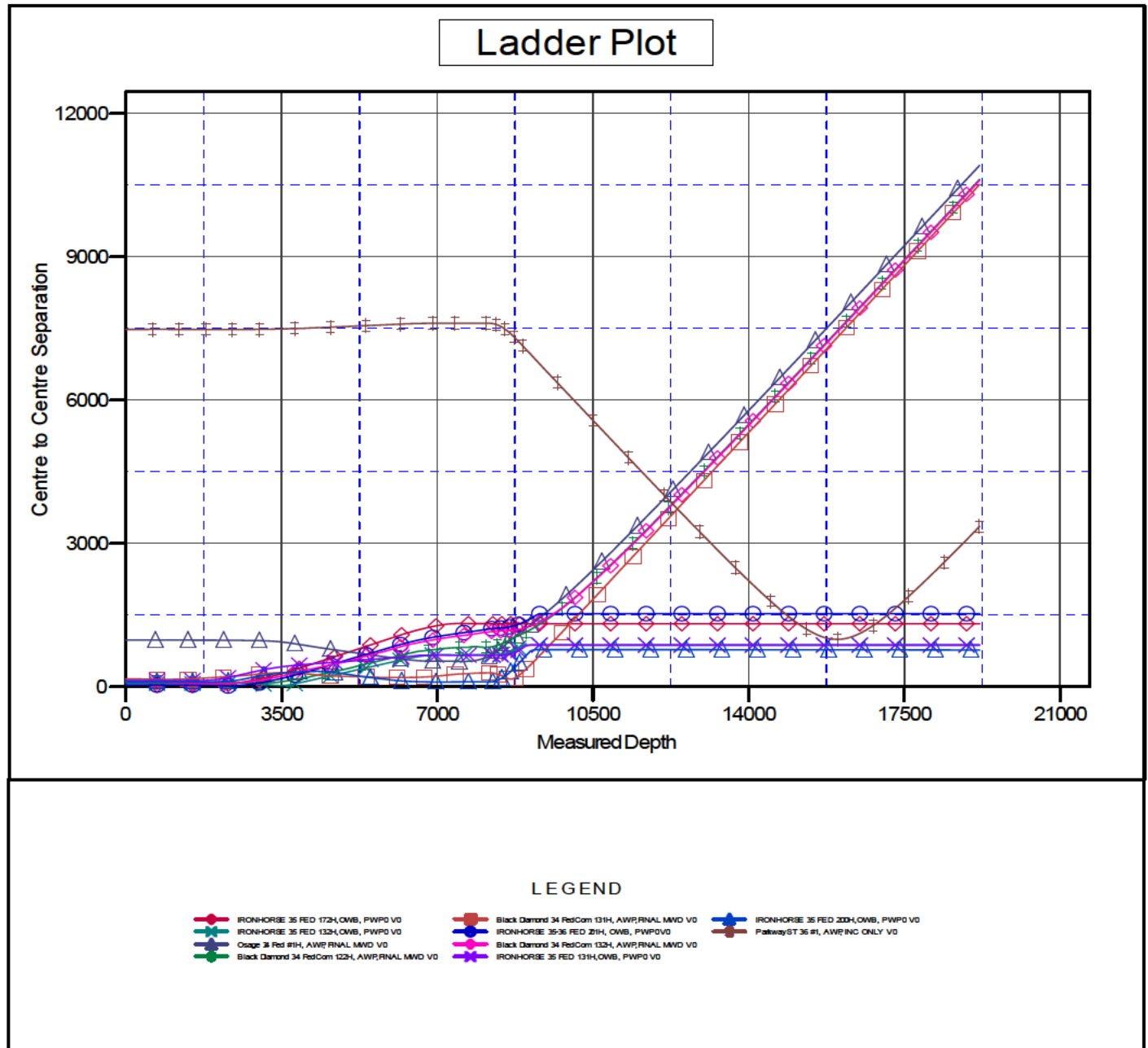
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=30' @ 3344.0usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: IRONHORSE 35 FED 171H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.15°



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

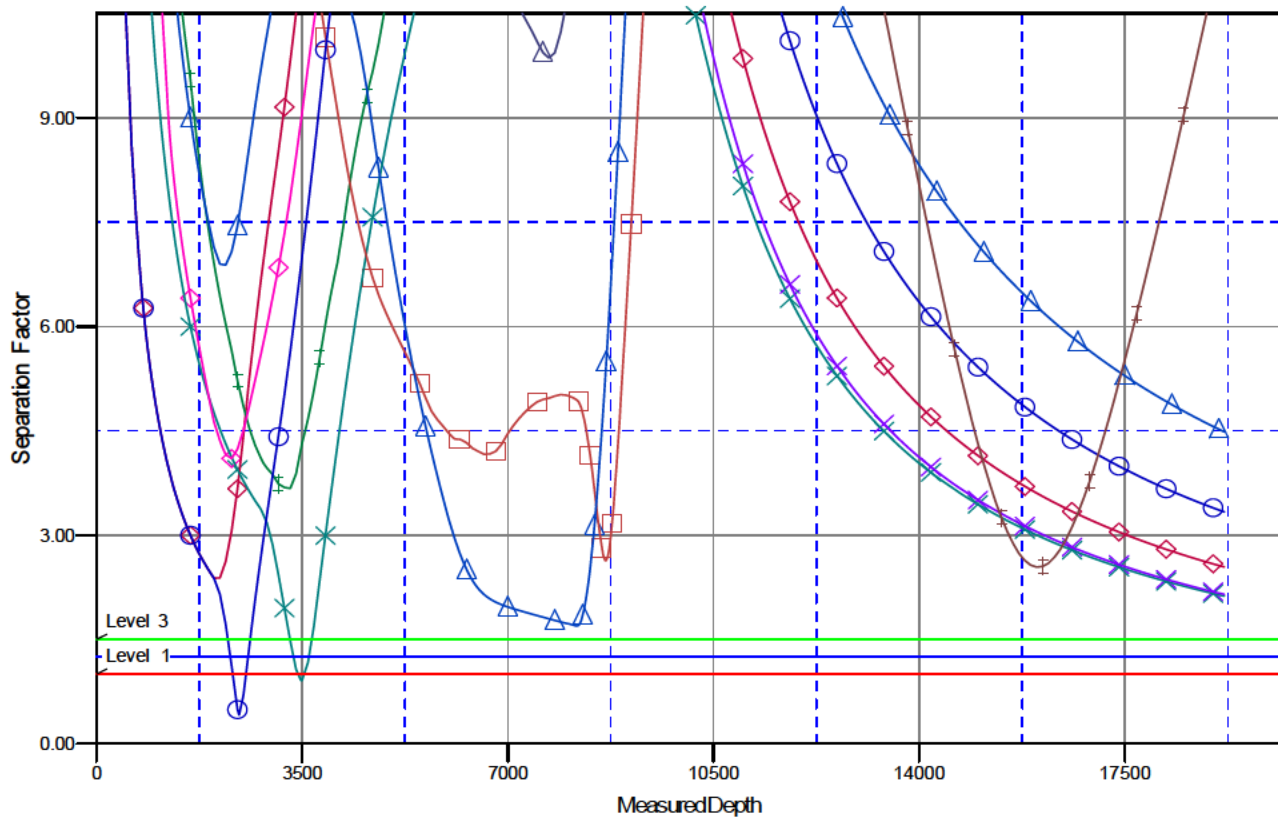
Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 171H
Project:	(SP) EDDY	TVD Reference:	KB=30' @ 3344.0usft
Reference Site:	IRONHORSE 35-36 FED STATE	MD Reference:	KB=30' @ 3344.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	IRONHORSE 35 FED 171H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass
Reference Design:	PWPO	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=30' @ 3344.0usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: IRONHORSE 35 FED 171H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.15°

