

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM61582
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
Colgate Operating LLC		8. Lease Name and Well No. IRONHORSE 35 FED COM 131H
2a. Address of Operator 300 N MARIENFELD ST SUITE 1000, MIDLAND, TX 79701		9. API Well No. 30-015-55609
3b. Phone No. (include area code) (432) 695-4222		10. Field and Pool, or Exploratory Parkway/Bone Spring
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface NENE / 1290 FNL / 198 FEL / LAT 32.6208697 / LONG -104.0547833 At proposed prod. zone NENE / 330 FNL / 100 FEL / LAT 32.623287 / LONG -104.0201448		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
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 198 feet		13. State NM
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		20. BLM/BIA Bond No. in file FED: NMNM001841
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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) KANIGIA SCHLICHTING / Ph: (432) 695-4222	Date 01/05/2024
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
Approval Date: 09/26/2024

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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

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

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

The BLM connects this information to 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: NENE / 1290 FNL / 198 FEL / TWSP: 19S / RANGE: 29E / SECTION: 34 / LAT: 32.6208697 / LONG: -104.0547833 (TVD: 0 feet, MD: 0 feet)
PPP: NWNW / 330 FNL / 100 FWL / TWSP: 19S / RANGE: 29E / SECTION: 35 / LAT: 32.6235034 / LONG: -104.0538075 (TVD: 9146 feet, MD: 9347 feet)
PPP: NWNW / 330 FNL / 0 FWL / TWSP: 19S / RANGE: 29E / SECTION: 36 / LAT: 32.6233951 / LONG: -104.0369925 (TVD: 9194 feet, MD: 14632 feet)
PPP: NWNW / 330 FNL / 2643 FEL / TWSP: 19S / RANGE: 29E / SECTION: 36 / LAT: 32.6233403 / LONG: -104.0284049 (TVD: 9194 feet, MD: 17276 feet)
BHL: NENE / 330 FNL / 100 FEL / TWSP: 19S / RANGE: 29E / SECTION: 36 / LAT: 32.623287 / LONG: -104.0201448 (TVD: 9194 feet, MD: 19818 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 30-015-55609	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 #131H
		⁹ Elevation 3,314'

¹⁰ Surface Location

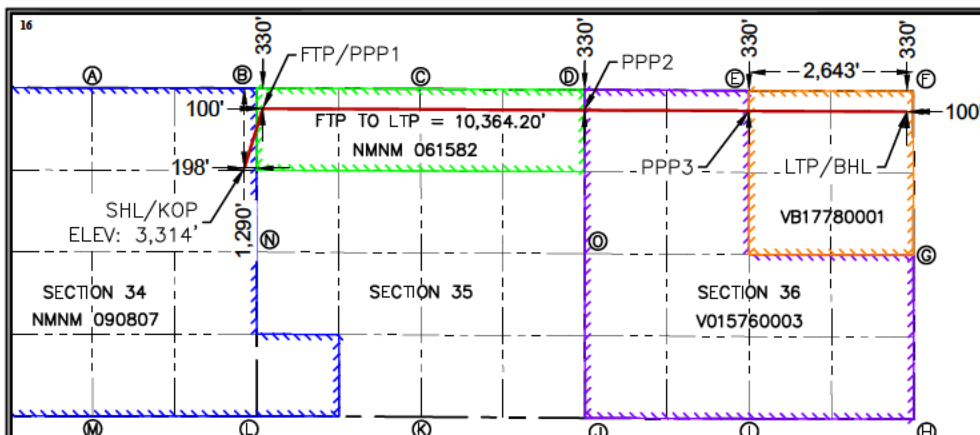
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	34	19 S	29 E		1,290'	NORTH	198'	EAST	EDDY

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		330'	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
1,290' FNL & 198' FEL
NM EAST-NAD 83
NORTH: 589,715.60'
EAST: 627,097.90'
LAT: 32.62086772
LONG: -104.05478333
NM EAST-NAD 27
NORTH: 589,653.56'
EAST: 585,917.86'
LAT: 32.62075136
LONG: -104.05427832

FIRST TAKE POINT & PENETRATION POINT 1
330' FNL & 100' FWL
NM EAST-NAD 83
NORTH: 590,674.53'
EAST: 627,395.82'
LAT: 32.62350340
LONG: -104.05380751
NM EAST-NAD 27
NORTH: 590,612.47'
EAST: 586,215.80'
LAT: 32.62338505
LONG: -104.05330245

PENETRATION POINT 2
330' FNL & 0' FWL
NM EAST-NAD 83
NORTH: 590,649.17'
EAST: 632,572.82'
LAT: 32.62339514
LONG: -104.03699254
NM EAST-NAD 27
NORTH: 590,587.07'
EAST: 591,392.79'
LAT: 32.62327661
LONG: -104.03648789

PENETRATION POINT 3
330' FNL & 2,643' FEL
NM EAST-NAD 83
NORTH: 590,636.70'
EAST: 635,216.77'
LAT: 32.62334080
LONG: -104.02840496
NM EAST-NAD 27
NORTH: 590,574.58'
EAST: 594,036.73'
LAT: 32.62322168
LONG: -104.02790052

LAST TAKE POINT & BOTTOM HOLE LOCATION
330' FSL & 100' FEL
NM EAST-NAD 83
NORTH: 590,624.70'
EAST: 635,216.77'
LAT: 32.62328700
LONG: -104.02814485
NM EAST-NAD 27
NORTH: 590,562.57'
EAST: 596,579.86'
LAT: 32.62316830
LONG: -104.01964063

CORNER COORDINATES	H-FOUND IRON PIPE
NEW MEXICO EAST - NAD 83	N: 585,677.60' E: 637,869.26'
A- CALCULATED CORNER	I- FOUND IRON PIPE
N: 591,009.51' E: 624,651.10'	N: 585,685.41' E: 635,223.20'
B- FOUND IRON ROD	J- FOUND IRON PIPE
N: 591,005.03' E: 627,295.65'	N: 585,696.70' E: 632,580.53'
C- FOUND NAIL	K- FOUND IRON ROD
N: 590,982.09' E: 629,952.85'	N: 585,715.65' E: 629,950.81'
D- FOUND IRON ROD	L- FOUND IRON PIPE
N: 590,979.17' E: 632,572.41'	N: 585,728.26' E: 627,298.35'
E- FOUND IRON ROD	M- FOUND IRON PIPE
N: 590,963.34' E: 635,216.34'	N: 585,726.61' E: 624,659.03'
F- FOUND IRON PIPE	N- CALCULATED CORNER
N: 590,959.37' E: 632,859.25'	N: 585,766.64' E: 627,297.00'
G- FOUND IRON PIPE	O- FOUND IRON ROD
N: 588,317.17' E: 637,864.40'	N: 588,339.27' E: 632,575.67'

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

Submit Electronically
Via E-permitting

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

IV. Central 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: 10400096552

Submission Date: 01/05/2024

Highlighted data
reflects the most
recent changes

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 131H

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
14220617	RUSTLER	3182	162	162	SANDSTONE	USEABLE WATER	N
14220618	TOP SALT	2293	889	889	SALT	NONE	N
14220619	TANSILL	1928	1254	1254	ANHYDRITE, SHALE	NONE	N
14220620	YATES	1778	1404	1404	ANHYDRITE, SHALE	NONE	N
14220621	SEVEN RIVERS	1572	1610	1610	LIMESTONE	NONE	N
14220622	CAPITAN REEF	408	2774	2774	LIMESTONE	NONE	N
14220623	CHERRY CANYON	-228	3410	3410	SANDSTONE	NATURAL GAS, OIL	N
14220624	BRUSHY CANYON	-388	3570	3570	SANDSTONE	NATURAL GAS, OIL	N
14220625	BONE SPRING LIME	-2526	5708	5708	LIMESTONE	NATURAL GAS, OIL	N
14220626	BONE SPRING 1ST	-3923	7105	7105	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
14220627	BONE SPRING 2ND	-4692	7874	7874	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
14220628	BONE SPRING 3RD	-5612	8794	8794	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 8813

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: 131H

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_20240716091743.pdf

BOP Diagram Attachment:

Ironhorse_35_Fed_5MBOP_20240716091746.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	3.33	1.72	DRY	3.05	DRY	2.69
4	PRODUCTION	8.75	5.5	NEW	API	N	0	9563	0	9194	3314	-5880	9563	P-110	17	OTHER - GEOCONN	1.56	1.63	DRY	2.13	DRY	2.13
5	PRODUCTION	7.875	5.5	NEW	API	N	9563	19818	9194	9194	-5880	-5880	10255	P-110	17	OTHER - GEOCONN	1.56	1.63	DRY	2.13	DRY	2.13

Casing Attachments

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 131H

Casing Attachments

Casing ID: 1StringSURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_Csg_Assump_20240716092016.pdf

Casing ID: 2StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_Csg_Assump_20240716092032.pdf

Casing ID: 3StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_Csg_Assump_20240716092040.pdf

Operator Name: COLGATE OPERATING LLC

Well Name: IRONHORSE 35 FED COM

Well Number: 131H

Casing Attachments

Casing ID: 4StringPRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_Csg_Assump_20240716092049.pdf

Casing ID: 5StringPRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Ironhorse_35_Fed_Csg_Assump_20240716092111.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: 131H

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	8813	860	2.41	11.5	2060	40	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
PRODUCTION	Tail		8813	19818	1430	1.73	12.5	2460	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	9563	OTHER : Fresh Water	9	10							
9563	19818	OIL-BASED MUD	9	10							

Operator Name: COLGATE OPERATING LLC**Well Name:** IRONHORSE 35 FED COM**Well Number:** 131H

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: 4790**Anticipated Surface Pressure:** 2767**Anticipated Bottom Hole Temperature(F):** 148**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_131H_PWP0_SVY_RPT_20240104141645.pdf

IRONHORSE_35_FED_131H_PWP0_AC_RPT_20240104141645.pdf

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

Ironhorse_35_Fed_MBS_20240716091948.pdf

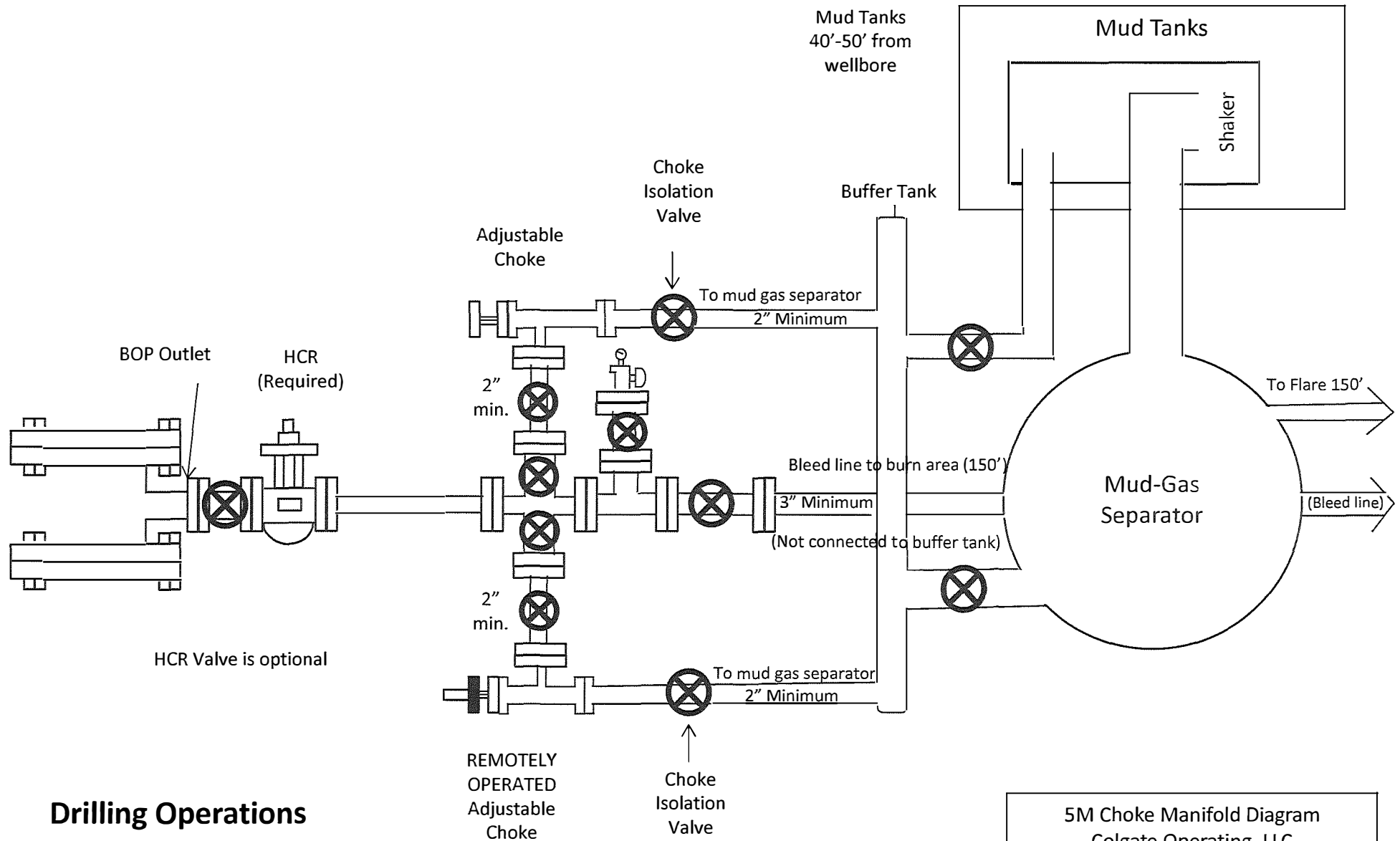
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Ironhorse_35_Fed_FH_20240716091948.pdf

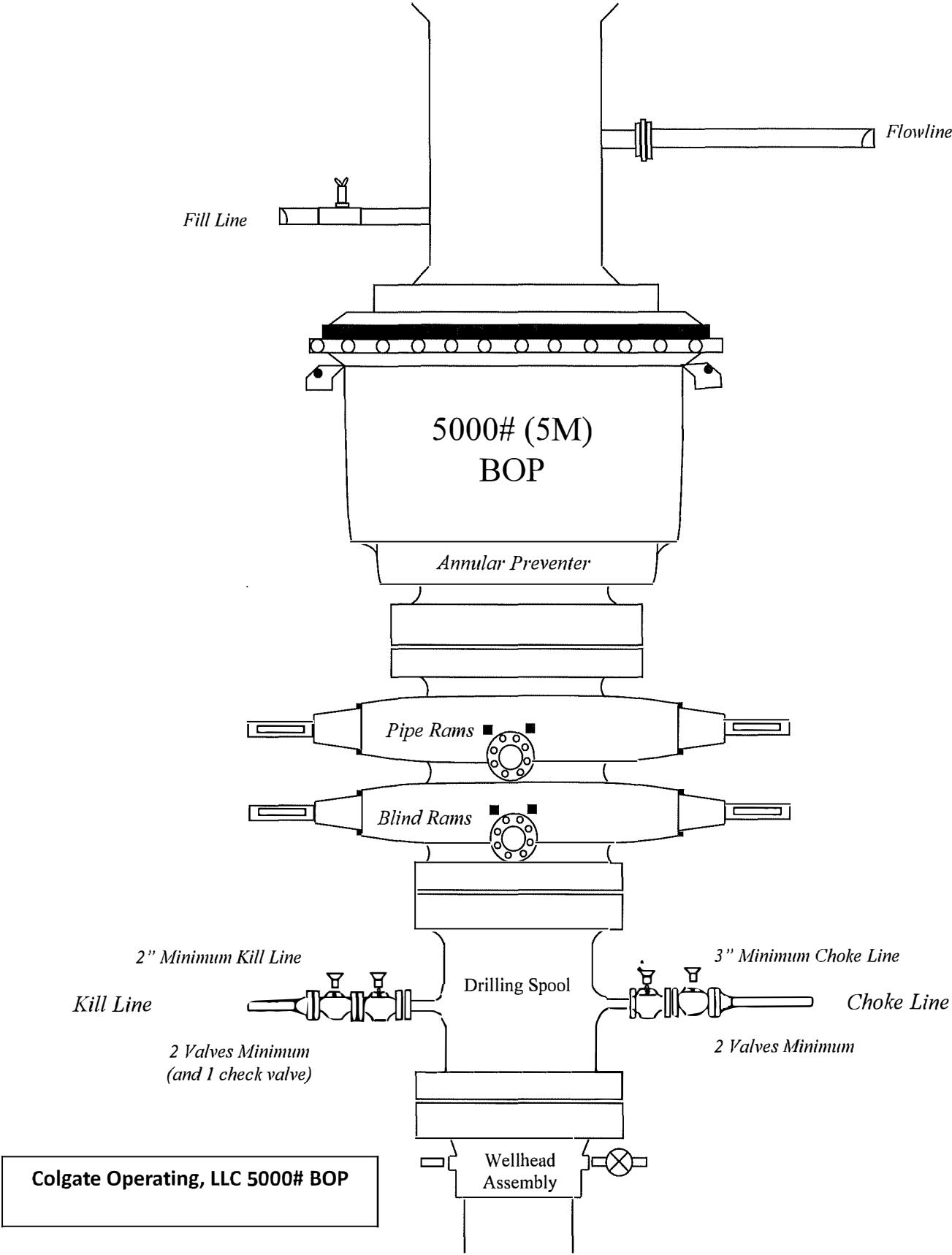
Ironhorse_35_Fed_OLCV_20240716091948.pdf

Ironhorse_35_Fed_Batch_20240716091948.pdf

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



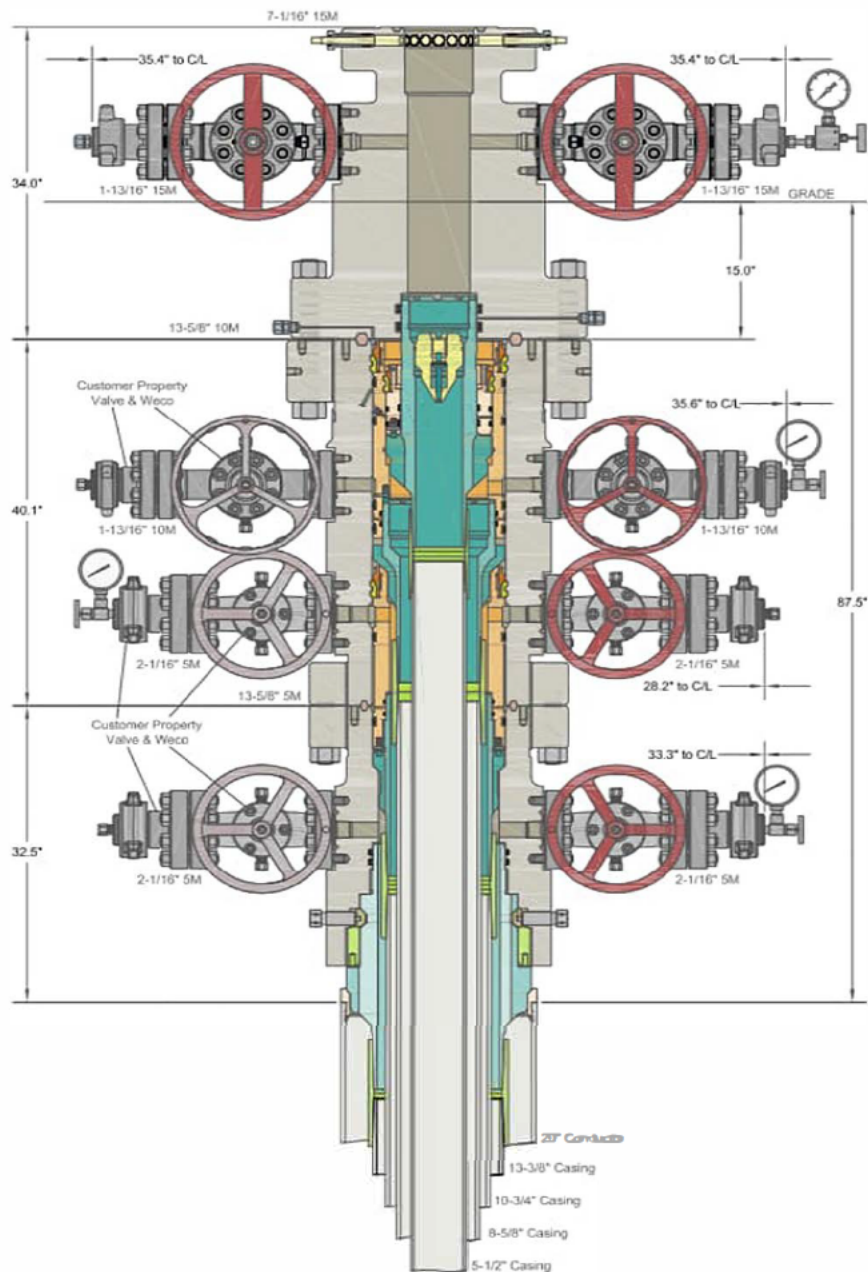
Drilling Operations
Choke Manifold
5M Service



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

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	3.33	1.72	Dry	3.05	Dry	2.69
Production	8.75	5.5	0	9563	0	9194	9563	P110RY	17	GeoConn	1.56	1.63	Dry	2.13	Dry	2.13
Production	7.875	5.5	9563	19818	9194	9194	10255	P110RY	17	GeoConn	1.56	1.63	Dry	2.13	Dry	2.13
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.

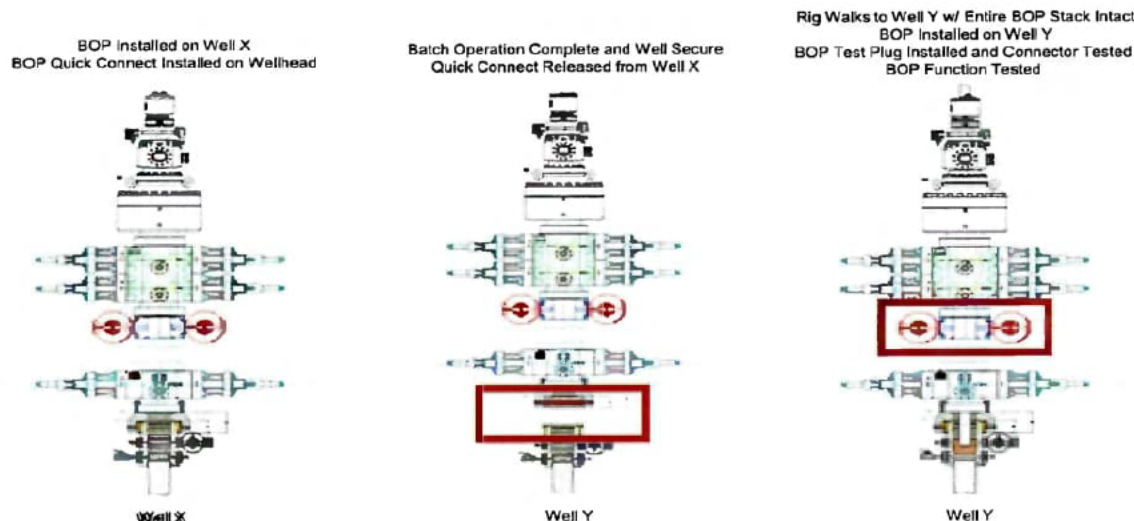
Break testing has been approved by the BLM in the past with other operators based on the detailed information provided in this document.

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.

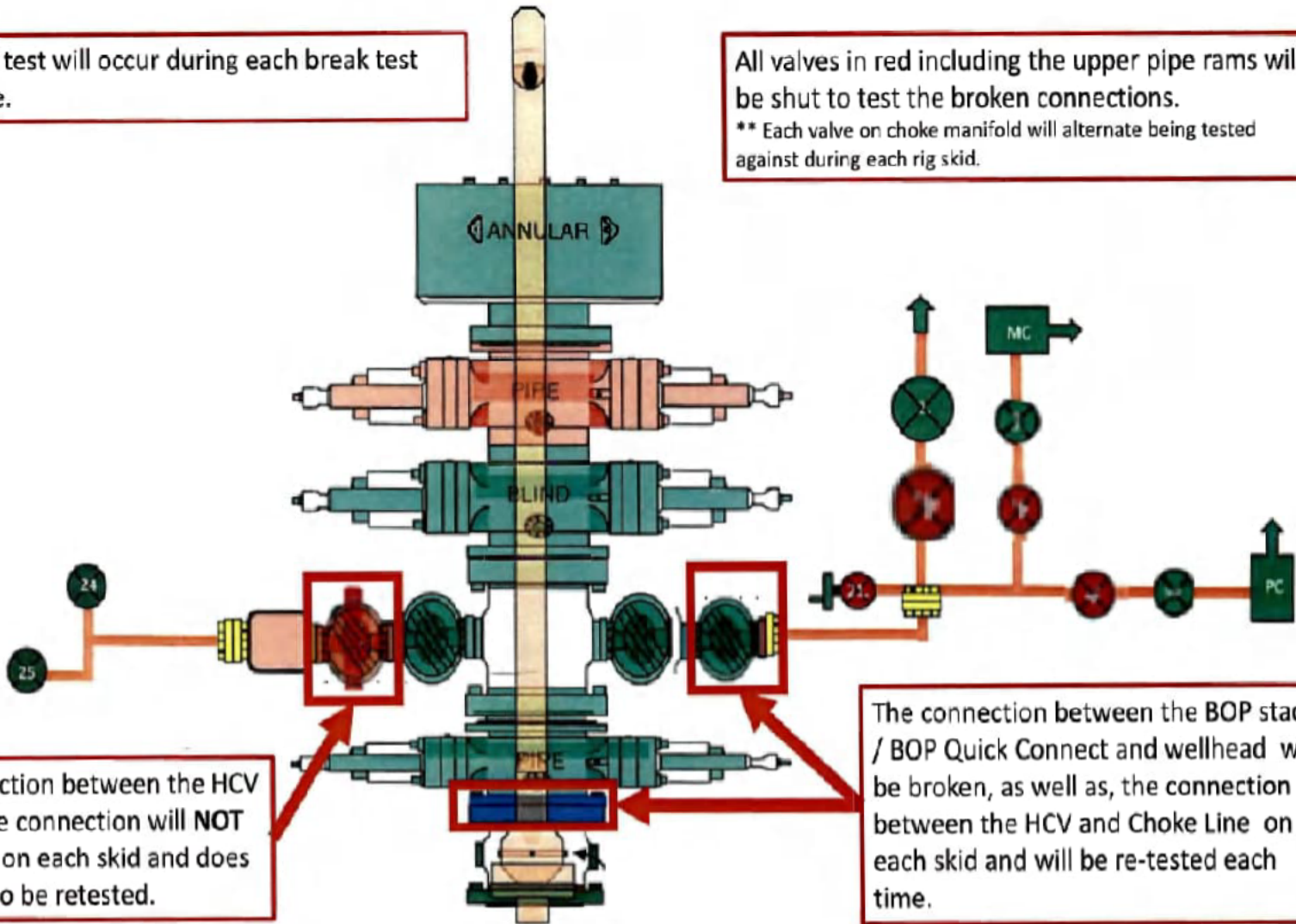
The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

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 Cégbírószék

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: COBADEFF250
 IBAN: DE4125040060306615600

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



Hydrostatic Test Certificate

ContiTech

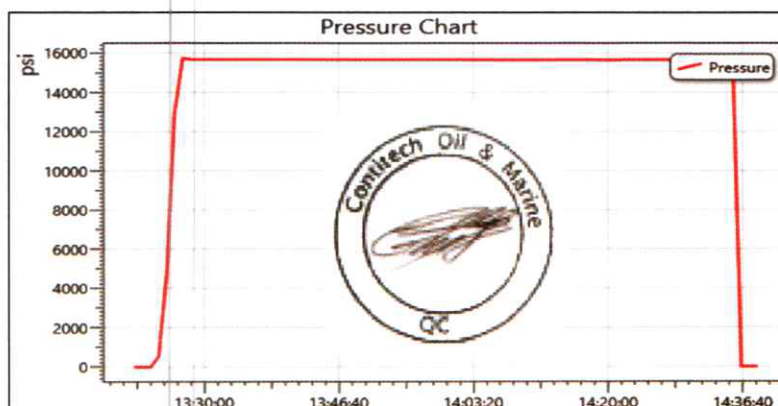
Certificate Number H100122	COM Order Reference 1388153	Customer Name & Address HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
Customer Purchase Order No: 740362040		
Project:		
Test Center Address ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	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

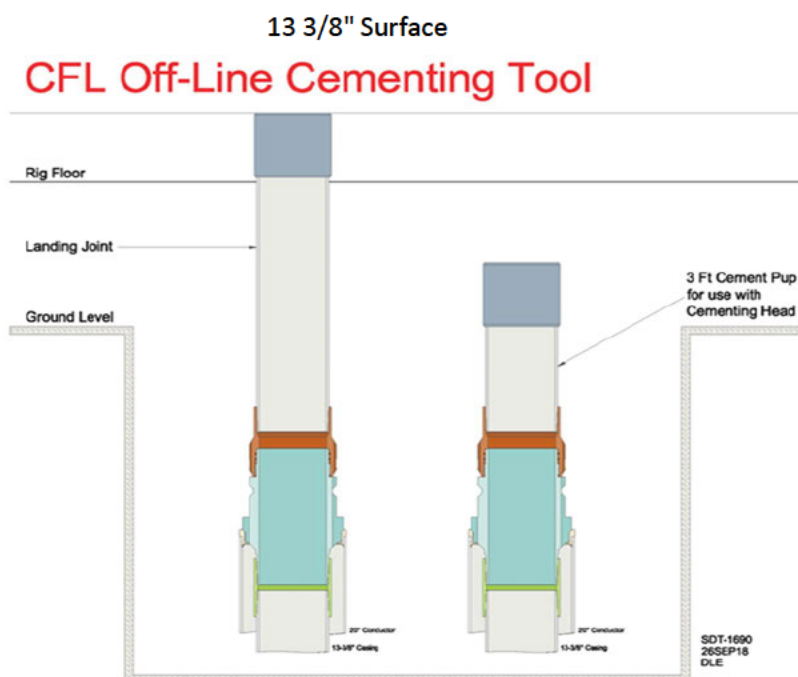
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MinValue	-3
AvgValue	14240
RecordName	67094-sh
RecordNumber	199

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

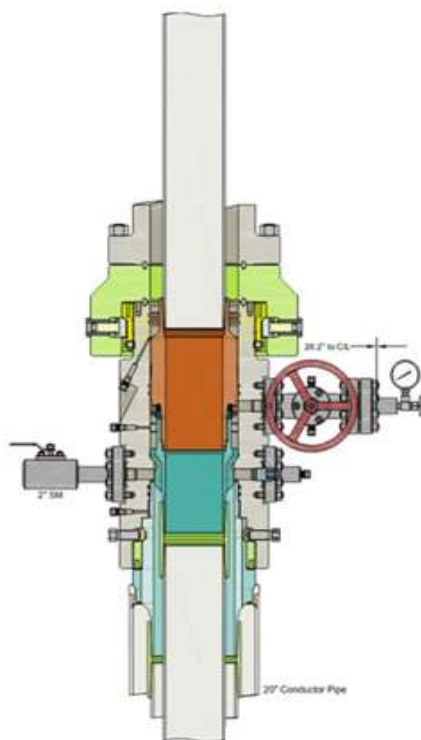


Colgate Operating Offline Cementing Procedure Surface & Intermediate Casing

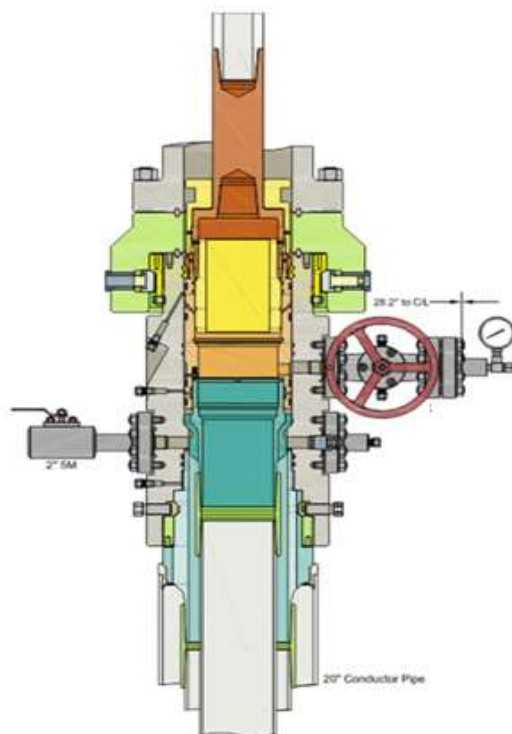
1. Drill hole to Total Depth with Rig and perform wellbore cleanup cycles.
2. Run and casing to Depth.
3. Land casing with mandrel.
4. Circulate 1.5 csg capacity.
5. Flow test – Confirm well is static and floats are holding.
6. Set Annular packoff and pressure test. Test to 5k.
7. Nipple down BOP and 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.



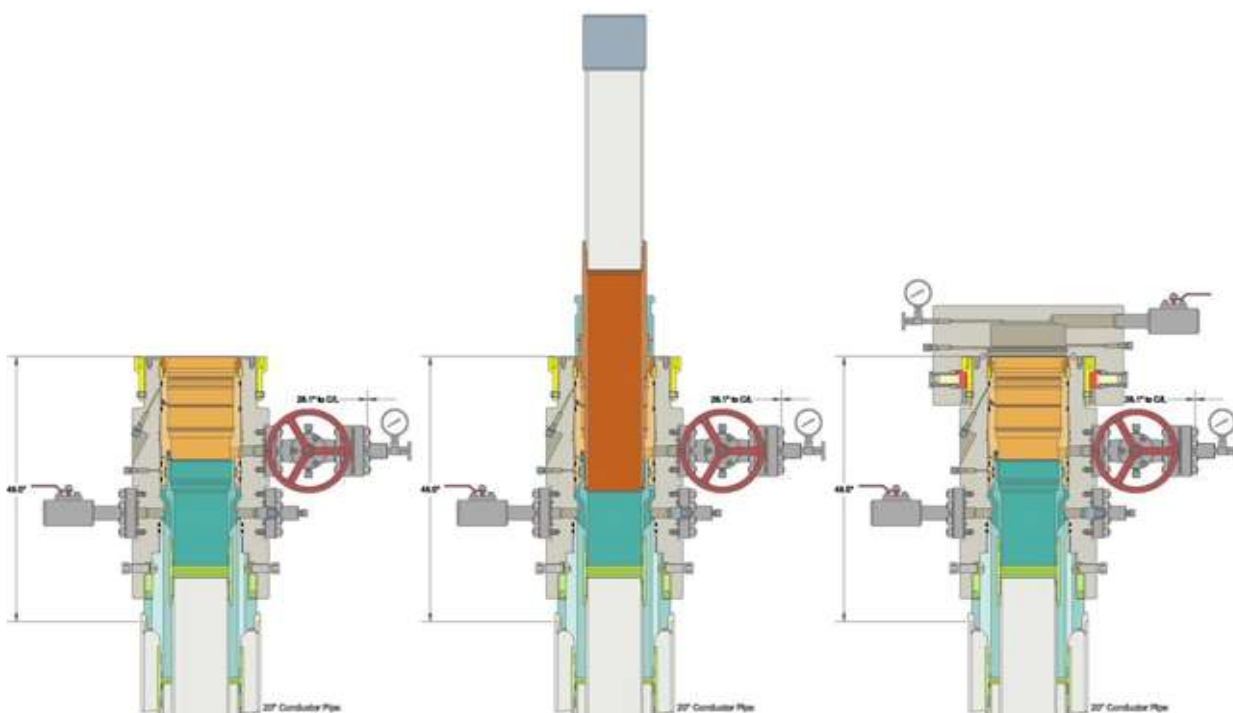
Intermediate



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.

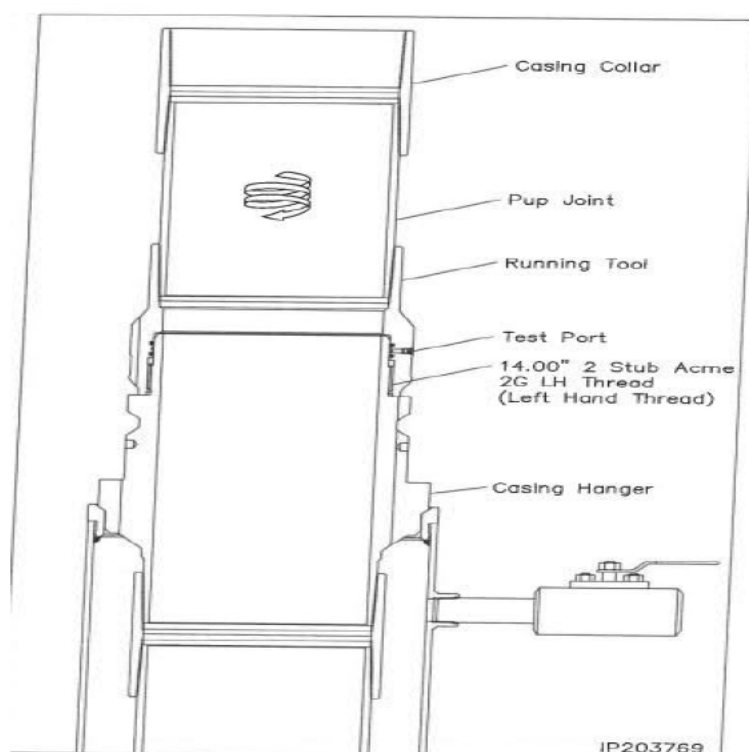


Illustration 1-1

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.

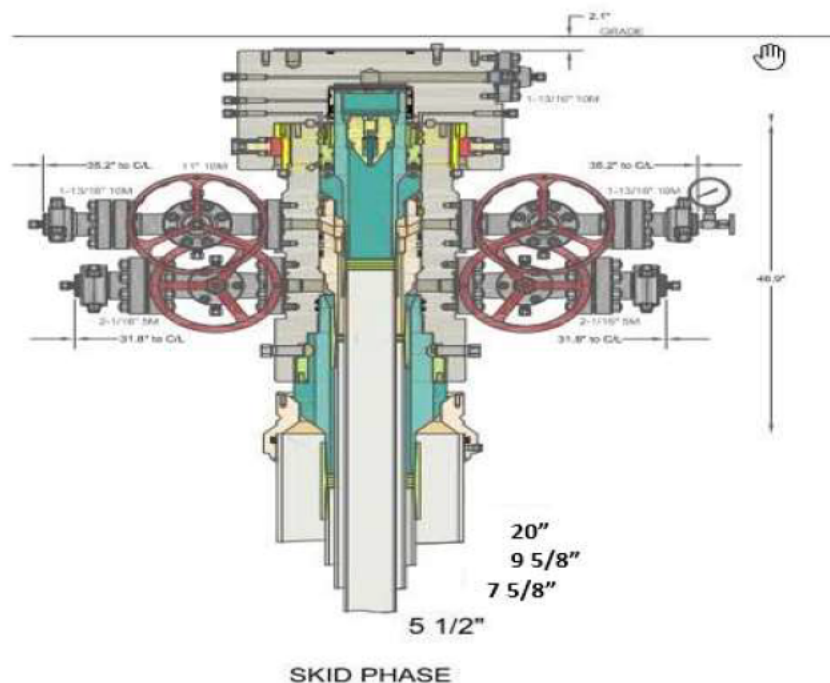


Illustration 2-2

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 Operating LLC
WELL NAME & NO.:	Ironhorse 35 Fed Com 131H
LOCATION:	Sec 34-19S-29E-NMP
COUNTY:	Eddy County, New Mexico ▼

COA

H ₂ S	☐ 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 131H

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 131H
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 131H	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 131H					
Well Position	+N/-S	0.0 usft	Northing:	589,715.60 usft	Latitude:	32° 37' 15.131 N
	+E/-W	0.0 usft	Easting:	627,097.90 usft	Longitude:	104° 3' 17.220 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	48,978.58062329

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 (°)
	0.0	0.0	0.0	85.13

Plan Survey Tool Program	Date	10/3/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	19,818.1 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	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,300.0	12.00	355.84	2,295.6	62.4	-4.5	2.00	2.00	0.00	355.84	
6,337.0	12.00	355.84	6,244.4	899.6	-65.5	0.00	0.00	0.00	0.00	
6,937.0	0.00	0.00	6,840.0	962.0	-70.0	2.00	-2.00	0.00	180.00	
8,813.5	0.00	0.00	8,716.5	962.0	-70.0	0.00	0.00	0.00	0.00	
9,563.5	90.00	90.28	9,194.0	959.6	407.5	12.00	12.00	12.04	90.28	
19,818.1	90.00	90.28	9,194.0	909.1	10,662.0	0.00	0.00	0.00	0.00	LTP/BHL_IRONHO

Colgate Operating Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
Grayburg - San Andres										
100.0	0.00	0.00	100.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
162.0	0.00	0.00	162.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
Rustler										
200.0	0.00	0.00	200.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
300.0	0.00	0.00	300.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
400.0	0.00	0.00	400.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
500.0	0.00	0.00	500.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
570.0	0.00	0.00	570.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
BYCN										
600.0	0.00	0.00	600.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
700.0	0.00	0.00	700.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
800.0	0.00	0.00	800.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
889.0	0.00	0.00	889.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
Salado										
900.0	0.00	0.00	900.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,254.0	0.00	0.00	1,254.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
Tansill										
1,300.0	0.00	0.00	1,300.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,404.0	0.00	0.00	1,404.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
Yates										
1,500.0	0.00	0.00	1,500.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,610.0	0.00	0.00	1,610.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
Seven Rivers										
1,700.0	0.00	0.00	1,700.0	0.0	0.0	589,715.60	627,097.90	32° 37' 15.131 N	104° 3' 17.220 W	
1,800.0	2.00	355.84	1,800.0	1.7	-0.1	589,717.34	627,097.78	32° 37' 15.148 N	104° 3' 17.221 W	
1,900.0	4.00	355.84	1,899.8	7.0	-0.5	589,722.56	627,097.40	32° 37' 15.200 N	104° 3' 17.226 W	
2,000.0	6.00	355.84	1,999.5	15.7	-1.1	589,731.26	627,096.77	32° 37' 15.286 N	104° 3' 17.233 W	
2,100.0	8.00	355.84	2,098.7	27.8	-2.0	589,743.41	627,095.88	32° 37' 15.406 N	104° 3' 17.243 W	
2,200.0	10.00	355.84	2,197.5	43.4	-3.2	589,759.01	627,094.75	32° 37' 15.561 N	104° 3' 17.256 W	
2,300.0	12.00	355.84	2,295.6	62.4	-4.5	589,778.04	627,093.36	32° 37' 15.749 N	104° 3' 17.271 W	
2,400.0	12.00	355.84	2,393.4	83.2	-6.1	589,798.78	627,091.85	32° 37' 15.954 N	104° 3' 17.288 W	
2,500.0	12.00	355.84	2,491.3	103.9	-7.6	589,819.51	627,090.34	32° 37' 16.159 N	104° 3' 17.305 W	
2,582.6	12.00	355.84	2,572.0	121.0	-8.8	589,836.63	627,089.10	32° 37' 16.329 N	104° 3' 17.319 W	
Queen										
2,600.0	12.00	355.84	2,589.1	124.6	-9.1	589,840.25	627,088.83	32° 37' 16.365 N	104° 3' 17.322 W	
2,700.0	12.00	355.84	2,686.9	145.4	-10.6	589,860.99	627,087.33	32° 37' 16.570 N	104° 3' 17.339 W	
2,789.1	12.00	355.84	2,774.0	163.9	-11.9	589,879.45	627,085.98	32° 37' 16.753 N	104° 3' 17.354 W	
Capitan										
2,800.0	12.00	355.84	2,784.7	166.1	-12.1	589,881.72	627,085.82	32° 37' 16.775 N	104° 3' 17.356 W	
2,900.0	12.00	355.84	2,882.5	186.9	-13.6	589,902.46	627,084.31	32° 37' 16.980 N	104° 3' 17.373 W	
3,000.0	12.00	355.84	2,980.3	207.6	-15.1	589,923.20	627,082.80	32° 37' 17.186 N	104° 3' 17.390 W	
3,100.0	12.00	355.84	3,078.1	228.3	-16.6	589,943.93	627,081.29	32° 37' 17.391 N	104° 3' 17.407 W	
3,200.0	12.00	355.84	3,176.0	249.1	-18.1	589,964.67	627,079.78	32° 37' 17.596 N	104° 3' 17.424 W	
3,300.0	12.00	355.84	3,273.8	269.8	-19.6	589,985.40	627,078.27	32° 37' 17.801 N	104° 3' 17.441 W	
3,400.0	12.00	355.84	3,371.6	290.5	-21.1	590,006.14	627,076.76	32° 37' 18.007 N	104° 3' 17.458 W	

Colgate Operating Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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	
3,439.3	12.00	355.84	3,410.0	298.7	-21.7	590,014.28	627,076.17	32° 37' 18.087 N	104° 3' 17.465 W	
Delaware Sands										
3,500.0	12.00	355.84	3,469.4	311.3	-22.6	590,026.88	627,075.25	32° 37' 18.212 N	104° 3' 17.475 W	
3,600.0	12.00	355.84	3,567.2	332.0	-24.2	590,047.61	627,073.75	32° 37' 18.417 N	104° 3' 17.492 W	
3,700.0	12.00	355.84	3,665.0	352.7	-25.7	590,068.35	627,072.24	32° 37' 18.622 N	104° 3' 17.509 W	
3,800.0	12.00	355.84	3,762.8	373.5	-27.2	590,089.09	627,070.73	32° 37' 18.827 N	104° 3' 17.526 W	
3,900.0	12.00	355.84	3,860.7	394.2	-28.7	590,109.82	627,069.22	32° 37' 19.033 N	104° 3' 17.543 W	
4,000.0	12.00	355.84	3,958.5	415.0	-30.2	590,130.56	627,067.71	32° 37' 19.238 N	104° 3' 17.560 W	
4,100.0	12.00	355.84	4,056.3	435.7	-31.7	590,151.29	627,066.20	32° 37' 19.443 N	104° 3' 17.577 W	
4,200.0	12.00	355.84	4,154.1	456.4	-33.2	590,172.03	627,064.69	32° 37' 19.648 N	104° 3' 17.594 W	
4,300.0	12.00	355.84	4,251.9	477.2	-34.7	590,192.77	627,063.18	32° 37' 19.854 N	104° 3' 17.611 W	
4,400.0	12.00	355.84	4,349.7	497.9	-36.2	590,213.50	627,061.67	32° 37' 20.059 N	104° 3' 17.628 W	
4,500.0	12.00	355.84	4,447.5	518.6	-37.7	590,234.24	627,060.17	32° 37' 20.264 N	104° 3' 17.645 W	
4,600.0	12.00	355.84	4,545.4	539.4	-39.2	590,254.98	627,058.66	32° 37' 20.469 N	104° 3' 17.662 W	
4,700.0	12.00	355.84	4,643.2	560.1	-40.8	590,275.71	627,057.15	32° 37' 20.675 N	104° 3' 17.679 W	
4,800.0	12.00	355.84	4,741.0	580.8	-42.3	590,296.45	627,055.64	32° 37' 20.880 N	104° 3' 17.696 W	
4,900.0	12.00	355.84	4,838.8	601.6	-43.8	590,317.19	627,054.13	32° 37' 21.085 N	104° 3' 17.713 W	
5,000.0	12.00	355.84	4,936.6	622.3	-45.3	590,337.92	627,052.62	32° 37' 21.290 N	104° 3' 17.730 W	
5,100.0	12.00	355.84	5,034.4	643.1	-46.8	590,358.66	627,051.11	32° 37' 21.495 N	104° 3' 17.747 W	
5,200.0	12.00	355.84	5,132.3	663.8	-48.3	590,379.39	627,049.60	32° 37' 21.701 N	104° 3' 17.764 W	
5,300.0	12.00	355.84	5,230.1	684.5	-49.8	590,400.13	627,048.09	32° 37' 21.906 N	104° 3' 17.781 W	
5,400.0	12.00	355.84	5,327.9	705.3	-51.3	590,420.87	627,046.59	32° 37' 22.111 N	104° 3' 17.798 W	
5,500.0	12.00	355.84	5,425.7	726.0	-52.8	590,441.60	627,045.08	32° 37' 22.316 N	104° 3' 17.815 W	
5,600.0	12.00	355.84	5,523.5	746.7	-54.3	590,462.34	627,043.57	32° 37' 22.522 N	104° 3' 17.832 W	
5,700.0	12.00	355.84	5,621.3	767.5	-55.8	590,483.08	627,042.06	32° 37' 22.727 N	104° 3' 17.849 W	
5,788.6	12.00	355.84	5,708.0	785.8	-57.2	590,501.45	627,040.72	32° 37' 22.909 N	104° 3' 17.865 W	
Bone Spring										
5,800.0	12.00	355.84	5,719.1	788.2	-57.4	590,503.81	627,040.55	32° 37' 22.932 N	104° 3' 17.866 W	
5,900.0	12.00	355.84	5,817.0	808.9	-58.9	590,524.55	627,039.04	32° 37' 23.137 N	104° 3' 17.883 W	
6,000.0	12.00	355.84	5,914.8	829.7	-60.4	590,545.29	627,037.53	32° 37' 23.343 N	104° 3' 17.901 W	
6,100.0	12.00	355.84	6,012.6	850.4	-61.9	590,566.02	627,036.02	32° 37' 23.548 N	104° 3' 17.918 W	
6,200.0	12.00	355.84	6,110.4	871.2	-63.4	590,586.76	627,034.51	32° 37' 23.753 N	104° 3' 17.935 W	
6,300.0	12.00	355.84	6,208.2	891.9	-64.9	590,607.49	627,033.01	32° 37' 23.958 N	104° 3' 17.952 W	
6,337.0	12.00	355.84	6,244.4	899.6	-65.5	590,615.17	627,032.45	32° 37' 24.034 N	104° 3' 17.958 W	
6,400.0	10.74	355.84	6,306.2	912.0	-66.4	590,627.55	627,031.55	32° 37' 24.157 N	104° 3' 17.968 W	
6,500.0	8.74	355.84	6,404.7	928.8	-67.6	590,644.43	627,030.32	32° 37' 24.324 N	104° 3' 17.982 W	
6,600.0	6.74	355.84	6,503.8	942.3	-68.6	590,657.86	627,029.34	32° 37' 24.457 N	104° 3' 17.993 W	
6,700.0	4.74	355.84	6,603.3	952.2	-69.3	590,667.83	627,028.62	32° 37' 24.555 N	104° 3' 18.001 W	
6,800.0	2.74	355.84	6,703.1	958.7	-69.8	590,674.34	627,028.14	32° 37' 24.620 N	104° 3' 18.006 W	
6,900.0	0.74	355.84	6,803.0	961.8	-70.0	590,677.36	627,027.92	32° 37' 24.650 N	104° 3' 18.009 W	
6,937.0	0.00	0.00	6,840.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,000.0	0.00	0.00	6,903.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,100.0	0.00	0.00	7,003.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,200.0	0.00	0.00	7,103.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,202.0	0.00	0.00	7,105.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
FBSG										
7,300.0	0.00	0.00	7,203.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,400.0	0.00	0.00	7,303.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,500.0	0.00	0.00	7,403.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,600.0	0.00	0.00	7,503.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,700.0	0.00	0.00	7,603.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,800.0	0.00	0.00	7,703.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
7,900.0	0.00	0.00	7,803.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	

Colgate Operating Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWPO		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
7,971.0	0.00	0.00	7,874.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
SBSG										
8,000.0	0.00	0.00	7,903.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,100.0	0.00	0.00	8,003.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,200.0	0.00	0.00	8,103.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,300.0	0.00	0.00	8,203.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,400.0	0.00	0.00	8,303.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,500.0	0.00	0.00	8,403.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,600.0	0.00	0.00	8,503.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,700.0	0.00	0.00	8,603.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,800.0	0.00	0.00	8,703.0	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,813.5	0.00	0.00	8,716.5	962.0	-70.0	590,677.60	627,027.90	32° 37' 24.652 N	104° 3' 18.009 W	
8,891.3	9.34	90.28	8,794.0	962.0	-63.7	590,677.57	627,034.24	32° 37' 24.652 N	104° 3' 17.935 W	
TBSG										
8,900.0	10.38	90.28	8,802.6	962.0	-62.2	590,677.56	627,035.72	32° 37' 24.652 N	104° 3' 17.918 W	
9,000.0	22.38	90.28	8,898.3	961.8	-34.0	590,677.43	627,063.88	32° 37' 24.649 N	104° 3' 17.588 W	
9,100.0	34.38	90.28	8,986.1	961.6	13.4	590,677.19	627,111.33	32° 37' 24.646 N	104° 3' 17.034 W	
9,200.0	46.38	90.28	9,062.2	961.3	78.1	590,676.87	627,176.00	32° 37' 24.641 N	104° 3' 16.277 W	
9,300.0	58.38	90.28	9,123.1	960.9	157.2	590,676.48	627,255.06	32° 37' 24.635 N	104° 3' 15.353 W	
9,400.0	70.38	90.28	9,166.3	960.4	247.2	590,676.04	627,345.07	32° 37' 24.628 N	104° 3' 14.300 W	
9,500.0	82.38	90.28	9,189.8	960.0	344.2	590,675.56	627,442.08	32° 37' 24.621 N	104° 3' 13.166 W	
9,563.5	90.00	90.28	9,194.0	959.6	407.5	590,675.25	627,505.36	32° 37' 24.616 N	104° 3' 12.426 W	
9,600.0	90.00	90.28	9,194.0	959.5	444.0	590,675.07	627,541.89	32° 37' 24.614 N	104° 3' 11.999 W	
9,700.0	90.00	90.28	9,194.0	959.0	544.0	590,674.58	627,641.89	32° 37' 24.606 N	104° 3' 10.830 W	
9,800.0	90.00	90.28	9,194.0	958.5	644.0	590,674.08	627,741.89	32° 37' 24.599 N	104° 3' 9.660 W	
9,900.0	90.00	90.28	9,194.0	958.0	744.0	590,673.59	627,841.89	32° 37' 24.591 N	104° 3' 8.491 W	
10,000.0	90.00	90.28	9,194.0	957.5	844.0	590,673.10	627,941.89	32° 37' 24.584 N	104° 3' 7.322 W	
10,100.0	90.00	90.28	9,194.0	957.0	944.0	590,672.61	628,041.88	32° 37' 24.576 N	104° 3' 6.153 W	
10,200.0	90.00	90.28	9,194.0	956.5	1,044.0	590,672.11	628,141.88	32° 37' 24.569 N	104° 3' 4.983 W	
10,300.0	90.00	90.28	9,194.0	956.0	1,144.0	590,671.62	628,241.88	32° 37' 24.561 N	104° 3' 3.814 W	
10,400.0	90.00	90.28	9,194.0	955.5	1,244.0	590,671.13	628,341.88	32° 37' 24.554 N	104° 3' 2.645 W	
10,500.0	90.00	90.28	9,194.0	955.0	1,344.0	590,670.63	628,441.88	32° 37' 24.546 N	104° 3' 1.476 W	
10,600.0	90.00	90.28	9,194.0	954.5	1,444.0	590,670.14	628,541.88	32° 37' 24.539 N	104° 3' 0.306 W	
10,700.0	90.00	90.28	9,194.0	954.0	1,544.0	590,669.65	628,641.88	32° 37' 24.531 N	104° 2' 59.137 W	
10,800.0	90.00	90.28	9,194.0	953.6	1,644.0	590,669.15	628,741.88	32° 37' 24.524 N	104° 2' 57.968 W	
10,900.0	90.00	90.28	9,194.0	953.1	1,744.0	590,668.66	628,841.88	32° 37' 24.516 N	104° 2' 56.798 W	
11,000.0	90.00	90.28	9,194.0	952.6	1,844.0	590,668.17	628,941.87	32° 37' 24.509 N	104° 2' 55.629 W	
11,100.0	90.00	90.28	9,194.0	952.1	1,944.0	590,667.68	629,041.87	32° 37' 24.501 N	104° 2' 54.460 W	
11,200.0	90.00	90.28	9,194.0	951.6	2,044.0	590,667.18	629,141.87	32° 37' 24.494 N	104° 2' 53.291 W	
11,300.0	90.00	90.28	9,194.0	951.1	2,144.0	590,666.69	629,241.87	32° 37' 24.486 N	104° 2' 52.121 W	
11,400.0	90.00	90.28	9,194.0	950.6	2,244.0	590,666.20	629,341.87	32° 37' 24.479 N	104° 2' 50.952 W	
11,500.0	90.00	90.28	9,194.0	950.1	2,344.0	590,665.70	629,441.87	32° 37' 24.471 N	104° 2' 49.783 W	
11,600.0	90.00	90.28	9,194.0	949.6	2,444.0	590,665.21	629,541.87	32° 37' 24.463 N	104° 2' 48.614 W	
11,700.0	90.00	90.28	9,194.0	949.1	2,544.0	590,664.72	629,641.87	32° 37' 24.456 N	104° 2' 47.444 W	
11,800.0	90.00	90.28	9,194.0	948.6	2,644.0	590,664.23	629,741.86	32° 37' 24.448 N	104° 2' 46.275 W	
11,900.0	90.00	90.28	9,194.0	948.1	2,744.0	590,663.73	629,841.86	32° 37' 24.441 N	104° 2' 45.106 W	
12,000.0	90.00	90.28	9,194.0	947.6	2,844.0	590,663.24	629,941.86	32° 37' 24.433 N	104° 2' 43.936 W	
12,100.0	90.00	90.28	9,194.0	947.1	2,944.0	590,662.75	630,041.86	32° 37' 24.426 N	104° 2' 42.767 W	
12,200.0	90.00	90.28	9,194.0	946.7	3,044.0	590,662.25	630,141.86	32° 37' 24.418 N	104° 2' 41.598 W	
12,300.0	90.00	90.28	9,194.0	946.2	3,144.0	590,661.76	630,241.86	32° 37' 24.411 N	104° 2' 40.429 W	
12,400.0	90.00	90.28	9,194.0	945.7	3,244.0	590,661.27	630,341.86	32° 37' 24.403 N	104° 2' 39.259 W	
12,500.0	90.00	90.28	9,194.0	945.2	3,344.0	590,660.78	630,441.86	32° 37' 24.395 N	104° 2' 38.090 W	
12,600.0	90.00	90.28	9,194.0	944.7	3,444.0	590,660.28	630,541.85	32° 37' 24.388 N	104° 2' 36.921 W	
12,700.0	90.00	90.28	9,194.0	944.2	3,543.9	590,659.79	630,641.85	32° 37' 24.380 N	104° 2' 35.752 W	

