



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

Application for Permit to Drill

APD Package Report

Date Printed: 09/26/2023 08:54 AM

APD ID: 10400085978

Well Status: AAPD

APD Received Date: 06/09/2022 08:06 AM

Well Name: KOALA 9 FED COM

Operator: COLGATE OPERATING LLC

Well Number: 112H

APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
 - Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
 - Blowout Prevention Choke Diagram Attachment: 1 file(s)
 - Blowout Prevention BOP Diagram Attachment: 1 file(s)
 - Casing Spec Documents: 2 file(s)
 - Casing Design Assumptions and Worksheet(s): 4 file(s)
 - Hydrogen sulfide drilling operations plan: 1 file(s)
 - Proposed horizontal/directional/multi-lateral plan submission: 2 file(s)
 - Other Facets: 1 file(s)
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- SUPO Report
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 - Water source and transportation map: 1 file(s)
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 - Well Site Layout Diagram: 1 file(s)
 - Recontouring attachment: 1 file(s)
 - Other SUPO Attachment: 2 file(s)
- PWD Report
- PWD Attachments

-- None

- Bond Report

- Bond Attachments

-- None

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

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

1a. Type of work: ☒ DRILL ☐ REENTER 1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other 1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		5. Lease Serial No. NMNM137444 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. KOALA 9 FED COM 112H 9. API Well No. 30-015-54264
2. Name of Operator COLGATE OPERATING LLC 3a. Address 300 N MARIENFELD STREET SUITE 1000, MIDLAND, TX 3b. Phone No. (include area code) (432) 695-4272		10. Field and Pool, or Exploratory OLD MILLMAN RANCH;BS (ASSOC) [48 11. Sec., T. R. M. or Blk. and Survey or Area SEC 8/T20S/R28E/NMP
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NENE / 797 FNL / 332 FEL / LAT 32.5931788 / LONG -104.1920783 At proposed prod. zone SENE / 2310 FNL / 10 FEL / LAT 32.5891905 / LONG -104.1565536		12. County or Parish EDDY 13. State NM
14. Distance in miles and direction from nearest town or post office* 12 miles	15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 332 feet	16. No of acres in lease 17. Spacing Unit dedicated to this well 320.0
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1528 feet	19. Proposed Depth 6214 feet / 17164 feet	20. BLM/BIA Bond No. in file FED: NMB001382
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3288 feet	22. Approximate date work will start* 09/30/2022	23. Estimated duration 90 days
24. Attachments		

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

- | | |
|---|---|
| 1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature (Electronic Submission) Title Regulatory Manager	Name (Printed/Typed) MIKAH THOMAS / Ph: (432) 695-4224	Date 06/09/2022
Approved by (Signature) (Electronic Submission) Title Assistant Field Manager Lands & Minerals	Name (Printed/Typed) CODY LAYTON / Ph: (575) 234-5959 Office Carlsbad Field Office	Date 09/15/2023

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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

(Continued on page 2)

*(Instructions on page 2)



Approval Date: 09/15/2023

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 / 797 FNL / 332 FEL / TWSP: 20S / RANGE: 28E / SECTION: 8 / LAT: 32.5931788 / LONG: -104.1920783 (TVD: 0 feet, MD: 0 feet)

PPP: SWNW / 2310 FNL / 100 FWL / TWSP: 20S / RANGE: 28E / SECTION: 9 / LAT: 32.5890338 / LONG: -104.1907488 (TVD: 6199 feet, MD: 6631 feet)

PPP: SWNW / 2310 FNL / 0 FEL / TWSP: 20S / RANGE: 28E / SECTION: 10 / LAT: 32.5891063 / LONG: -104.1737778 (TVD: 6214 feet, MD: 11859 feet)

PPP: SWNE / 2310 FNL / 0 FEL / TWSP: 20S / RANGE: 28E / SECTION: 9 / LAT: 32.5890631 / LONG: -104.1824311 (TVD: 6214 feet, MD: 9194 feet)

BHL: SENE / 2310 FNL / 10 FEL / TWSP: 20S / RANGE: 28E / SECTION: 10 / LAT: 32.5891905 / LONG: -104.1565536 (TVD: 6214 feet, MD: 17164 feet)

BLM Point of Contact

Name: GAVIN MICKWEE

Title: Land Law Examiner

Phone: (575) 234-5972

Email: gmickwee@blm.gov

CONFIDENTIAL

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.

CONFIDENTIAL

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Centennial
LEASE NO.:	NMNM137444
LOCATION:	Section 8, T.20 S, R.28E., NMPM
COUNTY:	Eddy County, New Mexico
WELL NAME & NO.:	Koala 9 Fed Com 112H
SURFACE HOLE FOOTAGE:	797'/N & 332'/E
BOTTOM HOLE FOOTAGE:	2310'/N & 10'/E

COA

H₂S	☒ Yes	☐ No		
Potash / WIPP	☒ None	☐ Secretary	☐ R-111-P	☐ WIPP
Cave / Karst	☐ Low	☐ Medium	☒ High	☐ Critical
Wellhead	☐ Conventional	☒ Multibowl	☐ Both	☐ Diverter
Cementing	☐ Primary Squeeze	☐ Cont. Squeeze	☐ EchoMeter	☐ DV Tool
Special Req	☐ Break Testing	☐ Water Disposal	☒ COM	☐ Unit
Variance	☒ Flex Hose	☐ Casing Clearance	☐ Pilot Hole	☒ Capitan Reef
Variance	☒ Four-String	☒ Offline Cementing	☐ Fluid-Filled	☐ Open Annulus
☐ Batch APD / Sundry				

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** 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 13-3/8 inch surface casing shall be set at approximately **340** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, and Capitan Reef.

 - ❖ 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.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:
(Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the Capitan interval)
 - Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
 - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into the previous casing, whichever is greater. If cement does not circulate see B.1.a, c-d above. **Excess calculates to 2%. Additional cement maybe required.**

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the casing shoe shall be **5000 (5M)** psi. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - a. 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.
 - b. Manufacturer representative shall install the test plug for the initial BOP test.
 - c. 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.
 - d. 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.

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)

☒ Eddy County

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

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - 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.
 - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 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. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

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, 2) until cement has been in place at least 24 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-P 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 part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.
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:
 - 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. Whenever any seal subject to test pressure is broken, all the tests in **43 CFR part 3170 Subpart 3172** must be followed.
 - e. 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.
 - a. 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).

- b. 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.)
- c. 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 part 3170 Subpart 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 water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. 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.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. 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.
- g. 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.
- h. 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 part 3170 Subpart 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.

ZS 9/9/2023



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

Operator Certification Data Report

09/26/2023

Operator

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

NAME: MIKAH THOMAS

Signed on: 08/10/2023

Title: Regulatory Manager

Street Address: 1400 WOODLOCH FOREST DR SUITE 300

City: THE WOODLANDS

State: TX

Zip: 77380

Phone: (432)661-7106

Email address: MTHOMAS@EARTHSTONEENERGY.COM

Field

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



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

Application Data

09/26/2023

APD ID: 10400085978

Submission Date: 06/09/2022

Operator Name: COLGATE OPERATING LLC

Well Name: KOALA 9 FED COM

Well Number: 112H

Well Type: OIL WELL

Well Work Type: Drill

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

Section 1 - General

APD ID: 10400085978

Tie to previous NOS?

Submission Date: 06/09/2022

BLM Office: Carlsbad

User: MIKAH THOMAS

Title: Regulatory Manager

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM137444

Lease Acres:

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? NO

APD Operator: COLGATE OPERATING LLC

Operator letter of

Operator Info

Operator Organization Name: COLGATE OPERATING LLC

Operator Address: 300 N MARIENFELD STREET SUITE 1000

Zip: 79701

Operator PO Box:

Operator City: MIDLAND

State: TX

Operator Phone: (432)695-4272

Operator Internet Address: MTHOMAS@COLGATEENERGY.COM

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: KOALA 9 FED COM

Well Number: 112H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: OLD MILLMAN
RANCH;BS (ASSOC) [48035]

Pool Name: BONE SPRING

Operator Name: COLGATE OPERATING LLC**Well Name:** KOALA 9 FED COM**Well Number:** 112H**Is the proposed well in an area containing other mineral resources?** NATURAL GAS,OIL**Is the proposed well in a Helium production area?** N**Use Existing Well Pad?** N**New surface disturbance?****Type of Well Pad:** MULTIPLE WELL**Multiple Well Pad Name:**
KOALA 9 FED COM NORTH**Number:** 2**Well Class:** HORIZONTAL**Number of Legs:** 1**Well Work Type:** Drill**Well Type:** OIL WELL**Describe Well Type:****Well sub-Type:** INFILL**Describe sub-type:****Distance to town:** 12 Miles**Distance to nearest well:** 1528 FT**Distance to lease line:** 332 FT**Reservoir well spacing assigned acres Measurement:** 320 Acres**Well plat:** KOALA_9_FED_COM_112H_C102_REV_1_SIGNED_20230810105829.pdf**Well work start Date:** 09/30/2022**Duration:** 90 DAYS**Section 3 - Well Location Table****Survey Type:** RECTANGULAR**Describe Survey Type:****Datum:** NAD83**Vertical Datum:** NAVD88**Survey number:** 12177**Reference Datum:** KELLY BUSHING

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
SHL Leg #1	797	FNL	332	FEL	20S	28E	8	Aliquot NENE	32.5931788	- 104.1920783	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 83584	3288	0	0	N
KOP Leg #1	2139	FNL	302	FEL	20S	28E	8	Aliquot SENE	32.5894894	- 104.192182	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 26683	- 2374	5859	5662	N
PPP Leg #1-1	2310	FNL	100	FWL	20S	28E	9	Aliquot SWNW	32.5890338	- 104.1907488	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 137444	- 2911	6631	6199	Y

Operator Name: COLGATE OPERATING LLC

Well Name: KOALA 9 FED COM

Well Number: 112H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
PPP Leg #1-2	2310	FNL	0	FEL	20S	28E	9	Aliquot SWNE	32.5890631	- 104.1824311	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 13232	- 2926	9194	6214	Y
PPP Leg #1-3	2310	FNL	0	FEL	20S	28E	10	Aliquot SWNW	32.5891063	- 104.1737778	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 15003	- 2926	11859	6214	Y
EXIT Leg #1	2310	FNL	100	FEL	20S	28E	10	Aliquot SENE	32.5891891	- 104.1568458	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 15003	- 2926	17074	6214	Y
BHL Leg #1	2310	FNL	10	FEL	20S	28E	10	Aliquot SENE	32.5891905	- 104.1565536	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 15003	- 2926	17164	6214	Y

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-54264		2 Pool Code [48035]		3 Pool Name OLD MILLMAN RANCH;BS (ASSOC)	
4 Property Code 334680		5 Property Name KOALA 9 FED COM			6 Well Number 112H
7 OGRID No. 371449		8 Operator Name COLGATE ENERGY LLC			9 Elevation 3288'

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	8	20-S	28-E		797'	NORTH	332'	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
H	10	20-S	28-E		2310'	NORTH	10'	EAST	EDDY

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
320.00			

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.

16 CORNER DATA NEW MEXICO EAST - NAD 83 A - FOUND IRON PIPE W/ BRASS CAP N:580356.62' E:585185.65' B - FOUND 1" IRON PIPE N:580373.68' E:587849.16' C - FOUND 1" IRON PIPE N:580391.30' E:590513.47' D - FOUND 1" IRON PIPE N:580412.62' E:593168.80' E - FOUND 1" IRON PIPE N:580433.88' E:595824.69' F - FOUND IRON PIPE W/ BRASS CAP N:577783.78' E:595789.28' G - FOUND IRON PIPE W/ BRASS CAP N:575134.28' E:595753.43' H - FOUND IRON PIPE W/ BRASS CAP N:575115.45' E:593094.38' I - FOUND 2" IRON PIPE N:575097.10' E:590435.59' J - FOUND 1 1/4" IRON PIPE N:575080.69' E:587767.05' K - FOUND IRON PIPE W/ BRASS CAP N:575063.99' E:585099.23' L - FOUND IRON PIPE W/ BRASS CAP N:577711.68' E:585143.38' M - FOUND 1" IRON PIPE N:577744.14' E:590473.87' SURFACE HOLE LOCATION (SHL) NEW MEXICO EAST - NAD 83 X=584840.64 LAT.= 32.59317886° N Y=579558.08 LONG.= 104.19207833° W NEW MEXICO EAST - NAD 27 X=543660.50 LAT.= 32.59306171° N Y=579496.60 LONG.= 104.19157063° W 797' FNL, 332' FEL - SECTION 8 FIRST TAKE POINT (FTP) NEW MEXICO EAST - NAD 83 X=585248.75 LAT.= 32.58902375° N Y=578046.98 LONG.= 104.19075976° W NEW MEXICO EAST - NAD 27 X=544068.59 LAT.= 32.58890654° N Y=577985.53 LONG.= 104.19025221° W 2310' FNL, 100' FWL - SECTION 9 LAST TAKE POINT (LTP) NEW MEXICO EAST - NAD 83 X=595693.80 LAT.= 32.58918899° N Y=578122.76 LONG.= 104.15684588° W NEW MEXICO EAST - NAD 27 X=554513.61 LAT.= 32.58907142° N Y=578061.23 LONG.= 104.15633920° W 2310' FNL, 100' FEL - SECTION 10 BOTTOM HOLE LOCATION (BHL) NEW MEXICO EAST - NAD 83 X=595783.82 LAT.= 32.58919056° N Y=578123.48 LONG.= 104.15655360° W NEW MEXICO EAST - NAD 27 X=554603.63 LAT.= 32.58907299° N Y=578061.95 LONG.= 104.15604693° W 2310' FNL, 10' FEL - SECTION 10	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. <i>Ashley Brown</i> 08/10/2023 Signature Date Ashley Brown Printed Name ashley.brown@permianres.com E-mail Address 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. MARK J. MURRAY NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 12177 Date of Survey Signature and Seal of Professional Surveyor 5/5/2022 Certificate Number
--	--



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

Drilling Plan Data Report

09/26/2023

APD ID: 10400085978

Submission Date: 06/09/2022

Highlighted data
reflects the most
recent changes

Operator Name: COLGATE OPERATING LLC

Well Name: KOALA 9 FED COM

Well Number: 112H

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
12133313	RUSTLER	3288	241	241	ANHYDRITE, LIMESTONE, SALT	NONE	N
12133314	TOP SALT	2906	382	382	ANHYDRITE, SALT	NONE	N
12133315	TANSILL	2520	768	768	ANHYDRITE, DOLOMITE	NONE	N
12133318	YATES	2445	843	843	DOLOMITE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133316	SEVEN RIVERS	2070	1218	1218	ANHYDRITE, DOLOMITE, SANDSTONE, SHALE	NONE	N
12133317	QUEEN	1479	1809	1809	ANHYDRITE, DOLOMITE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133319	GRAYBURG	1270	2018	2018	ANHYDRITE, DOLOMITE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133320	SAN ANDRES	870	2418	2418	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	N
12133321	CHERRY CANYON	295	2993	2993	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133309	BRUSHY CANYON	70	3218	3218	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133322	BONE SPRING LIME	-1280	4568	4568	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133323	BONE SPRING 1ST	-2830	6118	6118	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	Y
12133310	BONE SPRING 2ND	-3905	7193	7193	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133311	BONE SPRING 3RD	-4980	8268	8268	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N
12133312	WOLFCAMP	-5405	8693	8693	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Operator Name: COLGATE OPERATING LLC**Well Name:** KOALA 9 FED COM**Well Number:** 112H**Pressure Rating (PSI):** 5M**Rating Depth:** 6314

Equipment: 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 the components installed will be functional and tested. All BOPE connections shall be flanged, welded or clamped. All choke lines shall be straight unless targeted with running tees or tee blocks are used, and choke lines shall be anchored to prevent whip and reduce vibrations. All valves in the choke line & the choke manifold shall be full opening as to not cause restrictions and to allow for straight fluid paths to minimize potential erosion. All gauges utilized in the well control system shall be of a type designed for drilling fluid service. A top drive inside BOP valve will be utilized at all times. Subs equipped with full opening valves sized to fit the drill pipe and collars will be available on the rig floor in the open position. The key to operate said valve equipped subs will be on the rig floor at all times. The accumulator system will have sufficient capacity to open the HCR and close all three sets of rams plus the annular preventer while retaining at least 300 psi above precharge on the closing manifold (accumulator system shall be capable of doing so without using the closing unit pumps). The fluid reservoir capacity will be double the usable fluid volume of the accumulator system capacity, and the fluid level will be maintained at the manufacturer's recommended level. Prior to connecting the closing unit to the BOP stack, an accumulator precharge pressure test shall be performed to ensure the precharge pressure is within 100 psi of the desired precharge pressure (only nitrogen gas will be used to precharge). Two independent power sources will be made available at all times to power the closing unit pumps so that the pumps can automatically start when the closing valve manifold pressure has decreased to the preset level. Closing unit pumps will be sized to allow opening of HCR and closing of annular preventer on 5" drill pipe achieving at least 200 psi above precharge pressure with the accumulator system isolated from service in less than two minutes. A valve shall be installed in the closing line as close to the annular preventer as possible to act as a locking device; the valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative. Remote controls capable of opening and closing all preventers & the HCR shall be readily accessible to the driller; master controls with the same capability will be operable at the accumulator. The wellhead will be a multibowl speed head allowing for hangoff of intermediate casing & isolation of the 133/8 x 95/8 annulus without breaking the connection between the BOP & wellhead to install an additional casing head. A wear bushing will be installed & inspected frequently to guard against internal wear to wellhead. VBRs (variablebore rams) will be run in upper rambody of BOP stack to provide redundancy to annular preventer while RIH w/ production casing;

Requesting Variance? YES**Variance request:** Flex hose and offline cement variances, see attachments in section 8.

Testing Procedure: 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 30-day intervals e. checked daily as to mechanical operating conditions. The ram type preventer(s) will be tested using a test plug to 250 psi (low) and 5,000 psi (high) (casinghead WP) with a test plug upon its installation onto the 13 surface casing. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing. The annular type preventer(s) shall be tested to 3500 psi. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer. A Sundry Notice (Form 3160 5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test. If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure. The BLM office will be provided with a minimum of four (4) hours notice of BOP testing to allow witnessing. The BOP Configuration, choke manifold layout, and accumulator system, will be in compliance with Onshore Order 2 for a 5,000 psi system. A remote accumulator and a multi-bowl system will be used, please see attachment in section 8 for multi-bowl procedure. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM 'witnessed OP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.

Choke Diagram Attachment:

Choke_Diagram_Attachment_20230717101704.pdf

BOP Diagram Attachment:

BOP_Diagram_Attachment_20230717101708.pdf

Operator Name: COLGATE OPERATING LLC**Well Name:** KOALA 9 FED COM**Well Number:** 112H

Choke_Diagram_Attachment_20230717101704.pdf

BOP_Diagram_Attachment_20230717101708.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	770	0	770	3288	2518	770	J-55	54.5	OTHER - BTC	2.82	3.01	DRY	6.4	DRY	6.01
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	2943	0	2943	3274	345	2943	J-55	36	OTHER - BTC	3.68	1.84	DRY	3.1	DRY	2.74
3	PRODUCTION	8.75	5.5	NEW	NON API	N	0	6764	0	6214	3288	-2926	6764	P-110	17	OTHER - GEOCONN	2.31	2.42	DRY	2.66	DRY	2.66
4	PRODUCTION	7.875	5.5	NEW	NON API	N	6764	17163	6214	6214	-2926	-2926	10399	P-110	17	OTHER - GEOCONN	2.31	2.42	DRY	2.66	DRY	2.66

Casing Attachments**Casing ID:** 1 **String** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing_Assumptions_Worksheet_20230717102048.pdf

Operator Name: COLGATE OPERATING LLC**Well Name:** KOALA 9 FED COM**Well Number:** 112H**Casing Attachments****Casing ID:** 2 **String** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing_Assumptions_Worksheet_20230717102232.pdf

Casing ID: 3 **String** PRODUCTION**Inspection Document:****Spec Document:**

Connection_Data_Sheet_P110RY_GeoConn_SC_20230717103647.pdf

Tapered String Spec:**Casing Design Assumptions and Worksheet(s):**

Casing_Assumptions_Worksheet_20230717103705.pdf

Casing ID: 4 **String** PRODUCTION**Inspection Document:****Spec Document:**

Connection_Data_Sheet_P110RY_GeoConn_SC_20230717103809.pdf

Tapered String Spec:**Casing Design Assumptions and Worksheet(s):**

Casing_Assumptions_Worksheet_20230717103825.pdf

Section 4 - Cement

Operator Name: COLGATE OPERATING LLC

Well Name: KOALA 9 FED COM

Well Number: 112H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	570	430	1.88	12.9	800	100	Class C	EconoCem-HLC + 5% Salt + 5% Kol-Seal
SURFACE	Tail		570	770	160	1.34	14.8	210	50	Class C	Accelerator
INTERMEDIATE	Lead		0	2350	500	2.08	12.7	1030	50	Class C	Salt, Extender & LCM Additives
INTERMEDIATE	Tail		2350	2943	210	1.34	14.8	280	50	Class C	Accelerator
PRODUCTION	Lead		2443	5859	490	2.41	11.5	1170	40	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
PRODUCTION	Tail		5859	17163	1470	1.73	12.5	2540	25	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
PRODUCTION	Lead		2443	5859	490	2.41	11.5	1170	40	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
PRODUCTION	Tail		5859	17163	1470	1.73	12.5	2540	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

Operator Name: COLGATE OPERATING LLC**Well Name:** KOALA 9 FED COM**Well Number:** 112H

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	770	WATER-BASED MUD	8.6	10							
770	2943	WATER-BASED MUD	9	10							
2943	6764	WATER-BASED MUD	9	10							
6764	17163	OIL-BASED MUD	9	10							

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:

DIRECTIONAL SURVEY,GAMMA RAY LOG,

Coring operation description for the well:

N/A.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 3240

Anticipated Surface Pressure: 1872

Anticipated Bottom Hole Temperature(F): 121

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

Colgate_H2S_Contingency_Plan_20220602142028.pdf

Operator Name: COLGATE OPERATING LLC**Well Name:** KOALA 9 FED COM**Well Number:** 112H

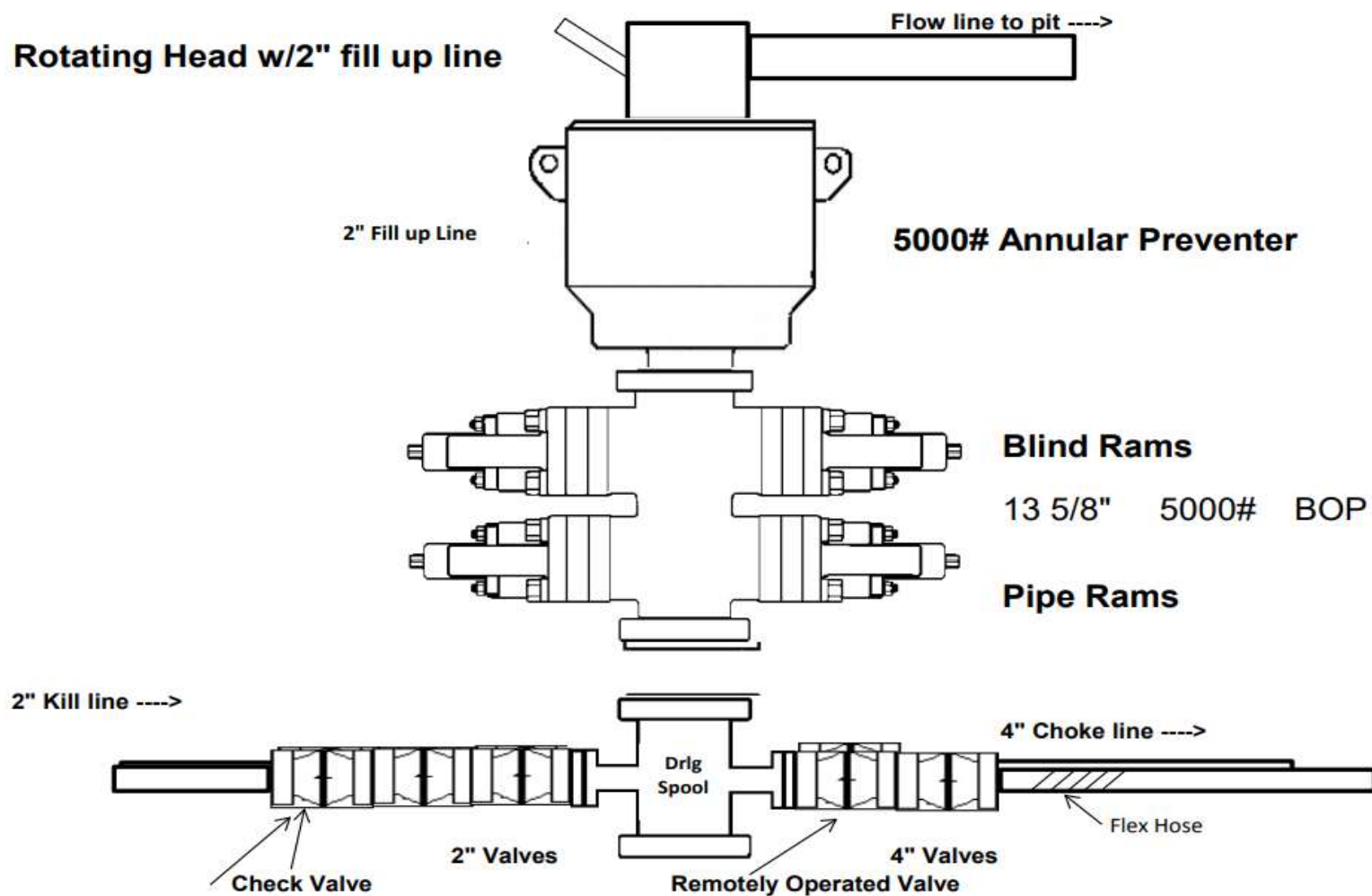
Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:[_A08__Koala_9_Fed_Com_112H_APD_Rev00_20230717104710.pdf](#)[_A08__Koala_9_Fed_Com_112H_APD_Rev00_AC_20230717104714.pdf](#)**Other proposed operations facets description:**

Please see attached revised Drilling Plan, including multi-bowl diagram and procedure, proposed WBD, and casing connection data sheet. We also plan to batch drill this well along with offline cementing, see details under variance request below. Permian Resources Operating, LLC requests to use a flex hose on H&P choke manifold for this well. The Flex Hose specifications are attached below.

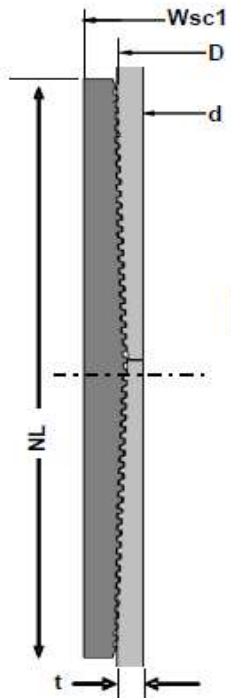
Other proposed operations facets attachment:[Koala_9_Fed_Com_112H_drilling_packet_V2_20230810110949.pdf](#)**Other Variance attachment:**[Flex_Hose_Data_Sheet_20230717105031.pdf](#)[Multi_well_Pad_Batch_Drilling___Offline_Cement_Procedure_20230717105038.pdf](#)

5,000 psi BOP Schematic



Metal One Corp. 	GEOCONN-SC Pipe: SeAH P110RY 95%PBW (SMYS110ksi) *1 Coupling: P110RY (SMYS110ksi) Connection Data Sheet	Page Date Rev.	MAI GC 5.5 17 SeAH P110RY 95%RBW+SC-Cplg6.050 P110RY 3-Feb-21 0
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GEOCONN-SC



Geometry		Imperial		S.I.	
Pipe Body					
Grade *1	P110RY	-	P110RY	-	
SMYS	110	ksi	110	ksi	
Pipe OD (D)	5.500	in	139.70	mm	
Weight	17.00	lb/ft	25.33	kg/m	
Wall Thickness (t)	0.304	in	7.72	mm	
Pipe ID (d)	4.892	in	124.26	mm	
Drift Dia.	4.767	in	121.08	mm	
Connection					
Coupling SMYS	110	ksi	110	ksi	
SC-Coupling OD (Wsc1)	6.050	in	153.67	mm	
Coupling Length (NL)	8.350	in	212.09	mm	
Make up Loss	4.125	in	104.78	mm	
Pipe Critical Area	4.96	in ²	3,202	mm ²	
Box Critical Area	6.10	in ²	3,937	mm ²	
Thread Taper	1 / 16 (3/4" per ft)				
Number of Threads	5 TPI				

Performance		Imperial		S.I.	
Performance Properties for Pipe Body					
S.M.Y.S. *1	546	kips	2,428	kN	
M.I.Y.P. *1	11,550	psi	79.66	MPa	
Collapse Strength *1	7,480	psi	51.59	MPa	
Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body *1: SeAH P110RY 95%RBW: SMYS110ksi, MIYP11,550psi					
Performance Properties for Connection					
Min. Connection Joint Strength	100%		of S.M.Y.S.		
Min. Compression Yield	100%		of S.M.Y.S.		
Internal Pressure	100%		of M.I.Y.P.		
External Pressure	100%		of Collapse Strength		
Max. DLS (deg. /100ft)	>90				

Recommended Torque				
Min.	10,800	ft-lb	14,600	N-m
Opti.	12,000	ft-lb	16,200	N-m
Max.	13,200	ft-lb	17,800	N-m
Operational Max.	15,600	ft-lb	21,100	N-m

Note : Operational Max. torque can be applied for high torque application

Legal Notice

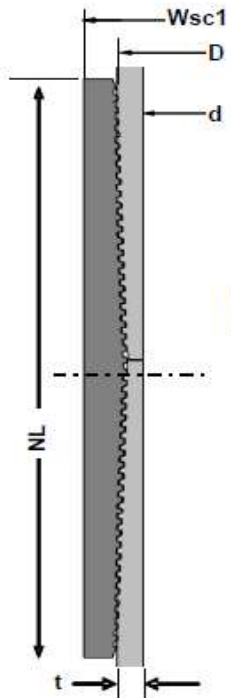
The use of this information is at the reader/user's risk and no warranty is implied or expressed by Metal One Corporation or its parents, subsidiaries or affiliates (herein collectively referred to as "Metal One") with respect to the use of information contained herein. The information provided on this Connection Data Sheet is for informational purposes only, and was prepared by reference to engineering information that is specific to the subject products, without regard to safety-related factors, all of which are the sole responsibility of the operators and users of the subject connectors. Metal One assumes no responsibility for any errors with respect to this information.

Statements regarding the suitability of products for certain types of applications are based on Metal One's knowledge of typical requirements that are often placed on Metal One products in standard well configurations. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.

The products described in this Connection Data Sheet are not recommended for use in deep water offshore applications. For more information, please refer to http://www.mto.co.jp/mto-con/ Images/top/WebsiteTerms_Active_20333287_1.pdf the contents of which are incorporated by reference into this Connection Data Sheet.

Metal One Corp. 	GEOCONN-SC Pipe: SeAH P110RY 95%PBW (SMYS110ksi) *1 Coupling: P110RY (SMYS110ksi) Connection Data Sheet	Page Date Rev.	MAI GC 5.5 17 SeAH P110RY 95%RBW+SC-Cplg6.050 P110RY 3-Feb-21 0
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GEOCONN-SC



Geometry		Imperial		S.I.	
Pipe Body					
Grade *1	P110RY	-	P110RY	-	
SMYS	110	ksi	110	ksi	
Pipe OD (D)	5.500	in	139.70	mm	
Weight	17.00	lb/ft	25.33	kg/m	
Wall Thickness (t)	0.304	in	7.72	mm	
Pipe ID (d)	4.892	in	124.26	mm	
Drift Dia.	4.767	in	121.08	mm	
Connection					
Coupling SMYS	110	ksi	110	ksi	
SC-Coupling OD (Wsc1)	6.050	in	153.67	mm	
Coupling Length (NL)	8.350	in	212.09	mm	
Make up Loss	4.125	in	104.78	mm	
Pipe Critical Area	4.96	in ²	3,202	mm ²	
Box Critical Area	6.10	in ²	3,937	mm ²	
Thread Taper	1 / 16 (3/4" per ft)				
Number of Threads	5 TPI				

Performance		Imperial		S.I.	
Performance Properties for Pipe Body					
S.M.Y.S. *1	546	kips	2,428	kN	
M.I.Y.P. *1	11,550	psi	79.66	MPa	
Collapse Strength *1	7,480	psi	51.59	MPa	
Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body *1: SeAH P110RY 95%RBW: SMYS110ksi, MIYP11,550psi					
Performance Properties for Connection					
Min. Connection Joint Strength	100%		of S.M.Y.S.		
Min. Compression Yield	100%		of S.M.Y.S.		
Internal Pressure	100%		of M.I.Y.P.		
External Pressure	100%		of Collapse Strength		
Max. DLS (deg. /100ft)	>90				
Recommended Torque					
Min.	10,800	ft-lb	14,600	N-m	
Opti.	12,000	ft-lb	16,200	N-m	
Max.	13,200	ft-lb	17,800	N-m	
Operational Max.	15,600	ft-lb	21,100	N-m	
Note : Operational Max. torque can be applied for high torque application					

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Permian Resources Casing Design Criteria

A sundry will be requested if any lesser grade or different size casing is substituted. All casing will be centralized as specified in On Shore Order II. Casing will be tested as specified in On Shore Order II.