Separation Factor Plot



LEGEND

IRONHORSE 35 FED 172H,OWB, PWPO VD	Black Diamond 34 RedCom 131H, AWR/RNAL MWD VD	IRONHORSE 35 FED 303H,OWB, PWPO VD
IRONHORSE 35 FED 132H,OWB, PWPO VD	IRONHORSE 3536 FED 201H, OWB, PWPOVD	Pathway/ST 35 9H, AWR/INC ONLY VD
Osage 38 Red 8TH, AWR/RNAL MWD VD	Black Diamond 34 RedCom 132H, AWR/RNAL MWD VD	
Black Diamond 34 RedCom 122H, AWR/RNAL MWD VD	IRONHORSE 35 FED 131H,OWB, PWPO VD	

PERMIAN

R E S O U R C E S

H₂S CONTINGENCY PLAN

FOR

Colgate Operating LLC

**Ironhorse 35 Fed Com 131H, 132H, 171H, 172H, 200H,
201H**

Eddy County, New Mexico

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Colgate Operating LLC	H ₂ S Contingency Plan Ironhorse 35 Fed Com	Eddy County, New Mexico
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Section 5.0 - Emergency Contact List

EMERGENCY CONTACT LIST				
Colgate Operating LLC.				
POSITION	NAME	OFFICE	CELL	ALT PHONE
Operations				
Operations Superintendent	Rick Lawson		432.530.3188	
TX Operations Superintendent	Josh Graham	432.940.3191	432.940.3191	
NM Operations Superintendent	Manual Mata	432.664.0278	575.408.0216	
Drilling Manager	Jason Fitzgerald	432.315.0146	318.347.3916	
Drilling Engineer	Ronny Hise	432.315.0144	432.770.4786	
Production Manager	Levi Harris	432.219.8568	720.261.4633	
SVP Development Ops	Clayton Smith	720.499.1416	361.215.2494	
SVP Production Ops	Casey McCain	432.695.4239	432.664.6140	
HSE & Regulatory				
H&S Manager	Adam Hicks	720.499.2377	903.426.4556	
Regulatory Manager	Stephanie Rabadue	432.695.4222	432.260.4388	
Environmental Manager	Montgomery Floyd	432-315-0123	432-425-8321	
HSE Consultant	Blake Wisdom		918-323-2343	
Local, State, & Federal Agencies				
Eddy County Sheriff		575-887-7551		911
New Mexico State Highway Patrol		505-757-2297		911
Carlsbad Fire / EMS		575-885-3125		911
Carlsbad Memorial Hospital		575-887-4100		
Secorp – Safety Contractor	Ricky Stephens		(325)-262-0707	
New Mexico Oil Conservation Division – District 1 Office – Hobbs, NM.		575-393-6161		
New Mexico Environment Department – District III Office – Hobbs, NM		575-397-6910		
New Mexico Oil Conservation Division – Hobbs, NM	24 Hour Emergency	575-393-6161		
Bureau of Land Management – Carlsbad, NM		575-234-5972		
U.S. Fish & Wildlife		502-248-6911		

II. H₂S CONTINGENCY PLAN SECTION

Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H₂S).

Objective:

Prevent any and all accidents and prevent the uncontrolled release of H₂S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Purpose, Distribution and Updating of Contingency Plan:

The Purpose of this contingency plan is to protect the general public from the harmful effects of H₂S accidentally escaping from the subject producing well. This plan is designed to accomplish its purpose by assuring the preparedness necessary to:

1. Minimize the possibility of releasing H₂S into the atmosphere during related operations.
2. Provide for the logical, efficient, and safe emergency actions required to protect the general public in the event of an accidental release of a potentially hazardous quantity of H₂S.

Supplemental information is included with this plan and is intended as reference material for anyone needing a more detailed understanding of the many factors pertinent to H₂S drilling operations safety. The release of a potentially hazardous quantity of H₂S is highly unlikely. If such a release should occur however, obviously the exact time, rate, duration, and other pertinent facts will be known in advance thus, this contingency plan must necessarily be somewhat general. The plan does review in detail, as is reasonably possible, the type of accidental release that could possibly endanger the general public, the probable extent of such danger, and the emergency actions generally appropriate. In the event of such an accidental release, the specific actions to be taken will have to be determined at the time of release by the responsible personnel at the drilling location. Complete familiarity with this plan will help such personnel make the proper decisions rapidly. Familiarity with this plan is so required all operators, operator representatives, and drilling contractor supervisory personnel who could possibly be on duty at the drilling location at the time of an H₂S emergency.

IT IS THE RESPONSIBILITY OF THE OPERATOR TO ASSURE SUCH FAMILIARITY BEFORE DRILLING WITHIN 1000' OR THREE DAYS PRIOR TO PENETRATION OF THE SHALLOWEST FORMATION KNOWN OR SUSPECTED TO CONTAIN H₂S IN POTENTIALLY HAZARDOUS QUANTITIES, AND ALSO TO ASSURE THE TIMELY ACCOMPLISHMENT OF ALL THE OTHER ACTION SPECIFIED HERE IN.

As this contingency plan was prepared considerably in advance of the anticipated H₂S operation, the plan must be kept current if it is to effectively serve its purpose. The operators will be responsible for seeing that all copies are updated. Updating the plan is required when any changes to the personnel Call List (Section) including telephone numbers occur or when any pertinent data or plans for the well are altered. The plan must also be updated when any changes in the general public likely to be within the exposure area in the event of an

accidental release from the well bore of a potentially hazardous quantity of H₂S. Two copies of this plan shall be retained at the office of Colgate Energy. Two copies shall be retained at the drilling location.

Discussion of Plan:

Suspected Problem Zones:

Implementation: This plan, with all details, is to be fully implemented 1000' before drilling into the first sour zone.

Emergency Response Procedure: This section outlines the conditions and denotes steps to be taken in the event of an emergency.