Colgate Operating Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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	
12,800.0	90.00	90.28	9,194.0	943.7	3,643.9	590,659.30	630,741.85	32° 37' 24.373 N	104° 2' 34.582 W	
12,900.0	90.00	90.28	9,194.0	943.2	3,743.9	590,658.80	630,841.85	32° 37' 24.365 N	104° 2' 33.413 W	
13,000.0	90.00	90.28	9,194.0	942.7	3,843.9	590,658.31	630,941.85	32° 37' 24.358 N	104° 2' 32.244 W	
13,100.0	90.00	90.28	9,194.0	942.2	3,943.9	590,657.82	631,041.85	32° 37' 24.350 N	104° 2' 31.075 W	
13,200.0	90.00	90.28	9,194.0	941.7	4,043.9	590,657.32	631,141.85	32° 37' 24.342 N	104° 2' 29.905 W	
13,300.0	90.00	90.28	9,194.0	941.2	4,143.9	590,656.83	631,241.85	32° 37' 24.335 N	104° 2' 28.736 W	
13,400.0	90.00	90.28	9,194.0	940.7	4,243.9	590,656.34	631,341.84	32° 37' 24.327 N	104° 2' 27.567 W	
13,500.0	90.00	90.28	9,194.0	940.2	4,343.9	590,655.85	631,441.84	32° 37' 24.320 N	104° 2' 26.397 W	
13,600.0	90.00	90.28	9,194.0	939.7	4,443.9	590,655.35	631,541.84	32° 37' 24.312 N	104° 2' 25.228 W	
13,700.0	90.00	90.28	9,194.0	939.3	4,543.9	590,654.86	631,641.84	32° 37' 24.304 N	104° 2' 24.059 W	
13,800.0	90.00	90.28	9,194.0	938.8	4,643.9	590,654.37	631,741.84	32° 37' 24.297 N	104° 2' 22.890 W	
13,900.0	90.00	90.28	9,194.0	938.3	4,743.9	590,653.87	631,841.84	32° 37' 24.289 N	104° 2' 21.720 W	
14,000.0	90.00	90.28	9,194.0	937.8	4,843.9	590,653.38	631,941.84	32° 37' 24.281 N	104° 2' 20.551 W	
14,100.0	90.00	90.28	9,194.0	937.3	4,943.9	590,652.89	632,041.84	32° 37' 24.274 N	104° 2' 19.382 W	
14,200.0	90.00	90.28	9,194.0	936.8	5,043.9	590,652.40	632,141.84	32° 37' 24.266 N	104° 2' 18.213 W	
14,300.0	90.00	90.28	9,194.0	936.3	5,143.9	590,651.90	632,241.83	32° 37' 24.259 N	104° 2' 17.043 W	
14,400.0	90.00	90.28	9,194.0	935.8	5,243.9	590,651.41	632,341.83	32° 37' 24.251 N	104° 2' 15.874 W	
14,500.0	90.00	90.28	9,194.0	935.3	5,343.9	590,650.92	632,441.83	32° 37' 24.243 N	104° 2' 14.705 W	
14,600.0	90.00	90.28	9,194.0	934.8	5,443.9	590,650.42	632,541.83	32° 37' 24.236 N	104° 2' 13.535 W	
14,700.0	90.00	90.28	9,194.0	934.3	5,543.9	590,649.93	632,641.83	32° 37' 24.228 N	104° 2' 12.366 W	
14,800.0	90.00	90.28	9,194.0	933.8	5,643.9	590,649.44	632,741.83	32° 37' 24.220 N	104° 2' 11.197 W	
14,900.0	90.00	90.28	9,194.0	933.3	5,743.9	590,648.95	632,841.83	32° 37' 24.213 N	104° 2' 10.028 W	
15,000.0	90.00	90.28	9,194.0	932.8	5,843.9	590,648.45	632,941.83	32° 37' 24.205 N	104° 2' 8.858 W	
15,100.0	90.00	90.28	9,194.0	932.4	5,943.9	590,647.96	633,041.82	32° 37' 24.198 N	104° 2' 7.689 W	
15,200.0	90.00	90.28	9,194.0	931.9	6,043.9	590,647.47	633,141.82	32° 37' 24.190 N	104° 2' 6.520 W	
15,300.0	90.00	90.28	9,194.0	931.4	6,143.9	590,646.97	633,241.82	32° 37' 24.182 N	104° 2' 5.351 W	
15,400.0	90.00	90.28	9,194.0	930.9	6,243.9	590,646.48	633,341.82	32° 37' 24.175 N	104° 2' 4.181 W	
15,500.0	90.00	90.28	9,194.0	930.4	6,343.9	590,645.99	633,441.82	32° 37' 24.167 N	104° 2' 3.012 W	
15,600.0	90.00	90.28	9,194.0	929.9	6,443.9	590,645.49	633,541.82	32° 37' 24.159 N	104° 2' 1.843 W	
15,700.0	90.00	90.28	9,194.0	929.4	6,543.9	590,645.00	633,641.82	32° 37' 24.152 N	104° 2' 0.673 W	
15,800.0	90.00	90.28	9,194.0	928.9	6,643.9	590,644.51	633,741.82	32° 37' 24.144 N	104° 1' 59.504 W	
15,900.0	90.00	90.28	9,194.0	928.4	6,743.9	590,644.02	633,841.81	32° 37' 24.136 N	104° 1' 58.335 W	
16,000.0	90.00	90.28	9,194.0	927.9	6,843.9	590,643.52	633,941.81	32° 37' 24.129 N	104° 1' 57.166 W	
16,100.0	90.00	90.28	9,194.0	927.4	6,943.9	590,643.03	634,041.81	32° 37' 24.121 N	104° 1' 55.996 W	
16,200.0	90.00	90.28	9,194.0	926.9	7,043.9	590,642.54	634,141.81	32° 37' 24.113 N	104° 1' 54.827 W	
16,300.0	90.00	90.28	9,194.0	926.4	7,143.9	590,642.04	634,241.81	32° 37' 24.105 N	104° 1' 53.658 W	
16,400.0	90.00	90.28	9,194.0	925.9	7,243.9	590,641.55	634,341.81	32° 37' 24.098 N	104° 1' 52.489 W	
16,500.0	90.00	90.28	9,194.0	925.5	7,343.9	590,641.06	634,441.81	32° 37' 24.090 N	104° 1' 51.319 W	
16,600.0	90.00	90.28	9,194.0	925.0	7,443.9	590,640.57	634,541.81	32° 37' 24.082 N	104° 1' 50.150 W	
16,700.0	90.00	90.28	9,194.0	924.5	7,543.9	590,640.07	634,641.80	32° 37' 24.075 N	104° 1' 48.981 W	
16,800.0	90.00	90.28	9,194.0	924.0	7,643.9	590,639.58	634,741.80	32° 37' 24.067 N	104° 1' 47.812 W	
16,900.0	90.00	90.28	9,194.0	923.5	7,743.9	590,639.09	634,841.80	32° 37' 24.059 N	104° 1' 46.642 W	
17,000.0	90.00	90.28	9,194.0	923.0	7,843.9	590,638.59	634,941.80	32° 37' 24.052 N	104° 1' 45.473 W	
17,100.0	90.00	90.28	9,194.0	922.5	7,943.9	590,638.10	635,041.80	32° 37' 24.044 N	104° 1' 44.304 W	
17,200.0	90.00	90.28	9,194.0	922.0	8,043.9	590,637.61	635,141.80	32° 37' 24.036 N	104° 1' 43.134 W	
17,300.0	90.00	90.28	9,194.0	921.5	8,143.9	590,637.12	635,241.80	32° 37' 24.028 N	104° 1' 41.965 W	
17,400.0	90.00	90.28	9,194.0	921.0	8,243.9	590,636.62	635,341.80	32° 37' 24.021 N	104° 1' 40.796 W	
17,500.0	90.00	90.28	9,194.0	920.5	8,343.9	590,636.13	635,441.80	32° 37' 24.013 N	104° 1' 39.627 W	
17,600.0	90.00	90.28	9,194.0	920.0	8,443.9	590,635.64	635,541.79	32° 37' 24.005 N	104° 1' 38.457 W	
17,700.0	90.00	90.28	9,194.0	919.5	8,543.9	590,635.14	635,641.79	32° 37' 23.998 N	104° 1' 37.288 W	
17,800.0	90.00	90.28	9,194.0	919.0	8,643.9	590,634.65	635,741.79	32° 37' 23.990 N	104° 1' 36.119 W	
17,900.0	90.00	90.28	9,194.0	918.6	8,743.9	590,634.16	635,841.79	32° 37' 23.982 N	104° 1' 34.950 W	
18,000.0	90.00	90.28	9,194.0	918.1	8,843.9	590,633.67	635,941.79	32° 37' 23.974 N	104° 1' 33.780 W	
18,100.0	90.00	90.28	9,194.0	917.6	8,943.9	590,633.17	636,041.79	32° 37' 23.967 N	104° 1' 32.611 W	
18,200.0	90.00	90.28	9,194.0	917.1	9,043.9	590,632.68	636,141.79	32° 37' 23.959 N	104° 1' 31.442 W	

Colgate Operating

Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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	
18,300.0	90.00	90.28	9,194.0	916.6	9,143.9	590,632.19	636,241.79	32° 37' 23.951 N	104° 1' 30.273 W	
18,400.0	90.00	90.28	9,194.0	916.1	9,243.9	590,631.69	636,341.78	32° 37' 23.943 N	104° 1' 29.103 W	
18,500.0	90.00	90.28	9,194.0	915.6	9,343.9	590,631.20	636,441.78	32° 37' 23.936 N	104° 1' 27.934 W	
18,600.0	90.00	90.28	9,194.0	915.1	9,443.9	590,630.71	636,541.78	32° 37' 23.928 N	104° 1' 26.765 W	
18,700.0	90.00	90.28	9,194.0	914.6	9,543.9	590,630.21	636,641.78	32° 37' 23.920 N	104° 1' 25.595 W	
18,800.0	90.00	90.28	9,194.0	914.1	9,643.9	590,629.72	636,741.78	32° 37' 23.912 N	104° 1' 24.426 W	
18,900.0	90.00	90.28	9,194.0	913.6	9,743.9	590,629.23	636,841.78	32° 37' 23.905 N	104° 1' 23.257 W	
19,000.0	90.00	90.28	9,194.0	913.1	9,843.9	590,628.74	636,941.78	32° 37' 23.897 N	104° 1' 22.088 W	
19,100.0	90.00	90.28	9,194.0	912.6	9,943.9	590,628.24	637,041.78	32° 37' 23.889 N	104° 1' 20.918 W	
19,200.0	90.00	90.28	9,194.0	912.1	10,043.9	590,627.75	637,141.77	32° 37' 23.881 N	104° 1' 19.749 W	
19,300.0	90.00	90.28	9,194.0	911.7	10,143.9	590,627.26	637,241.77	32° 37' 23.874 N	104° 1' 18.580 W	
19,400.0	90.00	90.28	9,194.0	911.2	10,243.9	590,626.76	637,341.77	32° 37' 23.866 N	104° 1' 17.411 W	
19,500.0	90.00	90.28	9,194.0	910.7	10,343.9	590,626.27	637,441.77	32° 37' 23.858 N	104° 1' 16.241 W	
19,600.0	90.00	90.28	9,194.0	910.2	10,443.9	590,625.78	637,541.77	32° 37' 23.850 N	104° 1' 15.072 W	
19,700.0	90.00	90.28	9,194.0	909.7	10,543.9	590,625.29	637,641.77	32° 37' 23.842 N	104° 1' 13.903 W	
19,800.0	90.00	90.28	9,194.0	909.2	10,643.9	590,624.79	637,741.77	32° 37' 23.835 N	104° 1' 12.734 W	
19,818.1	90.00	90.28	9,194.0	909.1	10,662.0	590,624.70	637,759.90	32° 37' 23.833 N	104° 1' 12.521 W	

Design Targets										
Target Name										
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
LTP/BHL_IRONHORS	0.00	0.00	9,194.0	909.1	10,662.0	590,624.70	637,759.90	32° 37' 23.833 N	104° 1' 12.521 W	
- plan hits target center										
- Point										
FTP_IRONHORSE 35	0.00	0.00	9,194.0	958.9	297.9	590,674.53	627,395.82	32° 37' 24.612 N	104° 3' 13.707 W	
- plan misses target center by 12.5usft at 9456.0usft MD (9181.9 TVD, 960.2 N, 300.9 E)										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.0	0.0	Grayburg				
0.0	0.0	San Andres				
162.0	162.0	Rustler				
570.0	570.0	BYCN				
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				
2,582.6	2,572.0	Queen				
2,789.1	2,774.0	Capitan				
3,439.3	3,410.0	Delaware Sands				
5,788.6	5,708.0	Bone Spring				
7,202.0	7,105.0	FBSG				
7,971.0	7,874.0	SBSG				
8,891.3	8,794.0	TBSG				

Colgate Operating
Planning Report - Geographic

Database:	Compass	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,700.0	1,700.0	0.0	0.0	Start Build 2.00
2,300.0	2,295.6	62.4	-4.5	Start 4037.0 hold at 2300.0 MD
6,337.0	6,244.4	899.6	-65.5	Start Drop -2.00
6,937.0	6,840.0	962.0	-70.0	Start 1876.5 hold at 6937.0 MD
8,813.5	8,716.5	962.0	-70.0	Start DLS 12.00 TFO 90.28
9,563.5	9,194.0	959.6	407.5	Start 10254.7 hold at 9563.5 MD
19,818.1	9,194.0	909.1	10,662.0	TD at 19818.1

NEW MEXICO

(SP) EDDY

IRONHORSE 35-36 FED STATE

IRONHORSE 35 FED 131H

OWB

PWP0

Anticollision Report

03 October, 2023

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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	19,818.1	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	1,634.7	1,637.2	66.3	54.9	5.849	CC, ES
Black Diamond 34 Fed Com 122H - AWP - FINAL MWD	1,800.0	1,800.7	71.0	58.6	5.694	SF
Black Diamond 34 Fed Com 131H - AWP - FINAL MWD	2,462.7	2,461.1	26.8	9.5	1.551	CC, ES, SF
Black Diamond 34 Fed Com 132H - AWP - FINAL MWD	1,726.0	1,727.8	136.9	124.9	11.440	CC, ES
Black Diamond 34 Fed Com 132H - AWP - FINAL MWD	1,900.0	1,893.7	144.9	131.7	11.004	SF
IRONHORSE 35 FED 132H - OWB - PWP0	1,700.0	1,700.0	66.0	54.3	5.630	CC, ES
IRONHORSE 35 FED 132H - OWB - PWP0	19,818.1	19,838.1	1,320.0	798.6	2.532	SF
IRONHORSE 35 FED 172H - OWB - PWP0	1,700.0	1,700.0	165.0	153.3	14.076	CC, ES
IRONHORSE 35 FED 172H - OWB - PWP0	19,818.1	19,221.8	2,060.4	1,559.3	4.112	SF
IRONHORSE 35 FED 200H - OWB - PWP0	1,700.0	1,700.0	33.0	21.3	2.815	CC, ES
IRONHORSE 35 FED 200H - OWB - PWP0	19,818.1	20,064.4	689.6	186.4	1.371	Level 3, SF
IRONHORSE 35-36 FED 171H - OWB - PWP0	1,700.0	1,700.0	132.0	120.3	11.261	CC, ES
IRONHORSE 35-36 FED 171H - OWB - PWP0	19,818.1	19,185.4	872.1	466.2	2.149	SF
IRONHORSE 35-36 FED 201H - OWB - PWP0	1,700.0	1,700.0	99.0	87.3	8.446	CC, ES
IRONHORSE 35-36 FED 201H - OWB - PWP0	19,818.1	20,084.0	1,990.1	1,470.8	3.833	SF
Osage 34 Fed #1H - AWP - FINAL MWD	5,976.1	5,874.4	81.1	36.2	1.806	CC
Osage 34 Fed #1H - AWP - FINAL MWD	6,000.0	5,897.9	81.2	36.1	1.801	ES, SF
Parkway ST 36 #1 - AWP - INC ONLY	16,621.2	9,193.4	1,650.6	1,240.8	4.028	CC, ES
Parkway ST 36 #1 - AWP - INC ONLY	16,700.0	9,193.4	1,652.5	1,241.4	4.020	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		Semi Major Axis		Offset Wellbore Centre			Rule Assigned: Distance		Offset Well Error: 0.0 usft			
Reference 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	-120.50	-59.8	-101.6	117.9					
100.0	100.0	103.6	103.6	0.1	0.2	-120.65	-59.5	-100.5	116.8	116.4	0.38	309.901		
200.0	200.0	205.9	205.8	0.5	0.6	-121.02	-58.5	-97.2	113.5	112.4	1.10	102.986		
300.0	300.0	306.3	306.2	0.8	1.0	-121.34	-56.7	-93.0	109.1	107.2	1.82	59.960		
400.0	400.0	407.2	406.9	1.2	1.3	-121.38	-54.0	-88.6	103.9	101.4	2.54	40.922		
500.0	500.0	508.8	508.3	1.6	1.7	-121.10	-50.1	-83.1	97.4	94.1	3.26	29.830		
600.0	600.0	610.0	609.1	1.9	2.1	-120.77	-45.4	-76.2	89.0	85.0	3.99	22.336		
700.0	700.0	706.1	704.9	2.3	2.4	-120.41	-41.0	-69.9	81.1	76.5	4.69	17.301		
800.0	800.0	805.7	804.4	2.6	2.8	-120.56	-38.8	-65.8	76.5	71.1	5.41	14.142		

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 131H
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 131H	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 +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
900.0	900.0	902.7	901.4	3.0	3.1	-120.86	-37.3	-62.5	72.8	66.7	6.11	11.914		
936.5	936.5	938.9	937.5	3.1	3.2	-120.96	-37.5	-62.4	72.8	66.4	6.36	11.441		
1,000.0	1,000.0	1,002.5	1,001.1	3.4	3.5	-121.36	-37.9	-62.1	72.7	65.9	6.81	10.681		
1,100.0	1,100.0	1,102.7	1,101.3	3.7	3.8	-122.36	-38.8	-61.2	72.5	64.9	7.52	9.638		
1,200.0	1,200.0	1,202.7	1,201.3	4.1	4.2	-123.81	-40.1	-59.8	72.0	63.8	8.23	8.755		
1,300.0	1,300.0	1,303.0	1,301.5	4.4	4.5	-125.38	-41.4	-58.3	71.6	62.6	8.94	8.005		
1,400.0	1,400.0	1,403.6	1,402.1	4.8	4.9	-126.55	-41.9	-56.5	70.4	60.7	9.66	7.289		
1,500.0	1,500.0	1,504.0	1,502.5	5.1	5.2	-127.02	-41.2	-54.6	68.4	58.1	10.37	6.596		
1,600.0	1,600.0	1,603.3	1,601.8	5.5	5.6	-127.33	-40.3	-52.9	66.5	55.4	11.09	6.001		
1,634.7	1,634.7	1,637.2	1,635.7	5.6	5.7	-127.58	-40.4	-52.5	66.3	54.9	11.33	5.849 CC, ES		
1,700.0	1,700.0	1,700.8	1,699.3	5.9	5.9	-129.27	-42.6	-52.1	67.3	55.5	11.78	5.714		
1,800.0	1,800.0	1,800.7	1,799.1	6.2	6.3	-128.16	-46.1	-52.6	71.0	58.6	12.47	5.694 SF		
1,900.0	1,899.8	1,900.0	1,898.3	6.6	6.6	-132.56	-49.4	-53.3	77.3	64.1	13.17	5.871		
2,000.0	1,999.5	1,999.3	1,997.6	6.9	6.9	-137.65	-52.8	-54.4	86.8	73.0	13.86	6.264		
2,100.0	2,098.7	2,098.7	2,096.9	7.3	7.3	-142.89	-55.8	-55.4	99.3	84.7	14.56	6.816		
2,200.0	2,197.5	2,196.7	2,194.9	7.7	7.6	-147.77	-58.6	-56.3	115.1	99.8	15.26	7.540		
2,300.0	2,295.6	2,291.6	2,289.7	8.0	7.9	-151.81	-61.7	-57.8	135.3	119.4	15.93	8.493		
2,400.0	2,393.4	2,384.2	2,382.1	8.4	8.3	-155.30	-67.8	-60.0	160.8	144.2	16.58	9.700		
2,500.0	2,491.3	2,479.8	2,477.4	8.8	8.6	-157.77	-74.6	-63.1	187.6	170.3	17.26	10.869		
2,600.0	2,589.1	2,575.4	2,572.7	9.2	8.9	-159.66	-81.7	-66.1	214.8	196.8	17.94	11.971		
2,700.0	2,686.9	2,670.0	2,667.0	9.6	9.3	-161.09	-89.1	-69.1	242.5	223.9	18.62	13.028		
2,800.0	2,784.7	2,764.5	2,761.1	10.1	9.6	-162.21	-96.9	-72.5	270.9	251.6	19.29	14.042		
2,900.0	2,882.5	2,858.4	2,854.5	10.5	9.9	-163.15	-105.1	-75.7	299.9	279.9	19.97	15.019		
3,000.0	2,980.3	2,950.3	2,945.9	10.9	10.2	-163.94	-114.0	-78.8	329.7	309.1	20.63	15.986		
3,100.0	3,078.1	3,037.9	3,033.0	11.4	10.6	-164.71	-124.0	-81.3	361.1	339.9	21.24	17.004		
3,200.0	3,176.0	3,124.2	3,118.4	11.8	10.9	-165.78	-136.2	-81.3	394.8	372.9	21.84	18.080		
3,300.0	3,273.8	3,215.9	3,209.0	12.2	11.2	-166.88	-150.3	-80.6	429.6	407.1	22.50	19.096		
3,400.0	3,371.6	3,310.5	3,302.4	12.7	11.5	-168.32	-164.7	-76.3	463.9	440.7	23.19	20.003		
3,500.0	3,469.4	3,395.9	3,386.4	13.1	11.8	-169.63	-179.2	-70.9	499.9	476.1	23.79	21.017		
3,600.0	3,567.2	3,506.9	3,495.7	13.6	12.2	-171.07	-197.3	-64.2	535.8	511.1	24.66	21.727		
3,700.0	3,665.0	3,640.2	3,627.9	14.0	12.7	-172.75	-210.1	-53.5	564.9	539.2	25.68	21.992		
3,800.0	3,762.8	3,736.2	3,723.3	14.5	13.1	-173.84	-217.0	-45.5	592.1	565.7	26.39	22.439		
3,900.0	3,860.7	3,836.4	3,823.0	14.9	13.4	-174.87	-223.8	-37.3	619.3	592.1	27.12	22.831		
4,000.0	3,958.5	3,947.0	3,933.1	15.4	13.8	-175.80	-229.6	-29.2	645.1	617.2	27.93	23.101		
4,100.0	4,056.3	4,051.5	4,037.4	15.8	14.2	-176.47	-232.9	-23.2	669.0	640.3	28.68	23.321		
4,200.0	4,154.1	4,130.6	4,116.3	16.3	14.5	-176.90	-235.8	-19.1	693.4	664.2	29.29	23.679		
4,300.0	4,251.9	4,208.4	4,193.8	16.7	14.8	-177.36	-241.4	-14.4	721.3	691.4	29.86	24.153		
4,400.0	4,349.7	4,308.2	4,293.1	17.2	15.1	-177.93	-249.2	-7.9	749.9	719.3	30.60	24.502		
4,500.0	4,447.5	4,410.6	4,394.9	17.7	15.5	-178.48	-256.5	-1.2	777.8	746.4	31.36	24.800		
4,600.0	4,545.4	4,523.6	4,507.5	18.1	15.9	-179.09	-262.6	6.7	804.2	772.0	32.19	24.982		
4,700.0	4,643.2	4,632.6	4,616.1	18.6	16.3	-179.68	-266.6	14.9	829.1	796.1	32.98	25.135		
4,800.0	4,741.0	4,724.3	4,707.4	19.1	16.6	-179.78	-269.1	22.7	853.1	819.5	33.67	25.340		
4,900.0	4,838.8	4,791.4	4,774.2	19.5	16.9	-179.40	-272.3	28.6	879.3	845.1	34.18	25.725		
5,000.0	4,936.6	4,880.9	4,863.0	20.0	17.2	-178.92	-279.1	36.8	908.3	873.4	34.85	26.063		
5,100.0	5,034.4	4,980.4	4,962.0	20.5	17.6	-178.43	-286.3	45.5	936.8	901.2	35.59	26.320		
5,200.0	5,132.3	5,066.1	5,047.2	20.9	17.9	-178.16	-292.6	51.0	965.4	929.1	36.23	26.646		
5,300.0	5,230.1	5,157.3	5,137.9	21.4	18.2	-178.05	-301.2	54.3	995.6	958.7	36.91	26.974		
5,400.0	5,327.9	5,266.2	5,246.4	21.9	18.6	-177.96	-310.4	57.6	1,024.8	987.1	37.73	27.164		
5,500.0	5,425.7	5,370.4	5,350.2	22.3	19.0	-177.89	-318.0	60.5	1,052.9	1,014.4	38.50	27.346		
5,600.0	5,523.5	5,452.4	5,432.1	22.8	19.3	-177.87	-323.9	62.1	1,080.9	1,041.8	39.12	27.632		
5,700.0	5,621.3	5,529.1	5,508.4	23.3	19.5	-177.91	-331.5	62.8	1,111.2	1,071.5	39.68	28.002		
5,800.0	5,719.1	5,647.8	5,626.6	23.7	20.0	-177.98	-342.5	63.6	1,141.0	1,100.4	40.58	28.120		

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 131H
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 131H	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 +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,900.0	5,817.0	5,743.3	5,721.8	24.2	20.3	178.00	-349.9	64.6	1,169.4	1,128.1	41.29	28.322		
6,000.0	5,914.8	5,791.9	5,770.1	24.7	20.5	178.02	-354.7	65.1	1,199.9	1,158.3	41.63	28.823		
6,100.0	6,012.6	5,895.5	5,872.9	25.2	20.9	178.02	-367.2	67.2	1,232.5	1,190.1	42.42	29.057		
6,200.0	6,110.4	6,004.0	5,980.8	25.6	21.3	177.98	-378.7	70.1	1,263.7	1,220.5	43.24	29.226		
6,300.0	6,208.2	6,122.7	6,099.0	26.1	21.7	177.97	-389.4	72.3	1,293.4	1,249.2	44.13	29.305		
6,337.0	6,244.4	6,154.7	6,130.9	26.3	21.8	177.98	-392.2	72.6	1,304.1	1,259.8	44.37	29.390		
6,400.0	6,306.2	6,201.2	6,177.2	26.6	22.0	178.01	-396.4	73.0	1,322.1	1,277.4	44.72	29.566		
6,500.0	6,404.7	6,264.1	6,239.6	27.0	22.2	178.06	-403.7	73.4	1,350.2	1,305.0	45.16	29.895		
6,600.0	6,503.8	6,372.1	6,346.9	27.4	22.6	178.11	-416.8	74.6	1,375.7	1,329.7	45.97	29.927		
6,700.0	6,603.3	6,524.7	6,498.8	27.8	23.2	178.17	-431.0	75.5	1,394.8	1,347.7	47.09	29.619		
6,800.0	6,703.1	6,671.3	6,645.1	28.2	23.7	178.12	-439.6	78.2	1,407.3	1,359.2	48.11	29.252		
6,900.0	6,803.0	6,738.3	6,712.0	28.5	23.9	178.09	-442.9	79.4	1,415.6	1,367.0	48.61	29.123		
6,937.0	6,840.0	6,761.0	6,734.6	28.6	24.0	173.92	-444.5	79.9	1,418.4	1,369.7	48.77	29.084		
7,000.0	6,903.0	6,804.0	6,777.5	28.8	24.2	173.88	-447.9	81.1	1,423.6	1,374.6	49.07	29.012		
7,100.0	7,003.0	6,889.2	6,862.2	29.1	24.5	173.81	-455.8	83.8	1,433.2	1,383.5	49.66	28.857		
7,200.0	7,103.0	6,993.6	6,966.1	29.4	24.9	173.74	-465.8	86.7	1,443.0	1,392.6	50.40	28.627		
7,300.0	7,203.0	7,100.4	7,072.4	29.7	25.3	173.56	-475.2	92.2	1,452.3	1,401.1	51.16	28.386		
7,400.0	7,303.0	7,225.4	7,196.8	30.0	25.7	173.29	-484.7	100.1	1,460.7	1,408.6	52.05	28.063		
7,500.0	7,403.0	7,333.9	7,304.9	30.3	26.1	173.10	-491.4	105.8	1,467.4	1,414.5	52.81	27.785		
7,600.0	7,503.0	7,560.3	7,530.9	30.6	26.9	173.07	-498.2	107.5	1,471.2	1,417.0	54.17	27.159		
7,648.6	7,551.6	7,582.1	7,552.6	30.8	27.0	173.04	-497.9	108.3	1,470.8	1,416.4	54.39	27.042		
7,700.0	7,603.0	7,604.3	7,574.8	30.9	27.0	172.99	-498.0	109.6	1,471.3	1,416.7	54.60	26.944		
7,800.0	7,703.0	7,641.0	7,611.4	31.2	27.2	172.87	-498.9	112.7	1,475.2	1,420.3	54.93	26.855		
7,900.0	7,803.0	7,670.9	7,641.0	31.5	27.3	172.77	-501.1	115.7	1,483.9	1,428.7	55.13	26.915		
8,000.0	7,903.0	8,091.0	8,012.8	31.9	28.5	178.70	-523.8	-36.2	1,490.2	1,433.0	57.16	26.070		
8,100.0	8,003.0	8,131.3	8,037.8	32.2	28.5	179.91	-523.0	-67.7	1,485.4	1,427.8	57.64	25.772		
8,141.4	8,044.4	8,144.7	8,045.4	32.3	28.5	-179.66	-522.9	-78.8	1,484.9	1,427.1	57.79	25.696		
8,200.0	8,103.0	8,163.7	8,055.4	32.5	28.6	-179.04	-522.9	-94.8	1,485.9	1,427.9	57.97	25.635		
8,300.0	8,203.0	8,198.6	8,071.8	32.8	28.6	-177.85	-523.0	-125.6	1,491.9	1,433.8	58.16	25.652		
8,400.0	8,303.0	8,244.9	8,088.9	33.1	28.7	-176.20	-522.9	-168.6	1,503.7	1,445.4	58.25	25.814		
8,500.0	8,403.0	8,266.4	8,095.2	33.4	28.7	-175.41	-522.5	-189.3	1,520.9	1,462.9	58.09	26.184		
8,600.0	8,503.0	8,273.5	8,097.0	33.7	28.7	-175.14	-522.4	-196.1	1,544.3	1,486.6	57.70	26.762		
8,700.0	8,603.0	8,280.0	8,098.6	34.1	28.7	-174.90	-522.3	-202.4	1,573.6	1,516.4	57.18	27.517		
8,800.0	8,703.0	8,286.3	8,100.0	34.4	28.7	-174.67	-522.2	-208.5	1,608.4	1,551.9	56.55	28.442		
8,813.5	8,716.5	8,287.0	8,100.1	34.4	28.7	-174.64	-522.2	-209.2	1,613.5	1,557.1	56.46	28.579		
8,825.0	8,728.0	8,292.0	8,101.2	34.5	28.7	94.69	-522.2	-214.1	1,618.0	1,561.6	56.40	28.688		
8,850.0	8,753.0	8,292.0	8,101.2	34.5	28.7	93.39	-522.2	-214.1	1,628.0	1,571.8	56.21	28.961		
8,875.0	8,777.9	8,292.0	8,101.2	34.6	28.7	92.02	-522.2	-214.1	1,638.3	1,582.3	56.02	29.245		
8,900.0	8,802.6	8,292.0	8,101.2	34.7	28.7	90.60	-522.2	-214.1	1,649.0	1,593.2	55.83	29.538		
8,925.0	8,827.0	8,292.0	8,101.2	34.8	28.7	89.13	-522.2	-214.1	1,660.0	1,604.4	55.63	29.840		
8,950.0	8,851.2	8,292.0	8,101.2	34.8	28.7	87.61	-522.2	-214.1	1,671.3	1,615.9	55.44	30.148		
8,975.0	8,875.0	8,292.0	8,101.2	34.9	28.7	86.05	-522.2	-214.1	1,682.9	1,627.7	55.24	30.463		
9,000.0	8,898.3	8,292.0	8,101.2	35.0	28.7	84.45	-522.2	-214.1	1,694.7	1,639.6	55.05	30.783		
9,025.0	8,921.2	8,286.8	8,100.1	35.0	28.7	82.64	-522.2	-209.0	1,706.6	1,651.7	54.83	31.122		
9,050.0	8,943.5	8,285.4	8,099.8	35.1	28.7	80.96	-522.2	-207.7	1,718.6	1,664.0	54.64	31.452		
9,075.0	8,965.1	8,280.0	8,098.6	35.2	28.7	79.12	-522.3	-202.4	1,730.8	1,676.4	54.43	31.796		
9,100.0	8,986.1	8,280.0	8,098.6	35.2	28.7	77.48	-522.3	-202.4	1,743.0	1,688.7	54.26	32.121		
9,125.0	9,006.4	8,280.0	8,098.6	35.3	28.7	75.85	-522.3	-202.4	1,755.2	1,701.1	54.10	32.444		
9,150.0	9,025.8	8,280.0	8,098.6	35.3	28.7	74.22	-522.3	-202.4	1,767.4	1,713.5	53.95	32.762		
9,175.0	9,044.5	8,280.0	8,098.6	35.4	28.7	72.62	-522.3	-202.4	1,779.6	1,725.8	53.80	33.075		
9,200.0	9,062.2	8,272.6	8,096.8	35.4	28.7	70.83	-522.4	-195.2	1,791.6	1,738.0	53.63	33.408		
9,225.0	9,078.9	8,266.4	8,095.2	35.5	28.7	69.13	-522.5	-189.3	1,803.5	1,750.0	53.47	33.730		

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 131H
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 131H	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	Semi Major Axis Offset	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	
9,250.0	9,094.7	8,266.4	8,095.2	35.5	28.7	67.65	-522.5	-189.3	1,815.3	1,761.9	53.37	34.015		
9,275.0	9,109.4	8,266.4	8,095.2	35.5	28.7	66.21	-522.5	-189.3	1,826.8	1,773.6	53.28	34.289		
9,300.0	9,123.1	8,259.5	8,093.3	35.6	28.7	64.65	-522.6	-182.6	1,838.1	1,785.0	53.16	34.579		
9,325.0	9,135.6	8,252.9	8,091.4	35.6	28.7	63.18	-522.8	-176.2	1,849.2	1,796.2	53.06	34.855		
9,350.0	9,147.0	8,248.8	8,090.1	35.7	28.7	61.82	-522.9	-172.4	1,860.0	1,807.0	52.99	35.102		
9,375.0	9,157.2	8,239.3	8,087.1	35.7	28.7	60.44	-523.0	-163.3	1,870.3	1,817.5	52.90	35.359		
9,400.0	9,166.3	8,231.8	8,084.6	35.7	28.7	59.16	-523.1	-156.3	1,880.3	1,827.5	52.84	35.588		
9,425.0	9,174.0	8,225.7	8,082.5	35.8	28.6	57.99	-523.1	-150.6	1,889.9	1,837.1	52.80	35.791		
9,450.0	9,180.5	8,220.5	8,080.6	35.8	28.6	56.91	-523.1	-145.7	1,899.1	1,846.3	52.80	35.970		
9,475.0	9,185.8	8,212.1	8,077.4	35.9	28.6	55.85	-523.1	-138.0	1,907.8	1,855.1	52.78	36.146		
9,500.0	9,189.8	8,212.1	8,077.4	36.0	28.6	54.99	-523.1	-138.0	1,916.1	1,863.3	52.86	36.250		
9,525.0	9,192.4	8,204.4	8,074.3	36.0	28.6	54.08	-523.1	-130.9	1,923.9	1,871.0	52.88	36.380		
9,550.0	9,193.8	8,198.6	8,071.8	36.1	28.6	53.28	-523.0	-125.6	1,931.2	1,878.3	52.95	36.476		
9,563.5	9,194.0	8,198.6	8,071.8	36.2	28.6	52.90	-523.0	-125.6	1,934.9	1,881.9	53.01	36.499		
9,600.0	9,194.0	8,185.0	8,065.8	36.3	28.6	52.75	-523.0	-113.5	1,945.1	1,892.0	53.09	36.638		
9,700.0	9,194.0	8,171.6	8,059.4	36.9	28.6	52.60	-522.9	-101.7	1,975.4	1,921.9	53.58	36.866		
9,800.0	9,194.0	8,151.7	8,049.2	37.7	28.5	52.35	-522.9	-84.6	2,009.5	1,955.4	54.09	37.151		
9,900.0	9,194.0	8,131.3	8,037.8	38.7	28.5	52.07	-523.0	-67.7	2,047.3	1,992.6	54.65	37.462		
10,000.0	9,194.0	8,117.9	8,029.8	39.8	28.5	51.88	-523.2	-56.9	2,088.5	2,033.1	55.32	37.751		
10,100.0	9,194.0	8,104.4	8,021.5	41.1	28.5	51.69	-523.5	-46.4	2,133.0	2,077.0	56.02	38.073		
10,200.0	9,194.0	8,091.0	8,012.8	42.4	28.5	51.49	-523.8	-36.2	2,180.7	2,124.0	56.74	38.434		
10,300.0	9,194.0	8,077.4	8,003.7	43.9	28.4	51.28	-524.3	-26.1	2,231.5	2,174.0	57.46	38.836		
10,400.0	9,194.0	8,063.9	7,994.3	45.4	28.4	51.07	-524.8	-16.3	2,285.1	2,226.9	58.17	39.280		
10,500.0	9,194.0	8,050.3	7,984.6	47.0	28.4	50.86	-525.4	-6.8	2,341.2	2,282.3	58.88	39.765		
10,600.0	9,194.0	8,036.7	7,974.8	48.7	28.4	50.64	-526.0	2.5	2,399.8	2,340.2	59.56	40.291		
10,700.0	9,194.0	8,016.9	7,959.9	50.5	28.3	50.31	-526.8	15.5	2,460.6	2,400.4	60.17	40.896		
10,800.0	9,194.0	7,996.0	7,943.7	52.3	28.3	49.95	-527.3	28.7	2,523.4	2,462.7	60.74	41.546		
10,900.0	9,194.0	7,988.3	7,937.6	54.1	28.3	49.82	-527.4	33.4	2,588.2	2,526.8	61.40	42.152		
11,000.0	9,194.0	7,982.6	7,932.9	56.0	28.2	49.71	-527.4	36.8	2,655.0	2,592.9	62.05	42.786		
11,100.0	9,194.0	7,969.1	7,922.0	58.0	28.2	49.47	-527.6	44.5	2,723.6	2,660.9	62.61	43.503		
11,200.0	9,194.0	7,955.7	7,910.8	59.9	28.2	49.22	-527.7	52.0	2,793.8	2,730.7	63.13	44.253		
11,300.0	9,194.0	7,942.3	7,899.4	61.9	28.2	48.97	-527.6	59.1	2,865.6	2,802.0	63.63	45.036		
11,400.0	9,194.0	7,934.9	7,893.1	64.0	28.1	48.83	-527.5	62.9	2,938.8	2,874.7	64.15	45.815		
11,500.0	9,194.0	7,928.9	7,887.8	66.0	28.1	48.72	-527.4	65.9	3,013.5	2,948.8	64.64	46.617		
11,600.0	9,194.0	7,915.4	7,876.0	68.1	28.1	48.45	-527.1	72.3	3,089.5	3,024.4	65.06	47.489		
11,700.0	9,194.0	7,915.4	7,876.0	70.2	28.1	48.45	-527.1	72.3	3,166.7	3,101.1	65.55	48.312		
11,800.0	9,194.0	7,908.9	7,870.2	72.3	28.1	48.33	-526.9	75.2	3,245.1	3,179.1	65.96	49.197		
11,900.0	9,194.0	7,902.0	7,864.0	74.5	28.0	48.19	-526.8	78.3	3,324.5	3,258.2	66.35	50.106		
12,000.0	9,194.0	7,902.0	7,864.0	76.6	28.0	48.19	-526.8	78.3	3,405.0	3,338.3	66.76	51.003		
12,100.0	9,194.0	7,888.6	7,851.8	78.8	28.0	47.92	-526.4	83.9	3,486.4	3,419.4	67.06	51.987		
12,200.0	9,194.0	7,888.6	7,851.8	81.0	28.0	47.92	-526.4	83.9	3,568.7	3,501.3	67.43	52.922		
12,300.0	9,194.0	7,882.1	7,845.9	83.2	28.0	47.79	-526.1	86.5	3,651.8	3,584.1	67.74	53.907		
12,400.0	9,194.0	7,875.1	7,839.4	85.4	28.0	47.65	-525.9	89.1	3,735.8	3,667.7	68.03	54.912		
12,500.0	9,194.0	7,875.1	7,839.4	87.6	28.0	47.65	-525.9	89.1	3,820.4	3,752.0	68.35	55.897		
12,600.0	9,194.0	7,861.7	7,827.0	89.8	27.9	47.37	-525.2	94.0	3,905.7	3,837.1	68.57	56.962		
12,700.0	9,194.0	7,861.7	7,827.0	92.1	27.9	47.37	-525.2	94.0	3,991.6	3,922.7	68.85	57.974		
12,800.0	9,194.0	7,854.2	7,819.9	94.3	27.9	47.22	-524.7	96.6	4,078.1	4,009.0	69.08	59.035		
12,900.0	9,194.0	7,848.3	7,814.4	96.6	27.9	47.09	-524.3	98.5	4,165.2	4,095.9	69.30	60.101		
13,000.0	9,194.0	7,848.3	7,814.4	98.9	27.9	47.09	-524.3	98.5	4,252.8	4,183.3	69.55	61.148		
13,100.0	9,194.0	7,841.6	7,808.1	101.1	27.9	46.95	-523.7	100.6	4,340.9	4,271.2	69.75	62.238		
13,200.0	9,194.0	7,834.9	7,801.6	103.4	27.9	46.81	-523.1	102.7	4,429.5	4,359.6	69.93	63.339		
13,300.0	9,194.0	7,834.9	7,801.6	105.7	27.9	46.81	-523.1	102.7	4,518.6	4,448.4	70.15	64.414		

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 131H
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 131H	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		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,400.0	9,194.0	7,834.9	7,801.6	108.0	27.9	46.81	-523.1	102.7	4,608.1	4,537.7	70.36	65.498	
13,500.0	9,194.0	7,828.7	7,795.8	110.3	27.8	46.68	-522.5	104.4	4,698.0	4,627.4	70.52	66.620	
13,600.0	9,194.0	7,821.4	7,788.8	112.6	27.8	46.52	-521.8	106.4	4,788.3	4,717.6	70.67	67.757	
13,700.0	9,194.0	7,821.4	7,788.8	114.9	27.8	46.52	-521.8	106.4	4,878.9	4,808.0	70.85	68.861	
13,800.0	9,194.0	7,821.4	7,788.8	117.2	27.8	46.52	-521.8	106.4	4,969.9	4,898.8	71.03	69.972	
13,900.0	9,194.0	7,821.4	7,788.8	119.5	27.8	46.52	-521.8	106.4	5,061.2	4,990.0	71.20	71.089	
14,000.0	9,194.0	7,821.4	7,788.8	121.9	27.8	46.52	-521.8	106.4	5,152.8	5,081.5	71.36	72.211	
14,100.0	9,194.0	7,821.4	7,788.8	124.2	27.8	46.52	-521.8	106.4	5,244.8	5,173.3	71.51	73.339	
14,200.0	9,194.0	7,808.0	7,775.9	126.5	27.8	46.23	-520.2	109.7	5,337.0	5,265.4	71.60	74.542	
14,300.0	9,194.0	7,808.0	7,775.9	128.9	27.8	46.23	-520.2	109.7	5,429.5	5,357.7	71.74	75.677	
14,400.0	9,194.0	7,808.0	7,775.9	131.2	27.8	46.23	-520.2	109.7	5,522.2	5,450.3	71.89	76.817	
14,500.0	9,194.0	7,808.0	7,775.9	133.5	27.8	46.23	-520.2	109.7	5,615.1	5,543.1	72.03	77.960	
14,600.0	9,194.0	7,808.0	7,775.9	135.9	27.8	46.23	-520.2	109.7	5,708.3	5,636.2	72.16	79.107	
14,700.0	9,194.0	7,808.0	7,775.9	138.2	27.8	46.23	-520.2	109.7	5,801.8	5,729.5	72.29	80.257	
14,800.0	9,194.0	7,808.0	7,775.9	140.6	27.8	46.23	-520.2	109.7	5,895.4	5,823.0	72.42	81.410	
14,900.0	9,194.0	7,808.0	7,775.9	142.9	27.8	46.23	-520.2	109.7	5,989.3	5,916.7	72.54	82.566	
15,000.0	9,194.0	7,801.1	7,769.2	145.3	27.7	46.08	-519.4	111.2	6,083.3	6,010.6	72.63	83.760	
15,100.0	9,194.0	7,794.4	7,762.7	147.6	27.7	45.93	-518.5	112.5	6,177.5	6,104.8	72.71	84.958	
15,200.0	9,194.0	7,794.4	7,762.7	150.0	27.7	45.93	-518.5	112.5	6,271.9	6,199.0	72.83	86.119	
15,300.0	9,194.0	7,794.4	7,762.7	152.3	27.7	45.93	-518.5	112.5	6,366.4	6,293.5	72.94	87.282	
15,400.0	9,194.0	7,794.4	7,762.7	154.7	27.7	45.93	-518.5	112.5	6,461.1	6,388.1	73.05	88.446	
15,500.0	9,194.0	7,794.4	7,762.7	157.1	27.7	45.93	-518.5	112.5	6,556.0	6,482.8	73.16	89.612	
15,600.0	9,194.0	7,794.4	7,762.7	159.4	27.7	45.93	-518.5	112.5	6,651.0	6,577.7	73.27	90.779	
15,700.0	9,194.0	7,794.4	7,762.7	161.8	27.7	45.93	-518.5	112.5	6,746.2	6,672.8	73.37	91.947	
15,800.0	9,194.0	7,794.4	7,762.7	164.2	27.7	45.93	-518.5	112.5	6,841.4	6,768.0	73.47	93.116	
15,900.0	9,194.0	7,794.4	7,762.7	166.5	27.7	45.93	-518.5	112.5	6,936.9	6,863.3	73.57	94.285	
16,000.0	9,194.0	7,794.4	7,762.7	168.9	27.7	45.93	-518.5	112.5	7,032.4	6,958.8	73.67	95.455	
16,100.0	9,194.0	7,794.4	7,762.7	171.3	27.7	45.93	-518.5	112.5	7,128.1	7,054.3	73.77	96.626	
16,200.0	9,194.0	7,787.7	7,756.2	173.6	27.7	45.78	-517.6	113.8	7,223.8	7,150.0	73.84	97.836	
16,300.0	9,194.0	7,780.9	7,749.5	176.0	27.7	45.63	-516.6	114.9	7,319.8	7,245.9	73.90	99.049	
16,400.0	9,194.0	7,780.9	7,749.5	178.4	27.7	45.63	-516.6	114.9	7,415.8	7,341.8	74.00	100.219	
16,500.0	9,194.0	7,780.9	7,749.5	180.8	27.7	45.63	-516.6	114.9	7,511.8	7,437.8	74.09	101.390	
16,600.0	9,194.0	7,780.9	7,749.5	183.1	27.7	45.63	-516.6	114.9	7,608.0	7,533.9	74.18	102.560	
16,700.0	9,194.0	7,780.9	7,749.5	185.5	27.7	45.63	-516.6	114.9	7,704.3	7,630.1	74.27	103.730	
16,800.0	9,194.0	7,780.9	7,749.5	187.9	27.7	45.63	-516.6	114.9	7,800.7	7,726.3	74.36	104.900	
16,900.0	9,194.0	7,780.9	7,749.5	190.3	27.7	45.63	-516.6	114.9	7,897.2	7,822.7	74.45	106.069	
17,000.0	9,194.0	7,780.9	7,749.5	192.7	27.7	45.63	-516.6	114.9	7,993.7	7,919.2	74.54	107.237	
17,100.0	9,194.0	7,780.9	7,749.5	195.0	27.7	45.63	-516.6	114.9	8,090.4	8,015.7	74.63	108.405	
17,200.0	9,194.0	7,780.9	7,749.5	197.4	27.7	45.63	-516.6	114.9	8,187.1	8,112.4	74.72	109.572	
17,300.0	9,194.0	7,780.9	7,749.5	199.8	27.7	45.63	-516.6	114.9	8,283.9	8,209.1	74.81	110.738	
17,400.0	9,194.0	7,780.9	7,749.5	202.2	27.7	45.63	-516.6	114.9	8,380.8	8,305.9	74.89	111.903	
17,500.0	9,194.0	7,780.9	7,749.5	204.6	27.7	45.63	-516.6	114.9	8,477.7	8,402.7	74.98	113.067	
17,600.0	9,194.0	7,780.9	7,749.5	207.0	27.7	45.63	-516.6	114.9	8,574.7	8,499.7	75.07	114.230	
17,700.0	9,194.0	7,780.9	7,749.5	209.4	27.7	45.63	-516.6	114.9	8,671.8	8,596.7	75.15	115.392	
17,800.0	9,194.0	7,780.9	7,749.5	211.8	27.7	45.63	-516.6	114.9	8,769.0	8,693.7	75.24	116.552	
17,900.0	9,194.0	7,780.9	7,749.5	214.1	27.7	45.63	-516.6	114.9	8,866.2	8,790.8	75.32	117.711	
18,000.0	9,194.0	7,780.9	7,749.5	216.5	27.7	45.63	-516.6	114.9	8,963.4	8,888.0	75.41	118.869	
18,100.0	9,194.0	7,780.9	7,749.5	218.9	27.7	45.63	-516.6	114.9	9,060.8	8,985.3	75.49	120.025	
18,200.0	9,194.0	7,774.1	7,742.8	221.3	27.7	45.48	-515.6	115.9	9,158.1	9,082.6	75.55	121.226	
18,300.0	9,194.0	7,767.3	7,736.2	223.7	27.6	45.33	-514.6	116.7	9,255.6	9,180.0	75.60	122.427	
18,400.0	9,194.0	7,767.3	7,736.2	226.1	27.6	45.33	-514.6	116.7	9,353.1	9,277.4	75.68	123.579	
18,500.0	9,194.0	7,767.3	7,736.2	228.5	27.6	45.33	-514.6	116.7	9,450.6	9,374.8	75.77	124.729	

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 131H
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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		Offset Wellbore Centre		Rule Assigned:		Distance		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
18,600.0	9,194.0	7,767.3	7,736.2	230.9	27.6	45.33	-514.6	116.7	9,548.2	9,472.3	75.85	125.878		
18,700.0	9,194.0	7,767.3	7,736.2	233.3	27.6	45.33	-514.6	116.7	9,645.8	9,569.9	75.94	127.024		
18,800.0	9,194.0	7,767.3	7,736.2	235.7	27.6	45.33	-514.6	116.7	9,743.5	9,667.5	76.02	128.169		
18,900.0	9,194.0	7,767.3	7,736.2	238.1	27.6	45.33	-514.6	116.7	9,841.2	9,765.1	76.10	129.312		
19,000.0	9,194.0	7,767.3	7,736.2	240.5	27.6	45.33	-514.6	116.7	9,939.0	9,862.8	76.19	130.453		
19,100.0	9,194.0	7,767.3	7,736.2	242.9	27.6	45.33	-514.6	116.7	10,036.8	9,960.6	76.27	131.592		
19,200.0	9,194.0	7,767.3	7,736.2	245.3	27.6	45.33	-514.6	116.7	10,134.7	10,058.3	76.36	132.730		
19,300.0	9,194.0	7,767.3	7,736.2	247.7	27.6	45.33	-514.6	116.7	10,232.6	10,156.2	76.44	133.865		
19,400.0	9,194.0	7,767.3	7,736.2	250.1	27.6	45.33	-514.6	116.7	10,330.5	10,254.0	76.52	134.998		
19,500.0	9,194.0	7,767.3	7,736.2	252.5	27.6	45.33	-514.6	116.7	10,428.5	10,351.9	76.61	136.129		
19,600.0	9,194.0	7,767.3	7,736.2	254.9	27.6	45.33	-514.6	116.7	10,526.5	10,449.9	76.69	137.257		
19,700.0	9,194.0	7,767.3	7,736.2	257.3	27.6	45.33	-514.6	116.7	10,624.6	10,547.8	76.78	138.384		
19,800.0	9,194.0	7,767.3	7,736.2	259.7	27.6	45.33	-514.6	116.7	10,722.7	10,645.8	76.86	139.508		
19,818.1	9,194.0	7,767.3	7,736.2	260.1	27.6	45.33	-514.6	116.7	10,740.5	10,663.6	76.88	139.712		