Casing Design Assumptions:

Surface

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate I

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.

- (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate or Intermediate II

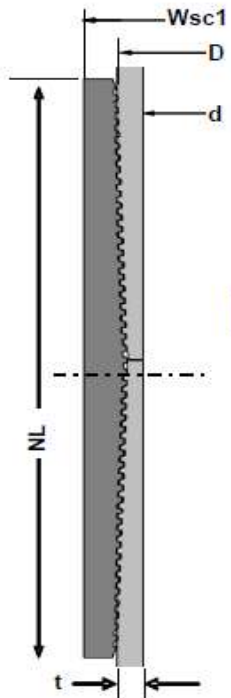
- 1) Burst Design Loads
 - a) Gas Kick Profile
 - (1) Internal: Load profile based on influx encountered in lateral portion of wellbore with a maximum influx volume of 150 bbl and a kick intensity of 1.5 ppg using maximum anticipated MW of 9.9 ppg.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the deepest TVD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Production

- 1) Burst Design Loads
 - a) Injection Down Casing
 - (1) Internal: Surface pressure plus injection fluid gradient.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test (Drilling)
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - c) Casing Pressure Test (Production)
 - (1) Internal: The design pressure test should be the greater of the planned test pressure prior to simulation down the casing, the regulatory test pressure, and the expected gas lift system pressure. The design test fluid should be the fluid associated with the pressure test having the greatest pressure.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - d) Tubing Leak
 - (1) Internal: SITP plus a packer fluid gradient to the top of packer.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
 - b) Full Evacuation
 - (1) Internal: Full void pipe.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Metal One Corp. 	GEOCONN-SC Pipe: SeAH P110RY 95%PBW (SMYS110ksi) *1 Coupling: P110RY (SMYS110ksi) Connection Data Sheet	Page Date Rev.	MAI GC 5.5 17 SeAH P110RY 95%RBW+SC-Cplg6.050 P110RY 3-Feb-21 0
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GEOCONN-SC



Geometry	Imperial		S.I.	
Pipe Body				
Grade *1	P110RY	-	P110RY	-
SMYS	110	ksi	110	ksi
Pipe OD (D)	5.500	in	139.70	mm
Weight	17.00	lb/ft	25.33	kg/m
Wall Thickness (t)	0.304	in	7.72	mm
Pipe ID (d)	4.892	in	124.26	mm
Drift Dia.	4.767	in	121.08	mm
Connection				
Coupling SMYS	110	ksi	110	ksi
SC-Coupling OD (Wsc1)	6.050	in	153.67	mm
Coupling Length (NL)	8.350	in	212.09	mm
Make up Loss	4.125	in	104.78	mm
Pipe Critical Area	4.96	in ²	3,202	mm ²
Box Critical Area	6.10	in ²	3,937	mm ²
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			

Performance	Imperial		S.I.	
Performance Properties for Pipe Body				
S.M.Y.S. *1	546	kips	2,428	kN
M.I.Y.P. *1	11,550	psi	79.66	MPa
Collapse Strength *1	7,480	psi	51.59	MPa
Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body *1: SeAH P110RY 95%RBW: SMYS110ksi, MIYP11,550psi				
Performance Properties for Connection				
Min. Connection Joint Strength	100%		of S.M.Y.S.	
Min. Compression Yield	100%		of S.M.Y.S.	
Internal Pressure	100%		of M.I.Y.P.	
External Pressure	100%		of Collapse Strength	
Max. DLS (deg. /100ft)			>90	
Recommended Torque				
Min.	10,800	ft-lb	14,600	N-m
Opti.	12,000	ft-lb	16,200	N-m
Max.	13,200	ft-lb	17,800	N-m
Operational Max.	15,600	ft-lb	21,100	N-m
Note : Operational Max. torque can be applied for high torque application				

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Casing Design Assumptions:

Surface

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate I

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.

- (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate or Intermediate II

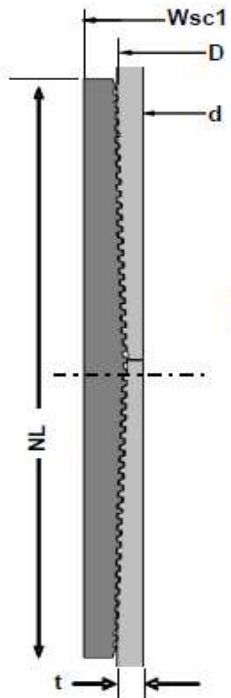
- 1) Burst Design Loads
 - a) Gas Kick Profile
 - (1) Internal: Load profile based on influx encountered in lateral portion of wellbore with a maximum influx volume of 150 bbl and a kick intensity of 1.5 ppg using maximum anticipated MW of 9.9 ppg.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the deepest TVD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Production

- 1) Burst Design Loads
 - a) Injection Down Casing
 - (1) Internal: Surface pressure plus injection fluid gradient.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test (Drilling)
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
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 - c) Casing Pressure Test (Production)
 - (1) Internal: The design pressure test should be the greater of the planned test pressure prior to simulation down the casing, the regulatory test pressure, and the expected gas lift system pressure. The design test fluid should be the fluid associated with the pressure test having the greatest pressure.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
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 - (1) Internal: SITP plus a packer fluid gradient to the top of packer.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
 - b) Full Evacuation
 - (1) Internal: Full void pipe.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Metal One Corp. 	GEOCONN-SC Pipe: SeAH P110RY 95%PBW (SMYS110ksi) *1 Coupling: P110RY (SMYS110ksi) Connection Data Sheet	Page Date Rev.	MAI GC 5.5 17 SeAH P110RY 95%RBW+SC-Cplg6.050 P110RY 3-Feb-21 0
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GEOCONN-SC



Geometry		Imperial		S.I.	
Pipe Body					
Grade *1	P110RY	-	P110RY	-	
SMYS	110	ksi	110	ksi	
Pipe OD (D)	5.500	in	139.70	mm	
Weight	17.00	lb/ft	25.33	kg/m	
Wall Thickness (t)	0.304	in	7.72	mm	
Pipe ID (d)	4.892	in	124.26	mm	
Drift Dia.	4.767	in	121.08	mm	
Connection					
Coupling SMYS	110	ksi	110	ksi	
SC-Coupling OD (Wsc1)	6.050	in	153.67	mm	
Coupling Length (NL)	8.350	in	212.09	mm	
Make up Loss	4.125	in	104.78	mm	
Pipe Critical Area	4.96	in ²	3,202	mm ²	
Box Critical Area	6.10	in ²	3,937	mm ²	
Thread Taper	1 / 16 (3/4" per ft)				
Number of Threads	5 TPI				

Performance		Imperial		S.I.	
Performance Properties for Pipe Body					
S.M.Y.S. *1	546	kips	2,428	kN	
M.I.Y.P. *1	11,550	psi	79.66	MPa	
Collapse Strength *1	7,480	psi	51.59	MPa	
Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body *1: SeAH P110RY 95%RBW: SMYS110ksi, MIYP11,550psi					
Performance Properties for Connection					
Min. Connection Joint Strength	100%		of S.M.Y.S.		
Min. Compression Yield	100%		of S.M.Y.S.		
Internal Pressure	100%		of M.I.Y.P.		
External Pressure	100%		of Collapse Strength		
Max. DLS (deg. /100ft)	>90				
Recommended Torque					
Min.	10,800	ft-lb	14,600	N-m	
Opti.	12,000	ft-lb	16,200	N-m	
Max.	13,200	ft-lb	17,800	N-m	
Operational Max.	15,600	ft-lb	21,100	N-m	
Note : Operational Max. torque can be applied for high torque application					

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Permian Resources Casing Design Criteria

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Casing Design Assumptions:

Surface

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate I

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.

- (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate or Intermediate II

- 1) Burst Design Loads
 - a) Gas Kick Profile
 - (1) Internal: Load profile based on influx encountered in lateral portion of wellbore with a maximum influx volume of 150 bbl and a kick intensity of 1.5 ppg using maximum anticipated MW of 9.9 ppg.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the deepest TVD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Production

- 1) Burst Design Loads
 - a) Injection Down Casing
 - (1) Internal: Surface pressure plus injection fluid gradient.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test (Drilling)
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - c) Casing Pressure Test (Production)
 - (1) Internal: The design pressure test should be the greater of the planned test pressure prior to simulation down the casing, the regulatory test pressure, and the expected gas lift system pressure. The design test fluid should be the fluid associated with the pressure test having the greatest pressure.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - d) Tubing Leak
 - (1) Internal: SITP plus a packer fluid gradient to the top of packer.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
 - b) Full Evacuation
 - (1) Internal: Full void pipe.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Permian Resources Casing Design Criteria

A sundry will be requested if any lesser grade or different size casing is substituted. All casing will be centralized as specified in On Shore Order II. Casing will be tested as specified in On Shore Order II.

Casing Design Assumptions:

Surface

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate I

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.

- (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
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 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate or Intermediate II

- 1) Burst Design Loads
 - a) Gas Kick Profile
 - (1) Internal: Load profile based on influx encountered in lateral portion of wellbore with a maximum influx volume of 150 bbl and a kick intensity of 1.5 ppg using maximum anticipated MW of 9.9 ppg.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the deepest TVD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
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 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Production

- 1) Burst Design Loads
 - a) Injection Down Casing
 - (1) Internal: Surface pressure plus injection fluid gradient.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test (Drilling)
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - c) Casing Pressure Test (Production)
 - (1) Internal: The design pressure test should be the greater of the planned test pressure prior to simulation down the casing, the regulatory test pressure, and the expected gas lift system pressure. The design test fluid should be the fluid associated with the pressure test having the greatest pressure.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - d) Tubing Leak
 - (1) Internal: SITP plus a packer fluid gradient to the top of packer.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
 - b) Full Evacuation
 - (1) Internal: Full void pipe.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.



H₂S Contingency Plan



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I. EMERGENCY ASSISTANCE TELEPHONE LIST**PUBLIC SAFETY****911 or****Sheriff's Department:**

Eddy County Sherriff's Office (575) 887-7551

Fire Department:

Carlsbad Fire Department (575) 885-3125

Artesia Fire Department (575) 746-5051

Ambulance:

Elite Medical Transport (Carlsbad) (915) 542-1144

Trans Aero MedEvac (Artesia) (970) 657-7449

Hospitals:

Carlsbad Medical Center (575) 887-4100

Artesia General Hospital (575) 748-3333

New Mexico Dept. of Transportation:

Highway & Transportation Department (505) 795- 1401

New Mexico Railroad Commission:

Main Line (505) 476-3441

OSHA 24 Hr. Reporting

(800) 321-6742

(8 hrs. after death or 24 hrs. after in-patient, amputation, loss of an eye)

Office Contacts**911 or**

Colgate Energy LLC. (432) 695-4222
Vice President of Operations:

Casey McCain (432) 664-6140

Drilling Engineering Supervisor

Rafael Madrid (432) 556-6387

Drilling Engineering Technical Adviser

Steven Segrest (405) 550-0277

Operations Superintendent

Rick Lawson (432) 530- 3188

Drilling Superintendent

Daniel Cameron (405) 933-0435

Onsite Supervision (H&P 481 Rig Managers)

Juan Gutierrez (970)394-4768

Jonathan Jackson (970)394-4768

Onsite Supervision (H&P 481 Company Men)

Pierre Dupuis (432)438-0114

Eric Rutherford (432)438-0114

Rolando Torres (432)438-0114

Trevor Hein (432)438-0114

Emergency Accommodations

Safety Solutions Office (432) 563-0400

Safety Solutions Dispatch (432) 556-2002

Craig Strasner (432) 894-0341 (Cell)

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 Energy 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

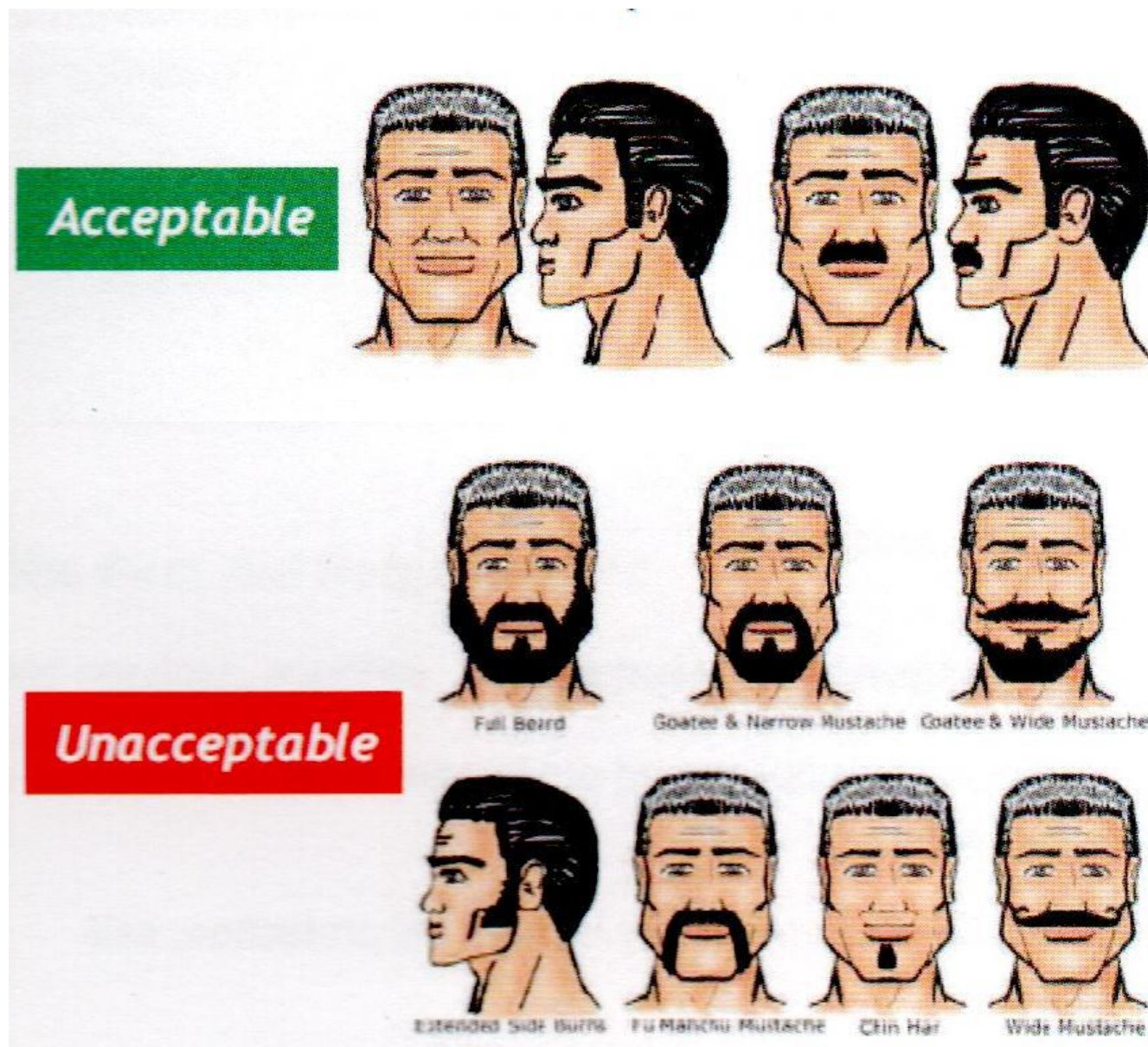
DO NOT PANIC!!!

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.





Colgate Energy

(Permit) Eddy County, NM (83-NME)

(Permit) Koala 9 Fed Com

(A08) Koala 9 Fed Com 112H

Permit

Plan: APD-Rev00

Standard Planning Report

12 May, 2022



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Project	(Permit) Eddy County, NM (83-NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	(Permit) Koala 9 Fed Com		
Site Position:		Northing:	579,560.58 usft
From:	Map	Easting:	584,661.65 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.59318638
		Longitude:	-104.19265949

Well	(A08) Koala 9 Fed Com 112H		
Well Position	+N/-S	0.00 usft	Northing: 579,558.08 usft
	+E/-W	0.00 usft	Easting: 584,840.64 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.08 °	Ground Level:	3,288.00 usft

Wellbore	Permit				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	5/6/2022	6.76	60.11	47,555.82877038

Design	APD-Rev00				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	89.58	

Plan Survey Tool Program	Date	5/12/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,163.72	APD-Rev00 (Permit)	MWD+IFR1+SAG+FDIR (SQC OWSG MWD + IFR1 + Sag + F	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,961.85	17.43	181.29	1,944.02	-175.30	-3.94	1.50	1.50	0.00	181.29	
5,859.18	17.43	181.29	5,662.44	-1,342.27	-30.15	0.00	0.00	0.00	0.00	
6,764.30	90.00	89.58	6,214.00	-1,511.11	544.04	10.00	8.02	-10.13	-91.63	LP(K9-112H)
17,163.72	90.00	89.58	6,214.00	-1,434.60	10,943.18	0.00	0.00	0.00	0.00	PBHL(K9- 112H)



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
241.00	0.00	0.00	241.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
382.00	0.00	0.00	382.00	0.00	0.00	0.00	0.00	0.00	0.00
T/Salt									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
768.00	0.00	0.00	768.00	0.00	0.00	0.00	0.00	0.00	0.00
Tansill									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
843.00	0.65	181.29	843.00	-0.24	-0.01	-0.01	1.50	1.50	0.00
Yates									
900.00	1.50	181.29	899.99	-1.31	-0.03	-0.04	1.50	1.50	0.00
1,000.00	3.00	181.29	999.91	-5.23	-0.12	-0.16	1.50	1.50	0.00
1,100.00	4.50	181.29	1,099.69	-11.77	-0.26	-0.35	1.50	1.50	0.00
1,200.00	6.00	181.29	1,199.27	-20.92	-0.47	-0.62	1.50	1.50	0.00
1,218.84	6.28	181.29	1,218.00	-22.93	-0.52	-0.68	1.50	1.50	0.00
Seven Rivers									
1,300.00	7.50	181.29	1,298.57	-32.67	-0.73	-0.97	1.50	1.50	0.00
1,400.00	9.00	181.29	1,397.54	-47.02	-1.06	-1.40	1.50	1.50	0.00
1,500.00	10.50	181.29	1,496.09	-63.95	-1.44	-1.91	1.50	1.50	0.00
1,600.00	12.00	181.29	1,594.16	-83.45	-1.87	-2.49	1.50	1.50	0.00
1,700.00	13.50	181.29	1,691.70	-105.51	-2.37	-3.14	1.50	1.50	0.00
1,800.00	15.00	181.29	1,788.62	-130.12	-2.92	-3.88	1.50	1.50	0.00
1,821.12	15.32	181.29	1,809.00	-135.64	-3.05	-4.04	1.50	1.50	0.00
Queen									
1,900.00	16.50	181.29	1,884.86	-157.26	-3.53	-4.69	1.50	1.50	0.00
1,961.85	17.43	181.29	1,944.02	-175.30	-3.94	-5.22	1.50	1.50	0.00
2,000.00	17.43	181.29	1,980.42	-186.72	-4.19	-5.56	0.00	0.00	0.00
2,039.39	17.43	181.29	2,018.00	-198.52	-4.46	-5.91	0.00	0.00	0.00
Grayburg									
2,100.00	17.43	181.29	2,075.83	-216.66	-4.87	-6.46	0.00	0.00	0.00
2,200.00	17.43	181.29	2,171.23	-246.61	-5.54	-7.35	0.00	0.00	0.00
2,300.00	17.43	181.29	2,266.64	-276.55	-6.21	-8.24	0.00	0.00	0.00
2,400.00	17.43	181.29	2,362.05	-306.49	-6.89	-9.13	0.00	0.00	0.00
2,458.64	17.43	181.29	2,418.00	-324.05	-7.28	-9.65	0.00	0.00	0.00
San Andres									
2,500.00	17.43	181.29	2,457.46	-336.44	-7.56	-10.02	0.00	0.00	0.00
2,600.00	17.43	181.29	2,552.87	-366.38	-8.23	-10.92	0.00	0.00	0.00
2,700.00	17.43	181.29	2,648.28	-396.32	-8.90	-11.81	0.00	0.00	0.00
2,800.00	17.43	181.29	2,743.69	-426.26	-9.58	-12.70	0.00	0.00	0.00
2,900.00	17.43	181.29	2,839.10	-456.21	-10.25	-13.59	0.00	0.00	0.00
3,000.00	17.43	181.29	2,934.51	-486.15	-10.92	-14.48	0.00	0.00	0.00
3,061.30	17.43	181.29	2,993.00	-504.50	-11.33	-15.03	0.00	0.00	0.00
CYCN									
3,100.00	17.43	181.29	3,029.92	-516.09	-11.59	-15.38	0.00	0.00	0.00
3,200.00	17.43	181.29	3,125.33	-546.03	-12.27	-16.27	0.00	0.00	0.00
3,300.00	17.43	181.29	3,220.74	-575.98	-12.94	-17.16	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,400.00	17.43	181.29	3,316.15	-605.92	-13.61	-18.05	0.00	0.00	0.00
3,500.00	17.43	181.29	3,411.56	-635.86	-14.28	-18.94	0.00	0.00	0.00
3,600.00	17.43	181.29	3,506.97	-665.81	-14.96	-19.84	0.00	0.00	0.00
3,700.00	17.43	181.29	3,602.38	-695.75	-15.63	-20.73	0.00	0.00	0.00
3,800.00	17.43	181.29	3,697.79	-725.69	-16.30	-21.62	0.00	0.00	0.00
3,900.00	17.43	181.29	3,793.20	-755.63	-16.97	-22.51	0.00	0.00	0.00
4,000.00	17.43	181.29	3,888.61	-785.58	-17.65	-23.41	0.00	0.00	0.00
4,100.00	17.43	181.29	3,984.02	-815.52	-18.32	-24.30	0.00	0.00	0.00
4,200.00	17.43	181.29	4,079.43	-845.46	-18.99	-25.19	0.00	0.00	0.00
4,300.00	17.43	181.29	4,174.84	-875.40	-19.67	-26.08	0.00	0.00	0.00
4,400.00	17.43	181.29	4,270.24	-905.35	-20.34	-26.97	0.00	0.00	0.00
4,500.00	17.43	181.29	4,365.65	-935.29	-21.01	-27.87	0.00	0.00	0.00
4,600.00	17.43	181.29	4,461.06	-965.23	-21.68	-28.76	0.00	0.00	0.00
4,700.00	17.43	181.29	4,556.47	-995.18	-22.36	-29.65	0.00	0.00	0.00
4,712.08	17.43	181.29	4,568.00	-998.79	-22.44	-29.76	0.00	0.00	0.00
BSGL									
4,800.00	17.43	181.29	4,651.88	-1,025.12	-23.03	-30.54	0.00	0.00	0.00
4,900.00	17.43	181.29	4,747.29	-1,055.06	-23.70	-31.43	0.00	0.00	0.00
5,000.00	17.43	181.29	4,842.70	-1,085.00	-24.37	-32.33	0.00	0.00	0.00
5,100.00	17.43	181.29	4,938.11	-1,114.95	-25.05	-33.22	0.00	0.00	0.00
5,200.00	17.43	181.29	5,033.52	-1,144.89	-25.72	-34.11	0.00	0.00	0.00
5,300.00	17.43	181.29	5,128.93	-1,174.83	-26.39	-35.00	0.00	0.00	0.00
5,400.00	17.43	181.29	5,224.34	-1,204.77	-27.06	-35.89	0.00	0.00	0.00
5,500.00	17.43	181.29	5,319.75	-1,234.72	-27.74	-36.79	0.00	0.00	0.00
5,600.00	17.43	181.29	5,415.16	-1,264.66	-28.41	-37.68	0.00	0.00	0.00
5,700.00	17.43	181.29	5,510.57	-1,294.60	-29.08	-38.57	0.00	0.00	0.00
5,800.00	17.43	181.29	5,605.98	-1,324.55	-29.75	-39.46	0.00	0.00	0.00
5,859.18	17.43	181.29	5,662.44	-1,342.27	-30.15	-39.99	0.00	0.00	0.00
KOP: 5859.18' MD, -39.99' VS, 5662.44' TVD									
5,900.00	17.77	167.81	5,701.37	-1,354.47	-28.97	-38.90	10.00	0.84	-33.03
5,950.00	19.36	152.86	5,748.79	-1,369.31	-23.58	-33.62	10.00	3.17	-29.90
6,000.00	21.95	140.70	5,795.60	-1,383.93	-13.87	-24.02	10.00	5.19	-24.31
6,050.00	25.25	131.28	5,841.42	-1,398.20	0.07	-10.18	10.00	6.60	-18.83
6,100.00	29.01	124.04	5,885.93	-1,412.04	18.14	7.79	10.00	7.52	-14.49
6,150.00	33.08	118.38	5,928.77	-1,425.32	40.21	29.76	10.00	8.13	-11.32
6,200.00	37.35	113.86	5,969.61	-1,437.94	66.10	55.55	10.00	8.54	-9.04
6,250.00	41.76	110.16	6,008.16	-1,449.82	95.61	84.98	10.00	8.82	-7.41
6,300.00	46.27	107.05	6,044.12	-1,460.86	128.54	117.82	10.00	9.02	-6.22
6,350.00	50.85	104.38	6,077.21	-1,470.98	164.61	153.82	10.00	9.17	-5.34
6,400.00	55.49	102.04	6,107.17	-1,480.09	203.56	192.71	10.00	9.27	-4.68
6,419.57	57.31	101.19	6,118.00	-1,483.37	219.52	208.64	10.00	9.33	-4.32
FBSG									
6,450.00	60.16	99.95	6,133.79	-1,488.14	245.09	234.18	10.00	9.37	-4.10
6,500.00	64.87	98.04	6,156.86	-1,495.06	288.89	277.93	10.00	9.41	-3.81
6,550.00	69.60	96.28	6,176.21	-1,500.79	334.62	323.61	10.00	9.46	-3.52
6,600.00	74.34	94.62	6,191.68	-1,505.30	381.94	370.90	10.00	9.49	-3.31
6,627.15	76.93	93.76	6,198.41	-1,507.22	408.17	397.11	10.00	9.51	-3.19
100'FWL									
6,630.56	77.25	93.65	6,199.17	-1,507.43	411.48	400.42	10.00	9.52	-3.15
FTP(K9- 112H)									
6,650.00	79.10	93.04	6,203.16	-1,508.54	430.48	419.41	10.00	9.52	-3.13
6,700.00	83.87	91.51	6,210.56	-1,510.50	479.87	468.79	10.00	9.53	-3.06
6,730.16	86.74	90.60	6,213.03	-1,511.06	509.92	498.83	10.00	9.54	-3.01