Emergency Equipment and Procedure: This section outlines the safety and emergency equipment that will be required for the drilling of this well.

Training Provisions: This section outlines the training provisions that must be adhered to 1000' before drilling into the first sour zone.

Emergency call list: Included are the telephone numbers of all persons that would need to be contacted, should an H₂S emergency occur.

Briefing: This section deals with the briefing of all persons involved with the drilling of this well.

Public Safety: Public Safety Personnel will be made aware of the drilling of this well.

Check Lists: Status check lists and procedural check lists have been included to ensure adherence to the plan.

General Information: A general information section has been included to supply support information.

III. OPERATING PROCEDURES

A. Blowout Preventer Drills

Due to the special piping and Mani folding necessary to handle poisonous gas, particular care will be taken to ensure that all rig personnel are completely familiar with their jobs during the drills. The Drilling Consultant and Tool Pusher (Rig Superintendent) are thoroughly familiar with the additional controls and piping necessary.

B. H₂S Alarm Drills

The Company Man and/ or designee will conduct frequent H₂S alarm drills for each crew by injecting a trace of H₂S where the detector will give an alarm. Under these conditions all personnel on location will put on air equipment and remain masked until all clear is announced.

C. Surface Annular Preventer/ Diverter System Testing

After installation of the surface annular preventer, Hydraulic Control Valve and diverter system, both are to be function tested. They also should be function tested frequently while drilling surface hole.

D. Blowout Preventer

After installation of the Blowout Preventer Stack, the stack will be pressure tested. The Choke manifold is also to be pressure tested at this time. This procedure will be repeated as required by the NMOCD, the BLM, or if any of the stack is nipped down. Also, at this time, the Blind and Pipe Rams are checked for correct operation.

E. Well Control Practice Drills and Safety Meeting for Crew Members

Pit drills are for the purpose of acquainting each member of the drilling crew with his duties in the event of an emergency. Drills will be held with each crew as frequently as required to thoroughly familiarize each man with his duties. Drills are to be held at least weekly from that time forward.

1. BOP Drill while on Bottom Drilling:

A. Signal will be three or more long blast given by driller on the horn.

B. Procedure will be as follows:

1. Tool Pusher: Supervises entire operation.

2. Driller

a. Gives signal.

b. Picks up Kelly.

c. Stops pumps.

d. Observes flow.

e. Signal to close (pipe rams if necessary).

f. Check that Choke Manifold is closed.

g. Record drill pipe pressure, casing pressure and determine mud volume gain.

3. Motorman

a. Go to closing unit and standby for signal to close BOP.

b. Close BOP in signal.

c. Check on BOP closing.

d. Go to floor to assist driller. (NOTE: During test drills the BOP

need not be completely closed at the discretion of the supervisor. Supervisor should make it very clear that it is a test drill only!)

4. Derrickman
 - a. Check pumps.
 - b. Go to floor for directions from the driller.
 5. Floorman
 - a. Go to manifold.
 - b. Observe and record pressure.
 - c. Check manifold and BOP for leaks.
 - d. Check with driller for additional instructions.
2. BOP Drill While Making Trip:
- A. During trip driller will fill hole every five (5) stands and check the pits to be sure hole is taking mud.
 - B. Drill Procedure is as follows:
 1. Driller
 - a. Order Safety valve installed.
 - b. Alert those not on the floor.
 - c. Go to stations as described in above drill.
3. Safety Meetings
- A. Every person involved in the operating will be informed of the characteristics of H₂S, its danger and safety procedures to be used when it is encountered, and recommended first-aid procedure for regular rig personnel. This will be done through a series of talks made before spud.
 - B. The Safety Advisor or Drilling Supervisor will conduct these training sessions and will repeat them as deemed necessary by him or as instructed by Colgate Energy. Talks may include the following subjects:
 1. Dangers of Hydrogen Sulfide (H₂S).
 2. Use and limitations of air equipment.
 3. Use of resuscitator.
 4. Organize Buddy System.
 5. First Aid procedures.
 6. Use of H₂S detection devices.
 7. Designate responsible people.
 8. Explain rig layout and policy to visitors.
 - a. Designate smoking and safety or Muster area.
 - b. Emphasize the importance of wind directions.
 9. Describe and explain operation of BOP stack, manifold, separator, and pit piping. Include maximum allowable pressure for casing procedure.
 10. Explain functions of Safety Supervisor.
 11. Explain organize H₂S Drills.
 12. Explain the overall emergency plan with emphasis given to the evacuation phase of the plans.

- Note: The above talks will be attended by every person involved in the operation. When drilling has reached a depth where H₂S is anticipated, temporary service personnel and visitors will be directed to the Drilling Consultant, who will designate the air equipment to be used by them in case of emergency, acquaint them with the dangers involved and be sure of their safety while they are in the area. He will point out the Briefing Areas, Windsocks, and Smoking Areas. He may refuse entrance to anyone, who in his opinion should not be admitted because of lack of safety equipment, special operations in progress or for other reasons involving personnel safety.

F. Outside Service Personnel

All service people such as cementing crews, logging crews, specialist, mechanics, and welders will furnish their own safety equipment. The Company Man/ or designee will be sure that the number of people on location does not exceed the number of masks on location, and they have been briefed regarding safety procedures. He will also be sure each of these people know about smoking and "Briefing Areas" and know what to do in case of an emergency alert or drill. Visitors will be restricted, except with special permission from the Drilling Consultant, when H₂S might be encountered. They will be briefed as to what to do in case of an alert or drill.

G. Onsite/ off shift workers

All workers that are staying on site must be identified as to where they are staying while off tour. If a drill/ or emergency takes place related to an H₂S release, each crew must have a designated person(s) that will wake them up and ensure that they are cleared to the appropriate muster area immediately.

H. Simultaneous Operations (SIMOPS)

If work is going on adjacent to the location is the responsibility of the Drilling Consultant or designee to communicate any applicable risks that may affect personnel working on that adjacent location. In the case of an H₂S drill or event, there should be a designated crew member that is responsible for contacting personnel on adjacent locations. This could include just communication on potential events or in case of an event, notification to evacuate location. Drilling Consultant or designee are the Point of Contact and oversee all activities at such point of an H₂S event occurrence.

I. Area Residences/ Occupied Locations/ Public Roads

Any occupied residences/ businesses that are within a reasonable perimeter of the location (attached map will identify a 3000' radius around location) should be identified as part of this contingency and a reasonable effort will be made to gain contact information for them. As part of the briefing of the contingency plan, the team reviewing should identify where these potential receptors are and plan on who will contact them in case of a release that may impact that area.