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 131H
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 131H	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	-89.91	0.2	-101.6	101.6					
100.0	100.0	102.0	102.0	0.1	0.2	-90.01	0.0	-101.1	101.1	100.8	0.36	277.488		
200.0	200.0	202.6	202.6	0.5	0.6	-90.30	-0.5	-99.7	99.8	98.7	1.08	92.082		
300.0	300.0	302.7	302.7	0.8	1.0	-90.58	-1.0	-98.1	98.1	96.3	1.80	54.496		
400.0	400.0	403.0	403.0	1.2	1.3	-90.90	-1.5	-96.1	96.2	93.7	2.52	38.183		
500.0	500.0	503.2	503.1	1.6	1.7	-91.26	-2.1	-94.1	94.1	90.9	3.24	29.080		
600.0	600.0	603.8	603.7	1.9	2.0	-91.42	-2.3	-91.4	91.5	87.5	3.96	23.126		
700.0	700.0	704.0	703.9	2.3	2.4	-91.27	-2.0	-88.3	88.4	83.7	4.67	18.917		
800.0	800.0	804.9	804.7	2.6	2.8	-90.96	-1.4	-84.5	84.6	79.2	5.39	15.695		
900.0	900.0	905.3	904.9	3.0	3.1	-90.41	-0.6	-79.8	79.9	73.8	6.11	13.074		
1,000.0	1,000.0	1,005.2	1,004.7	3.4	3.5	-88.54	1.9	-74.9	75.0	68.2	6.82	10.994		
1,100.0	1,100.0	1,105.6	1,104.8	3.7	3.8	-84.83	6.3	-69.1	69.5	62.0	7.53	9.224		
1,200.0	1,200.0	1,204.3	1,203.2	4.1	4.2	-80.24	11.0	-63.9	64.9	56.6	8.24	7.868		
1,300.0	1,300.0	1,303.0	1,301.8	4.4	4.5	-75.71	15.4	-60.6	62.5	53.6	8.95	6.988		
1,400.0	1,400.0	1,402.3	1,401.0	4.8	4.9	-71.38	19.8	-58.7	61.9	52.3	9.66	6.414		
1,406.9	1,406.9	1,409.2	1,407.9	4.8	4.9	-71.07	20.1	-58.6	61.9	52.2	9.70	6.382		
1,500.0	1,500.0	1,502.4	1,501.0	5.1	5.2	-66.38	24.9	-56.9	62.1	51.7	10.36	5.990		
1,600.0	1,600.0	1,602.1	1,600.4	5.5	5.6	-60.32	30.9	-54.2	62.4	51.4	11.07	5.640		
1,700.0	1,700.0	1,701.6	1,699.7	5.9	5.9	-54.41	37.2	-51.9	63.9	52.1	11.78	5.422		
1,800.0	1,800.0	1,800.9	1,798.8	6.2	6.3	-45.65	43.9	-50.1	65.4	52.9	12.48	5.237		
1,900.0	1,899.8	1,900.6	1,898.3	6.6	6.6	-43.29	51.1	-48.6	65.3	52.1	13.19	4.954		
2,000.0	1,999.5	2,001.2	1,998.5	6.9	7.0	-42.85	58.3	-46.8	62.5	48.6	13.91	4.496		
2,100.0	2,098.7	2,101.5	2,098.5	7.3	7.4	-44.54	65.1	-44.2	56.3	41.7	14.62	3.849		
2,200.0	2,197.5	2,201.4	2,198.2	7.7	7.7	-50.46	70.8	-41.2	46.8	31.5	15.35	3.053		
2,300.0	2,295.6	2,300.3	2,297.0	8.0	8.1	-64.17	76.1	-37.9	36.0	19.9	16.08	2.240		
2,400.0	2,393.4	2,399.1	2,395.5	8.4	8.4	-87.91	82.4	-34.3	28.3	11.5	16.83	1.682		
2,462.7	2,454.7	2,461.1	2,457.3	8.7	8.6	-106.43	86.9	-32.1	26.8	9.5	17.31	1.551 CC, ES, SF		
2,500.0	2,491.3	2,498.1	2,494.2	8.8	8.8	-117.45	89.7	-30.8	27.3	9.8	17.58	1.556		
2,600.0	2,589.1	2,597.2	2,592.9	9.2	9.1	-141.75	97.6	-27.4	32.8	14.6	18.27	1.797		
2,700.0	2,686.9	2,696.3	2,691.6	9.6	9.5	-156.84	105.6	-24.2	42.2	23.2	18.96	2.225		
2,800.0	2,784.7	2,795.5	2,790.5	10.1	9.8	-165.87	113.9	-21.2	53.2	33.6	19.67	2.708		
2,900.0	2,882.5	2,895.0	2,889.5	10.5	10.2	-171.59	122.7	-18.3	64.6	44.3	20.38	3.172		
3,000.0	2,980.3	2,994.4	2,988.4	10.9	10.6	-175.48	131.8	-15.6	76.1	55.1	21.09	3.610		
3,100.0	3,078.1	3,094.1	3,087.7	11.4	10.9	-178.37	141.3	-12.8	87.6	65.7	21.81	4.014		
3,200.0	3,176.0	3,193.8	3,186.8	11.8	11.3	179.54	151.3	-10.2	98.5	76.0	22.54	4.372		
3,300.0	3,273.8	3,293.6	3,286.0	12.2	11.6	177.89	161.7	-7.7	109.3	86.1	23.27	4.698		
3,400.0	3,371.6	3,393.8	3,385.6	12.7	12.0	176.59	172.6	-5.5	119.7	95.7	24.00	4.987		
3,500.0	3,469.4	3,492.6	3,483.8	13.1	12.4	175.53	183.7	-3.3	129.7	105.0	24.73	5.246		
3,600.0	3,567.2	3,589.5	3,580.1	13.6	12.7	174.19	193.3	0.2	141.3	115.9	25.47	5.549		
3,700.0	3,665.0	3,686.6	3,676.8	14.0	13.1	172.86	201.9	4.3	154.2	128.0	26.20	5.885		
3,800.0	3,762.8	3,781.5	3,771.3	14.5	13.4	171.52	208.3	9.5	169.4	142.4	26.91	6.293		
3,900.0	3,860.7	3,879.5	3,868.9	14.9	13.8	170.37	213.7	15.2	185.9	158.2	27.64	6.725		
4,000.0	3,958.5	3,978.3	3,967.5	15.4	14.1	169.78	218.8	19.6	202.5	174.1	28.38	7.137		
4,100.0	4,056.3	4,075.3	4,064.4	15.8	14.5	169.55	223.4	23.0	219.3	190.2	29.10	7.538		
4,200.0	4,154.1	4,170.6	4,159.4	16.3	14.8	168.98	227.1	28.2	237.4	207.6	29.80	7.967		
4,300.0	4,251.9	4,269.6	4,258.2	16.7	15.2	168.37	230.7	34.1	255.9	225.4	30.54	8.380		
4,400.0	4,349.7	4,367.7	4,356.0	17.2	15.5	167.84	234.4	39.9	274.3	243.0	31.27	8.771		
4,500.0	4,447.5	4,465.4	4,453.5	17.7	15.9	167.25	238.1	46.3	292.9	260.9	32.00	9.151		
4,600.0	4,545.4	4,563.2	4,550.9	18.1	16.2	166.54	242.0	53.8	311.6	278.9	32.74	9.518		
4,700.0	4,643.2	4,662.1	4,649.4	18.6	16.6	165.81	246.2	61.9	330.3	296.9	33.49	9.865		
4,800.0	4,741.0	4,764.8	4,751.7	19.1	16.9	165.26	251.2	69.2	348.1	313.8	34.26	10.159		
4,900.0	4,838.8	4,865.0	4,851.5	19.5	17.3	164.81	256.7	75.9	365.2	330.2	35.02	10.429		

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 131H
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 131H	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)		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,000.0	4,936.6	4,963.6	4,949.8	20.0	17.7	164.48	262.2	82.0	382.2	346.4	35.77	10.685	
5,100.0	5,034.4	5,064.2	5,050.1	20.5	18.0	164.24	267.8	87.7	398.8	362.3	36.52	10.920	
5,200.0	5,132.3	5,163.5	5,149.1	20.9	18.4	164.15	273.5	92.2	415.2	377.9	37.27	11.140	
5,300.0	5,230.1	5,262.3	5,247.7	21.4	18.7	164.20	278.8	96.0	431.4	393.4	38.01	11.351	
5,400.0	5,327.9	5,361.6	5,346.8	21.9	19.1	164.34	284.0	98.9	447.6	408.8	38.75	11.550	
5,500.0	5,425.7	5,460.4	5,445.4	22.3	19.5	164.67	288.7	100.3	463.7	424.2	39.49	11.744	
5,600.0	5,523.5	5,558.6	5,543.6	22.8	19.8	165.11	293.1	100.6	479.8	439.5	40.21	11.931	
5,700.0	5,621.3	5,655.9	5,640.8	23.3	20.2	165.61	296.9	100.4	496.2	455.3	40.93	12.125	
5,800.0	5,719.1	5,759.1	5,743.9	23.7	20.5	165.92	301.7	101.5	512.3	470.6	41.69	12.289	
5,900.0	5,817.0	5,857.0	5,841.7	24.2	20.9	166.07	307.1	103.5	527.9	485.5	42.42	12.446	
6,000.0	5,914.8	5,953.5	5,938.0	24.7	21.2	166.26	312.0	105.2	543.9	500.8	43.14	12.609	
6,100.0	6,012.6	6,055.8	6,040.2	25.2	21.6	166.49	317.0	106.5	560.0	516.1	43.90	12.756	
6,200.0	6,110.4	6,157.9	6,141.9	25.6	22.0	166.48	323.7	109.7	575.0	530.3	44.66	12.874	
6,300.0	6,208.2	6,246.0	6,229.9	26.1	22.3	166.51	328.7	112.3	590.8	545.5	45.33	13.033	
6,337.0	6,244.4	6,278.8	6,262.6	26.3	22.4	166.59	329.9	112.7	597.1	551.6	45.57	13.103	
6,400.0	6,306.2	6,337.9	6,321.7	26.6	22.6	166.82	331.6	113.0	607.6	561.6	46.01	13.207	
6,500.0	6,404.7	6,441.4	6,425.2	27.0	23.0	167.09	335.0	113.8	621.2	574.4	46.77	13.283	
6,600.0	6,503.8	6,540.8	6,524.6	27.4	23.3	167.25	338.4	114.5	631.3	583.8	47.49	13.292	
6,700.0	6,603.3	6,633.6	6,617.3	27.8	23.7	167.24	342.0	116.2	637.9	589.7	48.16	13.245	
6,800.0	6,703.1	6,722.3	6,705.9	28.2	24.0	167.05	343.8	119.4	643.4	594.6	48.78	13.191	
6,900.0	6,803.0	6,836.4	6,819.7	28.5	24.4	166.44	348.0	126.1	644.5	594.9	49.62	12.990	
6,937.0	6,840.0	6,873.1	6,856.2	28.6	24.5	161.99	349.8	129.0	643.9	594.0	49.88	12.909	
7,000.0	6,903.0	6,957.1	6,939.7	28.8	24.8	161.19	356.2	136.3	641.0	590.5	50.48	12.697	
7,100.0	7,003.0	7,075.2	7,056.9	29.1	25.3	160.11	367.5	145.1	634.5	583.2	51.30	12.368	
7,200.0	7,103.0	7,176.6	7,157.5	29.4	25.6	159.25	378.6	151.0	626.1	574.1	52.03	12.035	
7,300.0	7,203.0	7,287.7	7,267.7	29.7	26.0	158.42	391.6	155.7	616.7	564.0	52.78	11.685	
7,400.0	7,303.0	7,377.9	7,357.2	30.0	26.3	157.76	402.2	158.9	607.1	553.7	53.47	11.354	
7,500.0	7,403.0	7,472.7	7,451.5	30.3	26.7	157.14	411.8	161.9	598.9	544.8	54.17	11.056	
7,600.0	7,503.0	7,573.9	7,552.1	30.6	27.1	156.63	421.9	163.4	590.3	535.4	54.89	10.755	
7,700.0	7,603.0	7,665.2	7,643.1	30.9	27.4	156.25	429.5	164.3	583.1	527.5	55.56	10.494	
7,800.0	7,703.0	7,773.3	7,750.8	31.2	27.8	155.79	439.0	165.1	575.3	519.0	56.31	10.217	
7,900.0	7,803.0	7,867.6	7,844.7	31.5	28.1	155.37	447.3	165.9	567.7	510.7	57.00	9.960	
8,000.0	7,903.0	7,958.8	7,935.8	31.9	28.4	155.11	453.7	165.8	561.2	503.6	57.66	9.733	
8,100.0	8,003.0	8,053.8	8,030.6	32.2	28.8	154.99	458.6	164.8	556.1	497.8	58.33	9.533	
8,200.0	8,103.0	8,144.3	8,121.0	32.5	29.1	154.94	462.1	163.8	552.1	493.1	58.96	9.363	
8,300.0	8,203.0	8,238.4	8,215.1	32.8	29.4	154.93	464.2	162.9	549.7	490.1	59.61	9.222	
8,400.0	8,303.0	8,333.3	8,310.0	33.1	29.8	154.92	465.7	162.2	548.0	487.7	60.26	9.094	
8,484.9	8,388.0	8,412.3	8,389.0	33.4	30.0	154.99	465.9	161.5	547.5	486.7	60.78	9.008	
8,500.0	8,403.0	8,426.1	8,402.8	33.4	30.1	155.01	465.7	161.3	547.5	486.6	60.87	8.995	
8,600.0	8,503.0	8,564.4	8,540.5	33.7	30.5	156.02	463.3	151.8	547.1	485.3	61.77	8.857	
8,700.0	8,603.0	8,736.6	8,704.4	34.1	31.1	160.89	469.9	100.5	530.4	468.1	62.26	8.519	
8,800.0	8,703.0	8,858.0	8,811.4	34.4	31.4	166.81	476.3	43.9	510.2	447.5	62.79	8.126	
8,813.5	8,716.5	8,870.6	8,821.9	34.4	31.5	167.57	477.1	36.9	507.4	444.5	62.90	8.068	
8,825.0	8,728.0	8,881.7	8,831.0	34.5	31.5	78.27	477.7	30.7	505.1	442.1	62.99	8.018	
8,850.0	8,753.0	8,904.2	8,849.2	34.5	31.6	80.49	478.8	17.4	499.9	436.7	63.19	7.911	
8,875.0	8,777.9	8,924.3	8,865.1	34.6	31.6	82.69	479.8	5.1	495.0	431.6	63.41	7.806	
8,900.0	8,802.6	8,942.0	8,878.6	34.7	31.7	84.79	480.6	-6.2	490.4	426.8	63.62	7.708	
8,925.0	8,827.0	8,957.5	8,890.2	34.8	31.7	86.73	481.2	-16.4	486.4	422.6	63.82	7.622	
8,950.0	8,851.2	8,970.3	8,899.6	34.8	31.7	88.41	481.7	-25.2	483.2	419.2	63.98	7.553	
8,975.0	8,875.0	8,979.6	8,906.3	34.9	31.8	89.66	482.0	-31.6	481.0	416.9	64.08	7.505	
9,000.0	8,898.3	8,987.3	8,911.8	35.0	31.8	90.64	482.2	-37.0	479.8	415.7	64.12	7.483	
9,012.3	8,909.6	8,990.6	8,914.1	35.0	31.8	91.02	482.3	-39.4	479.7	415.5	64.10	7.482	

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 131H
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 131H	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	Semi Major Axis Offset	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
9,025.0	8,921.2	8,995.3	8,917.3	35.0	31.8	91.53	482.4	-42.7	479.8	415.7	64.09	7.487	
9,050.0	8,943.5	8,999.4	8,920.2	35.1	31.8	91.85	482.4	-45.7	481.1	417.1	63.96	7.521	
9,075.0	8,965.1	9,004.0	8,923.3	35.2	31.8	92.08	482.5	-49.0	483.6	419.8	63.77	7.582	
9,100.0	8,986.1	9,008.9	8,926.6	35.2	31.8	92.20	482.5	-52.6	487.3	423.8	63.55	7.669	
9,125.0	9,006.4	9,008.9	8,926.6	35.3	31.8	91.58	482.5	-52.6	492.4	429.2	63.19	7.793	
9,150.0	9,025.8	9,008.9	8,926.6	35.3	31.8	90.80	482.5	-52.6	498.7	435.9	62.79	7.942	
9,175.0	9,044.5	9,008.9	8,926.6	35.4	31.8	89.86	482.5	-52.6	506.1	443.8	62.37	8.115	
9,200.0	9,062.2	9,008.9	8,926.6	35.4	31.8	88.77	482.5	-52.6	514.7	452.7	61.96	8.307	
9,225.0	9,078.9	9,008.9	8,926.6	35.5	31.8	87.52	482.5	-52.6	524.3	462.7	61.56	8.517	
9,250.0	9,094.7	9,006.3	8,924.9	35.5	31.8	85.83	482.5	-50.7	534.8	473.7	61.11	8.752	
9,275.0	9,109.4	9,003.4	8,922.9	35.5	31.8	83.97	482.5	-48.6	546.2	485.5	60.69	9.000	
9,300.0	9,123.1	8,999.8	8,920.5	35.6	31.8	81.91	482.4	-46.0	558.3	498.0	60.29	9.260	
9,325.0	9,135.6	8,995.3	8,917.3	35.6	31.8	79.65	482.4	-42.7	571.0	511.1	59.91	9.532	
9,350.0	9,147.0	8,991.5	8,914.7	35.7	31.8	77.40	482.3	-40.0	584.3	524.7	59.61	9.802	
9,375.0	9,157.2	8,986.9	8,911.5	35.7	31.8	75.00	482.2	-36.7	598.0	538.7	59.34	10.078	
9,400.0	9,166.3	8,981.7	8,907.8	35.7	31.8	72.52	482.1	-33.1	612.1	553.0	59.11	10.355	
9,425.0	9,174.0	8,976.4	8,904.0	35.8	31.8	70.02	481.9	-29.4	626.5	567.6	58.94	10.629	
9,450.0	9,180.5	8,968.1	8,898.0	35.8	31.7	67.28	481.6	-23.7	641.1	582.3	58.73	10.916	
9,475.0	9,185.8	8,964.0	8,895.0	35.9	31.7	64.95	481.5	-20.8	655.8	597.0	58.72	11.168	
9,500.0	9,189.8	8,954.6	8,888.1	36.0	31.7	62.26	481.1	-14.5	670.5	611.9	58.57	11.447	
9,525.0	9,192.4	8,949.5	8,884.3	36.0	31.7	59.99	480.9	-11.1	685.2	626.5	58.63	11.685	
9,550.0	9,193.8	8,941.0	8,877.9	36.1	31.7	57.58	480.5	-5.5	699.7	641.1	58.62	11.937	
9,563.5	9,194.0	8,937.5	8,875.2	36.2	31.6	56.40	480.4	-3.3	707.5	648.9	58.67	12.060	
9,600.0	9,194.0	8,927.6	8,867.6	36.3	31.6	55.80	480.0	3.1	729.1	670.2	58.81	12.397	
9,700.0	9,194.0	8,896.4	8,843.0	36.9	31.5	53.92	478.4	22.1	791.9	732.9	59.08	13.404	
9,800.0	9,194.0	8,869.3	8,820.8	37.7	31.5	52.32	477.0	37.6	859.9	800.5	59.48	14.459	
9,900.0	9,194.0	8,847.0	8,802.1	38.7	31.4	51.03	475.7	49.7	932.2	872.2	59.97	15.545	
10,000.0	9,194.0	8,819.9	8,778.8	39.8	31.3	49.50	474.1	63.5	1,008.0	947.7	60.28	16.720	
10,100.0	9,194.0	8,799.5	8,761.0	41.1	31.2	48.37	473.0	73.3	1,086.6	1,025.9	60.71	17.897	
10,200.0	9,194.0	8,779.1	8,742.9	42.4	31.2	47.27	471.9	82.6	1,167.6	1,106.6	61.08	19.115	
10,300.0	9,194.0	8,760.2	8,725.8	43.9	31.1	46.26	471.0	90.9	1,250.7	1,189.3	61.43	20.361	
10,400.0	9,194.0	8,744.3	8,711.4	45.4	31.1	45.43	470.3	97.5	1,335.6	1,273.8	61.78	21.619	
10,500.0	9,194.0	8,725.1	8,693.8	47.0	31.0	44.46	469.3	105.0	1,422.0	1,360.0	62.03	22.923	
10,600.0	9,194.0	8,711.7	8,681.4	48.7	31.0	43.80	468.6	110.1	1,509.7	1,447.3	62.33	24.219	
10,700.0	9,194.0	8,698.3	8,668.9	50.5	30.9	43.16	467.8	115.0	1,598.5	1,535.9	62.60	25.536	
10,800.0	9,194.0	8,691.0	8,662.1	52.3	30.9	42.81	467.4	117.5	1,688.3	1,625.4	62.90	26.840	
10,900.0	9,194.0	8,677.9	8,649.8	54.1	30.9	42.21	466.6	122.0	1,779.0	1,715.9	63.10	28.191	
11,000.0	9,194.0	8,665.1	8,637.8	56.0	30.8	41.63	465.9	126.1	1,870.3	1,807.1	63.29	29.554	
11,100.0	9,194.0	8,658.0	8,631.0	58.0	30.8	41.30	465.6	128.4	1,962.4	1,898.9	63.50	30.902	
11,200.0	9,194.0	8,644.4	8,618.1	59.9	30.8	40.70	464.9	132.5	2,055.0	1,991.4	63.64	32.293	
11,300.0	9,194.0	8,638.1	8,612.1	61.9	30.7	40.42	464.6	134.4	2,148.2	2,084.4	63.82	33.659	
11,400.0	9,194.0	8,630.9	8,605.1	64.0	30.7	40.10	464.4	136.4	2,241.9	2,177.9	63.98	35.039	
11,500.0	9,194.0	8,617.3	8,592.1	66.0	30.7	39.50	463.9	140.1	2,336.0	2,271.9	64.08	36.456	
11,600.0	9,194.0	8,617.3	8,592.1	68.1	30.7	39.50	463.9	140.1	2,430.5	2,366.2	64.27	37.819	
11,700.0	9,194.0	8,608.8	8,583.9	70.2	30.6	39.14	463.7	142.3	2,525.3	2,460.9	64.38	39.226	
11,800.0	9,194.0	8,603.7	8,579.0	72.3	30.6	38.92	463.6	143.5	2,620.5	2,556.0	64.50	40.625	
11,900.0	9,194.0	8,603.7	8,579.0	74.5	30.6	38.92	463.6	143.5	2,716.0	2,651.3	64.65	42.008	
12,000.0	9,194.0	8,590.1	8,565.8	76.6	30.6	38.34	463.4	146.7	2,811.7	2,747.0	64.71	43.451	
12,100.0	9,194.0	8,590.1	8,565.8	78.8	30.6	38.34	463.4	146.7	2,907.7	2,842.8	64.84	44.842	
12,200.0	9,194.0	8,590.1	8,565.8	81.0	30.6	38.34	463.4	146.7	3,003.9	2,939.0	64.97	46.238	
12,300.0	9,194.0	8,583.3	8,559.1	83.2	30.6	38.04	463.3	148.2	3,100.4	3,035.3	65.05	47.665	
12,400.0	9,194.0	8,576.6	8,552.5	85.4	30.5	37.76	463.3	149.5	3,197.0	3,131.9	65.12	49.093	

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 131H
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 131H	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			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		
12,500.0	9,194.0	8,576.6	8,552.5	87.6	30.5	37.76	463.3	149.5	3,293.8	3,228.6	65.23	50.497			
12,600.0	9,194.0	8,576.6	8,552.5	89.8	30.5	37.76	463.3	149.5	3,390.8	3,325.5	65.33	51.904			
12,700.0	9,194.0	8,576.6	8,552.5	92.1	30.5	37.76	463.3	149.5	3,488.0	3,422.6	65.43	53.312			
12,800.0	9,194.0	8,563.0	8,539.2	94.3	30.5	37.19	463.3	152.1	3,585.3	3,519.8	65.46	54.774			
12,900.0	9,194.0	8,563.0	8,539.2	96.6	30.5	37.19	463.3	152.1	3,682.7	3,617.1	65.55	56.184			
13,000.0	9,194.0	8,563.0	8,539.2	98.9	30.5	37.19	463.3	152.1	3,780.2	3,714.6	65.63	57.595			
13,100.0	9,194.0	8,563.0	8,539.2	101.1	30.5	37.19	463.3	152.1	3,877.9	3,812.2	65.72	59.007			
13,200.0	9,194.0	8,563.0	8,539.2	103.4	30.5	37.19	463.3	152.1	3,975.7	3,909.9	65.80	60.419			
13,300.0	9,194.0	8,556.9	8,533.1	105.7	30.5	36.93	463.3	153.1	4,073.5	4,007.6	65.86	61.854			
13,400.0	9,194.0	8,549.6	8,525.9	108.0	30.5	36.63	463.4	154.2	4,171.5	4,105.6	65.91	63.294			
13,500.0	9,194.0	8,549.6	8,525.9	110.3	30.5	36.63	463.4	154.2	4,269.5	4,203.5	65.98	64.706			
13,600.0	9,194.0	8,549.6	8,525.9	112.6	30.5	36.63	463.4	154.2	4,367.6	4,301.6	66.06	66.117			
13,700.0	9,194.0	8,549.6	8,525.9	114.9	30.5	36.63	463.4	154.2	4,465.8	4,399.7	66.13	67.528			
13,800.0	9,194.0	8,549.6	8,525.9	117.2	30.5	36.63	463.4	154.2	4,564.1	4,497.9	66.21	68.938			
13,900.0	9,194.0	8,549.6	8,525.9	119.5	30.5	36.63	463.4	154.2	4,662.5	4,596.2	66.28	70.347			
14,000.0	9,194.0	8,549.6	8,525.9	121.9	30.5	36.63	463.4	154.2	4,760.9	4,694.5	66.35	71.755			
14,100.0	9,194.0	8,543.5	8,519.9	124.2	30.4	36.38	463.5	155.1	4,859.3	4,792.9	66.40	73.183			
14,200.0	9,194.0	8,536.1	8,512.6	126.5	30.4	36.08	463.6	156.1	4,957.9	4,891.5	66.44	74.617			
14,300.0	9,194.0	8,536.1	8,512.6	128.9	30.4	36.08	463.6	156.1	5,056.5	4,990.0	66.51	76.020			
14,400.0	9,194.0	8,536.1	8,512.6	131.2	30.4	36.08	463.6	156.1	5,155.1	5,088.5	66.58	77.422			
14,500.0	9,194.0	8,536.1	8,512.6	133.5	30.4	36.08	463.6	156.1	5,253.8	5,187.1	66.65	78.823			
14,600.0	9,194.0	8,536.1	8,512.6	135.9	30.4	36.08	463.6	156.1	5,352.5	5,285.8	66.72	80.221			
14,700.0	9,194.0	8,536.1	8,512.6	138.2	30.4	36.08	463.6	156.1	5,451.3	5,384.5	66.79	81.618			
14,800.0	9,194.0	8,536.1	8,512.6	140.6	30.4	36.08	463.6	156.1	5,550.1	5,483.2	66.86	83.013			
14,900.0	9,194.0	8,536.1	8,512.6	142.9	30.4	36.08	463.6	156.1	5,648.9	5,582.0	66.93	84.405			
15,000.0	9,194.0	8,536.1	8,512.6	145.3	30.4	36.08	463.6	156.1	5,747.8	5,680.8	66.99	85.796			
15,100.0	9,194.0	8,536.1	8,512.6	147.6	30.4	36.08	463.6	156.1	5,846.8	5,779.7	67.06	87.184			
15,200.0	9,194.0	8,536.1	8,512.6	150.0	30.4	36.08	463.6	156.1	5,945.7	5,878.6	67.13	88.570			
15,300.0	9,194.0	8,529.1	8,505.6	152.3	30.4	35.80	463.7	156.9	6,044.7	5,977.5	67.18	89.980			
15,400.0	9,194.0	8,522.7	8,499.3	154.7	30.4	35.54	463.9	157.6	6,143.7	6,076.5	67.23	91.386			
15,500.0	9,194.0	8,522.7	8,499.3	157.1	30.4	35.54	463.9	157.6	6,242.8	6,175.5	67.30	92.764			
15,600.0	9,194.0	8,522.7	8,499.3	159.4	30.4	35.54	463.9	157.6	6,341.9	6,274.5	67.37	94.140			
15,700.0	9,194.0	8,522.7	8,499.3	161.8	30.4	35.54	463.9	157.6	6,441.0	6,373.5	67.44	95.513			
15,800.0	9,194.0	8,522.7	8,499.3	164.2	30.4	35.54	463.9	157.6	6,540.1	6,472.6	67.51	96.883			
15,900.0	9,194.0	8,522.7	8,499.3	166.5	30.4	35.54	463.9	157.6	6,639.2	6,571.7	67.57	98.250			
16,000.0	9,194.0	8,522.7	8,499.3	168.9	30.4	35.54	463.9	157.6	6,738.4	6,670.8	67.64	99.615			
16,100.0	9,194.0	8,522.7	8,499.3	171.3	30.4	35.54	463.9	157.6	6,837.6	6,769.9	67.71	100.977			
16,200.0	9,194.0	8,522.7	8,499.3	173.6	30.4	35.54	463.9	157.6	6,936.9	6,869.1	67.79	102.335			
16,300.0	9,194.0	8,522.7	8,499.3	176.0	30.4	35.54	463.9	157.6	7,036.1	6,968.2	67.86	103.691			
16,400.0	9,194.0	8,522.7	8,499.3	178.4	30.4	35.54	463.9	157.6	7,135.4	7,067.4	67.93	105.043			
16,500.0	9,194.0	8,522.7	8,499.3	180.8	30.4	35.54	463.9	157.6	7,234.7	7,166.7	68.00	106.393			
16,600.0	9,194.0	8,522.7	8,499.3	183.1	30.4	35.54	463.9	157.6	7,334.0	7,265.9	68.07	107.739			
16,700.0	9,194.0	8,522.7	8,499.3	185.5	30.4	35.54	463.9	157.6	7,433.3	7,365.2	68.14	109.082			
16,800.0	9,194.0	8,522.7	8,499.3	187.9	30.4	35.54	463.9	157.6	7,532.6	7,464.4	68.22	110.422			
16,900.0	9,194.0	8,522.7	8,499.3	190.3	30.4	35.54	463.9	157.6	7,632.0	7,563.7	68.29	111.758			
17,000.0	9,194.0	8,522.7	8,499.3	192.7	30.4	35.54	463.9	157.6	7,731.4	7,663.0	68.36	113.091			
17,100.0	9,194.0	8,522.7	8,499.3	195.0	30.4	35.54	463.9	157.6	7,830.8	7,762.3	68.44	114.421			
17,200.0	9,194.0	8,516.3	8,492.9	197.4	30.4	35.29	464.0	158.2	7,930.1	7,861.6	68.50	115.773			
17,300.0	9,194.0	8,515.9	8,492.4	199.8	30.3	35.27	464.0	158.2	8,029.6	7,961.0	68.57	117.097			
17,400.0	9,194.0	8,509.3	8,485.9	202.2	30.3	35.01	464.1	158.7	8,129.0	8,060.4	68.63	118.444			
17,500.0	9,194.0	8,509.3	8,485.9	204.6	30.3	35.01	464.1	158.7	8,228.5	8,159.8	68.71	119.760			
17,600.0	9,194.0	8,509.3	8,485.9	207.0	30.3	35.01	464.1	158.7	8,327.9	8,259.1	68.78	121.072			

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 131H
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 131H	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
Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre		Rule Assigned:		Distance	Minimum	Separation	Warning		
Measured	Vertical	Measured	Vertical	Reference	Offset	Toolface	+N/-S	+E/-W	Between	Between	Separation		
Depth	Depth	Depth	Depth	(usft)	(usft)	(°)	(usft)	(usft)	Centres	Ellipses	(usft)		
(usft)	(usft)	(usft)	(usft)						(usft)	(usft)	(usft)		
17,700.0	9,194.0	8,509.3	8,485.9	209.4	30.3	35.01	464.1	158.7	8,427.4	8,358.5	68.86	122.380	
17,800.0	9,194.0	8,509.3	8,485.9	211.8	30.3	35.01	464.1	158.7	8,526.9	8,457.9	68.94	123.685	
17,900.0	9,194.0	8,509.3	8,485.9	214.1	30.3	35.01	464.1	158.7	8,626.4	8,557.3	69.02	124.986	
18,000.0	9,194.0	8,509.3	8,485.9	216.5	30.3	35.01	464.1	158.7	8,725.9	8,656.8	69.10	126.284	
18,100.0	9,194.0	8,509.3	8,485.9	218.9	30.3	35.01	464.1	158.7	8,825.4	8,756.2	69.18	127.577	
18,200.0	9,194.0	8,509.3	8,485.9	221.3	30.3	35.01	464.1	158.7	8,924.9	8,855.6	69.26	128.867	
18,300.0	9,194.0	8,509.3	8,485.9	223.7	30.3	35.01	464.1	158.7	9,024.4	8,955.1	69.34	130.153	
18,400.0	9,194.0	8,509.3	8,485.9	226.1	30.3	35.01	464.1	158.7	9,124.0	9,054.5	69.42	131.436	
18,500.0	9,194.0	8,509.3	8,485.9	228.5	30.3	35.01	464.1	158.7	9,223.5	9,154.0	69.50	132.714	
18,600.0	9,194.0	8,509.3	8,485.9	230.9	30.3	35.01	464.1	158.7	9,323.1	9,253.5	69.58	133.989	
18,700.0	9,194.0	8,509.3	8,485.9	233.3	30.3	35.01	464.1	158.7	9,422.7	9,353.0	69.66	135.259	
18,800.0	9,194.0	8,509.3	8,485.9	235.7	30.3	35.01	464.1	158.7	9,522.2	9,452.5	69.75	136.526	
18,900.0	9,194.0	8,509.3	8,485.9	238.1	30.3	35.01	464.1	158.7	9,621.8	9,552.0	69.83	137.789	
19,000.0	9,194.0	8,509.3	8,485.9	240.5	30.3	35.01	464.1	158.7	9,721.4	9,651.5	69.91	139.048	
19,100.0	9,194.0	8,509.3	8,485.9	242.9	30.3	35.01	464.1	158.7	9,821.0	9,751.0	70.00	140.303	
19,200.0	9,194.0	8,509.3	8,485.9	245.3	30.3	35.01	464.1	158.7	9,920.6	9,850.6	70.08	141.554	
19,300.0	9,194.0	8,509.3	8,485.9	247.7	30.3	35.01	464.1	158.7	10,020.3	9,950.1	70.17	142.801	
19,400.0	9,194.0	8,509.3	8,485.9	250.1	30.3	35.01	464.1	158.7	10,119.9	10,049.6	70.26	144.044	
19,500.0	9,194.0	8,509.3	8,485.9	252.5	30.3	35.01	464.1	158.7	10,219.5	10,149.2	70.34	145.283	
19,600.0	9,194.0	8,509.3	8,485.9	254.9	30.3	35.01	464.1	158.7	10,319.2	10,248.7	70.43	146.517	
19,700.0	9,194.0	8,509.3	8,485.9	257.3	30.3	35.01	464.1	158.7	10,418.8	10,348.3	70.52	147.748	
19,800.0	9,194.0	8,509.3	8,485.9	259.7	30.3	35.01	464.1	158.7	10,518.5	10,447.9	70.61	148.975	
19,818.1	9,194.0	8,509.3	8,485.9	260.1	30.3	35.01	464.1	158.7	10,536.6	10,465.9	70.62	149.197	

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 131H
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 131H	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 +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	-135.90	-104.9	-101.6	146.0					
100.0	100.0	98.9	98.9	0.1	0.2	-136.18	-105.6	-101.4	146.4	146.0	0.37	391.525		
200.0	200.0	197.9	197.8	0.5	0.6	-136.98	-107.8	-100.6	147.5	146.4	1.09	135.618		
300.0	300.0	297.5	297.4	0.8	1.0	-138.10	-111.0	-99.6	149.1	147.3	1.80	82.658		
400.0	400.0	397.2	397.1	1.2	1.3	-139.32	-114.5	-98.4	151.0	148.5	2.52	59.892		
500.0	500.0	497.9	497.7	1.6	1.7	-140.44	-117.8	-97.3	152.8	149.6	3.24	47.145		
600.0	600.0	598.8	598.6	1.9	2.0	-141.23	-120.0	-96.4	154.0	150.0	3.96	38.861		
700.0	700.0	699.5	699.2	2.3	2.4	-142.01	-122.0	-95.3	154.8	150.1	4.68	33.065		
800.0	800.0	801.2	800.9	2.6	2.8	-142.79	-123.3	-93.6	154.8	149.4	5.40	28.653		
900.0	900.0	902.6	902.3	3.0	3.1	-143.61	-123.7	-91.2	153.7	147.6	6.12	25.133		
1,000.0	1,000.0	1,003.7	1,003.3	3.4	3.5	-144.82	-124.1	-87.5	151.9	145.0	6.83	22.235		
1,100.0	1,100.0	1,104.0	1,103.4	3.7	3.8	-146.71	-124.9	-82.0	149.5	141.9	7.54	19.818		
1,200.0	1,200.0	1,203.5	1,202.9	4.1	4.2	-148.33	-125.4	-77.4	147.4	139.1	8.25	17.855		
1,300.0	1,300.0	1,301.2	1,300.5	4.4	4.5	-149.29	-125.3	-74.4	145.8	136.8	8.96	16.270		
1,400.0	1,400.0	1,402.6	1,401.9	4.8	4.9	-149.88	-125.6	-72.9	145.3	135.6	9.68	15.010		
1,500.0	1,500.0	1,504.3	1,503.6	5.1	5.2	-149.95	-124.0	-71.7	143.3	132.9	10.38	13.805		
1,600.0	1,600.0	1,605.8	1,605.1	5.5	5.6	-149.84	-121.1	-70.4	140.2	129.1	11.08	12.645		
1,700.0	1,700.0	1,703.5	1,702.7	5.9	5.9	-149.85	-118.6	-68.9	137.1	125.4	11.78	11.638		
1,726.0	1,726.0	1,727.8	1,727.0	6.0	6.0	-145.78	-118.3	-68.6	136.9	124.9	11.96	11.440 CC, ES		
1,800.0	1,800.0	1,800.1	1,799.3	6.2	6.3	-146.65	-119.4	-67.8	138.8	126.3	12.49	11.115		
1,900.0	1,899.8	1,893.7	1,892.7	6.6	6.6	-148.66	-122.0	-66.2	144.9	131.7	13.17	11.004 SF		
2,000.0	1,999.5	1,985.3	1,983.9	6.9	6.9	-151.86	-130.5	-64.9	160.2	146.3	13.81	11.598		
2,100.0	2,098.7	2,086.0	2,084.1	7.3	7.3	-155.31	-140.8	-63.5	180.1	165.6	14.54	12.388		
2,200.0	2,197.5	2,183.8	2,181.5	7.7	7.6	-158.39	-149.5	-61.6	202.2	187.0	15.24	13.267		
2,300.0	2,295.6	2,271.9	2,269.0	8.0	8.0	-161.08	-158.9	-59.4	229.5	213.7	15.86	14.469		
2,400.0	2,393.4	2,363.6	2,360.0	8.4	8.3	-163.75	-170.8	-56.9	261.2	244.7	16.52	15.812		
2,500.0	2,491.3	2,456.7	2,452.2	8.8	8.6	-165.88	-183.7	-54.5	294.0	276.8	17.19	17.105		
2,600.0	2,589.1	2,550.9	2,545.5	9.2	9.0	-167.55	-196.7	-52.4	327.2	309.3	17.87	18.306		
2,700.0	2,686.9	2,645.7	2,639.3	9.6	9.3	-168.86	-209.6	-50.6	360.4	341.8	18.56	19.413		
2,800.0	2,784.7	2,740.6	2,733.3	10.1	9.6	-169.88	-222.2	-49.3	393.5	374.2	19.26	20.434		
2,900.0	2,882.5	2,833.5	2,825.4	10.5	10.0	-170.67	-234.6	-48.3	426.7	406.8	19.93	21.406		
3,000.0	2,980.3	2,925.5	2,916.6	10.9	10.3	-171.33	-247.2	-47.5	460.4	439.8	20.61	22.344		
3,100.0	3,078.1	3,018.2	3,008.4	11.4	10.7	-171.89	-260.3	-46.8	494.5	473.2	21.29	23.232		
3,200.0	3,176.0	3,111.6	3,100.8	11.8	11.0	-172.40	-273.6	-46.0	528.8	506.8	21.97	24.064		
3,300.0	3,273.8	3,205.7	3,193.9	12.2	11.3	-172.85	-287.0	-45.1	563.1	540.4	22.67	24.840		
3,400.0	3,371.6	3,300.2	3,287.4	12.7	11.7	-173.22	-300.4	-44.5	597.4	574.0	23.37	25.562		
3,500.0	3,469.4	3,393.4	3,379.7	13.1	12.0	-173.54	-313.6	-44.1	631.6	607.6	24.06	26.252		
3,600.0	3,567.2	3,485.9	3,471.2	13.6	12.4	-173.81	-326.8	-43.8	666.1	641.3	24.75	26.917		
3,700.0	3,665.0	3,580.8	3,565.1	14.0	12.7	-174.05	-340.5	-43.6	700.7	675.2	25.45	27.527		
3,800.0	3,762.8	3,687.3	3,670.6	14.5	13.1	-174.34	-354.9	-42.8	734.3	708.1	26.26	27.966		
3,900.0	3,860.7	3,783.1	3,765.7	14.9	13.5	-174.65	-368.8	-41.1	767.0	740.0	26.97	28.435		
4,000.0	3,958.5	3,894.6	3,876.5	15.4	13.9	-174.95	-379.9	-39.5	799.1	771.3	27.81	28.738		
4,100.0	4,056.3	4,021.9	4,003.3	15.8	14.3	-175.34	-389.9	-36.5	827.3	798.6	28.73	28.799		
4,200.0	4,154.1	4,121.3	4,102.5	16.3	14.7	-175.60	-396.0	-34.5	854.0	824.6	29.46	28.990		
4,300.0	4,251.9	4,220.2	4,201.2	16.7	15.1	-175.84	-401.9	-32.5	880.5	850.3	30.19	29.166		
4,400.0	4,349.7	4,320.0	4,300.8	17.2	15.4	-176.07	-407.4	-30.5	906.7	875.8	30.92	29.319		
4,500.0	4,447.5	4,424.6	4,405.2	17.7	15.8	-176.32	-412.7	-28.0	932.3	900.7	31.69	29.424		
4,600.0	4,545.4	4,516.6	4,497.1	18.1	16.1	-176.59	-416.8	-24.9	957.5	925.1	32.38	29.574		
4,700.0	4,643.2	4,611.4	4,591.7	18.6	16.5	-176.95	-421.2	-20.0	982.9	949.8	33.08	29.712		
4,800.0	4,741.0	4,678.4	4,658.3	19.1	16.7	-177.28	-426.1	-15.0	1,010.7	977.1	33.61	30.070		
4,900.0	4,838.8	4,778.3	4,757.5	19.5	17.1	-177.83	-433.8	-6.3	1,039.2	1,004.9	34.35	30.254		
5,000.0	4,936.6	4,877.2	4,855.7	20.0	17.4	-178.39	-440.9	3.2	1,067.4	1,032.4	35.08	30.427		

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 131H
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 131H	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		Minimum Separation (usft)	Separation Factor	Warning	
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
5,100.0	5,034.4	4,966.0	4,943.9	20.5	17.7	-178.87	-447.5	11.8	1,095.9	1,060.1	35.75	30.656		
5,200.0	5,132.3	5,038.1	5,015.4	20.9	18.0	-179.21	-454.1	18.2	1,126.0	1,089.7	36.30	31.021		
5,300.0	5,230.1	5,128.5	5,105.0	21.4	18.3	-179.57	-463.2	25.3	1,156.9	1,119.9	36.98	31.289		
5,400.0	5,327.9	5,195.3	5,171.2	21.9	18.6	-179.79	-470.5	30.2	1,189.0	1,151.5	37.47	31.731		
5,500.0	5,425.7	5,288.9	5,263.8	22.3	18.9	-179.97	-482.9	35.7	1,222.8	1,184.7	38.18	32.031		
5,600.0	5,523.5	5,416.2	5,390.1	22.8	19.4	179.73	-498.0	41.9	1,255.6	1,216.4	39.14	32.077		
5,700.0	5,621.3	5,535.0	5,508.3	23.3	19.8	179.59	-509.0	45.9	1,285.5	1,245.5	40.03	32.117		
5,800.0	5,719.1	5,625.1	5,598.0	23.7	20.2	179.51	-516.8	48.4	1,314.9	1,274.1	40.70	32.302		
5,900.0	5,817.0	5,704.1	5,676.6	24.2	20.5	179.45	-525.1	50.5	1,345.8	1,304.5	41.31	32.581		
6,000.0	5,914.8	5,795.4	5,767.4	24.7	20.8	179.39	-534.4	52.8	1,376.6	1,334.6	42.00	32.781		
6,100.0	6,012.6	5,842.9	5,814.5	25.2	21.0	179.36	-540.0	54.1	1,409.2	1,366.9	42.35	33.279		
6,200.0	6,110.4	5,923.8	5,894.5	25.6	21.3	179.30	-552.0	56.8	1,444.5	1,401.5	42.95	33.630		
6,300.0	6,208.2	6,057.1	6,026.5	26.1	21.8	179.27	-570.1	59.3	1,478.5	1,434.5	43.98	33.620		
6,337.0	6,244.4	6,108.9	6,078.0	26.3	22.0	179.28	-576.2	59.8	1,490.4	1,446.0	44.37	33.593		
6,400.0	6,306.2	6,194.8	6,163.4	26.6	22.3	179.29	-585.0	60.5	1,509.1	1,464.1	45.00	33.536		
6,500.0	6,404.7	6,247.3	6,215.6	27.0	22.5	179.29	-590.5	61.3	1,536.5	1,491.1	45.40	33.844		
6,600.0	6,503.8	6,375.0	6,342.4	27.4	22.9	179.26	-605.8	63.9	1,562.0	1,515.7	46.34	33.707		
6,700.0	6,603.3	6,467.9	6,434.8	27.8	23.3	179.27	-615.2	64.6	1,582.1	1,535.1	47.02	33.648		
6,800.0	6,703.1	6,517.3	6,483.8	28.2	23.5	179.26	-621.2	65.6	1,600.8	1,553.4	47.36	33.799		
6,900.0	6,803.0	6,673.2	6,638.1	28.5	24.0	179.14	-642.5	70.9	1,618.8	1,570.3	48.50	33.379		
6,937.0	6,840.0	6,710.2	6,674.9	28.6	24.2	174.97	-646.2	71.5	1,622.8	1,574.0	48.76	33.281		
7,000.0	6,903.0	6,760.0	6,724.4	28.8	24.4	174.97	-651.4	72.1	1,629.4	1,580.3	49.11	33.178		
7,100.0	7,003.0	6,793.5	6,757.7	29.1	24.5	174.96	-655.7	72.6	1,642.4	1,593.1	49.31	33.306		
7,200.0	7,103.0	6,827.1	6,790.8	29.4	24.6	174.96	-661.3	73.2	1,659.3	1,609.8	49.46	33.548		
7,300.0	7,203.0	6,944.4	6,905.9	29.7	25.0	174.96	-683.7	75.1	1,678.6	1,628.2	50.33	33.348		
7,400.0	7,303.0	7,124.2	7,083.7	30.0	25.7	175.06	-710.6	74.4	1,693.1	1,641.4	51.70	32.748		
7,500.0	7,403.0	7,251.3	7,209.8	30.3	26.2	175.15	-726.1	73.2	1,705.1	1,652.5	52.61	32.412		
7,600.0	7,503.0	7,339.6	7,297.5	30.6	26.5	175.19	-736.0	73.0	1,716.4	1,663.1	53.23	32.242		
7,700.0	7,603.0	7,471.9	7,429.0	30.9	27.0	175.12	-750.6	76.3	1,727.6	1,673.4	54.17	31.891		
7,800.0	7,703.0	7,542.1	7,498.8	31.2	27.2	175.07	-757.7	78.3	1,738.1	1,683.4	54.68	31.789		
7,900.0	7,803.0	7,610.0	7,566.1	31.5	27.5	174.99	-766.1	81.4	1,750.8	1,695.7	55.15	31.744		
8,000.0	7,903.0	7,656.8	7,612.4	31.9	27.7	174.93	-772.8	84.0	1,765.7	1,710.3	55.45	31.845		
8,100.0	8,003.0	7,688.2	7,621.7	32.2	28.5	174.60	-798.6	96.5	1,777.7	1,720.7	57.00	31.186		
8,200.0	8,103.0	7,719.9	7,673.0	32.5	28.6	174.50	-803.9	100.1	1,789.0	1,731.6	57.38	31.179		
8,300.0	8,203.0	7,992.8	7,944.9	32.8	28.9	174.32	-813.7	106.5	1,803.1	1,745.2	57.89	31.147		
8,400.0	8,303.0	8,139.7	8,090.4	33.1	29.5	174.09	-831.6	115.7	1,815.7	1,756.8	58.95	30.799		
8,500.0	8,403.0	8,257.5	8,207.5	33.4	29.9	174.03	-844.6	119.0	1,826.9	1,767.1	59.79	30.554		
8,600.0	8,503.0	8,298.1	8,247.8	33.7	30.0	174.01	-849.4	120.0	1,839.2	1,779.1	60.08	30.610		
8,700.0	8,603.0	8,419.7	8,368.2	34.1	30.5	173.89	-865.6	125.6	1,853.0	1,792.0	60.96	30.395		
8,800.0	8,703.0	8,521.0	8,468.7	34.4	30.9	173.81	-877.6	129.6	1,865.2	1,803.5	61.69	30.235		
8,813.5	8,716.5	8,528.9	8,476.5	34.4	30.9	173.80	-878.6	129.8	1,866.9	1,805.2	61.75	30.235		
8,825.0	8,728.0	8,535.0	8,482.6	34.5	30.9	83.35	-879.4	129.9	1,868.4	1,806.6	61.79	30.238		
8,850.0	8,753.0	8,535.0	8,482.6	34.5	30.9	82.95	-879.4	129.9	1,871.7	1,809.9	61.78	30.298		
8,875.0	8,777.9	8,549.0	8,496.4	34.6	31.0	82.59	-881.5	130.1	1,875.1	1,813.2	61.87	30.309		
8,900.0	8,802.6	8,549.0	8,496.4	34.7	31.0	82.17	-881.5	130.1	1,878.5	1,816.7	61.84	30.376		
8,925.0	8,827.0	8,549.0	8,496.4	34.8	31.0	81.74	-881.5	130.1	1,882.1	1,820.3	61.81	30.449		
8,950.0	8,851.2	8,563.0	8,510.2	34.8	31.0	81.43	-884.0	130.0	1,885.8	1,823.9	61.90	30.466		
8,975.0	8,875.0	8,563.0	8,510.2	34.9	31.0	80.98	-884.0	130.0	1,889.5	1,827.6	61.86	30.545		
9,000.0	8,898.3	8,568.3	8,515.3	35.0	31.0	80.59	-885.0	129.9	1,893.3	1,831.4	61.86	30.604		
9,025.0	8,921.2	8,576.4	8,523.3	35.0	31.1	80.25	-886.8	129.7	1,897.1	1,835.2	61.89	30.652		
9,050.0	8,943.5	8,576.4	8,523.3	35.1	31.1	79.79	-886.8	129.7	1,901.0	1,839.1	61.84	30.739		
9,075.0	8,965.1	8,582.1	8,528.8	35.2	31.1	79.41	-888.0	129.5	1,904.9	1,843.0	61.84	30.801		

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 131H
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 131H	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			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		
9,100.0	8,986.1	8,589.9	8,536.4	35.2	31.1	79.08	-889.9	129.2	1,908.9	1,847.0	61.87	30.853			
9,125.0	9,006.4	8,589.9	8,536.4	35.3	31.1	78.61	-889.9	129.2	1,912.8	1,851.0	61.82	30.943			
9,150.0	9,025.8	8,589.9	8,536.4	35.3	31.1	78.13	-889.9	129.2	1,916.9	1,855.1	61.77	31.034			
9,175.0	9,044.5	8,597.8	8,544.0	35.4	31.2	77.82	-891.9	128.7	1,920.9	1,859.1	61.80	31.082			
9,200.0	9,062.2	8,603.3	8,549.3	35.4	31.2	77.47	-893.4	128.4	1,924.9	1,863.1	61.82	31.140			
9,225.0	9,078.9	8,603.3	8,549.3	35.5	31.2	76.98	-893.4	128.4	1,929.0	1,867.2	61.78	31.226			
9,250.0	9,094.7	8,603.3	8,549.3	35.5	31.2	76.50	-893.4	128.4	1,933.1	1,871.3	61.74	31.310			
9,275.0	9,109.4	8,610.4	8,556.1	35.5	31.2	76.21	-895.4	127.8	1,937.1	1,875.3	61.79	31.348			
9,300.0	9,123.1	8,616.7	8,562.1	35.6	31.2	75.90	-897.2	127.3	1,941.2	1,879.3	61.85	31.387			
9,325.0	9,135.6	8,616.7	8,562.1	35.6	31.2	75.42	-897.2	127.3	1,945.2	1,883.3	61.84	31.457			
9,350.0	9,147.0	8,616.7	8,562.1	35.7	31.2	74.95	-897.2	127.3	1,949.2	1,887.3	61.84	31.521			
9,375.0	9,157.2	8,616.7	8,562.1	35.7	31.2	74.49	-897.2	127.3	1,953.1	1,891.3	61.85	31.578			
9,400.0	9,166.3	8,616.7	8,562.1	35.7	31.2	74.03	-897.2	127.3	1,957.1	1,895.2	61.88	31.630			
9,425.0	9,174.0	8,616.7	8,562.1	35.8	31.2	73.57	-897.2	127.3	1,961.0	1,899.1	61.91	31.674			
9,450.0	9,180.5	8,622.5	8,567.6	35.8	31.3	73.29	-898.9	126.8	1,964.8	1,902.8	62.03	31.674			
9,475.0	9,185.8	8,623.1	8,568.2	35.9	31.3	72.87	-899.1	126.8	1,968.6	1,906.5	62.10	31.698			
9,500.0	9,189.8	8,623.4	8,568.5	36.0	31.3	72.45	-899.2	126.7	1,972.3	1,910.1	62.18	31.716			
9,525.0	9,192.4	8,623.5	8,568.5	36.0	31.3	72.04	-899.2	126.7	1,975.9	1,913.6	62.28	31.728			
9,550.0	9,193.8	8,623.3	8,568.3	36.1	31.3	71.62	-899.2	126.7	1,979.4	1,917.0	62.38	31.733			
9,563.5	9,194.0	8,623.0	8,568.1	36.2	31.3	71.40	-899.1	126.8	1,981.3	1,918.8	62.44	31.733			
9,600.0	9,194.0	8,622.3	8,567.4	36.3	31.2	71.38	-898.9	126.8	1,986.6	1,924.0	62.60	31.732			
9,700.0	9,194.0	8,616.7	8,562.1	36.9	31.2	71.22	-897.2	127.3	2,004.6	1,941.5	63.10	31.769			
9,800.0	9,194.0	8,616.7	8,562.1	37.7	31.2	71.22	-897.2	127.3	2,027.3	1,963.5	63.74	31.803			
9,900.0	9,194.0	8,616.7	8,562.1	38.7	31.2	71.22	-897.2	127.3	2,054.6	1,990.1	64.46	31.876			
10,000.0	9,194.0	8,616.7	8,562.1	39.8	31.2	71.22	-897.2	127.3	2,086.3	2,021.1	65.22	31.991			
10,100.0	9,194.0	8,616.7	8,562.1	41.1	31.2	71.22	-897.2	127.3	2,122.3	2,056.3	66.00	32.154			
10,200.0	9,194.0	8,616.7	8,562.1	42.4	31.2	71.22	-897.2	127.3	2,162.3	2,095.5	66.81	32.366			
10,300.0	9,194.0	8,616.7	8,562.1	43.9	31.2	71.22	-897.2	127.3	2,206.2	2,138.6	67.61	32.630			
10,400.0	9,194.0	8,609.9	8,555.6	45.4	31.2	71.02	-895.2	127.9	2,253.5	2,185.2	68.33	32.981			
10,500.0	9,194.0	8,603.3	8,549.3	47.0	31.2	70.83	-893.4	128.4	2,304.4	2,235.3	69.03	33.382			
10,600.0	9,194.0	8,603.3	8,549.3	48.7	31.2	70.83	-893.4	128.4	2,358.2	2,288.5	69.78	33.795			
10,700.0	9,194.0	8,603.3	8,549.3	50.5	31.2	70.83	-893.4	128.4	2,415.1	2,344.6	70.50	34.254			
10,800.0	9,194.0	8,603.3	8,549.3	52.3	31.2	70.83	-893.4	128.4	2,474.7	2,403.5	71.20	34.759			
10,900.0	9,194.0	8,603.3	8,549.3	54.1	31.2	70.83	-893.4	128.4	2,536.8	2,464.9	71.85	35.306			
11,000.0	9,194.0	8,603.3	8,549.3	56.0	31.2	70.83	-893.4	128.4	2,601.3	2,528.8	72.47	35.893			
11,100.0	9,194.0	8,603.3	8,549.3	58.0	31.2	70.83	-893.4	128.4	2,667.9	2,594.9	73.06	36.518			
11,200.0	9,194.0	8,603.3	8,549.3	59.9	31.2	70.83	-893.4	128.4	2,736.6	2,663.0	73.61	37.177			
11,300.0	9,194.0	8,603.3	8,549.3	61.9	31.2	70.83	-893.4	128.4	2,807.2	2,733.1	74.13	37.869			
11,400.0	9,194.0	8,603.3	8,549.3	64.0	31.2	70.83	-893.4	128.4	2,879.5	2,804.9	74.62	38.592			
11,500.0	9,194.0	8,603.3	8,549.3	66.0	31.2	70.83	-893.4	128.4	2,953.5	2,878.4	75.07	39.342			
11,600.0	9,194.0	8,603.3	8,549.3	68.1	31.2	70.83	-893.4	128.4	3,028.9	2,953.4	75.50	40.118			
11,700.0	9,194.0	8,597.4	8,543.6	70.2	31.2	70.66	-891.8	128.7	3,105.7	3,029.8	75.84	40.949			
11,800.0	9,194.0	8,596.7	8,542.9	72.3	31.2	70.64	-891.6	128.8	3,183.8	3,107.6	76.21	41.776			
11,900.0	9,194.0	8,596.0	8,542.2	74.5	31.2	70.62	-891.5	128.8	3,263.1	3,186.5	76.56	42.622			
12,000.0	9,194.0	8,589.9	8,536.4	76.6	31.1	70.44	-889.9	129.2	3,343.5	3,266.7	76.83	43.518			
12,100.0	9,194.0	8,589.9	8,536.4	78.8	31.1	70.44	-889.9	129.2	3,425.0	3,347.8	77.14	44.397			
12,200.0	9,194.0	8,589.9	8,536.4	81.0	31.1	70.44	-889.9	129.2	3,507.3	3,429.9	77.44	45.294			
12,300.0	9,194.0	8,589.9	8,536.4	83.2	31.1	70.44	-889.9	129.2	3,590.6	3,512.9	77.71	46.205			
12,400.0	9,194.0	8,589.9	8,536.4	85.4	31.1	70.44	-889.9	129.2	3,674.7	3,596.8	77.97	47.130			
12,500.0	9,194.0	8,589.9	8,536.4	87.6	31.1	70.44	-889.9	129.2	3,759.6	3,681.4	78.21	48.068			
12,600.0	9,194.0	8,589.9	8,536.4	89.8	31.1	70.44	-889.9	129.2	3,845.3	3,766.8	78.45	49.019			
12,700.0	9,194.0	8,589.9	8,536.4	92.1	31.1	70.44	-889.9	129.2	3,931.6	3,852.9	78.66	49.980			