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20" Casing									
6,750.00	88.64	90.01	6,213.83	-1,511.16	529.75	518.66	10.00	9.54	-3.00
6,764.30	90.00	89.58	6,214.00	-1,511.11	544.04	532.95	10.00	9.54	-2.99
EOC: 6764.29' MD, 532.94' VS, 6214.00' TVD - LP(K9-112H)									
6,800.00	90.00	89.58	6,214.00	-1,510.85	579.74	568.65	0.00	0.00	0.00
6,900.00	90.00	89.58	6,214.00	-1,510.11	679.74	668.65	0.00	0.00	0.00
7,000.00	90.00	89.58	6,214.00	-1,509.38	779.74	768.65	0.00	0.00	0.00
7,100.00	90.00	89.58	6,214.00	-1,508.64	879.74	868.65	0.00	0.00	0.00
7,200.00	90.00	89.58	6,214.00	-1,507.90	979.73	968.65	0.00	0.00	0.00
7,300.00	90.00	89.58	6,214.00	-1,507.17	1,079.73	1,068.65	0.00	0.00	0.00
7,400.00	90.00	89.58	6,214.00	-1,506.43	1,179.73	1,168.65	0.00	0.00	0.00
7,500.00	90.00	89.58	6,214.00	-1,505.70	1,279.73	1,268.65	0.00	0.00	0.00
7,600.00	90.00	89.58	6,214.00	-1,504.96	1,379.72	1,368.65	0.00	0.00	0.00
7,700.00	90.00	89.58	6,214.00	-1,504.23	1,479.72	1,468.65	0.00	0.00	0.00
7,800.00	90.00	89.58	6,214.00	-1,503.49	1,579.72	1,568.65	0.00	0.00	0.00
7,900.00	90.00	89.58	6,214.00	-1,502.75	1,679.71	1,668.65	0.00	0.00	0.00
8,000.00	90.00	89.58	6,214.00	-1,502.02	1,779.71	1,768.65	0.00	0.00	0.00
8,100.00	90.00	89.58	6,214.00	-1,501.28	1,879.71	1,868.65	0.00	0.00	0.00
8,200.00	90.00	89.58	6,214.00	-1,500.55	1,979.71	1,968.65	0.00	0.00	0.00
8,300.00	90.00	89.58	6,214.00	-1,499.81	2,079.70	2,068.65	0.00	0.00	0.00
8,400.00	90.00	89.58	6,214.00	-1,499.08	2,179.70	2,168.65	0.00	0.00	0.00
8,500.00	90.00	89.58	6,214.00	-1,498.34	2,279.70	2,268.65	0.00	0.00	0.00
8,600.00	90.00	89.58	6,214.00	-1,497.60	2,379.70	2,368.65	0.00	0.00	0.00
8,700.00	90.00	89.58	6,214.00	-1,496.87	2,479.69	2,468.65	0.00	0.00	0.00
8,800.00	90.00	89.58	6,214.00	-1,496.13	2,579.69	2,568.65	0.00	0.00	0.00
8,900.00	90.00	89.58	6,214.00	-1,495.40	2,679.69	2,668.65	0.00	0.00	0.00
9,000.00	90.00	89.58	6,214.00	-1,494.66	2,779.68	2,768.65	0.00	0.00	0.00
9,100.00	90.00	89.58	6,214.00	-1,493.93	2,879.68	2,868.65	0.00	0.00	0.00
9,193.54	90.00	89.58	6,214.00	-1,493.24	2,973.22	2,962.19	0.00	0.00	0.00
Enter NM 013232 - Exit NM 137444									
9,200.00	90.00	89.58	6,214.00	-1,493.19	2,979.68	2,968.65	0.00	0.00	0.00
9,300.00	90.00	89.58	6,214.00	-1,492.45	3,079.68	3,068.65	0.00	0.00	0.00
9,400.00	90.00	89.58	6,214.00	-1,491.72	3,179.67	3,168.65	0.00	0.00	0.00
9,500.00	90.00	89.58	6,214.00	-1,490.98	3,279.67	3,268.65	0.00	0.00	0.00
9,600.00	90.00	89.58	6,214.00	-1,490.25	3,379.67	3,368.65	0.00	0.00	0.00
9,700.00	90.00	89.58	6,214.00	-1,489.51	3,479.67	3,468.65	0.00	0.00	0.00
9,800.00	90.00	89.58	6,214.00	-1,488.78	3,579.66	3,568.65	0.00	0.00	0.00
9,900.00	90.00	89.58	6,214.00	-1,488.04	3,679.66	3,668.65	0.00	0.00	0.00
10,000.00	90.00	89.58	6,214.00	-1,487.30	3,779.66	3,768.65	0.00	0.00	0.00
10,100.00	90.00	89.58	6,214.00	-1,486.57	3,879.65	3,868.65	0.00	0.00	0.00
10,200.00	90.00	89.58	6,214.00	-1,485.83	3,979.65	3,968.65	0.00	0.00	0.00
10,300.00	90.00	89.58	6,214.00	-1,485.10	4,079.65	4,068.65	0.00	0.00	0.00
10,400.00	90.00	89.58	6,214.00	-1,484.36	4,179.65	4,168.65	0.00	0.00	0.00
10,500.00	90.00	89.58	6,214.00	-1,483.63	4,279.64	4,268.65	0.00	0.00	0.00
10,600.00	90.00	89.58	6,214.00	-1,482.89	4,379.64	4,368.65	0.00	0.00	0.00
10,700.00	90.00	89.58	6,214.00	-1,482.15	4,479.64	4,468.65	0.00	0.00	0.00
10,800.00	90.00	89.58	6,214.00	-1,481.42	4,579.64	4,568.65	0.00	0.00	0.00
10,900.00	90.00	89.58	6,214.00	-1,480.68	4,679.63	4,668.65	0.00	0.00	0.00
11,000.00	90.00	89.58	6,214.00	-1,479.95	4,779.63	4,768.65	0.00	0.00	0.00
11,100.00	90.00	89.58	6,214.00	-1,479.21	4,879.63	4,868.65	0.00	0.00	0.00
11,200.00	90.00	89.58	6,214.00	-1,478.48	4,979.63	4,968.65	0.00	0.00	0.00
11,300.00	90.00	89.58	6,214.00	-1,477.74	5,079.62	5,068.65	0.00	0.00	0.00
11,400.00	90.00	89.58	6,214.00	-1,477.00	5,179.62	5,168.65	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,500.00	90.00	89.58	6,214.00	-1,476.27	5,279.62	5,268.65	0.00	0.00	0.00
11,600.00	90.00	89.58	6,214.00	-1,475.53	5,379.61	5,368.65	0.00	0.00	0.00
11,700.00	90.00	89.58	6,214.00	-1,474.80	5,479.61	5,468.65	0.00	0.00	0.00
11,800.00	90.00	89.58	6,214.00	-1,474.06	5,579.61	5,568.65	0.00	0.00	0.00
11,858.72	90.00	89.58	6,214.00	-1,473.63	5,638.33	5,627.37	0.00	0.00	0.00
Enter NM 015003 - Exit NM 013232									
11,900.00	90.00	89.58	6,214.00	-1,473.33	5,679.61	5,668.65	0.00	0.00	0.00
12,000.00	90.00	89.58	6,214.00	-1,472.59	5,779.60	5,768.65	0.00	0.00	0.00
12,100.00	90.00	89.58	6,214.00	-1,471.85	5,879.60	5,868.65	0.00	0.00	0.00
12,200.00	90.00	89.58	6,214.00	-1,471.12	5,979.60	5,968.65	0.00	0.00	0.00
12,300.00	90.00	89.58	6,214.00	-1,470.38	6,079.60	6,068.65	0.00	0.00	0.00
12,400.00	90.00	89.58	6,214.00	-1,469.65	6,179.59	6,168.65	0.00	0.00	0.00
12,500.00	90.00	89.58	6,214.00	-1,468.91	6,279.59	6,268.65	0.00	0.00	0.00
12,600.00	90.00	89.58	6,214.00	-1,468.18	6,379.59	6,368.65	0.00	0.00	0.00
12,700.00	90.00	89.58	6,214.00	-1,467.44	6,479.58	6,468.65	0.00	0.00	0.00
12,800.00	90.00	89.58	6,214.00	-1,466.70	6,579.58	6,568.65	0.00	0.00	0.00
12,900.00	90.00	89.58	6,214.00	-1,465.97	6,679.58	6,668.65	0.00	0.00	0.00
13,000.00	90.00	89.58	6,214.00	-1,465.23	6,779.58	6,768.65	0.00	0.00	0.00
13,100.00	90.00	89.58	6,214.00	-1,464.50	6,879.57	6,868.65	0.00	0.00	0.00
13,200.00	90.00	89.58	6,214.00	-1,463.76	6,979.57	6,968.65	0.00	0.00	0.00
13,300.00	90.00	89.58	6,214.00	-1,463.03	7,079.57	7,068.65	0.00	0.00	0.00
13,400.00	90.00	89.58	6,214.00	-1,462.29	7,179.57	7,168.65	0.00	0.00	0.00
13,500.00	90.00	89.58	6,214.00	-1,461.55	7,279.56	7,268.65	0.00	0.00	0.00
13,600.00	90.00	89.58	6,214.00	-1,460.82	7,379.56	7,368.65	0.00	0.00	0.00
13,700.00	90.00	89.58	6,214.00	-1,460.08	7,479.56	7,468.65	0.00	0.00	0.00
13,800.00	90.00	89.58	6,214.00	-1,459.35	7,579.55	7,568.65	0.00	0.00	0.00
13,900.00	90.00	89.58	6,214.00	-1,458.61	7,679.55	7,668.65	0.00	0.00	0.00
14,000.00	90.00	89.58	6,214.00	-1,457.88	7,779.55	7,768.65	0.00	0.00	0.00
14,100.00	90.00	89.58	6,214.00	-1,457.14	7,879.55	7,868.65	0.00	0.00	0.00
14,200.00	90.00	89.58	6,214.00	-1,456.40	7,979.54	7,968.65	0.00	0.00	0.00
14,300.00	90.00	89.58	6,214.00	-1,455.67	8,079.54	8,068.65	0.00	0.00	0.00
14,400.00	90.00	89.58	6,214.00	-1,454.93	8,179.54	8,168.65	0.00	0.00	0.00
14,500.00	90.00	89.58	6,214.00	-1,454.20	8,279.54	8,268.65	0.00	0.00	0.00
14,600.00	90.00	89.58	6,214.00	-1,453.46	8,379.53	8,368.65	0.00	0.00	0.00
14,700.00	90.00	89.58	6,214.00	-1,452.73	8,479.53	8,468.65	0.00	0.00	0.00
14,800.00	90.00	89.58	6,214.00	-1,451.99	8,579.53	8,568.65	0.00	0.00	0.00
14,900.00	90.00	89.58	6,214.00	-1,451.25	8,679.53	8,668.65	0.00	0.00	0.00
15,000.00	90.00	89.58	6,214.00	-1,450.52	8,779.52	8,768.65	0.00	0.00	0.00
15,100.00	90.00	89.58	6,214.00	-1,449.78	8,879.52	8,868.65	0.00	0.00	0.00
15,200.00	90.00	89.58	6,214.00	-1,449.05	8,979.52	8,968.65	0.00	0.00	0.00
15,300.00	90.00	89.58	6,214.00	-1,448.31	9,079.51	9,068.65	0.00	0.00	0.00
15,400.00	90.00	89.58	6,214.00	-1,447.58	9,179.51	9,168.65	0.00	0.00	0.00
15,500.00	90.00	89.58	6,214.00	-1,446.84	9,279.51	9,268.65	0.00	0.00	0.00
15,600.00	90.00	89.58	6,214.00	-1,446.10	9,379.51	9,368.65	0.00	0.00	0.00
15,700.00	90.00	89.58	6,214.00	-1,445.37	9,479.50	9,468.65	0.00	0.00	0.00
15,800.00	90.00	89.58	6,214.00	-1,444.63	9,579.50	9,568.65	0.00	0.00	0.00
15,900.00	90.00	89.58	6,214.00	-1,443.90	9,679.50	9,668.65	0.00	0.00	0.00
16,000.00	90.00	89.58	6,214.00	-1,443.16	9,779.50	9,768.65	0.00	0.00	0.00
16,100.00	90.00	89.58	6,214.00	-1,442.43	9,879.49	9,868.65	0.00	0.00	0.00
16,200.00	90.00	89.58	6,214.00	-1,441.69	9,979.49	9,968.65	0.00	0.00	0.00
16,300.00	90.00	89.58	6,214.00	-1,440.95	10,079.49	10,068.65	0.00	0.00	0.00
16,400.00	90.00	89.58	6,214.00	-1,440.22	10,179.48	10,168.65	0.00	0.00	0.00
16,500.00	90.00	89.58	6,214.00	-1,439.48	10,279.48	10,268.65	0.00	0.00	0.00
16,600.00	90.00	89.58	6,214.00	-1,438.75	10,379.48	10,368.65	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,700.00	90.00	89.58	6,214.00	-1,438.01	10,479.48	10,468.65	0.00	0.00	0.00
16,800.00	90.00	89.58	6,214.00	-1,437.28	10,579.47	10,568.65	0.00	0.00	0.00
16,900.00	90.00	89.58	6,214.00	-1,436.54	10,679.47	10,668.65	0.00	0.00	0.00
17,000.00	90.00	89.58	6,214.00	-1,435.80	10,779.47	10,768.65	0.00	0.00	0.00
17,073.69	90.00	89.58	6,214.00	-1,435.26	10,853.16	10,842.35	0.00	0.00	0.00
100' FEL - LTP(K9- 112H)									
17,100.00	90.00	89.58	6,214.00	-1,435.07	10,879.47	10,868.65	0.00	0.00	0.00
17,163.72	90.00	89.58	6,214.00	-1,434.60	10,943.18	10,932.37	0.00	0.00	0.00
TD: 17163.72' MD, 10932.37' VS, 6214.00' TVD - PBHL(K9- 112H)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP(K9- 112H) - plan misses target center by 15.64usft at 6630.56usft MD (6199.17 TVD, -1507.43 N, 411.48 E) - Point	0.00	0.00	6,214.00	-1,511.10	408.11	578,046.98	585,248.75	32.58902374	-104.19075977
PBHL(K9- 112H) - plan hits target center - Point	0.00	0.00	6,214.00	-1,434.60	10,943.18	578,123.48	595,783.82	32.58919055	-104.15655361
LP(K9-112H) - plan hits target center - Point	0.00	0.00	6,214.00	-1,511.11	544.04	578,046.97	585,384.68	32.58902321	-104.19031842
LTP(K9- 112H) - plan misses target center by 0.06usft at 17073.69usft MD (6214.00 TVD, -1435.26 N, 10853.16 E) - Point	0.00	0.00	6,214.00	-1,435.32	10,853.16	578,122.76	595,693.80	32.58918899	-104.15684589

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,730.16	6,213.03	20" Casing	20	24	



Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Company:	Colgate Energy	TVD Reference:	3288+30 @ 3318.00usft
Project:	(Permit) Eddy County, NM (83-NME)	MD Reference:	3288+30 @ 3318.00usft
Site:	(Permit) Koala 9 Fed Com	North Reference:	Grid
Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Permit		
Design:	APD-Rev00		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
241.00	241.00	Rustler				
382.00	382.00	T/Salt				
768.00	768.00	Tansill				
843.00	843.00	Yates				
1,218.84	1,218.00	Seven Rivers				
1,821.12	1,809.00	Queen				
2,039.39	2,018.00	Grayburg				
2,458.64	2,418.00	San Andres				
3,061.30	2,993.00	CYCN				
4,712.08	4,568.00	BSGL				
6,419.57	6,118.00	FBSG				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5,859.18	5,662.44	-1,342.27	-30.15	KOP: 5859.18' MD, -39.99' VS,5662.44' TVD	
6,627.15	6,198.41	-1,507.22	408.17	100'FWL	
6,764.29	6,214.00	-1,511.11	544.04	EOC: 6764.29' MD, 532.94' VS,6214.00' TVD	
9,193.54	6,214.00	-1,493.24	2,973.22	Enter NM 013232	
9,193.54	6,214.00	-1,493.24	2,973.22	Exit NM 137444	
11,858.72	6,214.00	-1,473.63	5,638.33	Enter NM 015003	
11,858.72	6,214.00	-1,473.63	5,638.33	Exit NM 013232	
17,073.69	6,214.00	-1,435.26	10,853.16	100'FEL	
17,163.72	6,214.00	-1,434.60	10,943.18	TD: 17163.72' MD, 10932.37' VS,6214.00' TVD	



Colgate Energy

(Permit) Eddy County, NM (83-NME)

(Permit) Koala 9 Fed Com

(A08) Koala 9 Fed Com 112H

Permit

APD-Rev00

Anticollision Report

13 May, 2022



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Reference	APD-Rev00		
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 separation factor of 25	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/12/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	17,163.72	APD-Rev00 (Permit)	MWD+IFR1+SAG+FDIR	(SQ OWSG MWD + IFR1 + Sag + FDIR Correction

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
(Permit) Koala 9 Fed Com						
(A01) Koala 9 Fed Com 201H - Permit - APD-Rev00	1,300.00	1,299.61	212.33	203.58	24.278	CC, ES
(A01) Koala 9 Fed Com 201H - Permit - APD-Rev00	17,163.72	19,681.18	3,287.23	3,114.13	18.990	SF
(A02) Koala 9 Fed Com 202H - Permit - APD-Rev00	1,100.00	1,100.69	180.32	172.97	24.533	CC, ES
(A02) Koala 9 Fed Com 202H - Permit - APD-Rev00	2,200.00	2,198.78	229.58	214.58	15.300	SF
(A03) Koala 9 Fed Com 131H - Permit - APD-Rev00	1,000.00	999.91	150.06	143.41	22.549	CC
(A03) Koala 9 Fed Com 131H - Permit - APD-Rev00	1,100.00	1,099.69	150.39	143.05	20.471	ES
(A03) Koala 9 Fed Com 131H - Permit - APD-Rev00	1,600.00	1,594.16	171.24	160.38	15.771	SF
(A04) Koala 9 Fed Com 132H - Permit - APD-Rev00	800.00	800.00	120.01	114.74	22.774	CC
(A04) Koala 9 Fed Com 132H - Permit - APD-Rev00	1,900.00	1,899.25	122.11	109.13	9.410	ES
(A04) Koala 9 Fed Com 132H - Permit - APD-Rev00	2,700.00	2,695.36	153.20	134.30	8.106	SF
(A05) Koala 9 Fed Com 121H - Permit - APD-Rev00	863.11	863.11	90.00	84.29	15.760	CC
(A05) Koala 9 Fed Com 121H - Permit - APD-Rev00	1,100.00	1,099.69	90.70	83.36	12.346	ES
(A05) Koala 9 Fed Com 121H - Permit - APD-Rev00	17,163.72	18,131.91	1,702.38	1,496.84	8.283	SF
(A06) Koala 9 Fed Com 122H - Permit - APD-Rev00	800.00	800.00	60.00	54.73	11.386	CC
(A06) Koala 9 Fed Com 122H - Permit - APD-Rev00	1,961.85	1,961.48	62.12	48.66	4.616	ES
(A06) Koala 9 Fed Com 122H - Permit - APD-Rev00	2,500.00	2,498.75	73.12	55.64	4.183	SF
(A07) Koala 9 Fed Com 111H - Permit - APD-Rev00	836.44	836.44	30.00	24.48	5.431	CC
(A07) Koala 9 Fed Com 111H - Permit - APD-Rev00	1,000.00	999.91	30.43	23.77	4.572	ES
(A07) Koala 9 Fed Com 111H - Permit - APD-Rev00	1,100.00	1,099.69	32.17	24.82	4.378	SF
(B01) Koala 9 Fed Com 203H - Permit - APD-Rev00	6,429.10	6,351.57	1,030.87	986.75	23.361	CC, ES
(B01) Koala 9 Fed Com 203H - Permit - APD-Rev00	17,163.72	19,710.50	2,738.56	2,618.40	22.792	SF
(B02) Koala 9 Fed Com 204H - Permit - APD-Rev00	14,700.00	17,159.21	3,320.70	3,186.64	24.769	CC
(B02) Koala 9 Fed Com 204H - Permit - APD-Rev00	17,163.72	19,583.50	3,322.02	3,151.09	19.435	ES, SF
(B03) Koala 9 Fed Com 133H - Permit - APD-Rev00	13,700.00	15,572.85	2,680.04	2,572.44	24.907	CC
(B03) Koala 9 Fed Com 133H - Permit - APD-Rev00	17,163.72	19,009.61	2,681.41	2,527.56	17.429	ES, SF
(B04) Koala 9 Fed Com 134H - Permit - APD-Rev00	14,000.00	16,125.72	3,529.03	3,386.45	24.751	CC
(B04) Koala 9 Fed Com 134H - Permit - APD-Rev00	17,163.72	19,235.87	3,531.16	3,333.38	17.853	ES, SF
(B05) Koala 9 Fed Com 123H - Permit - APD-Rev00	9,600.00	10,226.33	1,746.62	1,675.89	24.696	CC
(B05) Koala 9 Fed Com 123H - Permit - APD-Rev00	17,163.72	17,763.11	1,751.01	1,549.87	8.706	ES, SF
(B06) Koala 9 Fed Com 124H - Permit - APD-Rev00	11,500.00	12,382.99	2,884.51	2,768.87	24.946	CC
(B06) Koala 9 Fed Com 124H - Permit - APD-Rev00	17,163.72	17,993.15	2,888.80	2,658.53	12.545	ES, SF
(B07) Koala 9 Fed Com 113H - Permit - APD-Rev00	7,700.00	7,484.98	1,336.23	1,282.44	24.840	CC
(B07) Koala 9 Fed Com 113H - Permit - APD-Rev00	17,163.72	16,922.61	1,343.21	1,096.89	5.453	ES, SF
(B08) Koala 9 Fed Com 114H - Permit - APD-Rev00	10,700.00	10,479.86	2,656.15	2,549.33	24.864	CC
(B08) Koala 9 Fed Com 114H - Permit - APD-Rev00	17,163.72	16,890.04	2,661.47	2,415.59	10.824	ES, SF

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

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						
Koala 9 Fed Com Offsets						
W01_PRE-ONGARD WELL #001_1520917 - Depth Only						Out of range
W02_GOVERNMENT AO COM #001_1524032 - Inc Only	6,300.00	6,013.83	3,999.02	3,837.32	24.731	CC, ES
W02_GOVERNMENT AO COM #001_1524032 - Inc Only	6,450.00	6,092.08	4,076.01	3,908.76	24.371	SF
W03_PRE-ONGARD WELL #001_1525793 - Inc Only - In						Out of range
W04_FEDERAL V #001_1526451 - Inc Only - Inc Only	5,482.15	5,278.39	1,869.71	1,725.43	12.959	CC
W04_FEDERAL V #001_1526451 - Inc Only - Inc Only	5,859.18	5,637.92	1,873.03	1,717.56	12.048	ES
W04_FEDERAL V #001_1526451 - Inc Only - Inc Only	6,050.00	5,819.06	1,908.62	1,747.83	11.870	SF
W05_FEDERAL V #002_1526702 - Inc Only - Inc Only	3,300.00	3,198.42	2,001.36	1,920.23	24.670	CC, ES
W05_FEDERAL V #002_1526702 - Inc Only - Inc Only	6,050.00	5,823.49	2,427.91	2,281.45	16.578	SF
W06_FEDERAL V #003_1526867 - Depth Only - Depth O	5,701.67	5,489.16	4,324.30	3,955.24	11.717	CC
W06_FEDERAL V #003_1526867 - Depth Only - Depth O	5,900.00	5,678.37	4,326.16	3,944.30	11.329	ES
W06_FEDERAL V #003_1526867 - Depth Only - Depth O	6,200.00	5,946.61	4,424.91	4,024.99	11.064	SF
W07_PRE-ONGARD WELL #001_1527282 - Depth Only	6,100.38	5,839.25	2,927.86	2,537.04	7.492	CC
W07_PRE-ONGARD WELL #001_1527282 - Depth Only	6,150.00	5,881.77	2,929.29	2,535.57	7.440	ES
W07_PRE-ONGARD WELL #001_1527282 - Depth Only	6,350.00	6,030.21	2,964.88	2,560.90	7.339	SF
W08_FEDERAL V COM #004_1535127 - Inc Only - Inc O						Out of range
W09_GOVERNMENT AB #002_1521480 - Inc Only - Inc	16,478.35	6,152.63	1,009.96	757.99	4.008	CC
W09_GOVERNMENT AB #002_1521480 - Inc Only - Inc	16,500.00	6,152.63	1,010.19	757.88	4.004	ES, SF
W10_GOVERNMENT AB #003_1521774 - Inc Only - Inc	13,806.54	6,163.12	1,008.67	805.87	4.974	CC, ES
W10_GOVERNMENT AB #003_1521774 - Inc Only - Inc	13,900.00	6,163.11	1,012.99	808.96	4.965	SF
W11_GOVERNMENT AB #006_1527846 - Inc Only - Inc	12,543.70	6,176.36	1,647.94	1,418.30	7.176	CC, ES
W11_GOVERNMENT AB #006_1527846 - Inc Only - Inc	12,600.00	6,176.36	1,648.90	1,418.90	7.169	SF
W12_GOVERNMENT AB #007_1527847 - Inc Only - Inc	13,864.25	6,171.62	1,650.49	1,395.78	6.480	CC, ES
W12_GOVERNMENT AB #007_1527847 - Inc Only - Inc	13,900.00	6,171.62	1,650.88	1,395.93	6.475	SF
W13_GOVERNMENT AB #008_1527863 - Inc Only - Inc	15,209.78	6,174.37	1,500.20	1,253.70	6.086	CC, ES
W13_GOVERNMENT AB #008_1527863 - Inc Only - Inc	15,300.00	6,174.37	1,502.91	1,255.96	6.086	SF
W14_GOVERNMENT AB #009_1527964 - MWD/Inc - M	16,549.05	6,570.28	1,599.14	1,468.34	12.226	CC, ES
W14_GOVERNMENT AB #009_1527964 - MWD/Inc - M	16,600.00	6,564.18	1,599.94	1,468.84	12.204	SF
W15_GOVERNMENT AB FEDERAL #011_1540853 - MW	13,624.28	6,188.85	230.95	126.14	2.203	CC, ES, SF
W16_GOVERNMENT AB FEDERAL #014_1540854 - MW	12,600.00	6,200.08	391.39	299.07	4.239	ES, SF
W16_GOVERNMENT AB FEDERAL #014_1540854 - MW	12,604.13	6,200.03	391.37	299.09	4.241	CC
W17_GOVERNMENT AB FEDERAL #013_1540920 - MW	16,458.24	6,189.08	372.03	230.50	2.629	CC, ES, SF
W18_GOVERNMENT AB FEDERAL #012_1541049 - MW	15,354.92	6,428.60	532.81	407.87	4.264	CC, ES, SF

Offset Design: (Permit) Koala 9 Fed Com - (A01) Koala 9 Fed Com 201H - Permit - APD-Rev00