J. Drilling Fluids

Drilling Fluid Monitoring – On Any Hazardous H₂S gas well, the earlier the warning of danger the better chance to control operations. Mud Company will be in daily contact with Colgate Energy Consultant. The Mud Engineer will take samples of the mud, analyze these samples, and make necessary recommendations to prevent H₂S gas from the formation, the pH will be increased as necessary for corrosion control.

pH Control – For normal drilling, pH of 10.5 – 11.5. Would be enough for corrosion protection. If there is an influx of H₂S gas from the formation, the pH will be increased as necessary for corrosion control.

H₂S Scavengers – If necessary H₂S scavengers will be added to the drilling mud.

IV. OPERATING CONDITIONS

A. Posting Well Condition Flags

Post the green, yellow or red well condition flag, as appropriate, on the well condition sign at the location entrance, and take necessary precautions as indicated below:

1. **Green Flag:** Potential Danger- When Drilling in known H₂S zones or when H₂S has been detected in the drilling fluid atmosphere. Protective breathing equipment shall be inspected, and all personnel on duty shall be alerted to be ready to use this equipment.
2. **Yellow Flag:** Potential Danger- When the threshold limit value of H₂S (10 PPM) or of SO₂ (5 PPM) is reached. If the concentration of H₂S or SO₂ reaches 10 PPM, protective breathing equipment shall be worn by all working personnel, and non-working personnel shall go to the upwind Safe Briefing Area.
3. **Red Flag:** Extreme danger*- When the ambient concentration of H₂S or SO₂ is reasonably believed or determined to have exceeded the potentially hazardous level. All non-essential personnel shall leave the drilling location taking the route most likely to exposure to escaping gas.

B. Requiring Air Masks Conditions

1. Whenever air masks are used, the person must be clean shaven as shown in the APC Guidelines
2. When breaking out any line where H₂S can reasonably be expected.
3. When sampling air in areas to determine if toxic concentrations of H₂S exist.
4. When working in areas where 10 PPM or more of H₂S has been detected.
5. At any time, there is doubt as to the H₂S level in the area to be entered.

C. Kick Procedure

1. It is very important that the driller be continuously alert, especially when approaching a gas formation.
2. Should gas come into the well bore, it is very important to be aware of a kick at the earliest time.
3. If a kick is identified, follow appropriate diverter or shut in procedures according to the situation that is presented utilizing appropriate kick procedures.

V. EMERGENCY PROCEDURES

- I. In the event of any evidence of H₂S level above 10ppm, take the following steps immediately:
 - a. Secure breathing apparatus.
 - b. Order non-essential personnel out of the danger zone.
 - c. Take steps to determine if the H₂S level can be corrected or suppressed, and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
 - a. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel.
 - b. Remove all personnel to the Safe Briefing Area.
 - c. Notify public safety personnel for help with maintaining roadblocks, thus limiting traffic and implementing evacuation.
 - d. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.
- III. Responsibility
 - a. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
 - b. The Company Approved Supervisor shall be in complete command during any emergency.
 - c. The Company Approved Supervisor shall designate a backup Supervisor if he/she is not available.
- IV. Actions to be taken
 - a. Assign specific tasks to drilling location personnel
 - b. Evacuate the general public from the exposure area
 - c. Cordon off the exposure area to prevent entry by unauthorized persons
 - d. Request assistance if and as needed and initiate emergency notifications
 - e. Stop the dispersion of H₂S
 - f. Complete emergency notifications as required
 - g. Return the situation to normal

EMERGENCY PROCEDURE IMPLEMENTATION**I. Drilling or Tripping****a. All Personnel**

- i. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
- ii. Check status of other personnel (buddy system).
- iii. Secure breathing apparatus.
- iv. Wait for orders from supervisor.

b. Drilling Consultant

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
- iii. Determine the concentration of H₂S.
- iv. Assess the situation and take appropriate control measures.

c. Tool Pusher

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Drilling Consultant or the Driller (buddy system).
- iii. Determine the concentration of H₂S.
- iv. Assess the situation and take appropriate control measures.

d. Driller

- i. Check the status of other personnel (in a rescue attempt, always use the buddy system).
- ii. Assign the least essential person to notify the Drilling Consultant and Tool Pusher, in the event of their absence.
- iii. Assume the responsibility of the Drilling Consultant and the Tool Pusher until they arrive, in the event of their absence.

e. Derrick Man and Floor Hands

- i. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

f. Mud Engineer

- i. Report to the upwind Safe Briefing Area.
- ii. When instructed, begin check of mud for pH level and H₂S level.

g. Safety Personnel

- i. Don Breathing Apparatus.
- ii. Check status of personnel.
- iii. Wait for instructions from Drilling Consultant or Tool Pusher.

II. Taking a Kick

- a.* All Personnel report to the upwind Safe Briefing Area.
- b.* Follow standard BOP/ diverter procedures.

III. Open Hole Logging

- a.* All unnecessary personnel should leave the rig floor.
- b.* Drilling Consultant and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

IV. Running Casing or Plugging

- a.* Follow "Drilling or Tripping" procedures.
- b.* Assure that all personnel have access to protective equipment.

VI. POST EMERGENCY ACTIONS

In the event this plan is activated, the following post emergency actions shall be taken in an effort to reduce the possibility of a reoccurrence of the type of problem that required its activation, and/or assure that any future activation of a similar plan will be as effective as possible.

- A. Review the factors that caused or permitted the emergency occur, and if the need is indicated, modify operating, maintenance and/or surveillance procedures.
- B. If the need is indicated, retrain employees in blowout prevention, H₂S emergency procedures and etc.
- C. Clean up, recharge, restock, repair, and/ or replace H₂S emergency equipment as necessary, and return it to its proper place. (For whatever rental equipment is used, this will be the responsibility of Rental Company).
- D. See that future H₂S drilling contingency plans are modified accordingly, if the need is indicated.

VII. IGNITION PROCEDURES

Responsibilities:

The decision to ignite the well is the responsibility of the DRILLING CONSULTANT in concurrence with the STATE POLICE. In the event the Drilling Consultant is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

Instructions for Igniting the Well:

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Consultant is responsible for igniting the well.
2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.
3. Ignite from upwind and do not approach any closer than is warranted.
4. Select the ignition site best suited for protection and which offers an easy escape route.
5. Before igniting, check for the presence of combustible gases.
6. After igniting, continue emergency actions and procedures as before.
7. All unassigned personnel will limit their actions to those directed by the Drilling Consultant.

Note: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide, which is also highly toxic. Also, both are heavier than air. Do not assume the area is safe even after the well is ignited.

VIII. TRAINING PROGRAM

When working in an area where Hydrogen Sulfide (H₂S) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel, at the well site, have had adequate training in the following:

1. Hazards and characteristics of Hydrogen Sulfide (H₂S).
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H₂S detection, Emergency alarm and sensor location.
5. Don and Doff of SCBA and be clean shaven.
6. Emergency rescue.
7. Resuscitators.
8. First aid and artificial resuscitation.
9. The effects of Hydrogen Sulfide on metals.
10. Location safety.