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 131H
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 131H	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		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,800.0	9,194.0	8,589.9	8,536.4	94.3	31.1	70.44	-889.9	129.2	4,018.5	3,939.6	78.87	50.952	
12,900.0	9,194.0	8,589.9	8,536.4	96.6	31.1	70.44	-889.9	129.2	4,106.0	4,027.0	79.06	51.933	
13,000.0	9,194.0	8,589.9	8,536.4	98.9	31.1	70.44	-889.9	129.2	4,194.1	4,114.9	79.25	52.923	
13,100.0	9,194.0	8,589.9	8,536.4	101.1	31.1	70.44	-889.9	129.2	4,282.7	4,203.3	79.43	53.921	
13,200.0	9,194.0	8,589.9	8,536.4	103.4	31.1	70.44	-889.9	129.2	4,371.8	4,292.2	79.59	54.927	
13,300.0	9,194.0	8,589.9	8,536.4	105.7	31.1	70.44	-889.9	129.2	4,461.4	4,381.6	79.75	55.940	
13,400.0	9,194.0	8,589.9	8,536.4	108.0	31.1	70.44	-889.9	129.2	4,551.4	4,471.5	79.91	56.960	
13,500.0	9,194.0	8,589.9	8,536.4	110.3	31.1	70.44	-889.9	129.2	4,641.8	4,561.8	80.05	57.986	
13,600.0	9,194.0	8,589.9	8,536.4	112.6	31.1	70.44	-889.9	129.2	4,732.6	4,652.4	80.19	59.017	
13,700.0	9,194.0	8,589.9	8,536.4	114.9	31.1	70.44	-889.9	129.2	4,823.8	4,743.4	80.32	60.053	
13,800.0	9,194.0	8,589.9	8,536.4	117.2	31.1	70.44	-889.9	129.2	4,915.3	4,834.8	80.45	61.095	
13,900.0	9,194.0	8,589.9	8,536.4	119.5	31.1	70.44	-889.9	129.2	5,007.1	4,926.5	80.58	62.141	
14,000.0	9,194.0	8,589.9	8,536.4	121.9	31.1	70.44	-889.9	129.2	5,099.2	5,018.5	80.70	63.191	
14,100.0	9,194.0	8,589.9	8,536.4	124.2	31.1	70.44	-889.9	129.2	5,191.6	5,110.8	80.81	64.244	
14,200.0	9,194.0	8,589.9	8,536.4	126.5	31.1	70.44	-889.9	129.2	5,284.3	5,203.4	80.92	65.302	
14,300.0	9,194.0	8,589.9	8,536.4	128.9	31.1	70.44	-889.9	129.2	5,377.3	5,296.3	81.03	66.362	
14,400.0	9,194.0	8,589.9	8,536.4	131.2	31.1	70.44	-889.9	129.2	5,470.5	5,389.4	81.13	67.426	
14,500.0	9,194.0	8,583.6	8,530.3	133.5	31.1	70.26	-888.4	129.4	5,563.9	5,482.7	81.19	68.533	
14,600.0	9,194.0	8,583.3	8,530.0	135.9	31.1	70.25	-888.3	129.5	5,657.6	5,576.3	81.28	69.605	
14,700.0	9,194.0	8,582.9	8,529.6	138.2	31.1	70.24	-888.2	129.5	5,751.5	5,670.1	81.38	70.678	
14,800.0	9,194.0	8,582.6	8,529.3	140.6	31.1	70.23	-888.2	129.5	5,845.6	5,764.1	81.47	71.754	
14,900.0	9,194.0	8,576.4	8,523.3	142.9	31.1	70.05	-886.8	129.7	5,939.9	5,858.4	81.51	72.872	
15,000.0	9,194.0	8,576.4	8,523.3	145.3	31.1	70.05	-886.8	129.7	6,034.3	5,952.7	81.60	73.950	
15,100.0	9,194.0	8,576.4	8,523.3	147.6	31.1	70.05	-886.8	129.7	6,129.0	6,047.3	81.69	75.029	
15,200.0	9,194.0	8,576.4	8,523.3	150.0	31.1	70.05	-886.8	129.7	6,223.8	6,142.0	81.77	76.109	
15,300.0	9,194.0	8,576.4	8,523.3	152.3	31.1	70.05	-886.8	129.7	6,318.7	6,236.9	81.86	77.191	
15,400.0	9,194.0	8,576.4	8,523.3	154.7	31.1	70.05	-886.8	129.7	6,413.8	6,331.9	81.94	78.274	
15,500.0	9,194.0	8,576.4	8,523.3	157.1	31.1	70.05	-886.8	129.7	6,509.1	6,427.1	82.02	79.358	
15,600.0	9,194.0	8,576.4	8,523.3	159.4	31.1	70.05	-886.8	129.7	6,604.5	6,522.4	82.10	80.442	
15,700.0	9,194.0	8,576.4	8,523.3	161.8	31.1	70.05	-886.8	129.7	6,700.0	6,617.8	82.18	81.528	
15,800.0	9,194.0	8,576.4	8,523.3	164.2	31.1	70.05	-886.8	129.7	6,795.7	6,713.4	82.26	82.614	
15,900.0	9,194.0	8,576.4	8,523.3	166.5	31.1	70.05	-886.8	129.7	6,891.5	6,809.1	82.34	83.700	
16,000.0	9,194.0	8,576.4	8,523.3	168.9	31.1	70.05	-886.8	129.7	6,987.4	6,905.0	82.41	84.787	
16,100.0	9,194.0	8,576.4	8,523.3	171.3	31.1	70.05	-886.8	129.7	7,083.4	7,000.9	82.49	85.874	
16,200.0	9,194.0	8,576.4	8,523.3	173.6	31.1	70.05	-886.8	129.7	7,179.5	7,097.0	82.56	86.961	
16,300.0	9,194.0	8,576.4	8,523.3	176.0	31.1	70.05	-886.8	129.7	7,275.8	7,193.1	82.63	88.048	
16,400.0	9,194.0	8,576.4	8,523.3	178.4	31.1	70.05	-886.8	129.7	7,372.1	7,289.4	82.71	89.135	
16,500.0	9,194.0	8,576.4	8,523.3	180.8	31.1	70.05	-886.8	129.7	7,468.5	7,385.7	82.78	90.222	
16,600.0	9,194.0	8,576.4	8,523.3	183.1	31.1	70.05	-886.8	129.7	7,565.0	7,482.2	82.85	91.309	
16,700.0	9,194.0	8,576.4	8,523.3	185.5	31.1	70.05	-886.8	129.7	7,661.6	7,578.7	82.92	92.395	
16,800.0	9,194.0	8,576.4	8,523.3	187.9	31.1	70.05	-886.8	129.7	7,758.3	7,675.3	82.99	93.481	
16,900.0	9,194.0	8,576.4	8,523.3	190.3	31.1	70.05	-886.8	129.7	7,855.1	7,772.0	83.06	94.567	
17,000.0	9,194.0	8,576.4	8,523.3	192.7	31.1	70.05	-886.8	129.7	7,952.0	7,868.8	83.13	95.652	
17,100.0	9,194.0	8,576.4	8,523.3	195.0	31.1	70.05	-886.8	129.7	8,048.9	7,965.7	83.20	96.736	
17,200.0	9,194.0	8,576.4	8,523.3	197.4	31.1	70.05	-886.8	129.7	8,145.9	8,062.6	83.27	97.820	
17,300.0	9,194.0	8,576.4	8,523.3	199.8	31.1	70.05	-886.8	129.7	8,243.0	8,159.6	83.34	98.903	
17,400.0	9,194.0	8,576.4	8,523.3	202.2	31.1	70.05	-886.8	129.7	8,340.1	8,256.7	83.41	99.985	
17,500.0	9,194.0	8,576.4	8,523.3	204.6	31.1	70.05	-886.8	129.7	8,437.4	8,353.9	83.48	101.067	
17,600.0	9,194.0	8,576.4	8,523.3	207.0	31.1	70.05	-886.8	129.7	8,534.6	8,451.1	83.55	102.147	
17,700.0	9,194.0	8,576.4	8,523.3	209.4	31.1	70.05	-886.8	129.7	8,632.0	8,548.4	83.62	103.227	
17,800.0	9,194.0	8,576.4	8,523.3	211.8	31.1	70.05	-886.8	129.7	8,729.4	8,645.7	83.69	104.306	
17,900.0	9,194.0	8,576.4	8,523.3	214.1	31.1	70.05	-886.8	129.7	8,826.8	8,743.1	83.76	105.383	

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 131H
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 131H	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 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	
18,000.0	9,194.0	8,576.4	8,523.3	216.5	31.1	70.05	-886.8	129.7	8,924.4	8,840.5	83.83	106.460		
18,100.0	9,194.0	8,576.4	8,523.3	218.9	31.1	70.05	-886.8	129.7	9,021.9	8,938.0	83.90	107.535		
18,200.0	9,194.0	8,576.4	8,523.3	221.3	31.1	70.05	-886.8	129.7	9,119.6	9,035.6	83.97	108.609		
18,300.0	9,194.0	8,576.4	8,523.3	223.7	31.1	70.05	-886.8	129.7	9,217.2	9,133.2	84.04	109.682		
18,400.0	9,194.0	8,576.4	8,523.3	226.1	31.1	70.05	-886.8	129.7	9,315.0	9,230.8	84.11	110.753		
18,500.0	9,194.0	8,576.4	8,523.3	228.5	31.1	70.05	-886.8	129.7	9,412.7	9,328.5	84.17	111.824		
18,600.0	9,194.0	8,576.4	8,523.3	230.9	31.1	70.05	-886.8	129.7	9,510.5	9,426.3	84.24	112.893		
18,700.0	9,194.0	8,576.4	8,523.3	233.3	31.1	70.05	-886.8	129.7	9,608.4	9,524.1	84.31	113.960		
18,800.0	9,194.0	8,576.4	8,523.3	235.7	31.1	70.05	-886.8	129.7	9,706.3	9,621.9	84.38	115.026		
18,900.0	9,194.0	8,576.4	8,523.3	238.1	31.1	70.05	-886.8	129.7	9,804.3	9,719.8	84.45	116.091		
19,000.0	9,194.0	8,576.4	8,523.3	240.5	31.1	70.05	-886.8	129.7	9,902.2	9,817.7	84.52	117.154		
19,100.0	9,194.0	8,576.4	8,523.3	242.9	31.1	70.05	-886.8	129.7	10,000.3	9,915.7	84.59	118.215		
19,200.0	9,194.0	8,576.4	8,523.3	245.3	31.1	70.05	-886.8	129.7	10,098.3	10,013.7	84.66	119.275		
19,300.0	9,194.0	8,576.4	8,523.3	247.7	31.1	70.05	-886.8	129.7	10,196.5	10,111.7	84.74	120.333		
19,400.0	9,194.0	8,576.4	8,523.3	250.1	31.1	70.05	-886.8	129.7	10,294.6	10,209.8	84.81	121.390		
19,500.0	9,194.0	8,576.4	8,523.3	252.5	31.1	70.05	-886.8	129.7	10,392.8	10,307.9	84.88	122.445		
19,600.0	9,194.0	8,576.4	8,523.3	254.9	31.1	70.05	-886.8	129.7	10,491.0	10,406.0	84.95	123.498		
19,700.0	9,194.0	8,576.4	8,523.3	257.3	31.1	70.05	-886.8	129.7	10,589.2	10,504.2	85.02	124.549		
19,800.0	9,194.0	8,576.4	8,523.3	259.7	31.1	70.05	-886.8	129.7	10,687.5	10,602.4	85.09	125.599		
19,818.1	9,194.0	8,576.4	8,523.3	260.1	31.1	70.05	-886.8	129.7	10,705.3	10,620.2	85.11	125.789		

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 131H
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 131H	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	
0.0	0.0	0.0	0.0	0.0	0.0	-179.88	-66.0	-0.1	66.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.88	-66.0	-0.1	66.0	65.7	0.25	263.022		
200.0	200.0	200.0	200.0	0.5	0.5	-179.88	-66.0	-0.1	66.0	65.0	0.97	68.191		
300.0	300.0	300.0	300.0	0.8	0.8	-179.88	-66.0	-0.1	66.0	64.3	1.68	39.173		
400.0	400.0	400.0	400.0	1.2	1.2	-179.88	-66.0	-0.1	66.0	63.6	2.40	27.480		
500.0	500.0	500.0	500.0	1.6	1.6	-179.88	-66.0	-0.1	66.0	62.9	3.12	21.163		
600.0	600.0	600.0	600.0	1.9	1.9	-179.88	-66.0	-0.1	66.0	62.2	3.84	17.207		
700.0	700.0	700.0	700.0	2.3	2.3	-179.88	-66.0	-0.1	66.0	61.4	4.55	14.497		
800.0	800.0	800.0	800.0	2.6	2.6	-179.88	-66.0	-0.1	66.0	60.7	5.27	12.525		
900.0	900.0	900.0	900.0	3.0	3.0	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-66.0	-0.1	66.0	54.3	11.72	5.630 CC, ES		
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	-175.82	-66.0	-0.1	67.7	55.3	12.44	5.446		
1,900.0	1,899.8	1,899.8	1,899.8	6.6	6.6	-176.12	-66.0	-0.1	73.0	59.8	13.16	5.546		
2,000.0	1,999.5	1,999.5	1,999.5	6.9	6.9	-176.52	-66.0	-0.1	81.7	67.8	13.87	5.887		
2,100.0	2,098.7	2,098.7	2,098.7	7.3	7.3	-176.96	-66.0	-0.1	93.8	79.2	14.59	6.433		
2,200.0	2,197.5	2,197.5	2,197.5	7.7	7.6	-177.38	-66.0	-0.1	109.4	94.2	15.30	7.155		
2,300.0	2,295.6	2,295.6	2,295.6	8.0	8.0	-177.75	-66.0	-0.1	128.5	112.5	16.01	8.029		
2,400.0	2,393.4	2,393.4	2,393.4	8.4	8.3	-178.07	-66.0	-0.1	149.3	132.6	16.71	8.933		
2,500.0	2,491.3	2,491.3	2,491.3	8.8	8.7	-178.30	-66.0	-0.1	170.1	152.7	17.42	9.764		
2,600.0	2,589.1	2,589.1	2,589.1	9.2	9.0	-178.49	-66.0	-0.1	190.9	172.7	18.13	10.529		
2,700.0	2,686.9	2,686.9	2,686.9	9.6	9.4	-178.64	-66.0	-0.1	211.6	192.8	18.84	11.236		
2,800.0	2,784.7	2,784.7	2,784.7	10.1	9.7	-178.76	-66.0	-0.1	232.4	212.9	19.55	11.890		
2,900.0	2,882.5	2,876.9	2,876.9	10.5	10.1	-178.72	-66.9	-0.7	254.1	233.9	20.21	12.573		
3,000.0	2,980.3	2,967.0	2,966.9	10.9	10.4	-178.35	-70.1	-2.7	278.3	257.5	20.84	13.356		
3,100.0	3,078.1	3,056.3	3,055.9	11.4	10.7	-177.73	-75.8	-6.1	305.1	283.6	21.45	14.222		
3,200.0	3,176.0	3,152.2	3,151.5	11.8	11.0	-177.05	-82.9	-10.5	333.0	310.8	22.13	15.047		
3,300.0	3,273.8	3,248.2	3,247.1	12.2	11.3	-176.47	-90.0	-14.8	360.9	338.0	22.81	15.822		
3,400.0	3,371.6	3,344.2	3,342.7	12.7	11.6	-175.97	-97.2	-19.2	388.8	365.3	23.49	16.551		
3,500.0	3,469.4	3,440.1	3,438.3	13.1	11.9	-175.55	-104.3	-23.6	416.7	392.6	24.18	17.238		
3,600.0	3,567.2	3,536.1	3,533.9	13.6	12.3	-175.17	-111.4	-27.9	444.7	419.9	24.86	17.885		
3,700.0	3,665.0	3,632.1	3,629.5	14.0	12.6	-174.84	-118.6	-32.3	472.7	447.1	25.56	18.497		
3,800.0	3,762.8	3,728.1	3,725.2	14.5	12.9	-174.55	-125.7	-36.7	500.7	474.5	26.25	19.076		
3,900.0	3,860.7	3,824.0	3,820.8	14.9	13.3	-174.28	-132.8	-41.0	528.7	501.8	26.94	19.623		
4,000.0	3,958.5	3,920.0	3,916.4	15.4	13.6	-174.05	-140.0	-45.4	556.7	529.1	27.64	20.142		
4,100.0	4,056.3	4,016.0	4,012.0	15.8	13.9	-173.83	-147.1	-49.8	584.8	556.4	28.34	20.635		
4,200.0	4,154.1	4,111.9	4,107.6	16.3	14.3	-173.64	-154.3	-54.1	612.8	583.8	29.04	21.103		
4,300.0	4,251.9	4,207.9	4,203.2	16.7	14.6	-173.46	-161.4	-58.5	640.9	611.1	29.74	21.547		
4,400.0	4,349.7	4,303.9	4,298.8	17.2	15.0	-173.30	-168.5	-62.8	668.9	638.5	30.44	21.971		
4,500.0	4,447.5	4,399.8	4,394.4	17.7	15.3	-173.15	-175.7	-67.2	697.0	665.8	31.15	22.375		
4,600.0	4,545.4	4,495.8	4,490.0	18.1	15.7	-173.01	-182.8	-71.6	725.0	693.2	31.86	22.759		
4,700.0	4,643.2	4,591.8	4,585.6	18.6	16.0	-172.89	-189.9	-75.9	753.1	720.5	32.56	23.127		
4,800.0	4,741.0	4,687.7	4,681.2	19.1	16.4	-172.77	-197.1	-80.3	781.1	747.9	33.27	23.478		
4,900.0	4,838.8	4,783.7	4,776.8	19.5	16.7	-172.66	-204.2	-84.7	809.2	775.2	33.98	23.814		
5,000.0	4,936.6	4,879.7	4,872.4	20.0	17.1	-172.55	-211.3	-89.0	837.3	802.6	34.69	24.136		
5,100.0	5,034.4	4,975.7	4,968.0	20.5	17.4	-172.46	-218.5	-93.4	865.3	829.9	35.40	24.444		

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 131H
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 131H	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 132H - OWB - PWPO													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		
5,200.0	5,132.3	5,071.6	5,063.6	20.9	17.8	-172.37	-225.6	-97.8	893.4	857.3	36.11	24.739			
5,300.0	5,230.1	5,167.6	5,159.2	21.4	18.1	-172.28	-232.7	-102.1	921.5	884.7	36.83	25.023			
5,400.0	5,327.9	5,263.6	5,254.8	21.9	18.5	-172.20	-239.9	-106.5	949.6	912.0	37.54	25.295			
5,500.0	5,425.7	5,359.5	5,350.4	22.3	18.8	-172.13	-247.0	-110.9	977.6	939.4	38.25	25.556			
5,600.0	5,523.5	5,455.5	5,446.0	22.8	19.2	-172.06	-254.2	-115.2	1,005.7	966.8	38.97	25.808			
5,700.0	5,621.3	5,551.5	5,541.6	23.3	19.5	-171.99	-261.3	-119.6	1,033.8	994.1	39.69	26.050			
5,800.0	5,719.1	5,647.4	5,637.2	23.7	19.9	-171.93	-268.4	-123.9	1,061.9	1,021.5	40.40	26.283			
5,900.0	5,817.0	5,743.4	5,732.8	24.2	20.2	-171.87	-275.6	-128.3	1,090.0	1,048.9	41.12	26.508			
6,000.0	5,914.8	5,839.4	5,828.4	24.7	20.6	-171.81	-282.7	-132.7	1,118.1	1,076.2	41.84	26.724			
6,100.0	6,012.6	5,935.3	5,924.1	25.2	21.0	-171.76	-289.8	-137.0	1,146.1	1,103.6	42.56	26.933			
6,200.0	6,110.4	6,031.3	6,019.7	25.6	21.3	-171.71	-297.0	-141.4	1,174.2	1,131.0	43.27	27.135			
6,300.0	6,208.2	6,127.3	6,115.3	26.1	21.7	-171.66	-304.1	-145.8	1,202.3	1,158.3	43.99	27.329			
6,337.0	6,244.4	6,162.8	6,150.6	26.3	21.8	-171.64	-306.7	-147.4	1,212.7	1,168.5	44.26	27.400			
6,400.0	6,306.2	6,223.4	6,211.0	26.6	22.0	-171.66	-311.2	-150.1	1,229.7	1,185.0	44.71	27.503			
6,500.0	6,404.7	6,320.4	6,307.7	27.0	22.4	-171.66	-318.5	-154.6	1,254.1	1,208.6	45.43	27.604			
6,600.0	6,503.8	6,418.2	6,405.0	27.4	22.8	-171.63	-325.7	-159.0	1,275.0	1,228.9	46.15	27.629			
6,700.0	6,603.3	6,516.6	6,503.1	27.8	23.1	-171.56	-333.0	-163.5	1,292.6	1,245.7	46.86	27.583			
6,800.0	6,703.1	6,615.5	6,601.6	28.2	23.5	-171.47	-340.4	-168.0	1,306.8	1,259.2	47.57	27.469			
6,900.0	6,803.0	6,714.9	6,700.6	28.5	23.9	-171.35	-347.8	-172.5	1,317.5	1,269.3	48.28	27.290			
6,937.0	6,840.0	6,768.9	6,754.4	28.6	24.1	-175.44	-351.5	-174.8	1,320.5	1,271.8	48.66	27.135			
7,000.0	6,903.0	6,875.8	6,861.2	28.8	24.5	-175.33	-356.5	-177.8	1,323.5	1,274.1	49.40	26.794			
7,100.0	7,003.0	7,017.7	7,003.0	29.1	24.9	-175.29	-358.0	-178.7	1,324.5	1,274.2	50.32	26.323			
7,200.0	7,103.0	7,117.7	7,103.0	29.4	25.3	-175.29	-358.0	-178.7	1,324.5	1,273.5	51.00	25.969			
7,300.0	7,203.0	7,217.7	7,203.0	29.7	25.6	-175.29	-358.0	-178.7	1,324.5	1,272.8	51.69	25.625			
7,400.0	7,303.0	7,317.7	7,303.0	30.0	26.0	-175.29	-358.0	-178.7	1,324.5	1,272.1	52.37	25.289			
7,500.0	7,403.0	7,417.7	7,403.0	30.3	26.3	-175.29	-358.0	-178.7	1,324.5	1,271.4	53.06	24.962			
7,600.0	7,503.0	7,517.7	7,503.0	30.6	26.6	-175.29	-358.0	-178.7	1,324.5	1,270.7	53.75	24.643			
7,700.0	7,603.0	7,617.7	7,603.0	30.9	27.0	-175.29	-358.0	-178.7	1,324.5	1,270.0	54.44	24.331			
7,800.0	7,703.0	7,717.7	7,703.0	31.2	27.3	-175.29	-358.0	-178.7	1,324.5	1,269.3	55.13	24.027			
7,900.0	7,803.0	7,817.7	7,803.0	31.5	27.7	-175.29	-358.0	-178.7	1,324.5	1,268.7	55.81	23.730			
8,000.0	7,903.0	7,917.7	7,903.0	31.9	28.0	-175.29	-358.0	-178.7	1,324.5	1,268.0	56.51	23.440			
8,100.0	8,003.0	8,017.7	8,003.0	32.2	28.3	-175.29	-358.0	-178.7	1,324.5	1,267.3	57.20	23.156			
8,200.0	8,103.0	8,117.7	8,103.0	32.5	28.7	-175.29	-358.0	-178.7	1,324.5	1,266.6	57.89	22.880			
8,300.0	8,203.0	8,217.7	8,203.0	32.8	29.0	-175.29	-358.0	-178.7	1,324.5	1,265.9	58.58	22.609			
8,400.0	8,303.0	8,317.7	8,303.0	33.1	29.4	-175.29	-358.0	-178.7	1,324.5	1,265.2	59.27	22.345			
8,500.0	8,403.0	8,417.7	8,403.0	33.4	29.7	-175.29	-358.0	-178.7	1,324.5	1,264.5	59.97	22.086			
8,600.0	8,503.0	8,517.7	8,503.0	33.7	30.0	-175.29	-358.0	-178.7	1,324.5	1,263.8	60.66	21.834			
8,700.0	8,603.0	8,617.7	8,603.0	34.1	30.4	-175.29	-358.0	-178.7	1,324.5	1,263.1	61.36	21.587			
8,800.0	8,703.0	8,717.7	8,703.0	34.4	30.7	-175.29	-358.0	-178.7	1,324.5	1,262.4	62.05	21.345			
8,813.5	8,716.5	8,731.1	8,716.5	34.4	30.8	-175.29	-358.0	-178.7	1,324.5	1,262.3	62.15	21.312			
8,825.0	8,728.0	8,745.8	8,731.2	34.5	30.8	94.43	-358.0	-178.5	1,324.5	1,262.2	62.24	21.280			
8,850.0	8,753.0	8,777.6	8,762.9	34.5	30.9	94.41	-358.0	-176.5	1,324.4	1,262.0	62.44	21.213			
8,875.0	8,777.9	8,809.3	8,794.4	34.6	31.0	94.38	-358.0	-172.3	1,324.4	1,261.8	62.63	21.148			
8,900.0	8,802.6	8,841.0	8,825.4	34.7	31.1	94.33	-358.1	-166.2	1,324.3	1,261.5	62.81	21.084			
8,925.0	8,827.0	8,872.5	8,855.8	34.8	31.2	94.27	-358.1	-158.0	1,324.2	1,261.2	62.99	21.022			
8,950.0	8,851.2	8,903.9	8,885.5	34.8	31.3	94.19	-358.2	-147.8	1,324.1	1,260.9	63.16	20.963			
8,975.0	8,875.0	8,935.1	8,914.3	34.9	31.4	94.10	-358.2	-135.8	1,323.9	1,260.6	63.33	20.904			
9,000.0	8,898.3	8,966.1	8,942.1	35.0	31.5	93.99	-358.3	-122.1	1,323.8	1,260.3	63.50	20.848			
9,025.0	8,921.2	8,996.8	8,968.7	35.0	31.6	93.87	-358.4	-106.7	1,323.6	1,259.9	63.66	20.792			
9,050.0	8,943.5	9,027.3	8,994.0	35.1	31.6	93.74	-358.4	-89.8	1,323.4	1,259.6	63.82	20.737			
9,075.0	8,965.1	9,057.5	9,018.0	35.2	31.7	93.59	-358.5	-71.5	1,323.2	1,259.2	63.97	20.683			
9,100.0	8,986.1	9,087.3	9,040.6	35.2	31.7	93.44	-358.6	-51.9	1,322.9	1,258.8	64.13	20.628			

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 131H
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 131H	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 132H - OWB - PWPO														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		
9,125.0	9,006.4	9,116.9	9,061.7	35.3	31.8	93.27	-358.7	-31.2	1,322.7	1,258.4	64.29	20.573			
9,150.0	9,025.8	9,146.1	9,081.2	35.3	31.8	93.10	-358.8	-9.4	1,322.5	1,258.0	64.46	20.517			
9,175.0	9,044.5	9,175.1	9,099.2	35.4	31.9	92.91	-358.9	13.2	1,322.3	1,257.6	64.63	20.459			
9,200.0	9,062.2	9,203.6	9,115.6	35.4	31.9	92.72	-359.1	36.6	1,322.1	1,257.2	64.81	20.400			
9,225.0	9,078.9	9,231.8	9,130.4	35.5	32.0	92.53	-359.2	60.6	1,321.8	1,256.8	64.99	20.338			
9,250.0	9,094.7	9,259.7	9,143.5	35.5	32.1	92.32	-359.3	85.2	1,321.6	1,256.4	65.19	20.274			
9,275.0	9,109.4	9,287.3	9,155.1	35.5	32.2	92.11	-359.4	110.1	1,321.4	1,256.0	65.39	20.207			
9,300.0	9,123.1	9,314.4	9,165.2	35.6	32.3	91.90	-359.5	135.4	1,321.3	1,255.7	65.61	20.138			
9,325.0	9,135.6	9,341.3	9,173.6	35.6	32.4	91.68	-359.7	160.9	1,321.1	1,255.3	65.84	20.066			
9,350.0	9,147.0	9,367.8	9,180.6	35.7	32.6	91.46	-359.8	186.5	1,321.0	1,254.9	66.08	19.991			
9,375.0	9,157.2	9,394.0	9,186.0	35.7	32.7	91.24	-359.9	212.1	1,320.8	1,254.5	66.33	19.914			
9,400.0	9,166.3	9,419.9	9,190.0	35.7	32.9	91.02	-360.0	237.7	1,320.7	1,254.1	66.59	19.834			
9,425.0	9,174.0	9,445.5	9,192.6	35.8	33.0	90.79	-360.2	263.1	1,320.6	1,253.8	66.86	19.752			
9,450.0	9,180.5	9,470.7	9,193.9	35.8	33.2	90.56	-360.3	288.3	1,320.6	1,253.4	67.14	19.668			
9,475.0	9,185.8	9,495.5	9,194.0	35.9	33.3	90.35	-360.4	313.1	1,320.5	1,253.1	67.44	19.582			
9,500.0	9,189.8	9,520.1	9,194.0	36.0	33.5	90.18	-360.5	337.7	1,320.5	1,252.7	67.76	19.489			
9,525.0	9,192.4	9,545.0	9,194.0	36.0	33.7	90.07	-360.6	362.6	1,320.5	1,252.4	68.09	19.394			
9,550.0	9,193.8	9,570.0	9,194.0	36.1	33.9	90.01	-360.8	387.5	1,320.5	1,252.1	68.43	19.297			
9,563.5	9,194.0	9,583.4	9,194.0	36.2	34.0	90.00	-360.8	401.0	1,320.5	1,251.9	68.62	19.244			
9,600.0	9,194.0	9,620.0	9,194.0	36.3	34.3	90.00	-361.0	437.5	1,320.5	1,251.3	69.17	19.091			
9,700.0	9,194.0	9,720.0	9,194.0	36.9	35.2	90.00	-361.5	537.5	1,320.5	1,249.6	70.88	18.629			
9,800.0	9,194.0	9,820.0	9,194.0	37.7	36.3	90.00	-362.0	637.5	1,320.5	1,247.6	72.88	18.119			
9,900.0	9,194.0	9,920.0	9,194.0	38.7	37.5	90.00	-362.5	737.5	1,320.5	1,245.3	75.14	17.575			
10,000.0	9,194.0	10,020.0	9,194.0	39.8	38.8	90.00	-363.0	837.5	1,320.5	1,242.8	77.63	17.010			
10,100.0	9,194.0	10,120.0	9,194.0	41.1	40.2	90.00	-363.4	937.5	1,320.5	1,240.1	80.33	16.437			
10,200.0	9,194.0	10,220.0	9,194.0	42.4	41.7	90.00	-363.9	1,037.5	1,320.5	1,237.2	83.24	15.864			
10,300.0	9,194.0	10,320.0	9,194.0	43.9	43.2	90.00	-364.4	1,137.5	1,320.5	1,234.1	86.31	15.299			
10,400.0	9,194.0	10,420.0	9,194.0	45.4	44.9	90.00	-364.9	1,237.5	1,320.4	1,230.9	89.54	14.747			
10,500.0	9,194.0	10,520.0	9,194.0	47.0	46.6	90.00	-365.4	1,337.5	1,320.4	1,227.5	92.91	14.211			
10,600.0	9,194.0	10,620.0	9,194.0	48.7	48.4	90.00	-365.9	1,437.5	1,320.4	1,224.0	96.41	13.696			
10,700.0	9,194.0	10,720.0	9,194.0	50.5	50.2	90.00	-366.4	1,537.5	1,320.4	1,220.4	100.02	13.202			
10,800.0	9,194.0	10,820.0	9,194.0	52.3	52.1	90.00	-366.9	1,637.5	1,320.4	1,216.7	103.73	12.729			
10,900.0	9,194.0	10,920.0	9,194.0	54.1	54.1	90.00	-367.4	1,737.5	1,320.4	1,212.9	107.53	12.279			
11,000.0	9,194.0	11,020.0	9,194.0	56.0	56.0	90.00	-367.8	1,837.5	1,320.4	1,209.0	111.41	11.852			
11,100.0	9,194.0	11,120.0	9,194.0	58.0	58.0	90.00	-368.3	1,937.5	1,320.4	1,205.0	115.37	11.445			
11,200.0	9,194.0	11,220.0	9,194.0	59.9	60.1	90.00	-368.8	2,037.5	1,320.4	1,201.0	119.39	11.060			
11,300.0	9,194.0	11,320.0	9,194.0	61.9	62.1	90.00	-369.3	2,137.5	1,320.4	1,196.9	123.46	10.695			
11,400.0	9,194.0	11,420.0	9,194.0	64.0	64.2	90.00	-369.8	2,237.5	1,320.4	1,192.8	127.60	10.348			
11,500.0	9,194.0	11,520.0	9,194.0	66.0	66.3	90.00	-370.3	2,337.5	1,320.4	1,188.6	131.78	10.020			
11,600.0	9,194.0	11,620.0	9,194.0	68.1	68.4	90.00	-370.8	2,437.5	1,320.4	1,184.4	136.00	9.709			
11,700.0	9,194.0	11,720.0	9,194.0	70.2	70.6	90.00	-371.3	2,537.5	1,320.4	1,180.1	140.27	9.413			
11,800.0	9,194.0	11,820.0	9,194.0	72.3	72.7	90.00	-371.7	2,637.5	1,320.4	1,175.8	144.57	9.133			
11,900.0	9,194.0	11,920.0	9,194.0	74.5	74.9	90.00	-372.2	2,737.5	1,320.4	1,171.5	148.90	8.867			
12,000.0	9,194.0	12,020.0	9,194.0	76.6	77.1	90.00	-372.7	2,837.5	1,320.4	1,167.1	153.27	8.615			
12,100.0	9,194.0	12,120.0	9,194.0	78.8	79.3	90.00	-373.2	2,937.5	1,320.4	1,162.7	157.66	8.375			
12,200.0	9,194.0	12,220.0	9,194.0	81.0	81.5	90.00	-373.7	3,037.5	1,320.4	1,158.3	162.08	8.147			
12,300.0	9,194.0	12,320.0	9,194.0	83.2	83.8	90.00	-374.2	3,137.5	1,320.4	1,153.8	166.52	7.929			
12,400.0	9,194.0	12,420.0	9,194.0	85.4	86.0	90.00	-374.7	3,237.5	1,320.4	1,149.4	170.98	7.722			
12,500.0	9,194.0	12,520.0	9,194.0	87.6	88.3	90.00	-375.2	3,337.5	1,320.3	1,144.9	175.47	7.525			
12,600.0	9,194.0	12,620.0	9,194.0	89.8	90.5	90.00	-375.6	3,437.5	1,320.3	1,140.4	179.97	7.336			
12,700.0	9,194.0	12,720.0	9,194.0	92.1	92.8	90.00	-376.1	3,537.5	1,320.3	1,135.8	184.49	7.157			
12,800.0	9,194.0	12,820.0	9,194.0	94.3	95.1	90.00	-376.6	3,637.5	1,320.3	1,131.3	189.02	6.985			

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 131H
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 131H	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 132H - 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:	Minimum Separation (usft)	Separation Factor	Warning		
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Ellipses (usft)					
12,900.0	9,194.0	12,920.0	9,194.0	96.6	97.3	90.00	-377.1	3,737.5	1,320.3	1,126.8	193.58	6.821		
13,000.0	9,194.0	13,020.0	9,194.0	98.9	99.6	90.00	-377.6	3,837.5	1,320.3	1,122.2	198.14	6.664		
13,100.0	9,194.0	13,120.0	9,194.0	101.1	101.9	90.00	-378.1	3,937.5	1,320.3	1,117.6	202.72	6.513		
13,200.0	9,194.0	13,220.0	9,194.0	103.4	104.2	90.00	-378.6	4,037.5	1,320.3	1,113.0	207.31	6.369		
13,300.0	9,194.0	13,320.0	9,194.0	105.7	106.5	90.00	-379.1	4,137.5	1,320.3	1,108.4	211.91	6.231		
13,400.0	9,194.0	13,420.0	9,194.0	108.0	108.8	90.00	-379.5	4,237.5	1,320.3	1,103.8	216.52	6.098		
13,500.0	9,194.0	13,520.0	9,194.0	110.3	111.2	90.00	-380.0	4,337.5	1,320.3	1,099.2	221.14	5.970		
13,600.0	9,194.0	13,620.0	9,194.0	112.6	113.5	90.00	-380.5	4,437.5	1,320.3	1,094.5	225.77	5.848		
13,700.0	9,194.0	13,720.0	9,194.0	114.9	115.8	90.00	-381.0	4,537.5	1,320.3	1,089.9	230.41	5.730		
13,800.0	9,194.0	13,820.0	9,194.0	117.2	118.1	90.00	-381.5	4,637.5	1,320.3	1,085.2	235.06	5.617		
13,900.0	9,194.0	13,920.0	9,194.0	119.5	120.5	90.00	-382.0	4,737.5	1,320.3	1,080.6	239.71	5.508		
14,000.0	9,194.0	14,020.0	9,194.0	121.9	122.8	90.00	-382.5	4,837.5	1,320.3	1,075.9	244.38	5.403		
14,100.0	9,194.0	14,120.0	9,194.0	124.2	125.1	90.00	-383.0	4,937.5	1,320.3	1,071.2	249.05	5.301		
14,200.0	9,194.0	14,220.0	9,194.0	126.5	127.5	90.00	-383.5	5,037.5	1,320.3	1,066.5	253.72	5.204		
14,300.0	9,194.0	14,320.0	9,194.0	128.9	129.8	90.00	-383.9	5,137.5	1,320.3	1,061.9	258.40	5.109		
14,400.0	9,194.0	14,420.0	9,194.0	131.2	132.2	90.00	-384.4	5,237.5	1,320.3	1,057.2	263.09	5.018		
14,500.0	9,194.0	14,520.0	9,194.0	133.5	134.5	90.00	-384.9	5,337.5	1,320.2	1,052.5	267.78	4.930		
14,600.0	9,194.0	14,620.0	9,194.0	135.9	136.9	90.00	-385.4	5,437.5	1,320.2	1,047.8	272.48	4.845		
14,700.0	9,194.0	14,720.0	9,194.0	138.2	139.2	90.00	-385.9	5,537.5	1,320.2	1,043.0	277.19	4.763		
14,800.0	9,194.0	14,820.0	9,194.0	140.6	141.6	90.00	-386.4	5,637.5	1,320.2	1,038.3	281.90	4.683		
14,900.0	9,194.0	14,920.0	9,194.0	142.9	143.9	90.00	-386.9	5,737.5	1,320.2	1,033.6	286.61	4.606		
15,000.0	9,194.0	15,020.0	9,194.0	145.3	146.3	90.00	-387.4	5,837.5	1,320.2	1,028.9	291.33	4.532		
15,100.0	9,194.0	15,120.0	9,194.0	147.6	148.7	90.00	-387.8	5,937.5	1,320.2	1,024.2	296.05	4.459		
15,200.0	9,194.0	15,220.0	9,194.0	150.0	151.0	90.00	-388.3	6,037.5	1,320.2	1,019.4	300.77	4.389		
15,300.0	9,194.0	15,320.0	9,194.0	152.3	153.4	90.00	-388.8	6,137.5	1,320.2	1,014.7	305.50	4.321		
15,400.0	9,194.0	15,420.0	9,194.0	154.7	155.8	90.00	-389.3	6,237.5	1,320.2	1,010.0	310.23	4.256		
15,500.0	9,194.0	15,520.0	9,194.0	157.1	158.1	90.00	-389.8	6,337.5	1,320.2	1,005.2	314.97	4.192		
15,600.0	9,194.0	15,620.0	9,194.0	159.4	160.5	90.00	-390.3	6,437.5	1,320.2	1,000.5	319.71	4.129		
15,700.0	9,194.0	15,720.0	9,194.0	161.8	162.9	90.00	-390.8	6,537.5	1,320.2	995.7	324.45	4.069		
15,800.0	9,194.0	15,820.0	9,194.0	164.2	165.3	90.00	-391.3	6,637.5	1,320.2	991.0	329.19	4.010		
15,900.0	9,194.0	15,920.0	9,194.0	166.5	167.6	90.00	-391.7	6,737.5	1,320.2	986.2	333.94	3.953		
16,000.0	9,194.0	16,020.0	9,194.0	168.9	170.0	90.00	-392.2	6,837.5	1,320.2	981.5	338.69	3.898		
16,100.0	9,194.0	16,120.0	9,194.0	171.3	172.4	90.00	-392.7	6,937.5	1,320.2	976.7	343.45	3.844		
16,200.0	9,194.0	16,220.0	9,194.0	173.6	174.8	90.00	-393.2	7,037.5	1,320.2	972.0	348.20	3.791		
16,300.0	9,194.0	16,320.0	9,194.0	176.0	177.2	90.00	-393.7	7,137.5	1,320.2	967.2	352.96	3.740		
16,400.0	9,194.0	16,420.0	9,194.0	178.4	179.5	90.00	-394.2	7,237.5	1,320.2	962.4	357.72	3.690		
16,500.0	9,194.0	16,520.0	9,194.0	180.8	181.9	90.00	-394.7	7,337.5	1,320.1	957.7	362.48	3.642		
16,600.0	9,194.0	16,620.0	9,194.0	183.1	184.3	90.00	-395.2	7,437.5	1,320.1	952.9	367.25	3.595		
16,700.0	9,194.0	16,720.0	9,194.0	185.5	186.7	90.00	-395.7	7,537.5	1,320.1	948.1	372.01	3.549		
16,800.0	9,194.0	16,820.0	9,194.0	187.9	189.1	90.00	-396.1	7,637.5	1,320.1	943.4	376.78	3.504		
16,900.0	9,194.0	16,920.0	9,194.0	190.3	191.5	90.00	-396.6	7,737.5	1,320.1	938.6	381.55	3.460		
17,000.0	9,194.0	17,020.0	9,194.0	192.7	193.8	90.00	-397.1	7,837.5	1,320.1	933.8	386.32	3.417		
17,100.0	9,194.0	17,120.0	9,194.0	195.0	196.2	90.00	-397.6	7,937.5	1,320.1	929.0	391.10	3.375		
17,200.0	9,194.0	17,220.0	9,194.0	197.4	198.6	90.00	-398.1	8,037.5	1,320.1	924.2	395.87	3.335		
17,300.0	9,194.0	17,320.0	9,194.0	199.8	201.0	90.00	-398.6	8,137.5	1,320.1	919.5	400.65	3.295		
17,400.0	9,194.0	17,420.0	9,194.0	202.2	203.4	90.00	-399.1	8,237.5	1,320.1	914.7	405.43	3.256		
17,500.0	9,194.0	17,520.0	9,194.0	204.6	205.8	90.00	-399.6	8,337.4	1,320.1	909.9	410.21	3.218		
17,600.0	9,194.0	17,620.0	9,194.0	207.0	208.2	90.00	-400.0	8,437.4	1,320.1	905.1	414.99	3.181		
17,700.0	9,194.0	17,720.0	9,194.0	209.4	210.6	90.00	-400.5	8,537.4	1,320.1	900.3	419.77	3.145		
17,800.0	9,194.0	17,820.0	9,194.0	211.8	213.0	90.00	-401.0	8,637.4	1,320.1	895.5	424.56	3.109		
17,900.0	9,194.0	17,920.0	9,194.0	214.1	215.4	90.00	-401.5	8,737.4	1,320.1	890.7	429.34	3.075		
18,000.0	9,194.0	18,020.0	9,194.0	216.5	217.8	90.00	-402.0	8,837.4	1,320.1	885.9	434.13	3.041		

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 131H
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 131H	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			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		
18,100.0	9,194.0	18,120.0	9,194.0	218.9	220.2	90.00	-402.5	8,937.4	1,320.1	881.1	438.92	3.008			
18,200.0	9,194.0	18,220.0	9,194.0	221.3	222.6	90.00	-403.0	9,037.4	1,320.1	876.4	443.71	2.975			
18,300.0	9,194.0	18,320.0	9,194.0	223.7	225.0	90.00	-403.5	9,137.4	1,320.1	871.6	448.50	2.943			
18,400.0	9,194.0	18,420.0	9,194.0	226.1	227.3	90.00	-403.9	9,237.4	1,320.1	866.8	453.29	2.912			
18,500.0	9,194.0	18,520.0	9,194.0	228.5	229.7	90.00	-404.4	9,337.4	1,320.0	862.0	458.09	2.882			
18,600.0	9,194.0	18,620.0	9,194.0	230.9	232.1	90.00	-404.9	9,437.4	1,320.0	857.2	462.88	2.852			
18,700.0	9,194.0	18,720.0	9,194.0	233.3	234.5	90.00	-405.4	9,537.4	1,320.0	852.4	467.67	2.823			
18,800.0	9,194.0	18,820.0	9,194.0	235.7	236.9	90.00	-405.9	9,637.4	1,320.0	847.6	472.47	2.794			
18,900.0	9,194.0	18,920.0	9,194.0	238.1	239.3	90.00	-406.4	9,737.4	1,320.0	842.8	477.27	2.766			
19,000.0	9,194.0	19,020.0	9,194.0	240.5	241.7	90.00	-406.9	9,837.4	1,320.0	838.0	482.06	2.738			
19,100.0	9,194.0	19,120.0	9,194.0	242.9	244.1	90.00	-407.4	9,937.4	1,320.0	833.2	486.86	2.711			
19,200.0	9,194.0	19,220.0	9,194.0	245.3	246.5	90.00	-407.8	10,037.4	1,320.0	828.4	491.66	2.685			
19,300.0	9,194.0	19,320.0	9,194.0	247.7	248.9	90.00	-408.3	10,137.4	1,320.0	823.5	496.46	2.659			
19,400.0	9,194.0	19,420.0	9,194.0	250.1	251.3	90.00	-408.8	10,237.4	1,320.0	818.7	501.26	2.633			
19,500.0	9,194.0	19,520.0	9,194.0	252.5	253.7	90.00	-409.3	10,337.4	1,320.0	813.9	506.07	2.608			
19,600.0	9,194.0	19,620.0	9,194.0	254.9	256.1	90.00	-409.8	10,437.4	1,320.0	809.1	510.87	2.584			
19,700.0	9,194.0	19,720.0	9,194.0	257.3	258.6	90.00	-410.3	10,537.4	1,320.0	804.3	515.67	2.560			
19,800.0	9,194.0	19,820.0	9,194.0	259.7	261.0	90.00	-410.8	10,637.4	1,320.0	799.5	520.48	2.536			
19,818.1	9,194.0	19,838.1	9,194.0	260.1	261.4	90.00	-410.9	10,655.6	1,320.0	798.6	521.35	2.532 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 131H
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 131H	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)	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		
0.0	0.0	0.0	0.0	0.0	0.0	-179.88	-165.0	-0.3	165.0						
100.0	100.0	100.0	100.0	0.1	0.1	-179.88	-165.0	-0.3	165.0	164.7	0.25	657.554			
200.0	200.0	200.0	200.0	0.5	0.5	-179.88	-165.0	-0.3	165.0	164.0	0.97	170.477			
300.0	300.0	300.0	300.0	0.8	0.8	-179.88	-165.0	-0.3	165.0	163.3	1.68	97.934			
400.0	400.0	400.0	400.0	1.2	1.2	-179.88	-165.0	-0.3	165.0	162.6	2.40	68.700			
500.0	500.0	500.0	500.0	1.6	1.6	-179.88	-165.0	-0.3	165.0	161.9	3.12	52.907			
600.0	600.0	600.0	600.0	1.9	1.9	-179.88	-165.0	-0.3	165.0	161.2	3.84	43.018			
700.0	700.0	700.0	700.0	2.3	2.3	-179.88	-165.0	-0.3	165.0	160.4	4.55	36.243			
800.0	800.0	800.0	800.0	2.6	2.6	-179.88	-165.0	-0.3	165.0	159.7	5.27	31.312			
900.0	900.0	900.0	900.0	3.0	3.0	-179.88	-165.0	-0.3	165.0	159.0	5.99	27.562			
1,000.0	1,000.0	1,000.0	1,000.0	3.4	3.4	-179.88	-165.0	-0.3	165.0	158.3	6.70	24.614			
1,100.0	1,100.0	1,100.0	1,100.0	3.7	3.7	-179.88	-165.0	-0.3	165.0	157.6	7.42	22.236			
1,200.0	1,200.0	1,200.0	1,200.0	4.1	4.1	-179.88	-165.0	-0.3	165.0	156.9	8.14	20.277			
1,300.0	1,300.0	1,300.0	1,300.0	4.4	4.4	-179.88	-165.0	-0.3	165.0	156.1	8.85	18.635			
1,400.0	1,400.0	1,400.0	1,400.0	4.8	4.8	-179.88	-165.0	-0.3	165.0	155.4	9.57	17.239			
1,500.0	1,500.0	1,500.0	1,500.0	5.1	5.1	-179.88	-165.0	-0.3	165.0	154.7	10.29	16.038			
1,600.0	1,600.0	1,600.0	1,600.0	5.5	5.5	-179.88	-165.0	-0.3	165.0	154.0	11.01	14.993			
1,700.0	1,700.0	1,700.0	1,700.0	5.9	5.9	-179.88	-165.0	-0.3	165.0	153.3	11.72	14.076 CC, ES			
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	-175.76	-165.0	-0.3	166.7	154.3	12.44	13.405			
1,900.0	1,899.8	1,899.8	1,899.8	6.6	6.6	-175.88	-165.0	-0.3	172.0	158.8	13.16	13.071			
2,000.0	1,999.5	1,999.5	1,999.5	6.9	6.9	-176.07	-165.0	-0.3	180.7	166.8	13.87	13.023			
2,100.0	2,098.7	2,092.5	2,092.5	7.3	7.3	-176.24	-166.5	-0.5	194.4	179.9	14.54	13.369			
2,200.0	2,197.5	2,183.9	2,183.8	7.7	7.5	-176.35	-170.9	-0.9	214.7	199.6	15.18	14.150			
2,300.0	2,295.6	2,273.2	2,272.8	8.0	7.8	-176.41	-178.0	-1.5	241.5	225.7	15.79	15.298			
2,400.0	2,393.4	2,360.3	2,359.4	8.4	8.1	-176.44	-187.5	-2.4	272.9	256.5	16.37	16.666			
2,500.0	2,491.3	2,445.7	2,443.9	8.8	8.4	-176.41	-199.5	-3.5	307.1	290.1	16.94	18.131			
2,600.0	2,589.1	2,532.7	2,529.7	9.2	8.7	-176.34	-214.0	-4.8	343.8	326.3	17.52	19.627			
2,700.0	2,686.9	2,625.5	2,621.0	9.6	9.0	-176.27	-230.0	-6.3	381.2	363.0	18.17	20.975			
2,800.0	2,784.7	2,718.2	2,712.4	10.1	9.4	-176.22	-246.1	-7.8	418.5	399.7	18.83	22.224			
2,900.0	2,882.5	2,811.0	2,803.7	10.5	9.7	-176.17	-262.1	-9.2	455.9	436.4	19.49	23.384			
3,000.0	2,980.3	2,903.8	2,895.1	10.9	10.1	-176.13	-278.2	-10.7	493.2	473.0	20.16	24.463			
3,100.0	3,078.1	2,996.5	2,986.5	11.4	10.4	-176.10	-294.2	-12.2	530.5	509.7	20.83	25.469			
3,200.0	3,176.0	3,089.3	3,077.8	11.8	10.8	-176.07	-310.2	-13.6	567.9	546.4	21.50	26.409			
3,300.0	3,273.8	3,182.1	3,169.2	12.2	11.2	-176.04	-326.3	-15.1	605.2	583.0	22.18	27.288			
3,400.0	3,371.6	3,274.8	3,260.5	12.7	11.5	-176.02	-342.3	-16.6	642.6	619.7	22.86	28.112			
3,500.0	3,469.4	3,367.6	3,351.9	13.1	11.9	-176.00	-358.4	-18.0	679.9	656.4	23.54	28.885			
3,600.0	3,567.2	3,460.4	3,443.2	13.6	12.3	-175.98	-374.4	-19.5	717.2	693.0	24.22	29.613			
3,700.0	3,665.0	3,553.1	3,534.6	14.0	12.7	-175.97	-390.5	-21.0	754.6	729.7	24.91	30.298			
3,800.0	3,762.8	3,645.9	3,626.0	14.5	13.0	-175.95	-406.5	-22.4	791.9	766.3	25.59	30.944			
3,900.0	3,860.7	3,738.7	3,717.3	14.9	13.4	-175.94	-422.5	-23.9	829.3	803.0	26.28	31.555			
4,000.0	3,958.5	3,831.4	3,808.7	15.4	13.8	-175.93	-438.6	-25.4	866.6	839.6	26.97	32.132			
4,100.0	4,056.3	3,924.2	3,900.0	15.8	14.2	-175.91	-454.6	-26.8	903.9	876.3	27.66	32.679			
4,200.0	4,154.1	4,017.0	3,991.4	16.3	14.6	-175.90	-470.7	-28.3	941.3	912.9	28.35	33.198			
4,300.0	4,251.9	4,109.7	4,082.7	16.7	15.0	-175.89	-486.7	-29.8	978.6	949.6	29.05	33.690			
4,400.0	4,349.7	4,202.5	4,174.1	17.2	15.4	-175.88	-502.8	-31.2	1,016.0	986.2	29.74	34.158			
4,500.0	4,447.5	4,295.3	4,265.5	17.7	15.8	-175.88	-518.8	-32.7	1,053.3	1,022.9	30.44	34.603			
4,600.0	4,545.4	4,388.0	4,356.8	18.1	16.2	-175.87	-534.8	-34.2	1,090.6	1,059.5	31.14	35.027			
4,700.0	4,643.2	4,480.8	4,448.2	18.6	16.6	-175.86	-550.9	-35.6	1,128.0	1,096.1	31.84	35.432			
4,800.0	4,741.0	4,573.6	4,539.5	19.1	17.0	-175.85	-566.9	-37.1	1,165.3	1,132.8	32.53	35.818			
4,900.0	4,838.8	4,666.3	4,630.9	19.5	17.4	-175.85	-583.0	-38.6	1,202.7	1,169.4	33.24	36.186			
5,000.0	4,936.6	4,759.1	4,722.2	20.0	17.8	-175.84	-599.0	-40.0	1,240.0	1,206.1	33.94	36.539			
5,100.0	5,034.4	4,851.9	4,813.6	20.5	18.2	-175.84	-615.0	-41.5	1,277.3	1,242.7	34.64	36.876			