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Reference Measured Depth (usft)	Vertical Depth (usft)	Reference Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
1,300.00	1,298.57	1,299.61	1,299.60	4.32	4.43	98.80	4.78	-209.73	212.33	203.58	8.75	24.278	CC, ES
1,400.00	1,397.54	1,397.75	1,397.66	4.67	4.78	103.47	8.53	-209.04	215.28	205.83	9.44	22.794	
1,500.00	1,496.09	1,494.30	1,494.01	5.02	5.12	109.11	14.64	-207.92	220.95	210.81	10.14	21.789	
1,600.00	1,594.16	1,588.93	1,588.26	5.38	5.46	115.38	22.96	-206.39	230.64	219.81	10.83	21.298	
1,700.00	1,691.70	1,681.31	1,680.04	5.75	5.79	121.87	33.28	-204.48	245.51	234.00	11.50	21.340	
1,800.00	1,788.62	1,773.63	1,771.57	6.12	6.12	128.25	45.15	-202.30	266.07	253.90	12.17	21.855	
1,900.00	1,884.86	1,865.52	1,862.66	6.50	6.45	134.02	57.01	-200.11	291.71	278.87	12.84	22.721	
1,961.85	1,944.02	1,921.83	1,918.48	6.73	6.65	137.23	64.28	-198.78	309.94	296.70	13.25	23.400	
2,000.00	1,980.42	1,956.43	1,952.79	6.88	6.77	139.19	68.75	-197.95	321.91	308.42	13.49	23.855	
14,400.00	6,214.00	16,917.46	8,839.00	93.97	97.93	-142.96	525.05	8,164.97	3,287.23	3,154.61	132.62	24.786	
14,500.00	6,214.00	17,017.46	8,839.00	95.06	98.99	-142.96	525.78	8,264.97	3,287.23	3,153.16	134.07	24.519	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A01) Koala 9 Fed Com 201H - Permit - APD-Rev00												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,600.00	6,214.00	17,117.46	8,839.00	96.15	100.06	-142.96	526.52	8,364.97	3,287.23	3,151.71	135.52	24.256	
14,700.00	6,214.00	17,217.46	8,839.00	97.24	101.12	-142.96	527.26	8,464.96	3,287.23	3,150.26	136.97	23.999	
14,800.00	6,214.00	17,317.46	8,839.00	98.33	102.19	-142.96	527.99	8,564.96	3,287.23	3,148.81	138.43	23.747	
14,900.00	6,214.00	17,417.46	8,839.00	99.42	103.26	-142.96	528.73	8,664.96	3,287.23	3,147.35	139.88	23.500	
15,000.00	6,214.00	17,517.46	8,839.00	100.51	104.33	-142.96	529.46	8,764.96	3,287.23	3,145.90	141.34	23.258	
15,100.00	6,214.00	17,617.46	8,839.00	101.61	105.40	-142.96	530.20	8,864.95	3,287.23	3,144.44	142.79	23.021	
15,200.00	6,214.00	17,717.46	8,839.00	102.70	106.47	-142.96	530.93	8,964.95	3,287.23	3,142.98	144.25	22.788	
15,300.00	6,214.00	17,817.46	8,839.00	103.79	107.54	-142.96	531.67	9,064.95	3,287.23	3,141.52	145.71	22.560	
15,400.00	6,214.00	17,917.46	8,839.00	104.89	108.61	-142.96	532.40	9,164.95	3,287.23	3,140.06	147.17	22.336	
15,500.00	6,214.00	18,017.46	8,839.00	105.98	109.69	-142.96	533.14	9,264.94	3,287.23	3,138.60	148.63	22.116	
15,600.00	6,214.00	18,117.46	8,839.00	107.08	110.76	-142.96	533.88	9,364.94	3,287.23	3,137.14	150.10	21.901	
15,700.00	6,214.00	18,217.46	8,839.00	108.17	111.84	-142.96	534.61	9,464.94	3,287.23	3,135.67	151.56	21.689	
15,800.00	6,214.00	18,317.46	8,839.00	109.27	112.92	-142.96	535.35	9,564.94	3,287.23	3,134.21	153.03	21.481	
15,900.00	6,214.00	18,417.46	8,839.00	110.37	113.99	-142.96	536.08	9,664.93	3,287.23	3,132.74	154.49	21.277	
16,000.00	6,214.00	18,517.46	8,839.00	111.47	115.07	-142.96	536.82	9,764.93	3,287.23	3,131.27	155.96	21.077	
16,100.00	6,214.00	18,617.46	8,839.00	112.56	116.15	-142.96	537.55	9,864.93	3,287.23	3,129.80	157.43	20.881	
16,200.00	6,214.00	18,717.46	8,839.00	113.66	117.23	-142.96	538.29	9,964.92	3,287.23	3,128.33	158.90	20.688	
16,300.00	6,214.00	18,817.46	8,839.00	114.76	118.31	-142.96	539.02	10,064.92	3,287.23	3,126.86	160.37	20.498	
16,400.00	6,214.00	18,917.46	8,839.00	115.86	119.39	-142.96	539.76	10,164.92	3,287.23	3,125.39	161.84	20.312	
16,500.00	6,214.00	19,017.46	8,839.00	116.96	120.48	-142.96	540.50	10,264.92	3,287.23	3,123.92	163.31	20.128	
16,600.00	6,214.00	19,117.46	8,839.00	118.06	121.56	-142.96	541.23	10,364.91	3,287.23	3,122.45	164.79	19.949	
16,700.00	6,214.00	19,217.46	8,839.00	119.16	122.64	-142.96	541.97	10,464.91	3,287.23	3,120.97	166.26	19.772	
16,800.00	6,214.00	19,317.46	8,839.00	120.26	123.73	-142.96	542.70	10,564.91	3,287.23	3,119.50	167.73	19.598	
16,900.00	6,214.00	19,417.46	8,839.00	121.36	124.81	-142.96	543.44	10,664.91	3,287.23	3,118.02	169.21	19.427	
17,000.00	6,214.00	19,517.46	8,839.00	122.47	125.90	-142.96	544.17	10,764.90	3,287.23	3,116.55	170.69	19.259	
17,100.00	6,214.00	19,617.46	8,839.00	123.57	126.99	-142.96	544.91	10,864.90	3,287.23	3,115.07	172.16	19.094	
17,163.72	6,214.00	19,681.18	8,839.00	124.27	127.68	-142.96	545.38	10,928.61	3,287.23	3,114.13	173.10	18.990 SF	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A02) Koala 9 Fed Com 202H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
1,100.00	1,099.69	1,100.69	1,100.69	3.64	3.71	93.40	3.00	-179.98	180.32	172.97	7.35	24.533 CC, ES	
1,200.00	1,199.27	1,200.27	1,200.27	3.98	4.07	96.27	3.00	-179.98	181.10	173.05	8.05	22.507	
1,300.00	1,298.57	1,300.64	1,300.63	4.32	4.41	99.52	1.67	-179.94	182.47	173.74	8.73	20.898	
1,400.00	1,397.54	1,401.29	1,401.19	4.67	4.74	102.73	-2.30	-179.81	184.28	174.87	9.41	19.589	
1,500.00	1,496.09	1,502.21	1,501.90	5.02	5.08	105.88	-8.94	-179.60	186.52	176.43	10.09	18.483	
1,600.00	1,594.16	1,603.42	1,602.67	5.38	5.41	108.95	-18.27	-179.30	189.17	178.38	10.78	17.542	
1,700.00	1,691.70	1,704.88	1,703.41	5.75	5.76	111.94	-30.30	-178.92	192.20	180.72	11.48	16.738	
1,800.00	1,788.62	1,804.19	1,801.86	6.12	6.09	115.10	-43.35	-178.50	196.23	184.05	12.18	16.106	
1,900.00	1,884.86	1,903.16	1,899.97	6.50	6.43	118.75	-56.35	-178.09	202.12	189.23	12.89	15.681	
1,961.85	1,944.02	1,964.17	1,960.45	6.73	6.65	121.18	-64.36	-177.83	206.84	193.52	13.33	15.522	
2,000.00	1,980.42	2,001.75	1,997.71	6.88	6.78	122.73	-69.30	-177.68	210.12	196.52	13.59	15.456	
2,100.00	2,075.83	2,100.27	2,095.37	7.27	7.12	126.57	-82.24	-177.26	219.39	205.09	14.30	15.342	
2,200.00	2,171.23	2,198.78	2,193.02	7.67	7.47	130.08	-95.19	-176.85	229.58	214.58	15.01	15.300 SF	
2,300.00	2,266.64	2,297.29	2,290.68	8.07	7.82	133.29	-108.13	-176.44	240.57	224.86	15.71	15.312	
2,400.00	2,362.05	2,395.80	2,388.34	8.47	8.17	136.22	-121.07	-176.03	252.25	235.84	16.42	15.367	
2,500.00	2,457.46	2,494.32	2,486.00	8.87	8.53	138.89	-134.01	-175.62	264.53	247.41	17.12	15.453	
2,600.00	2,552.87	2,592.83	2,583.66	9.28	8.88	141.32	-146.95	-175.20	277.34	259.51	17.82	15.561	
2,700.00	2,648.28	2,691.34	2,681.31	9.69	9.24	143.53	-159.89	-174.79	290.59	272.06	18.53	15.686	
2,800.00	2,743.69	2,789.85	2,778.97	10.10	9.59	145.55	-172.84	-174.38	304.24	285.01	19.23	15.822	
2,900.00	2,839.10	2,888.37	2,876.63	10.51	9.95	147.40	-185.78	-173.97	318.23	298.30	19.93	15.966	
3,000.00	2,934.51	2,986.88	2,974.29	10.92	10.31	149.09	-198.72	-173.55	332.52	311.89	20.63	16.115	
3,100.00	3,029.92	3,085.39	3,071.95	11.34	10.67	150.64	-211.66	-173.14	347.07	325.73	21.34	16.266	
3,200.00	3,125.33	3,183.90	3,169.60	11.75	11.03	152.06	-224.60	-172.73	361.86	339.81	22.04	16.417	
3,300.00	3,220.74	3,282.42	3,267.26	12.17	11.39	153.38	-237.54	-172.32	376.84	354.10	22.75	16.567	
3,400.00	3,316.15	3,380.93	3,364.92	12.59	11.75	154.59	-250.49	-171.91	392.01	368.56	23.45	16.716	
3,500.00	3,411.56	3,479.44	3,462.58	13.01	12.11	155.71	-263.43	-171.49	407.34	383.18	24.16	16.863	
3,600.00	3,506.97	3,577.95	3,560.24	13.43	12.47	156.76	-276.37	-171.08	422.81	397.95	24.86	17.006	
3,700.00	3,602.38	3,676.47	3,657.89	13.85	12.83	157.73	-289.31	-170.67	438.41	412.84	25.57	17.147	
3,800.00	3,697.79	3,774.98	3,755.55	14.27	13.20	158.63	-302.25	-170.26	454.12	427.84	26.27	17.284	
3,900.00	3,793.20	3,873.49	3,853.21	14.69	13.56	159.47	-315.19	-169.84	469.93	442.95	26.98	17.417	
4,000.00	3,888.61	3,972.01	3,950.87	15.11	13.92	160.26	-328.14	-169.43	485.84	458.15	27.69	17.546	
4,100.00	3,984.02	4,070.52	4,048.53	15.53	14.29	160.99	-341.08	-169.02	501.84	473.44	28.40	17.671	
4,200.00	4,079.43	4,169.03	4,146.18	15.96	14.65	161.69	-354.02	-168.61	517.90	488.80	29.11	17.793	
4,300.00	4,174.84	4,267.54	4,243.84	16.38	15.02	162.34	-366.96	-168.19	534.04	504.23	29.82	17.911	
4,400.00	4,270.24	4,366.06	4,341.50	16.80	15.38	162.95	-379.90	-167.78	550.24	519.72	30.53	18.026	
4,500.00	4,365.65	4,464.57	4,439.16	17.23	15.74	163.53	-392.84	-167.37	566.50	535.27	31.24	18.136	
4,600.00	4,461.06	4,563.08	4,536.82	17.65	16.11	164.07	-405.79	-166.96	582.82	550.87	31.95	18.243	
4,700.00	4,556.47	4,661.59	4,634.47	18.08	16.47	164.59	-418.73	-166.55	599.18	566.52	32.66	18.347	
4,800.00	4,651.88	4,760.11	4,732.13	18.50	16.84	165.07	-431.67	-166.13	615.58	582.21	33.37	18.448	
4,900.00	4,747.29	4,858.62	4,829.79	18.92	17.20	165.54	-444.61	-165.72	632.03	597.95	34.08	18.545	
5,000.00	4,842.70	4,957.13	4,927.45	19.35	17.57	165.98	-457.55	-165.31	648.51	613.72	34.79	18.639	
5,100.00	4,938.11	5,055.64	5,025.11	19.78	17.94	166.39	-470.49	-164.90	665.04	629.53	35.50	18.731	
5,200.00	5,033.52	5,154.16	5,122.76	20.20	18.30	166.79	-483.44	-164.48	681.59	645.37	36.22	18.819	
5,300.00	5,128.93	5,252.67	5,220.42	20.63	18.67	167.17	-496.38	-164.07	698.17	661.24	36.93	18.905	
5,400.00	5,224.34	5,351.18	5,318.08	21.05	19.03	167.53	-509.32	-163.66	714.78	677.14	37.64	18.988	
5,500.00	5,319.75	5,449.69	5,415.74	21.48	19.40	167.88	-522.26	-163.25	731.42	693.07	38.36	19.068	
5,600.00	5,415.16	5,548.21	5,513.39	21.91	19.77	168.21	-535.20	-162.84	748.09	709.01	39.07	19.146	
5,700.00	5,510.57	5,646.72	5,611.05	22.33	20.13	168.52	-548.14	-162.42	764.77	724.99	39.79	19.222	
5,800.00	5,605.98	5,745.23	5,708.71	22.76	20.50	168.82	-561.09	-162.01	781.48	740.98	40.50	19.296	
5,859.18	5,662.44	5,803.53	5,766.50	23.01	20.72	168.99	-568.74	-161.77	791.38	750.45	40.92	19.338	
5,900.00	5,701.37	5,843.73	5,806.35	23.18	20.87	-177.43	-574.03	-161.60	798.43	757.22	41.22	19.372	
5,950.00	5,748.79	5,892.71	5,854.91	23.40	21.05	-162.59	-580.46	-161.39	807.67	766.09	41.57	19.427	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A02) Koala 9 Fed Com 202H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,000.00	5,795.60	5,941.07	5,902.85	23.60	21.23	-150.77	-586.81	-161.19	817.55	775.62	41.93	19.498	
6,050.00	5,841.42	5,988.44	5,949.80	23.80	21.40	-141.88	-593.04	-160.99	828.11	785.83	42.28	19.586	
6,100.00	5,885.93	6,034.45	5,995.41	23.98	21.58	-135.33	-599.08	-160.80	839.46	796.83	42.63	19.694	
6,150.00	5,928.77	6,078.75	6,039.33	24.16	21.74	-130.48	-604.90	-160.61	851.71	808.75	42.96	19.826	
6,200.00	5,969.61	6,121.01	6,081.23	24.32	21.90	-126.82	-610.45	-160.44	865.04	821.76	43.28	19.985	
6,250.00	6,008.16	6,160.91	6,120.78	24.47	22.05	-123.96	-615.69	-160.27	879.60	836.01	43.60	20.176	
6,300.00	6,044.12	6,198.14	6,157.69	24.61	22.19	-121.61	-620.59	-160.12	895.58	851.68	43.90	20.402	
6,350.00	6,077.21	6,232.42	6,191.67	24.74	22.31	-119.57	-625.09	-159.97	913.10	868.92	44.18	20.667	
6,400.00	6,107.17	6,263.49	6,222.47	24.85	22.43	-117.64	-629.17	-159.84	932.31	887.86	44.45	20.974	
6,450.00	6,133.79	6,291.11	6,249.85	24.95	22.53	-115.69	-632.80	-159.73	953.27	908.57	44.70	21.326	
6,500.00	6,156.86	6,315.07	6,273.61	25.04	22.62	-113.61	-635.95	-159.63	976.03	931.10	44.93	21.723	
6,550.00	6,176.21	6,335.19	6,293.55	25.12	22.70	-111.31	-638.59	-159.54	1,000.56	955.43	45.14	22.166	
6,600.00	6,191.68	6,351.32	6,309.54	25.19	22.76	-108.70	-640.71	-159.47	1,026.79	981.47	45.32	22.655	
6,650.00	6,203.16	6,363.33	6,321.45	25.25	22.80	-105.76	-642.29	-159.42	1,054.58	1,009.10	45.48	23.187	
6,700.00	6,210.56	6,371.13	6,329.18	25.31	22.83	-102.45	-643.31	-159.39	1,083.75	1,038.14	45.61	23.760	
6,750.00	6,213.83	6,374.67	6,332.69	25.37	22.84	-98.80	-643.78	-159.38	1,114.06	1,068.35	45.72	24.368	
6,764.30	6,214.00	6,374.89	6,332.91	25.39	22.84	-97.70	-643.80	-159.38	1,122.90	1,077.16	45.74	24.549	
16,000.00	6,214.00	18,575.55	8,839.00	111.47	114.97	-165.88	-783.06	9,774.70	2,705.76	2,596.75	109.01	24.822	
16,100.00	6,214.00	18,675.55	8,839.00	112.56	116.05	-165.88	-782.34	9,874.70	2,705.76	2,595.77	109.99	24.600	
16,200.00	6,214.00	18,775.55	8,839.00	113.66	117.13	-165.88	-781.61	9,974.69	2,705.75	2,594.78	110.97	24.382	
16,300.00	6,214.00	18,875.55	8,839.00	114.76	118.21	-165.88	-780.88	10,074.69	2,705.75	2,593.79	111.96	24.168	
16,400.00	6,214.00	18,975.55	8,839.00	115.86	119.30	-165.88	-780.16	10,174.69	2,705.75	2,592.81	112.94	23.957	
16,500.00	6,214.00	19,075.55	8,839.00	116.96	120.38	-165.88	-779.43	10,274.69	2,705.75	2,591.82	113.93	23.749	
16,600.00	6,214.00	19,175.55	8,839.00	118.06	121.46	-165.88	-778.70	10,374.68	2,705.74	2,590.83	114.92	23.545	
16,700.00	6,214.00	19,275.55	8,839.00	119.16	122.55	-165.88	-777.98	10,474.68	2,705.74	2,589.84	115.90	23.345	
16,800.00	6,214.00	19,375.55	8,839.00	120.26	123.63	-165.88	-777.25	10,574.68	2,705.74	2,588.85	116.89	23.147	
16,900.00	6,214.00	19,475.55	8,839.00	121.36	124.72	-165.88	-776.52	10,674.68	2,705.74	2,587.86	117.88	22.953	
17,000.00	6,214.00	19,575.55	8,839.00	122.47	125.81	-165.88	-775.80	10,774.67	2,705.74	2,586.86	118.87	22.762	
17,100.00	6,214.00	19,675.55	8,839.00	123.57	126.89	-165.88	-775.07	10,874.67	2,705.73	2,585.87	119.86	22.574	
17,163.72	6,214.00	19,739.27	8,839.00	124.27	127.59	-165.88	-774.61	10,938.39	2,705.73	2,585.24	120.49	22.455	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A03) Koala 9 Fed Com 131H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
1,000.00	999.91	999.91	999.91	3.31	3.35	91.66	2.50	-149.98	150.06	143.41	6.65	22.549	CC
1,100.00	1,099.69	1,099.69	1,099.69	3.64	3.71	94.15	2.50	-149.98	150.39	143.05	7.35	20.471	ES
1,200.00	1,199.27	1,199.27	1,199.27	3.98	4.07	97.57	2.50	-149.98	151.33	143.29	8.04	18.816	
1,300.00	1,298.57	1,298.57	1,298.57	4.32	4.42	101.87	2.50	-149.98	153.33	144.59	8.74	17.539	
1,400.00	1,397.54	1,397.54	1,397.54	4.67	4.78	106.91	2.50	-149.98	156.94	147.49	9.45	16.615	
1,500.00	1,496.09	1,496.09	1,496.09	5.02	5.13	112.47	2.50	-149.98	162.73	152.58	10.15	16.030	
1,600.00	1,594.16	1,594.16	1,594.16	5.38	5.48	118.31	2.50	-149.98	171.24	160.38	10.86	15.771	SF
1,700.00	1,691.70	1,691.70	1,691.70	5.75	5.83	124.16	2.50	-149.98	182.91	171.35	11.56	15.819	
1,800.00	1,788.62	1,788.62	1,788.62	6.12	6.18	129.78	2.50	-149.98	198.03	185.76	12.26	16.146	
1,900.00	1,884.86	1,884.86	1,884.86	6.50	6.52	135.00	2.50	-149.98	216.72	203.76	12.96	16.721	
1,961.85	1,944.02	1,944.02	1,944.02	6.73	6.74	137.98	2.50	-149.98	230.09	216.70	13.39	17.184	
2,000.00	1,980.42	1,980.42	1,980.42	6.88	6.87	139.78	2.50	-149.98	238.87	225.22	13.65	17.496	
2,100.00	2,075.83	2,075.83	2,075.83	7.27	7.21	143.93	2.50	-149.98	262.85	248.51	14.34	18.333	
2,200.00	2,171.23	2,171.23	2,171.23	7.67	7.55	147.40	2.50	-149.98	287.95	272.93	15.02	19.170	
2,300.00	2,266.64	2,266.64	2,266.64	8.07	7.89	150.31	2.50	-149.98	313.91	298.20	15.70	19.988	
2,400.00	2,362.05	2,362.05	2,362.05	8.47	8.23	152.78	2.50	-149.98	340.52	324.13	16.39	20.779	
2,500.00	2,457.46	2,457.46	2,457.46	8.87	8.58	154.90	2.50	-149.98	367.64	350.57	17.07	21.535	
2,600.00	2,552.87	2,552.87	2,552.87	9.28	8.93	156.82	2.05	-149.90	394.78	377.00	17.78	22.206	
2,700.00	2,648.28	2,648.28	2,648.28	9.69	9.28	158.52	-1.07	-149.38	419.86	401.36	18.49	22.703	
2,800.00	2,743.69	2,743.69	2,743.69	10.10	9.62	159.88	-6.33	-148.49	442.97	423.79	19.18	23.100	
2,900.00	2,839.10	2,839.10	2,839.10	10.51	9.93	161.04	-11.58	-147.60	466.05	446.21	19.84	23.487	
3,000.00	2,934.51	2,934.51	2,934.51	10.92	10.25	162.09	-16.83	-146.71	489.30	468.79	20.51	23.854	
3,100.00	3,029.92	3,029.92	3,029.92	11.34	10.57	163.05	-22.08	-145.82	512.69	491.51	21.18	24.202	
3,200.00	3,125.33	3,125.33	3,125.33	11.75	10.90	163.93	-27.33	-144.93	536.21	514.35	21.86	24.532	
3,300.00	3,220.74	3,220.74	3,220.74	12.17	11.22	164.73	-32.58	-144.05	559.83	537.30	22.53	24.845	
13,300.00	6,214.00	15,464.90	8,494.00	82.07	85.51	-149.93	-142.98	7,069.88	2,634.58	2,529.04	105.54	24.962	
13,400.00	6,214.00	15,564.90	8,494.00	83.14	86.57	-149.93	-142.24	7,169.87	2,634.58	2,527.76	106.82	24.664	
13,500.00	6,214.00	15,664.90	8,494.00	84.22	87.62	-149.93	-141.51	7,269.87	2,634.58	2,526.49	108.09	24.373	
13,600.00	6,214.00	15,764.90	8,494.00	85.30	88.68	-149.93	-140.78	7,369.87	2,634.58	2,525.21	109.37	24.088	
13,700.00	6,214.00	15,864.90	8,494.00	86.38	89.73	-149.93	-140.04	7,469.86	2,634.58	2,523.93	110.65	23.810	
13,800.00	6,214.00	15,964.90	8,494.00	87.46	90.79	-149.93	-139.31	7,569.86	2,634.58	2,522.64	111.93	23.537	
13,900.00	6,214.00	16,064.90	8,494.00	88.55	91.85	-149.93	-138.57	7,669.86	2,634.58	2,521.36	113.22	23.270	
14,000.00	6,214.00	16,164.90	8,494.00	89.63	92.91	-149.93	-137.84	7,769.86	2,634.58	2,520.07	114.50	23.009	
14,100.00	6,214.00	16,264.90	8,494.00	90.72	93.98	-149.93	-137.10	7,869.85	2,634.57	2,518.79	115.79	22.753	
14,200.00	6,214.00	16,364.90	8,494.00	91.80	95.04	-149.93	-136.37	7,969.85	2,634.57	2,517.50	117.08	22.503	
14,300.00	6,214.00	16,464.90	8,494.00	92.89	96.11	-149.93	-135.64	8,069.85	2,634.57	2,516.21	118.37	22.258	
14,400.00	6,214.00	16,564.90	8,494.00	93.97	97.18	-149.93	-134.90	8,169.85	2,634.57	2,514.91	119.66	22.017	
14,500.00	6,214.00	16,664.90	8,494.00	95.06	98.24	-149.93	-134.17	8,269.84	2,634.57	2,513.62	120.95	21.782	
14,600.00	6,214.00	16,764.90	8,494.00	96.15	99.31	-149.93	-133.43	8,369.84	2,634.57	2,512.32	122.25	21.551	
14,700.00	6,214.00	16,864.90	8,494.00	97.24	100.38	-149.93	-132.70	8,469.84	2,634.57	2,511.03	123.54	21.325	
14,800.00	6,214.00	16,964.90	8,494.00	98.33	101.46	-149.93	-131.97	8,569.84	2,634.57	2,509.73	124.84	21.104	
14,900.00	6,214.00	17,064.90	8,494.00	99.42	102.53	-149.93	-131.23	8,669.83	2,634.57	2,508.43	126.14	20.887	
15,000.00	6,214.00	17,164.90	8,494.00	100.51	103.60	-149.93	-130.50	8,769.83	2,634.57	2,507.13	127.44	20.674	
15,100.00	6,214.00	17,264.90	8,494.00	101.61	104.68	-149.93	-129.76	8,869.83	2,634.57	2,505.83	128.74	20.465	
15,200.00	6,214.00	17,364.90	8,494.00	102.70	105.75	-149.93	-129.03	8,969.82	2,634.57	2,504.53	130.04	20.260	
15,300.00	6,214.00	17,464.90	8,494.00	103.79	106.83	-149.93	-128.29	9,069.82	2,634.57	2,503.22	131.34	20.059	
15,400.00	6,214.00	17,564.90	8,494.00	104.89	107.91	-149.93	-127.56	9,169.82	2,634.57	2,501.92	132.65	19.862	
15,500.00	6,214.00	17,664.90	8,494.00	105.98	108.99	-149.93	-126.83	9,269.82	2,634.56	2,500.61	133.95	19.668	
15,600.00	6,214.00	17,764.90	8,494.00	107.08	110.07	-149.93	-126.09	9,369.81	2,634.56	2,499.31	135.26	19.478	
15,700.00	6,214.00	17,864.90	8,494.00	108.17	111.15	-149.93	-125.36	9,469.81	2,634.56	2,498.00	136.57	19.292	
15,800.00	6,214.00	17,964.90	8,494.00	109.27	112.23	-149.93	-124.62	9,569.81	2,634.56	2,496.69	137.87	19.109	
15,900.00	6,214.00	18,064.90	8,494.00	110.37	113.31	-149.93	-123.89	9,669.81	2,634.56	2,495.38	139.18	18.929	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A03) Koala 9 Fed Com 131H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (")	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
16,000.00	6,214.00	18,164.90	8,494.00	111.47	114.39	-149.93	-123.15	9,769.80	2,634.56	2,494.07	140.49	18.752	
16,100.00	6,214.00	18,264.90	8,494.00	112.56	115.48	-149.93	-122.42	9,869.80	2,634.56	2,492.76	141.80	18.579	
16,200.00	6,214.00	18,364.90	8,494.00	113.66	116.56	-149.93	-121.69	9,969.80	2,634.56	2,491.44	143.12	18.409	
16,300.00	6,214.00	18,464.90	8,494.00	114.76	117.65	-149.93	-120.95	10,069.79	2,634.56	2,490.13	144.43	18.241	
16,400.00	6,214.00	18,564.90	8,494.00	115.86	118.73	-149.93	-120.22	10,169.79	2,634.56	2,488.82	145.74	18.077	
16,500.00	6,214.00	18,664.90	8,494.00	116.96	119.82	-149.93	-119.48	10,269.79	2,634.56	2,487.50	147.06	17.915	
16,600.00	6,214.00	18,764.90	8,494.00	118.06	120.91	-149.93	-118.75	10,369.79	2,634.56	2,486.19	148.37	17.757	
16,700.00	6,214.00	18,864.90	8,494.00	119.16	121.99	-149.93	-118.02	10,469.78	2,634.56	2,484.87	149.69	17.601	
16,800.00	6,214.00	18,964.90	8,494.00	120.26	123.08	-149.93	-117.28	10,569.78	2,634.55	2,483.55	151.00	17.447	
16,900.00	6,214.00	19,064.90	8,494.00	121.36	124.17	-149.93	-116.55	10,669.78	2,634.55	2,482.23	152.32	17.296	
17,000.00	6,214.00	19,164.90	8,494.00	122.47	125.26	-149.93	-115.81	10,769.78	2,634.55	2,480.92	153.64	17.148	
17,100.00	6,214.00	19,264.90	8,494.00	123.57	126.35	-149.93	-115.08	10,869.77	2,634.55	2,479.60	154.96	17.002	
17,163.72	6,214.00	19,328.62	8,494.00	124.27	127.05	-149.93	-114.61	10,933.49	2,634.55	2,478.76	155.80	16.910	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A04) Koala 9 Fed Com 132H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
800.00	800.00	800.00	800.00	2.63	2.63	-89.05	2.00	-119.99	120.01	114.74	5.27	22.774	CC
900.00	899.99	899.95	899.94	2.98	2.98	89.67	0.69	-120.03	120.02	114.07	5.95	20.170	
1,000.00	999.91	999.90	999.81	3.31	3.31	89.67	-3.23	-120.16	120.06	113.45	6.61	18.173	
1,100.00	1,099.69	1,099.85	1,099.54	3.64	3.64	89.67	-9.76	-120.37	120.13	112.85	7.27	16.513	
1,200.00	1,199.27	1,199.80	1,199.07	3.98	3.98	89.67	-18.89	-120.67	120.22	112.27	7.95	15.117	
1,300.00	1,298.57	1,299.75	1,298.33	4.32	4.32	89.67	-30.63	-121.05	120.34	111.70	8.64	13.928	
1,400.00	1,397.54	1,399.70	1,397.24	4.67	4.67	89.67	-44.96	-121.52	120.48	111.15	9.34	12.903	
1,500.00	1,496.09	1,499.65	1,495.74	5.02	5.02	89.68	-61.86	-122.07	120.66	110.61	10.05	12.011	
1,600.00	1,594.16	1,599.61	1,593.79	5.38	5.38	89.70	-81.31	-122.71	120.85	110.09	10.76	11.229	
1,700.00	1,691.70	1,699.59	1,691.68	5.75	5.74	90.52	-101.65	-123.37	121.06	109.57	11.49	10.535	
1,800.00	1,788.62	1,799.49	1,789.49	6.12	6.11	92.58	-121.98	-124.04	121.39	109.16	12.23	9.925	
1,900.00	1,884.86	1,899.25	1,887.15	6.50	6.48	95.83	-142.28	-124.70	122.11	109.13	12.98	9.410	ES
1,961.85	1,944.02	1,960.84	1,947.45	6.73	6.71	98.41	-154.81	-125.11	122.94	109.50	13.44	9.148	
2,000.00	1,980.42	1,998.80	1,984.62	6.88	6.85	100.13	-162.53	-125.36	123.63	109.90	13.72	9.008	
2,100.00	2,075.83	2,098.31	2,082.05	7.27	7.23	104.53	-182.78	-126.02	125.96	111.48	14.47	8.702	
2,200.00	2,171.23	2,197.82	2,179.47	7.67	7.60	108.75	-203.02	-126.68	129.01	113.78	15.22	8.475	
2,300.00	2,266.64	2,297.33	2,276.90	8.07	7.98	112.76	-223.27	-127.34	132.72	116.76	15.97	8.312	
2,400.00	2,362.05	2,396.83	2,374.32	8.47	8.36	116.53	-243.52	-128.00	137.06	120.35	16.71	8.204	
2,500.00	2,457.46	2,496.34	2,471.74	8.87	8.74	120.05	-263.76	-128.66	141.96	124.51	17.44	8.139	
2,600.00	2,552.87	2,595.85	2,569.17	9.28	9.12	123.34	-284.01	-129.32	147.35	129.18	18.17	8.108	
2,700.00	2,648.28	2,695.36	2,666.59	9.69	9.50	126.38	-304.26	-129.98	153.20	134.30	18.90	8.106	SF
2,800.00	2,743.69	2,794.87	2,764.02	10.10	9.88	129.19	-324.50	-130.64	159.46	139.83	19.62	8.126	
2,900.00	2,839.10	2,894.38	2,861.44	10.51	10.27	131.79	-344.75	-131.31	166.06	145.72	20.34	8.163	
3,000.00	2,934.51	2,993.88	2,958.87	10.92	10.65	134.18	-365.00	-131.97	172.98	151.92	21.06	8.213	
3,100.00	3,029.92	3,093.39	3,056.29	11.34	11.03	136.39	-385.24	-132.63	180.18	158.40	21.78	8.273	
3,200.00	3,125.33	3,192.90	3,153.72	11.75	11.42	138.43	-405.49	-133.29	187.63	165.14	22.49	8.341	
3,300.00	3,220.74	3,292.41	3,251.14	12.17	11.80	140.31	-425.74	-133.95	195.29	172.09	23.21	8.415	
3,400.00	3,316.15	3,391.92	3,348.57	12.59	12.19	142.04	-445.98	-134.61	203.15	179.23	23.92	8.492	
3,500.00	3,411.56	3,491.43	3,445.99	13.01	12.58	143.65	-466.23	-135.27	211.18	186.55	24.64	8.572	
3,600.00	3,506.97	3,590.93	3,543.42	13.43	12.96	145.14	-486.48	-135.93	219.37	194.02	25.35	8.654	
3,700.00	3,602.38	3,690.44	3,640.84	13.85	13.35	146.52	-506.72	-136.59	227.69	201.62	26.06	8.736	
3,800.00	3,697.79	3,789.95	3,738.27	14.27	13.74	147.80	-526.97	-137.25	236.13	209.35	26.78	8.818	
3,900.00	3,793.20	3,889.46	3,835.69	14.69	14.13	148.99	-547.22	-137.91	244.68	217.19	27.49	8.900	
4,000.00	3,888.61	3,988.97	3,933.11	15.11	14.51	150.10	-567.46	-138.57	253.33	225.13	28.21	8.982	
4,100.00	3,984.02	4,088.48	4,030.54	15.53	14.90	151.14	-587.71	-139.23	262.07	233.15	28.92	9.062	
4,200.00	4,079.43	4,187.99	4,127.96	15.96	15.29	152.11	-607.96	-139.89	270.89	241.26	29.64	9.141	
4,300.00	4,174.84	4,287.49	4,225.39	16.38	15.68	153.02	-628.20	-140.55	279.78	249.43	30.35	9.218	
4,400.00	4,270.24	4,387.00	4,322.81	16.80	16.07	153.88	-648.45	-141.22	288.74	257.67	31.07	9.294	
4,500.00	4,365.65	4,486.51	4,420.24	17.23	16.45	154.68	-668.69	-141.88	297.76	265.97	31.78	9.368	
4,600.00	4,461.06	4,586.02	4,517.66	17.65	16.84	155.44	-688.94	-142.54	306.83	274.33	32.50	9.440	
4,700.00	4,556.47	4,685.53	4,615.09	18.08	17.23	156.15	-709.19	-143.20	315.95	282.73	33.22	9.511	
4,800.00	4,651.88	4,785.04	4,712.51	18.50	17.62	156.82	-729.43	-143.86	325.12	291.18	33.94	9.580	
4,900.00	4,747.29	4,884.54	4,809.94	18.92	18.01	157.45	-749.68	-144.52	334.33	299.68	34.66	9.647	
5,000.00	4,842.70	4,984.05	4,907.36	19.35	18.40	158.05	-769.93	-145.18	343.58	308.20	35.38	9.712	
5,100.00	4,938.11	5,083.56	5,004.79	19.78	18.79	158.62	-790.17	-145.84	352.86	316.77	36.10	9.776	
5,200.00	5,033.52	5,183.07	5,102.21	20.20	19.18	159.16	-810.42	-146.50	362.18	325.37	36.82	9.838	
5,300.00	5,128.93	5,282.58	5,199.63	20.63	19.57	159.68	-830.67	-147.16	371.53	333.99	37.54	9.898	
5,400.00	5,224.34	5,382.09	5,297.06	21.05	19.96	160.16	-850.91	-147.82	380.90	342.65	38.26	9.957	
5,500.00	5,319.75	5,481.59	5,394.48	21.48	20.35	160.63	-871.16	-148.48	390.31	351.33	38.98	10.014	
5,600.00	5,415.16	5,581.10	5,491.91	21.91	20.74	161.07	-891.41	-149.14	399.73	360.03	39.70	10.069	
5,700.00	5,510.57	5,680.61	5,589.33	22.33	21.13	161.49	-911.65	-149.80	409.18	368.76	40.42	10.123	
5,800.00	5,605.98	5,780.12	5,686.76	22.76	21.52	161.90	-931.90	-150.46	418.65	377.51	41.14	10.176	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A04) Koala 9 Fed Com 132H - Permit - APD-Rev00												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,859.18	5,662.44	5,839.01	5,744.41	23.01	21.75	162.13	-943.88	-150.86	424.26	382.69	41.57	10.206	
5,900.00	5,701.37	5,879.60	5,784.15	23.18	21.91	175.36	-952.14	-151.13	428.54	386.67	41.87	10.235	
5,950.00	5,748.79	5,929.01	5,832.53	23.40	22.10	-170.38	-962.19	-151.45	434.87	392.62	42.25	10.292	
6,000.00	5,795.60	5,977.74	5,880.24	23.60	22.29	-159.32	-972.11	-151.78	442.47	399.82	42.64	10.376	
6,050.00	5,841.42	6,025.42	5,926.93	23.80	22.48	-151.31	-981.81	-152.09	451.49	408.45	43.05	10.488	
6,100.00	5,885.93	6,071.69	5,972.22	23.98	22.66	-145.71	-991.22	-152.40	462.18	418.72	43.46	10.635	
6,150.00	5,928.77	6,116.19	6,015.79	24.16	22.84	-141.82	-1,000.28	-152.70	474.81	430.93	43.88	10.821	
6,200.00	5,969.61	6,158.58	6,057.29	24.32	23.00	-139.08	-1,008.90	-152.98	489.65	445.35	44.30	11.054	
6,250.00	6,008.16	6,198.54	6,096.42	24.47	23.16	-137.05	-1,017.03	-153.24	506.97	462.26	44.71	11.338	
6,300.00	6,044.12	6,235.77	6,132.87	24.61	23.31	-135.39	-1,024.61	-153.49	527.00	481.88	45.12	11.679	
6,350.00	6,077.21	6,269.98	6,166.36	24.74	23.44	-133.83	-1,031.57	-153.72	549.87	504.35	45.52	12.080	
6,400.00	6,107.17	6,300.92	6,196.65	24.85	23.56	-132.16	-1,037.86	-153.92	575.65	529.75	45.89	12.543	
6,450.00	6,133.79	6,328.34	6,223.50	24.95	23.67	-130.18	-1,043.44	-154.10	604.29	558.05	46.24	13.069	
6,500.00	6,156.86	6,352.05	6,246.71	25.04	23.76	-127.72	-1,048.27	-154.26	635.67	589.12	46.55	13.655	
6,550.00	6,176.21	6,371.85	6,266.10	25.12	23.84	-124.62	-1,052.30	-154.39	669.60	622.78	46.83	14.300	
6,600.00	6,191.68	6,387.60	6,281.52	25.19	23.90	-120.71	-1,055.50	-154.50	705.80	658.74	47.06	14.998	
6,650.00	6,203.16	6,399.18	6,292.85	25.25	23.95	-115.86	-1,057.86	-154.58	743.94	696.69	47.25	15.744	
6,700.00	6,210.56	6,406.50	6,300.02	25.31	23.98	-109.99	-1,059.35	-154.62	783.67	736.26	47.41	16.530	
6,750.00	6,213.83	6,409.50	6,302.96	25.37	23.99	-103.15	-1,059.96	-154.64	824.57	777.05	47.52	17.351	
6,764.30	6,214.00	6,409.56	6,303.02	25.39	23.99	-101.04	-1,059.97	-154.64	836.43	788.88	47.55	17.590	
6,800.00	6,214.00	6,409.27	6,302.73	25.43	23.99	-101.00	-1,059.91	-154.64	866.34	818.73	47.61	18.197	
6,900.00	6,214.00	6,408.46	6,301.94	25.56	23.98	-100.90	-1,059.74	-154.64	952.23	904.48	47.75	19.942	
7,000.00	6,214.00	6,407.64	6,301.14	25.73	23.98	-100.80	-1,059.58	-154.63	1,040.65	992.79	47.86	21.743	
7,100.00	6,214.00	6,406.83	6,300.34	25.94	23.98	-100.70	-1,059.41	-154.63	1,131.00	1,083.05	47.95	23.587	
15,500.00	6,214.00	17,846.06	8,494.00	105.98	109.34	-180.00	-1,446.68	9,279.51	2,280.00	2,188.75	91.25	24.987	
15,600.00	6,214.00	17,946.06	8,494.00	107.08	110.41	-180.00	-1,445.95	9,379.51	2,280.00	2,187.88	92.12	24.751	
15,700.00	6,214.00	18,046.06	8,494.00	108.17	111.49	-180.00	-1,445.23	9,479.50	2,280.00	2,187.01	92.99	24.519	
15,800.00	6,214.00	18,146.06	8,494.00	109.27	112.57	-180.00	-1,444.50	9,579.50	2,280.00	2,186.14	93.86	24.291	
15,900.00	6,214.00	18,246.06	8,494.00	110.37	113.65	-180.00	-1,443.78	9,679.50	2,280.00	2,185.26	94.74	24.067	
16,000.00	6,214.00	18,346.06	8,494.00	111.47	114.73	-180.00	-1,443.05	9,779.49	2,280.00	2,184.39	95.61	23.847	
16,100.00	6,214.00	18,446.06	8,494.00	112.56	115.81	-180.00	-1,442.32	9,879.49	2,280.00	2,183.52	96.48	23.631	
16,200.00	6,214.00	18,546.06	8,494.00	113.66	116.89	-180.00	-1,441.60	9,979.49	2,280.00	2,182.64	97.36	23.419	
16,300.00	6,214.00	18,646.06	8,494.00	114.76	117.98	-180.00	-1,440.87	10,079.49	2,280.00	2,181.77	98.23	23.210	
16,400.00	6,214.00	18,746.06	8,494.00	115.86	119.06	-180.00	-1,440.15	10,179.48	2,280.00	2,180.89	99.11	23.005	
16,500.00	6,214.00	18,846.06	8,494.00	116.96	120.14	-180.00	-1,439.42	10,279.48	2,280.00	2,180.01	99.99	22.803	
16,600.00	6,214.00	18,946.06	8,494.00	118.06	121.23	-180.00	-1,438.69	10,379.48	2,280.00	2,179.14	100.86	22.605	
16,700.00	6,214.00	19,046.06	8,494.00	119.16	122.31	-180.00	-1,437.97	10,479.48	2,280.00	2,178.26	101.74	22.410	
16,800.00	6,214.00	19,146.06	8,494.00	120.26	123.40	-180.00	-1,437.24	10,579.47	2,280.00	2,177.38	102.62	22.218	
16,900.00	6,214.00	19,246.06	8,494.00	121.36	124.49	-180.00	-1,436.51	10,679.47	2,280.00	2,176.50	103.50	22.029	
17,000.00	6,214.00	19,346.06	8,494.00	122.47	125.57	-180.00	-1,435.79	10,779.47	2,280.00	2,175.62	104.38	21.844	
17,100.00	6,214.00	19,446.06	8,494.00	123.57	126.66	-180.00	-1,435.06	10,879.47	2,280.00	2,174.74	105.26	21.661	
17,163.72	6,214.00	19,509.78	8,494.00	124.27	127.36	180.00	-1,434.60	10,943.18	2,280.00	2,174.18	105.82	21.546	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A05) Koala 9 Fed Com 121H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
600.00	600.00	600.00	600.00	1.92	1.92	-89.05	1.50	-89.99	90.00	86.17	3.84	23.465	
700.00	700.00	700.00	700.00	2.28	2.28	-89.05	1.50	-89.99	90.00	85.45	4.55	19.770	
800.00	800.00	800.00	800.00	2.63	2.63	-89.05	1.50	-89.99	90.00	84.73	5.27	17.080	
863.11	863.11	863.11	863.11	2.85	2.86	90.00	1.50	-89.99	90.00	84.29	5.71	15.760 CC	
900.00	899.99	899.99	899.99	2.98	2.99	90.50	1.50	-89.99	90.00	84.04	5.97	15.080	
1,000.00	999.91	999.91	999.91	3.31	3.35	92.99	1.50	-89.99	90.12	83.47	6.65	13.543	
1,100.00	1,099.69	1,099.69	1,099.69	3.64	3.71	97.11	1.50	-89.99	90.70	83.36	7.35	12.346 ES	
1,200.00	1,199.27	1,199.27	1,199.27	3.98	4.07	102.71	1.50	-89.99	92.28	84.24	8.04	11.474	
1,300.00	1,298.57	1,298.66	1,298.65	4.32	4.41	108.75	0.29	-90.39	95.53	86.80	8.73	10.948	
1,400.00	1,397.54	1,398.29	1,398.20	4.67	4.73	114.23	-3.38	-91.62	100.53	91.13	9.40	10.696	
1,500.00	1,496.09	1,497.56	1,497.34	5.02	5.06	119.60	-8.33	-93.27	107.37	97.29	10.08	10.653	
1,600.00	1,594.16	1,596.48	1,596.12	5.38	5.39	125.31	-13.27	-94.92	116.56	105.80	10.76	10.829	
1,700.00	1,691.70	1,694.99	1,694.49	5.75	5.72	130.98	-18.18	-96.56	128.48	117.03	11.45	11.221	
1,800.00	1,788.62	1,793.01	1,792.37	6.12	6.06	136.33	-23.07	-98.19	143.35	131.22	12.14	11.812	
1,900.00	1,884.86	1,890.48	1,889.71	6.50	6.39	141.19	-27.93	-99.81	161.30	148.48	12.82	12.581	
1,961.85	1,944.02	1,950.47	1,949.61	6.73	6.60	143.91	-30.92	-100.81	173.95	160.71	13.24	13.134	
2,000.00	1,980.42	1,987.39	1,986.48	6.88	6.73	145.52	-32.76	-101.43	182.19	168.69	13.50	13.492	
2,100.00	2,075.83	2,084.17	2,083.13	7.27	7.06	149.13	-37.59	-103.04	204.35	190.16	14.18	14.408	
2,200.00	2,171.23	2,180.95	2,179.78	7.67	7.40	152.03	-42.42	-104.65	227.13	212.27	14.86	15.281	
2,300.00	2,266.64	2,277.74	2,276.43	8.07	7.74	154.40	-47.25	-106.26	250.37	234.82	15.55	16.106	
2,400.00	2,362.05	2,374.52	2,373.08	8.47	8.08	156.37	-52.08	-107.87	273.95	257.72	16.23	16.880	
2,500.00	2,457.46	2,471.30	2,469.73	8.87	8.42	158.03	-56.90	-109.48	297.79	280.87	16.91	17.606	
2,600.00	2,552.87	2,568.08	2,566.38	9.28	8.76	159.44	-61.73	-111.09	321.83	304.23	17.60	18.284	
2,700.00	2,648.28	2,664.87	2,663.02	9.69	9.10	160.66	-66.56	-112.71	346.03	327.74	18.29	18.920	
2,800.00	2,743.69	2,761.65	2,759.67	10.10	9.44	161.72	-71.39	-114.32	370.36	351.38	18.98	19.514	
2,900.00	2,839.10	2,858.43	2,856.32	10.51	9.78	162.64	-76.21	-115.93	394.79	375.12	19.67	20.071	
3,000.00	2,934.51	2,955.21	2,952.97	10.92	10.13	163.46	-81.04	-117.54	419.31	398.95	20.36	20.593	
3,100.00	3,029.92	3,051.99	3,049.62	11.34	10.47	164.19	-85.87	-119.15	443.90	422.85	21.05	21.083	
3,200.00	3,125.33	3,148.78	3,146.27	11.75	10.82	164.85	-90.70	-120.76	468.55	446.81	21.75	21.544	
3,300.00	3,220.74	3,245.56	3,242.91	12.17	11.16	165.43	-95.52	-122.37	493.26	470.81	22.44	21.978	
3,400.00	3,316.15	3,342.34	3,339.56	12.59	11.50	165.97	-100.35	-123.98	518.01	494.87	23.14	22.387	
3,500.00	3,411.56	3,439.12	3,436.21	13.01	11.85	166.45	-105.18	-125.60	542.79	518.96	23.83	22.773	
3,600.00	3,506.97	3,535.91	3,532.86	13.43	12.20	166.89	-110.01	-127.21	567.61	543.08	24.53	23.138	
3,700.00	3,602.38	3,632.69	3,629.51	13.85	12.54	167.30	-114.83	-128.82	592.46	567.23	25.23	23.483	
3,800.00	3,697.79	3,729.47	3,726.16	14.27	12.89	167.67	-119.66	-130.43	617.33	591.41	25.93	23.810	
3,900.00	3,793.20	3,826.25	3,822.80	14.69	13.23	168.01	-124.49	-132.04	642.23	615.60	26.63	24.120	
4,000.00	3,888.61	3,923.03	3,919.45	15.11	13.58	168.33	-129.32	-133.65	667.15	639.82	27.33	24.415	
4,100.00	3,984.02	4,019.82	4,016.10	15.53	13.93	168.62	-134.14	-135.26	692.08	664.06	28.02	24.695	
4,200.00	4,079.43	4,116.60	4,112.75	15.96	14.27	168.90	-138.97	-136.87	717.03	688.31	28.73	24.962	
9,100.00	6,214.00	10,068.19	7,289.00	39.20	41.51	-129.15	-173.53	2,870.03	1,702.69	1,633.95	68.75	24.768	
9,200.00	6,214.00	10,168.19	7,289.00	40.11	42.41	-129.15	-172.80	2,970.03	1,702.69	1,632.49	70.20	24.256	
9,300.00	6,214.00	10,268.19	7,289.00	41.03	43.31	-129.15	-172.07	3,070.03	1,702.68	1,631.02	71.66	23.759	
9,400.00	6,214.00	10,368.19	7,289.00	41.95	44.23	-129.15	-171.34	3,170.03	1,702.68	1,629.53	73.15	23.278	
9,500.00	6,214.00	10,468.19	7,289.00	42.89	45.16	-129.15	-170.61	3,270.02	1,702.68	1,628.03	74.64	22.810	
9,600.00	6,214.00	10,568.19	7,289.00	43.84	46.09	-129.15	-169.88	3,370.02	1,702.67	1,626.52	76.16	22.357	
9,700.00	6,214.00	10,668.19	7,289.00	44.79	47.03	-129.15	-169.15	3,470.02	1,702.67	1,624.99	77.68	21.918	
9,800.00	6,214.00	10,768.19	7,289.00	45.75	47.98	-129.15	-168.42	3,570.01	1,702.66	1,623.44	79.22	21.493	
9,900.00	6,214.00	10,868.19	7,289.00	46.72	48.94	-129.15	-167.68	3,670.01	1,702.66	1,621.89	80.77	21.080	
10,000.00	6,214.00	10,968.19	7,289.00	47.70	49.90	-129.15	-166.95	3,770.01	1,702.66	1,620.33	82.33	20.681	
10,100.00	6,214.00	11,068.19	7,289.00	48.68	50.87	-129.15	-166.22	3,870.01	1,702.65	1,618.75	83.90	20.293	
10,200.00	6,214.00	11,168.19	7,289.00	49.67	51.85	-129.15	-165.49	3,970.00	1,702.65	1,617.17	85.48	19.918	
10,300.00	6,214.00	11,268.19	7,289.00	50.67	52.83	-129.15	-164.76	4,070.00	1,702.65	1,615.57	87.07	19.554	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A05) Koala 9 Fed Com 121H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,400.00	6,214.00	11,368.19	7,289.00	51.67	53.82	-129.15	-164.03	4,170.00	1,702.64	1,613.97	88.67	19.202	
10,500.00	6,214.00	11,468.19	7,289.00	52.67	54.81	-129.15	-163.30	4,270.00	1,702.64	1,612.36	90.28	18.860	
10,600.00	6,214.00	11,568.19	7,289.00	53.68	55.81	-129.15	-162.57	4,369.99	1,702.63	1,610.74	91.90	18.528	
10,700.00	6,214.00	11,668.19	7,289.00	54.70	56.82	-129.15	-161.84	4,469.99	1,702.63	1,609.11	93.52	18.206	
10,800.00	6,214.00	11,768.19	7,289.00	55.71	57.82	-129.15	-161.11	4,569.99	1,702.63	1,607.48	95.15	17.894	
10,900.00	6,214.00	11,868.19	7,289.00	56.74	58.83	-129.15	-160.38	4,669.99	1,702.62	1,605.84	96.79	17.592	
11,000.00	6,214.00	11,968.19	7,289.00	57.76	59.85	-129.15	-159.65	4,769.98	1,702.62	1,604.19	98.43	17.298	
11,100.00	6,214.00	12,068.19	7,289.00	58.79	60.87	-129.15	-158.92	4,869.98	1,702.61	1,602.54	100.08	17.013	
11,200.00	6,214.00	12,168.19	7,289.00	59.83	61.89	-129.15	-158.19	4,969.98	1,702.61	1,600.88	101.73	16.736	
11,300.00	6,214.00	12,268.19	7,289.00	60.86	62.92	-129.15	-157.46	5,069.97	1,702.61	1,599.21	103.39	16.467	
11,400.00	6,214.00	12,368.19	7,289.00	61.90	63.95	-129.15	-156.72	5,169.97	1,702.60	1,597.54	105.06	16.206	
11,500.00	6,214.00	12,468.19	7,289.00	62.94	64.98	-129.15	-155.99	5,269.97	1,702.60	1,595.87	106.73	15.952	
11,600.00	6,214.00	12,568.19	7,289.00	63.99	66.01	-129.15	-155.26	5,369.97	1,702.59	1,594.19	108.41	15.706	
11,700.00	6,214.00	12,668.19	7,289.00	65.04	67.05	-129.15	-154.53	5,469.96	1,702.59	1,592.50	110.09	15.466	
11,800.00	6,214.00	12,768.19	7,289.00	66.09	68.09	-129.15	-153.80	5,569.96	1,702.59	1,590.81	111.77	15.233	
11,900.00	6,214.00	12,868.19	7,289.00	67.14	69.13	-129.15	-153.07	5,669.96	1,702.58	1,589.12	113.46	15.006	
12,000.00	6,214.00	12,968.19	7,289.00	68.19	70.18	-129.15	-152.34	5,769.96	1,702.58	1,587.43	115.15	14.785	
12,100.00	6,214.00	13,068.19	7,289.00	69.25	71.23	-129.15	-151.61	5,869.95	1,702.58	1,585.72	116.85	14.571	
12,200.00	6,214.00	13,168.19	7,289.00	70.31	72.28	-129.15	-150.88	5,969.95	1,702.57	1,584.02	118.55	14.362	
12,300.00	6,214.00	13,268.19	7,289.00	71.37	73.33	-129.15	-150.15	6,069.95	1,702.57	1,582.31	120.25	14.158	
12,400.00	6,214.00	13,368.19	7,289.00	72.43	74.38	-129.15	-149.42	6,169.95	1,702.56	1,580.60	121.96	13.960	
12,500.00	6,214.00	13,468.19	7,289.00	73.50	75.44	-129.15	-148.69	6,269.94	1,702.56	1,578.89	123.67	13.767	
12,600.00	6,214.00	13,568.19	7,289.00	74.56	76.50	-129.15	-147.96	6,369.94	1,702.56	1,577.17	125.39	13.578	
12,700.00	6,214.00	13,668.19	7,289.00	75.63	77.56	-129.15	-147.23	6,469.94	1,702.55	1,575.45	127.10	13.395	
12,800.00	6,214.00	13,768.19	7,289.00	76.70	78.62	-129.15	-146.49	6,569.93	1,702.55	1,573.73	128.82	13.216	
12,900.00	6,214.00	13,868.19	7,289.00	77.77	79.68	-129.15	-145.76	6,669.93	1,702.54	1,572.00	130.54	13.042	
13,000.00	6,214.00	13,968.19	7,289.00	78.84	80.75	-129.15	-145.03	6,769.93	1,702.54	1,570.27	132.27	12.872	
13,100.00	6,214.00	14,068.19	7,289.00	79.91	81.82	-129.15	-144.30	6,869.93	1,702.54	1,568.54	134.00	12.706	
13,200.00	6,214.00	14,168.19	7,289.00	80.99	82.88	-129.15	-143.57	6,969.92	1,702.53	1,566.81	135.73	12.544	
13,300.00	6,214.00	14,268.19	7,289.00	82.07	83.95	-129.15	-142.84	7,069.92	1,702.53	1,565.07	137.46	12.386	
13,400.00	6,214.00	14,368.19	7,289.00	83.14	85.02	-129.15	-142.11	7,169.92	1,702.52	1,563.33	139.19	12.232	
13,500.00	6,214.00	14,468.19	7,289.00	84.22	86.10	-129.15	-141.38	7,269.92	1,702.52	1,561.59	140.93	12.081	
13,600.00	6,214.00	14,568.19	7,289.00	85.30	87.17	-129.15	-140.65	7,369.91	1,702.52	1,559.85	142.67	11.934	
13,700.00	6,214.00	14,668.19	7,289.00	86.38	88.24	-129.15	-139.92	7,469.91	1,702.51	1,558.11	144.41	11.790	
13,800.00	6,214.00	14,768.19	7,289.00	87.46	89.32	-129.16	-139.19	7,569.91	1,702.51	1,556.36	146.15	11.649	
13,900.00	6,214.00	14,868.19	7,289.00	88.55	90.40	-129.16	-138.46	7,669.91	1,702.51	1,554.61	147.89	11.512	
14,000.00	6,214.00	14,968.19	7,289.00	89.63	91.47	-129.16	-137.73	7,769.90	1,702.50	1,552.86	149.64	11.377	
14,100.00	6,214.00	15,068.19	7,289.00	90.72	92.55	-129.16	-137.00	7,869.90	1,702.50	1,551.11	151.39	11.246	
14,200.00	6,214.00	15,168.19	7,289.00	91.80	93.63	-129.16	-136.27	7,969.90	1,702.49	1,549.36	153.14	11.117	
14,300.00	6,214.00	15,268.19	7,289.00	92.89	94.71	-129.16	-135.53	8,069.89	1,702.49	1,547.60	154.89	10.992	
14,400.00	6,214.00	15,368.19	7,289.00	93.97	95.79	-129.16	-134.80	8,169.89	1,702.49	1,545.85	156.64	10.869	
14,500.00	6,214.00	15,468.19	7,289.00	95.06	96.88	-129.16	-134.07	8,269.89	1,702.48	1,544.09	158.39	10.748	
14,600.00	6,214.00	15,568.19	7,289.00	96.15	97.96	-129.16	-133.34	8,369.89	1,702.48	1,542.33	160.15	10.631	
14,700.00	6,214.00	15,668.19	7,289.00	97.24	99.05	-129.16	-132.61	8,469.88	1,702.47	1,540.57	161.91	10.515	
14,800.00	6,214.00	15,768.19	7,289.00	98.33	100.13	-129.16	-131.88	8,569.88	1,702.47	1,538.81	163.67	10.402	
14,900.00	6,214.00	15,868.19	7,289.00	99.42	101.22	-129.16	-131.15	8,669.88	1,702.47	1,537.04	165.43	10.291	
15,000.00	6,214.00	15,968.19	7,289.00	100.51	102.30	-129.16	-130.42	8,769.88	1,702.46	1,535.28	167.19	10.183	
15,100.00	6,214.00	16,068.19	7,289.00	101.61	103.39	-129.16	-129.69	8,869.87	1,702.46	1,533.51	168.95	10.077	
15,200.00	6,214.00	16,168.19	7,289.00	102.70	104.48	-129.16	-128.96	8,969.87	1,702.45	1,531.74	170.71	9.973	
15,300.00	6,214.00	16,268.19	7,289.00	103.79	105.57	-129.16	-128.23	9,069.87	1,702.45	1,529.97	172.48	9.871	
15,400.00	6,214.00	16,368.19	7,289.00	104.89	106.66	-129.16	-127.50	9,169.87	1,702.45	1,528.21	174.24	9.771	
15,500.00	6,214.00	16,468.19	7,289.00	105.98	107.75	-129.16	-126.77	9,269.86	1,702.44	1,526.43	176.01	9.672	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A05) Koala 9 Fed Com 121H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,600.00	6,214.00	16,568.19	7,289.00	107.08	108.84	-129.16	-126.04	9,369.86	1,702.44	1,524.66	177.78	9.576	
15,700.00	6,214.00	16,668.19	7,289.00	108.17	109.93	-129.16	-125.30	9,469.86	1,702.44	1,522.89	179.55	9.482	
15,800.00	6,214.00	16,768.19	7,289.00	109.27	111.02	-129.16	-124.57	9,569.85	1,702.43	1,521.12	181.32	9.389	
15,900.00	6,214.00	16,868.19	7,289.00	110.37	112.12	-129.16	-123.84	9,669.85	1,702.43	1,519.34	183.09	9.298	
16,000.00	6,214.00	16,968.19	7,289.00	111.47	113.21	-129.16	-123.11	9,769.85	1,702.42	1,517.57	184.86	9.209	
16,100.00	6,214.00	17,068.19	7,289.00	112.56	114.30	-129.16	-122.38	9,869.85	1,702.42	1,515.79	186.63	9.122	
16,200.00	6,214.00	17,168.19	7,289.00	113.66	115.40	-129.16	-121.65	9,969.84	1,702.42	1,514.01	188.40	9.036	
16,300.00	6,214.00	17,268.19	7,289.00	114.76	116.49	-129.16	-120.92	10,069.84	1,702.41	1,512.23	190.18	8.952	
16,400.00	6,214.00	17,368.19	7,289.00	115.86	117.59	-129.16	-120.19	10,169.84	1,702.41	1,510.45	191.95	8.869	
16,500.00	6,214.00	17,468.19	7,289.00	116.96	118.69	-129.16	-119.46	10,269.84	1,702.40	1,508.67	193.73	8.787	
16,600.00	6,214.00	17,568.19	7,289.00	118.06	119.78	-129.16	-118.73	10,369.83	1,702.40	1,506.89	195.51	8.708	
16,700.00	6,214.00	17,668.19	7,289.00	119.16	120.88	-129.16	-118.00	10,469.83	1,702.40	1,505.11	197.29	8.629	
16,800.00	6,214.00	17,768.19	7,289.00	120.26	121.98	-129.16	-117.27	10,569.83	1,702.39	1,503.33	199.06	8.552	
16,900.00	6,214.00	17,868.19	7,289.00	121.36	123.08	-129.16	-116.54	10,669.83	1,702.39	1,501.55	200.84	8.476	
17,000.00	6,214.00	17,968.19	7,289.00	122.47	124.17	-129.16	-115.81	10,769.82	1,702.39	1,499.76	202.62	8.402	
17,100.00	6,214.00	18,068.19	7,289.00	123.57	125.27	-129.16	-115.07	10,869.82	1,702.38	1,497.98	204.40	8.329	
17,163.72	6,214.00	18,131.91	7,289.00	124.27	125.97	-129.16	-114.61	10,933.53	1,702.38	1,496.84	205.54	8.283 SF	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A06) Koala 9 Fed Com 122H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
400.00	400.00	400.00	400.00	1.20	1.20	-89.05	1.00	-59.99	60.00	57.60	2.40	24.981	
500.00	500.00	500.00	500.00	1.56	1.56	-89.05	1.00	-59.99	60.00	56.88	3.12	19.238	
600.00	600.00	600.00	600.00	1.92	1.92	-89.05	1.00	-59.99	60.00	56.16	3.84	15.642	
700.00	700.00	700.00	700.00	2.28	2.28	-89.05	1.00	-59.99	60.00	55.45	4.55	13.179	
800.00	800.00	800.00	800.00	2.63	2.63	-89.05	1.00	-59.99	60.00	54.73	5.27	11.386 CC	
900.00	899.99	899.97	899.96	2.98	2.98	89.67	-0.31	-60.03	60.01	54.06	5.95	10.085	
1,000.00	999.91	999.95	999.86	3.31	3.31	89.67	-4.23	-60.16	60.06	53.45	6.61	9.090	
1,100.00	1,099.69	1,099.92	1,099.61	3.64	3.64	89.67	-10.76	-60.38	60.13	52.85	7.27	8.265	
1,200.00	1,199.27	1,199.90	1,199.17	3.98	3.98	89.67	-19.90	-60.69	60.23	52.27	7.95	7.573	
1,300.00	1,298.57	1,299.87	1,298.44	4.32	4.32	89.67	-31.64	-61.08	60.35	51.71	8.64	6.985	
1,400.00	1,397.54	1,399.84	1,397.38	4.67	4.67	89.68	-45.98	-61.56	60.51	51.17	9.34	6.480	
1,500.00	1,496.09	1,499.82	1,495.91	5.02	5.02	89.68	-62.89	-62.12	60.69	50.65	10.05	6.042	
1,600.00	1,594.16	1,599.79	1,593.96	5.38	5.38	89.68	-82.38	-62.77	60.91	50.14	10.76	5.658	
1,700.00	1,691.70	1,699.77	1,691.47	5.75	5.75	89.69	-104.43	-63.51	61.15	49.65	11.49	5.320	
1,800.00	1,788.62	1,799.75	1,788.48	6.12	6.12	90.08	-128.62	-64.31	61.41	49.17	12.24	5.019	
1,900.00	1,884.86	1,899.71	1,885.40	6.50	6.49	92.66	-153.04	-65.13	61.74	48.75	12.99	4.754	
1,961.85	1,944.02	1,961.48	1,945.30	6.73	6.73	95.44	-168.14	-65.63	62.12	48.66	13.46	4.616 ES	
2,000.00	1,980.42	1,999.57	1,982.23	6.88	6.87	97.42	-177.45	-65.94	62.47	48.72	13.75	4.544	
2,100.00	2,075.83	2,099.41	2,079.04	7.27	7.25	102.48	-201.84	-66.76	63.72	49.22	14.50	4.393	
2,200.00	2,171.23	2,199.24	2,175.85	7.67	7.64	107.32	-226.24	-67.57	65.45	50.19	15.26	4.290	
2,300.00	2,266.64	2,299.08	2,272.65	8.07	8.02	111.87	-250.64	-68.38	67.62	51.62	16.00	4.225	
2,400.00	2,362.05	2,398.92	2,369.46	8.47	8.41	116.12	-275.04	-69.20	70.19	53.45	16.75	4.192	
2,500.00	2,457.46	2,498.75	2,466.26	8.87	8.80	120.04	-299.43	-70.01	73.12	55.64	17.48	4.183 SF	
2,600.00	2,552.87	2,598.59	2,563.07	9.28	9.19	123.65	-323.83	-70.82	76.37	58.16	18.21	4.194	
2,700.00	2,648.28	2,698.43	2,659.88	9.69	9.59	126.96	-348.23	-71.64	79.89	60.96	18.93	4.220	
2,800.00	2,743.69	2,798.26	2,756.68	10.10	9.98	129.97	-372.62	-72.45	83.66	64.01	19.66	4.256	
2,900.00	2,839.10	2,898.10	2,853.49	10.51	10.38	132.72	-397.02	-73.26	87.64	67.27	20.37	4.302	
3,000.00	2,934.51	2,997.93	2,950.29	10.92	10.77	135.23	-421.42	-74.08	91.80	70.71	21.09	4.353	
3,100.00	3,029.92	3,097.77	3,047.10	11.34	11.17	137.52	-445.81	-74.89	96.13	74.32	21.81	4.408	
3,200.00	3,125.33	3,197.61	3,143.91	11.75	11.57	139.60	-470.21	-75.71	100.59	78.07	22.52	4.467	
3,300.00	3,220.74	3,297.44	3,240.71	12.17	11.97	141.51	-494.61	-76.52	105.18	81.94	23.23	4.527	
3,400.00	3,316.15	3,397.28	3,337.52	12.59	12.37	143.25	-519.01	-77.33	109.87	85.92	23.95	4.588	
3,500.00	3,411.56	3,497.12	3,434.32	13.01	12.77	144.85	-543.40	-78.15	114.65	89.99	24.66	4.649	
3,600.00	3,506.97	3,596.95	3,531.13	13.43	13.17	146.33	-567.80	-78.96	119.52	94.14	25.38	4.710	
3,700.00	3,602.38	3,696.79	3,627.94	13.85	13.57	147.68	-592.20	-79.77	124.46	98.37	26.09	4.770	
3,800.00	3,697.79	3,796.62	3,724.74	14.27	13.97	148.94	-616.59	-80.59	129.47	102.66	26.81	4.829	
3,900.00	3,793.20	3,896.46	3,821.55	14.69	14.37	150.09	-640.99	-81.40	134.53	107.00	27.53	4.887	
4,000.00	3,888.61	3,996.30	3,918.35	15.11	14.77	151.17	-665.39	-82.22	139.64	111.40	28.24	4.944	
4,100.00	3,984.02	4,096.13	4,015.16	15.53	15.17	152.17	-689.79	-83.03	144.80	115.84	28.96	5.000	
4,200.00	4,079.43	4,195.97	4,111.97	15.96	15.57	153.09	-714.18	-83.84	149.99	120.32	29.68	5.054	
4,300.00	4,174.84	4,295.81	4,208.77	16.38	15.98	153.96	-738.58	-84.66	155.23	124.83	30.40	5.107	
4,400.00	4,270.24	4,395.64	4,305.58	16.80	16.38	154.77	-762.98	-85.47	160.50	129.38	31.12	5.158	
4,500.00	4,365.65	4,495.48	4,402.38	17.23	16.78	155.53	-787.37	-86.28	165.80	133.96	31.84	5.207	
4,600.00	4,461.06	4,595.31	4,499.19	17.65	17.18	156.24	-811.77	-87.10	171.12	138.56	32.56	5.256	
4,700.00	4,556.47	4,695.15	4,596.00	18.08	17.59	156.91	-836.17	-87.91	176.47	143.19	33.28	5.302	
4,800.00	4,651.88	4,794.99	4,692.80	18.50	17.99	157.54	-860.57	-88.73	181.85	147.84	34.00	5.348	
4,900.00	4,747.29	4,894.82	4,789.61	18.92	18.39	158.13	-884.96	-89.54	187.24	152.51	34.73	5.392	
5,000.00	4,842.70	4,994.66	4,886.41	19.35	18.80	158.69	-909.36	-90.35	192.65	157.20	35.45	5.434	
5,100.00	4,938.11	5,094.50	4,983.22	19.78	19.20	159.22	-933.76	-91.17	198.08	161.91	36.17	5.476	
5,200.00	5,033.52	5,194.33	5,080.03	20.20	19.61	159.72	-958.15	-91.98	203.53	166.63	36.90	5.516	
5,300.00	5,128.93	5,294.17	5,176.83	20.63	20.01	160.19	-982.55	-92.79	208.99	171.36	37.62	5.555	
5,400.00	5,224.34	5,394.00	5,273.64	21.05	20.42	160.65	-1,006.95	-93.61	214.46	176.11	38.35	5.592	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A06) Koala 9 Fed Com 122H - Permit - APD-Rev00												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)												Offset Well Error:	0.00 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,500.00	5,319.75	5,493.84	5,370.44	21.48	20.82	161.07	-1,031.35	-94.42	219.95	180.87	39.07	5.629	
5,600.00	5,415.16	5,593.68	5,467.25	21.91	21.22	161.48	-1,055.74	-95.23	225.44	185.64	39.80	5.664	
5,700.00	5,510.57	5,693.51	5,564.05	22.33	21.63	161.87	-1,080.14	-96.05	230.95	190.43	40.53	5.699	
5,800.00	5,605.98	5,793.35	5,660.86	22.76	22.03	162.24	-1,104.54	-96.86	236.47	195.22	41.25	5.732	
5,859.18	5,662.44	5,852.43	5,718.15	23.01	22.27	162.45	-1,118.97	-97.34	239.74	198.06	41.68	5.751	
5,900.00	5,701.37	5,893.15	5,757.63	23.18	22.44	175.37	-1,128.93	-97.68	242.40	200.40	41.99	5.772	
5,950.00	5,748.79	5,942.72	5,805.69	23.40	22.64	-171.13	-1,141.04	-98.08	246.77	204.37	42.41	5.819	
6,000.00	5,795.60	5,991.59	5,853.09	23.60	22.84	-161.17	-1,152.98	-98.48	252.58	209.73	42.86	5.894	
6,050.00	5,841.42	6,039.40	5,899.45	23.80	23.03	-154.53	-1,164.67	-98.87	260.18	216.84	43.34	6.003	
6,100.00	5,885.93	6,085.79	5,944.43	23.98	23.22	-150.44	-1,176.00	-99.25	270.03	226.16	43.87	6.156	
6,150.00	5,928.77	6,130.39	5,987.68	24.16	23.40	-148.09	-1,186.90	-99.61	282.60	238.18	44.42	6.362	
6,200.00	5,969.61	6,172.88	6,028.87	24.32	23.57	-146.84	-1,197.28	-99.96	298.33	253.34	44.99	6.631	
6,250.00	6,008.16	6,212.92	6,067.70	24.47	23.74	-146.16	-1,207.07	-100.28	317.57	272.01	45.56	6.970	
6,300.00	6,044.12	6,250.21	6,103.86	24.61	23.89	-145.67	-1,216.18	-100.59	340.49	294.38	46.11	7.384	
6,350.00	6,077.21	6,284.47	6,137.08	24.74	24.03	-145.07	-1,224.55	-100.86	367.13	320.51	46.62	7.875	
6,400.00	6,107.17	6,315.44	6,167.11	24.85	24.15	-144.13	-1,232.12	-101.12	397.38	350.30	47.08	8.440	
6,450.00	6,133.79	6,342.88	6,193.71	24.95	24.26	-142.63	-1,238.83	-101.34	431.01	383.52	47.49	9.076	
6,500.00	6,156.86	6,366.58	6,216.70	25.04	24.36	-140.34	-1,244.62	-101.53	467.69	419.85	47.84	9.777	
6,550.00	6,176.21	6,386.37	6,236.88	25.12	24.44	-137.00	-1,249.45	-101.70	507.06	458.93	48.12	10.536	
6,600.00	6,191.68	6,402.09	6,251.12	25.19	24.50	-132.27	-1,253.29	-101.82	548.70	500.34	48.36	11.347	
6,650.00	6,203.16	6,413.62	6,262.30	25.25	24.55	-125.75	-1,256.11	-101.92	592.17	543.63	48.54	12.201	
6,700.00	6,210.56	6,420.87	6,269.34	25.31	24.58	-117.08	-1,257.89	-101.98	637.04	588.37	48.67	13.089	
6,750.00	6,213.83	6,423.79	6,272.17	25.37	24.59	-106.20	-1,258.60	-102.00	682.86	634.10	48.76	14.004	
6,764.30	6,214.00	6,423.83	6,272.21	25.39	24.59	-102.75	-1,258.61	-102.00	696.07	647.29	48.78	14.270	
6,800.00	6,214.00	6,423.48	6,271.86	25.43	24.59	-102.67	-1,258.52	-102.00	729.24	680.42	48.82	14.937	
6,900.00	6,214.00	6,422.48	6,270.90	25.56	24.59	-102.46	-1,258.28	-101.99	823.26	774.35	48.91	16.832	
7,000.00	6,214.00	6,421.49	6,269.93	25.73	24.58	-102.24	-1,258.04	-101.98	918.55	869.57	48.97	18.756	
7,100.00	6,214.00	6,420.49	6,268.97	25.94	24.58	-102.02	-1,257.79	-101.97	1,014.74	965.72	49.02	20.700	
9,900.00	6,214.00	11,011.10	7,289.00	46.72	49.27	-179.96	-1,487.34	3,679.66	1,075.00	1,031.82	43.18	24.898	
10,000.00	6,214.00	11,111.10	7,289.00	47.70	50.21	-179.96	-1,486.61	3,779.65	1,075.00	1,031.05	43.95	24.461	
10,100.00	6,214.00	11,211.10	7,289.00	48.68	51.16	-179.96	-1,485.89	3,879.65	1,075.00	1,030.28	44.72	24.037	
10,200.00	6,214.00	11,311.10	7,289.00	49.67	52.12	-179.96	-1,485.16	3,979.65	1,075.00	1,029.50	45.50	23.624	
10,300.00	6,214.00	11,411.10	7,289.00	50.67	53.09	-179.96	-1,484.44	4,079.64	1,075.00	1,028.71	46.29	23.223	
10,400.00	6,214.00	11,511.10	7,289.00	51.67	54.06	-179.97	-1,483.71	4,179.64	1,075.00	1,027.92	47.08	22.834	
10,500.00	6,214.00	11,611.10	7,289.00	52.67	55.04	-179.97	-1,482.98	4,279.64	1,075.00	1,027.13	47.87	22.455	
10,600.00	6,214.00	11,711.10	7,289.00	53.68	56.02	-179.97	-1,482.26	4,379.64	1,075.00	1,026.33	48.67	22.087	
10,700.00	6,214.00	11,811.10	7,289.00	54.70	57.01	-179.97	-1,481.53	4,479.63	1,075.00	1,025.53	49.47	21.728	
10,800.00	6,214.00	11,911.10	7,289.00	55.71	58.00	-179.97	-1,480.81	4,579.63	1,075.00	1,024.72	50.28	21.380	
10,900.00	6,214.00	12,011.10	7,289.00	56.74	59.00	-179.97	-1,480.08	4,679.63	1,075.00	1,023.91	51.09	21.042	
11,000.00	6,214.00	12,111.10	7,289.00	57.76	60.00	-179.97	-1,479.35	4,779.63	1,075.00	1,023.10	51.90	20.712	
11,100.00	6,214.00	12,211.10	7,289.00	58.79	61.01	-179.97	-1,478.63	4,879.62	1,075.00	1,022.28	52.72	20.392	
11,200.00	6,214.00	12,311.10	7,289.00	59.83	62.02	-179.97	-1,477.90	4,979.62	1,075.00	1,021.46	53.54	20.080	
11,300.00	6,214.00	12,411.10	7,289.00	60.86	63.03	-179.97	-1,477.18	5,079.62	1,075.00	1,020.64	54.36	19.777	
11,400.00	6,214.00	12,511.10	7,289.00	61.90	64.05	-179.97	-1,476.45	5,179.62	1,075.00	1,019.82	55.18	19.481	
11,500.00	6,214.00	12,611.10	7,289.00	62.94	65.07	-179.97	-1,475.72	5,279.61	1,075.00	1,018.99	56.01	19.194	
11,600.00	6,214.00	12,711.10	7,289.00	63.99	66.10	-179.97	-1,475.00	5,379.61	1,075.00	1,018.16	56.84	18.914	
11,700.00	6,214.00	12,811.10	7,289.00	65.04	67.13	-179.97	-1,474.27	5,479.61	1,075.00	1,017.33	57.67	18.641	
11,800.00	6,214.00	12,911.10	7,289.00	66.09	68.16	-179.97	-1,473.55	5,579.61	1,075.00	1,016.50	58.50	18.375	
11,900.00	6,214.00	13,011.10	7,289.00	67.14	69.19	-179.97	-1,472.82	5,679.60	1,075.00	1,015.66	59.34	18.117	
12,000.00	6,214.00	13,111.10	7,289.00	68.19	70.23	-179.97	-1,472.09	5,779.60	1,075.00	1,014.82	60.18	17.864	
12,100.00	6,214.00	13,211.10	7,289.00	69.25	71.27	-179.97	-1,471.37	5,879.60	1,075.00	1,013.98	61.02	17.618	
12,200.00	6,214.00	13,311.10	7,289.00	70.31	72.31	-179.97	-1,470.64	5,979.59	1,075.00	1,013.14	61.86	17.378	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A06) Koala 9 Fed Com 122H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,300.00	6,214.00	13,411.10	7,289.00	71.37	73.35	-179.98	-1,469.91	6,079.59	1,075.00	1,012.30	62.70	17.144	
12,400.00	6,214.00	13,511.10	7,289.00	72.43	74.40	-179.98	-1,469.19	6,179.59	1,075.00	1,011.45	63.55	16.916	
12,500.00	6,214.00	13,611.10	7,289.00	73.50	75.45	-179.98	-1,468.46	6,279.59	1,075.00	1,010.60	64.40	16.694	
12,600.00	6,214.00	13,711.10	7,289.00	74.56	76.50	-179.98	-1,467.74	6,379.58	1,075.00	1,009.76	65.24	16.476	
12,700.00	6,214.00	13,811.10	7,289.00	75.63	77.55	-179.98	-1,467.01	6,479.58	1,075.00	1,008.90	66.10	16.264	
12,800.00	6,214.00	13,911.10	7,289.00	76.70	78.60	-179.98	-1,466.28	6,579.58	1,075.00	1,008.05	66.95	16.057	
12,900.00	6,214.00	14,011.10	7,289.00	77.77	79.66	-179.98	-1,465.56	6,679.58	1,075.00	1,007.20	67.80	15.855	
13,000.00	6,214.00	14,111.10	7,289.00	78.84	80.72	-179.98	-1,464.83	6,779.57	1,075.00	1,006.34	68.66	15.658	
13,100.00	6,214.00	14,211.10	7,289.00	79.91	81.78	-179.98	-1,464.11	6,879.57	1,075.00	1,005.49	69.51	15.465	
13,200.00	6,214.00	14,311.10	7,289.00	80.99	82.84	-179.98	-1,463.38	6,979.57	1,075.00	1,004.63	70.37	15.276	
13,300.00	6,214.00	14,411.10	7,289.00	82.07	83.90	-179.98	-1,462.65	7,079.57	1,075.00	1,003.77	71.23	15.092	
13,400.00	6,214.00	14,511.10	7,289.00	83.14	84.97	-179.98	-1,461.93	7,179.56	1,075.00	1,002.91	72.09	14.912	
13,500.00	6,214.00	14,611.10	7,289.00	84.22	86.03	-179.98	-1,461.20	7,279.56	1,075.00	1,002.05	72.95	14.736	
13,600.00	6,214.00	14,711.10	7,289.00	85.30	87.10	-179.98	-1,460.48	7,379.56	1,075.00	1,001.19	73.81	14.564	
13,700.00	6,214.00	14,811.10	7,289.00	86.38	88.17	-179.98	-1,459.75	7,479.56	1,075.00	1,000.32	74.68	14.395	
13,800.00	6,214.00	14,911.10	7,289.00	87.46	89.24	-179.98	-1,459.02	7,579.55	1,075.00	999.46	75.54	14.231	
13,900.00	6,214.00	15,011.10	7,289.00	88.55	90.31	-179.98	-1,458.30	7,679.55	1,075.00	998.59	76.41	14.069	
14,000.00	6,214.00	15,111.10	7,289.00	89.63	91.38	-179.98	-1,457.57	7,779.55	1,075.00	997.73	77.27	13.911	
14,100.00	6,214.00	15,211.10	7,289.00	90.72	92.46	-179.98	-1,456.85	7,879.54	1,075.00	996.86	78.14	13.757	
14,200.00	6,214.00	15,311.10	7,289.00	91.80	93.53	-179.98	-1,456.12	7,979.54	1,075.00	995.99	79.01	13.606	
14,300.00	6,214.00	15,411.10	7,289.00	92.89	94.61	-179.99	-1,455.39	8,079.54	1,075.00	995.12	79.88	13.458	
14,400.00	6,214.00	15,511.10	7,289.00	93.97	95.68	-179.99	-1,454.67	8,179.54	1,075.00	994.25	80.75	13.313	
14,500.00	6,214.00	15,611.10	7,289.00	95.06	96.76	-179.99	-1,453.94	8,279.53	1,075.00	993.38	81.62	13.171	
14,600.00	6,214.00	15,711.10	7,289.00	96.15	97.84	-179.99	-1,453.21	8,379.53	1,075.00	992.51	82.49	13.031	
14,700.00	6,214.00	15,811.10	7,289.00	97.24	98.92	-179.99	-1,452.49	8,479.53	1,075.00	991.63	83.37	12.895	
14,800.00	6,214.00	15,911.10	7,289.00	98.33	100.00	-179.99	-1,451.76	8,579.53	1,075.00	990.76	84.24	12.761	
14,900.00	6,214.00	16,011.10	7,289.00	99.42	101.08	-179.99	-1,451.04	8,679.52	1,075.00	989.89	85.11	12.630	
15,000.00	6,214.00	16,111.10	7,289.00	100.51	102.17	-179.99	-1,450.31	8,779.52	1,075.00	989.01	85.99	12.502	
15,100.00	6,214.00	16,211.10	7,289.00	101.61	103.25	-179.99	-1,449.58	8,879.52	1,075.00	988.14	86.86	12.376	
15,200.00	6,214.00	16,311.10	7,289.00	102.70	104.33	-179.99	-1,448.86	8,979.52	1,075.00	987.26	87.74	12.252	
15,300.00	6,214.00	16,411.10	7,289.00	103.79	105.42	-179.99	-1,448.13	9,079.51	1,075.00	986.38	88.62	12.131	
15,400.00	6,214.00	16,511.10	7,289.00	104.89	106.51	-179.99	-1,447.41	9,179.51	1,075.00	985.50	89.50	12.012	
15,500.00	6,214.00	16,611.10	7,289.00	105.98	107.59	-179.99	-1,446.68	9,279.51	1,075.00	984.63	90.37	11.895	
15,600.00	6,214.00	16,711.10	7,289.00	107.08	108.68	-179.99	-1,445.95	9,379.51	1,075.00	983.75	91.25	11.781	
15,700.00	6,214.00	16,811.10	7,289.00	108.17	109.77	-179.99	-1,445.23	9,479.50	1,075.00	982.87	92.13	11.668	
15,800.00	6,214.00	16,911.10	7,289.00	109.27	110.86	-179.99	-1,444.50	9,579.50	1,075.00	981.99	93.01	11.558	
15,900.00	6,214.00	17,011.10	7,289.00	110.37	111.95	-179.99	-1,443.78	9,679.50	1,075.00	981.11	93.89	11.449	
16,000.00	6,214.00	17,111.10	7,289.00	111.47	113.04	-179.99	-1,443.05	9,779.49	1,075.00	980.23	94.77	11.343	
16,100.00	6,214.00	17,211.10	7,289.00	112.56	114.13	-179.99	-1,442.32	9,879.49	1,075.00	979.35	95.65	11.238	
16,200.00	6,214.00	17,311.10	7,289.00	113.66	115.22	-180.00	-1,441.60	9,979.49	1,075.00	978.46	96.54	11.136	
16,300.00	6,214.00	17,411.10	7,289.00	114.76	116.31	-180.00	-1,440.87	10,079.49	1,075.00	977.58	97.42	11.035	
16,400.00	6,214.00	17,511.10	7,289.00	115.86	117.40	-180.00	-1,440.15	10,179.48	1,075.00	976.70	98.30	10.936	
16,500.00	6,214.00	17,611.10	7,289.00	116.96	118.50	-180.00	-1,439.42	10,279.48	1,075.00	975.81	99.19	10.838	
16,600.00	6,214.00	17,711.10	7,289.00	118.06	119.59	-180.00	-1,438.69	10,379.48	1,075.00	974.93	100.07	10.742	
16,700.00	6,214.00	17,811.10	7,289.00	119.16	120.68	-180.00	-1,437.97	10,479.48	1,075.00	974.05	100.95	10.648	
16,800.00	6,214.00	17,911.10	7,289.00	120.26	121.78	-180.00	-1,437.24	10,579.47	1,075.00	973.16	101.84	10.556	
16,900.00	6,214.00	18,011.10	7,289.00	121.36	122.87	-180.00	-1,436.51	10,679.47	1,075.00	972.28	102.72	10.465	
17,000.00	6,214.00	18,111.10	7,289.00	122.47	123.97	-180.00	-1,435.79	10,779.47	1,075.00	971.39	103.61	10.375	
17,100.00	6,214.00	18,211.10	7,289.00	123.57	125.06	-180.00	-1,435.06	10,879.47	1,075.00	970.50	104.50	10.287	
17,163.72	6,214.00	18,274.81	7,289.00	124.27	125.76	180.00	-1,434.60	10,943.18	1,075.00	969.94	105.06	10.232	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A07) Koala 9 Fed Com 111H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
300.00	300.00	300.00	300.00	0.84	0.84	-89.05	0.50	-30.00	30.00	28.32	1.68	17.809	
400.00	400.00	400.00	400.00	1.20	1.20	-89.05	0.50	-30.00	30.00	27.60	2.40	12.493	
500.00	500.00	500.00	500.00	1.56	1.56	-89.05	0.50	-30.00	30.00	26.89	3.12	9.621	
600.00	600.00	600.00	600.00	1.92	1.92	-89.05	0.50	-30.00	30.00	26.17	3.84	7.822	
700.00	700.00	700.00	700.00	2.28	2.28	-89.05	0.50	-30.00	30.00	25.45	4.55	6.591	
800.00	800.00	800.00	800.00	2.63	2.63	-89.05	0.50	-30.00	30.00	24.73	5.27	5.694	
836.44	836.44	836.44	836.44	2.76	2.77	90.00	0.50	-30.00	30.00	24.48	5.52	5.431 CC	
900.00	899.99	899.99	899.99	2.98	2.99	92.17	0.50	-30.00	30.03	24.06	5.97	5.031	
1,000.00	999.91	999.91	999.91	3.31	3.35	99.56	0.50	-30.00	30.43	23.77	6.65	4.572 ES	
1,100.00	1,099.69	1,099.69	1,099.69	3.64	3.71	111.08	0.50	-30.00	32.17	24.82	7.35	4.378 SF	
1,200.00	1,199.27	1,199.27	1,199.27	3.98	4.07	124.52	0.50	-30.00	36.48	28.44	8.04	4.535	
1,300.00	1,298.57	1,299.18	1,299.17	4.32	4.41	135.70	-0.74	-30.34	43.55	34.82	8.73	4.990	
1,400.00	1,397.54	1,399.35	1,399.26	4.67	4.74	143.05	-4.52	-31.38	52.23	42.84	9.40	5.558	
1,500.00	1,496.09	1,498.64	1,498.41	5.02	5.06	148.56	-9.54	-32.75	62.82	52.75	10.07	6.237	
1,600.00	1,594.16	1,597.57	1,597.21	5.38	5.40	153.34	-14.54	-34.13	76.15	65.39	10.75	7.083	
1,700.00	1,691.70	1,696.09	1,695.59	5.75	5.73	157.30	-19.52	-35.49	92.23	80.80	11.43	8.069	
1,800.00	1,788.62	1,794.13	1,793.49	6.12	6.06	160.51	-24.48	-36.85	111.07	98.96	12.11	9.171	
1,900.00	1,884.86	1,891.62	1,890.85	6.50	6.39	163.10	-29.41	-38.20	132.60	119.82	12.79	10.369	
1,961.85	1,944.02	1,951.61	1,950.76	6.73	6.60	164.44	-32.44	-39.04	147.26	134.05	13.21	11.149	
2,000.00	1,980.42	1,988.54	1,987.64	6.88	6.73	165.21	-34.31	-39.55	156.63	143.16	13.47	11.630	
2,100.00	2,075.83	2,085.34	2,084.31	7.27	7.06	166.84	-39.20	-40.89	181.28	167.14	14.14	12.819	
2,200.00	2,171.23	2,182.15	2,180.98	7.67	7.40	168.08	-44.10	-42.23	206.04	191.22	14.82	13.903	
2,300.00	2,266.64	2,278.95	2,277.65	8.07	7.74	169.05	-48.99	-43.58	230.87	215.37	15.50	14.894	
2,400.00	2,362.05	2,375.75	2,374.32	8.47	8.08	169.84	-53.89	-44.92	255.75	239.56	16.18	15.803	
2,500.00	2,457.46	2,472.55	2,470.98	8.87	8.42	170.48	-58.78	-46.26	280.67	263.80	16.87	16.639	
2,600.00	2,552.87	2,569.35	2,567.65	9.28	8.76	171.03	-63.68	-47.61	305.61	288.06	17.55	17.409	
2,700.00	2,648.28	2,666.15	2,664.32	9.69	9.10	171.49	-68.57	-48.95	330.58	312.33	18.24	18.121	
2,800.00	2,743.69	2,762.96	2,760.99	10.10	9.44	171.88	-73.46	-50.29	355.56	336.63	18.93	18.780	
2,900.00	2,839.10	2,859.76	2,857.66	10.51	9.79	172.22	-78.36	-51.63	380.56	360.94	19.62	19.393	
3,000.00	2,934.51	2,956.56	2,954.33	10.92	10.13	172.52	-83.25	-52.98	405.57	385.25	20.32	19.963	
3,100.00	3,029.92	3,053.36	3,051.00	11.34	10.47	172.79	-88.15	-54.32	430.59	409.58	21.01	20.495	
3,200.00	3,125.33	3,150.16	3,147.66	11.75	10.82	173.03	-93.04	-55.66	455.61	433.91	21.70	20.993	
3,300.00	3,220.74	3,246.96	3,244.33	12.17	11.16	173.24	-97.94	-57.00	480.65	458.25	22.40	21.459	
3,400.00	3,316.15	3,343.77	3,341.00	12.59	11.51	173.43	-102.83	-58.35	505.68	482.59	23.09	21.897	
3,500.00	3,411.56	3,440.57	3,437.67	13.01	11.85	173.60	-107.73	-59.69	530.73	506.94	23.79	22.308	
3,600.00	3,506.97	3,537.37	3,534.34	13.43	12.20	173.76	-112.62	-61.03	555.77	531.29	24.49	22.696	
3,700.00	3,602.38	3,634.17	3,631.01	13.85	12.54	173.90	-117.52	-62.38	580.82	555.64	25.19	23.062	
3,800.00	3,697.79	3,730.97	3,727.68	14.27	12.89	174.04	-122.41	-63.72	605.88	579.99	25.88	23.407	
3,900.00	3,793.20	3,827.77	3,824.34	14.69	13.24	174.16	-127.31	-65.06	630.93	604.35	26.58	23.734	
4,000.00	3,888.61	3,924.58	3,921.01	15.11	13.58	174.27	-132.20	-66.40	655.99	628.71	27.28	24.044	
4,100.00	3,984.02	4,021.38	4,017.68	15.53	13.93	174.37	-137.10	-67.75	681.05	653.07	27.98	24.338	
4,200.00	4,079.43	4,118.18	4,114.35	15.96	14.28	174.47	-141.99	-69.09	706.12	677.43	28.68	24.618	
4,300.00	4,174.84	4,214.98	4,211.02	16.38	14.62	174.56	-146.88	-70.43	731.18	701.80	29.38	24.884	
7,600.00	6,214.00	7,423.04	6,214.00	27.87	26.46	-90.00	-185.06	1,370.00	1,319.94	1,266.86	53.08	24.867	
7,700.00	6,214.00	7,523.04	6,214.00	28.42	27.12	-90.00	-184.32	1,470.00	1,319.94	1,265.55	54.39	24.270	
7,800.00	6,214.00	7,623.04	6,214.00	29.01	27.82	-90.00	-183.59	1,569.99	1,319.94	1,264.19	55.75	23.675	
7,900.00	6,214.00	7,723.04	6,214.00	29.64	28.54	-90.00	-182.85	1,669.99	1,319.94	1,262.77	57.17	23.086	
8,000.00	6,214.00	7,823.04	6,214.00	30.31	29.29	-90.00	-182.11	1,769.99	1,319.94	1,261.29	58.65	22.507	
8,100.00	6,214.00	7,923.04	6,214.00	31.00	30.06	-90.00	-181.38	1,869.99	1,319.94	1,259.77	60.17	21.938	
8,200.00	6,214.00	8,023.04	6,214.00	31.73	30.85	-90.00	-180.64	1,969.98	1,319.94	1,258.21	61.73	21.382	
8,300.00	6,214.00	8,123.04	6,214.00	32.48	31.67	-90.00	-179.90	2,069.98	1,319.94	1,256.61	63.34	20.840	
8,400.00	6,214.00	8,223.04	6,214.00	33.26	32.50	-90.00	-179.17	2,169.98	1,319.94	1,254.96	64.98	20.313	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A07) Koala 9 Fed Com 111H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,500.00	6,214.00	8,323.04	6,214.00	34.06	33.34	-90.00	-178.43	2,269.98	1,319.94	1,253.29	66.66	19.801	
8,600.00	6,214.00	8,423.04	6,214.00	34.87	34.21	-90.00	-177.69	2,369.97	1,319.95	1,251.58	68.37	19.306	
8,700.00	6,214.00	8,523.04	6,214.00	35.71	35.09	-90.00	-176.96	2,469.97	1,319.95	1,249.84	70.11	18.826	
8,800.00	6,214.00	8,623.04	6,214.00	36.56	35.98	-90.00	-176.22	2,569.97	1,319.95	1,248.07	71.88	18.363	
8,900.00	6,214.00	8,723.04	6,214.00	37.43	36.88	-90.00	-175.48	2,669.96	1,319.95	1,246.27	73.67	17.916	
9,000.00	6,214.00	8,823.04	6,214.00	38.31	37.80	-90.00	-174.75	2,769.96	1,319.95	1,244.46	75.49	17.484	
9,100.00	6,214.00	8,923.04	6,214.00	39.20	38.73	-90.00	-174.01	2,869.96	1,319.95	1,242.62	77.33	17.068	
9,200.00	6,214.00	9,023.04	6,214.00	40.11	39.66	-90.00	-173.27	2,969.96	1,319.95	1,240.75	79.20	16.667	
9,300.00	6,214.00	9,123.04	6,214.00	41.03	40.61	-90.00	-172.54	3,069.95	1,319.95	1,238.87	81.08	16.280	
9,400.00	6,214.00	9,223.04	6,214.00	41.95	41.57	-90.00	-171.80	3,169.95	1,319.95	1,236.98	82.98	15.907	
9,500.00	6,214.00	9,323.04	6,214.00	42.89	42.53	-90.00	-171.06	3,269.95	1,319.95	1,235.06	84.89	15.548	
9,600.00	6,214.00	9,423.04	6,214.00	43.84	43.50	-90.00	-170.33	3,369.95	1,319.95	1,233.13	86.83	15.202	
9,700.00	6,214.00	9,523.04	6,214.00	44.79	44.48	-90.00	-169.59	3,469.94	1,319.96	1,231.18	88.77	14.869	
9,800.00	6,214.00	9,623.04	6,214.00	45.75	45.46	-90.00	-168.86	3,569.94	1,319.96	1,229.22	90.73	14.548	
9,900.00	6,214.00	9,723.04	6,214.00	46.72	46.45	-90.00	-168.12	3,669.94	1,319.96	1,227.25	92.71	14.238	
10,000.00	6,214.00	9,823.04	6,214.00	47.70	47.45	-90.00	-167.38	3,769.93	1,319.96	1,225.27	94.69	13.940	
10,100.00	6,214.00	9,923.04	6,214.00	48.68	48.45	-90.00	-166.65	3,869.93	1,319.96	1,223.27	96.69	13.652	
10,200.00	6,214.00	10,023.04	6,214.00	49.67	49.46	-90.00	-165.91	3,969.93	1,319.96	1,221.27	98.69	13.374	
10,300.00	6,214.00	10,123.04	6,214.00	50.67	50.47	-90.00	-165.17	4,069.93	1,319.96	1,219.25	100.71	13.106	
10,400.00	6,214.00	10,223.04	6,214.00	51.67	51.49	-90.00	-164.44	4,169.92	1,319.96	1,217.22	102.74	12.848	
10,500.00	6,214.00	10,323.04	6,214.00	52.67	52.51	-90.00	-163.70	4,269.92	1,319.96	1,215.19	104.77	12.598	
10,600.00	6,214.00	10,423.04	6,214.00	53.68	53.54	-90.00	-162.96	4,369.92	1,319.96	1,213.15	106.82	12.357	
10,700.00	6,214.00	10,523.04	6,214.00	54.70	54.57	-90.00	-162.23	4,469.92	1,319.96	1,211.10	108.87	12.124	
10,800.00	6,214.00	10,623.04	6,214.00	55.71	55.60	-90.00	-161.49	4,569.91	1,319.97	1,209.04	110.93	11.899	
10,900.00	6,214.00	10,723.04	6,214.00	56.74	56.63	-90.00	-160.75	4,669.91	1,319.97	1,206.97	113.00	11.682	
11,000.00	6,214.00	10,823.04	6,214.00	57.76	57.67	-90.00	-160.02	4,769.91	1,319.97	1,204.90	115.07	11.471	
11,100.00	6,214.00	10,923.04	6,214.00	58.79	58.72	-90.00	-159.28	4,869.90	1,319.97	1,202.82	117.15	11.268	
11,200.00	6,214.00	11,023.04	6,214.00	59.83	59.76	-90.00	-158.54	4,969.90	1,319.97	1,200.74	119.23	11.071	
11,300.00	6,214.00	11,123.04	6,214.00	60.86	60.81	-90.00	-157.81	5,069.90	1,319.97	1,198.65	121.32	10.880	
11,400.00	6,214.00	11,223.04	6,214.00	61.90	61.86	-90.00	-157.07	5,169.90	1,319.97	1,196.55	123.42	10.695	
11,500.00	6,214.00	11,323.04	6,214.00	62.94	62.91	-90.00	-156.33	5,269.89	1,319.97	1,194.45	125.52	10.516	
11,600.00	6,214.00	11,423.04	6,214.00	63.99	63.97	-90.00	-155.60	5,369.89	1,319.97	1,192.35	127.63	10.342	
11,700.00	6,214.00	11,523.04	6,214.00	65.04	65.03	-90.00	-154.86	5,469.89	1,319.97	1,190.24	129.74	10.174	
11,800.00	6,214.00	11,623.04	6,214.00	66.09	66.08	-90.00	-154.12	5,569.89	1,319.98	1,188.12	131.85	10.011	
11,900.00	6,214.00	11,723.04	6,214.00	67.14	67.15	-90.00	-153.39	5,669.88	1,319.98	1,186.00	133.97	9.853	
12,000.00	6,214.00	11,823.04	6,214.00	68.19	68.21	-90.00	-152.65	5,769.88	1,319.98	1,183.88	136.10	9.699	
12,100.00	6,214.00	11,923.04	6,214.00	69.25	69.28	-90.00	-151.91	5,869.88	1,319.98	1,181.75	138.22	9.550	
12,200.00	6,214.00	12,023.04	6,214.00	70.31	70.34	-90.00	-151.18	5,969.87	1,319.98	1,179.62	140.35	9.405	
12,300.00	6,214.00	12,123.04	6,214.00	71.37	71.41	-90.00	-150.44	6,069.87	1,319.98	1,177.49	142.49	9.264	
12,400.00	6,214.00	12,223.04	6,214.00	72.43	72.48	-90.00	-149.70	6,169.87	1,319.98	1,175.35	144.63	9.127	
12,500.00	6,214.00	12,323.04	6,214.00	73.50	73.55	-90.00	-148.97	6,269.87	1,319.98	1,173.21	146.77	8.994	
12,600.00	6,214.00	12,423.04	6,214.00	74.56	74.63	-90.00	-148.23	6,369.86	1,319.98	1,171.07	148.91	8.864	
12,700.00	6,214.00	12,523.04	6,214.00	75.63	75.70	-90.00	-147.49	6,469.86	1,319.98	1,168.92	151.06	8.738	
12,800.00	6,214.00	12,623.04	6,214.00	76.70	76.78	-90.00	-146.76	6,569.86	1,319.98	1,166.78	153.21	8.616	
12,900.00	6,214.00	12,723.04	6,214.00	77.77	77.86	-90.00	-146.02	6,669.86	1,319.99	1,164.62	155.36	8.496	
13,000.00	6,214.00	12,823.04	6,214.00	78.84	78.94	-90.00	-145.28	6,769.85	1,319.99	1,162.47	157.52	8.380	
13,100.00	6,214.00	12,923.04	6,214.00	79.91	80.02	-90.00	-144.55	6,869.85	1,319.99	1,160.31	159.67	8.267	
13,200.00	6,214.00	13,023.04	6,214.00	80.99	81.10	-90.00	-143.81	6,969.85	1,319.99	1,158.16	161.83	8.157	
13,300.00	6,214.00	13,123.04	6,214.00	82.07	82.18	-90.00	-143.07	7,069.84	1,319.99	1,155.99	163.99	8.049	
13,400.00	6,214.00	13,223.04	6,214.00	83.14	83.26	-90.00	-142.34	7,169.84	1,319.99	1,153.83	166.16	7.944	
13,500.00	6,214.00	13,323.04	6,214.00	84.22	84.35	-90.00	-141.60	7,269.84	1,319.99	1,151.67	168.32	7.842	
13,600.00	6,214.00	13,423.04	6,214.00	85.30	85.43	-90.00	-140.86	7,369.84	1,319.99	1,149.50	170.49	7.742	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (A07) Koala 9 Fed Com 111H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,700.00	6,214.00	13,523.04	6,214.00	86.38	86.52	-90.00	-140.13	7,469.83	1,319.99	1,147.33	172.66	7.645	
13,800.00	6,214.00	13,623.04	6,214.00	87.46	87.61	-90.00	-139.39	7,569.83	1,319.99	1,145.16	174.84	7.550	
13,900.00	6,214.00	13,723.04	6,214.00	88.55	88.69	-90.00	-138.65	7,669.83	1,319.99	1,142.99	177.01	7.457	
14,000.00	6,214.00	13,823.04	6,214.00	89.63	89.78	-90.00	-137.92	7,769.83	1,320.00	1,140.81	179.18	7.367	
14,100.00	6,214.00	13,923.04	6,214.00	90.72	90.87	-90.00	-137.18	7,869.82	1,320.00	1,138.63	181.36	7.278	
14,200.00	6,214.00	14,023.04	6,214.00	91.80	91.96	-90.00	-136.44	7,969.82	1,320.00	1,136.46	183.54	7.192	
14,300.00	6,214.00	14,123.04	6,214.00	92.89	93.05	-90.00	-135.71	8,069.82	1,320.00	1,134.28	185.72	7.107	
14,400.00	6,214.00	14,223.04	6,214.00	93.97	94.15	-90.00	-134.97	8,169.82	1,320.00	1,132.10	187.90	7.025	
14,500.00	6,214.00	14,323.04	6,214.00	95.06	95.24	-90.00	-134.23	8,269.81	1,320.00	1,129.91	190.09	6.944	
14,600.00	6,214.00	14,423.04	6,214.00	96.15	96.33	-90.00	-133.50	8,369.81	1,320.00	1,127.73	192.27	6.865	
14,700.00	6,214.00	14,523.04	6,214.00	97.24	97.43	-90.00	-132.76	8,469.81	1,320.00	1,125.54	194.46	6.788	
14,800.00	6,214.00	14,623.04	6,214.00	98.33	98.52	-90.00	-132.02	8,569.80	1,320.00	1,123.36	196.64	6.713	
14,900.00	6,214.00	14,723.04	6,214.00	99.42	99.62	-90.00	-131.29	8,669.80	1,320.00	1,121.17	198.83	6.639	
15,000.00	6,214.00	14,823.04	6,214.00	100.51	100.71	-90.00	-130.55	8,769.80	1,320.00	1,118.98	201.02	6.566	
15,100.00	6,214.00	14,923.04	6,214.00	101.61	101.81	-90.00	-129.81	8,869.80	1,320.01	1,116.79	203.21	6.496	
15,200.00	6,214.00	15,023.04	6,214.00	102.70	102.90	-90.00	-129.08	8,969.79	1,320.01	1,114.60	205.41	6.426	
15,300.00	6,214.00	15,123.04	6,214.00	103.79	104.00	-90.00	-128.34	9,069.79	1,320.01	1,112.41	207.60	6.358	
15,400.00	6,214.00	15,223.04	6,214.00	104.89	105.10	-90.00	-127.60	9,169.79	1,320.01	1,110.21	209.79	6.292	
15,500.00	6,214.00	15,323.04	6,214.00	105.98	106.20	-90.00	-126.87	9,269.79	1,320.01	1,108.02	211.99	6.227	
15,600.00	6,214.00	15,423.04	6,214.00	107.08	107.30	-90.00	-126.13	9,369.78	1,320.01	1,105.82	214.19	6.163	
15,700.00	6,214.00	15,523.04	6,214.00	108.17	108.40	-90.00	-125.39	9,469.78	1,320.01	1,103.63	216.38	6.100	
15,800.00	6,214.00	15,623.04	6,214.00	109.27	109.50	-90.00	-124.66	9,569.78	1,320.01	1,101.43	218.58	6.039	
15,900.00	6,214.00	15,723.04	6,214.00	110.37	110.60	-90.00	-123.92	9,669.77	1,320.01	1,099.23	220.78	5.979	
16,000.00	6,214.00	15,823.04	6,214.00	111.47	111.70	-90.00	-123.18	9,769.77	1,320.01	1,097.03	222.98	5.920	
16,100.00	6,214.00	15,923.04	6,214.00	112.56	112.80	-90.00	-122.45	9,869.77	1,320.01	1,094.83	225.18	5.862	
16,200.00	6,214.00	16,023.04	6,214.00	113.66	113.90	-90.00	-121.71	9,969.77	1,320.02	1,092.63	227.39	5.805	
16,300.00	6,214.00	16,123.04	6,214.00	114.76	115.00	-90.00	-120.97	10,069.76	1,320.02	1,090.43	229.59	5.750	
16,400.00	6,214.00	16,223.04	6,214.00	115.86	116.11	-90.00	-120.24	10,169.76	1,320.02	1,088.23	231.79	5.695	
16,500.00	6,214.00	16,323.04	6,214.00	116.96	117.21	-90.00	-119.50	10,269.76	1,320.02	1,086.02	234.00	5.641	
16,600.00	6,214.00	16,423.04	6,214.00	118.06	118.31	-90.00	-118.76	10,369.76	1,320.02	1,083.82	236.20	5.589	
16,700.00	6,214.00	16,523.04	6,214.00	119.16	119.41	-90.00	-118.03	10,469.75	1,320.02	1,081.61	238.41	5.537	
16,800.00	6,214.00	16,623.04	6,214.00	120.26	120.52	-90.00	-117.29	10,569.75	1,320.02	1,079.41	240.61	5.486	
16,900.00	6,214.00	16,723.04	6,214.00	121.36	121.62	-90.00	-116.55	10,669.75	1,320.02	1,077.20	242.82	5.436	
17,000.00	6,214.00	16,823.04	6,214.00	122.47	122.73	-90.00	-115.82	10,769.74	1,320.02	1,074.99	245.03	5.387	
17,100.00	6,214.00	16,923.04	6,214.00	123.57	123.83	-90.00	-115.08	10,869.74	1,320.02	1,072.79	247.24	5.339	
17,163.72	6,214.00	16,986.76	6,214.00	124.27	124.54	-90.00	-114.61	10,933.46	1,320.02	1,071.38	248.64	5.309	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B01) Koala 9 Fed Com 203H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,250.00	6,008.16	6,244.99	6,171.42	24.47	22.63	88.05	-2,477.67	-63.43	1,055.08	1,012.23	42.85	24.624	
6,300.00	6,044.12	6,278.36	6,204.30	24.61	22.75	92.68	-2,471.97	-63.60	1,043.84	1,000.66	43.18	24.172	
6,350.00	6,077.21	6,309.05	6,234.54	24.74	22.86	96.50	-2,466.73	-63.76	1,035.88	992.34	43.54	23.793	
6,400.00	6,107.17	6,336.83	6,261.90	24.85	22.97	99.56	-2,461.99	-63.90	1,031.57	987.66	43.91	23.495	
6,429.10	6,123.09	6,351.57	6,276.42	24.91	23.02	101.01	-2,459.48	-63.98	1,030.87	986.75	44.13	23.361 CC, ES	
6,450.00	6,133.79	6,361.47	6,286.19	24.95	23.06	101.90	-2,457.79	-64.03	1,031.24	986.95	44.29	23.283	
6,500.00	6,156.86	6,382.80	6,307.20	25.04	23.14	103.52	-2,454.15	-64.14	1,035.13	990.44	44.69	23.162	
6,550.00	6,176.21	6,400.65	6,324.79	25.12	23.20	104.43	-2,451.10	-64.23	1,043.36	998.26	45.09	23.137	
6,600.00	6,191.68	6,414.88	6,338.81	25.19	23.26	104.62	-2,448.67	-64.30	1,055.96	1,010.46	45.50	23.210	
6,650.00	6,203.16	6,425.39	6,349.17	25.25	23.30	104.05	-2,446.88	-64.35	1,072.81	1,026.93	45.88	23.381	
6,700.00	6,210.56	6,432.10	6,355.78	25.31	23.32	102.69	-2,445.73	-64.39	1,093.72	1,047.47	46.25	23.648	
6,750.00	6,213.83	6,434.95	6,358.59	25.37	23.33	100.48	-2,445.24	-64.40	1,118.36	1,071.77	46.59	24.006	
6,764.30	6,214.00	6,435.06	6,358.69	25.39	23.33	99.69	-2,445.23	-64.40	1,126.04	1,079.36	46.68	24.124	
6,800.00	6,214.00	6,434.92	6,358.55	25.43	23.33	99.68	-2,445.25	-64.40	1,145.94	1,099.04	46.89	24.438	
16,200.00	6,214.00	18,760.41	8,853.00	113.66	116.59	165.66	-2,120.01	9,983.98	2,738.35	2,627.94	110.40	24.803	
16,300.00	6,214.00	18,860.41	8,853.00	114.76	117.67	165.66	-2,119.35	10,083.98	2,738.37	2,626.94	111.42	24.577	
16,400.00	6,214.00	18,960.41	8,853.00	115.86	118.75	165.65	-2,118.69	10,183.98	2,738.38	2,625.94	112.44	24.354	
16,500.00	6,214.00	19,060.41	8,853.00	116.96	119.83	165.65	-2,118.03	10,283.97	2,738.40	2,624.94	113.46	24.136	
16,600.00	6,214.00	19,160.41	8,853.00	118.06	120.91	165.65	-2,117.36	10,383.97	2,738.42	2,623.94	114.48	23.921	
16,700.00	6,214.00	19,260.41	8,853.00	119.16	121.99	165.65	-2,116.70	10,483.97	2,738.44	2,622.94	115.50	23.710	
16,800.00	6,214.00	19,360.41	8,853.00	120.26	123.08	165.65	-2,116.04	10,583.97	2,738.46	2,621.94	116.52	23.502	
16,900.00	6,214.00	19,460.41	8,853.00	121.36	124.16	165.65	-2,115.38	10,683.97	2,738.48	2,620.93	117.54	23.298	
17,000.00	6,214.00	19,560.41	8,853.00	122.47	125.24	165.65	-2,114.71	10,783.96	2,738.49	2,619.93	118.56	23.097	
17,100.00	6,214.00	19,660.41	8,853.00	123.57	126.33	165.64	-2,114.05	10,883.96	2,738.51	2,618.93	119.59	22.900	
17,100.17	6,214.00	19,660.58	8,853.00	123.57	126.33	165.64	-2,114.05	10,884.13	2,738.51	2,618.92	119.59	22.900	
17,163.72	6,214.00	19,710.50	8,853.00	124.27	126.87	165.64	-2,113.72	10,934.05	2,738.56	2,618.40	120.15	22.792 SF	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B02) Koala 9 Fed Com 204H - Permit - APD-Revv00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,700.00	6,214.00	17,159.21	8,853.00	97.24	99.94	143.03	-3,449.84	8,492.77	3,320.70	3,186.64	134.06	24.769	CC
14,800.00	6,214.00	17,259.21	8,853.00	98.33	101.01	143.03	-3,449.18	8,592.76	3,320.74	3,185.19	135.56	24.497	
14,900.00	6,214.00	17,359.21	8,853.00	99.42	102.08	143.03	-3,448.52	8,692.76	3,320.79	3,183.73	137.05	24.230	
15,000.00	6,214.00	17,459.21	8,853.00	100.51	103.15	143.02	-3,447.85	8,792.76	3,320.83	3,182.28	138.55	23.968	
15,100.00	6,214.00	17,559.21	8,853.00	101.61	104.22	143.02	-3,447.19	8,892.76	3,320.88	3,180.83	140.05	23.712	
15,200.00	6,214.00	17,659.21	8,853.00	102.70	105.29	143.02	-3,446.53	8,992.75	3,320.92	3,179.37	141.55	23.461	
15,300.00	6,214.00	17,759.21	8,853.00	103.79	106.37	143.02	-3,445.86	9,092.75	3,320.96	3,177.91	143.05	23.215	
15,400.00	6,214.00	17,859.21	8,853.00	104.89	107.44	143.02	-3,445.20	9,192.75	3,321.01	3,176.46	144.55	22.975	
15,500.00	6,214.00	17,959.21	8,853.00	105.98	108.51	143.02	-3,444.54	9,292.75	3,321.05	3,175.00	146.05	22.739	
15,600.00	6,214.00	18,059.21	8,853.00	107.08	109.59	143.02	-3,443.88	9,392.75	3,321.10	3,173.54	147.56	22.507	
15,700.00	6,214.00	18,159.21	8,853.00	108.17	110.67	143.02	-3,443.21	9,492.74	3,321.14	3,172.08	149.06	22.280	
15,800.00	6,214.00	18,259.21	8,853.00	109.27	111.74	143.02	-3,442.55	9,592.74	3,321.18	3,170.62	150.57	22.058	
15,900.00	6,214.00	18,359.21	8,853.00	110.37	112.82	143.02	-3,441.89	9,692.74	3,321.23	3,169.15	152.07	21.840	
16,000.00	6,214.00	18,459.21	8,853.00	111.47	113.90	143.01	-3,441.23	9,792.74	3,321.27	3,167.69	153.58	21.626	
16,100.00	6,214.00	18,559.21	8,853.00	112.56	114.98	143.01	-3,440.56	9,892.73	3,321.32	3,166.23	155.09	21.416	
16,200.00	6,214.00	18,659.21	8,853.00	113.66	116.06	143.01	-3,439.90	9,992.73	3,321.36	3,164.76	156.60	21.210	
16,300.00	6,214.00	18,759.21	8,853.00	114.76	117.14	143.01	-3,439.24	10,092.73	3,321.40	3,163.30	158.11	21.007	
16,400.00	6,214.00	18,859.21	8,853.00	115.86	118.23	143.01	-3,438.57	10,192.73	3,321.45	3,161.83	159.62	20.809	
16,500.00	6,214.00	18,959.21	8,853.00	116.96	119.31	143.01	-3,437.91	10,292.73	3,321.49	3,160.36	161.13	20.614	
16,600.00	6,214.00	19,059.21	8,853.00	118.06	120.39	143.01	-3,437.25	10,392.72	3,321.53	3,158.89	162.64	20.422	
16,700.00	6,214.00	19,159.21	8,853.00	119.16	121.48	143.01	-3,436.59	10,492.72	3,321.58	3,157.42	164.15	20.235	
16,800.00	6,214.00	19,259.21	8,853.00	120.26	122.56	143.01	-3,435.92	10,592.72	3,321.62	3,155.96	165.67	20.050	
16,900.00	6,214.00	19,359.21	8,853.00	121.36	123.65	143.01	-3,435.26	10,692.72	3,321.67	3,154.49	167.18	19.869	
17,000.00	6,214.00	19,459.21	8,853.00	122.47	124.74	143.00	-3,434.60	10,792.71	3,321.71	3,153.01	168.70	19.690	
17,100.00	6,214.00	19,559.21	8,853.00	123.57	125.82	143.00	-3,433.94	10,892.71	3,321.75	3,151.54	170.21	19.515	
17,163.72	6,214.00	19,583.50	8,853.00	124.27	126.08	143.00	-3,433.77	10,917.01	3,322.02	3,151.09	170.93	19.435	ES, SF