Service company personnel and visiting personnel must be notified if the zone contains H₂S, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

IX. EMERGENCY EQUIPMENT

Lease Entrance Sign:

Should be located at the lease entrance with the following information:

CAUTION – POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

Respiratory Equipment:

- Fresh air breathing equipment should be placed at the safe briefing areas and should include the following:
- Two SCBA's at each briefing area.
- Enough airline units to operate safely, anytime the H₂S concentration reaches the IDLH level (100 ppm).

- Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

Windssocks or Wind Streamers:

- A minimum of two 10" windssocks located at strategic locations so that they may be seen from any point on location.
- Wind streamers (if preferred) should always be placed at various locations on the well site to ensure wind consciousness. (Corners of location).

Hydrogen Sulfide Detector and Alarms:

- 1 - Four channel H₂S monitor with alarms.
- Three (3) sensors located as follows: #1 – Rig Floor, #2 – Shale Shaker, #3 – Cellar.
- Gastec or Draeger pump with tubes.
- Sensor test gas.

Well Condition Sign and Flags:

The Well Condition Sign w/flags should be placed a minimum of 150' before you enter the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN – Normal Operating Conditions
YELLOW – Potential Danger
RED – Danger, H₂S Gas Present

Auxiliary Rescue Equipment:

- Stretcher
- 2 – 100' Rescue lines.
- First Aid kit properly stocked.

Mud Inspection Equipment:

Garret Gas Train or Hach Tester for inspection of Hydrogen Sulfide in the drilling mud system.

Fire Extinguishers:

Adequate fire extinguishers shall be located at strategic locations.

Blowout Preventer:

- The well shall have hydraulic BOP equipment for the anticipated bottom hole pressure (BHP).
- The BOP should be tested upon installation.
- BOP, Choke Line and Kill Line will be tested as specified by Operator.

Confined Space Monitor:

There should be a portable multi-gas monitor with at least 3 sensors (O₂, LEL H₂S), preferably 4 (O₂, LEL, H₂S, CO). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be provided.

Communication Equipment:

- Proper communication equipment such as cell phones or 2-way radios should be available at the rig.
- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.
- Communication equipment shall be available on the vehicles.

Special Control Equipment:

- Hydraulic BOP equipment with remote control on the ground.
- Rotating head at the surface casing point.

Evacuation Plan:

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel.

Designated Areas:***Parking and Visitor area:***

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- Designated smoking area.

Safe Briefing Areas:

- Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds, or they are at a 180-degree angle if wind directions tend to shift in the area.
- Personal protective equipment should be stored at both briefing areas and if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

Note:

- Additional equipment will be available at the H₂S Provider Safety office.
- Additional personal H₂S monitors are available for all employees on location.
- Automatic Flare Igniters are recommended for installation on the rig.

X. CHECKLISTS**Rig-up & Equipment Status Check List**

Note: Initial & Date each item as they are implemented. Multiple wells require additional Columns to be Dated/ Initialed

	Date & Initial 1 st Well	Date & Initial 2 nd Well	Date & Initial 3 rd Well	Date & Initial 4 th Well
Sign at location entrance.				
Two (2) windsocks (in required locations).				
Wind Streamers (if required).				
SCBA's on location (Minimum of 2 @ each Muster Area)				
Air packs (working packs and escape packs), inspected and ready for use.				
Spare bottles for each air pack (if required).				
Cascade system and hose line hook up.				
Choke manifold hooked-up and tested. (before drilling out surface casing.)				
Remote Hydraulic BOP control tested (before drilling out surface casing).				
BOP tested (before drilling out surface casing).				
Safe Briefing Areas set-up				
Well Condition sign and flags on location and ready.				
Hydrogen Sulfide detection/ alarm system hooked-up & tested.				
Stretcher on location				
2 – 100' Lifelines on location.				
1 – 20# Fire Extinguisher in safety trailer.				
Confined Space monitor on location and tested.				
All rig crews and supervisor trained (as required).				
All rig crews and supervision medically qualified and fit tested on proper respirators				
Access restricted for unauthorized personnel.				
Pre-spud meeting held reviewing Contingencies				
Drills on H ₂ S and well control procedures.				
All outside service contractors advised of potential H ₂ S on the well.				
25mm Flare Gun on location w/flares.				

Procedural Check List

Perform the following on each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to ensure that they have not been tampered with.
3. Check pressure on the supply air bottles to make sure they are capable of recharging.
4. Make sure all the Hydrogen Sulfide detection systems are operative.
5. Ensure that all BOP/ Surface Annular/ Diverter systems are functioning and operational.

Perform the following each week:

1. Check each piece of breathing equipment to make sure that they are fully charged and operational. This requires that the air cylinder be opened, and the mask assembly be put on and tested to make sure that the regulators and masks are properly working. Negative and Positive pressure should be conducted on all masks.
2. BOP skills.
3. Check supply pressure on BOP accumulator stand-by source.
4. Check all breathing air mask assemblies to see that straps are loosened and turned back, ready for use.
5. Check pressure on cascade air cylinders to make sure they are fully charged and ready to use for refill purposes if necessary.
6. Check all cascade system regulators to make sure they work properly.
7. Perform breathing drills with on-site personnel.
8. Check the following supplies for availability (may be with H₂S Techs On-call):
 - Stretcher
 - Safety Belts and Ropes
 - Spare air Bottles
 - Spare Oxygen Bottles (if resuscitator required)
 - Gas Detector Pump and Tubes
 - Emergency telephone lists
 - Test the Confined Space Monitor to verify the batteries are good.

XI. BRIEFING PROCEDURES

The following scheduled briefings will be held to ensure the effective drilling and operation of this project:

Pre-Spud Meeting

Date: Prior to spudding the well.

Attendance: Drilling Supervisor
 Drilling Engineer
 Drilling Consultant
 Rig Tool Pushers
 Rig Drillers
 Mud Engineer
 All Safety Personnel
 Key Service Company Personnel

Purpose: Review and discuss the well program, step-by-step, to insure complete understanding of assignments and responsibilities.

XII. EVACUATION PLAN

General Plan

The direct lines of action prepared by Colgate to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Consultant, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the area map.
2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists, and evacuation needs to be implemented.
3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining roadblocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, "Company" personnel will determine when the area is safe for re-entry.
6. If a major release is secured, all exposed housing, vehicles, rig buildings, and low-lying areas and other structures downwind must be tested and clear with SCBAs donned to ensure that all residual H₂S is cleared. Fans, or opening of doors is recommended to ensure that areas are cleared out as part of this process.

XIII. APPENDICES AND GENERAL INFORMATION

Radius of Exposure Affected Notification List

(within a 65' radius of exposure @100ppm)

The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H₂S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

Evacuee Description: Residents:

Notification Process:

A continuous siren audible to all residence will be activated, signaling evacuation of previously notified and informed residents.