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 131H
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 131H	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 +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Rule Assigned: Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,200.0	5,132.3	4,944.6	4,905.0	20.9	18.6	-175.83	-631.1	-43.0	1,314.7	1,279.3	35.34	37.200		
5,300.0	5,230.1	5,037.4	4,996.3	21.4	19.0	-175.83	-647.1	-44.4	1,352.0	1,316.0	36.04	37.510		
5,400.0	5,327.9	5,130.2	5,087.7	21.9	19.4	-175.82	-663.2	-45.9	1,389.4	1,352.6	36.75	37.807		
5,500.0	5,425.7	5,222.9	5,179.0	22.3	19.8	-175.82	-679.2	-47.4	1,426.7	1,389.3	37.45	38.092		
5,600.0	5,523.5	5,315.7	5,270.4	22.8	20.2	-175.81	-695.3	-48.8	1,464.0	1,425.9	38.16	38.366		
5,700.0	5,621.3	5,408.5	5,361.8	23.3	20.6	-175.81	-711.3	-50.3	1,501.4	1,462.5	38.87	38.630		
5,800.0	5,719.1	5,501.2	5,453.1	23.7	21.0	-175.81	-727.3	-51.8	1,538.7	1,499.2	39.57	38.883		
5,900.0	5,817.0	5,594.0	5,544.5	24.2	21.4	-175.80	-743.4	-53.2	1,576.1	1,535.8	40.28	39.127		
6,000.0	5,914.8	5,686.8	5,635.8	24.7	21.8	-175.80	-759.4	-54.7	1,613.4	1,572.4	40.99	39.363		
6,100.0	6,012.6	5,779.5	5,727.2	25.2	22.2	-175.79	-775.5	-56.2	1,650.8	1,609.1	41.70	39.589		
6,200.0	6,110.4	5,872.3	5,818.5	25.6	22.6	-175.79	-791.5	-57.6	1,688.1	1,645.7	42.41	39.808		
6,300.0	6,208.2	5,965.1	5,909.9	26.1	23.1	-175.79	-807.5	-59.1	1,725.4	1,682.3	43.12	40.019		
6,337.0	6,244.4	5,999.4	5,943.7	26.3	23.2	-175.79	-813.5	-59.6	1,739.2	1,695.9	43.38	40.095		
6,400.0	6,306.2	6,058.1	6,001.5	26.6	23.5	-175.82	-823.6	-60.6	1,762.1	1,718.3	43.83	40.208		
6,500.0	6,404.7	6,152.2	6,094.2	27.0	23.9	-175.86	-839.9	-62.1	1,795.8	1,751.3	44.54	40.321		
6,600.0	6,503.8	6,247.5	6,188.1	27.4	24.3	-175.88	-856.4	-63.6	1,826.2	1,780.9	45.25	40.357		
6,700.0	6,603.3	6,343.8	6,282.9	27.8	24.7	-175.90	-873.0	-65.1	1,853.2	1,807.2	45.96	40.320		
6,800.0	6,703.1	6,440.9	6,378.5	28.2	25.2	-175.90	-889.8	-66.6	1,876.8	1,830.2	46.67	40.212		
6,900.0	6,803.0	6,538.8	6,475.0	28.5	25.6	-175.88	-906.8	-68.2	1,897.1	1,849.7	47.38	40.038		
6,937.0	6,840.0	6,575.2	6,510.8	28.6	25.8	179.96	-913.1	-68.7	1,903.7	1,856.1	47.64	39.958		
7,000.0	6,903.0	6,637.3	6,571.9	28.8	26.0	179.99	-923.8	-69.7	1,914.6	1,866.6	48.09	39.814		
7,100.0	7,003.0	6,735.8	6,668.9	29.1	26.5	-179.96	-940.8	-71.3	1,931.9	1,883.1	48.80	39.591		
7,200.0	7,103.0	6,834.2	6,765.9	29.4	26.9	-179.92	-957.8	-72.8	1,949.2	1,899.7	49.51	39.373		
7,300.0	7,203.0	6,948.0	6,877.9	29.7	27.4	-179.86	-977.4	-74.6	1,966.5	1,916.2	50.33	39.072		
7,400.0	7,303.0	7,264.4	7,192.2	30.0	28.7	-179.77	-1,012.5	-77.8	1,977.6	1,925.2	52.38	37.752		
7,500.0	7,403.0	7,475.3	7,403.0	30.3	29.4	-179.76	-1,017.0	-78.2	1,979.0	1,925.5	53.54	36.961		
7,600.0	7,503.0	7,575.3	7,503.0	30.6	29.7	-179.76	-1,017.0	-78.2	1,979.0	1,924.8	54.21	36.504		
7,700.0	7,603.0	7,675.3	7,603.0	30.9	30.0	-179.76	-1,017.0	-78.2	1,979.0	1,924.1	54.89	36.057		
7,800.0	7,703.0	7,775.3	7,703.0	31.2	30.3	-179.76	-1,017.0	-78.2	1,979.0	1,923.5	55.56	35.620		
7,900.0	7,803.0	7,875.3	7,803.0	31.5	30.6	-179.76	-1,017.0	-78.2	1,979.0	1,922.8	56.23	35.193		
8,000.0	7,903.0	7,975.3	7,903.0	31.9	30.9	-179.76	-1,017.0	-78.2	1,979.0	1,922.1	56.91	34.775		
8,100.0	8,003.0	8,075.3	8,003.0	32.2	31.2	-179.76	-1,017.0	-78.2	1,979.0	1,921.4	57.59	34.367		
8,200.0	8,103.0	8,175.3	8,103.0	32.5	31.5	-179.76	-1,017.0	-78.2	1,979.0	1,920.8	58.26	33.967		
8,205.9	8,108.9	8,181.2	8,108.9	32.5	31.5	-179.76	-1,017.0	-78.2	1,979.0	1,920.7	58.30	33.944		
8,300.0	8,203.0	8,275.0	8,202.6	32.8	31.8	-179.86	-1,017.0	-74.9	1,979.0	1,920.1	58.94	33.577		
8,400.0	8,303.0	8,369.6	8,294.8	33.1	32.0	179.56	-1,017.1	-54.6	1,979.2	1,919.6	59.58	33.218		
8,500.0	8,403.0	8,453.5	8,371.9	33.4	32.3	178.60	-1,017.3	-21.7	1,980.1	1,920.0	60.17	32.910		
8,600.0	8,503.0	8,525.0	8,432.1	33.7	32.4	177.49	-1,017.5	16.6	1,982.6	1,922.0	60.69	32.670		
8,700.0	8,603.0	8,582.3	8,475.9	34.1	32.5	176.43	-1,017.7	53.5	1,987.6	1,926.5	61.13	32.516		
8,800.0	8,703.0	8,629.4	8,508.3	34.4	32.6	175.45	-1,017.8	87.7	1,995.6	1,934.1	61.48	32.460		
8,813.5	8,716.5	8,635.0	8,512.0	34.4	32.6	175.32	-1,017.9	92.0	1,997.0	1,935.4	61.52	32.460		
8,825.0	8,728.0	8,639.8	8,515.0	34.5	32.7	84.79	-1,017.9	95.6	1,998.2	1,936.6	61.55	32.462		
8,850.0	8,753.0	8,650.0	8,521.4	34.5	32.7	84.26	-1,017.9	103.6	2,000.8	1,939.2	61.62	32.472		
8,875.0	8,777.9	8,660.7	8,528.0	34.6	32.7	83.70	-1,018.0	112.1	2,003.6	1,941.9	61.68	32.482		
8,900.0	8,802.6	8,675.0	8,536.4	34.7	32.7	83.08	-1,018.0	123.6	2,006.4	1,944.6	61.76	32.486		
8,925.0	8,827.0	8,682.0	8,540.4	34.8	32.7	82.60	-1,018.0	129.4	2,009.3	1,947.5	61.80	32.512		
8,950.0	8,851.2	8,692.8	8,546.4	34.8	32.7	82.04	-1,018.1	138.3	2,012.2	1,950.3	61.86	32.530		
8,975.0	8,875.0	8,700.0	8,550.3	34.9	32.8	81.56	-1,018.1	144.4	2,015.2	1,953.3	61.89	32.561		
9,000.0	8,898.3	8,714.5	8,557.8	35.0	32.8	80.95	-1,018.2	156.8	2,018.1	1,956.1	61.96	32.570		
9,025.0	8,921.2	8,725.0	8,563.1	35.0	32.8	80.43	-1,018.2	165.9	2,021.1	1,959.0	62.01	32.592		
9,050.0	8,943.5	8,736.4	8,568.5	35.1	32.8	79.90	-1,018.3	175.9	2,024.0	1,961.9	62.06	32.611		
9,075.0	8,965.1	8,750.0	8,574.7	35.2	32.8	79.35	-1,018.3	188.0	2,026.9	1,964.7	62.13	32.623		

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 131H
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 131H	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	
9,100.0	8,986.1	8,758.5	8,578.4	35.2	32.9	78.89	-1,018.4	195.7	2,029.7	1,967.5	62.17	32.649		
9,125.0	9,006.4	8,775.0	8,585.2	35.3	32.9	78.33	-1,018.5	210.7	2,032.5	1,970.2	62.25	32.648		
9,150.0	9,025.8	8,775.0	8,585.2	35.3	32.9	78.02	-1,018.5	210.7	2,035.2	1,973.0	62.24	32.700		
9,175.0	9,044.5	8,792.0	8,591.6	35.4	32.9	77.50	-1,018.5	226.4	2,037.8	1,975.4	62.34	32.689		
9,200.0	9,062.2	8,800.0	8,594.4	35.4	32.9	77.11	-1,018.6	233.9	2,040.3	1,977.9	62.38	32.707		
9,225.0	9,078.9	8,814.4	8,599.2	35.5	33.0	76.68	-1,018.6	247.5	2,042.7	1,980.2	62.47	32.696		
9,250.0	9,094.7	8,825.0	8,602.5	35.5	33.0	76.31	-1,018.7	257.6	2,044.9	1,982.4	62.55	32.695		
9,275.0	9,109.4	8,836.9	8,605.9	35.5	33.0	75.95	-1,018.7	269.0	2,047.1	1,984.4	62.64	32.681		
9,300.0	9,123.1	8,850.0	8,609.3	35.6	33.0	75.61	-1,018.8	281.6	2,049.1	1,986.3	62.74	32.657		
9,325.0	9,135.6	8,859.6	8,611.5	35.6	33.1	75.32	-1,018.9	290.9	2,050.9	1,988.1	62.84	32.638		
9,350.0	9,147.0	8,875.0	8,614.8	35.7	33.1	75.02	-1,018.9	306.0	2,052.6	1,989.6	62.98	32.590		
9,375.0	9,157.2	8,882.2	8,616.1	35.7	33.1	74.80	-1,019.0	313.1	2,054.1	1,991.0	63.08	32.563		
9,400.0	9,166.3	8,900.0	8,619.0	35.7	33.2	74.56	-1,019.1	330.6	2,055.4	1,992.2	63.27	32.489		
9,425.0	9,174.0	8,900.0	8,619.0	35.8	33.2	74.42	-1,019.1	330.6	2,056.6	1,993.2	63.34	32.471		
9,450.0	9,180.5	8,916.3	8,621.1	35.8	33.2	74.25	-1,019.1	346.8	2,057.5	1,994.0	63.54	32.383		
9,475.0	9,185.8	8,925.0	8,622.0	35.9	33.3	74.13	-1,019.2	355.5	2,058.3	1,994.6	63.70	32.314		
9,500.0	9,189.8	8,939.1	8,623.0	36.0	33.3	74.03	-1,019.2	369.5	2,058.9	1,995.0	63.91	32.216		
9,525.0	9,192.4	8,950.0	8,623.6	36.0	33.3	73.97	-1,019.3	380.4	2,059.3	1,995.2	64.11	32.121		
9,550.0	9,193.8	8,961.9	8,623.9	36.1	33.4	73.94	-1,019.4	392.3	2,059.5	1,995.2	64.33	32.013		
9,563.5	9,194.0	8,968.8	8,624.0	36.2	33.4	73.93	-1,019.4	399.2	2,059.5	1,995.0	64.46	31.949		
9,565.0	9,194.0	8,968.8	8,624.0	36.2	33.4	73.93	-1,019.4	399.2	2,059.5	1,995.0	64.47	31.945		
9,600.0	9,194.0	9,003.7	8,624.0	36.3	33.6	73.93	-1,019.6	434.1	2,059.5	1,994.6	64.95	31.708		
9,700.0	9,194.0	9,103.7	8,624.0	36.9	34.2	73.93	-1,020.1	534.1	2,059.5	1,993.0	66.53	30.955		
9,800.0	9,194.0	9,203.7	8,624.0	37.7	35.1	73.93	-1,020.6	634.1	2,059.5	1,991.1	68.40	30.111		
9,900.0	9,194.0	9,303.7	8,624.0	38.7	36.1	73.93	-1,021.1	734.1	2,059.5	1,989.0	70.52	29.205		
10,000.0	9,194.0	9,403.7	8,624.0	39.8	37.3	73.93	-1,021.6	834.1	2,059.5	1,986.7	72.88	28.258		
10,100.0	9,194.0	9,503.7	8,624.0	41.1	38.6	73.93	-1,022.1	934.1	2,059.6	1,984.1	75.46	27.293		
10,200.0	9,194.0	9,603.7	8,624.0	42.4	40.1	73.93	-1,022.6	1,034.0	2,059.6	1,981.3	78.23	26.327		
10,300.0	9,194.0	9,703.7	8,624.0	43.9	41.6	73.93	-1,023.1	1,134.0	2,059.6	1,978.4	81.18	25.371		
10,400.0	9,194.0	9,803.7	8,624.0	45.4	43.2	73.93	-1,023.6	1,234.0	2,059.6	1,975.3	84.28	24.438		
10,500.0	9,194.0	9,903.7	8,624.0	47.0	44.9	73.93	-1,024.1	1,334.0	2,059.6	1,972.1	87.52	23.533		
10,600.0	9,194.0	10,003.7	8,624.0	48.7	46.6	73.93	-1,024.6	1,434.0	2,059.6	1,968.7	90.89	22.661		
10,700.0	9,194.0	10,103.7	8,624.0	50.5	48.5	73.93	-1,025.1	1,534.0	2,059.6	1,965.2	94.36	21.826		
10,800.0	9,194.0	10,203.7	8,624.0	52.3	50.3	73.93	-1,025.6	1,634.0	2,059.6	1,961.7	97.94	21.029		
10,900.0	9,194.0	10,303.7	8,624.0	54.1	52.2	73.93	-1,026.1	1,734.0	2,059.6	1,958.0	101.60	20.271		
11,000.0	9,194.0	10,403.7	8,624.0	56.0	54.2	73.93	-1,026.6	1,834.0	2,059.6	1,954.3	105.35	19.550		
11,100.0	9,194.0	10,503.7	8,624.0	58.0	56.2	73.93	-1,027.1	1,934.0	2,059.6	1,950.5	109.17	18.867		
11,200.0	9,194.0	10,603.7	8,624.0	59.9	58.2	73.93	-1,027.6	2,034.0	2,059.6	1,946.6	113.05	18.219		
11,300.0	9,194.0	10,703.7	8,624.0	61.9	60.3	73.93	-1,028.1	2,134.0	2,059.7	1,942.7	116.99	17.606		
11,400.0	9,194.0	10,803.7	8,624.0	64.0	62.3	73.93	-1,028.6	2,234.0	2,059.7	1,938.7	120.98	17.025		
11,500.0	9,194.0	10,903.7	8,624.0	66.0	64.4	73.93	-1,029.1	2,334.0	2,059.7	1,934.7	125.01	16.476		
11,600.0	9,194.0	11,003.7	8,624.0	68.1	66.6	73.93	-1,029.6	2,434.0	2,059.7	1,930.6	129.09	15.955		
11,700.0	9,194.0	11,103.7	8,624.0	70.2	68.7	73.93	-1,030.1	2,534.0	2,059.7	1,926.5	133.21	15.462		
11,800.0	9,194.0	11,203.7	8,624.0	72.3	70.9	73.93	-1,030.6	2,634.0	2,059.7	1,922.3	137.37	14.994		
11,900.0	9,194.0	11,303.7	8,624.0	74.5	73.0	73.93	-1,031.1	2,734.0	2,059.7	1,918.2	141.56	14.551		
12,000.0	9,194.0	11,403.7	8,624.0	76.6	75.2	73.93	-1,031.6	2,834.0	2,059.7	1,913.9	145.77	14.130		
12,100.0	9,194.0	11,503.7	8,624.0	78.8	77.4	73.93	-1,032.1	2,934.0	2,059.7	1,909.7	150.02	13.730		
12,200.0	9,194.0	11,603.7	8,624.0	81.0	79.7	73.93	-1,032.6	3,034.0	2,059.7	1,905.5	154.28	13.350		
12,300.0	9,194.0	11,703.7	8,624.0	83.2	81.9	73.93	-1,033.1	3,134.0	2,059.7	1,901.2	158.57	12.989		
12,400.0	9,194.0	11,803.7	8,624.0	85.4	84.1	73.93	-1,033.6	3,234.0	2,059.8	1,896.9	162.89	12.645		
12,500.0	9,194.0	11,903.7	8,624.0	87.6	86.4	73.93	-1,034.1	3,334.0	2,059.8	1,892.5	167.22	12.318		
12,600.0	9,194.0	12,003.7	8,624.0	89.8	88.6	73.93	-1,034.6	3,434.0	2,059.8	1,888.2	171.57	12.006		

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 131H
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 131H	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	
12,700.0	9,194.0	12,103.7	8,624.0	92.1	90.9	73.93	-1,035.1	3,534.0	2,059.8	1,883.8	175.93	11.708		
12,800.0	9,194.0	12,203.7	8,624.0	94.3	93.2	73.93	-1,035.6	3,634.0	2,059.8	1,879.5	180.31	11.423		
12,900.0	9,194.0	12,303.7	8,624.0	96.6	95.5	73.94	-1,036.1	3,734.0	2,059.8	1,875.1	184.71	11.152		
13,000.0	9,194.0	12,403.7	8,624.0	98.9	97.8	73.94	-1,036.6	3,834.0	2,059.8	1,870.7	189.12	10.892		
13,100.0	9,194.0	12,503.7	8,624.0	101.1	100.1	73.94	-1,037.1	3,934.0	2,059.8	1,866.3	193.54	10.643		
13,200.0	9,194.0	12,603.7	8,624.0	103.4	102.4	73.94	-1,037.6	4,034.0	2,059.8	1,861.9	197.97	10.405		
13,300.0	9,194.0	12,703.7	8,624.0	105.7	104.7	73.94	-1,038.1	4,134.0	2,059.8	1,857.4	202.41	10.176		
13,400.0	9,194.0	12,803.7	8,624.0	108.0	107.0	73.94	-1,038.6	4,234.0	2,059.8	1,853.0	206.87	9.957		
13,500.0	9,194.0	12,903.7	8,624.0	110.3	109.3	73.94	-1,039.1	4,334.0	2,059.8	1,848.5	211.33	9.747		
13,600.0	9,194.0	13,003.7	8,624.0	112.6	111.6	73.94	-1,039.6	4,434.0	2,059.9	1,844.1	215.80	9.545		
13,700.0	9,194.0	13,103.7	8,624.0	114.9	113.9	73.94	-1,040.1	4,534.0	2,059.9	1,839.6	220.28	9.351		
13,800.0	9,194.0	13,203.7	8,624.0	117.2	116.3	73.94	-1,040.6	4,634.0	2,059.9	1,835.1	224.77	9.164		
13,900.0	9,194.0	13,303.7	8,624.0	119.5	118.6	73.94	-1,041.2	4,734.0	2,059.9	1,830.6	229.26	8.985		
14,000.0	9,194.0	13,403.7	8,624.0	121.9	120.9	73.94	-1,041.7	4,834.0	2,059.9	1,826.1	233.76	8.812		
14,100.0	9,194.0	13,503.7	8,624.0	124.2	123.3	73.94	-1,042.2	4,934.0	2,059.9	1,821.6	238.27	8.645		
14,200.0	9,194.0	13,603.7	8,624.0	126.5	125.6	73.94	-1,042.7	5,034.0	2,059.9	1,817.1	242.79	8.484		
14,300.0	9,194.0	13,703.7	8,624.0	128.9	128.0	73.94	-1,043.2	5,134.0	2,059.9	1,812.6	247.31	8.329		
14,400.0	9,194.0	13,803.7	8,624.0	131.2	130.3	73.94	-1,043.7	5,234.0	2,059.9	1,808.1	251.83	8.180		
14,500.0	9,194.0	13,903.7	8,624.0	133.5	132.7	73.94	-1,044.2	5,334.0	2,059.9	1,803.6	256.36	8.035		
14,600.0	9,194.0	14,003.7	8,624.0	135.9	135.0	73.94	-1,044.7	5,434.0	2,059.9	1,799.0	260.90	7.896		
14,700.0	9,194.0	14,103.7	8,624.0	138.2	137.4	73.94	-1,045.2	5,534.0	2,059.9	1,794.5	265.44	7.760		
14,800.0	9,194.0	14,203.7	8,624.0	140.6	139.7	73.94	-1,045.7	5,634.0	2,060.0	1,790.0	269.99	7.630		
14,900.0	9,194.0	14,303.7	8,624.0	142.9	142.1	73.94	-1,046.2	5,734.0	2,060.0	1,785.4	274.54	7.503		
15,000.0	9,194.0	14,403.7	8,624.0	145.3	144.5	73.94	-1,046.7	5,834.0	2,060.0	1,780.9	279.09	7.381		
15,100.0	9,194.0	14,503.7	8,624.0	147.6	146.8	73.94	-1,047.2	5,934.0	2,060.0	1,776.3	283.65	7.263		
15,200.0	9,194.0	14,603.7	8,624.0	150.0	149.2	73.94	-1,047.7	6,034.0	2,060.0	1,771.8	288.21	7.148		
15,300.0	9,194.0	14,703.7	8,624.0	152.3	151.6	73.94	-1,048.2	6,134.0	2,060.0	1,767.2	292.77	7.036		
15,400.0	9,194.0	14,803.7	8,624.0	154.7	153.9	73.94	-1,048.7	6,234.0	2,060.0	1,762.7	297.34	6.928		
15,500.0	9,194.0	14,903.7	8,624.0	157.1	156.3	73.94	-1,049.2	6,334.0	2,060.0	1,758.1	301.91	6.823		
15,600.0	9,194.0	15,003.7	8,624.0	159.4	158.7	73.94	-1,049.7	6,434.0	2,060.0	1,753.5	306.48	6.721		
15,700.0	9,194.0	15,103.7	8,624.0	161.8	161.1	73.94	-1,050.2	6,534.0	2,060.0	1,749.0	311.06	6.623		
15,800.0	9,194.0	15,203.7	8,624.0	164.2	163.4	73.94	-1,050.7	6,634.0	2,060.0	1,744.4	315.64	6.527		
15,900.0	9,194.0	15,303.7	8,624.0	166.5	165.8	73.94	-1,051.2	6,734.0	2,060.1	1,739.8	320.22	6.433		
16,000.0	9,194.0	15,403.7	8,624.0	168.9	168.2	73.94	-1,051.7	6,834.0	2,060.1	1,735.3	324.81	6.342		
16,100.0	9,194.0	15,503.7	8,624.0	171.3	170.6	73.94	-1,052.2	6,934.0	2,060.1	1,730.7	329.40	6.254		
16,200.0	9,194.0	15,603.7	8,624.0	173.6	172.9	73.94	-1,052.7	7,034.0	2,060.1	1,726.1	333.99	6.168		
16,300.0	9,194.0	15,703.7	8,624.0	176.0	175.3	73.94	-1,053.2	7,134.0	2,060.1	1,721.5	338.58	6.085		
16,400.0	9,194.0	15,803.7	8,624.0	178.4	177.7	73.94	-1,053.7	7,234.0	2,060.1	1,716.9	343.17	6.003		
16,500.0	9,194.0	15,903.7	8,624.0	180.8	180.1	73.94	-1,054.2	7,334.0	2,060.1	1,712.3	347.77	5.924		
16,600.0	9,194.0	16,003.7	8,624.0	183.1	182.5	73.94	-1,054.7	7,434.0	2,060.1	1,707.7	352.37	5.847		
16,700.0	9,194.0	16,103.7	8,624.0	185.5	184.9	73.94	-1,055.2	7,534.0	2,060.1	1,703.2	356.97	5.771		
16,800.0	9,194.0	16,203.7	8,624.0	187.9	187.3	73.94	-1,055.7	7,634.0	2,060.1	1,698.6	361.57	5.698		
16,900.0	9,194.0	16,303.7	8,624.0	190.3	189.6	73.94	-1,056.2	7,734.0	2,060.1	1,694.0	366.17	5.626		
17,000.0	9,194.0	16,403.7	8,624.0	192.7	192.0	73.94	-1,056.7	7,834.0	2,060.1	1,689.4	370.78	5.556		
17,100.0	9,194.0	16,503.7	8,624.0	195.0	194.4	73.94	-1,057.2	7,934.0	2,060.2	1,684.8	375.38	5.488		
17,200.0	9,194.0	16,603.7	8,624.0	197.4	196.8	73.94	-1,057.7	8,034.0	2,060.2	1,680.2	379.99	5.422		
17,300.0	9,194.0	16,703.7	8,624.0	199.8	199.2	73.94	-1,058.2	8,134.0	2,060.2	1,675.6	384.60	5.357		
17,400.0	9,194.0	16,803.7	8,624.0	202.2	201.6	73.94	-1,058.7	8,234.0	2,060.2	1,671.0	389.22	5.293		
17,500.0	9,194.0	16,903.7	8,624.0	204.6	204.0	73.94	-1,059.2	8,334.0	2,060.2	1,666.4	393.83	5.231		
17,600.0	9,194.0	17,003.7	8,624.0	207.0	206.4	73.94	-1,059.7	8,434.0	2,060.2	1,661.8	398.44	5.171		
17,700.0	9,194.0	17,103.7	8,624.0	209.4	208.8	73.94	-1,060.2	8,534.0	2,060.2	1,657.1	403.06	5.111		
17,800.0	9,194.0	17,203.7	8,624.0	211.8	211.2	73.94	-1,060.7	8,634.0	2,060.2	1,652.5	407.68	5.054		

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 131H
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 131H	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)	Offset Measured Depth (usft)	Offset 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
17,900.0	9,194.0	17,303.7	8,624.0	214.1	213.6	73.94	-1,061.2	8,734.0	2,060.2	1,647.9	412.29	4.997	
18,000.0	9,194.0	17,403.7	8,624.0	216.5	216.0	73.94	-1,061.7	8,834.0	2,060.2	1,643.3	416.91	4.942	
18,100.0	9,194.0	17,503.7	8,624.0	218.9	218.3	73.94	-1,062.2	8,933.9	2,060.2	1,638.7	421.53	4.887	
18,200.0	9,194.0	17,603.7	8,624.0	221.3	220.7	73.94	-1,062.7	9,033.9	2,060.3	1,634.1	426.16	4.835	
18,300.0	9,194.0	17,703.7	8,624.0	223.7	223.1	73.94	-1,063.2	9,133.9	2,060.3	1,629.5	430.78	4.783	
18,400.0	9,194.0	17,803.7	8,624.0	226.1	225.5	73.94	-1,063.7	9,233.9	2,060.3	1,624.9	435.40	4.732	
18,500.0	9,194.0	17,903.7	8,624.0	228.5	227.9	73.94	-1,064.2	9,333.9	2,060.3	1,620.2	440.03	4.682	
18,600.0	9,194.0	18,003.7	8,624.0	230.9	230.3	73.94	-1,064.7	9,433.9	2,060.3	1,615.6	444.65	4.633	
18,700.0	9,194.0	18,103.7	8,624.0	233.3	232.7	73.94	-1,065.2	9,533.9	2,060.3	1,611.0	449.28	4.586	
18,800.0	9,194.0	18,203.7	8,624.0	235.7	235.1	73.94	-1,065.7	9,633.9	2,060.3	1,606.4	453.91	4.539	
18,900.0	9,194.0	18,303.7	8,624.0	238.1	237.5	73.94	-1,066.2	9,733.9	2,060.3	1,601.8	458.54	4.493	
19,000.0	9,194.0	18,403.7	8,624.0	240.5	239.9	73.94	-1,066.7	9,833.9	2,060.3	1,597.2	463.17	4.448	
19,100.0	9,194.0	18,503.7	8,624.0	242.9	242.3	73.94	-1,067.2	9,933.9	2,060.3	1,592.5	467.80	4.404	
19,200.0	9,194.0	18,603.7	8,624.0	245.3	244.7	73.94	-1,067.7	10,033.9	2,060.3	1,587.9	472.43	4.361	
19,300.0	9,194.0	18,703.7	8,624.0	247.7	247.1	73.94	-1,068.3	10,133.9	2,060.3	1,583.3	477.06	4.319	
19,400.0	9,194.0	18,803.7	8,624.0	250.1	249.5	73.94	-1,068.8	10,233.9	2,060.4	1,578.7	481.69	4.277	
19,500.0	9,194.0	18,903.7	8,624.0	252.5	251.9	73.94	-1,069.3	10,333.9	2,060.4	1,574.0	486.32	4.237	
19,600.0	9,194.0	19,003.7	8,624.0	254.9	254.3	73.94	-1,069.8	10,433.9	2,060.4	1,569.4	490.96	4.197	
19,700.0	9,194.0	19,103.7	8,624.0	257.3	256.8	73.94	-1,070.3	10,533.9	2,060.4	1,564.8	495.59	4.157	
19,800.0	9,194.0	19,203.7	8,624.0	259.7	259.2	73.94	-1,070.8	10,633.9	2,060.4	1,560.2	500.23	4.119	
19,818.1	9,194.0	19,221.8	8,624.0	260.1	259.6	73.94	-1,070.9	10,652.1	2,060.4	1,559.3	501.07	4.112 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 131H
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 131H	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	-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 CC, ES		
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	-175.93	-33.0	-0.1	34.7	22.3	12.44	2.793		
1,900.0	1,899.8	1,899.8	1,899.8	6.6	6.6	-176.46	-33.0	-0.1	40.0	26.8	13.16	3.038		
2,000.0	1,999.5	1,999.5	1,999.5	6.9	6.9	-177.08	-33.0	-0.1	48.7	34.8	13.87	3.508		
2,100.0	2,098.7	2,100.6	2,100.6	7.3	7.3	-176.91	-31.4	-0.9	59.3	44.7	14.59	4.065		
2,200.0	2,197.5	2,202.0	2,201.8	7.7	7.7	-175.60	-26.7	-3.4	70.3	55.0	15.29	4.596		
2,300.0	2,295.6	2,303.7	2,303.1	8.0	8.0	-173.63	-18.8	-7.7	81.7	65.7	15.99	5.108		
2,400.0	2,393.4	2,405.7	2,404.4	8.4	8.4	-171.12	-7.7	-13.6	91.8	75.2	16.68	5.507		
2,500.0	2,491.3	2,507.9	2,505.2	8.8	8.8	-167.94	6.6	-21.2	99.3	81.9	17.38	5.713		
2,600.0	2,589.1	2,607.5	2,603.4	9.2	9.1	-164.76	21.8	-29.4	105.8	87.6	18.12	5.835		
2,700.0	2,686.9	2,707.2	2,701.5	9.6	9.5	-161.96	37.1	-37.6	112.5	93.7	18.88	5.961		
2,800.0	2,784.7	2,806.8	2,799.6	10.1	9.9	-159.49	52.4	-45.7	119.6	99.9	19.64	6.086		
2,900.0	2,882.5	2,906.4	2,897.7	10.5	10.3	-157.29	67.6	-53.9	126.8	106.4	20.42	6.209		
3,000.0	2,980.3	3,006.0	2,995.8	10.9	10.7	-155.33	82.9	-62.0	134.1	112.9	21.20	6.329		
3,100.0	3,078.1	3,105.7	3,093.9	11.4	11.1	-153.57	98.1	-70.2	141.7	119.7	21.98	6.444		
3,200.0	3,176.0	3,205.3	3,192.0	11.8	11.5	-152.00	113.4	-78.3	149.3	126.5	22.78	6.554		
3,300.0	3,273.8	3,304.9	3,290.2	12.2	11.9	-150.57	128.6	-86.5	157.0	133.5	23.58	6.659		
3,400.0	3,371.6	3,404.6	3,388.3	12.7	12.3	-149.28	143.9	-94.6	164.9	140.5	24.39	6.760		
3,500.0	3,469.4	3,504.2	3,486.4	13.1	12.7	-148.11	159.2	-102.8	172.8	147.6	25.20	6.855		
3,600.0	3,567.2	3,603.8	3,584.5	13.6	13.1	-147.04	174.4	-111.0	180.7	154.7	26.02	6.946		
3,700.0	3,665.0	3,703.4	3,682.6	14.0	13.5	-146.07	189.7	-119.1	188.8	161.9	26.85	7.031		
3,800.0	3,762.8	3,803.1	3,780.7	14.5	14.0	-145.17	204.9	-127.3	196.8	169.2	27.68	7.113		
3,900.0	3,860.7	3,902.7	3,878.8	14.9	14.4	-144.34	220.2	-135.4	205.0	176.5	28.51	7.190		
4,000.0	3,958.5	4,002.3	3,977.0	15.4	14.8	-143.58	235.4	-143.6	213.1	183.8	29.34	7.263		
4,100.0	4,056.3	4,101.9	4,075.1	15.8	15.2	-142.87	250.7	-151.7	221.3	191.1	30.18	7.333		
4,200.0	4,154.1	4,200.0	4,171.6	16.3	15.6	-142.23	265.7	-159.8	229.6	198.6	31.02	7.401		
4,300.0	4,251.9	4,296.8	4,267.3	16.7	16.0	-142.08	278.7	-166.7	238.9	207.0	31.83	7.504		
4,400.0	4,349.7	4,392.3	4,362.1	17.2	16.4	-142.60	288.7	-172.1	249.7	217.1	32.59	7.663		
4,500.0	4,447.5	4,487.2	4,456.7	17.7	16.8	-143.67	295.9	-175.9	262.3	229.0	33.30	7.875		
4,600.0	4,545.4	4,581.4	4,550.7	18.1	17.1	-145.20	300.3	-178.3	276.6	242.6	33.97	8.143		
4,700.0	4,643.2	4,674.5	4,643.8	18.6	17.4	-147.08	302.0	-179.2	292.9	258.3	34.59	8.469		
4,800.0	4,741.0	4,771.7	4,741.0	19.1	17.8	-149.13	302.0	-179.2	310.6	275.4	35.23	8.818		
4,900.0	4,838.8	4,869.5	4,838.8	19.5	18.1	-150.98	302.0	-179.2	328.8	292.9	35.88	9.163		
5,000.0	4,936.6	4,967.3	4,936.6	20.0	18.4	-152.64	302.0	-179.2	347.2	310.6	36.54	9.501		
5,100.0	5,034.4	5,065.1	5,034.4	20.5	18.8	-154.13	302.0	-179.2	365.8	328.6	37.21	9.833		

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 131H
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 131H	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		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)				
5,200.0	5,132.3	5,162.9	5,132.3	20.9	19.1	-155.48	302.0	-179.2	384.7	346.9	37.88	10.157		
5,300.0	5,230.1	5,260.8	5,230.1	21.4	19.4	-156.70	302.0	-179.2	403.8	365.3	38.56	10.473		
5,400.0	5,327.9	5,358.6	5,327.9	21.9	19.8	-157.81	302.0	-179.2	423.0	383.8	39.24	10.782		
5,500.0	5,425.7	5,456.4	5,425.7	22.3	20.1	-158.82	302.0	-179.2	442.4	402.5	39.92	11.082		
5,600.0	5,523.5	5,554.2	5,523.5	22.8	20.4	-159.75	302.0	-179.2	461.9	421.3	40.61	11.374		
5,700.0	5,621.3	5,652.0	5,621.3	23.3	20.8	-160.61	302.0	-179.2	481.5	440.2	41.30	11.659		
5,800.0	5,719.1	5,749.8	5,719.1	23.7	21.1	-161.39	302.0	-179.2	501.2	459.2	42.00	11.935		
5,900.0	5,817.0	5,847.6	5,817.0	24.2	21.4	-162.12	302.0	-179.2	521.0	478.3	42.70	12.203		
6,000.0	5,914.8	5,945.5	5,914.8	24.7	21.8	-162.80	302.0	-179.2	540.9	497.5	43.39	12.464		
6,100.0	6,012.6	6,043.3	6,012.6	25.2	22.1	-163.42	302.0	-179.2	560.8	516.7	44.10	12.718		
6,200.0	6,110.4	6,141.1	6,110.4	25.6	22.4	-164.01	302.0	-179.2	580.8	536.0	44.80	12.965		
6,300.0	6,208.2	6,238.9	6,208.2	26.1	22.8	-164.55	302.0	-179.2	600.9	555.4	45.51	13.204		
6,337.0	6,244.4	6,275.1	6,244.4	26.3	22.9	-164.75	302.0	-179.2	608.3	562.5	45.77	13.291		
6,400.0	6,306.2	6,336.9	6,306.2	26.6	23.1	-165.11	302.0	-179.2	620.3	574.1	46.21	13.423		
6,500.0	6,404.7	6,435.4	6,404.7	27.0	23.5	-165.58	302.0	-179.2	636.7	589.8	46.92	13.570		
6,600.0	6,503.8	6,534.5	6,503.8	27.4	23.8	-165.94	302.0	-179.2	649.7	602.1	47.63	13.643		
6,700.0	6,603.3	6,634.0	6,603.3	27.8	24.1	-166.20	302.0	-179.2	659.4	611.1	48.33	13.645		
6,800.0	6,703.1	6,733.8	6,703.1	28.2	24.5	-166.36	302.0	-179.2	665.8	616.8	49.03	13.579		
6,900.0	6,803.0	6,833.7	6,803.0	28.5	24.8	-166.44	302.0	-179.2	668.7	619.0	49.73	13.448		
6,937.0	6,840.0	6,870.7	6,840.0	28.6	25.0	-170.61	302.0	-179.2	669.0	619.0	49.98	13.384		
7,000.0	6,903.0	6,933.7	6,903.0	28.8	25.2	-170.61	302.0	-179.2	669.0	618.5	50.42	13.268		
7,100.0	7,003.0	7,033.7	7,003.0	29.1	25.5	-170.61	302.0	-179.2	669.0	617.9	51.11	13.089		
7,200.0	7,103.0	7,133.7	7,103.0	29.4	25.9	-170.61	302.0	-179.2	669.0	617.2	51.80	12.914		
7,300.0	7,203.0	7,233.7	7,203.0	29.7	26.2	-170.61	302.0	-179.2	669.0	616.5	52.50	12.743		
7,400.0	7,303.0	7,333.7	7,303.0	30.0	26.6	-170.61	302.0	-179.2	669.0	615.8	53.19	12.577		
7,500.0	7,403.0	7,433.7	7,403.0	30.3	26.9	-170.61	302.0	-179.2	669.0	615.1	53.88	12.415		
7,600.0	7,503.0	7,533.7	7,503.0	30.6	27.3	-170.61	302.0	-179.2	669.0	614.4	54.58	12.257		
7,700.0	7,603.0	7,633.7	7,603.0	30.9	27.6	-170.61	302.0	-179.2	669.0	613.7	55.27	12.103		
7,800.0	7,703.0	7,733.7	7,703.0	31.2	28.0	-170.61	302.0	-179.2	669.0	613.0	55.97	11.952		
7,900.0	7,803.0	7,833.7	7,803.0	31.5	28.3	-170.61	302.0	-179.2	669.0	612.3	56.67	11.805		
8,000.0	7,903.0	7,933.7	7,903.0	31.9	28.7	-170.61	302.0	-179.2	669.0	611.6	57.36	11.662		
8,100.0	8,003.0	8,033.7	8,003.0	32.2	29.0	-170.61	302.0	-179.2	669.0	610.9	58.06	11.522		
8,200.0	8,103.0	8,133.7	8,103.0	32.5	29.4	-170.61	302.0	-179.2	669.0	610.2	58.76	11.385		
8,300.0	8,203.0	8,233.7	8,203.0	32.8	29.7	-170.61	302.0	-179.2	669.0	609.5	59.46	11.251		
8,400.0	8,303.0	8,333.7	8,303.0	33.1	30.1	-170.61	302.0	-179.2	669.0	608.8	60.16	11.121		
8,500.0	8,403.0	8,433.7	8,403.0	33.4	30.4	-170.61	302.0	-179.2	669.0	608.1	60.86	10.993		
8,600.0	8,503.0	8,533.7	8,503.0	33.7	30.8	-170.61	302.0	-179.2	669.0	607.4	61.56	10.868		
8,700.0	8,603.0	8,633.7	8,603.0	34.1	31.1	-170.61	302.0	-179.2	669.0	606.7	62.26	10.746		
8,800.0	8,703.0	8,733.7	8,703.0	34.4	31.5	-170.61	302.0	-179.2	669.0	606.0	62.96	10.626		
8,813.5	8,716.5	8,747.2	8,716.5	34.4	31.5	-170.61	302.0	-179.2	669.0	605.9	63.05	10.610		
8,825.0	8,728.0	8,758.7	8,728.0	34.5	31.6	99.12	302.0	-179.2	669.0	605.9	63.13	10.597		
8,850.0	8,753.0	8,783.7	8,753.0	34.5	31.6	99.20	302.0	-179.2	669.2	605.9	63.30	10.571		
8,875.0	8,777.9	8,808.5	8,777.9	34.6	31.7	99.37	302.0	-179.2	669.6	606.1	63.48	10.549		
8,900.0	8,802.6	8,833.2	8,802.6	34.7	31.8	99.61	302.0	-179.2	670.3	606.6	63.65	10.530		
8,925.0	8,827.0	8,857.7	8,827.0	34.8	31.9	99.93	302.0	-179.2	671.1	607.3	63.83	10.514		
8,950.0	8,851.2	8,881.9	8,851.2	34.8	32.0	100.31	302.0	-179.2	672.3	608.3	64.01	10.503		
8,975.0	8,875.0	8,905.7	8,875.0	34.9	32.1	100.75	302.0	-179.2	673.8	609.6	64.19	10.497		
9,000.0	8,898.3	8,929.0	8,898.3	35.0	32.2	101.23	302.0	-179.2	675.6	611.2	64.37	10.496		
9,025.0	8,921.2	8,951.9	8,921.2	35.0	32.2	101.75	302.0	-179.2	677.8	613.3	64.54	10.501		
9,050.0	8,943.5	8,984.8	8,954.1	35.1	32.4	102.61	302.0	-178.2	680.3	615.5	64.80	10.498		
9,075.0	8,965.1	9,020.0	8,989.1	35.2	32.5	103.50	302.0	-174.6	682.8	617.7	65.05	10.497		
9,100.0	8,986.1	9,056.7	9,025.2	35.2	32.6	104.37	301.9	-168.1	685.3	620.0	65.27	10.499		

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 131H
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 131H	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
9,125.0	9,006.4	9,095.0	9,062.3	35.3	32.7	105.20	301.9	-158.4	687.7	622.3	65.46	10.506		
9,150.0	9,025.8	9,135.0	9,100.0	35.3	32.8	106.00	301.8	-145.2	690.1	624.5	65.62	10.517		
9,175.0	9,044.5	9,176.5	9,137.8	35.4	32.9	106.75	301.8	-128.1	692.4	626.6	65.73	10.533		
9,200.0	9,062.2	9,219.7	9,175.4	35.4	33.0	107.43	301.6	-107.0	694.4	628.6	65.80	10.554		
9,225.0	9,078.9	9,264.3	9,212.2	35.5	33.1	108.04	301.5	-81.6	696.2	630.4	65.83	10.576		
9,250.0	9,094.7	9,310.3	9,247.4	35.5	33.2	108.54	301.4	-52.1	697.7	631.9	65.83	10.599		
9,275.0	9,109.4	9,357.4	9,280.3	35.5	33.3	108.94	301.2	-18.5	698.9	633.0	65.82	10.618		
9,300.0	9,123.1	9,405.3	9,310.2	35.6	33.4	109.21	301.0	18.9	699.7	633.8	65.82	10.630		
9,325.0	9,135.6	9,453.7	9,336.5	35.6	33.5	109.34	300.8	59.6	700.1	634.2	65.87	10.629		
9,350.0	9,147.0	9,502.4	9,358.7	35.7	33.6	109.34	300.6	102.9	700.0	634.1	65.98	10.611		
9,375.0	9,157.2	9,550.8	9,376.2	35.7	33.9	109.20	300.4	148.0	699.6	633.5	66.17	10.573		
9,400.0	9,166.3	9,598.7	9,389.0	35.7	34.1	108.93	300.2	194.2	698.8	632.4	66.46	10.515		
9,425.0	9,174.0	9,645.8	9,397.0	35.8	34.3	108.53	300.0	240.5	697.6	630.8	66.85	10.435		
9,450.0	9,180.5	9,691.7	9,400.3	35.8	34.6	108.02	299.7	286.3	696.1	628.8	67.34	10.338		
9,475.0	9,185.8	9,721.8	9,400.5	35.9	34.8	107.71	299.6	316.4	694.5	626.7	67.76	10.249		
9,500.0	9,189.8	9,746.5	9,400.4	36.0	35.0	107.54	299.5	341.1	693.3	625.2	68.14	10.174		
9,525.0	9,192.4	9,771.3	9,400.4	36.0	35.2	107.43	299.3	365.9	692.5	624.0	68.50	10.109		
9,550.0	9,193.8	9,796.3	9,400.4	36.1	35.3	107.36	299.2	390.9	692.1	623.2	68.85	10.052		
9,563.5	9,194.0	9,809.8	9,400.4	36.2	35.4	107.36	299.2	404.4	692.0	623.0	69.05	10.022		
9,600.0	9,194.0	9,846.3	9,400.4	36.3	35.7	107.35	299.0	440.9	692.0	622.4	69.59	9.944		
9,700.0	9,194.0	9,946.3	9,400.3	36.9	36.6	107.35	298.5	540.9	692.0	620.7	71.24	9.713		
9,800.0	9,194.0	10,046.3	9,400.3	37.7	37.7	107.34	298.0	640.9	692.0	618.8	73.15	9.459		
9,900.0	9,194.0	10,146.3	9,400.2	38.7	38.8	107.34	297.5	740.9	691.9	616.6	75.30	9.189		
10,000.0	9,194.0	10,246.3	9,400.1	39.8	40.1	107.34	297.0	840.9	691.9	614.2	77.67	8.909		
10,100.0	9,194.0	10,346.3	9,400.1	41.1	41.5	107.33	296.5	940.9	691.9	611.6	80.23	8.623		
10,200.0	9,194.0	10,446.3	9,400.0	42.4	42.9	107.33	296.0	1,040.9	691.9	608.9	82.98	8.337		
10,300.0	9,194.0	10,546.3	9,399.9	43.9	44.5	107.32	295.6	1,140.9	691.8	605.9	85.90	8.054		
10,400.0	9,194.0	10,646.3	9,399.9	45.4	46.1	107.32	295.1	1,240.9	691.8	602.9	88.96	7.777		
10,500.0	9,194.0	10,746.3	9,399.8	47.0	47.8	107.31	294.6	1,340.9	691.8	599.6	92.15	7.507		
10,600.0	9,194.0	10,846.3	9,399.8	48.7	49.6	107.31	294.1	1,440.9	691.8	596.3	95.47	7.246		
10,700.0	9,194.0	10,946.3	9,399.7	50.5	51.4	107.30	293.6	1,540.9	691.7	592.9	98.89	6.995		
10,800.0	9,194.0	11,046.3	9,399.6	52.3	53.2	107.30	293.1	1,640.9	691.7	589.3	102.41	6.754		
10,900.0	9,194.0	11,146.3	9,399.6	54.1	55.1	107.29	292.6	1,740.9	691.7	585.7	106.02	6.524		
11,000.0	9,194.0	11,246.3	9,399.5	56.0	57.0	107.29	292.1	1,840.9	691.7	582.0	109.70	6.305		
11,100.0	9,194.0	11,346.3	9,399.4	58.0	59.0	107.28	291.7	1,940.9	691.6	578.2	113.46	6.096		
11,200.0	9,194.0	11,446.3	9,399.4	59.9	61.0	107.28	291.2	2,040.9	691.6	574.3	117.28	5.897		
11,300.0	9,194.0	11,546.3	9,399.3	61.9	63.1	107.27	290.7	2,140.9	691.6	570.4	121.16	5.708		
11,400.0	9,194.0	11,646.3	9,399.3	64.0	65.1	107.27	290.2	2,240.9	691.6	566.5	125.09	5.528		
11,500.0	9,194.0	11,746.3	9,399.2	66.0	67.2	107.26	289.7	2,340.9	691.6	562.5	129.08	5.358		
11,600.0	9,194.0	11,846.3	9,399.1	68.1	69.3	107.26	289.2	2,440.9	691.5	558.4	133.10	5.196		
11,700.0	9,194.0	11,946.3	9,399.1	70.2	71.4	107.25	288.7	2,540.9	691.5	554.3	137.17	5.041		
11,800.0	9,194.0	12,046.3	9,399.0	72.3	73.6	107.25	288.2	2,640.9	691.5	550.2	141.27	4.895		
11,900.0	9,194.0	12,146.3	9,398.9	74.5	75.7	107.24	287.8	2,740.9	691.5	546.1	145.40	4.756		
12,000.0	9,194.0	12,246.3	9,398.9	76.6	77.9	107.24	287.3	2,840.9	691.4	541.9	149.57	4.623		
12,100.0	9,194.0	12,346.3	9,398.8	78.8	80.1	107.23	286.8	2,940.9	691.4	537.7	153.76	4.497		
12,200.0	9,194.0	12,446.3	9,398.8	81.0	82.3	107.23	286.3	3,040.9	691.4	533.4	157.98	4.376		
12,300.0	9,194.0	12,546.3	9,398.7	83.2	84.5	107.22	285.8	3,140.9	691.4	529.1	162.22	4.262		
12,400.0	9,194.0	12,646.3	9,398.6	85.4	86.8	107.22	285.3	3,240.9	691.3	524.9	166.49	4.152		
12,500.0	9,194.0	12,746.3	9,398.6	87.6	89.0	107.21	284.8	3,340.9	691.3	520.5	170.78	4.048		
12,600.0	9,194.0	12,846.3	9,398.5	89.8	91.2	107.21	284.3	3,440.9	691.3	516.2	175.08	3.948		
12,700.0	9,194.0	12,946.3	9,398.4	92.1	93.5	107.20	283.9	3,540.9	691.3	511.9	179.41	3.853		
12,800.0	9,194.0	13,046.3	9,398.4	94.3	95.8	107.20	283.4	3,640.9	691.3	507.5	183.75	3.762		

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 131H
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 131H	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	
12,900.0	9,194.0	13,146.3	9,398.3	96.6	98.0	107.19	282.9	3,740.9	691.2	503.1	188.10	3.675		
13,000.0	9,194.0	13,246.3	9,398.3	98.9	100.3	107.19	282.4	3,840.9	691.2	498.7	192.47	3.591		
13,100.0	9,194.0	13,346.3	9,398.2	101.1	102.6	107.19	281.9	3,940.8	691.2	494.3	196.85	3.511		
13,200.0	9,194.0	13,446.3	9,398.1	103.4	104.9	107.18	281.4	4,040.8	691.2	489.9	201.25	3.434		
13,300.0	9,194.0	13,546.3	9,398.1	105.7	107.2	107.18	280.9	4,140.8	691.1	485.5	205.66	3.361		
13,400.0	9,194.0	13,646.3	9,398.0	108.0	109.5	107.17	280.4	4,240.8	691.1	481.0	210.07	3.290		
13,500.0	9,194.0	13,746.3	9,397.9	110.3	111.8	107.17	279.9	4,340.8	691.1	476.6	214.50	3.222		
13,600.0	9,194.0	13,846.3	9,397.9	112.6	114.1	107.16	279.5	4,440.8	691.1	472.1	218.94	3.156		
13,700.0	9,194.0	13,946.3	9,397.8	114.9	116.4	107.16	279.0	4,540.8	691.0	467.7	223.39	3.093		
13,800.0	9,194.0	14,046.3	9,397.8	117.2	118.7	107.15	278.5	4,640.8	691.0	463.2	227.84	3.033		
13,900.0	9,194.0	14,146.3	9,397.7	119.5	121.1	107.15	278.0	4,740.8	691.0	458.7	232.31	2.974		
14,000.0	9,194.0	14,246.3	9,397.6	121.9	123.4	107.14	277.5	4,840.8	691.0	454.2	236.78	2.918		
14,100.0	9,194.0	14,346.3	9,397.6	124.2	125.7	107.14	277.0	4,940.8	690.9	449.7	241.26	2.864		
14,200.0	9,194.0	14,446.3	9,397.5	126.5	128.1	107.13	276.5	5,040.8	690.9	445.2	245.74	2.812		
14,300.0	9,194.0	14,546.3	9,397.4	128.9	130.4	107.13	276.0	5,140.8	690.9	440.7	250.24	2.761		
14,400.0	9,194.0	14,646.3	9,397.4	131.2	132.7	107.12	275.6	5,240.8	690.9	436.1	254.73	2.712		
14,500.0	9,194.0	14,746.3	9,397.3	133.5	135.1	107.12	275.1	5,340.8	690.9	431.6	259.24	2.665		
14,600.0	9,194.0	14,846.3	9,397.3	135.9	137.4	107.11	274.6	5,440.8	690.8	427.1	263.75	2.619		
14,700.0	9,194.0	14,946.3	9,397.2	138.2	139.8	107.11	274.1	5,540.8	690.8	422.5	268.26	2.575		
14,800.0	9,194.0	15,046.3	9,397.1	140.6	142.1	107.10	273.6	5,640.8	690.8	418.0	272.78	2.532		
14,900.0	9,194.0	15,146.3	9,397.1	142.9	144.5	107.10	273.1	5,740.8	690.8	413.5	277.31	2.491		
15,000.0	9,194.0	15,246.3	9,397.0	145.3	146.8	107.09	272.6	5,840.8	690.7	408.9	281.84	2.451		
15,100.0	9,194.0	15,346.3	9,396.9	147.6	149.2	107.09	272.1	5,940.8	690.7	404.3	286.37	2.412		
15,200.0	9,194.0	15,446.3	9,396.9	150.0	151.6	107.08	271.7	6,040.8	690.7	399.8	290.91	2.374		
15,300.0	9,194.0	15,546.3	9,396.8	152.3	153.9	107.08	271.2	6,140.8	690.7	395.2	295.45	2.338		
15,400.0	9,194.0	15,646.3	9,396.8	154.7	156.3	107.07	270.7	6,240.8	690.6	390.6	300.00	2.302		
15,500.0	9,194.0	15,746.3	9,396.7	157.1	158.6	107.07	270.2	6,340.8	690.6	386.1	304.55	2.268		
15,600.0	9,194.0	15,846.3	9,396.6	159.4	161.0	107.06	269.7	6,440.8	690.6	381.5	309.10	2.234		
15,700.0	9,194.0	15,946.3	9,396.6	161.8	163.4	107.06	269.2	6,540.8	690.6	376.9	313.66	2.202		
15,800.0	9,194.0	16,046.3	9,396.5	164.2	165.7	107.05	268.7	6,640.8	690.6	372.3	318.22	2.170		
15,900.0	9,194.0	16,146.3	9,396.4	166.5	168.1	107.05	268.2	6,740.8	690.5	367.7	322.79	2.139		
16,000.0	9,194.0	16,246.3	9,396.4	168.9	170.5	107.04	267.7	6,840.8	690.5	363.2	327.35	2.109		
16,100.0	9,194.0	16,346.3	9,396.3	171.3	172.9	107.04	267.3	6,940.8	690.5	358.6	331.92	2.080		
16,200.0	9,194.0	16,446.3	9,396.3	173.6	175.2	107.03	266.8	7,040.8	690.5	354.0	336.49	2.052		
16,300.0	9,194.0	16,546.3	9,396.2	176.0	177.6	107.03	266.3	7,140.8	690.4	349.4	341.07	2.024		
16,400.0	9,194.0	16,646.3	9,396.1	178.4	180.0	107.03	265.8	7,240.8	690.4	344.8	345.65	1.997		
16,500.0	9,194.0	16,746.3	9,396.1	180.8	182.4	107.02	265.3	7,340.8	690.4	340.2	350.23	1.971		
16,600.0	9,194.0	16,846.3	9,396.0	183.1	184.8	107.02	264.8	7,440.8	690.4	335.6	354.81	1.946		
16,700.0	9,194.0	16,946.3	9,395.9	185.5	187.1	107.01	264.3	7,540.8	690.3	331.0	359.39	1.921		
16,800.0	9,194.0	17,046.3	9,395.9	187.9	189.5	107.01	263.8	7,640.8	690.3	326.3	363.98	1.897		
16,900.0	9,194.0	17,146.3	9,395.8	190.3	191.9	107.00	263.4	7,740.8	690.3	321.7	368.57	1.873		
17,000.0	9,194.0	17,246.3	9,395.8	192.7	194.3	107.00	262.9	7,840.8	690.3	317.1	373.16	1.850		
17,100.0	9,194.0	17,346.3	9,395.7	195.0	196.7	106.99	262.4	7,940.8	690.3	312.5	377.75	1.827		
17,200.0	9,194.0	17,446.3	9,395.6	197.4	199.1	106.99	261.9	8,040.8	690.2	307.9	382.35	1.805		
17,300.0	9,194.0	17,546.3	9,395.6	199.8	201.4	106.98	261.4	8,140.8	690.2	303.3	386.94	1.784		
17,400.0	9,194.0	17,646.3	9,395.5	202.2	203.8	106.98	260.9	8,240.8	690.2	298.6	391.54	1.763		
17,500.0	9,194.0	17,746.3	9,395.4	204.6	206.2	106.97	260.4	8,340.8	690.2	294.0	396.14	1.742		
17,600.0	9,194.0	17,846.3	9,395.4	207.0	208.6	106.97	259.9	8,440.8	690.1	289.4	400.74	1.722		
17,700.0	9,194.0	17,946.3	9,395.3	209.4	211.0	106.96	259.5	8,540.8	690.1	284.8	405.35	1.703		
17,800.0	9,194.0	18,046.3	9,395.3	211.8	213.4	106.96	259.0	8,640.8	690.1	280.1	409.95	1.683		
17,900.0	9,194.0	18,146.3	9,395.2	214.1	215.8	106.95	258.5	8,740.8	690.1	275.5	414.56	1.665		
18,000.0	9,194.0	18,246.3	9,395.1	216.5	218.2	106.95	258.0	8,840.8	690.0	270.9	419.17	1.646		