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B03) Koala 9 Fed Com 133H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,700.00	6,214.00	15,572.85	8,523.00	86.38	88.63	150.09	-2,796.57	7,488.43	2,680.04	2,572.44	107.60	24.907	CC
13,800.00	6,214.00	15,672.85	8,523.00	87.46	89.68	150.09	-2,795.90	7,588.43	2,680.07	2,571.15	108.92	24.606	
13,900.00	6,214.00	15,772.85	8,523.00	88.55	90.74	150.08	-2,795.24	7,688.43	2,680.11	2,569.87	110.24	24.311	
14,000.00	6,214.00	15,872.85	8,523.00	89.63	91.79	150.08	-2,794.58	7,788.42	2,680.14	2,568.58	111.56	24.023	
14,100.00	6,214.00	15,972.85	8,523.00	90.72	92.85	150.08	-2,793.91	7,888.42	2,680.18	2,567.29	112.89	23.742	
14,200.00	6,214.00	16,072.85	8,523.00	91.80	93.91	150.08	-2,793.25	7,988.42	2,680.22	2,566.00	114.22	23.466	
14,300.00	6,214.00	16,172.85	8,523.00	92.89	94.97	150.08	-2,792.58	8,088.42	2,680.25	2,564.71	115.54	23.197	
14,400.00	6,214.00	16,272.85	8,523.00	93.97	96.04	150.08	-2,791.92	8,188.42	2,680.29	2,563.42	116.87	22.933	
14,500.00	6,214.00	16,372.85	8,523.00	95.06	97.10	150.08	-2,791.26	8,288.41	2,680.32	2,562.12	118.20	22.676	
14,600.00	6,214.00	16,472.85	8,523.00	96.15	98.16	150.07	-2,790.59	8,388.41	2,680.36	2,560.83	119.53	22.423	
14,700.00	6,214.00	16,572.85	8,523.00	97.24	99.23	150.07	-2,789.93	8,488.41	2,680.40	2,559.53	120.87	22.176	
14,800.00	6,214.00	16,672.85	8,523.00	98.33	100.30	150.07	-2,789.26	8,588.41	2,680.43	2,558.23	122.20	21.935	
14,900.00	6,214.00	16,772.85	8,523.00	99.42	101.37	150.07	-2,788.60	8,688.40	2,680.47	2,556.93	123.54	21.698	
15,000.00	6,214.00	16,872.85	8,523.00	100.51	102.44	150.07	-2,787.94	8,788.40	2,680.50	2,555.63	124.87	21.466	
15,100.00	6,214.00	16,972.85	8,523.00	101.61	103.51	150.07	-2,787.27	8,888.40	2,680.54	2,554.33	126.21	21.239	
15,200.00	6,214.00	17,072.85	8,523.00	102.70	104.58	150.07	-2,786.61	8,988.40	2,680.57	2,553.03	127.55	21.016	
15,300.00	6,214.00	17,172.85	8,523.00	103.79	105.66	150.07	-2,785.94	9,088.40	2,680.61	2,551.72	128.89	20.798	
15,400.00	6,214.00	17,272.85	8,523.00	104.89	106.73	150.06	-2,785.28	9,188.39	2,680.65	2,550.42	130.23	20.584	
15,500.00	6,214.00	17,372.85	8,523.00	105.98	107.81	150.06	-2,784.62	9,288.39	2,680.68	2,549.11	131.57	20.374	
15,600.00	6,214.00	17,472.85	8,523.00	107.08	108.88	150.06	-2,783.95	9,388.39	2,680.72	2,547.80	132.91	20.169	
15,700.00	6,214.00	17,572.85	8,523.00	108.17	109.96	150.06	-2,783.29	9,488.39	2,680.75	2,546.50	134.26	19.967	
15,800.00	6,214.00	17,672.85	8,523.00	109.27	111.04	150.06	-2,782.63	9,588.38	2,680.79	2,545.19	135.60	19.770	
15,900.00	6,214.00	17,772.85	8,523.00	110.37	112.12	150.06	-2,781.96	9,688.38	2,680.83	2,543.88	136.95	19.576	
16,000.00	6,214.00	17,872.85	8,523.00	111.47	113.20	150.06	-2,781.30	9,788.38	2,680.86	2,542.57	138.29	19.385	
16,100.00	6,214.00	17,972.85	8,523.00	112.56	114.28	150.05	-2,780.63	9,888.38	2,680.90	2,541.26	139.64	19.199	
16,200.00	6,214.00	18,072.85	8,523.00	113.66	115.36	150.05	-2,779.97	9,988.38	2,680.93	2,539.94	140.99	19.015	
16,300.00	6,214.00	18,172.85	8,523.00	114.76	116.44	150.05	-2,779.31	10,088.37	2,680.97	2,538.63	142.34	18.835	
16,400.00	6,214.00	18,272.85	8,523.00	115.86	117.52	150.05	-2,778.64	10,188.37	2,681.00	2,537.32	143.69	18.659	
16,500.00	6,214.00	18,372.85	8,523.00	116.96	118.61	150.05	-2,777.98	10,288.37	2,681.04	2,536.00	145.04	18.485	
16,600.00	6,214.00	18,472.85	8,523.00	118.06	119.69	150.05	-2,777.31	10,388.37	2,681.08	2,534.69	146.39	18.315	
16,700.00	6,214.00	18,572.85	8,523.00	119.16	120.77	150.05	-2,776.65	10,488.36	2,681.11	2,533.37	147.74	18.148	
16,800.00	6,214.00	18,672.85	8,523.00	120.26	121.86	150.05	-2,775.99	10,588.36	2,681.15	2,532.06	149.09	17.983	
16,900.00	6,214.00	18,772.85	8,523.00	121.36	122.95	150.04	-2,775.32	10,688.36	2,681.18	2,530.74	150.44	17.822	
17,000.00	6,214.00	18,872.85	8,523.00	122.47	124.03	150.04	-2,774.66	10,788.36	2,681.22	2,529.42	151.80	17.663	
17,100.00	6,214.00	18,972.85	8,523.00	123.57	125.12	150.04	-2,773.99	10,888.36	2,681.26	2,528.10	153.15	17.507	
17,100.70	6,214.00	18,973.55	8,523.00	123.58	125.13	150.04	-2,773.99	10,889.06	2,681.26	2,528.09	153.16	17.506	
17,163.72	6,214.00	19,009.61	8,523.00	124.27	125.52	150.04	-2,773.75	10,925.12	2,681.41	2,527.56	153.85	17.429	ES, SF