Evacuation Plan:

All evacuees will migrate lateral to the wind direction.

The Operating Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local and emergency medical service as necessary.

Toxic Effects of H₂S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity – 1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen Sulfide and other gases are compared below in Table 1. Toxicity table for H₂S and physical effects are shown in Table 2.

Table 1
Permissible Exposure Limits of Various Gases

<u>Common Name</u>	<u>Symbol</u>	<u>Sp. Gravity</u>	<u>TLV</u>	<u>STEL</u>	<u>IDLH</u>
Hydrogen Cyanide	HCN	.94	4.7 ppm	4.7 ppm	50 ppm
Hydrogen Sulfide	H ₂ S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO ₂	2.21	2 ppm	5 ppm	100 ppm
Chlorine	CL	2.45	.5 ppm	1 ppm	10 ppm
Carbon Monoxide	CO	.97	25 ppm	200 ppm	1200 ppm
Carbon Dioxide	CO ₂	1.52	5000 ppm	30,000 ppm	40,000 ppm
Methane	CH ₄	.55	5% LEL	15% UEL	

Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists) and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15-minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H₂S is 20 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H₂S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed based on a TWA.

Toxicity Table of H₂S

<u>Percent %</u>	<u>PPM</u>	<u>Physical Effects</u>
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure.
.0015	15	STEL for 15 minutes of exposure.
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes .
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H₂S

The properties of all gases are usually described in the context of seven major categories:

- COLOR
- ODOR
- VAPOR DENSITY
- EXPLOSIVE LIMITS
- FLAMMABILITY
- SOLUBILITY (IN WATER)
- BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless, so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence. In fact, that makes this gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, like "rotten eggs". For this reason, it earned its common name "sour gas". However, H₂S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air, so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H₂S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.0% TO 44%

Mixed with the right proportion of air or oxygen, H₂S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO₂), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S may release the gas into the air.

BOILING POINT – (-77° Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

RESPIRATOR USE

The Occupational Safety and Health Administration (OSHA) regulate the use of respiratory protection to protect the health of employees. OSHA's requirements are written in the Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection. This regulation requires that all employees who might be required to wear respirators, shall complete an OSHA mandated medical evaluation questionnaire. The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gases.

Written procedures shall be prepared covering safe use of respirators in dangerous atmospheric situations, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

Respirators shall be inspected prior to and after each use to make sure that the respirator has been properly cleaned, disinfected and that the respirator works properly. The unit should be fully charged prior to being used.

Anyone who may use respirators shall be properly trained in how to properly seal the face piece. They shall wear respirators in normal air and then in a test atmosphere. (Note: Such items as facial hair (beard or sideburns) and eyeglass temple pieces will not allow a proper seal.) Anyone who may be expected to wear respirators should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses. Contact lenses should not be allowed.

Respirators shall be worn during the following conditions:

- A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H₂S.
- B. When breaking out any line where H₂S can reasonably be expected.
- C. When sampling air in areas where H₂S may be present.
- D. When working in areas where the concentration of H₂S exceeds the Threshold Limit Value for H₂S (10 ppm).
- E. At any time where there is a doubt as to the H₂S level in the area to be entered.

EMERGENCY RESCUE PROCEDURES

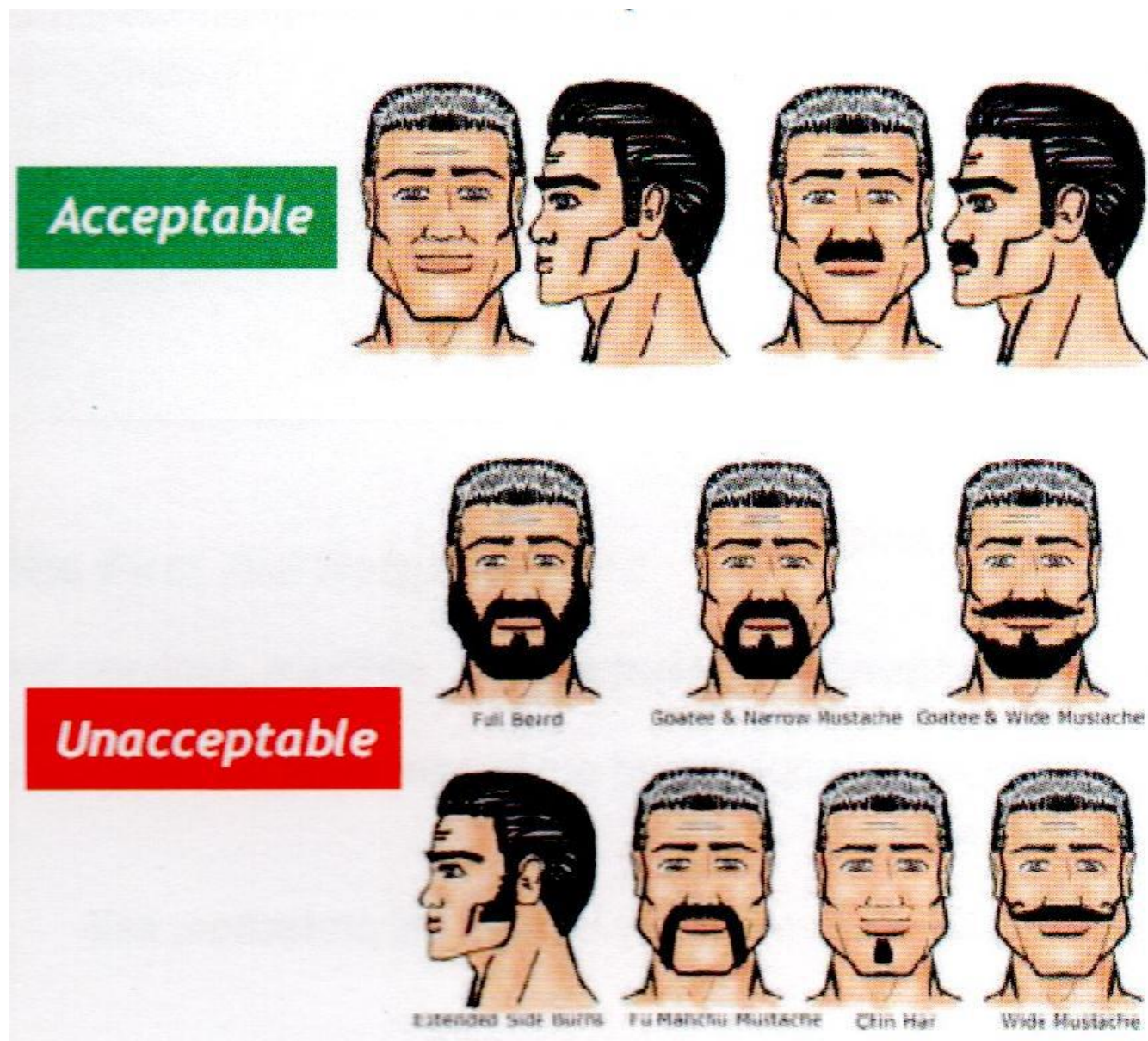
DO NOT PANIC!!!