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 131H
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 131H	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)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,100.0	9,194.0	18,346.3	9,395.1	218.9	220.6	106.94	257.5	8,940.8	690.0	266.2	423.78	1.628		
18,200.0	9,194.0	18,446.3	9,395.0	221.3	223.0	106.94	257.0	9,040.8	690.0	261.6	428.39	1.611		
18,300.0	9,194.0	18,546.3	9,394.9	223.7	225.4	106.93	256.5	9,140.8	690.0	257.0	433.00	1.593		
18,400.0	9,194.0	18,646.3	9,394.9	226.1	227.8	106.93	256.0	9,240.8	690.0	252.3	437.62	1.577		
18,500.0	9,194.0	18,746.3	9,394.8	228.5	230.2	106.92	255.6	9,340.8	689.9	247.7	442.23	1.560		
18,600.0	9,194.0	18,846.3	9,394.8	230.9	232.5	106.92	255.1	9,440.8	689.9	243.1	446.85	1.544		
18,700.0	9,194.0	18,946.3	9,394.7	233.3	234.9	106.91	254.6	9,540.8	689.9	238.4	451.47	1.528		
18,800.0	9,194.0	19,046.3	9,394.6	235.7	237.3	106.91	254.1	9,640.8	689.9	233.8	456.09	1.513		
18,900.0	9,194.0	19,146.3	9,394.6	238.1	239.7	106.90	253.6	9,740.8	689.8	229.1	460.71	1.497	Level 3	
19,000.0	9,194.0	19,246.3	9,394.5	240.5	242.1	106.90	253.1	9,840.8	689.8	224.5	465.33	1.482	Level 3	
19,100.0	9,194.0	19,346.3	9,394.5	242.9	244.5	106.89	252.6	9,940.8	689.8	219.8	469.95	1.468	Level 3	
19,200.0	9,194.0	19,446.3	9,394.4	245.3	246.9	106.89	252.1	10,040.8	689.8	215.2	474.58	1.453	Level 3	
19,300.0	9,194.0	19,546.3	9,394.3	247.7	249.3	106.88	251.6	10,140.8	689.7	210.5	479.20	1.439	Level 3	
19,400.0	9,194.0	19,646.3	9,394.3	250.1	251.7	106.88	251.2	10,240.8	689.7	205.9	483.83	1.426	Level 3	
19,500.0	9,194.0	19,746.3	9,394.2	252.5	254.1	106.87	250.7	10,340.8	689.7	201.2	488.46	1.412	Level 3	
19,600.0	9,194.0	19,846.3	9,394.1	254.9	256.5	106.87	250.2	10,440.8	689.7	196.6	493.08	1.399	Level 3	
19,700.0	9,194.0	19,946.3	9,394.1	257.3	258.9	106.86	249.7	10,540.8	689.7	191.9	497.71	1.386	Level 3	
19,800.0	9,194.0	20,046.3	9,394.0	259.7	261.3	106.86	249.2	10,640.8	689.6	187.3	502.34	1.373	Level 3	
19,818.1	9,194.0	20,064.4	9,394.0	260.1	261.8	106.86	249.1	10,658.9	689.6	186.4	503.18	1.371	Level 3, 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 131H
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 131H	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 171H - 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	
0.0	0.0	0.0	0.0	0.0	0.0	-179.88	-132.0	-0.3	132.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.88	-132.0	-0.3	132.0	131.7	0.25	526.043		
200.0	200.0	200.0	200.0	0.5	0.5	-179.88	-132.0	-0.3	132.0	131.0	0.97	136.382		
300.0	300.0	300.0	300.0	0.8	0.8	-179.88	-132.0	-0.3	132.0	130.3	1.68	78.347		
400.0	400.0	400.0	400.0	1.2	1.2	-179.88	-132.0	-0.3	132.0	129.6	2.40	54.960		
500.0	500.0	500.0	500.0	1.6	1.6	-179.88	-132.0	-0.3	132.0	128.9	3.12	42.325		
600.0	600.0	600.0	600.0	1.9	1.9	-179.88	-132.0	-0.3	132.0	128.2	3.84	34.414		
700.0	700.0	700.0	700.0	2.3	2.3	-179.88	-132.0	-0.3	132.0	127.4	4.55	28.995		
800.0	800.0	800.0	800.0	2.6	2.6	-179.88	-132.0	-0.3	132.0	126.7	5.27	25.050		
900.0	900.0	900.0	900.0	3.0	3.0	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-132.0	-0.3	132.0	120.3	11.72	11.261	CC, ES	
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	-175.77	-132.0	-0.3	133.7	121.3	12.44	10.752		
1,900.0	1,899.8	1,899.8	1,899.8	6.6	6.6	-175.92	-132.0	-0.3	139.0	125.8	13.16	10.563		
2,000.0	1,999.5	1,999.5	1,999.5	6.9	6.9	-176.15	-132.0	-0.3	147.7	133.8	13.87	10.644		
2,100.0	2,098.7	2,098.7	2,098.7	7.3	7.3	-176.43	-132.0	-0.3	159.8	145.2	14.59	10.957		
2,200.0	2,197.5	2,197.5	2,197.5	7.7	7.6	-176.73	-132.0	-0.3	175.4	160.1	15.30	11.468		
2,300.0	2,295.6	2,295.6	2,295.6	8.0	8.0	-177.03	-132.0	-0.3	194.5	178.5	16.01	12.151		
2,400.0	2,393.4	2,393.4	2,393.4	8.4	8.3	-177.32	-132.0	-0.3	215.3	198.5	16.71	12.880		
2,500.0	2,491.3	2,491.3	2,491.3	8.8	8.7	-177.55	-132.0	-0.3	236.0	218.6	17.42	13.550		
2,600.0	2,589.1	2,589.1	2,589.1	9.2	9.0	-177.75	-132.0	-0.3	256.8	238.7	18.13	14.167		
2,700.0	2,686.9	2,686.9	2,686.9	9.6	9.4	-177.92	-132.0	-0.3	277.6	258.7	18.84	14.736		
2,800.0	2,784.7	2,784.7	2,784.7	10.1	9.7	-178.06	-132.0	-0.3	298.4	278.8	19.55	15.263		
2,900.0	2,882.5	2,882.5	2,882.5	10.5	10.1	-178.19	-132.0	-0.3	319.1	298.9	20.26	15.751		
3,000.0	2,980.3	2,980.3	2,980.3	10.9	10.5	-178.30	-132.0	-0.3	339.9	318.9	20.97	16.206		
3,100.0	3,078.1	3,083.3	3,083.3	11.4	10.8	-178.39	-131.4	-0.4	360.1	338.4	21.72	16.584		
3,200.0	3,176.0	3,188.3	3,188.3	11.8	11.2	-178.43	-129.0	-0.8	378.6	356.2	22.46	16.854		
3,300.0	3,273.8	3,294.0	3,293.9	12.2	11.6	-178.43	-124.6	-1.6	395.3	372.1	23.21	17.031		
3,400.0	3,371.6	3,400.3	3,400.0	12.7	12.0	-178.40	-118.2	-2.8	410.2	386.2	23.96	17.122		
3,500.0	3,469.4	3,507.1	3,506.5	13.1	12.3	-178.33	-109.9	-4.3	423.2	398.5	24.70	17.136		
3,600.0	3,567.2	3,614.5	3,613.3	13.6	12.7	-178.23	-99.6	-6.2	434.4	409.0	25.44	17.078		
3,700.0	3,665.0	3,722.2	3,720.3	14.0	13.1	-178.09	-87.3	-8.4	443.8	417.6	26.17	16.956		
3,800.0	3,762.8	3,827.9	3,825.0	14.5	13.5	-177.94	-73.3	-10.9	451.4	424.5	26.91	16.776		
3,900.0	3,860.7	3,927.6	3,923.8	14.9	13.9	-177.78	-59.7	-13.4	458.5	430.9	27.64	16.586		
4,000.0	3,958.5	4,027.4	4,022.6	15.4	14.2	-177.63	-46.0	-15.9	465.6	437.2	28.38	16.406		
4,100.0	4,056.3	4,127.1	4,121.3	15.8	14.6	-177.49	-32.3	-18.4	472.7	443.6	29.12	16.234		
4,200.0	4,154.1	4,226.9	4,220.1	16.3	15.0	-177.35	-18.7	-20.8	479.8	450.0	29.86	16.070		
4,300.0	4,251.9	4,326.6	4,318.9	16.7	15.4	-177.21	-5.0	-23.3	486.9	456.3	30.60	15.913		
4,400.0	4,349.7	4,426.3	4,417.7	17.2	15.7	-177.08	8.6	-25.8	494.1	462.7	31.34	15.764		
4,500.0	4,447.5	4,526.1	4,516.4	17.7	16.1	-176.95	22.3	-28.3	501.2	469.1	32.08	15.621		
4,600.0	4,545.4	4,625.8	4,615.2	18.1	16.5	-176.83	36.0	-30.7	508.3	475.5	32.83	15.484		
4,700.0	4,643.2	4,725.6	4,714.0	18.6	16.9	-176.71	49.6	-33.2	515.4	481.9	33.57	15.353		
4,800.0	4,741.0	4,825.3	4,812.7	19.1	17.3	-176.59	63.3	-35.7	522.6	488.2	34.32	15.227		
4,900.0	4,838.8	4,925.0	4,911.5	19.5	17.6	-176.47	76.9	-38.2	529.7	494.6	35.06	15.107		
5,000.0	4,936.6	5,024.8	5,010.3	20.0	18.0	-176.36	90.6	-40.7	536.8	501.0	35.81	14.991		
5,100.0	5,034.4	5,124.5	5,109.0	20.5	18.4	-176.25	104.2	-43.1	544.0	507.4	36.56	14.880		

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 131H
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 131H	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 171H - 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		Distance Between Centres (usft)		Rule Assigned: Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)						
5,200.0	5,132.3	5,224.3	5,207.8	20.9	18.8	-176.15	117.9	-45.6	551.1	513.8		37.31	14.773	
5,300.0	5,230.1	5,324.0	5,306.6	21.4	19.2	-176.04	131.6	-48.1	558.2	520.2		38.05	14.670	
5,400.0	5,327.9	5,423.7	5,405.3	21.9	19.6	-175.94	145.2	-50.6	565.4	526.6		38.80	14.570	
5,500.0	5,425.7	5,523.5	5,504.1	22.3	20.0	-175.85	158.9	-53.0	572.5	533.0		39.55	14.475	
5,600.0	5,523.5	5,623.2	5,602.9	22.8	20.4	-175.75	172.5	-55.5	579.7	539.4		40.30	14.383	
5,700.0	5,621.3	5,723.0	5,701.7	23.3	20.8	-175.66	186.2	-58.0	586.8	545.8		41.05	14.294	
5,800.0	5,719.1	5,822.7	5,800.4	23.7	21.2	-175.57	199.9	-60.5	594.0	552.1		41.81	14.208	
5,900.0	5,817.0	5,922.4	5,899.2	24.2	21.6	-175.48	213.5	-62.9	601.1	558.5		42.56	14.125	
6,000.0	5,914.8	6,022.2	5,998.0	24.7	22.0	-175.39	227.2	-65.4	608.3	564.9		43.31	14.045	
6,100.0	6,012.6	6,121.9	6,096.7	25.2	22.4	-175.30	240.8	-67.9	615.4	571.3		44.06	13.967	
6,200.0	6,110.4	6,217.2	6,191.1	25.6	22.7	-175.23	253.7	-70.2	622.7	577.9		44.80	13.898	
6,300.0	6,208.2	6,307.1	6,280.4	26.1	23.1	-175.18	264.7	-72.2	631.4	585.8		45.53	13.867	
6,337.0	6,244.4	6,340.4	6,313.4	26.3	23.2	-175.17	268.4	-72.9	634.9	589.1		45.80	13.865	
6,400.0	6,306.2	6,400.0	6,372.7	26.6	23.5	-175.16	274.6	-74.0	640.9	594.6		46.26	13.855	
6,500.0	6,404.7	6,486.7	6,459.0	27.0	23.8	-175.15	282.5	-75.5	648.6	601.7		46.94	13.819	
6,600.0	6,503.8	6,576.5	6,548.5	27.4	24.1	-175.13	289.3	-76.7	654.5	606.9		47.62	13.744	
6,700.0	6,603.3	6,666.3	6,638.1	27.8	24.5	-175.11	294.8	-77.7	658.4	610.1		48.28	13.637	
6,800.0	6,703.1	6,756.1	6,727.9	28.2	24.8	-175.09	298.9	-78.4	660.4	611.5		48.92	13.499	
6,900.0	6,803.0	6,846.0	6,817.7	28.5	25.1	-175.06	301.6	-78.9	660.4	610.9		49.54	13.330	
6,937.0	6,840.0	6,879.2	6,850.9	28.6	25.2	-179.22	302.2	-79.0	659.9	610.2		49.77	13.260	
7,000.0	6,903.0	6,935.8	6,907.5	28.8	25.4	-179.20	302.9	-79.2	659.2	609.1		50.15	13.145	
7,059.5	6,962.5	6,990.8	6,962.5	29.0	25.6	-179.20	303.0	-79.2	659.1	608.5		50.52	13.045	
7,100.0	7,003.0	7,031.3	7,003.0	29.1	25.7	-179.20	303.0	-79.2	659.1	608.3		50.80	12.973	
7,200.0	7,103.0	7,131.3	7,103.0	29.4	26.1	-179.20	303.0	-79.2	659.1	607.6		51.50	12.798	
7,300.0	7,203.0	7,231.3	7,203.0	29.7	26.4	-179.20	303.0	-79.2	659.1	606.9		52.20	12.627	
7,400.0	7,303.0	7,331.3	7,303.0	30.0	26.8	-179.20	303.0	-79.2	659.1	606.2		52.89	12.460	
7,500.0	7,403.0	7,431.3	7,403.0	30.3	27.1	-179.20	303.0	-79.2	659.1	605.5		53.59	12.298	
7,600.0	7,503.0	7,531.3	7,503.0	30.6	27.5	-179.20	303.0	-79.2	659.1	604.8		54.29	12.140	
7,700.0	7,603.0	7,631.3	7,603.0	30.9	27.8	-179.20	303.0	-79.2	659.1	604.1		54.99	11.985	
7,800.0	7,703.0	7,731.3	7,703.0	31.2	28.2	-179.20	303.0	-79.2	659.1	603.4		55.69	11.835	
7,900.0	7,803.0	7,831.3	7,803.0	31.5	28.5	-179.20	303.0	-79.2	659.1	602.7		56.39	11.688	
8,000.0	7,903.0	7,931.3	7,903.0	31.9	28.9	-179.20	303.0	-79.2	659.1	602.0		57.09	11.545	
8,100.0	8,003.0	8,031.3	8,003.0	32.2	29.2	-179.20	303.0	-79.2	659.1	601.3		57.79	11.405	
8,200.0	8,103.0	8,131.3	8,103.0	32.5	29.6	-179.20	303.0	-79.2	659.1	600.6		58.49	11.268	
8,300.0	8,203.0	8,231.8	8,203.3	32.8	29.9	-179.50	303.0	-75.8	659.0	599.9		59.18	11.136	
8,318.1	8,221.2	8,249.8	8,221.2	32.9	30.0	-179.71	303.0	-73.3	659.0	599.7		59.30	11.114	
8,400.0	8,303.0	8,327.8	8,296.9	33.1	30.2	178.69	302.9	-54.9	659.3	599.6		59.77	11.030	
8,500.0	8,403.0	8,412.7	8,374.7	33.4	30.4	175.76	302.7	-21.1	661.7	601.5		60.19	10.993	
8,600.0	8,503.0	8,483.9	8,434.4	33.7	30.6	172.45	302.5	17.4	668.8	608.4		60.33	11.085	
8,700.0	8,603.0	8,542.1	8,478.6	34.1	30.7	169.25	302.3	55.2	682.9	622.8		60.05	11.372	
8,800.0	8,703.0	8,589.2	8,510.8	34.4	30.8	166.40	302.2	89.6	705.6	646.3		59.27	11.905	
8,813.5	8,716.5	8,594.8	8,514.4	34.4	30.8	166.05	302.1	93.9	709.3	650.2		59.12	11.998	
8,825.0	8,728.0	8,600.0	8,517.7	34.5	30.8	75.04	302.1	98.0	712.6	653.6		59.00	12.078	
8,850.0	8,753.0	8,609.9	8,523.8	34.5	30.8	73.55	302.1	105.7	720.0	661.3		58.69	12.267	
8,875.0	8,777.9	8,625.0	8,532.9	34.6	30.9	71.77	302.0	117.8	727.6	669.1		58.48	12.441	
8,900.0	8,802.6	8,631.0	8,536.4	34.7	30.9	70.53	302.0	122.7	735.2	677.2		58.05	12.666	
8,925.0	8,827.0	8,641.7	8,542.4	34.8	30.9	69.05	301.9	131.4	743.0	685.3		57.71	12.876	
8,950.0	8,851.2	8,650.0	8,547.0	34.8	30.9	67.70	301.9	138.4	750.9	693.6		57.30	13.105	
8,975.0	8,875.0	8,663.2	8,554.1	34.9	31.0	66.16	301.9	149.6	758.7	701.7		57.00	13.312	
9,000.0	8,898.3	8,675.0	8,560.1	35.0	31.0	64.74	301.8	159.7	766.5	709.9		56.65	13.531	
9,025.0	8,921.2	8,685.0	8,565.0	35.0	31.0	63.45	301.8	168.4	774.3	718.0		56.26	13.763	
9,050.0	8,943.5	8,700.0	8,572.0	35.1	31.1	62.00	301.7	181.7	781.9	725.9		55.98	13.967	

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 131H
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 131H	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 171H - 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		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor	Warning	
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
9,075.0	8,965.1	8,707.0	8,575.1	35.2	31.1	60.93	301.7	187.9	789.4	733.8	55.51	14.219		
9,100.0	8,986.1	8,718.0	8,579.9	35.2	31.2	59.75	301.6	197.9	796.6	741.5	55.15	14.446		
9,125.0	9,006.4	8,725.0	8,582.8	35.3	31.2	58.76	301.6	204.3	803.8	749.1	54.69	14.697		
9,150.0	9,025.8	8,740.3	8,588.8	35.3	31.3	57.58	301.5	218.3	810.6	756.1	54.43	14.892		
9,175.0	9,044.5	8,750.0	8,592.3	35.4	31.3	56.62	301.5	227.4	817.2	763.1	54.06	15.117		
9,200.0	9,062.2	8,762.7	8,596.7	35.4	31.4	55.65	301.4	239.2	823.4	769.7	53.76	15.317		
9,225.0	9,078.9	8,775.0	8,600.7	35.5	31.4	54.76	301.3	250.9	829.4	776.0	53.47	15.512		
9,250.0	9,094.7	8,785.1	8,603.7	35.5	31.5	53.98	301.3	260.6	835.1	781.9	53.15	15.711		
9,275.0	9,109.4	8,800.0	8,607.7	35.5	31.6	53.17	301.2	274.9	840.4	787.4	52.95	15.872		
9,300.0	9,123.1	8,807.7	8,609.7	35.6	31.6	52.56	301.2	282.4	845.3	792.6	52.63	16.061		
9,325.0	9,135.6	8,825.0	8,613.6	35.6	31.7	51.86	301.1	299.2	849.8	797.3	52.51	16.185		
9,350.0	9,147.0	8,825.0	8,613.6	35.7	31.7	51.47	301.1	299.2	854.0	801.8	52.11	16.387		
9,375.0	9,157.2	8,841.7	8,616.7	35.7	31.8	50.91	301.0	315.6	857.6	805.6	52.04	16.481		
9,400.0	9,166.3	8,850.0	8,618.1	35.7	31.9	50.51	301.0	323.8	860.9	809.1	51.85	16.603		
9,425.0	9,174.0	8,864.4	8,620.2	35.8	32.0	50.11	300.9	338.0	863.8	812.0	51.80	16.676		
9,450.0	9,180.5	8,875.0	8,621.4	35.8	32.0	49.81	300.9	348.6	866.2	814.5	51.72	16.748		
9,475.0	9,185.8	8,887.2	8,622.5	35.9	32.1	49.55	300.8	360.7	868.1	816.4	51.70	16.793		
9,500.0	9,189.8	8,900.0	8,623.3	36.0	32.2	49.36	300.7	373.5	869.6	817.9	51.72	16.816		
9,525.0	9,192.4	8,910.0	8,623.7	36.0	32.3	49.23	300.7	383.4	870.7	818.9	51.74	16.827		
9,550.0	9,193.8	8,924.8	8,624.0	36.1	32.4	49.16	300.6	398.3	871.3	819.4	51.85	16.803		
9,563.5	9,194.0	8,930.7	8,624.0	36.2	32.4	49.15	300.6	404.2	871.4	819.5	51.91	16.786		
9,600.0	9,194.0	8,967.2	8,624.0	36.3	32.7	49.15	300.4	440.7	871.4	819.1	52.28	16.666		
9,700.0	9,194.0	9,067.2	8,624.0	36.9	33.6	49.15	299.9	540.7	871.4	817.9	53.46	16.299		
9,800.0	9,194.0	9,167.2	8,624.0	37.7	34.6	49.15	299.4	640.7	871.4	816.5	54.87	15.880		
9,900.0	9,194.0	9,267.2	8,624.0	38.7	35.7	49.15	298.9	740.7	871.4	814.9	56.51	15.421		
10,000.0	9,194.0	9,367.2	8,624.0	39.8	37.0	49.15	298.4	840.7	871.4	813.1	58.34	14.936		
10,100.0	9,194.0	9,467.2	8,624.0	41.1	38.4	49.15	297.9	940.7	871.4	811.0	60.36	14.437		
10,200.0	9,194.0	9,567.2	8,624.0	42.4	39.8	49.15	297.4	1,040.7	871.4	808.9	62.54	13.933		
10,300.0	9,194.0	9,667.2	8,624.0	43.9	41.4	49.15	296.9	1,140.7	871.4	806.5	64.88	13.432		
10,400.0	9,194.0	9,767.2	8,624.0	45.4	43.0	49.15	296.4	1,240.7	871.4	804.1	67.34	12.940		
10,500.0	9,194.0	9,867.2	8,624.0	47.0	44.8	49.15	295.9	1,340.7	871.4	801.5	69.93	12.462		
10,600.0	9,194.0	9,967.2	8,624.0	48.7	46.5	49.15	295.4	1,440.7	871.4	798.8	72.62	12.000		
10,700.0	9,194.0	10,067.2	8,624.0	50.5	48.4	49.15	294.9	1,540.7	871.4	796.0	75.41	11.556		
10,800.0	9,194.0	10,167.2	8,624.0	52.3	50.2	49.15	294.4	1,640.7	871.5	793.2	78.28	11.132		
10,900.0	9,194.0	10,267.2	8,624.0	54.1	52.2	49.15	293.9	1,740.7	871.5	790.2	81.23	10.728		
11,000.0	9,194.0	10,367.2	8,624.0	56.0	54.1	49.15	293.4	1,840.7	871.5	787.2	84.25	10.344		
11,100.0	9,194.0	10,467.2	8,624.0	58.0	56.1	49.15	292.9	1,940.7	871.5	784.1	87.33	9.979		
11,200.0	9,194.0	10,567.2	8,624.0	59.9	58.2	49.15	292.4	2,040.7	871.5	781.0	90.46	9.634		
11,300.0	9,194.0	10,667.2	8,624.0	61.9	60.2	49.15	291.9	2,140.7	871.5	777.8	93.64	9.306		
11,400.0	9,194.0	10,767.2	8,624.0	64.0	62.3	49.15	291.4	2,240.7	871.5	774.6	96.87	8.996		
11,500.0	9,194.0	10,867.2	8,624.0	66.0	64.4	49.15	290.9	2,340.7	871.5	771.4	100.14	8.703		
11,600.0	9,194.0	10,967.2	8,624.0	68.1	66.6	49.15	290.4	2,440.7	871.5	768.1	103.44	8.425		
11,700.0	9,194.0	11,067.2	8,624.0	70.2	68.7	49.15	289.9	2,540.7	871.5	764.7	106.78	8.162		
11,800.0	9,194.0	11,167.2	8,624.0	72.3	70.9	49.15	289.4	2,640.7	871.5	761.4	110.14	7.913		
11,900.0	9,194.0	11,267.2	8,624.0	74.5	73.1	49.15	288.9	2,740.7	871.5	758.0	113.54	7.676		
12,000.0	9,194.0	11,367.2	8,624.0	76.6	75.3	49.15	288.3	2,840.7	871.5	754.6	116.96	7.452		
12,100.0	9,194.0	11,467.2	8,624.0	78.8	77.5	49.16	287.8	2,940.7	871.5	751.1	120.40	7.239		
12,200.0	9,194.0	11,567.2	8,624.0	81.0	79.7	49.16	287.3	3,040.6	871.5	747.7	123.86	7.037		
12,300.0	9,194.0	11,667.2	8,624.0	83.2	81.9	49.16	286.8	3,140.6	871.6	744.2	127.34	6.844		
12,400.0	9,194.0	11,767.2	8,624.0	85.4	84.2	49.16	286.3	3,240.6	871.6	740.7	130.84	6.661		
12,500.0	9,194.0	11,867.2	8,624.0	87.6	86.4	49.16	285.8	3,340.6	871.6	737.2	134.36	6.487		
12,600.0	9,194.0	11,967.2	8,624.0	89.8	88.7	49.16	285.3	3,440.6	871.6	733.7	137.89	6.321		

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 131H
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 131H	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 171H - 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)					
12,700.0	9,194.0	12,067.2	8,624.0	92.1	91.0	49.16	284.8	3,540.6	871.6	730.1	141.43	6.162	
12,800.0	9,194.0	12,167.2	8,624.0	94.3	93.3	49.16	284.3	3,640.6	871.6	726.6	144.99	6.011	
12,900.0	9,194.0	12,267.2	8,624.0	96.6	95.5	49.16	283.8	3,740.6	871.6	723.0	148.56	5.867	
13,000.0	9,194.0	12,367.2	8,624.0	98.9	97.8	49.16	283.3	3,840.6	871.6	719.5	152.14	5.729	
13,100.0	9,194.0	12,467.2	8,624.0	101.1	100.1	49.16	282.8	3,940.6	871.6	715.9	155.73	5.597	
13,200.0	9,194.0	12,567.2	8,624.0	103.4	102.4	49.16	282.3	4,040.6	871.6	712.3	159.33	5.470	
13,300.0	9,194.0	12,667.2	8,624.0	105.7	104.8	49.16	281.8	4,140.6	871.6	708.7	162.94	5.349	
13,400.0	9,194.0	12,767.2	8,624.0	108.0	107.1	49.16	281.3	4,240.6	871.6	705.1	166.56	5.233	
13,500.0	9,194.0	12,867.2	8,624.0	110.3	109.4	49.16	280.8	4,340.6	871.6	701.4	170.19	5.122	
13,600.0	9,194.0	12,967.2	8,624.0	112.6	111.7	49.16	280.3	4,440.6	871.6	697.8	173.82	5.015	
13,700.0	9,194.0	13,067.2	8,624.0	114.9	114.0	49.16	279.8	4,540.6	871.6	694.2	177.46	4.912	
13,800.0	9,194.0	13,167.2	8,624.0	117.2	116.4	49.16	279.3	4,640.6	871.7	690.5	181.11	4.813	
13,900.0	9,194.0	13,267.2	8,624.0	119.5	118.7	49.16	278.8	4,740.6	871.7	686.9	184.77	4.718	
14,000.0	9,194.0	13,367.2	8,624.0	121.9	121.0	49.16	278.3	4,840.6	871.7	683.2	188.43	4.626	
14,100.0	9,194.0	13,467.2	8,624.0	124.2	123.4	49.16	277.8	4,940.6	871.7	679.6	192.09	4.538	
14,200.0	9,194.0	13,567.2	8,624.0	126.5	125.7	49.16	277.3	5,040.6	871.7	675.9	195.76	4.453	
14,300.0	9,194.0	13,667.2	8,624.0	128.9	128.1	49.16	276.8	5,140.6	871.7	672.3	199.44	4.371	
14,400.0	9,194.0	13,767.2	8,624.0	131.2	130.4	49.16	276.3	5,240.6	871.7	668.6	203.12	4.292	
14,500.0	9,194.0	13,867.2	8,624.0	133.5	132.8	49.16	275.8	5,340.6	871.7	664.9	206.80	4.215	
14,600.0	9,194.0	13,967.2	8,624.0	135.9	135.1	49.16	275.3	5,440.6	871.7	661.2	210.49	4.141	
14,700.0	9,194.0	14,067.2	8,624.0	138.2	137.5	49.16	274.8	5,540.6	871.7	657.5	214.18	4.070	
14,800.0	9,194.0	14,167.2	8,624.0	140.6	139.9	49.17	274.3	5,640.6	871.7	653.8	217.88	4.001	
14,900.0	9,194.0	14,267.2	8,624.0	142.9	142.2	49.17	273.8	5,740.6	871.7	650.2	221.58	3.934	
15,000.0	9,194.0	14,367.2	8,624.0	145.3	144.6	49.17	273.3	5,840.6	871.7	646.5	225.28	3.870	
15,100.0	9,194.0	14,467.2	8,624.0	147.6	147.0	49.17	272.8	5,940.6	871.7	642.8	228.98	3.807	
15,200.0	9,194.0	14,567.2	8,624.0	150.0	149.3	49.17	272.3	6,040.6	871.7	639.1	232.69	3.746	
15,300.0	9,194.0	14,667.2	8,624.0	152.3	151.7	49.17	271.8	6,140.6	871.8	635.3	236.41	3.688	
15,400.0	9,194.0	14,767.2	8,624.0	154.7	154.1	49.17	271.3	6,240.6	871.8	631.6	240.12	3.631	
15,500.0	9,194.0	14,867.2	8,624.0	157.1	156.4	49.17	270.8	6,340.6	871.8	627.9	243.84	3.575	
15,600.0	9,194.0	14,967.2	8,624.0	159.4	158.8	49.17	270.3	6,440.6	871.8	624.2	247.56	3.521	
15,700.0	9,194.0	15,067.2	8,624.0	161.8	161.2	49.17	269.8	6,540.6	871.8	620.5	251.28	3.469	
15,800.0	9,194.0	15,167.2	8,624.0	164.2	163.6	49.17	269.3	6,640.6	871.8	616.8	255.01	3.419	
15,900.0	9,194.0	15,267.2	8,624.0	166.5	165.9	49.17	268.8	6,740.6	871.8	613.1	258.73	3.369	
16,000.0	9,194.0	15,367.2	8,624.0	168.9	168.3	49.17	268.3	6,840.6	871.8	609.3	262.46	3.322	
16,100.0	9,194.0	15,467.2	8,624.0	171.3	170.7	49.17	267.8	6,940.6	871.8	605.6	266.19	3.275	
16,200.0	9,194.0	15,567.2	8,624.0	173.6	173.1	49.17	267.3	7,040.6	871.8	601.9	269.93	3.230	
16,300.0	9,194.0	15,667.2	8,624.0	176.0	175.5	49.17	266.8	7,140.6	871.8	598.2	273.66	3.186	
16,400.0	9,194.0	15,767.2	8,624.0	178.4	177.8	49.17	266.3	7,240.6	871.8	594.4	277.40	3.143	
16,500.0	9,194.0	15,867.2	8,624.0	180.8	180.2	49.17	265.8	7,340.6	871.8	590.7	281.14	3.101	
16,600.0	9,194.0	15,967.2	8,624.0	183.1	182.6	49.17	265.3	7,440.6	871.8	587.0	284.88	3.060	
16,700.0	9,194.0	16,067.2	8,624.0	185.5	185.0	49.17	264.8	7,540.6	871.8	583.2	288.62	3.021	
16,800.0	9,194.0	16,167.2	8,624.0	187.9	187.4	49.17	264.3	7,640.6	871.9	579.5	292.36	2.982	
16,900.0	9,194.0	16,267.2	8,624.0	190.3	189.8	49.17	263.8	7,740.6	871.9	575.8	296.11	2.944	
17,000.0	9,194.0	16,367.2	8,624.0	192.7	192.2	49.17	263.3	7,840.6	871.9	572.0	299.86	2.908	
17,100.0	9,194.0	16,467.2	8,624.0	195.0	194.6	49.17	262.8	7,940.6	871.9	568.3	303.60	2.872	
17,200.0	9,194.0	16,567.2	8,624.0	197.4	197.0	49.17	262.3	8,040.6	871.9	564.5	307.35	2.837	
17,300.0	9,194.0	16,667.2	8,624.0	199.8	199.3	49.17	261.8	8,140.6	871.9	560.8	311.10	2.803	
17,400.0	9,194.0	16,767.2	8,624.0	202.2	201.7	49.18	261.3	8,240.6	871.9	557.0	314.86	2.769	
17,500.0	9,194.0	16,867.2	8,624.0	204.6	204.1	49.18	260.8	8,340.6	871.9	553.3	318.61	2.737	
17,600.0	9,194.0	16,967.2	8,624.0	207.0	206.5	49.18	260.3	8,440.6	871.9	549.5	322.36	2.705	
17,700.0	9,194.0	17,067.2	8,624.0	209.4	208.9	49.18	259.8	8,540.6	871.9	545.8	326.12	2.674	
17,800.0	9,194.0	17,167.2	8,624.0	211.8	211.3	49.18	259.2	8,640.6	871.9	542.0	329.87	2.643	

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 131H
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 131H	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 171H - 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	
17,900.0	9,194.0	17,267.2	8,624.0	214.1	213.7	49.18	258.7	8,740.6	871.9	538.3	333.63	2.613		
18,000.0	9,194.0	17,367.2	8,624.0	216.5	216.1	49.18	258.2	8,840.6	871.9	534.5	337.39	2.584		
18,100.0	9,194.0	17,467.2	8,624.0	218.9	218.5	49.18	257.7	8,940.6	871.9	530.8	341.15	2.556		
18,200.0	9,194.0	17,567.2	8,624.0	221.3	220.9	49.18	257.2	9,040.6	871.9	527.0	344.91	2.528		
18,300.0	9,194.0	17,667.2	8,624.0	223.7	223.3	49.18	256.7	9,140.6	872.0	523.3	348.67	2.501		
18,400.0	9,194.0	17,767.2	8,624.0	226.1	225.7	49.18	256.2	9,240.6	872.0	519.5	352.43	2.474		
18,500.0	9,194.0	17,867.2	8,624.0	228.5	228.1	49.18	255.7	9,340.6	872.0	515.8	356.20	2.448		
18,600.0	9,194.0	17,967.2	8,624.0	230.9	230.5	49.18	255.2	9,440.6	872.0	512.0	359.96	2.422		
18,700.0	9,194.0	18,067.2	8,624.0	233.3	232.9	49.18	254.7	9,540.6	872.0	508.3	363.73	2.397		
18,800.0	9,194.0	18,167.2	8,624.0	235.7	235.3	49.18	254.2	9,640.6	872.0	504.5	367.49	2.373		
18,900.0	9,194.0	18,267.2	8,624.0	238.1	237.7	49.18	253.7	9,740.6	872.0	500.7	371.26	2.349		
19,000.0	9,194.0	18,367.2	8,624.0	240.5	240.1	49.18	253.2	9,840.6	872.0	497.0	375.02	2.325		
19,100.0	9,194.0	18,467.2	8,624.0	242.9	242.5	49.18	252.7	9,940.6	872.0	493.2	378.79	2.302		
19,200.0	9,194.0	18,567.2	8,624.0	245.3	244.9	49.18	252.2	10,040.6	872.0	489.5	382.56	2.279		
19,300.0	9,194.0	18,667.2	8,624.0	247.7	247.3	49.18	251.7	10,140.6	872.0	485.7	386.33	2.257		
19,400.0	9,194.0	18,767.2	8,624.0	250.1	249.7	49.18	251.2	10,240.6	872.0	481.9	390.10	2.235		
19,500.0	9,194.0	18,867.2	8,624.0	252.5	252.1	49.18	250.7	10,340.6	872.0	478.2	393.87	2.214		
19,600.0	9,194.0	18,967.2	8,624.0	254.9	254.5	49.18	250.2	10,440.6	872.0	474.4	397.64	2.193		
19,700.0	9,194.0	19,067.2	8,624.0	257.3	256.9	49.18	249.7	10,540.6	872.0	470.6	401.41	2.172		
19,800.0	9,194.0	19,167.2	8,624.0	259.7	259.3	49.18	249.2	10,640.6	872.1	466.9	405.19	2.152		
19,818.1	9,194.0	19,185.4	8,624.0	260.1	259.7	49.18	249.1	10,658.7	872.1	466.2	405.87	2.149 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 131H
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 131H	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)						
0.0	0.0	0.0	0.0	0.0	0.0	-179.88	-99.0	-0.2			99.0			
100.0	100.0	100.0	100.0	0.1	0.1	-179.88	-99.0	-0.2			99.0	98.7	0.25	394.533
200.0	200.0	200.0	200.0	0.5	0.5	-179.88	-99.0	-0.2			99.0	98.0	0.97	102.286
300.0	300.0	300.0	300.0	0.8	0.8	-179.88	-99.0	-0.2			99.0	97.3	1.68	58.760
400.0	400.0	400.0	400.0	1.2	1.2	-179.88	-99.0	-0.2			99.0	96.6	2.40	41.220
500.0	500.0	500.0	500.0	1.6	1.6	-179.88	-99.0	-0.2			99.0	95.9	3.12	31.744
600.0	600.0	600.0	600.0	1.9	1.9	-179.88	-99.0	-0.2			99.0	95.2	3.84	25.811
700.0	700.0	700.0	700.0	2.3	2.3	-179.88	-99.0	-0.2			99.0	94.4	4.55	21.746
800.0	800.0	800.0	800.0	2.6	2.6	-179.88	-99.0	-0.2			99.0	93.7	5.27	18.787
900.0	900.0	900.0	900.0	3.0	3.0	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-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	-179.88	-99.0	-0.2			99.0	87.3	11.72	8.446 CC, ES
1,800.0	1,800.0	1,800.0	1,800.0	6.2	6.2	-175.79	-99.0	-0.2			100.7	88.3	12.44	8.099
1,900.0	1,899.8	1,899.8	1,899.8	6.6	6.6	-175.99	-99.0	-0.2			106.0	92.8	13.16	8.054
2,000.0	1,999.5	1,999.5	1,999.5	6.9	6.9	-176.28	-99.0	-0.2			114.7	100.8	13.87	8.265
2,100.0	2,098.7	2,094.6	2,094.6	7.3	7.3	-176.45	-100.5	-0.5			128.4	113.9	14.55	8.826
2,200.0	2,197.5	2,188.1	2,188.0	7.7	7.6	-176.37	-105.0	-1.5			148.8	133.6	15.19	9.793
2,300.0	2,295.6	2,279.4	2,279.0	8.0	7.9	-176.15	-112.3	-3.1			175.5	159.7	15.81	11.105
2,400.0	2,393.4	2,368.5	2,367.5	8.4	8.2	-175.86	-122.1	-5.3			206.9	190.5	16.40	12.617
2,500.0	2,491.3	2,460.4	2,458.5	8.8	8.5	-175.52	-134.5	-8.0			240.6	223.6	17.03	14.130
2,600.0	2,589.1	2,554.5	2,551.7	9.2	8.8	-175.25	-147.2	-10.7			274.5	256.8	17.69	15.517
2,700.0	2,686.9	2,648.6	2,644.9	9.6	9.1	-175.03	-160.0	-13.5			308.3	290.0	18.35	16.800
2,800.0	2,784.7	2,742.7	2,738.0	10.1	9.5	-174.86	-172.8	-16.3			342.2	323.2	19.02	17.990
2,900.0	2,882.5	2,836.8	2,831.2	10.5	9.8	-174.72	-185.6	-19.1			376.0	356.3	19.69	19.095
3,000.0	2,980.3	2,930.8	2,924.4	10.9	10.1	-174.60	-198.4	-21.9			409.9	389.5	20.37	20.124
3,100.0	3,078.1	3,024.9	3,017.5	11.4	10.5	-174.51	-211.2	-24.7			443.8	422.7	21.05	21.084
3,200.0	3,176.0	3,119.0	3,110.7	11.8	10.9	-174.42	-224.0	-27.5			477.6	455.9	21.73	21.982
3,300.0	3,273.8	3,213.1	3,203.9	12.2	11.2	-174.35	-236.8	-30.3			511.5	489.1	22.41	22.822
3,400.0	3,371.6	3,307.2	3,297.1	12.7	11.6	-174.28	-249.6	-33.1			545.4	522.3	23.10	23.610
3,500.0	3,469.4	3,401.3	3,390.2	13.1	11.9	-174.22	-262.4	-35.9			579.2	555.5	23.79	24.351
3,600.0	3,567.2	3,495.4	3,483.4	13.6	12.3	-174.17	-275.2	-38.7			613.1	588.6	24.48	25.048
3,700.0	3,665.0	3,589.5	3,576.6	14.0	12.7	-174.13	-288.0	-41.5			647.0	621.8	25.17	25.704
3,800.0	3,762.8	3,683.5	3,669.8	14.5	13.0	-174.09	-300.8	-44.3			680.9	655.0	25.86	26.324
3,900.0	3,860.7	3,777.6	3,762.9	14.9	13.4	-174.05	-313.6	-47.1			714.7	688.2	26.56	26.911
4,000.0	3,958.5	3,871.7	3,856.1	15.4	13.8	-174.02	-326.3	-49.9			748.6	721.3	27.26	27.465
4,100.0	4,056.3	3,965.8	3,949.3	15.8	14.1	-173.99	-339.1	-52.7			782.5	754.5	27.95	27.991
4,200.0	4,154.1	4,059.9	4,042.4	16.3	14.5	-173.96	-351.9	-55.5			816.3	787.7	28.65	28.490
4,300.0	4,251.9	4,154.0	4,135.6	16.7	14.9	-173.93	-364.7	-58.2			850.2	820.9	29.35	28.964
4,400.0	4,349.7	4,248.1	4,228.8	17.2	15.3	-173.91	-377.5	-61.0			884.1	854.0	30.06	29.415
4,500.0	4,447.5	4,342.2	4,322.0	17.7	15.6	-173.89	-390.3	-63.8			918.0	887.2	30.76	29.845
4,600.0	4,545.4	4,436.3	4,415.1	18.1	16.0	-173.87	-403.1	-66.6			951.8	920.4	31.46	30.254
4,700.0	4,643.2	4,530.3	4,508.3	18.6	16.4	-173.85	-415.9	-69.4			985.7	953.5	32.17	30.644
4,800.0	4,741.0	4,624.4	4,601.5	19.1	16.8	-173.83	-428.7	-72.2			1,019.6	986.7	32.87	31.017
4,900.0	4,838.8	4,718.5	4,694.7	19.5	17.2	-173.81	-441.5	-75.0			1,053.4	1,019.9	33.58	31.374
5,000.0	4,936.6	4,812.6	4,787.8	20.0	17.5	-173.80	-454.3	-77.8			1,087.3	1,053.0	34.28	31.715
5,100.0	5,034.4	4,906.7	4,881.0	20.5	17.9	-173.78	-467.1	-80.6			1,121.2	1,086.2	34.99	32.042

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 131H
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 131H	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
5,200.0	5,132.3	5,000.8	4,974.2	20.9	18.3	-173.77	-479.9	-83.4	1,155.1	1,119.4		35.70	32.355	
5,300.0	5,230.1	5,094.9	5,067.3	21.4	18.7	-173.75	-492.7	-86.2	1,188.9	1,152.5		36.41	32.655	
5,400.0	5,327.9	5,189.0	5,160.5	21.9	19.1	-173.74	-505.4	-89.0	1,222.8	1,185.7		37.12	32.944	
5,500.0	5,425.7	5,283.0	5,253.7	22.3	19.5	-173.73	-518.2	-91.8	1,256.7	1,218.8		37.83	33.221	
5,600.0	5,523.5	5,377.1	5,346.9	22.8	19.9	-173.72	-531.0	-94.6	1,290.5	1,252.0		38.54	33.487	
5,700.0	5,621.3	5,471.2	5,440.0	23.3	20.2	-173.71	-543.8	-97.4	1,324.4	1,285.2		39.25	33.743	
5,800.0	5,719.1	5,565.3	5,533.2	23.7	20.6	-173.70	-556.6	-100.2	1,358.3	1,318.3		39.96	33.990	
5,900.0	5,817.0	5,659.4	5,626.4	24.2	21.0	-173.69	-569.4	-103.0	1,392.2	1,351.5		40.67	34.227	
6,000.0	5,914.8	5,753.5	5,719.6	24.7	21.4	-173.68	-582.2	-105.7	1,426.0	1,384.7		41.39	34.456	
6,100.0	6,012.6	5,847.6	5,812.7	25.2	21.8	-173.67	-595.0	-108.5	1,459.9	1,417.8		42.10	34.677	
6,200.0	6,110.4	5,941.7	5,905.9	25.6	22.2	-173.66	-607.8	-111.3	1,493.8	1,451.0		42.81	34.890	
6,300.0	6,208.2	6,035.7	5,999.1	26.1	22.6	-173.65	-620.6	-114.1	1,527.7	1,484.1		43.53	35.095	
6,337.0	6,244.4	6,070.6	6,033.5	26.3	22.7	-173.65	-625.3	-115.2	1,540.2	1,496.4		43.79	35.170	
6,400.0	6,306.2	6,130.1	6,092.5	26.6	23.0	-173.69	-633.4	-116.9	1,560.9	1,516.6		44.24	35.280	
6,500.0	6,404.7	6,225.4	6,186.9	27.0	23.4	-173.74	-646.4	-119.8	1,591.0	1,546.1		44.96	35.390	
6,600.0	6,503.8	6,321.7	6,282.3	27.4	23.8	-173.76	-659.5	-122.6	1,617.9	1,572.2		45.67	35.423	
6,700.0	6,603.3	6,418.9	6,378.5	27.8	24.2	-173.76	-672.7	-125.5	1,641.3	1,595.0		46.39	35.384	
6,800.0	6,703.1	6,516.9	6,475.5	28.2	24.6	-173.75	-686.0	-128.4	1,661.4	1,614.3		47.10	35.276	
6,900.0	6,803.0	6,615.4	6,573.1	28.5	25.0	-173.71	-699.4	-131.3	1,678.1	1,630.3		47.81	35.103	
6,937.0	6,840.0	6,652.0	6,609.4	28.6	25.1	-177.85	-704.4	-132.4	1,683.4	1,635.4		48.07	35.023	
7,000.0	6,903.0	6,714.4	6,671.1	28.8	25.4	-177.80	-712.9	-134.3	1,692.1	1,643.5		48.51	34.881	
7,100.0	7,003.0	6,813.4	6,769.2	29.1	25.8	-177.72	-726.3	-137.2	1,705.8	1,656.6		49.22	34.659	
7,200.0	7,103.0	6,912.5	6,867.3	29.4	26.2	-177.64	-739.8	-140.2	1,719.5	1,669.6		49.92	34.443	
7,300.0	7,203.0	7,011.5	6,965.3	29.7	26.6	-177.56	-753.3	-143.1	1,733.2	1,682.6		50.63	34.233	
7,400.0	7,303.0	7,110.5	7,063.4	30.0	27.0	-177.48	-766.7	-146.0	1,746.9	1,695.6		51.34	34.029	
7,500.0	7,403.0	7,209.6	7,161.5	30.3	27.5	-177.40	-780.2	-149.0	1,760.6	1,708.6		52.04	33.830	
7,600.0	7,503.0	7,308.6	7,259.5	30.6	27.9	-177.33	-793.6	-151.9	1,774.3	1,721.6		52.75	33.636	
7,700.0	7,603.0	7,407.6	7,357.6	30.9	28.3	-177.25	-807.1	-154.9	1,788.1	1,734.6		53.46	33.447	
7,800.0	7,703.0	7,506.6	7,455.6	31.2	28.7	-177.18	-820.6	-157.8	1,801.8	1,747.6		54.17	33.262	
7,900.0	7,803.0	7,605.7	7,553.7	31.5	29.1	-177.11	-834.0	-160.7	1,815.5	1,760.7		54.88	33.082	
8,000.0	7,903.0	7,704.7	7,651.8	31.9	29.5	-177.04	-847.5	-163.7	1,829.3	1,773.7		55.59	32.907	
8,100.0	8,003.0	7,803.7	7,749.8	32.2	29.9	-176.97	-861.0	-166.6	1,843.0	1,786.7		56.30	32.736	
8,200.0	8,103.0	7,902.7	7,847.9	32.5	30.4	-176.90	-874.4	-169.6	1,856.7	1,799.7		57.01	32.569	
8,300.0	8,203.0	8,016.9	7,961.0	32.8	30.8	-176.82	-889.9	-172.9	1,870.5	1,812.6		57.83	32.343	
8,400.0	8,303.0	8,298.8	8,241.7	33.1	31.9	-176.71	-912.5	-177.9	1,878.6	1,819.0		59.61	31.513	
8,500.0	8,403.0	8,460.1	8,403.0	33.4	32.4	-176.70	-914.0	-178.2	1,879.1	1,818.6		60.54	31.038	
8,600.0	8,503.0	8,560.1	8,503.0	33.7	32.7	-176.70	-914.0	-178.2	1,879.1	1,817.9		61.22	30.695	
8,700.0	8,603.0	8,660.1	8,603.0	34.1	33.0	-176.70	-914.0	-178.2	1,879.1	1,817.2		61.89	30.360	
8,800.0	8,703.0	8,760.1	8,703.0	34.4	33.3	-176.70	-914.0	-178.2	1,879.1	1,816.5		62.57	30.032	
8,813.5	8,716.5	8,773.5	8,716.5	34.4	33.4	-176.70	-914.0	-178.2	1,879.1	1,816.5		62.66	29.988	
8,825.0	8,728.0	8,785.1	8,728.0	34.5	33.4	93.02	-914.0	-178.2	1,879.1	1,816.4		62.74	29.951	
8,850.0	8,753.0	8,810.0	8,753.0	34.5	33.5	93.05	-914.0	-178.2	1,879.2	1,816.3		62.90	29.874	
8,875.0	8,777.9	8,834.9	8,777.9	34.6	33.6	93.11	-914.0	-178.2	1,879.3	1,816.3		63.07	29.799	
8,900.0	8,802.6	8,859.6	8,802.6	34.7	33.6	93.20	-914.0	-178.2	1,879.5	1,816.3		63.23	29.726	
8,925.0	8,827.0	8,884.0	8,827.0	34.8	33.7	93.32	-914.0	-178.2	1,879.8	1,816.5		63.39	29.656	
8,950.0	8,851.2	8,908.2	8,851.2	34.8	33.8	93.46	-914.0	-178.2	1,880.2	1,816.7		63.55	29.589	
8,975.0	8,875.0	8,932.0	8,875.0	34.9	33.8	93.62	-914.0	-178.2	1,880.7	1,817.0		63.70	29.524	
9,000.0	8,898.3	8,955.4	8,898.3	35.0	33.9	93.80	-914.0	-178.2	1,881.4	1,817.5		63.85	29.463	
9,025.0	8,921.2	8,975.0	8,918.0	35.0	34.0	93.95	-914.0	-178.2	1,882.1	1,818.1		63.99	29.411	
9,050.0	8,943.5	8,994.9	8,937.9	35.1	34.0	94.10	-914.1	-177.7	1,883.1	1,818.9		64.13	29.362	
9,075.0	8,965.1	9,012.8	8,955.7	35.2	34.1	94.20	-914.2	-176.6	1,884.2	1,819.9		64.26	29.320	
9,100.0	8,986.1	9,030.9	8,973.7	35.2	34.2	94.29	-914.5	-174.8	1,885.6	1,821.2		64.39	29.282	