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B04) Koala 9 Fed Com 134H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,000.00	6,214.00	16,125.72	8,523.00	89.63	91.49	131.17	-4,114.45	7,797.17	3,529.03	3,386.45	142.58	24.751	CC
14,100.00	6,214.00	16,225.72	8,523.00	90.72	92.56	131.17	-4,113.79	7,897.16	3,529.08	3,384.76	144.32	24.453	
14,200.00	6,214.00	16,325.72	8,523.00	91.80	93.62	131.17	-4,113.13	7,997.16	3,529.14	3,383.08	146.06	24.162	
14,300.00	6,214.00	16,425.72	8,523.00	92.89	94.68	131.16	-4,112.46	8,097.16	3,529.19	3,381.39	147.80	23.878	
14,400.00	6,214.00	16,525.72	8,523.00	93.97	95.75	131.16	-4,111.80	8,197.16	3,529.25	3,379.70	149.55	23.600	
14,500.00	6,214.00	16,625.72	8,523.00	95.06	96.81	131.16	-4,111.14	8,297.15	3,529.30	3,378.01	151.29	23.328	
14,600.00	6,214.00	16,725.72	8,523.00	96.15	97.88	131.16	-4,110.48	8,397.15	3,529.36	3,376.32	153.04	23.062	
14,700.00	6,214.00	16,825.72	8,523.00	97.24	98.95	131.16	-4,109.81	8,497.15	3,529.41	3,374.63	154.79	22.802	
14,800.00	6,214.00	16,925.72	8,523.00	98.33	100.02	131.16	-4,109.15	8,597.15	3,529.47	3,372.93	156.53	22.548	
14,900.00	6,214.00	17,025.72	8,523.00	99.42	101.09	131.16	-4,108.49	8,697.15	3,529.52	3,371.24	158.28	22.299	
15,000.00	6,214.00	17,125.72	8,523.00	100.51	102.16	131.16	-4,107.82	8,797.14	3,529.58	3,369.54	160.04	22.055	
15,100.00	6,214.00	17,225.72	8,523.00	101.61	103.23	131.16	-4,107.16	8,897.14	3,529.63	3,367.84	161.79	21.816	
15,200.00	6,214.00	17,325.72	8,523.00	102.70	104.31	131.16	-4,106.50	8,997.14	3,529.68	3,366.14	163.54	21.583	
15,300.00	6,214.00	17,425.72	8,523.00	103.79	105.38	131.16	-4,105.83	9,097.14	3,529.74	3,364.44	165.30	21.354	
15,400.00	6,214.00	17,525.72	8,523.00	104.89	106.46	131.16	-4,105.17	9,197.13	3,529.79	3,362.74	167.05	21.130	
15,500.00	6,214.00	17,625.72	8,523.00	105.98	107.54	131.16	-4,104.51	9,297.13	3,529.85	3,361.04	168.81	20.910	
15,600.00	6,214.00	17,725.72	8,523.00	107.08	108.61	131.15	-4,103.84	9,397.13	3,529.90	3,359.33	170.57	20.695	
15,700.00	6,214.00	17,825.72	8,523.00	108.17	109.69	131.15	-4,103.18	9,497.13	3,529.96	3,357.63	172.33	20.484	
15,800.00	6,214.00	17,925.72	8,523.00	109.27	110.77	131.15	-4,102.52	9,597.13	3,530.01	3,355.92	174.09	20.277	
15,900.00	6,214.00	18,025.72	8,523.00	110.37	111.85	131.15	-4,101.85	9,697.12	3,530.07	3,354.22	175.85	20.074	
16,000.00	6,214.00	18,125.72	8,523.00	111.47	112.93	131.15	-4,101.19	9,797.12	3,530.12	3,352.51	177.61	19.875	
16,100.00	6,214.00	18,225.72	8,523.00	112.56	114.02	131.15	-4,100.53	9,897.12	3,530.18	3,350.80	179.38	19.680	
16,200.00	6,214.00	18,325.72	8,523.00	113.66	115.10	131.15	-4,099.87	9,997.12	3,530.23	3,349.09	181.14	19.489	
16,300.00	6,214.00	18,425.72	8,523.00	114.76	116.18	131.15	-4,099.20	10,097.11	3,530.29	3,347.38	182.91	19.301	
16,400.00	6,214.00	18,525.72	8,523.00	115.86	117.27	131.15	-4,098.54	10,197.11	3,530.34	3,345.67	184.67	19.117	
16,500.00	6,214.00	18,625.72	8,523.00	116.96	118.35	131.15	-4,097.88	10,297.11	3,530.40	3,343.96	186.44	18.936	
16,600.00	6,214.00	18,725.72	8,523.00	118.06	119.44	131.15	-4,097.21	10,397.11	3,530.45	3,342.24	188.21	18.758	
16,700.00	6,214.00	18,825.72	8,523.00	119.16	120.52	131.15	-4,096.55	10,497.11	3,530.50	3,340.53	189.97	18.584	
16,800.00	6,214.00	18,925.72	8,523.00	120.26	121.61	131.15	-4,095.89	10,597.10	3,530.56	3,338.82	191.74	18.413	
16,900.00	6,214.00	19,025.72	8,523.00	121.36	122.70	131.14	-4,095.22	10,697.10	3,530.61	3,337.10	193.51	18.245	
17,000.00	6,214.00	19,125.72	8,523.00	122.47	123.79	131.14	-4,094.56	10,797.10	3,530.67	3,335.39	195.28	18.080	
17,100.00	6,214.00	19,225.72	8,523.00	123.57	124.87	131.14	-4,093.90	10,897.10	3,530.72	3,333.67	197.05	17.918	
17,163.72	6,214.00	19,235.87	8,523.00	124.27	124.99	131.14	-4,093.83	10,907.25	3,531.16	3,333.38	197.79	17.853	ES, SF