Remain Calm – Think

1. Before attempting any rescue, you must first get out of the hazardous area yourself. Go to a safe briefing area.
2. Sound alarm and activate the 911 system.
3. Put on breathing apparatus. At least two persons should do this, when available use the buddy system.
4. Rescue the victim and return them to a safe briefing area.
5. Perform an initial assessment and begin proper First Aid/CPR procedures.
6. Keep victim lying down with a blanket or coat, etc., under the shoulders to keep airway open. Conserve body heat and do not leave unattended.
7. If the eyes are affected by H₂S, wash them thoroughly with potable water. For slight irritation, cold compresses are helpful.
8. In case a person has only minor exposure and does not lose consciousness totally, it's best if he doesn't return to work until the following day.
9. Any personnel overcome by H₂S should always be examined by medical personnel. They should always be transported to a hospital or doctor.

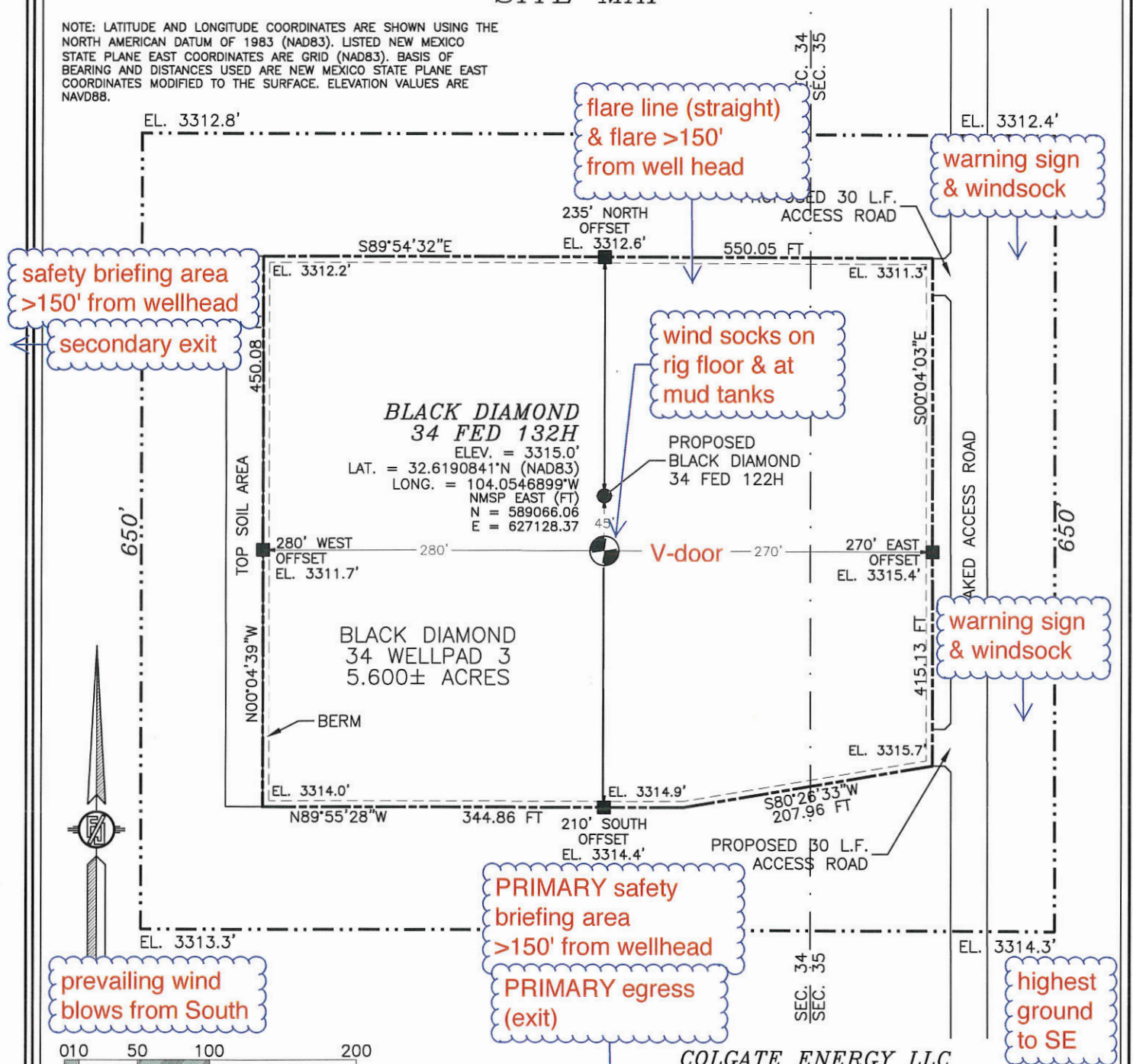
Facial Hair – Clean Shaven Examples

Purpose: To define clean shaven expectations in the field for: 1) Respirator Use, if applicable and 2) First Aid Administration, if situation occurs related to H₂S exposure, having no facial hair can greatly benefit response time and treatment ability.



**SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP**

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. ELEVATION VALUES ARE NAVD88.



010 50 100 200
SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM CR. 235 (CURRY COMB) AND CR. 210 (OLD LOCO) GO EAST-SOUTHEAST ON CR. 235 3.4 MILES. TURN RIGHT AND GO SOUTH 0.59 MILES, BEND RIGHT AND GO WEST 0.1 MILE, TURN LEFT AND GO SOUTH 0.8 MILES, TURN RIGHT AND GO WEST 1.26 MILES TO ROAD SURVEY AND FOLLOW FLAG NORTH 1271' THEN WEST 30' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

I, FILMON F. RAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I HAVE CONDUCTED THIS SURVEY, THAT THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE STANDARDS FOR SURVEYING, AND THAT I HAVE THE MINIMUM

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

COLGATE ENERGY LLC

BLACK DIAMOND 34 FED 132H

**LOCATED 1940 FT. FROM THE NORTH LINE
AND 170 FT. FROM THE EAST LINE OF
SECTION 34, TOWNSHIP 19 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO**