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 131H
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 131H	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: Reference		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		
9,125.0	9,006.4	9,050.0	8,992.6	35.3	34.2	94.37	-914.9	-172.2	1,887.2	1,822.6	64.53	29.245			
9,150.0	9,025.8	9,067.8	9,010.2	35.3	34.3	94.41	-915.4	-169.0	1,889.0	1,824.3	64.66	29.215			
9,175.0	9,044.5	9,086.6	9,028.5	35.4	34.3	94.45	-916.1	-165.0	1,891.0	1,826.2	64.79	29.186			
9,200.0	9,062.2	9,105.7	9,047.0	35.4	34.4	94.47	-916.8	-160.2	1,893.2	1,828.3	64.92	29.160			
9,225.0	9,078.9	9,125.0	9,065.4	35.5	34.4	94.48	-917.7	-154.7	1,895.6	1,830.6	65.06	29.136			
9,250.0	9,094.7	9,144.8	9,084.2	35.5	34.5	94.48	-918.7	-148.2	1,898.3	1,833.1	65.20	29.114			
9,275.0	9,109.4	9,164.9	9,102.8	35.5	34.6	94.46	-919.8	-140.8	1,901.1	1,835.8	65.35	29.093			
9,300.0	9,123.1	9,185.4	9,121.5	35.6	34.6	94.42	-921.1	-132.5	1,904.2	1,838.7	65.49	29.074			
9,325.0	9,135.6	9,206.4	9,140.2	35.6	34.7	94.38	-922.6	-123.2	1,907.4	1,841.8	65.65	29.055			
9,350.0	9,147.0	9,227.8	9,158.9	35.7	34.7	94.32	-924.2	-112.9	1,910.8	1,845.0	65.81	29.038			
9,375.0	9,157.2	9,249.8	9,177.6	35.7	34.8	94.25	-926.0	-101.4	1,914.5	1,848.5	65.97	29.021			
9,400.0	9,166.3	9,272.4	9,196.2	35.7	34.8	94.17	-927.9	-88.8	1,918.2	1,852.1	66.14	29.003			
9,425.0	9,174.0	9,295.6	9,214.7	35.8	34.9	94.09	-930.1	-74.9	1,922.2	1,855.9	66.32	28.986			
9,450.0	9,180.5	9,319.6	9,233.0	35.8	34.9	94.00	-932.5	-59.6	1,926.3	1,859.8	66.50	28.967			
9,475.0	9,185.8	9,344.4	9,251.2	35.9	35.0	93.90	-935.1	-42.9	1,930.6	1,863.9	66.69	28.948			
9,500.0	9,189.8	9,370.1	9,269.0	36.0	35.0	93.80	-937.9	-24.6	1,935.0	1,868.1	66.89	28.928			
9,525.0	9,192.4	9,396.9	9,286.5	36.0	35.1	93.70	-941.0	-4.6	1,939.5	1,872.4	67.10	28.905			
9,550.0	9,193.8	9,424.8	9,303.5	36.1	35.1	93.60	-944.4	17.3	1,944.2	1,876.8	67.32	28.880			
9,563.5	9,194.0	9,440.3	9,312.4	36.2	35.2	93.55	-946.4	29.9	1,946.7	1,879.2	67.44	28.864			
9,600.0	9,194.0	9,485.7	9,335.9	36.3	35.2	94.24	-952.4	68.2	1,953.6	1,885.8	67.81	28.811			
9,700.0	9,194.0	9,635.0	9,385.8	36.9	35.6	95.66	-973.9	206.6	1,971.5	1,902.3	69.18	28.499			
9,800.0	9,194.0	9,874.6	9,394.0	37.7	36.8	95.81	-1,006.7	443.3	1,985.5	1,913.7	71.80	27.654			
9,900.0	9,194.0	10,165.9	9,394.0	38.7	39.5	95.77	-1,021.6	734.2	1,989.7	1,913.8	75.87	26.226			
10,000.0	9,194.0	10,265.9	9,394.0	39.8	40.7	95.77	-1,022.1	834.2	1,989.7	1,911.4	78.32	25.404			
10,100.0	9,194.0	10,365.9	9,394.0	41.1	42.1	95.77	-1,022.6	934.1	1,989.7	1,908.7	80.98	24.570			
10,200.0	9,194.0	10,465.9	9,394.0	42.4	43.5	95.77	-1,023.1	1,034.1	1,989.7	1,905.9	83.83	23.734			
10,300.0	9,194.0	10,565.9	9,394.0	43.9	45.0	95.77	-1,023.6	1,134.1	1,989.7	1,902.8	86.86	22.908			
10,400.0	9,194.0	10,665.9	9,394.0	45.4	46.6	95.77	-1,024.1	1,234.1	1,989.7	1,899.7	90.04	22.098			
10,500.0	9,194.0	10,765.9	9,394.0	47.0	48.2	95.77	-1,024.6	1,334.1	1,989.7	1,896.3	93.36	21.311			
10,600.0	9,194.0	10,865.9	9,394.0	48.7	49.9	95.77	-1,025.1	1,434.1	1,989.7	1,892.9	96.81	20.552			
10,700.0	9,194.0	10,965.9	9,394.0	50.5	51.7	95.77	-1,025.6	1,534.1	1,989.7	1,889.3	100.38	19.823			
10,800.0	9,194.0	11,065.9	9,394.0	52.3	53.5	95.77	-1,026.1	1,634.1	1,989.7	1,885.7	104.04	19.125			
10,900.0	9,194.0	11,165.9	9,394.0	54.1	55.4	95.77	-1,026.6	1,734.1	1,989.7	1,881.9	107.80	18.458			
11,000.0	9,194.0	11,265.9	9,394.0	56.0	57.3	95.77	-1,027.1	1,834.1	1,989.7	1,878.1	111.63	17.824			
11,100.0	9,194.0	11,365.9	9,394.0	58.0	59.3	95.77	-1,027.6	1,934.1	1,989.7	1,874.2	115.54	17.221			
11,200.0	9,194.0	11,465.9	9,394.0	59.9	61.3	95.77	-1,028.1	2,034.1	1,989.7	1,870.2	119.52	16.647			
11,300.0	9,194.0	11,565.9	9,394.0	61.9	63.3	95.77	-1,028.6	2,134.1	1,989.7	1,866.2	123.56	16.103			
11,400.0	9,194.0	11,665.9	9,394.0	64.0	65.3	95.77	-1,029.0	2,234.1	1,989.7	1,862.1	127.65	15.587			
11,500.0	9,194.0	11,765.9	9,394.0	66.0	67.4	95.77	-1,029.5	2,334.1	1,989.7	1,858.0	131.79	15.097			
11,600.0	9,194.0	11,865.9	9,394.0	68.1	69.5	95.77	-1,030.0	2,434.1	1,989.8	1,853.8	135.98	14.633			
11,700.0	9,194.0	11,965.9	9,394.0	70.2	71.6	95.77	-1,030.5	2,534.1	1,989.8	1,849.5	140.21	14.191			
11,800.0	9,194.0	12,065.9	9,394.0	72.3	73.7	95.77	-1,031.0	2,634.1	1,989.8	1,845.3	144.47	13.772			
11,900.0	9,194.0	12,165.9	9,394.0	74.5	75.9	95.77	-1,031.5	2,734.1	1,989.8	1,841.0	148.77	13.375			
12,000.0	9,194.0	12,265.9	9,394.0	76.6	78.0	95.77	-1,032.0	2,834.1	1,989.8	1,836.7	153.10	12.996			
12,100.0	9,194.0	12,365.9	9,394.0	78.8	80.2	95.77	-1,032.5	2,934.1	1,989.8	1,832.3	157.46	12.637			
12,200.0	9,194.0	12,465.9	9,394.0	81.0	82.4	95.77	-1,033.0	3,034.1	1,989.8	1,827.9	161.85	12.294			
12,300.0	9,194.0	12,565.9	9,394.0	83.2	84.6	95.77	-1,033.5	3,134.1	1,989.8	1,823.5	166.26	11.968			
12,400.0	9,194.0	12,665.9	9,394.0	85.4	86.8	95.77	-1,034.0	3,234.1	1,989.8	1,819.1	170.69	11.658			
12,500.0	9,194.0	12,765.9	9,394.0	87.6	89.1	95.77	-1,034.5	3,334.1	1,989.8	1,814.6	175.14	11.361			
12,600.0	9,194.0	12,865.9	9,394.0	89.8	91.3	95.77	-1,035.0	3,434.1	1,989.8	1,810.2	179.61	11.078			
12,700.0	9,194.0	12,965.9	9,394.0	92.1	93.6	95.77	-1,035.5	3,534.1	1,989.8	1,805.7	184.10	10.808			
12,800.0	9,194.0	13,065.9	9,394.0	94.3	95.8	95.77	-1,036.0	3,634.1	1,989.8	1,801.2	188.60	10.550			

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 131H
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 131H	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)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,900.0	9,194.0	13,165.9	9,394.0	96.6	98.1	95.77	-1,036.5	3,734.1	1,989.8	1,796.7	193.13	10.303	
13,000.0	9,194.0	13,265.9	9,394.0	98.9	100.3	95.77	-1,037.0	3,834.1	1,989.8	1,792.1	197.66	10.067	
13,100.0	9,194.0	13,365.9	9,394.0	101.1	102.6	95.77	-1,037.5	3,934.1	1,989.8	1,787.6	202.21	9.840	
13,200.0	9,194.0	13,465.9	9,394.0	103.4	104.9	95.77	-1,038.0	4,034.1	1,989.8	1,783.0	206.77	9.623	
13,300.0	9,194.0	13,565.9	9,394.0	105.7	107.2	95.77	-1,038.5	4,134.1	1,989.8	1,778.5	211.34	9.415	
13,400.0	9,194.0	13,665.9	9,394.0	108.0	109.5	95.77	-1,039.0	4,234.1	1,989.8	1,773.9	215.92	9.215	
13,500.0	9,194.0	13,765.9	9,394.0	110.3	111.8	95.77	-1,039.5	4,334.1	1,989.8	1,769.3	220.52	9.023	
13,600.0	9,194.0	13,865.9	9,394.0	112.6	114.1	95.77	-1,040.0	4,434.1	1,989.8	1,764.7	225.12	8.839	
13,700.0	9,194.0	13,965.9	9,394.0	114.9	116.4	95.77	-1,040.5	4,534.1	1,989.8	1,760.1	229.73	8.661	
13,800.0	9,194.0	14,065.9	9,394.0	117.2	118.7	95.77	-1,041.0	4,634.1	1,989.8	1,755.5	234.35	8.491	
13,900.0	9,194.0	14,165.9	9,394.0	119.5	121.0	95.77	-1,041.5	4,734.1	1,989.8	1,750.9	238.98	8.326	
14,000.0	9,194.0	14,265.9	9,394.0	121.9	123.4	95.77	-1,042.0	4,834.1	1,989.8	1,746.2	243.62	8.168	
14,100.0	9,194.0	14,365.9	9,394.0	124.2	125.7	95.77	-1,042.5	4,934.1	1,989.8	1,741.6	248.26	8.015	
14,200.0	9,194.0	14,465.9	9,394.0	126.5	128.0	95.77	-1,043.0	5,034.1	1,989.8	1,736.9	252.91	7.868	
14,300.0	9,194.0	14,565.9	9,394.0	128.9	130.4	95.77	-1,043.4	5,134.1	1,989.8	1,732.3	257.57	7.726	
14,400.0	9,194.0	14,665.9	9,394.0	131.2	132.7	95.77	-1,043.9	5,234.1	1,989.9	1,727.6	262.23	7.588	
14,500.0	9,194.0	14,765.9	9,394.0	133.5	135.0	95.77	-1,044.4	5,334.1	1,989.9	1,723.0	266.90	7.456	
14,600.0	9,194.0	14,865.9	9,394.0	135.9	137.4	95.77	-1,044.9	5,434.1	1,989.9	1,718.3	271.57	7.327	
14,700.0	9,194.0	14,965.9	9,394.0	138.2	139.7	95.77	-1,045.4	5,534.1	1,989.9	1,713.6	276.25	7.203	
14,800.0	9,194.0	15,065.9	9,394.0	140.6	142.1	95.77	-1,045.9	5,634.1	1,989.9	1,708.9	280.93	7.083	
14,900.0	9,194.0	15,165.9	9,394.0	142.9	144.4	95.77	-1,046.4	5,734.1	1,989.9	1,704.3	285.62	6.967	
15,000.0	9,194.0	15,265.9	9,394.0	145.3	146.8	95.77	-1,046.9	5,834.1	1,989.9	1,699.6	290.31	6.854	
15,100.0	9,194.0	15,365.9	9,394.0	147.6	149.1	95.77	-1,047.4	5,934.1	1,989.9	1,694.9	295.01	6.745	
15,200.0	9,194.0	15,465.9	9,394.0	150.0	151.5	95.77	-1,047.9	6,034.1	1,989.9	1,690.2	299.71	6.639	
15,300.0	9,194.0	15,565.9	9,394.0	152.3	153.8	95.77	-1,048.4	6,134.1	1,989.9	1,685.5	304.41	6.537	
15,400.0	9,194.0	15,665.9	9,394.0	154.7	156.2	95.77	-1,048.9	6,234.1	1,989.9	1,680.8	309.12	6.437	
15,500.0	9,194.0	15,765.9	9,394.0	157.1	158.6	95.77	-1,049.4	6,334.1	1,989.9	1,676.1	313.83	6.341	
15,600.0	9,194.0	15,865.9	9,394.0	159.4	160.9	95.77	-1,049.9	6,434.1	1,989.9	1,671.4	318.54	6.247	
15,700.0	9,194.0	15,965.9	9,394.0	161.8	163.3	95.77	-1,050.4	6,534.1	1,989.9	1,666.6	323.26	6.156	
15,800.0	9,194.0	16,065.9	9,394.0	164.2	165.7	95.77	-1,050.9	6,634.1	1,989.9	1,661.9	327.98	6.067	
15,900.0	9,194.0	16,165.9	9,394.0	166.5	168.0	95.77	-1,051.4	6,734.1	1,989.9	1,657.2	332.71	5.981	
16,000.0	9,194.0	16,265.9	9,394.0	168.9	170.4	95.77	-1,051.9	6,834.1	1,989.9	1,652.5	337.43	5.897	
16,100.0	9,194.0	16,365.9	9,394.0	171.3	172.8	95.77	-1,052.4	6,934.1	1,989.9	1,647.8	342.16	5.816	
16,200.0	9,194.0	16,465.9	9,394.0	173.6	175.1	95.77	-1,052.9	7,034.1	1,989.9	1,643.0	346.89	5.736	
16,300.0	9,194.0	16,565.9	9,394.0	176.0	177.5	95.77	-1,053.4	7,134.1	1,989.9	1,638.3	351.63	5.659	
16,400.0	9,194.0	16,665.9	9,394.0	178.4	179.9	95.77	-1,053.9	7,234.1	1,989.9	1,633.6	356.36	5.584	
16,500.0	9,194.0	16,765.9	9,394.0	180.8	182.3	95.77	-1,054.4	7,334.1	1,989.9	1,628.8	361.10	5.511	
16,600.0	9,194.0	16,865.9	9,394.0	183.1	184.7	95.77	-1,054.9	7,434.1	1,989.9	1,624.1	365.84	5.439	
16,700.0	9,194.0	16,965.9	9,394.0	185.5	187.0	95.77	-1,055.4	7,534.1	1,989.9	1,619.4	370.59	5.370	
16,800.0	9,194.0	17,065.9	9,394.0	187.9	189.4	95.77	-1,055.9	7,634.1	1,989.9	1,614.6	375.33	5.302	
16,900.0	9,194.0	17,165.9	9,394.0	190.3	191.8	95.77	-1,056.4	7,734.1	1,989.9	1,609.9	380.08	5.236	
17,000.0	9,194.0	17,265.9	9,394.0	192.7	194.2	95.77	-1,056.9	7,834.1	1,989.9	1,605.1	384.83	5.171	
17,100.0	9,194.0	17,365.9	9,394.0	195.0	196.6	95.77	-1,057.4	7,934.1	1,990.0	1,600.4	389.58	5.108	
17,200.0	9,194.0	17,465.9	9,394.0	197.4	198.9	95.77	-1,057.9	8,034.1	1,990.0	1,595.6	394.33	5.046	
17,300.0	9,194.0	17,565.9	9,394.0	199.8	201.3	95.77	-1,058.3	8,134.1	1,990.0	1,590.9	399.08	4.986	
17,400.0	9,194.0	17,665.9	9,394.0	202.2	203.7	95.77	-1,058.8	8,234.1	1,990.0	1,586.1	403.84	4.928	
17,500.0	9,194.0	17,765.9	9,394.0	204.6	206.1	95.77	-1,059.3	8,334.1	1,990.0	1,581.4	408.60	4.870	
17,600.0	9,194.0	17,865.9	9,394.0	207.0	208.5	95.77	-1,059.8	8,434.1	1,990.0	1,576.6	413.36	4.814	
17,700.0	9,194.0	17,965.9	9,394.0	209.4	210.9	95.77	-1,060.3	8,534.1	1,990.0	1,571.9	418.12	4.759	
17,800.0	9,194.0	18,065.9	9,394.0	211.8	213.3	95.77	-1,060.8	8,634.1	1,990.0	1,567.1	422.88	4.706	
17,900.0	9,194.0	18,165.9	9,394.0	214.1	215.7	95.77	-1,061.3	8,734.1	1,990.0	1,562.3	427.64	4.653	
18,000.0	9,194.0	18,265.9	9,394.0	216.5	218.1	95.77	-1,061.8	8,834.1	1,990.0	1,557.6	432.40	4.602	

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 131H
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 131H	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
Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Rule Assigned:	Distance	Minimum	Separation	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
18,100.0	9,194.0	18,365.9	9,394.0	218.9	220.4	95.77	-1,062.3	8,934.1	1,990.0	1,552.8	437.17	4.552	
18,200.0	9,194.0	18,465.9	9,394.0	221.3	222.8	95.77	-1,062.8	9,034.0	1,990.0	1,548.1	441.94	4.503	
18,300.0	9,194.0	18,565.9	9,394.0	223.7	225.2	95.77	-1,063.3	9,134.0	1,990.0	1,543.3	446.71	4.455	
18,400.0	9,194.0	18,665.9	9,394.0	226.1	227.6	95.77	-1,063.8	9,234.0	1,990.0	1,538.5	451.47	4.408	
18,500.0	9,194.0	18,765.9	9,394.0	228.5	230.0	95.77	-1,064.3	9,334.0	1,990.0	1,533.8	456.24	4.362	
18,600.0	9,194.0	18,865.9	9,394.0	230.9	232.4	95.77	-1,064.8	9,434.0	1,990.0	1,529.0	461.02	4.317	
18,700.0	9,194.0	18,965.9	9,394.0	233.3	234.8	95.77	-1,065.3	9,534.0	1,990.0	1,524.2	465.79	4.272	
18,800.0	9,194.0	19,065.9	9,394.0	235.7	237.2	95.77	-1,065.8	9,634.0	1,990.0	1,519.5	470.56	4.229	
18,900.0	9,194.0	19,165.9	9,394.0	238.1	239.6	95.77	-1,066.3	9,734.0	1,990.0	1,514.7	475.34	4.187	
19,000.0	9,194.0	19,265.9	9,394.0	240.5	242.0	95.77	-1,066.8	9,834.0	1,990.0	1,509.9	480.11	4.145	
19,100.0	9,194.0	19,365.9	9,394.0	242.9	244.4	95.77	-1,067.3	9,934.0	1,990.0	1,505.1	484.89	4.104	
19,200.0	9,194.0	19,465.9	9,394.0	245.3	246.8	95.77	-1,067.8	10,034.0	1,990.0	1,500.4	489.66	4.064	
19,300.0	9,194.0	19,565.9	9,394.0	247.7	249.2	95.77	-1,068.3	10,134.0	1,990.0	1,495.6	494.44	4.025	
19,400.0	9,194.0	19,665.9	9,394.0	250.1	251.6	95.77	-1,068.8	10,234.0	1,990.0	1,490.8	499.22	3.986	
19,500.0	9,194.0	19,765.9	9,394.0	252.5	254.0	95.77	-1,069.3	10,334.0	1,990.0	1,486.0	504.00	3.948	
19,600.0	9,194.0	19,865.9	9,394.0	254.9	256.4	95.77	-1,069.8	10,434.0	1,990.0	1,481.3	508.78	3.911	
19,700.0	9,194.0	19,965.9	9,394.0	257.3	258.8	95.77	-1,070.3	10,534.0	1,990.0	1,476.5	513.56	3.875	
19,800.0	9,194.0	20,065.9	9,394.0	259.7	261.2	95.77	-1,070.8	10,634.0	1,990.1	1,471.7	518.34	3.839	
19,818.1	9,194.0	20,084.0	9,394.0	260.1	261.6	95.77	-1,070.9	10,652.2	1,990.1	1,470.8	519.21	3.833 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 131H
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 131H	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)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-8.88	840.1	-131.3	850.4					
100.0	100.0	85.0	85.0	0.1	0.1	-8.88	840.0	-131.2	850.2	849.9	0.25	3,394.530		
200.0	200.0	189.2	189.2	0.5	0.5	-8.85	839.6	-130.7	849.7	848.7	0.95	893.750		
300.0	300.0	289.5	289.5	0.8	0.8	-8.75	839.0	-129.2	848.9	847.3	1.67	509.093		
400.0	400.0	390.6	390.6	1.2	1.2	-8.62	838.5	-127.1	848.1	845.7	2.39	355.192		
500.0	500.0	489.5	489.4	1.6	1.5	-8.49	837.9	-125.1	847.3	844.2	3.10	273.283		
600.0	600.0	586.1	586.0	1.9	1.9	-8.37	837.7	-123.2	846.7	842.9	3.80	222.569		
672.4	672.4	655.5	655.4	2.2	2.1	-8.28	837.7	-121.9	846.6	842.3	4.31	196.344		
700.0	700.0	681.9	681.8	2.3	2.2	-8.24	837.8	-121.4	846.6	842.1	4.50	187.937		
800.0	800.0	781.4	781.2	2.6	2.6	-8.12	838.3	-119.5	846.8	841.6	5.22	162.305		
900.0	900.0	881.4	881.3	3.0	2.9	-7.98	838.8	-117.6	847.0	841.1	5.93	142.764		
1,000.0	1,000.0	981.9	981.8	3.4	3.3	-7.84	839.3	-115.6	847.2	840.5	6.65	127.384		
1,100.0	1,100.0	1,083.7	1,083.5	3.7	3.7	-7.69	839.6	-113.3	847.2	839.9	7.37	114.907		
1,200.0	1,200.0	1,185.5	1,185.3	4.1	4.0	-7.54	839.7	-111.1	847.1	839.0	8.10	104.619		
1,300.0	1,300.0	1,287.6	1,287.4	4.4	4.4	-7.39	839.6	-108.9	846.7	837.9	8.82	95.979		
1,400.0	1,400.0	1,387.5	1,387.2	4.8	4.8	-7.27	839.3	-107.0	846.1	836.6	9.54	88.715		
1,500.0	1,500.0	1,483.9	1,483.6	5.1	5.1	-7.16	839.2	-105.5	845.8	835.6	10.24	82.587		
1,600.0	1,600.0	1,585.2	1,584.9	5.5	5.5	-7.06	839.3	-103.9	845.7	834.8	10.96	77.143		
1,700.0	1,700.0	1,686.6	1,686.3	5.9	5.8	-6.97	839.2	-102.6	845.4	833.7	11.69	72.349		
1,800.0	1,800.0	1,788.6	1,788.3	6.2	6.2	-2.73	838.8	-101.3	843.2	830.8	12.41	67.949		
1,900.0	1,899.8	1,888.3	1,888.0	6.6	6.6	-2.69	838.3	-100.3	837.3	824.2	13.12	63.802		
2,000.0	1,999.5	1,986.7	1,986.4	6.9	6.9	-2.71	837.8	-100.0	828.1	814.2	13.82	59.899		
2,100.0	2,098.7	2,086.7	2,086.4	7.3	7.2	-2.79	837.2	-100.3	815.4	800.9	14.52	56.160		
2,200.0	2,197.5	2,187.2	2,186.9	7.7	7.6	-2.93	836.4	-101.1	799.1	783.9	15.21	52.531		
2,300.0	2,295.6	2,285.9	2,285.6	8.0	7.9	-3.10	835.5	-102.1	779.2	763.3	15.90	49.006		
2,400.0	2,393.4	2,386.2	2,385.8	8.4	8.2	-3.25	834.3	-102.7	757.4	740.8	16.60	45.639		
2,500.0	2,491.3	2,483.5	2,483.1	8.8	8.6	-3.41	833.0	-103.5	735.4	718.1	17.28	42.551		
2,600.0	2,589.1	2,581.1	2,580.7	9.2	8.9	-3.61	831.7	-104.5	713.5	695.5	17.97	39.696		
2,700.0	2,686.9	2,679.0	2,678.6	9.6	9.2	-3.81	830.3	-105.4	691.5	672.9	18.67	37.043		
2,800.0	2,784.7	2,775.9	2,775.5	10.1	9.6	-4.03	829.0	-106.3	669.6	650.2	19.36	34.580		
2,900.0	2,882.5	2,873.6	2,873.3	10.5	9.9	-4.25	827.7	-107.2	647.7	627.6	20.06	32.284		
3,000.0	2,980.3	2,971.3	2,970.9	10.9	10.3	-4.50	826.4	-108.2	625.8	605.0	20.76	30.138		
3,100.0	3,078.1	3,069.2	3,068.7	11.4	10.6	-4.75	825.0	-109.0	603.9	582.4	21.47	28.128		
3,200.0	3,176.0	3,166.3	3,165.9	11.8	10.9	-5.03	823.7	-109.9	581.9	559.8	22.17	26.245		
3,300.0	3,273.8	3,262.9	3,262.4	12.2	11.3	-5.34	822.4	-110.8	560.1	537.3	22.88	24.483		
3,400.0	3,371.6	3,360.4	3,360.0	12.7	11.6	-5.64	821.4	-111.6	538.5	514.9	23.59	22.830		
3,500.0	3,469.4	3,458.6	3,458.1	13.1	12.0	-6.00	820.1	-112.5	516.8	492.5	24.30	21.268		
3,600.0	3,567.2	3,555.6	3,555.2	13.6	12.3	-6.41	818.9	-113.7	495.0	470.0	25.01	19.795		
3,700.0	3,665.0	3,652.8	3,652.3	14.0	12.6	-6.88	817.7	-115.1	473.5	447.8	25.72	18.409		
3,800.0	3,762.8	3,750.1	3,749.6	14.5	13.0	-7.42	816.5	-116.6	452.0	425.6	26.43	17.099		
3,900.0	3,860.7	3,847.7	3,847.1	14.9	13.3	-7.98	815.5	-117.9	430.6	403.5	27.15	15.861		
4,000.0	3,958.5	3,944.7	3,944.2	15.4	13.7	-8.56	814.4	-119.0	409.2	381.4	27.87	14.686		
4,100.0	4,056.3	4,041.0	4,040.5	15.8	14.0	-9.19	813.7	-120.0	388.2	359.6	28.58	13.582		
4,200.0	4,154.1	4,138.4	4,137.8	16.3	14.3	-9.88	813.3	-121.0	367.5	338.2	29.31	12.541		
4,300.0	4,251.9	4,236.6	4,236.0	16.7	14.7	-10.63	812.8	-121.9	346.8	316.7	30.03	11.548		
4,400.0	4,349.7	4,334.4	4,333.9	17.2	15.0	-11.49	812.2	-122.8	326.0	295.3	30.75	10.600		
4,500.0	4,447.5	4,431.5	4,431.0	17.7	15.4	-12.52	811.6	-124.1	305.4	273.9	31.49	9.699		
4,600.0	4,545.4	4,528.3	4,527.7	18.1	15.7	-13.67	811.3	-125.2	285.2	252.9	32.22	8.851		
4,700.0	4,643.2	4,625.2	4,624.6	18.6	16.0	-14.91	811.4	-126.2	265.4	232.5	32.96	8.053		
4,800.0	4,741.0	4,722.6	4,722.0	19.1	16.4	-16.26	811.9	-126.9	246.1	212.4	33.70	7.303		
4,900.0	4,838.8	4,820.8	4,820.2	19.5	16.7	-17.80	812.5	-127.4	226.9	192.4	34.44	6.587		
5,000.0	4,936.6	4,918.2	4,917.6	20.0	17.0	-19.60	813.2	-127.9	208.0	172.8	35.20	5.908		

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 131H
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 131H	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 +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	5,034.4	5,016.2	5,015.5	20.5	17.4	-21.83	813.9	-128.7	189.4	153.5	35.98	5.265		
5,200.0	5,132.3	5,113.9	5,113.3	20.9	17.7	-24.52	814.7	-129.4	171.3	134.5	36.78	4.657		
5,300.0	5,230.1	5,211.3	5,210.7	21.4	18.0	-27.84	815.7	-130.4	153.9	116.3	37.62	4.091		
5,400.0	5,327.9	5,309.5	5,308.9	21.9	18.4	-32.05	816.7	-131.5	137.3	98.7	38.51	3.564		
5,500.0	5,425.7	5,407.5	5,406.8	22.3	18.7	-37.45	817.5	-132.7	121.5	82.0	39.48	3.078		
5,600.0	5,523.5	5,505.1	5,504.4	22.8	19.1	-44.60	818.1	-134.5	107.4	66.8	40.55	2.647		
5,700.0	5,621.3	5,602.4	5,601.7	23.3	19.4	-53.75	818.9	-136.8	95.9	54.2	41.74	2.298		
5,800.0	5,719.1	5,700.9	5,700.2	23.7	19.7	-64.84	820.0	-139.0	87.6	44.7	42.98	2.039		
5,900.0	5,817.0	5,799.8	5,799.1	24.2	20.1	-77.47	821.2	-140.4	82.5	38.3	44.15	1.868		
5,976.1	5,891.4	5,874.4	5,873.7	24.6	20.3	-87.64	822.1	-141.1	81.1	36.2	44.90	1.806 CC		
6,000.0	5,914.8	5,897.9	5,897.1	24.7	20.4	-90.86	822.4	-141.3	81.2	36.1	45.10	1.801 ES, SF		
6,100.0	6,012.6	5,995.8	5,995.0	25.2	20.8	-103.82	823.7	-142.3	84.7	39.0	45.74	1.853		
6,200.0	6,110.4	6,093.6	6,092.8	25.6	21.1	-115.08	825.2	-143.7	92.5	46.4	46.17	2.004		
6,300.0	6,208.2	6,191.6	6,190.8	26.1	21.4	-124.32	826.5	-145.3	103.6	57.1	46.54	2.227		
6,337.0	6,244.4	6,227.8	6,226.9	26.3	21.6	-127.24	827.0	-145.9	108.3	61.7	46.67	2.321		
6,400.0	6,306.2	6,289.4	6,288.6	26.6	21.8	-131.51	827.8	-147.0	116.6	69.7	46.92	2.486		
6,500.0	6,404.7	6,387.5	6,386.6	27.0	22.1	-136.35	828.6	-149.0	129.1	81.7	47.39	2.725		
6,600.0	6,503.8	6,486.3	6,485.4	27.4	22.5	-139.61	828.9	-150.9	140.1	92.2	47.94	2.924		
6,700.0	6,603.3	6,585.5	6,584.6	27.8	22.8	-141.57	828.9	-152.9	149.0	100.4	48.54	3.069		
6,800.0	6,703.1	6,685.7	6,684.8	28.2	23.2	-142.36	829.3	-155.2	155.1	105.9	49.21	3.152		
6,900.0	6,803.0	6,786.8	6,785.9	28.5	23.5	-142.43	829.9	-157.0	158.0	108.1	49.92	3.165		
6,937.0	6,840.0	6,824.1	6,823.2	28.6	23.7	-146.57	830.0	-157.1	158.2	108.0	50.18	3.153		
7,000.0	6,903.0	6,887.4	6,886.5	28.8	23.9	-146.41	830.3	-157.5	158.1	107.5	50.62	3.123		
7,033.1	6,936.1	6,920.1	6,919.1	28.9	24.0	-146.30	830.5	-157.7	158.0	107.2	50.84	3.108		
7,100.0	7,003.0	6,985.4	6,984.4	29.1	24.2	-146.06	830.6	-158.4	158.3	107.1	51.28	3.088		
7,200.0	7,103.0	7,084.7	7,083.8	29.4	24.6	-145.64	830.2	-160.1	159.6	107.7	51.97	3.072		
7,300.0	7,203.0	7,184.8	7,183.8	29.7	24.9	-145.19	829.8	-161.9	161.1	108.4	52.68	3.058		
7,400.0	7,303.0	7,284.3	7,283.3	30.0	25.3	-144.77	829.2	-163.8	162.6	109.2	53.37	3.046		
7,500.0	7,403.0	7,382.3	7,381.2	30.3	25.6	-144.52	828.0	-165.5	164.6	110.6	54.02	3.047		
7,600.0	7,503.0	7,477.3	7,476.1	30.6	26.0	-143.89	825.7	-169.4	169.0	114.4	54.60	3.095		
7,700.0	7,603.0	7,561.0	7,558.9	30.9	26.3	-141.45	822.6	-181.1	180.3	125.6	54.76	3.293		
7,800.0	7,703.0	7,638.1	7,632.8	31.2	26.5	-137.03	819.7	-202.5	201.6	147.3	54.34	3.710		
7,900.0	7,803.0	7,711.6	7,700.0	31.5	26.8	-131.61	818.1	-232.0	233.1	179.6	53.50	4.357		
8,000.0	7,903.0	7,777.2	7,756.5	31.9	27.0	-126.33	818.3	-265.4	274.9	222.8	52.09	5.278		
8,100.0	8,003.0	7,838.9	7,806.5	32.2	27.2	-121.81	818.3	-301.7	326.4	275.8	50.67	6.443		
8,200.0	8,103.0	7,900.2	7,853.4	32.5	27.4	-117.63	820.1	-341.0	384.3	334.8	49.59	7.751		
8,300.0	8,203.0	7,943.0	7,884.1	32.8	27.6	-114.71	823.7	-370.5	447.8	400.2	47.60	9.409		
8,400.0	8,303.0	7,989.4	7,915.0	33.1	27.8	-111.63	829.3	-404.7	517.1	470.7	46.31	11.164		
8,500.0	8,403.0	8,026.3	7,938.2	33.4	27.9	-109.58	832.8	-433.1	590.8	545.9	44.90	13.158		
8,600.0	8,503.0	8,053.8	7,954.5	33.7	28.0	-108.23	835.2	-455.1	668.5	625.1	43.40	15.404		
8,700.0	8,603.0	8,070.0	7,963.6	34.1	28.1	-107.48	836.5	-468.5	749.7	707.9	41.76	17.952		
8,800.0	8,703.0	8,102.0	7,980.2	34.4	28.2	-106.15	838.7	-495.8	833.5	792.3	41.16	20.249		
8,813.5	8,716.5	8,102.0	7,980.2	34.4	28.2	-106.15	838.7	-495.8	844.9	804.0	40.92	20.648		
8,825.0	8,728.0	8,102.0	7,980.2	34.5	28.2	-162.89	838.7	-495.8	854.8	814.1	40.72	20.991		
8,850.0	8,753.0	8,102.0	7,980.2	34.5	28.2	-161.16	838.7	-495.8	876.9	836.5	40.35	21.732		
8,875.0	8,777.9	8,102.0	7,980.2	34.6	28.2	-158.91	838.7	-495.8	899.6	859.6	40.04	22.469		
8,900.0	8,802.6	8,102.0	7,980.2	34.7	28.2	-155.93	838.7	-495.8	922.9	883.2	39.79	23.197		
8,925.0	8,827.0	8,113.7	7,985.8	34.8	28.3	-153.06	839.4	-506.0	946.5	906.5	40.02	23.654		
8,950.0	8,851.2	8,115.5	7,986.7	34.8	28.3	-147.92	839.5	-507.6	970.6	930.7	39.93	24.310		
8,975.0	8,875.0	8,116.9	7,987.3	34.9	28.3	-140.29	839.6	-508.8	995.0	955.1	39.87	24.958		
9,000.0	8,898.3	8,117.8	7,987.8	35.0	28.3	-128.48	839.7	-509.7	1,019.6	979.8	39.84	25.595		
9,025.0	8,921.2	8,118.3	7,988.0	35.0	28.3	-110.27	839.7	-510.1	1,044.4	1,004.5	39.83	26.220		

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 131H
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 131H	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		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
9,050.0	8,943.5	8,118.4	7,988.0	35.1	28.3	85.91	839.7	-510.2	1,069.2	1,029.3	39.85	26.829		
9,075.0	8,965.1	8,118.1	7,987.9	35.2	28.3	62.28	839.7	-509.9	1,094.0	1,054.1	39.90	27.421		
9,100.0	8,986.1	8,117.4	7,987.6	35.2	28.3	45.25	839.7	-509.3	1,118.8	1,078.8	39.96	27.994		
9,125.0	9,006.4	8,116.4	7,987.1	35.3	28.3	34.28	839.6	-508.4	1,143.4	1,103.3	40.05	28.547		
9,150.0	9,025.8	8,115.0	7,986.4	35.3	28.3	27.14	839.5	-507.2	1,167.8	1,127.6	40.16	29.077		
9,175.0	9,044.5	8,102.0	7,980.2	35.4	28.2	21.68	838.7	-495.8	1,192.2	1,152.2	39.96	29.837		
9,200.0	9,062.2	8,102.0	7,980.2	35.4	28.2	18.47	838.7	-495.8	1,216.0	1,175.8	40.17	30.273		
9,225.0	9,078.9	8,102.0	7,980.2	35.5	28.2	16.05	838.7	-495.8	1,239.4	1,199.0	40.40	30.679		
9,250.0	9,094.7	8,102.0	7,980.2	35.5	28.2	14.18	838.7	-495.8	1,262.5	1,221.8	40.66	31.053		
9,275.0	9,109.4	8,102.0	7,980.2	35.5	28.2	12.70	838.7	-495.8	1,285.1	1,244.2	40.93	31.396		
9,300.0	9,123.1	8,102.0	7,980.2	35.6	28.2	11.49	838.7	-495.8	1,307.3	1,266.0	41.23	31.708		
9,325.0	9,135.6	8,102.0	7,980.2	35.6	28.2	10.50	838.7	-495.8	1,328.9	1,287.4	41.54	31.989		
9,350.0	9,147.0	8,102.0	7,980.2	35.7	28.2	9.67	838.7	-495.8	1,350.0	1,308.2	41.88	32.239		
9,375.0	9,157.2	8,089.5	7,973.9	35.7	28.2	8.92	837.9	-485.0	1,370.4	1,328.5	41.90	32.709		
9,400.0	9,166.3	8,085.4	7,971.8	35.7	28.2	8.32	837.6	-481.5	1,390.1	1,348.0	42.16	32.796		
9,425.0	9,174.0	8,070.0	7,963.6	35.8	28.1	7.79	836.5	-468.5	1,409.4	1,367.3	42.14	33.443		
9,450.0	9,180.5	8,070.0	7,963.6	35.8	28.1	7.36	836.5	-468.5	1,427.7	1,385.1	42.55	33.556		
9,475.0	9,185.8	8,070.0	7,963.6	35.9	28.1	6.99	836.5	-468.5	1,445.3	1,402.3	42.96	33.642		
9,500.0	9,189.8	8,070.0	7,963.6	36.0	28.1	6.67	836.5	-468.5	1,462.1	1,418.7	43.39	33.699		
9,525.0	9,192.4	8,070.0	7,963.6	36.0	28.1	6.38	836.5	-468.5	1,478.3	1,434.4	43.83	33.730		
9,550.0	9,193.8	8,057.7	7,956.8	36.1	28.0	6.13	835.5	-458.3	1,493.4	1,449.4	43.97	33.962		
9,563.5	9,194.0	8,055.0	7,955.2	36.2	28.0	6.01	835.3	-456.1	1,501.3	1,457.1	44.16	34.000		
9,600.0	9,194.0	8,038.0	7,945.3	36.3	27.9	6.02	833.8	-442.4	1,522.6	1,478.2	44.42	34.278		
9,700.0	9,194.0	8,026.6	7,938.4	36.9	27.9	6.04	832.8	-433.4	1,582.8	1,536.8	45.92	34.466		
9,800.0	9,194.0	8,007.0	7,926.2	37.7	27.8	6.05	831.1	-418.1	1,645.8	1,598.7	47.12	34.925		
9,900.0	9,194.0	7,975.0	7,905.7	38.7	27.7	6.11	827.5	-393.9	1,711.1	1,663.2	47.97	35.673		
10,000.0	9,194.0	7,943.0	7,884.1	39.8	27.6	6.17	823.7	-370.5	1,778.8	1,730.1	48.74	36.497		
10,100.0	9,194.0	7,943.0	7,884.1	41.1	27.6	6.17	823.7	-370.5	1,848.5	1,798.5	50.05	36.932		
10,200.0	9,194.0	7,911.0	7,861.3	42.4	27.5	6.18	820.9	-348.3	1,920.4	1,869.7	50.67	37.898		
10,300.0	9,194.0	7,898.2	7,851.8	43.9	27.4	6.17	820.0	-339.7	1,993.9	1,942.3	51.56	38.668		
10,400.0	9,194.0	7,879.0	7,837.5	45.4	27.4	6.15	819.0	-327.0	2,069.0	2,016.7	52.28	39.576		
10,500.0	9,194.0	7,860.0	7,823.0	47.0	27.3	6.10	818.5	-314.8	2,145.6	2,092.6	52.94	40.532		
10,600.0	9,194.0	7,848.0	7,813.6	48.7	27.2	6.06	818.4	-307.3	2,223.5	2,169.9	53.64	41.456		
10,700.0	9,194.0	7,816.0	7,788.2	50.5	27.1	5.95	818.3	-287.7	2,302.7	2,248.7	54.01	42.635		
10,800.0	9,194.0	7,816.0	7,788.2	52.3	27.1	5.95	818.3	-287.7	2,383.0	2,328.2	54.76	43.514		
10,900.0	9,194.0	7,784.0	7,762.2	54.1	27.0	5.84	818.3	-269.2	2,464.3	2,409.2	55.07	44.751		
11,000.0	9,194.0	7,784.0	7,762.2	56.0	27.0	5.84	818.3	-269.2	2,546.6	2,490.9	55.72	45.707		
11,100.0	9,194.0	7,770.2	7,750.7	58.0	27.0	5.79	818.3	-261.5	2,629.9	2,573.8	56.16	46.829		
11,200.0	9,194.0	7,752.0	7,735.2	59.9	26.9	5.73	818.1	-251.9	2,714.3	2,657.8	56.53	48.018		
11,300.0	9,194.0	7,752.0	7,735.2	61.9	26.9	5.73	818.1	-251.9	2,799.3	2,742.3	57.05	49.073		
11,400.0	9,194.0	7,752.0	7,735.2	64.0	26.9	5.73	818.1	-251.9	2,885.4	2,827.9	57.52	50.160		
11,500.0	9,194.0	7,720.0	7,707.5	66.0	26.8	5.63	818.0	-236.0	2,972.0	2,914.3	57.68	51.527		
11,600.0	9,194.0	7,720.0	7,707.5	68.1	26.8	5.63	818.0	-236.0	3,059.2	3,001.1	58.10	52.653		
11,700.0	9,194.0	7,720.0	7,707.5	70.2	26.8	5.63	818.0	-236.0	3,147.1	3,088.7	58.49	53.805		
11,800.0	9,194.0	7,720.0	7,707.5	72.3	26.8	5.63	818.0	-236.0	3,235.8	3,176.9	58.86	54.979		
11,900.0	9,194.0	7,703.4	7,692.8	74.5	26.8	5.56	818.2	-228.3	3,324.8	3,265.7	59.07	56.284		
12,000.0	9,194.0	7,689.0	7,679.8	76.6	26.7	5.51	818.5	-222.1	3,414.5	3,355.2	59.29	57.589		
12,100.0	9,194.0	7,689.0	7,679.8	78.8	26.7	5.51	818.5	-222.1	3,504.5	3,444.9	59.60	58.806		
12,200.0	9,194.0	7,689.0	7,679.8	81.0	26.7	5.51	818.5	-222.1	3,595.1	3,535.2	59.88	60.038		
12,300.0	9,194.0	7,689.0	7,679.8	83.2	26.7	5.51	818.5	-222.1	3,686.2	3,626.0	60.15	61.285		
12,400.0	9,194.0	7,674.5	7,666.5	85.4	26.7	5.44	818.8	-216.1	3,777.5	3,717.2	60.31	62.631		
12,500.0	9,194.0	7,657.0	7,650.4	87.6	26.6	5.37	819.2	-209.4	3,869.4	3,808.9	60.45	64.005		

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 131H
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 131H	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		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
12,600.0	9,194.0	7,657.0	7,650.4	89.8	26.6	5.37	819.2	-209.4	3,961.4	3,900.7	60.69	65.277		
12,700.0	9,194.0	7,657.0	7,650.4	92.1	26.6	5.37	819.2	-209.4	4,053.8	3,992.9	60.91	66.559		
12,800.0	9,194.0	7,657.0	7,650.4	94.3	26.6	5.37	819.2	-209.4	4,146.5	4,085.4	61.11	67.850		
12,900.0	9,194.0	7,657.0	7,650.4	96.6	26.6	5.37	819.2	-209.4	4,239.6	4,178.3	61.31	69.150		
13,000.0	9,194.0	7,657.0	7,650.4	98.9	26.6	5.37	819.2	-209.4	4,333.0	4,271.5	61.50	70.457		
13,100.0	9,194.0	7,639.7	7,634.3	101.1	26.5	5.30	819.7	-203.1	4,426.4	4,364.8	61.60	71.858		
13,200.0	9,194.0	7,625.0	7,620.5	103.4	26.5	5.23	820.1	-198.2	4,520.3	4,458.6	61.71	73.253		
13,300.0	9,194.0	7,625.0	7,620.5	105.7	26.5	5.23	820.1	-198.2	4,614.2	4,552.4	61.88	74.571		
13,400.0	9,194.0	7,625.0	7,620.5	108.0	26.5	5.23	820.1	-198.2	4,708.5	4,646.4	62.04	75.895		
13,500.0	9,194.0	7,625.0	7,620.5	110.3	26.5	5.23	820.1	-198.2	4,802.9	4,740.7	62.19	77.224		
13,600.0	9,194.0	7,625.0	7,620.5	112.6	26.5	5.23	820.1	-198.2	4,897.6	4,835.2	62.34	78.557		
13,700.0	9,194.0	7,625.0	7,620.5	114.9	26.5	5.23	820.1	-198.2	4,992.4	4,929.9	62.49	79.894		
13,800.0	9,194.0	7,625.0	7,620.5	117.2	26.5	5.23	820.1	-198.2	5,087.5	5,024.9	62.63	81.234		
13,900.0	9,194.0	7,625.0	7,620.5	119.5	26.5	5.23	820.1	-198.2	5,182.8	5,120.0	62.76	82.577		
14,000.0	9,194.0	7,610.3	7,606.5	121.9	26.4	5.17	820.6	-193.6	5,278.0	5,215.1	62.84	83.987		
14,100.0	9,194.0	7,607.8	7,604.1	124.2	26.4	5.16	820.7	-192.9	5,373.5	5,310.5	62.96	85.344		
14,200.0	9,194.0	7,593.0	7,589.9	126.5	26.4	5.09	821.3	-188.8	5,469.3	5,406.2	63.04	86.759		
14,300.0	9,194.0	7,593.0	7,589.9	128.9	26.4	5.09	821.3	-188.8	5,565.0	5,501.9	63.16	88.106		
14,400.0	9,194.0	7,593.0	7,589.9	131.2	26.4	5.09	821.3	-188.8	5,660.9	5,597.6	63.28	89.455		
14,500.0	9,194.0	7,593.0	7,589.9	133.5	26.4	5.09	821.3	-188.8	5,756.9	5,693.5	63.40	90.805		
14,600.0	9,194.0	7,593.0	7,589.9	135.9	26.4	5.09	821.3	-188.8	5,853.1	5,789.6	63.51	92.156		
14,700.0	9,194.0	7,593.0	7,589.9	138.2	26.4	5.09	821.3	-188.8	5,949.4	5,885.8	63.62	93.508		
14,800.0	9,194.0	7,593.0	7,589.9	140.6	26.4	5.09	821.3	-188.8	6,045.8	5,982.1	63.73	94.860		
14,900.0	9,194.0	7,593.0	7,589.9	142.9	26.4	5.09	821.3	-188.8	6,142.3	6,078.5	63.84	96.213		
15,000.0	9,194.0	7,593.0	7,589.9	145.3	26.4	5.09	821.3	-188.8	6,238.9	6,175.0	63.95	97.565		
15,100.0	9,194.0	7,593.0	7,589.9	147.6	26.4	5.09	821.3	-188.8	6,335.7	6,271.6	64.05	98.918		
15,200.0	9,194.0	7,593.0	7,589.9	150.0	26.4	5.09	821.3	-188.8	6,432.5	6,368.4	64.15	100.270		
15,300.0	9,194.0	7,593.0	7,589.9	152.3	26.4	5.09	821.3	-188.8	6,529.4	6,465.2	64.25	101.622		
15,400.0	9,194.0	7,578.0	7,575.4	154.7	26.3	5.02	821.9	-185.0	6,626.3	6,562.0	64.31	103.029		
15,500.0	9,194.0	7,575.9	7,573.4	157.1	26.3	5.01	822.0	-184.5	6,723.3	6,658.9	64.41	104.386		
15,600.0	9,194.0	7,561.0	7,558.9	159.4	26.3	4.94	822.6	-181.1	6,820.6	6,756.1	64.47	105.793		
15,700.0	9,194.0	7,561.0	7,558.9	161.8	26.3	4.94	822.6	-181.1	6,917.8	6,853.2	64.57	107.138		
15,800.0	9,194.0	7,561.0	7,558.9	164.2	26.3	4.94	822.6	-181.1	7,015.0	6,950.3	64.66	108.483		
15,900.0	9,194.0	7,561.0	7,558.9	166.5	26.3	4.94	822.6	-181.1	7,112.3	7,047.6	64.76	109.827		
16,000.0	9,194.0	7,561.0	7,558.9	168.9	26.3	4.94	822.6	-181.1	7,209.7	7,144.9	64.85	111.169		
16,100.0	9,194.0	7,561.0	7,558.9	171.3	26.3	4.94	822.6	-181.1	7,307.2	7,242.2	64.95	112.510		
16,200.0	9,194.0	7,561.0	7,558.9	173.6	26.3	4.94	822.6	-181.1	7,404.7	7,339.7	65.04	113.849		
16,300.0	9,194.0	7,561.0	7,558.9	176.0	26.3	4.94	822.6	-181.1	7,502.3	7,437.2	65.13	115.186		
16,400.0	9,194.0	7,561.0	7,558.9	178.4	26.3	4.94	822.6	-181.1	7,600.0	7,534.7	65.22	116.522		
16,500.0	9,194.0	7,561.0	7,558.9	180.8	26.3	4.94	822.6	-181.1	7,697.7	7,632.4	65.31	117.855		
16,600.0	9,194.0	7,561.0	7,558.9	183.1	26.3	4.94	822.6	-181.1	7,795.5	7,730.1	65.41	119.187		
16,700.0	9,194.0	7,561.0	7,558.9	185.5	26.3	4.94	822.6	-181.1	7,893.3	7,827.8	65.50	120.516		
16,800.0	9,194.0	7,561.0	7,558.9	187.9	26.3	4.94	822.6	-181.1	7,991.2	7,925.6	65.59	121.844		
16,900.0	9,194.0	7,561.0	7,558.9	190.3	26.3	4.94	822.6	-181.1	8,089.1	8,023.5	65.68	123.169		
17,000.0	9,194.0	7,561.0	7,558.9	192.7	26.3	4.94	822.6	-181.1	8,187.1	8,121.3	65.76	124.491		
17,100.0	9,194.0	7,561.0	7,558.9	195.0	26.3	4.94	822.6	-181.1	8,285.2	8,219.3	65.85	125.812		
17,200.0	9,194.0	7,561.0	7,558.9	197.4	26.3	4.94	822.6	-181.1	8,383.2	8,317.3	65.94	127.129		
17,300.0	9,194.0	7,561.0	7,558.9	199.8	26.3	4.94	822.6	-181.1	8,481.4	8,415.3	66.03	128.444		
17,400.0	9,194.0	7,545.6	7,543.8	202.2	26.2	4.88	823.2	-178.0	8,579.3	8,513.2	66.09	129.807		
17,500.0	9,194.0	7,544.4	7,542.6	204.6	26.2	4.87	823.2	-177.7	8,677.5	8,611.3	66.18	131.120		
17,600.0	9,194.0	7,529.0	7,527.5	207.0	26.2	4.81	823.8	-175.1	8,775.9	8,709.7	66.24	132.481		
17,700.0	9,194.0	7,529.0	7,527.5	209.4	26.2	4.81	823.8	-175.1	8,874.1	8,807.8	66.33	133.784		

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 131H
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 131H	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)	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)						
17,800.0	9,194.0	7,529.0	7,527.5	211.8	26.2	4.81	823.8	-175.1	8,972.4	8,906.0	66.42	135.084		
17,900.0	9,194.0	7,529.0	7,527.5	214.1	26.2	4.81	823.8	-175.1	9,070.7	9,004.2	66.51	136.381		
18,000.0	9,194.0	7,529.0	7,527.5	216.5	26.2	4.81	823.8	-175.1	9,169.0	9,102.4	66.60	137.675		
18,100.0	9,194.0	7,529.0	7,527.5	218.9	26.2	4.81	823.8	-175.1	9,267.4	9,200.7	66.69	138.966		
18,200.0	9,194.0	7,529.0	7,527.5	221.3	26.2	4.81	823.8	-175.1	9,365.8	9,299.0	66.78	140.254		
18,300.0	9,194.0	7,529.0	7,527.5	223.7	26.2	4.81	823.8	-175.1	9,464.2	9,397.4	66.87	141.538		
18,400.0	9,194.0	7,529.0	7,527.5	226.1	26.2	4.81	823.8	-175.1	9,562.7	9,495.8	66.96	142.820		
18,500.0	9,194.0	7,529.0	7,527.5	228.5	26.2	4.81	823.8	-175.1	9,661.2	9,594.2	67.05	144.098		
18,600.0	9,194.0	7,529.0	7,527.5	230.9	26.2	4.81	823.8	-175.1	9,759.8	9,692.6	67.14	145.373		
18,700.0	9,194.0	7,529.0	7,527.5	233.3	26.2	4.81	823.8	-175.1	9,858.3	9,791.1	67.23	146.645		
18,800.0	9,194.0	7,529.0	7,527.5	235.7	26.2	4.81	823.8	-175.1	9,956.9	9,889.6	67.32	147.913		
18,900.0	9,194.0	7,529.0	7,527.5	238.1	26.2	4.81	823.8	-175.1	10,055.5	9,988.1	67.41	149.178		
19,000.0	9,194.0	7,529.0	7,527.5	240.5	26.2	4.81	823.8	-175.1	10,154.2	10,086.7	67.50	150.440		
19,100.0	9,194.0	7,529.0	7,527.5	242.9	26.2	4.81	823.8	-175.1	10,252.9	10,185.3	67.59	151.698		
19,200.0	9,194.0	7,529.0	7,527.5	245.3	26.2	4.81	823.8	-175.1	10,351.6	10,283.9	67.68	152.952		
19,300.0	9,194.0	7,529.0	7,527.5	247.7	26.2	4.81	823.8	-175.1	10,450.3	10,382.5	67.77	154.203		
19,400.0	9,194.0	7,529.0	7,527.5	250.1	26.2	4.81	823.8	-175.1	10,549.0	10,481.2	67.86	155.450		
19,500.0	9,194.0	7,529.0	7,527.5	252.5	26.2	4.81	823.8	-175.1	10,647.8	10,579.9	67.95	156.694		
19,600.0	9,194.0	7,529.0	7,527.5	254.9	26.2	4.81	823.8	-175.1	10,746.6	10,678.6	68.04	157.934		
19,700.0	9,194.0	7,529.0	7,527.5	257.3	26.2	4.81	823.8	-175.1	10,845.4	10,777.3	68.14	159.171		
19,800.0	9,194.0	7,529.0	7,527.5	259.7	26.2	4.81	823.8	-175.1	10,944.3	10,876.0	68.23	160.403		
19,818.1	9,194.0	7,529.0	7,527.5	260.1	26.2	4.81	823.8	-175.1	10,962.2	10,894.0	68.25	160.626		