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B05) Koala 9 Fed Com 123H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,600.00	6,214.00	10,226.33	7,328.00	43.84	45.01	130.23	-2,823.74	3,388.51	1,746.62	1,675.89	70.72	24.696	CC
9,700.00	6,214.00	10,326.33	7,328.00	44.79	45.92	130.23	-2,823.08	3,488.51	1,746.67	1,674.40	72.27	24.169	
9,800.00	6,214.00	10,426.33	7,328.00	45.75	46.84	130.22	-2,822.42	3,588.51	1,746.73	1,672.90	73.83	23.660	
9,900.00	6,214.00	10,526.33	7,328.00	46.72	47.77	130.22	-2,821.75	3,688.51	1,746.79	1,671.39	75.40	23.168	
10,000.00	6,214.00	10,626.33	7,328.00	47.70	48.71	130.22	-2,821.09	3,788.51	1,746.84	1,669.86	76.98	22.693	
10,100.00	6,214.00	10,726.33	7,328.00	48.68	49.66	130.22	-2,820.43	3,888.50	1,746.90	1,668.33	78.57	22.234	
10,200.00	6,214.00	10,826.33	7,328.00	49.67	50.62	130.22	-2,819.76	3,988.50	1,746.95	1,666.78	80.17	21.791	
10,300.00	6,214.00	10,926.33	7,328.00	50.67	51.58	130.22	-2,819.10	4,088.50	1,747.01	1,665.23	81.78	21.363	
10,400.00	6,214.00	11,026.33	7,328.00	51.67	52.54	130.21	-2,818.44	4,188.50	1,747.06	1,663.66	83.40	20.949	
10,500.00	6,214.00	11,126.33	7,328.00	52.67	53.52	130.21	-2,817.77	4,288.49	1,747.12	1,662.09	85.02	20.549	
10,600.00	6,214.00	11,226.33	7,328.00	53.68	54.50	130.21	-2,817.11	4,388.49	1,747.17	1,660.51	86.66	20.162	
10,700.00	6,214.00	11,326.33	7,328.00	54.70	55.48	130.21	-2,816.45	4,488.49	1,747.23	1,658.93	88.30	19.787	
10,800.00	6,214.00	11,426.33	7,328.00	55.71	56.47	130.21	-2,815.78	4,588.49	1,747.28	1,657.33	89.95	19.425	
10,900.00	6,214.00	11,526.33	7,328.00	56.74	57.47	130.21	-2,815.12	4,688.49	1,747.34	1,655.73	91.61	19.075	
11,000.00	6,214.00	11,626.33	7,328.00	57.76	58.46	130.21	-2,814.46	4,788.48	1,747.39	1,654.12	93.27	18.735	
11,100.00	6,214.00	11,726.33	7,328.00	58.79	59.47	130.20	-2,813.79	4,888.48	1,747.45	1,652.51	94.94	18.407	
11,200.00	6,214.00	11,826.33	7,328.00	59.83	60.48	130.20	-2,813.13	4,988.48	1,747.50	1,650.89	96.61	18.088	
11,300.00	6,214.00	11,926.33	7,328.00	60.86	61.49	130.20	-2,812.47	5,088.48	1,747.56	1,649.27	98.29	17.780	
11,400.00	6,214.00	12,026.33	7,328.00	61.90	62.50	130.20	-2,811.80	5,188.47	1,747.61	1,647.64	99.97	17.481	
11,500.00	6,214.00	12,126.33	7,328.00	62.94	63.52	130.20	-2,811.14	5,288.47	1,747.67	1,646.01	101.66	17.191	
11,600.00	6,214.00	12,226.33	7,328.00	63.99	64.54	130.20	-2,810.48	5,388.47	1,747.72	1,644.37	103.36	16.910	
11,700.00	6,214.00	12,326.33	7,328.00	65.04	65.57	130.20	-2,809.81	5,488.47	1,747.78	1,642.73	105.05	16.637	
11,800.00	6,214.00	12,426.33	7,328.00	66.09	66.60	130.19	-2,809.15	5,588.47	1,747.84	1,641.08	106.76	16.372	
11,900.00	6,214.00	12,526.33	7,328.00	67.14	67.63	130.19	-2,808.49	5,688.46	1,747.89	1,639.43	108.46	16.115	
12,000.00	6,214.00	12,626.33	7,328.00	68.19	68.67	130.19	-2,807.82	5,788.46	1,747.95	1,637.77	110.17	15.865	
12,100.00	6,214.00	12,726.33	7,328.00	69.25	69.70	130.19	-2,807.16	5,888.46	1,748.00	1,636.11	111.89	15.623	
12,200.00	6,214.00	12,826.33	7,328.00	70.31	70.74	130.19	-2,806.50	5,988.46	1,748.06	1,634.45	113.60	15.387	
12,300.00	6,214.00	12,926.33	7,328.00	71.37	71.79	130.19	-2,805.83	6,088.45	1,748.11	1,632.79	115.33	15.158	
12,400.00	6,214.00	13,026.33	7,328.00	72.43	72.83	130.18	-2,805.17	6,188.45	1,748.17	1,631.12	117.05	14.935	
12,500.00	6,214.00	13,126.33	7,328.00	73.50	73.88	130.18	-2,804.51	6,288.45	1,748.22	1,629.45	118.78	14.719	
12,600.00	6,214.00	13,226.33	7,328.00	74.56	74.93	130.18	-2,803.84	6,388.45	1,748.28	1,627.77	120.51	14.508	
12,700.00	6,214.00	13,326.33	7,328.00	75.63	75.98	130.18	-2,803.18	6,488.45	1,748.33	1,626.09	122.24	14.303	
12,800.00	6,214.00	13,426.33	7,328.00	76.70	77.03	130.18	-2,802.52	6,588.44	1,748.39	1,624.41	123.97	14.103	
12,900.00	6,214.00	13,526.33	7,328.00	77.77	78.09	130.18	-2,801.85	6,688.44	1,748.44	1,622.73	125.71	13.908	
13,000.00	6,214.00	13,626.33	7,328.00	78.84	79.14	130.18	-2,801.19	6,788.44	1,748.50	1,621.05	127.45	13.719	
13,100.00	6,214.00	13,726.33	7,328.00	79.91	80.20	130.17	-2,800.53	6,888.44	1,748.55	1,619.36	129.20	13.534	
13,200.00	6,214.00	13,826.33	7,328.00	80.99	81.26	130.17	-2,799.86	6,988.43	1,748.61	1,617.67	130.94	13.354	
13,300.00	6,214.00	13,926.33	7,328.00	82.07	82.32	130.17	-2,799.20	7,088.43	1,748.66	1,615.98	132.69	13.179	
13,400.00	6,214.00	14,026.33	7,328.00	83.14	83.39	130.17	-2,798.54	7,188.43	1,748.72	1,614.28	134.44	13.008	
13,500.00	6,214.00	14,126.33	7,328.00	84.22	84.45	130.17	-2,797.87	7,288.43	1,748.78	1,612.58	136.19	12.841	
13,600.00	6,214.00	14,226.33	7,328.00	85.30	85.52	130.17	-2,797.21	7,388.43	1,748.83	1,610.89	137.94	12.678	
13,700.00	6,214.00	14,326.33	7,328.00	86.38	86.59	130.16	-2,796.55	7,488.42	1,748.89	1,609.19	139.70	12.519	
13,800.00	6,214.00	14,426.33	7,328.00	87.46	87.66	130.16	-2,795.88	7,588.42	1,748.94	1,607.48	141.46	12.364	
13,900.00	6,214.00	14,526.33	7,328.00	88.55	88.73	130.16	-2,795.22	7,688.42	1,749.00	1,605.78	143.22	12.212	
14,000.00	6,214.00	14,626.33	7,328.00	89.63	89.80	130.16	-2,794.56	7,788.42	1,749.05	1,604.07	144.98	12.064	
14,100.00	6,214.00	14,726.33	7,328.00	90.72	90.87	130.16	-2,793.89	7,888.41	1,749.11	1,602.37	146.74	11.920	
14,200.00	6,214.00	14,826.33	7,328.00	91.80	91.95	130.16	-2,793.23	7,988.41	1,749.16	1,600.66	148.51	11.778	
14,300.00	6,214.00	14,926.33	7,328.00	92.89	93.02	130.16	-2,792.57	8,088.41	1,749.22	1,598.95	150.27	11.640	
14,400.00	6,214.00	15,026.33	7,328.00	93.97	94.10	130.15	-2,791.90	8,188.41	1,749.27	1,597.23	152.04	11.505	
14,500.00	6,214.00	15,126.33	7,328.00	95.06	95.18	130.15	-2,791.24	8,288.41	1,749.33	1,595.52	153.81	11.374	
14,600.00	6,214.00	15,226.33	7,328.00	96.15	96.26	130.15	-2,790.58	8,388.40	1,749.38	1,593.81	155.58	11.244	
14,700.00	6,214.00	15,326.33	7,328.00	97.24	97.34	130.15	-2,789.91	8,488.40	1,749.44	1,592.09	157.35	11.118	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B05) Koala 9 Fed Com 123H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,800.00	6,214.00	15,426.33	7,328.00	98.33	98.42	130.15	-2,789.25	8,588.40	1,749.49	1,590.37	159.12	10.995	
14,900.00	6,214.00	15,526.33	7,328.00	99.42	99.50	130.15	-2,788.59	8,688.40	1,749.55	1,588.65	160.90	10.874	
15,000.00	6,214.00	15,626.33	7,328.00	100.51	100.58	130.14	-2,787.92	8,788.39	1,749.60	1,586.93	162.67	10.755	
15,100.00	6,214.00	15,726.33	7,328.00	101.61	101.66	130.14	-2,787.26	8,888.39	1,749.66	1,585.21	164.45	10.640	
15,200.00	6,214.00	15,826.33	7,328.00	102.70	102.75	130.14	-2,786.60	8,988.39	1,749.72	1,583.49	166.23	10.526	
15,300.00	6,214.00	15,926.33	7,328.00	103.79	103.83	130.14	-2,785.93	9,088.39	1,749.77	1,581.77	168.00	10.415	
15,400.00	6,214.00	16,026.33	7,328.00	104.89	104.92	130.14	-2,785.27	9,188.39	1,749.83	1,580.04	169.78	10.306	
15,500.00	6,214.00	16,126.33	7,328.00	105.98	106.00	130.14	-2,784.61	9,288.38	1,749.88	1,578.32	171.57	10.199	
15,600.00	6,214.00	16,226.33	7,328.00	107.08	107.09	130.14	-2,783.94	9,388.38	1,749.94	1,576.59	173.35	10.095	
15,700.00	6,214.00	16,326.33	7,328.00	108.17	108.18	130.13	-2,783.28	9,488.38	1,749.99	1,574.86	175.13	9.992	
15,800.00	6,214.00	16,426.33	7,328.00	109.27	109.27	130.13	-2,782.62	9,588.38	1,750.05	1,573.13	176.91	9.892	
15,900.00	6,214.00	16,526.33	7,328.00	110.37	110.36	130.13	-2,781.95	9,688.37	1,750.10	1,571.40	178.70	9.794	
16,000.00	6,214.00	16,626.33	7,328.00	111.47	111.45	130.13	-2,781.29	9,788.37	1,750.16	1,569.67	180.49	9.697	
16,100.00	6,214.00	16,726.33	7,328.00	112.56	112.54	130.13	-2,780.63	9,888.37	1,750.21	1,567.94	182.27	9.602	
16,200.00	6,214.00	16,826.33	7,328.00	113.66	113.63	130.13	-2,779.96	9,988.37	1,750.27	1,566.21	184.06	9.509	
16,300.00	6,214.00	16,926.33	7,328.00	114.76	114.72	130.12	-2,779.30	10,088.37	1,750.32	1,564.48	185.85	9.418	
16,400.00	6,214.00	17,026.33	7,328.00	115.86	115.81	130.12	-2,778.64	10,188.36	1,750.38	1,562.74	187.64	9.328	
16,500.00	6,214.00	17,126.33	7,328.00	116.96	116.90	130.12	-2,777.97	10,288.36	1,750.43	1,561.01	189.43	9.241	
16,600.00	6,214.00	17,226.33	7,328.00	118.06	118.00	130.12	-2,777.31	10,388.36	1,750.49	1,559.27	191.22	9.154	
16,700.00	6,214.00	17,326.33	7,328.00	119.16	119.09	130.12	-2,776.65	10,488.36	1,750.55	1,557.53	193.01	9.070	
16,800.00	6,214.00	17,426.33	7,328.00	120.26	120.19	130.12	-2,775.98	10,588.35	1,750.60	1,555.80	194.80	8.987	
16,900.00	6,214.00	17,526.33	7,328.00	121.36	121.28	130.12	-2,775.32	10,688.35	1,750.66	1,554.06	196.60	8.905	
17,000.00	6,214.00	17,626.33	7,328.00	122.47	122.38	130.11	-2,774.66	10,788.35	1,750.71	1,552.32	198.39	8.825	
17,100.00	6,214.00	17,726.33	7,328.00	123.57	123.47	130.11	-2,773.99	10,888.35	1,750.77	1,550.58	200.18	8.746	
17,100.68	6,214.00	17,727.01	7,328.00	123.58	123.48	130.11	-2,773.99	10,889.02	1,750.77	1,550.57	200.20	8.745	
17,163.72	6,214.00	17,763.11	7,328.00	124.27	123.87	130.11	-2,773.75	10,925.12	1,751.01	1,549.87	201.14	8.706 ES, SF	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B06) Koala 9 Fed Com 124H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
11,500.00	6,214.00	12,382.99	7,328.00	62.94	63.21	113.02	-4,131.02	5,297.21	2,884.51	2,768.87	115.63	24.946	CC
11,600.00	6,214.00	12,482.99	7,328.00	63.99	64.23	113.02	-4,130.35	5,397.21	2,884.57	2,766.98	117.59	24.530	
11,700.00	6,214.00	12,582.99	7,328.00	65.04	65.26	113.02	-4,129.69	5,497.21	2,884.64	2,765.08	119.56	24.128	
11,800.00	6,214.00	12,682.99	7,328.00	66.09	66.30	113.02	-4,129.03	5,597.21	2,884.71	2,763.18	121.53	23.737	
11,900.00	6,214.00	12,782.99	7,328.00	67.14	67.33	113.02	-4,128.36	5,697.20	2,884.77	2,761.27	123.50	23.358	
12,000.00	6,214.00	12,882.99	7,328.00	68.19	68.37	113.02	-4,127.70	5,797.20	2,884.84	2,759.36	125.48	22.990	
12,100.00	6,214.00	12,982.99	7,328.00	69.25	69.41	113.02	-4,127.04	5,897.20	2,884.91	2,757.44	127.46	22.633	
12,200.00	6,214.00	13,082.99	7,328.00	70.31	70.45	113.02	-4,126.38	5,997.20	2,884.97	2,755.52	129.45	22.286	
12,300.00	6,214.00	13,182.99	7,328.00	71.37	71.50	113.02	-4,125.71	6,097.20	2,885.04	2,753.60	131.44	21.949	
12,400.00	6,214.00	13,282.99	7,328.00	72.43	72.55	113.02	-4,125.05	6,197.19	2,885.11	2,751.67	133.44	21.622	
12,500.00	6,214.00	13,382.99	7,328.00	73.50	73.60	113.01	-4,124.39	6,297.19	2,885.18	2,749.74	135.43	21.303	
12,600.00	6,214.00	13,482.99	7,328.00	74.56	74.65	113.01	-4,123.72	6,397.19	2,885.24	2,747.81	137.43	20.994	
12,700.00	6,214.00	13,582.99	7,328.00	75.63	75.70	113.01	-4,123.06	6,497.19	2,885.31	2,745.87	139.44	20.693	
12,800.00	6,214.00	13,682.99	7,328.00	76.70	76.76	113.01	-4,122.40	6,597.18	2,885.38	2,743.93	141.44	20.400	
12,900.00	6,214.00	13,782.99	7,328.00	77.77	77.81	113.01	-4,121.74	6,697.18	2,885.44	2,741.99	143.45	20.114	
13,000.00	6,214.00	13,882.99	7,328.00	78.84	78.87	113.01	-4,121.07	6,797.18	2,885.51	2,740.05	145.46	19.837	
13,100.00	6,214.00	13,982.99	7,328.00	79.91	79.94	113.01	-4,120.41	6,897.18	2,885.58	2,738.10	147.48	19.566	
13,200.00	6,214.00	14,082.99	7,328.00	80.99	81.00	113.01	-4,119.75	6,997.18	2,885.65	2,736.15	149.50	19.303	
13,300.00	6,214.00	14,182.99	7,328.00	82.07	82.06	113.01	-4,119.08	7,097.17	2,885.71	2,734.20	151.52	19.046	
13,400.00	6,214.00	14,282.99	7,328.00	83.14	83.13	113.01	-4,118.42	7,197.17	2,885.78	2,732.24	153.54	18.795	
13,500.00	6,214.00	14,382.99	7,328.00	84.22	84.20	113.01	-4,117.76	7,297.17	2,885.85	2,730.29	155.56	18.551	
13,600.00	6,214.00	14,482.99	7,328.00	85.30	85.27	113.01	-4,117.10	7,397.17	2,885.91	2,728.33	157.59	18.313	
13,700.00	6,214.00	14,582.99	7,328.00	86.38	86.34	113.01	-4,116.43	7,497.16	2,885.98	2,726.37	159.61	18.081	
13,800.00	6,214.00	14,682.99	7,328.00	87.46	87.41	113.01	-4,115.77	7,597.16	2,886.05	2,724.40	161.64	17.854	
13,900.00	6,214.00	14,782.99	7,328.00	88.55	88.48	113.01	-4,115.11	7,697.16	2,886.12	2,722.44	163.68	17.633	
14,000.00	6,214.00	14,882.99	7,328.00	89.63	89.55	113.01	-4,114.44	7,797.16	2,886.18	2,720.47	165.71	17.417	
14,100.00	6,214.00	14,982.99	7,328.00	90.72	90.63	113.01	-4,113.78	7,897.16	2,886.25	2,718.50	167.75	17.206	
14,200.00	6,214.00	15,082.99	7,328.00	91.80	91.70	113.00	-4,113.12	7,997.15	2,886.32	2,716.53	169.78	17.000	
14,300.00	6,214.00	15,182.99	7,328.00	92.89	92.78	113.00	-4,112.46	8,097.15	2,886.38	2,714.56	171.82	16.799	
14,400.00	6,214.00	15,282.99	7,328.00	93.97	93.86	113.00	-4,111.79	8,197.15	2,886.45	2,712.59	173.86	16.602	
14,500.00	6,214.00	15,382.99	7,328.00	95.06	94.94	113.00	-4,111.13	8,297.15	2,886.52	2,710.61	175.90	16.410	
14,600.00	6,214.00	15,482.99	7,328.00	96.15	96.02	113.00	-4,110.47	8,397.14	2,886.59	2,708.64	177.95	16.222	
14,700.00	6,214.00	15,582.99	7,328.00	97.24	97.10	113.00	-4,109.81	8,497.14	2,886.65	2,706.66	179.99	16.038	
14,800.00	6,214.00	15,682.99	7,328.00	98.33	98.18	113.00	-4,109.14	8,597.14	2,886.72	2,704.68	182.04	15.858	
14,900.00	6,214.00	15,782.99	7,328.00	99.42	99.27	113.00	-4,108.48	8,697.14	2,886.79	2,702.70	184.09	15.682	
15,000.00	6,214.00	15,882.99	7,328.00	100.51	100.35	113.00	-4,107.82	8,797.14	2,886.85	2,700.72	186.13	15.510	
15,100.00	6,214.00	15,982.99	7,328.00	101.61	101.44	113.00	-4,107.15	8,897.13	2,886.92	2,698.74	188.18	15.341	
15,200.00	6,214.00	16,082.99	7,328.00	102.70	102.52	113.00	-4,106.49	8,997.13	2,886.99	2,696.75	190.24	15.176	
15,300.00	6,214.00	16,182.99	7,328.00	103.79	103.61	113.00	-4,105.83	9,097.13	2,887.06	2,694.77	192.29	15.014	
15,400.00	6,214.00	16,282.99	7,328.00	104.89	104.69	113.00	-4,105.17	9,197.13	2,887.12	2,692.78	194.34	14.856	
15,500.00	6,214.00	16,382.99	7,328.00	105.98	105.78	113.00	-4,104.50	9,297.12	2,887.19	2,690.79	196.40	14.701	
15,600.00	6,214.00	16,482.99	7,328.00	107.08	106.87	113.00	-4,103.84	9,397.12	2,887.26	2,688.80	198.45	14.549	
15,700.00	6,214.00	16,582.99	7,328.00	108.17	107.96	113.00	-4,103.18	9,497.12	2,887.32	2,686.82	200.51	14.400	
15,800.00	6,214.00	16,682.99	7,328.00	109.27	109.05	113.00	-4,102.51	9,597.12	2,887.39	2,684.82	202.57	14.254	
15,900.00	6,214.00	16,782.99	7,328.00	110.37	110.14	113.00	-4,101.85	9,697.12	2,887.46	2,682.83	204.62	14.111	
16,000.00	6,214.00	16,882.99	7,328.00	111.47	111.23	112.99	-4,101.19	9,797.11	2,887.52	2,680.84	206.68	13.971	
16,100.00	6,214.00	16,982.99	7,328.00	112.56	112.32	112.99	-4,100.53	9,897.11	2,887.59	2,678.85	208.74	13.833	
16,200.00	6,214.00	17,082.99	7,328.00	113.66	113.42	112.99	-4,099.86	9,997.11	2,887.66	2,676.85	210.81	13.698	
16,300.00	6,214.00	17,182.99	7,328.00	114.76	114.51	112.99	-4,099.20	10,097.11	2,887.73	2,674.86	212.87	13.566	
16,400.00	6,214.00	17,282.99	7,328.00	115.86	115.60	112.99	-4,098.54	10,197.10	2,887.79	2,672.86	214.93	13.436	
16,500.00	6,214.00	17,382.99	7,328.00	116.96	116.70	112.99	-4,097.87	10,297.10	2,887.86	2,670.87	216.99	13.308	
16,600.00	6,214.00	17,482.99	7,328.00	118.06	117.79	112.99	-4,097.21	10,397.10	2,887.93	2,668.87	219.06	13.183	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B06) Koala 9 Fed Com 124H - Permit - APD-Rev00													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+IFR1+SAG+FDIR (SQC2)					Rule Assigned:							Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Offset Wellbore Centre			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			
16,700.00	6,214.00	17,582.99	7,328.00	119.16	118.89	112.99	-4,096.55	10,497.10	2,887.99	2,666.87	221.13	13.060			
16,800.00	6,214.00	17,682.99	7,328.00	120.26	119.98	112.99	-4,095.89	10,597.10	2,888.06	2,664.87	223.19	12.940			
16,900.00	6,214.00	17,782.99	7,328.00	121.36	121.08	112.99	-4,095.22	10,697.09	2,888.13	2,662.87	225.26	12.821			
17,000.00	6,214.00	17,882.99	7,328.00	122.47	122.17	112.99	-4,094.56	10,797.09	2,888.20	2,660.87	227.33	12.705			
17,100.00	6,214.00	17,982.99	7,328.00	123.57	123.27	112.99	-4,093.90	10,897.09	2,888.26	2,658.87	229.39	12.591			
17,163.72	6,214.00	17,993.15	7,328.00	124.27	123.38	112.99	-4,093.83	10,907.25	2,888.80	2,658.53	230.27	12.545 ES, SF			