MAY 8, 2020

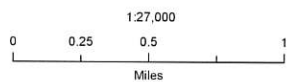
SURVEY NO. 7883A

Colgate Energy, LLC

Black Diamond 34 Fed Com
132H
H2S Contingency Plan:
Radius Map

Section 34, Township 19S, Range 29E
Eddy County, New Mexico

● Pad Center



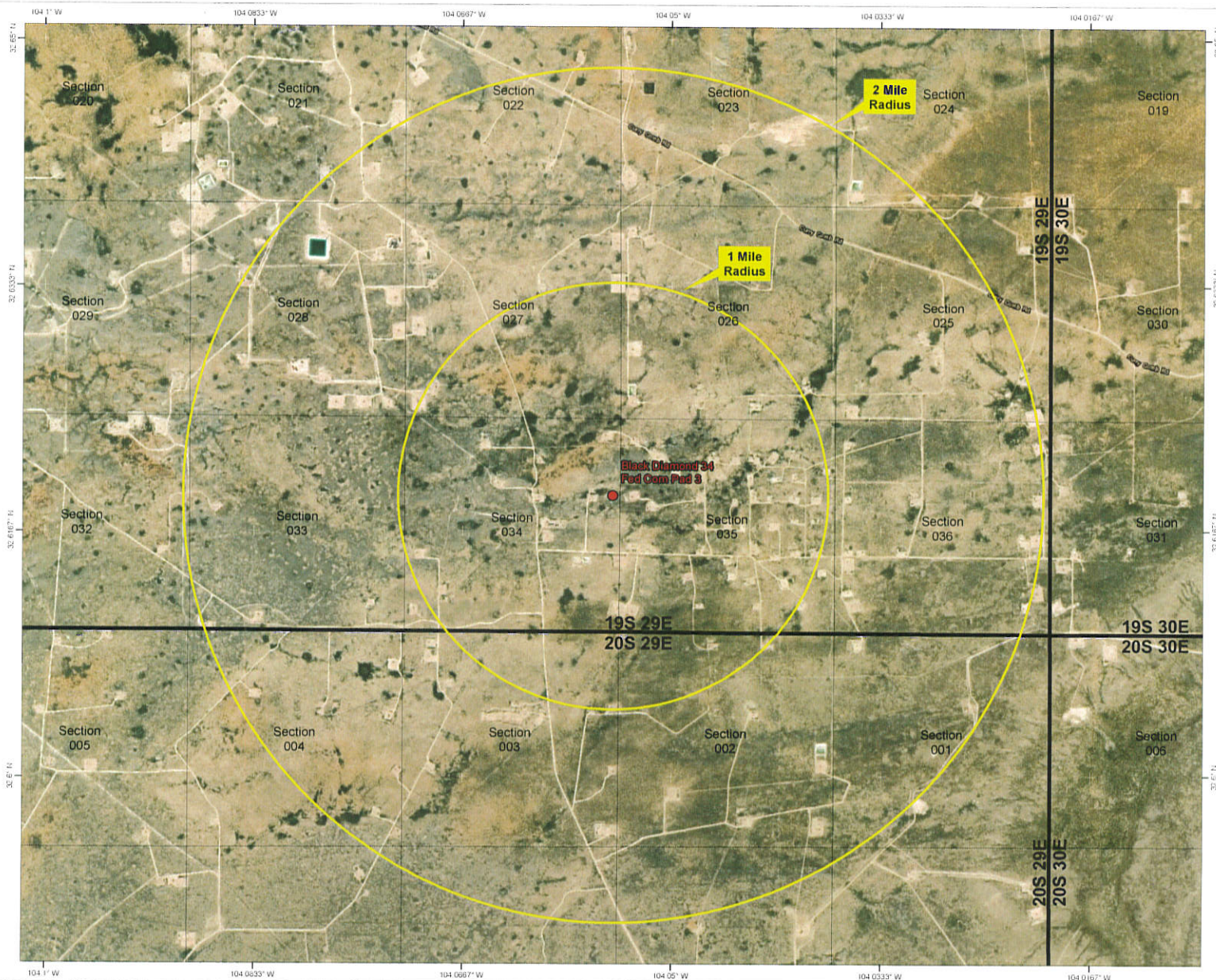
NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST

Prepared by Permits West, Inc., March 10, 2020
for Colgate Energy, LLC

Area of
Detail

Carlsbad



Operator Name: COLGATE OPERATING LLC **Well Name:**

IRONHORSE 35 FED COM

Well Number: 171H**Section 7 - Methods for Handling****Waste type:** DRILLING**Waste content description:** Drill cuttings**Amount of waste:** 5000 pounds**Waste disposal frequency :** Weekly**Safe containment description:** Steel tanks**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** Hauled to state approved commercial facility.**Waste type:** SEWAGE**Waste content description:** Grey water/Human waste**Amount of waste:** 5000 gallons**Waste disposal frequency :** Weekly**Safe containment description:** Plastic holding tanks and chemical toilets**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** A NMOCD approved facility. Carlsbad wastewater treatment plant.**Waste type:** GARBAGE**Waste content description:** Trash**Amount of waste:** 5000 pounds**Waste disposal frequency :** Weekly**Safe containment description:** Portable trash cage**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** Hauled to NMOCD approved location. Eddy County landfill.**Reserve Pit****Reserve Pit being used?** NO

Operator Name: COLGATE OPERATING LLC **Well Name:**

IRONHORSE 35 FED COM

Well Number: 171H**Temporary disposal of produced water into reserve pit?** NO**Reserve pit length (ft.)****Reserve pit width (ft.)****Reserve pit depth (ft.)****Reserve pit volume (cu. yd.)****Is at least 50% of the reserve pit in cut?****Reserve pit liner****Reserve pit liner specifications and installation description**

Cuttings Area

Cuttings Area being used? NO**Are you storing cuttings on location?** Y**Description of cuttings location** The well will be drilled utilizing a closed-loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to a New Mexico Oil Conservation Division (NMOCD) approved disposal site. 10020 Cu Ft.**Cuttings area length (ft.)****Cuttings area width (ft.)****Cuttings area depth (ft.)****Cuttings area volume (cu. yd.)****Is at least 50% of the cuttings area in cut?****WCuttings area liner****Cuttings area liner specifications and installation description**

Section 8 - Ancillary

Are you requesting any Ancillary Facilities?: N**Ancillary Facilities****Comments:**

Section 9 - Well Site

Well Site Layout Diagram:

Ironhorse_Federal_WSL1_20240729050207.pdf

Comments: There is one (1) multi-well pad required for the Ironhorse 35 Federal anticipated project with no additional surface disturbance. This well pad allows for enough space for cuts and fills, topsoil storage, and storm water control. Interim reclamation of the pad is anticipated after the drilling and completion of all wells on the pad. The well site layout for all pads is attached.: 1. Existing Black Diamond 34 Federal 1 Pad: 451x497 (5.19 Acres)

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 388619

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 388619
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	10/29/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	10/29/2024
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	10/29/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	10/29/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	10/29/2024
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	10/29/2024
ward.rikala	This well is within the Capitan Reef. The 1st intermediate string shall be sat and cemented back to surface immediately above the top of the Capitan Reef. The 2nd intermediate string shall be sat and cemented back to surface immediately below the base of the Capitan Reef.	10/29/2024
ward.rikala	Submit C-102 on new C-102 form.	10/29/2024