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 131H
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 131H	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	
0.0	0.0	8.3	8.3	0.0	0.1	95.58	-728.3	7,457.0	7,492.5					
100.0	100.0	108.3	108.3	0.1	1.0	95.58	-728.3	7,457.0	7,492.5	7,491.3	1.13	6,618.190		
200.0	200.0	208.3	208.3	0.5	1.9	95.58	-728.3	7,457.0	7,492.5	7,490.0	2.42	3,095.980		
300.0	300.0	308.3	308.3	0.8	2.9	95.58	-728.3	7,457.0	7,492.5	7,488.7	3.71	2,020.609		
400.0	400.0	408.3	408.3	1.2	4.4	95.58	-728.3	7,457.0	7,492.5	7,486.9	5.59	1,340.346		
500.0	500.0	508.3	508.3	1.6	6.4	95.58	-728.3	7,457.0	7,492.5	7,484.5	7.99	937.507		
531.1	531.1	538.6	538.5	1.7	7.1	95.57	-727.8	7,457.0	7,492.4	7,483.7	8.72	859.075		
600.0	600.0	605.4	605.3	1.9	8.4	95.58	-728.0	7,457.0	7,492.4	7,482.1	10.33	725.053		
700.0	700.0	708.3	708.3	2.3	10.8	95.58	-728.3	7,457.0	7,492.5	7,479.3	13.11	571.406		
800.0	800.0	808.3	808.3	2.6	13.6	95.58	-728.3	7,457.0	7,492.5	7,476.2	16.23	461.745		
829.6	829.6	836.8	836.7	2.7	14.4	95.57	-727.7	7,457.0	7,492.4	7,475.3	17.12	437.761		
900.0	900.0	904.2	904.2	3.0	16.2	95.58	-728.0	7,457.0	7,492.4	7,473.2	19.23	389.685		
1,000.0	1,000.0	1,008.5	1,008.3	3.4	19.6	95.58	-728.3	7,457.0	7,492.5	7,469.5	22.91	327.059		
1,069.0	1,069.0	1,077.5	1,077.3	3.6	22.0	95.57	-726.9	7,457.0	7,492.3	7,466.7	25.64	292.240		
1,100.0	1,100.0	1,104.7	1,104.4	3.7	23.0	95.57	-726.9	7,457.0	7,492.3	7,465.6	26.72	280.362		
1,200.0	1,200.0	1,208.8	1,208.3	4.1	26.7	95.58	-728.3	7,457.0	7,492.5	7,461.7	30.79	243.317		
1,281.1	1,281.1	1,289.9	1,289.4	4.4	29.3	95.57	-727.3	7,457.0	7,492.3	7,458.7	33.69	222.389		
1,300.0	1,300.0	1,305.7	1,305.2	4.4	29.8	95.57	-727.3	7,457.0	7,492.4	7,458.1	34.27	218.654		
1,400.0	1,400.0	1,408.9	1,408.3	4.8	32.9	95.58	-728.3	7,457.0	7,492.5	7,454.8	37.67	198.879		
1,500.0	1,500.0	1,508.9	1,508.3	5.1	35.2	95.58	-728.3	7,457.0	7,492.5	7,452.1	40.33	185.797		
1,532.0	1,532.0	1,539.6	1,538.9	5.3	35.9	95.57	-727.3	7,457.0	7,492.4	7,451.2	41.14	182.103		
1,600.0	1,600.0	1,602.7	1,602.1	5.5	37.3	95.57	-727.6	7,457.0	7,492.4	7,449.5	42.84	174.909		
1,700.0	1,700.0	1,709.0	1,708.3	5.9	39.7	95.58	-728.3	7,457.0	7,492.5	7,446.9	45.54	164.533		
1,800.0	1,800.0	1,809.0	1,808.3	6.2	41.8	99.75	-728.3	7,457.0	7,492.7	7,444.8	47.97	156.185		
1,900.0	1,899.8	1,906.1	1,905.3	6.6	43.8	99.77	-728.0	7,457.0	7,493.6	7,443.3	50.35	148.835		
2,000.0	1,999.5	2,008.5	2,007.8	6.9	45.9	99.81	-728.3	7,457.0	7,495.1	7,442.3	52.84	141.842		
2,100.0	2,098.7	2,107.8	2,107.0	7.3	48.0	99.86	-728.3	7,457.0	7,497.2	7,441.9	55.28	135.625		
2,200.0	2,197.5	2,204.7	2,204.0	7.7	50.0	99.91	-727.3	7,457.0	7,499.8	7,442.2	57.68	130.036		
2,300.0	2,295.6	2,298.7	2,297.9	8.0	52.0	99.98	-727.8	7,457.0	7,503.2	7,443.2	60.02	125.017		
2,400.0	2,393.4	2,402.6	2,401.7	8.4	54.1	100.15	-728.3	7,457.0	7,507.0	7,444.5	62.54	120.044		
2,500.0	2,491.3	2,500.4	2,499.6	8.8	56.1	100.30	-728.3	7,457.0	7,510.8	7,445.9	64.89	115.754		
2,600.0	2,589.1	2,596.7	2,595.9	9.2	58.0	100.44	-727.8	7,457.0	7,514.5	7,447.3	67.21	111.800		
2,700.0	2,686.9	2,691.7	2,690.8	9.6	59.9	100.60	-728.1	7,457.0	7,518.5	7,448.9	69.52	108.146		
2,800.0	2,784.7	2,793.9	2,793.0	10.1	61.9	100.76	-728.3	7,457.0	7,522.4	7,450.4	71.99	104.499		
2,900.0	2,882.5	2,891.7	2,890.8	10.5	63.9	100.91	-728.3	7,457.0	7,526.4	7,452.0	74.37	101.199		
3,000.0	2,980.3	2,989.5	2,988.6	10.9	65.9	101.06	-728.3	7,457.0	7,530.5	7,453.7	76.76	98.099		
3,100.0	3,078.1	3,084.6	3,083.7	11.4	67.8	101.20	-727.3	7,457.0	7,534.4	7,455.3	79.10	95.247		
3,200.0	3,176.0	3,179.3	3,178.4	11.8	69.7	101.35	-727.7	7,457.0	7,538.6	7,457.2	81.44	92.566		
3,300.0	3,273.8	3,283.0	3,282.1	12.2	71.8	101.52	-728.3	7,457.0	7,542.9	7,459.0	83.96	89.836		
3,400.0	3,371.6	3,380.8	3,379.9	12.7	73.7	101.67	-728.3	7,457.0	7,547.2	7,460.8	86.38	87.377		
3,500.0	3,469.4	3,475.8	3,474.8	13.1	75.7	101.81	-727.9	7,457.0	7,551.5	7,462.7	88.73	85.104		
3,600.0	3,567.2	3,576.5	3,575.5	13.6	77.7	101.97	-728.3	7,457.0	7,555.9	7,464.7	91.21	82.843		
3,700.0	3,665.0	3,674.3	3,673.3	14.0	79.7	102.12	-728.3	7,457.0	7,560.3	7,466.7	93.63	80.746		
3,800.0	3,762.8	3,772.1	3,771.1	14.5	81.6	102.27	-728.3	7,457.0	7,564.8	7,468.8	96.06	78.754		
3,900.0	3,860.7	3,867.2	3,866.2	14.9	83.6	102.41	-727.4	7,457.0	7,569.2	7,470.8	98.43	76.901		
4,000.0	3,958.5	3,961.1	3,960.1	15.4	85.5	102.56	-727.8	7,457.0	7,573.9	7,473.1	100.78	75.156		
4,100.0	4,056.3	4,065.6	4,064.6	15.8	87.5	102.72	-728.3	7,457.0	7,578.6	7,475.3	103.29	73.371		
4,200.0	4,154.1	4,163.4	4,162.4	16.3	89.3	102.87	-728.3	7,457.0	7,583.3	7,477.8	105.54	71.852		
4,300.0	4,251.9	4,260.5	4,259.5	16.7	91.1	103.02	-727.7	7,457.0	7,588.0	7,480.2	107.78	70.403		
4,400.0	4,349.7	4,354.6	4,353.6	17.2	92.8	103.16	-727.9	7,457.0	7,592.8	7,482.8	109.96	69.050		
4,500.0	4,447.5	4,456.9	4,455.8	17.7	94.7	103.32	-728.3	7,457.0	7,597.7	7,485.5	112.28	67.670		
4,600.0	4,545.4	4,554.7	4,553.7	18.1	96.3	103.47	-728.3	7,457.0	7,602.7	7,488.3	114.37	66.476		

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 131H
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 131H	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		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	
4,700.0	4,643.2	4,652.5	4,651.5	18.6	98.0	103.62	-728.3	7,457.0	7,607.6	7,491.2	116.46	65.326		
4,800.0	4,741.0	4,750.3	4,749.3	19.1	99.6	103.77	-728.3	7,457.0	7,612.7	7,494.1	118.55	64.216		
4,900.0	4,838.8	4,846.9	4,845.9	19.5	101.2	103.91	-727.6	7,457.0	7,617.6	7,497.0	120.62	63.154		
5,000.0	4,936.6	4,943.0	4,941.9	20.0	102.8	104.06	-727.8	7,457.0	7,622.8	7,500.1	122.68	62.134		
5,100.0	5,034.4	5,039.0	5,038.0	20.5	104.4	104.21	-728.1	7,457.0	7,628.0	7,503.3	124.74	61.149		
5,200.0	5,132.3	5,141.6	5,140.6	20.9	106.2	104.36	-728.3	7,457.0	7,633.3	7,506.3	126.99	60.111		
5,300.0	5,230.1	5,239.4	5,238.4	21.4	108.0	104.51	-728.3	7,457.0	7,638.6	7,509.3	129.27	59.090		
5,400.0	5,327.9	5,337.2	5,336.2	21.9	109.9	104.66	-728.3	7,457.0	7,643.9	7,512.4	131.55	58.105		
5,500.0	5,425.7	5,434.0	5,433.0	22.3	111.7	104.80	-728.1	7,457.0	7,649.3	7,515.5	133.82	57.161		
5,600.0	5,523.5	5,530.6	5,529.6	22.8	113.5	104.95	-728.2	7,457.0	7,654.7	7,518.7	136.08	56.251		
5,700.0	5,621.3	5,630.7	5,629.6	23.3	115.4	105.10	-728.3	7,457.0	7,660.3	7,521.8	138.50	55.309		
5,800.0	5,719.1	5,728.5	5,727.4	23.7	117.6	105.25	-728.3	7,457.0	7,665.8	7,524.7	141.13	54.319		
5,900.0	5,817.0	5,826.3	5,825.3	24.2	119.8	105.39	-728.3	7,457.0	7,671.4	7,527.7	143.75	53.366		
6,000.0	5,914.8	5,919.5	5,918.4	24.7	121.8	105.53	-727.4	7,457.0	7,676.9	7,530.6	146.28	52.482		
6,100.0	6,012.6	6,011.9	6,010.8	25.2	123.9	105.67	-727.9	7,457.0	7,682.7	7,533.9	148.78	51.637		
6,200.0	6,110.4	6,119.9	6,118.7	25.6	126.5	105.83	-728.3	7,457.0	7,688.6	7,536.7	151.84	50.636		
6,300.0	6,208.2	6,217.7	6,216.5	26.1	129.1	105.98	-728.3	7,457.0	7,694.4	7,539.5	154.90	49.673		
6,337.0	6,244.4	6,253.9	6,252.7	26.3	130.0	106.03	-728.3	7,457.0	7,696.6	7,540.5	156.04	49.326		
6,400.0	6,306.2	6,315.2	6,314.0	26.6	131.7	106.18	-727.1	7,457.0	7,699.8	7,541.8	157.95	48.748		
6,500.0	6,404.7	6,406.8	6,405.6	27.0	134.1	106.38	-727.3	7,457.0	7,704.7	7,543.8	160.82	47.909		
6,600.0	6,503.8	6,498.7	6,497.5	27.4	136.5	106.55	-727.9	7,457.0	7,708.6	7,545.0	163.67	47.099		
6,700.0	6,603.3	6,613.0	6,611.6	27.8	139.8	106.69	-728.3	7,457.0	7,711.6	7,544.3	167.35	46.081		
6,800.0	6,703.1	6,710.0	6,708.6	28.2	142.8	106.77	-726.8	7,457.0	7,713.2	7,542.5	170.66	45.197		
6,900.0	6,803.0	6,792.2	6,790.7	28.5	145.3	106.81	-727.4	7,457.0	7,714.2	7,540.7	173.48	44.467		
6,937.0	6,840.0	6,822.6	6,821.2	28.6	146.2	102.65	-727.8	7,457.0	7,714.4	7,539.9	174.52	44.203		
7,000.0	6,903.0	6,913.0	6,911.3	28.8	149.2	102.66	-728.3	7,457.0	7,714.4	7,536.8	177.66	43.423		
7,057.4	6,960.4	6,970.2	6,968.5	29.0	151.1	102.65	-727.2	7,457.0	7,714.2	7,534.4	179.75	42.916		
7,100.0	7,003.0	7,003.5	7,001.8	29.1	152.2	102.65	-727.3	7,457.0	7,714.2	7,533.2	181.00	42.620		
7,200.0	7,103.0	7,113.2	7,111.3	29.4	155.9	102.66	-728.3	7,457.0	7,714.4	7,529.4	184.99	41.702		
7,300.0	7,203.0	7,213.3	7,211.3	29.7	159.1	102.66	-728.3	7,457.0	7,714.4	7,526.0	188.47	40.932		
7,400.0	7,303.0	7,313.3	7,311.3	30.0	162.0	102.66	-728.3	7,457.0	7,714.4	7,522.8	191.68	40.247		
7,461.8	7,364.8	7,374.9	7,372.9	30.2	163.7	102.64	-726.3	7,457.0	7,714.0	7,520.3	193.66	39.833		
7,500.0	7,403.0	7,407.7	7,405.7	30.3	164.7	102.64	-726.4	7,457.0	7,714.0	7,519.3	194.73	39.614		
7,600.0	7,503.0	7,493.8	7,491.8	30.6	167.2	102.65	-727.0	7,457.0	7,714.2	7,516.6	197.54	39.052		
7,700.0	7,603.0	7,613.6	7,611.3	30.9	170.8	102.66	-728.3	7,457.0	7,714.4	7,513.0	201.44	38.296		
7,800.0	7,703.0	7,713.6	7,711.3	31.2	174.0	102.66	-728.3	7,457.0	7,714.4	7,509.5	204.97	37.636		
7,900.0	7,803.0	7,813.6	7,811.3	31.5	177.2	102.66	-728.3	7,457.0	7,714.4	7,505.9	208.51	36.998		
7,939.3	7,842.3	7,849.3	7,847.0	31.7	178.4	102.64	-726.5	7,457.0	7,714.0	7,504.3	209.78	36.772		
8,000.0	7,903.0	7,904.1	7,901.8	31.9	180.1	102.65	-726.8	7,457.0	7,714.1	7,502.4	211.74	36.433		
8,100.0	8,003.0	7,994.4	7,992.1	32.2	183.1	102.65	-727.5	7,457.0	7,714.3	7,499.3	214.96	35.888		
8,200.0	8,103.0	8,114.0	8,111.3	32.5	187.2	102.66	-728.3	7,457.0	7,714.4	7,495.0	219.44	35.155		
8,231.5	8,134.5	8,145.4	8,142.8	32.6	188.4	102.65	-727.2	7,457.0	7,714.2	7,493.5	220.72	34.950		
8,300.0	8,203.0	8,191.5	8,188.8	32.8	190.1	102.65	-727.5	7,457.0	7,714.3	7,491.6	222.67	34.645		
8,400.0	8,303.0	8,314.2	8,311.3	33.1	194.8	102.66	-728.3	7,457.0	7,714.4	7,486.8	227.61	33.893		
8,500.0	8,403.0	8,414.5	8,411.3	33.4	198.5	102.66	-728.3	7,457.0	7,714.4	7,482.7	231.71	33.294		
8,600.0	8,503.0	8,514.5	8,511.3	33.7	202.2	102.66	-728.3	7,457.0	7,714.4	7,478.7	235.72	32.727		
8,700.0	8,603.0	8,614.5	8,611.3	34.1	205.9	102.66	-728.3	7,457.0	7,714.4	7,474.7	239.74	32.178		
8,800.0	8,703.0	8,701.7	8,698.5	34.4	209.2	102.64	-725.6	7,457.0	7,713.8	7,470.6	243.29	31.707		
8,813.5	8,716.5	8,713.0	8,709.8	34.4	209.6	102.64	-725.7	7,457.0	7,713.9	7,470.1	243.75	31.647		
8,825.0	8,728.0	8,722.7	8,719.4	34.5	209.9	12.36	-725.8	7,457.0	7,713.8	7,469.6	244.14	31.595		
8,846.4	8,749.4	8,740.6	8,737.3	34.5	210.6	12.39	-726.0	7,457.0	7,712.8	7,468.0	244.87	31.498		
8,850.0	8,753.0	8,743.6	8,740.4	34.5	210.7	12.39	-726.0	7,457.0	7,712.6	7,467.6	244.99	31.481		

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 131H
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 131H	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	
8,875.0	8,777.9	8,764.5	8,761.2	34.6	211.5	12.46	-726.3	7,457.0	7,710.2	7,464.3	245.84	31.362		
8,900.0	8,802.6	8,785.2	8,782.0	34.7	212.2	12.57	-726.6	7,457.0	7,706.5	7,459.8	246.69	31.240		
8,925.0	8,827.0	8,805.8	8,802.5	34.8	213.0	12.71	-727.0	7,457.0	7,701.6	7,454.0	247.53	31.114		
8,950.0	8,851.2	8,826.1	8,822.8	34.8	213.7	12.89	-727.4	7,457.0	7,695.4	7,447.0	248.35	30.985		
8,975.0	8,875.0	8,887.0	8,883.3	34.9	215.9	13.14	-728.3	7,457.0	7,688.0	7,437.4	250.62	30.676		
9,000.0	8,898.3	8,910.3	8,906.6	35.0	216.7	13.41	-728.3	7,457.0	7,679.3	7,427.8	251.49	30.535		
9,025.0	8,921.2	8,933.2	8,929.5	35.0	217.5	13.73	-728.3	7,457.0	7,669.4	7,417.1	252.35	30.393		
9,050.0	8,943.5	8,955.5	8,951.8	35.1	218.3	14.11	-728.3	7,457.0	7,658.4	7,405.2	253.18	30.249		
9,075.0	8,965.1	8,977.1	8,973.4	35.2	219.0	14.54	-728.3	7,457.0	7,646.2	7,392.2	253.99	30.105		
9,100.0	8,986.1	8,998.1	8,994.4	35.2	219.7	15.05	-728.3	7,457.0	7,633.0	7,378.2	254.77	29.960		
9,125.0	9,006.4	9,018.4	9,014.7	35.3	220.4	15.63	-728.3	7,457.0	7,618.7	7,363.1	255.53	29.815		
9,150.0	9,025.8	9,037.9	9,034.1	35.3	221.1	16.30	-728.3	7,457.0	7,603.3	7,347.1	256.26	29.671		
9,175.0	9,044.5	9,056.5	9,052.8	35.4	221.7	17.08	-728.3	7,457.0	7,587.1	7,330.1	256.95	29.527		
9,200.0	9,062.2	9,074.2	9,070.5	35.4	222.3	17.97	-728.3	7,457.0	7,569.8	7,312.2	257.62	29.384		
9,225.0	9,078.9	9,090.9	9,087.2	35.5	222.9	19.02	-728.3	7,457.0	7,551.8	7,293.5	258.25	29.242		
9,250.0	9,094.7	9,106.7	9,103.0	35.5	223.4	20.23	-728.3	7,457.0	7,532.8	7,274.0	258.84	29.102		
9,275.0	9,109.4	9,120.3	9,116.5	35.5	223.9	21.62	-725.3	7,457.0	7,512.5	7,253.1	259.36	28.966		
9,300.0	9,123.1	9,132.1	9,128.3	35.6	224.3	23.29	-725.4	7,457.0	7,492.0	7,232.2	259.81	28.837		
9,325.0	9,135.6	9,142.9	9,139.1	35.6	224.6	25.28	-725.4	7,457.0	7,471.0	7,210.7	260.23	28.709		
9,350.0	9,147.0	9,152.7	9,148.9	35.7	225.0	27.68	-725.4	7,457.0	7,449.3	7,188.7	260.61	28.584		
9,375.0	9,157.2	9,161.5	9,157.7	35.7	225.3	30.59	-725.5	7,457.0	7,427.0	7,166.1	260.96	28.461		
9,400.0	9,166.3	9,169.2	9,165.4	35.7	225.5	34.16	-725.5	7,457.0	7,404.3	7,143.0	261.26	28.340		
9,425.0	9,174.0	9,175.9	9,172.1	35.8	225.8	38.60	-725.5	7,457.0	7,381.2	7,119.6	261.54	28.222		
9,450.0	9,180.5	9,181.6	9,177.8	35.8	225.9	44.17	-725.6	7,457.0	7,357.6	7,095.9	261.77	28.107		
9,475.0	9,185.8	9,186.1	9,182.3	35.9	226.1	51.18	-725.6	7,457.0	7,333.8	7,071.9	261.97	27.995		
9,500.0	9,189.8	9,189.5	9,185.7	36.0	226.2	59.92	-725.6	7,457.0	7,309.8	7,047.7	262.12	27.887		
9,525.0	9,192.4	9,191.8	9,188.0	36.0	226.3	70.52	-725.6	7,457.0	7,285.6	7,023.4	262.24	27.782		
9,550.0	9,193.8	9,193.0	9,189.2	36.1	226.3	82.67	-725.6	7,457.0	7,261.3	6,999.0	262.32	27.681		
9,563.5	9,194.0	9,193.1	9,189.3	36.2	226.3	89.55	-725.6	7,457.0	7,248.2	6,985.8	262.35	27.628		
9,600.0	9,194.0	9,193.1	9,189.3	36.3	226.3	89.55	-725.6	7,457.0	7,212.6	6,950.2	262.41	27.486		
9,700.0	9,194.0	9,193.1	9,189.3	36.9	226.3	89.55	-725.6	7,457.0	7,115.3	6,852.7	262.59	27.097		
9,800.0	9,194.0	9,193.1	9,189.3	37.7	226.3	89.55	-725.6	7,457.0	7,018.1	6,755.3	262.78	26.707		
9,900.0	9,194.0	9,193.1	9,189.3	38.7	226.3	89.55	-725.6	7,457.0	6,920.9	6,657.9	262.98	26.317		
10,000.0	9,194.0	9,193.1	9,189.3	39.8	226.3	89.55	-725.6	7,457.0	6,823.8	6,560.6	263.20	25.926		
10,100.0	9,194.0	9,193.1	9,189.3	41.1	226.3	89.55	-725.6	7,457.0	6,726.9	6,463.4	263.44	25.534		
10,200.0	9,194.0	9,193.1	9,189.3	42.4	226.3	89.55	-725.6	7,457.0	6,630.0	6,366.3	263.70	25.142		
10,300.0	9,194.0	9,193.1	9,189.3	43.9	226.3	89.55	-725.6	7,457.0	6,533.1	6,269.2	263.97	24.749		
10,400.0	9,194.0	9,193.1	9,189.3	45.4	226.3	89.55	-725.6	7,457.0	6,436.4	6,172.2	264.27	24.356		
10,500.0	9,194.0	9,193.2	9,189.3	47.0	226.3	89.55	-725.6	7,457.0	6,339.8	6,075.3	264.59	23.961		
10,600.0	9,194.0	9,193.2	9,189.4	48.7	226.3	89.55	-725.6	7,457.0	6,243.3	5,978.4	264.92	23.567		
10,700.0	9,194.0	9,193.2	9,189.4	50.5	226.3	89.55	-725.6	7,457.0	6,147.0	5,881.7	265.28	23.171		
10,800.0	9,194.0	9,193.2	9,189.4	52.3	226.3	89.55	-725.7	7,457.0	6,050.7	5,785.0	265.67	22.775		
10,900.0	9,194.0	9,193.2	9,189.4	54.1	226.3	89.55	-725.7	7,457.0	5,954.5	5,688.5	266.08	22.379		
11,000.0	9,194.0	9,193.2	9,189.4	56.0	226.3	89.55	-725.7	7,457.0	5,858.5	5,592.0	266.52	21.982		
11,100.0	9,194.0	9,193.2	9,189.4	58.0	226.3	89.55	-725.7	7,457.0	5,762.6	5,495.7	266.99	21.584		
11,200.0	9,194.0	9,193.2	9,189.4	59.9	226.3	89.55	-725.7	7,457.0	5,666.9	5,399.4	267.49	21.186		
11,300.0	9,194.0	9,193.2	9,189.4	61.9	226.3	89.55	-725.7	7,457.0	5,571.3	5,303.3	268.02	20.787		
11,400.0	9,194.0	9,193.2	9,189.4	64.0	226.3	89.55	-725.7	7,457.0	5,475.9	5,207.3	268.58	20.388		
11,500.0	9,194.0	9,193.2	9,189.4	66.0	226.3	89.55	-725.7	7,457.0	5,380.6	5,111.4	269.18	19.989		
11,600.0	9,194.0	9,193.2	9,189.4	68.1	226.3	89.55	-725.7	7,457.0	5,285.5	5,015.7	269.81	19.590		
11,700.0	9,194.0	9,193.2	9,189.4	70.2	226.3	89.55	-725.7	7,457.0	5,190.6	4,920.1	270.49	19.190		
11,800.0	9,194.0	9,193.2	9,189.4	72.3	226.3	89.55	-725.7	7,457.0	5,095.9	4,824.7	271.21	18.790		

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 131H
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 131H	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		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
11,900.0	9,194.0	9,193.2	9,189.4	74.5	226.3	89.55	-725.7	7,457.0	5,001.4	4,729.5	271.97	18.390		
12,000.0	9,194.0	9,193.2	9,189.4	76.6	226.3	89.55	-725.7	7,457.0	4,907.1	4,634.4	272.77	17.990		
12,100.0	9,194.0	9,193.2	9,189.4	78.8	226.3	89.55	-725.7	7,457.0	4,813.1	4,539.4	273.63	17.590		
12,200.0	9,194.0	9,193.2	9,189.4	81.0	226.3	89.55	-725.7	7,457.0	4,719.3	4,444.7	274.54	17.190		
12,300.0	9,194.0	9,193.2	9,189.4	83.2	226.3	89.55	-725.7	7,457.0	4,625.7	4,350.2	275.50	16.790		
12,400.0	9,194.0	9,193.2	9,189.4	85.4	226.3	89.55	-725.7	7,457.0	4,532.4	4,255.9	276.52	16.391		
12,500.0	9,194.0	9,193.2	9,189.4	87.6	226.3	89.55	-725.7	7,457.0	4,439.5	4,161.9	277.60	15.992		
12,600.0	9,194.0	9,193.2	9,189.4	89.8	226.3	89.55	-725.7	7,457.0	4,346.8	4,068.0	278.74	15.594		
12,700.0	9,194.0	9,193.2	9,189.4	92.1	226.3	89.55	-725.7	7,457.0	4,254.4	3,974.5	279.95	15.197		
12,800.0	9,194.0	9,193.2	9,189.4	94.3	226.3	89.55	-725.7	7,457.0	4,162.5	3,881.2	281.23	14.801		
12,900.0	9,194.0	9,193.2	9,189.4	96.6	226.3	89.55	-725.7	7,457.0	4,070.8	3,788.3	282.59	14.406		
13,000.0	9,194.0	9,193.2	9,189.4	98.9	226.3	89.55	-725.7	7,457.0	3,979.6	3,695.6	284.02	14.012		
13,100.0	9,194.0	9,193.2	9,189.4	101.1	226.3	89.55	-725.7	7,457.0	3,888.9	3,603.3	285.54	13.619		
13,200.0	9,194.0	9,193.2	9,189.4	103.4	226.3	89.55	-725.7	7,457.0	3,798.6	3,511.4	287.15	13.228		
13,300.0	9,194.0	9,193.3	9,189.4	105.7	226.3	89.55	-725.7	7,457.0	3,708.7	3,419.9	288.86	12.839		
13,400.0	9,194.0	9,193.3	9,189.5	108.0	226.3	89.55	-725.7	7,457.0	3,619.5	3,328.8	290.66	12.453		
13,500.0	9,194.0	9,193.3	9,189.5	110.3	226.3	89.55	-725.7	7,457.0	3,530.8	3,238.2	292.57	12.068		
13,600.0	9,194.0	9,193.3	9,189.5	112.6	226.3	89.55	-725.7	7,457.0	3,442.7	3,148.1	294.59	11.686		
13,700.0	9,194.0	9,193.3	9,189.5	114.9	226.3	89.55	-725.7	7,457.0	3,355.3	3,058.5	296.72	11.308		
13,800.0	9,194.0	9,193.3	9,189.5	117.2	226.3	89.55	-725.7	7,457.0	3,268.6	2,969.6	298.98	10.932		
13,900.0	9,194.0	9,193.3	9,189.5	119.5	226.3	89.56	-725.7	7,457.0	3,182.7	2,881.3	301.37	10.561		
14,000.0	9,194.0	9,193.3	9,189.5	121.9	226.3	89.56	-725.7	7,457.0	3,097.6	2,793.7	303.90	10.193		
14,100.0	9,194.0	9,193.3	9,189.5	124.2	226.3	89.56	-725.7	7,457.0	3,013.5	2,706.9	306.58	9.829		
14,200.0	9,194.0	9,193.3	9,189.5	126.5	226.3	89.56	-725.7	7,457.0	2,930.3	2,620.9	309.40	9.471		
14,300.0	9,194.0	9,193.3	9,189.5	128.9	226.3	89.56	-725.7	7,457.0	2,848.2	2,535.8	312.39	9.118		
14,400.0	9,194.0	9,193.3	9,189.5	131.2	226.3	89.56	-725.7	7,457.0	2,767.3	2,451.8	315.54	8.770		
14,500.0	9,194.0	9,193.3	9,189.5	133.5	226.3	89.56	-725.7	7,457.0	2,687.7	2,368.9	318.87	8.429		
14,600.0	9,194.0	9,193.3	9,189.5	135.9	226.3	89.56	-725.7	7,457.0	2,609.5	2,287.2	322.37	8.095		
14,700.0	9,194.0	9,193.3	9,189.5	138.2	226.3	89.56	-725.7	7,457.0	2,532.9	2,206.8	326.06	7.768		
14,800.0	9,194.0	9,193.3	9,189.5	140.6	226.3	89.56	-725.7	7,457.0	2,457.9	2,127.9	329.94	7.450		
14,900.0	9,194.0	9,193.3	9,189.5	142.9	226.3	89.56	-725.7	7,457.0	2,384.7	2,050.7	334.01	7.140		
15,000.0	9,194.0	9,193.3	9,189.5	145.3	226.3	89.56	-725.7	7,457.0	2,313.6	1,975.3	338.26	6.840		
15,100.0	9,194.0	9,193.3	9,189.5	147.6	226.3	89.56	-725.7	7,457.0	2,244.7	1,901.9	342.70	6.550		
15,200.0	9,194.0	9,193.3	9,189.5	150.0	226.3	89.56	-725.7	7,457.0	2,178.1	1,830.8	347.32	6.271		
15,300.0	9,194.0	9,193.3	9,189.5	152.3	226.3	89.56	-725.7	7,457.0	2,114.2	1,762.1	352.11	6.005		
15,400.0	9,194.0	9,193.3	9,189.5	154.7	226.3	89.56	-725.7	7,457.0	2,053.2	1,696.2	357.04	5.751		
15,500.0	9,194.0	9,193.3	9,189.5	157.1	226.3	89.56	-725.7	7,457.0	1,995.4	1,633.3	362.08	5.511		
15,600.0	9,194.0	9,193.3	9,189.5	159.4	226.3	89.56	-725.7	7,457.0	1,940.9	1,573.7	367.21	5.286		
15,700.0	9,194.0	9,193.3	9,189.5	161.8	226.3	89.56	-725.7	7,457.0	1,890.2	1,517.9	372.38	5.076		
15,800.0	9,194.0	9,193.3	9,189.5	164.2	226.3	89.56	-725.7	7,457.0	1,843.6	1,466.0	377.53	4.883		
15,900.0	9,194.0	9,193.3	9,189.5	166.5	226.3	89.56	-725.7	7,457.0	1,801.3	1,418.7	382.60	4.708		
16,000.0	9,194.0	9,193.3	9,189.5	168.9	226.3	89.56	-725.7	7,457.0	1,763.6	1,376.1	387.53	4.551		
16,100.0	9,194.0	9,193.4	9,189.5	171.3	226.3	89.56	-725.7	7,457.0	1,730.9	1,338.7	392.21	4.413		
16,200.0	9,194.0	9,193.4	9,189.6	173.6	226.3	89.56	-725.7	7,457.0	1,703.5	1,306.9	396.59	4.295		
16,300.0	9,194.0	9,193.4	9,189.6	176.0	226.3	89.56	-725.7	7,457.0	1,681.5	1,281.0	400.56	4.198		
16,400.0	9,194.0	9,193.4	9,189.6	178.4	226.3	89.56	-725.7	7,457.0	1,665.3	1,261.3	404.06	4.121		
16,500.0	9,194.0	9,193.4	9,189.6	180.8	226.3	89.56	-725.7	7,457.0	1,655.0	1,248.0	407.01	4.066		
16,600.0	9,194.0	9,193.4	9,189.6	183.1	226.3	89.56	-725.7	7,457.0	1,650.7	1,241.4	409.36	4.032		
16,621.2	9,194.0	9,193.4	9,189.6	183.6	226.3	89.56	-725.7	7,457.0	1,650.6	1,240.8	409.78	4.028 CC, ES		
16,700.0	9,194.0	9,193.4	9,189.6	185.5	226.3	89.56	-725.7	7,457.0	1,652.5	1,241.4	411.07	4.020 SF		
16,800.0	9,194.0	9,193.4	9,189.6	187.9	226.3	89.56	-725.7	7,457.0	1,660.2	1,248.1	412.13	4.028		
16,900.0	9,194.0	9,193.4	9,189.6	190.3	226.3	89.56	-725.7	7,457.0	1,674.0	1,261.4	412.54	4.058		

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 131H
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 131H	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)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)						
17,000.0	9,194.0	9,193.4	9,189.6	192.7	226.3	89.56	-725.7	7,457.0	1,693.5	1,281.2	412.33	4.107		
17,100.0	9,194.0	9,193.4	9,189.6	195.0	226.3	89.56	-725.7	7,457.0	1,718.6	1,307.1	411.54	4.176		
17,200.0	9,194.0	9,193.4	9,189.6	197.4	226.4	89.56	-725.7	7,457.0	1,749.1	1,338.9	410.24	4.264		
17,300.0	9,194.0	9,193.4	9,189.6	199.8	226.4	89.56	-725.7	7,457.0	1,784.7	1,376.2	408.48	4.369		
17,400.0	9,194.0	9,193.4	9,189.6	202.2	226.4	89.56	-725.7	7,457.0	1,825.1	1,418.7	406.34	4.491		
17,500.0	9,194.0	9,193.4	9,189.6	204.6	226.4	89.56	-725.7	7,457.0	1,869.9	1,466.1	403.89	4.630		
17,600.0	9,194.0	9,193.4	9,189.6	207.0	226.4	89.56	-725.7	7,457.0	1,919.0	1,517.8	401.19	4.783		
17,700.0	9,194.0	9,193.4	9,189.6	209.4	226.4	89.56	-725.7	7,457.0	1,971.9	1,573.5	398.31	4.950		
17,800.0	9,194.0	9,193.4	9,189.6	211.8	226.4	89.56	-725.7	7,457.0	2,028.3	1,633.0	395.31	5.131		
17,900.0	9,194.0	9,193.4	9,189.6	214.1	226.4	89.56	-725.7	7,457.0	2,088.0	1,695.8	392.22	5.324		
18,000.0	9,194.0	9,193.4	9,189.6	216.5	226.4	89.56	-725.7	7,457.0	2,150.7	1,761.6	389.10	5.527		
18,100.0	9,194.0	9,193.4	9,189.6	218.9	226.4	89.56	-725.7	7,457.0	2,216.1	1,830.2	385.97	5.742		
18,200.0	9,194.0	9,193.4	9,189.6	221.3	226.4	89.56	-725.7	7,457.0	2,284.1	1,901.2	382.86	5.966		
18,300.0	9,194.0	9,193.4	9,189.6	223.7	226.4	89.56	-725.7	7,457.0	2,354.3	1,974.5	379.80	6.199		
18,400.0	9,194.0	9,193.4	9,189.6	226.1	226.4	89.56	-725.7	7,457.0	2,426.6	2,049.8	376.81	6.440		
18,500.0	9,194.0	9,193.4	9,189.6	228.5	226.4	89.56	-725.7	7,457.0	2,500.9	2,127.0	373.88	6.689		
18,600.0	9,194.0	9,193.4	9,189.6	230.9	226.4	89.56	-725.7	7,457.0	2,576.8	2,205.8	371.04	6.945		
18,700.0	9,194.0	9,193.4	9,189.6	233.3	226.4	89.56	-725.7	7,457.0	2,654.4	2,286.1	368.29	7.207		
18,800.0	9,194.0	9,193.4	9,189.6	235.7	226.4	89.56	-725.7	7,457.0	2,733.4	2,367.8	365.64	7.476		
18,900.0	9,194.0	9,193.5	9,189.6	238.1	226.4	89.56	-725.7	7,457.0	2,813.8	2,450.7	363.08	7.750		
19,000.0	9,194.0	9,193.5	9,189.7	240.5	226.4	89.56	-725.7	7,457.0	2,895.4	2,534.7	360.61	8.029		
19,100.0	9,194.0	9,193.5	9,189.7	242.9	226.4	89.56	-725.7	7,457.0	2,978.1	2,619.8	358.25	8.313		
19,200.0	9,194.0	9,193.5	9,189.7	245.3	226.4	89.56	-725.7	7,457.0	3,061.8	2,705.8	355.97	8.601		
19,300.0	9,194.0	9,193.5	9,189.7	247.7	226.4	89.56	-725.7	7,457.0	3,146.5	2,792.7	353.79	8.894		
19,400.0	9,194.0	9,193.5	9,189.7	250.1	226.4	89.56	-725.7	7,457.0	3,232.0	2,880.3	351.70	9.190		
19,500.0	9,194.0	9,193.5	9,189.7	252.5	226.4	89.56	-725.7	7,457.0	3,318.4	2,968.7	349.70	9.489		
19,600.0	9,194.0	9,193.5	9,189.7	254.9	226.4	89.56	-725.7	7,457.0	3,405.5	3,057.8	347.78	9.792		
19,700.0	9,194.0	9,193.5	9,189.7	257.3	226.4	89.56	-725.7	7,457.0	3,493.3	3,147.4	345.94	10.098		
19,800.0	9,194.0	9,193.5	9,189.7	259.7	226.4	89.56	-725.7	7,457.0	3,581.8	3,237.6	344.17	10.407		
19,818.1	9,194.0	9,193.5	9,189.7	260.1	226.4	89.56	-725.7	7,457.0	3,597.9	3,254.0	343.86	10.463		

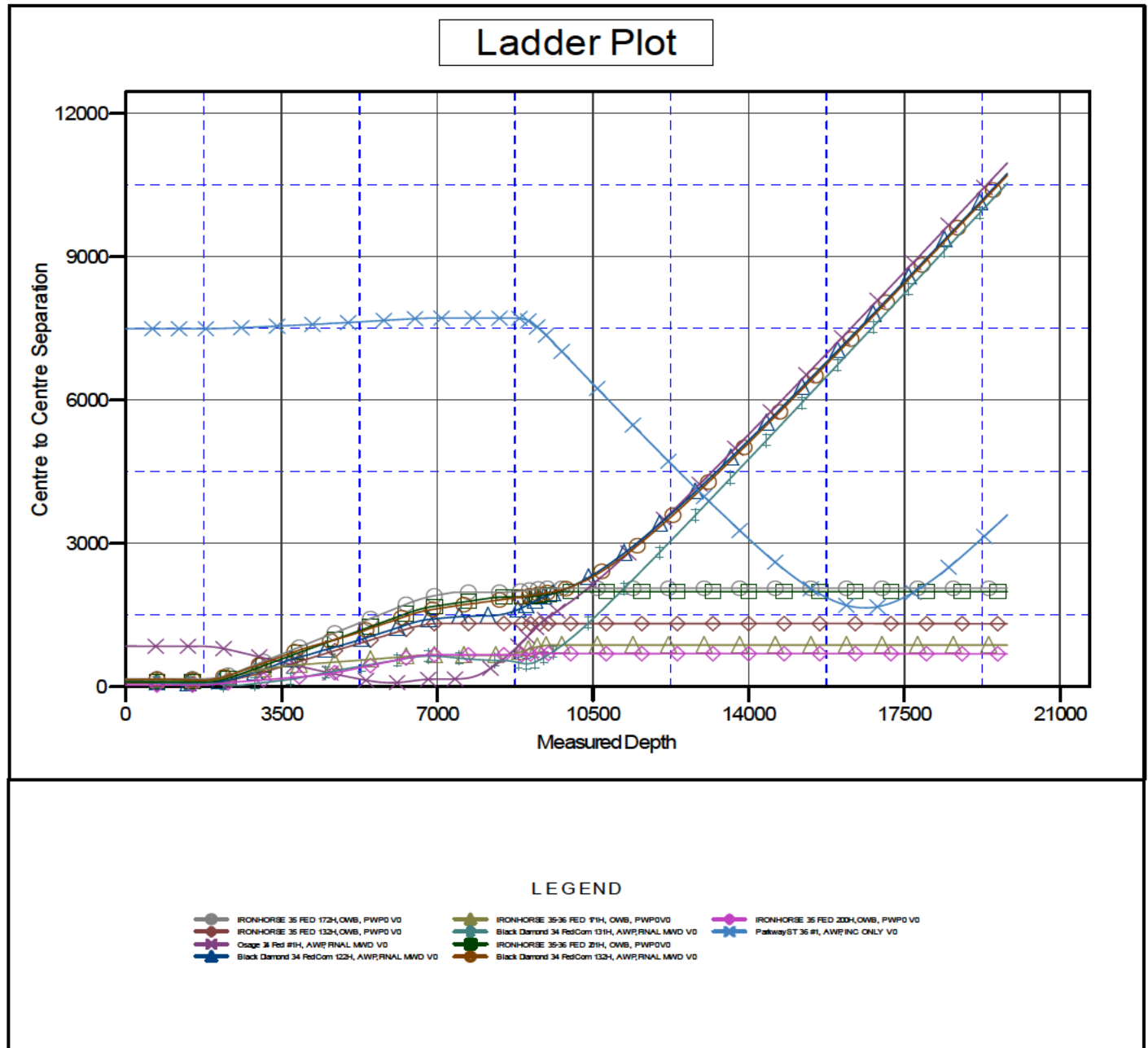
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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 131H
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

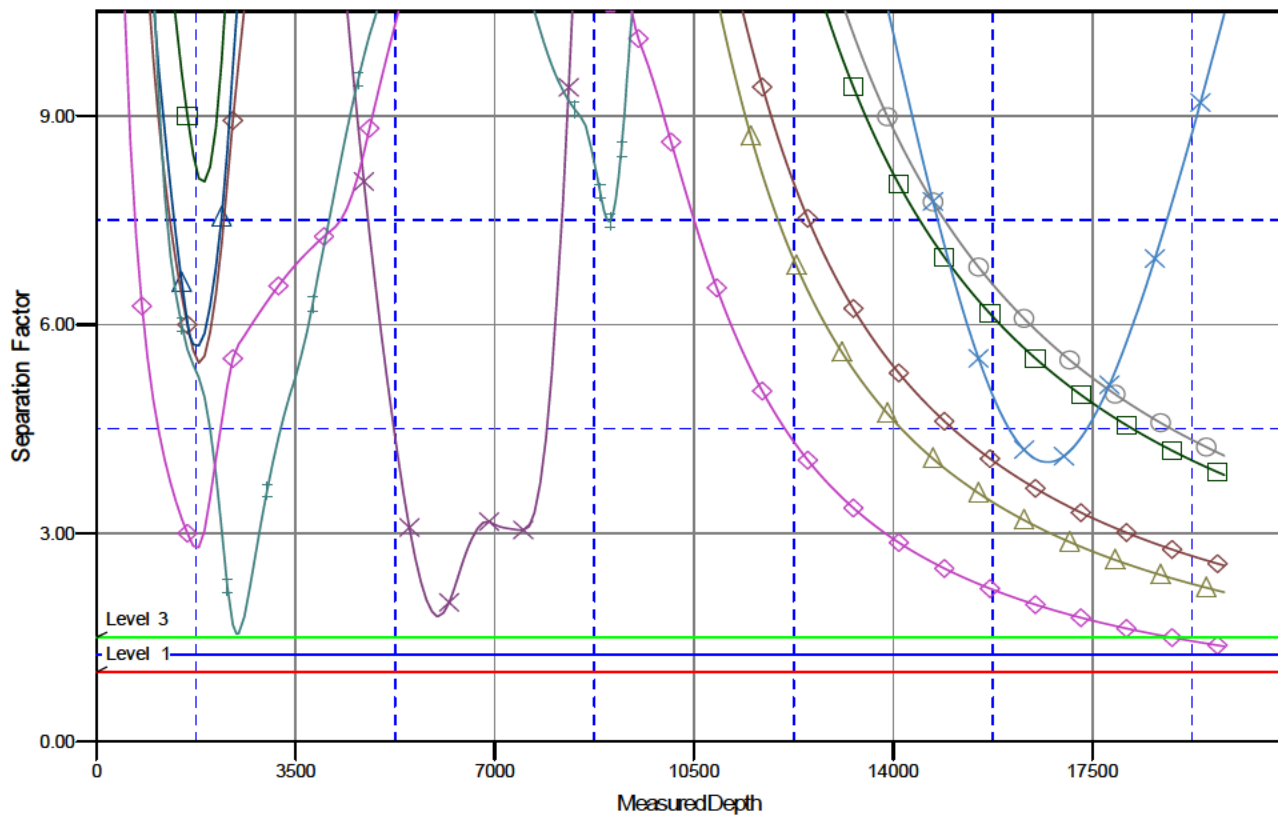
Colgate Operating Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference:	Well IRONHORSE 35 FED 131H
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 131H	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 131H
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 122H, OWB, PWPO VD	IRONHORSE 35-36 FED 131H, OWB, PWPO VD	IRONHORSE 35 FED 334H, OWB, PWPO VD
IRONHORSE 35 FED 132H, OWB, PWPO VD	Black Diamond 34 RedCom 131H, AWR/RNAL MWD VD	Pathway ST 35 #1, AWR/INC ONLY VD
Osage 34 Red #1H, AWR/RNAL MWD VD	IRONHORSE 35-36 FED 201H, OWB, PWPO VD	
Black Diamond 34 RedCom 122H, AWR/RNAL MWD VD	Black Diamond 34 RedCom 132H, AWR/RNAL MWD 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

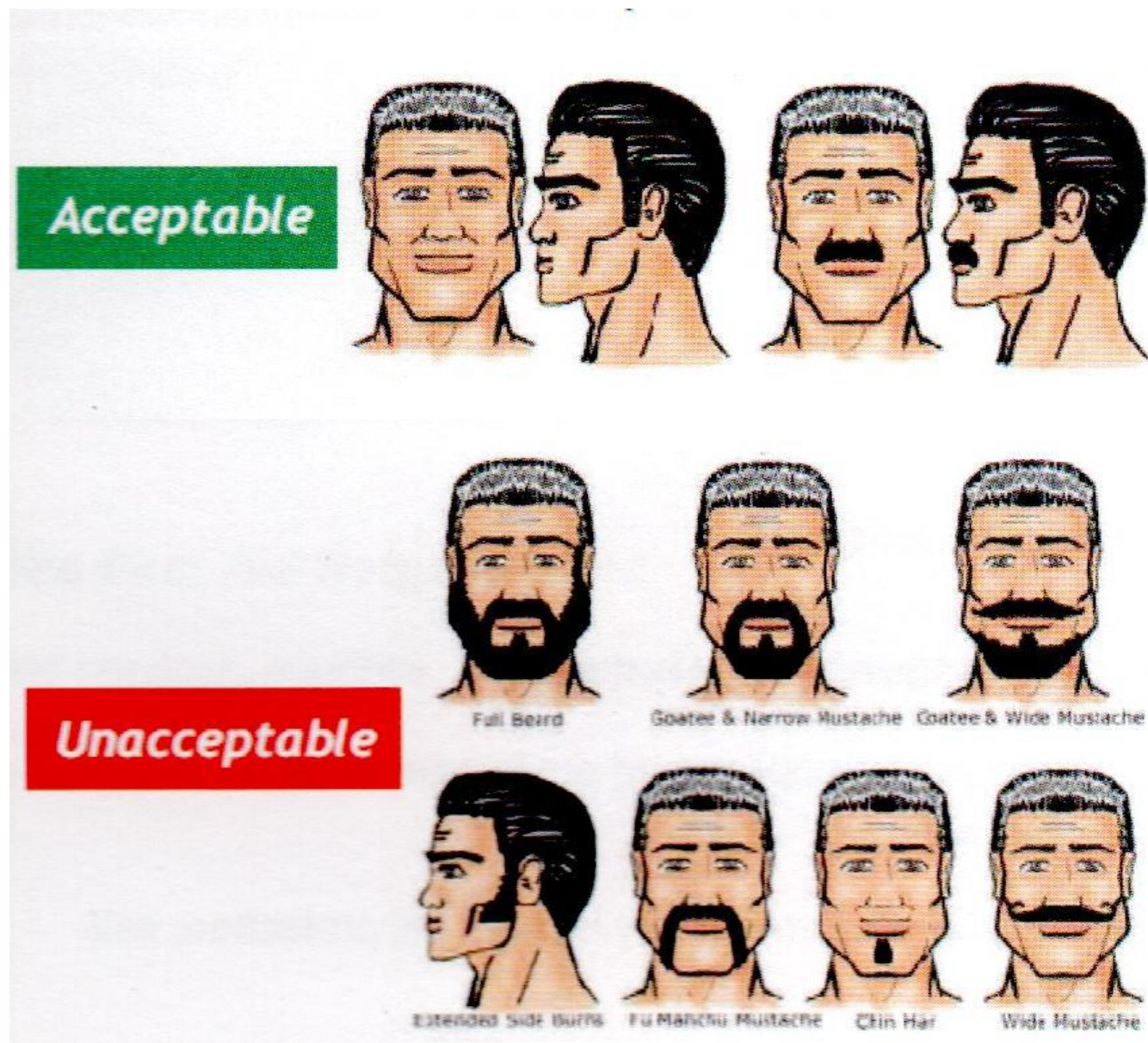
DO NOT PANIC!!!

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.

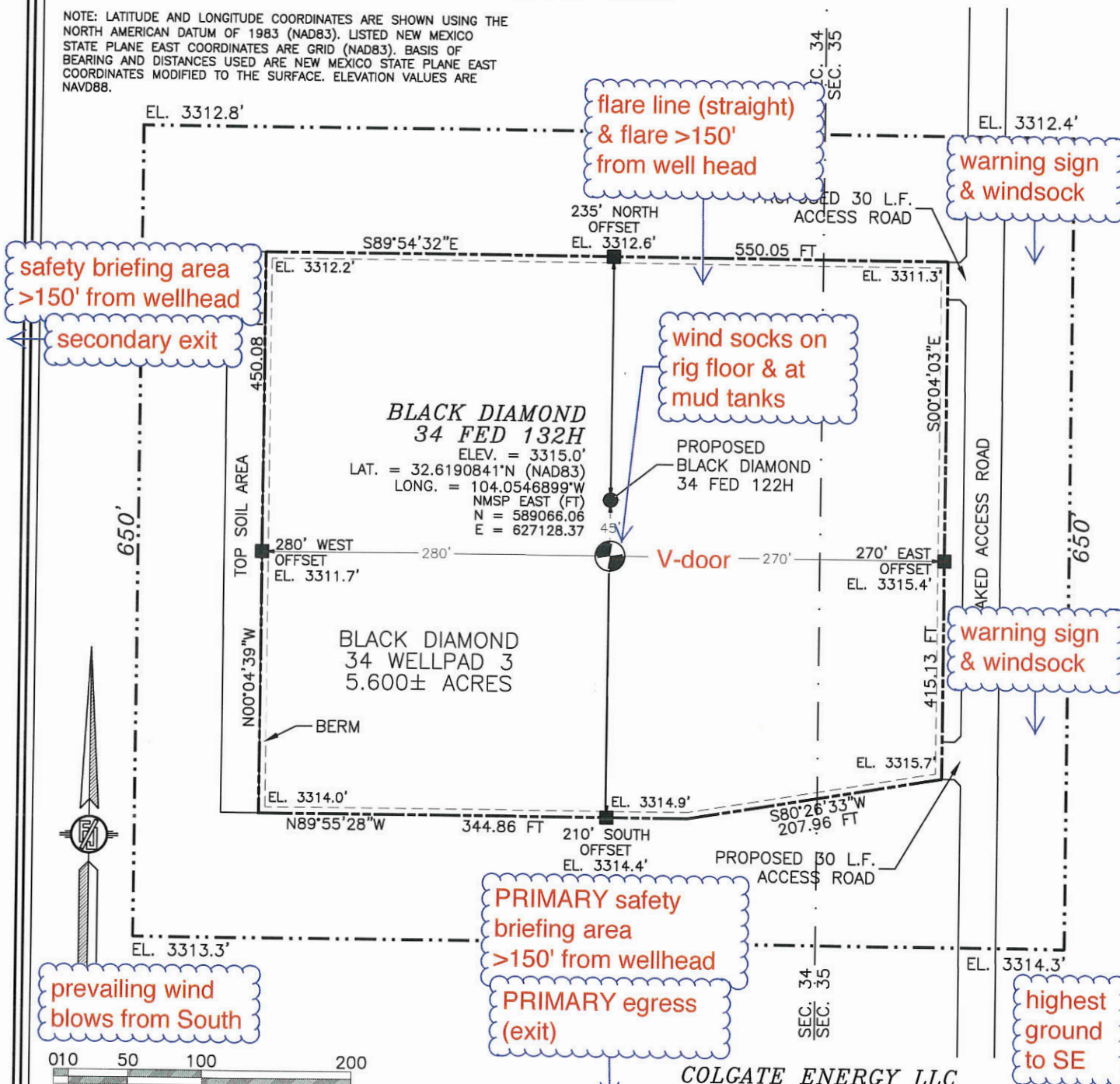
Facial Hair – Clean Shaven Examples

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 E. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR, CERTIFY THAT THE DIRECTION AND BEARING OF THIS SURVEY, THAT I HAVE MADE, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT I HAVE COMPLIED WITH THE STANDARDS FOR THIS SURVEY.

FILMON E. JARAMILLO, REGISTERED PROFESSIONAL SURVEYOR

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

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

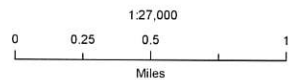
CARLSBAD, NEW MEXICO

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



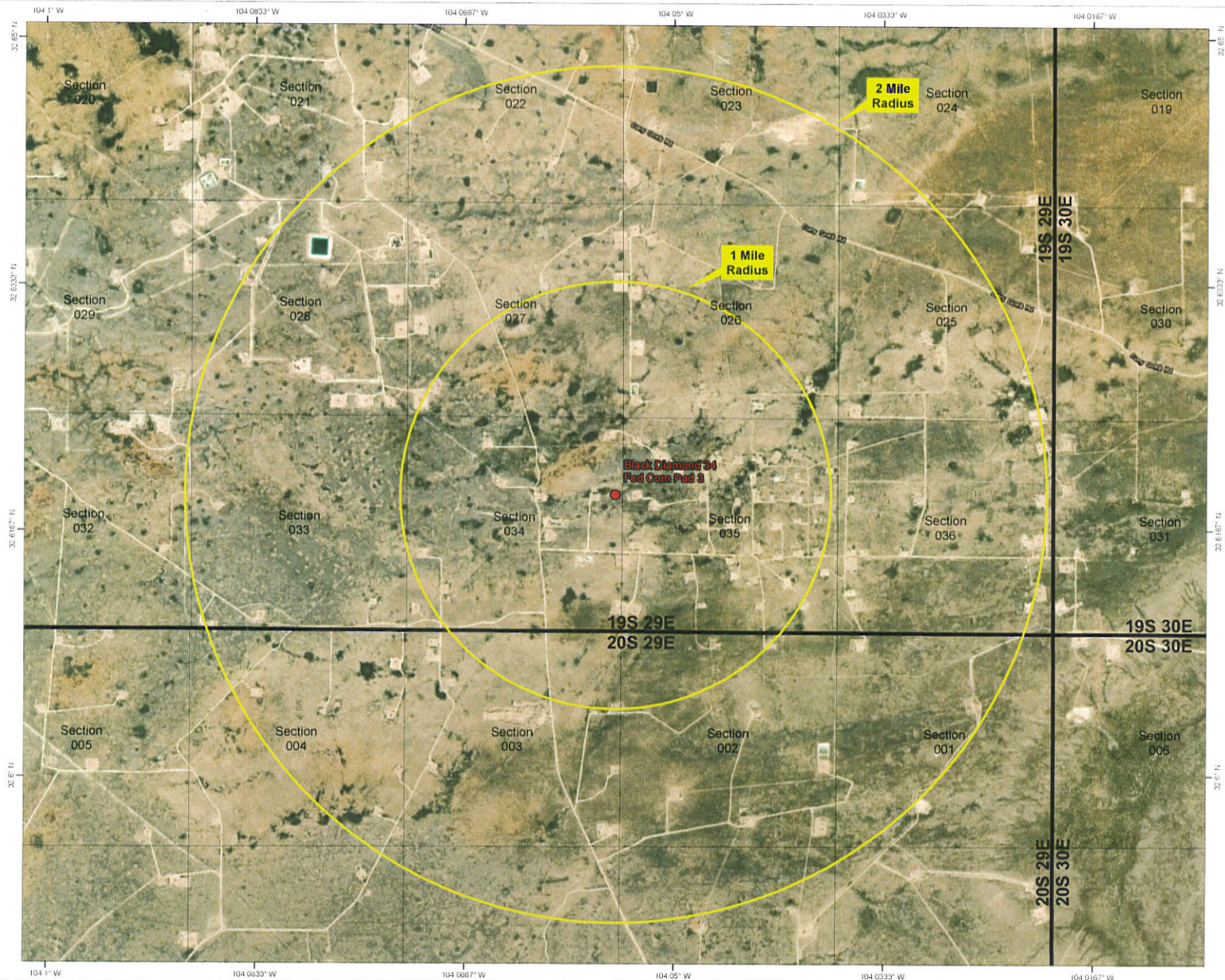
NAD 1983 New Mexico State Plane East
FIPS 3001 Feet



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: 131H**Section 7 - Methods for Handling****Waste type:** DRILLING**Waste content description:** Drill cuttings, mud, salts, and other chemicals**Amount of waste:** 550 barrels**Waste disposal frequency :** Daily**Safe containment description:** Steel mud tanks**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** Mud tanks will be hauled to R360s state approved (NM-01-0006) disposal site at Halfway, NM.**Waste type:** SEWAGE**Waste content description:** Portable, self-contained toilets will be provided for human waste disposal.**Amount of waste:** 5 barrels**Waste disposal frequency :** Daily**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:** 10**Waste disposal frequency :** Daily**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: 131H**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.**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_20240716091337.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 388616

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID:
	371449
	Action Number:
	388616
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 on 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