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B07) Koala 9 Fed Com 113H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Minimum	Separation	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
7,700.00	6,214.00	7,484.98	6,303.00	28.42	26.93	94.42	-2,836.45	1,488.57	1,336.23	1,282.44	53.79	24.840	CC
7,800.00	6,214.00	7,584.98	6,303.00	29.01	27.56	94.42	-2,835.79	1,588.57	1,336.30	1,281.21	55.10	24.253	
7,900.00	6,214.00	7,684.98	6,303.00	29.64	28.23	94.42	-2,835.13	1,688.57	1,336.38	1,279.92	56.46	23.669	
8,000.00	6,214.00	7,784.98	6,303.00	30.31	28.92	94.42	-2,834.46	1,788.57	1,336.45	1,278.57	57.88	23.091	
8,100.00	6,214.00	7,884.98	6,303.00	31.00	29.64	94.42	-2,833.80	1,888.56	1,336.52	1,277.17	59.35	22.521	
8,200.00	6,214.00	7,984.98	6,303.00	31.73	30.38	94.42	-2,833.13	1,988.56	1,336.59	1,275.73	60.86	21.962	
8,300.00	6,214.00	8,084.98	6,303.00	32.48	31.15	94.42	-2,832.47	2,088.56	1,336.66	1,274.24	62.42	21.414	
8,400.00	6,214.00	8,184.98	6,303.00	33.26	31.93	94.42	-2,831.80	2,188.56	1,336.73	1,272.71	64.02	20.881	
8,500.00	6,214.00	8,284.98	6,303.00	34.06	32.74	94.42	-2,831.14	2,288.55	1,336.80	1,271.15	65.65	20.361	
8,600.00	6,214.00	8,384.98	6,303.00	34.87	33.56	94.42	-2,830.47	2,388.55	1,336.87	1,269.55	67.33	19.857	
8,700.00	6,214.00	8,484.98	6,303.00	35.71	34.40	94.42	-2,829.81	2,488.55	1,336.94	1,267.91	69.03	19.368	
8,800.00	6,214.00	8,584.98	6,303.00	36.56	35.26	94.42	-2,829.15	2,588.55	1,337.02	1,266.25	70.76	18.894	
8,900.00	6,214.00	8,684.98	6,303.00	37.43	36.13	94.42	-2,828.48	2,688.55	1,337.09	1,264.56	72.52	18.436	
9,000.00	6,214.00	8,784.98	6,303.00	38.31	37.02	94.42	-2,827.82	2,788.54	1,337.16	1,262.85	74.31	17.994	
9,100.00	6,214.00	8,884.98	6,303.00	39.20	37.91	94.42	-2,827.15	2,888.54	1,337.23	1,261.11	76.12	17.567	
9,200.00	6,214.00	8,984.98	6,303.00	40.11	38.82	94.42	-2,826.49	2,988.54	1,337.30	1,259.34	77.96	17.155	
9,300.00	6,214.00	9,084.98	6,303.00	41.03	39.74	94.42	-2,825.82	3,088.54	1,337.37	1,257.56	79.81	16.757	
9,400.00	6,214.00	9,184.98	6,303.00	41.95	40.67	94.42	-2,825.16	3,188.53	1,337.44	1,255.76	81.68	16.374	
9,500.00	6,214.00	9,284.98	6,303.00	42.89	41.61	94.42	-2,824.49	3,288.53	1,337.51	1,253.94	83.57	16.004	
9,600.00	6,214.00	9,384.98	6,303.00	43.84	42.56	94.42	-2,823.83	3,388.53	1,337.58	1,252.10	85.48	15.647	
9,700.00	6,214.00	9,484.98	6,303.00	44.79	43.52	94.42	-2,823.17	3,488.53	1,337.65	1,250.25	87.41	15.304	
9,800.00	6,214.00	9,584.98	6,303.00	45.75	44.48	94.42	-2,822.50	3,588.53	1,337.73	1,248.38	89.35	14.973	
9,900.00	6,214.00	9,684.98	6,303.00	46.72	45.45	94.42	-2,821.84	3,688.52	1,337.80	1,246.50	91.30	14.653	
10,000.00	6,214.00	9,784.98	6,303.00	47.70	46.43	94.42	-2,821.17	3,788.52	1,337.87	1,244.60	93.26	14.345	
10,100.00	6,214.00	9,884.98	6,303.00	48.68	47.42	94.42	-2,820.51	3,888.52	1,337.94	1,242.70	95.24	14.048	
10,200.00	6,214.00	9,984.98	6,303.00	49.67	48.41	94.41	-2,819.84	3,988.52	1,338.01	1,240.78	97.23	13.761	
10,300.00	6,214.00	10,084.98	6,303.00	50.67	49.40	94.41	-2,819.18	4,088.51	1,338.08	1,238.85	99.23	13.485	
10,400.00	6,214.00	10,184.98	6,303.00	51.67	50.40	94.41	-2,818.51	4,188.51	1,338.15	1,236.91	101.24	13.218	
10,500.00	6,214.00	10,284.98	6,303.00	52.67	51.41	94.41	-2,817.85	4,288.51	1,338.22	1,234.96	103.26	12.960	
10,600.00	6,214.00	10,384.98	6,303.00	53.68	52.42	94.41	-2,817.19	4,388.51	1,338.29	1,233.01	105.29	12.711	
10,700.00	6,214.00	10,484.98	6,303.00	54.70	53.44	94.41	-2,816.52	4,488.51	1,338.36	1,231.04	107.32	12.470	
10,800.00	6,214.00	10,584.98	6,303.00	55.71	54.46	94.41	-2,815.86	4,588.50	1,338.44	1,229.07	109.37	12.238	
10,900.00	6,214.00	10,684.98	6,303.00	56.74	55.48	94.41	-2,815.19	4,688.50	1,338.51	1,227.09	111.42	12.013	
11,000.00	6,214.00	10,784.98	6,303.00	57.76	56.51	94.41	-2,814.53	4,788.50	1,338.58	1,225.10	113.48	11.796	
11,100.00	6,214.00	10,884.98	6,303.00	58.79	57.54	94.41	-2,813.86	4,888.50	1,338.65	1,223.10	115.55	11.585	
11,200.00	6,214.00	10,984.98	6,303.00	59.83	58.57	94.41	-2,813.20	4,988.49	1,338.72	1,221.10	117.62	11.382	
11,300.00	6,214.00	11,084.98	6,303.00	60.86	59.61	94.41	-2,812.53	5,088.49	1,338.79	1,219.09	119.70	11.185	
11,400.00	6,214.00	11,184.98	6,303.00	61.90	60.65	94.41	-2,811.87	5,188.49	1,338.86	1,217.08	121.78	10.994	
11,500.00	6,214.00	11,284.98	6,303.00	62.94	61.69	94.41	-2,811.20	5,288.49	1,338.93	1,215.06	123.87	10.809	
11,600.00	6,214.00	11,384.98	6,303.00	63.99	62.74	94.41	-2,810.54	5,388.49	1,339.00	1,213.04	125.96	10.630	
11,700.00	6,214.00	11,484.98	6,303.00	65.04	63.79	94.41	-2,809.88	5,488.48	1,339.08	1,211.01	128.06	10.456	
11,800.00	6,214.00	11,584.98	6,303.00	66.09	64.84	94.41	-2,809.21	5,588.48	1,339.15	1,208.98	130.17	10.288	
11,900.00	6,214.00	11,684.98	6,303.00	67.14	65.89	94.41	-2,808.55	5,688.48	1,339.22	1,206.94	132.28	10.124	
12,000.00	6,214.00	11,784.98	6,303.00	68.19	66.95	94.41	-2,807.88	5,788.48	1,339.29	1,204.90	134.39	9.966	
12,100.00	6,214.00	11,884.98	6,303.00	69.25	68.01	94.41	-2,807.22	5,888.47	1,339.36	1,202.85	136.51	9.812	
12,200.00	6,214.00	11,984.98	6,303.00	70.31	69.07	94.41	-2,806.55	5,988.47	1,339.43	1,200.80	138.63	9.662	
12,300.00	6,214.00	12,084.98	6,303.00	71.37	70.13	94.41	-2,805.89	6,088.47	1,339.50	1,198.75	140.75	9.517	
12,400.00	6,214.00	12,184.98	6,303.00	72.43	71.19	94.41	-2,805.22	6,188.47	1,339.57	1,196.69	142.88	9.375	
12,500.00	6,214.00	12,284.98	6,303.00	73.50	72.26	94.41	-2,804.56	6,288.47	1,339.64	1,194.63	145.01	9.238	
12,600.00	6,214.00	12,384.98	6,303.00	74.56	73.33	94.41	-2,803.90	6,388.46	1,339.71	1,192.57	147.15	9.105	
12,700.00	6,214.00	12,484.98	6,303.00	75.63	74.39	94.41	-2,803.23	6,488.46	1,339.79	1,190.50	149.29	8.975	
12,800.00	6,214.00	12,584.98	6,303.00	76.70	75.46	94.41	-2,802.57	6,588.46	1,339.86	1,188.43	151.43	8.848	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B07) Koala 9 Fed Com 113H - Permit - APD-Rev00												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)												Offset Well Error:	0.00 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,900.00	6,214.00	12,684.98	6,303.00	77.77	76.54	94.41	-2,801.90	6,688.46	1,339.93	1,186.36	153.57	8.725	
13,000.00	6,214.00	12,784.98	6,303.00	78.84	77.61	94.41	-2,801.24	6,788.45	1,340.00	1,184.28	155.72	8.605	
13,100.00	6,214.00	12,884.98	6,303.00	79.91	78.68	94.41	-2,800.57	6,888.45	1,340.07	1,182.20	157.87	8.489	
13,200.00	6,214.00	12,984.98	6,303.00	80.99	79.76	94.41	-2,799.91	6,988.45	1,340.14	1,180.12	160.02	8.375	
13,300.00	6,214.00	13,084.98	6,303.00	82.07	80.84	94.41	-2,799.24	7,088.45	1,340.21	1,178.04	162.17	8.264	
13,400.00	6,214.00	13,184.98	6,303.00	83.14	81.91	94.41	-2,798.58	7,188.45	1,340.28	1,175.96	164.33	8.156	
13,500.00	6,214.00	13,284.98	6,303.00	84.22	82.99	94.41	-2,797.92	7,288.44	1,340.35	1,173.87	166.49	8.051	
13,600.00	6,214.00	13,384.98	6,303.00	85.30	84.07	94.41	-2,797.25	7,388.44	1,340.42	1,171.78	168.65	7.948	
13,700.00	6,214.00	13,484.98	6,303.00	86.38	85.16	94.41	-2,796.59	7,488.44	1,340.50	1,169.69	170.81	7.848	
13,800.00	6,214.00	13,584.98	6,303.00	87.46	86.24	94.41	-2,795.92	7,588.44	1,340.57	1,167.59	172.97	7.750	
13,900.00	6,214.00	13,684.98	6,303.00	88.55	87.32	94.41	-2,795.26	7,688.43	1,340.64	1,165.50	175.14	7.655	
14,000.00	6,214.00	13,784.98	6,303.00	89.63	88.41	94.41	-2,794.59	7,788.43	1,340.71	1,163.40	177.31	7.561	
14,100.00	6,214.00	13,884.98	6,303.00	90.72	89.49	94.41	-2,793.93	7,888.43	1,340.78	1,161.30	179.48	7.470	
14,200.00	6,214.00	13,984.98	6,303.00	91.80	90.58	94.41	-2,793.26	7,988.43	1,340.85	1,159.20	181.65	7.382	
14,300.00	6,214.00	14,084.98	6,303.00	92.89	91.67	94.41	-2,792.60	8,088.43	1,340.92	1,157.10	183.82	7.295	
14,400.00	6,214.00	14,184.98	6,303.00	93.97	92.75	94.41	-2,791.94	8,188.42	1,340.99	1,154.99	186.00	7.210	
14,500.00	6,214.00	14,284.98	6,303.00	95.06	93.84	94.40	-2,791.27	8,288.42	1,341.06	1,152.89	188.18	7.127	
14,600.00	6,214.00	14,384.98	6,303.00	96.15	94.93	94.40	-2,790.61	8,388.42	1,341.14	1,150.78	190.35	7.046	
14,700.00	6,214.00	14,484.98	6,303.00	97.24	96.02	94.40	-2,789.94	8,488.42	1,341.21	1,148.67	192.53	6.966	
14,800.00	6,214.00	14,584.98	6,303.00	98.33	97.11	94.40	-2,789.28	8,588.41	1,341.28	1,146.56	194.71	6.888	
14,900.00	6,214.00	14,684.98	6,303.00	99.42	98.21	94.40	-2,788.61	8,688.41	1,341.35	1,144.45	196.90	6.812	
15,000.00	6,214.00	14,784.98	6,303.00	100.51	99.30	94.40	-2,787.95	8,788.41	1,341.42	1,142.34	199.08	6.738	
15,100.00	6,214.00	14,884.98	6,303.00	101.61	100.39	94.40	-2,787.28	8,888.41	1,341.49	1,140.23	201.26	6.665	
15,200.00	6,214.00	14,984.98	6,303.00	102.70	101.49	94.40	-2,786.62	8,988.40	1,341.56	1,138.11	203.45	6.594	
15,300.00	6,214.00	15,084.98	6,303.00	103.79	102.58	94.40	-2,785.95	9,088.40	1,341.63	1,136.00	205.64	6.524	
15,400.00	6,214.00	15,184.98	6,303.00	104.89	103.67	94.40	-2,785.29	9,188.40	1,341.70	1,133.88	207.82	6.456	
15,500.00	6,214.00	15,284.98	6,303.00	105.98	104.77	94.40	-2,784.63	9,288.40	1,341.77	1,131.76	210.01	6.389	
15,600.00	6,214.00	15,384.98	6,303.00	107.08	105.87	94.40	-2,783.96	9,388.40	1,341.85	1,129.64	212.20	6.323	
15,700.00	6,214.00	15,484.98	6,303.00	108.17	106.96	94.40	-2,783.30	9,488.39	1,341.92	1,127.52	214.40	6.259	
15,800.00	6,214.00	15,584.98	6,303.00	109.27	108.06	94.40	-2,782.63	9,588.39	1,341.99	1,125.40	216.59	6.196	
15,900.00	6,214.00	15,684.98	6,303.00	110.37	109.16	94.40	-2,781.97	9,688.39	1,342.06	1,123.28	218.78	6.134	
16,000.00	6,214.00	15,784.98	6,303.00	111.47	110.26	94.40	-2,781.30	9,788.39	1,342.13	1,121.15	220.98	6.074	
16,100.00	6,214.00	15,884.98	6,303.00	112.56	111.35	94.40	-2,780.64	9,888.38	1,342.20	1,119.03	223.17	6.014	
16,200.00	6,214.00	15,984.98	6,303.00	113.66	112.45	94.40	-2,779.97	9,988.38	1,342.27	1,116.90	225.37	5.956	
16,300.00	6,214.00	16,084.98	6,303.00	114.76	113.55	94.40	-2,779.31	10,088.38	1,342.34	1,114.78	227.56	5.899	
16,400.00	6,214.00	16,184.98	6,303.00	115.86	114.65	94.40	-2,778.65	10,188.38	1,342.41	1,112.65	229.76	5.843	
16,500.00	6,214.00	16,284.98	6,303.00	116.96	115.75	94.40	-2,777.98	10,288.38	1,342.48	1,110.52	231.96	5.788	
16,600.00	6,214.00	16,384.98	6,303.00	118.06	116.85	94.40	-2,777.32	10,388.37	1,342.56	1,108.40	234.16	5.733	
16,700.00	6,214.00	16,484.98	6,303.00	119.16	117.96	94.40	-2,776.65	10,488.37	1,342.63	1,106.27	236.36	5.680	
16,800.00	6,214.00	16,584.98	6,303.00	120.26	119.06	94.40	-2,775.99	10,588.37	1,342.70	1,104.14	238.56	5.628	
16,900.00	6,214.00	16,684.98	6,303.00	121.36	120.16	94.40	-2,775.32	10,688.37	1,342.77	1,102.01	240.76	5.577	
17,000.00	6,214.00	16,784.98	6,303.00	122.47	121.26	94.40	-2,774.66	10,788.36	1,342.84	1,099.87	242.96	5.527	
17,100.00	6,214.00	16,884.98	6,303.00	123.57	122.36	94.40	-2,773.99	10,888.36	1,342.91	1,097.74	245.17	5.478	
17,101.69	6,214.00	16,886.67	6,303.00	123.59	122.38	94.40	-2,773.98	10,890.05	1,342.91	1,097.71	245.21	5.477	
17,163.72	6,214.00	16,922.61	6,303.00	124.27	122.78	94.40	-2,773.74	10,925.99	1,343.21	1,096.89	246.32	5.453 ES, SF	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B08) Koala 9 Fed Com 114H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,700.00	6,214.00	10,479.86	6,303.00	54.70	52.91	92.22	-4,136.25	4,497.20	2,656.15	2,549.33	106.83	24.864	CC
10,800.00	6,214.00	10,579.86	6,303.00	55.71	53.92	92.22	-4,135.59	4,597.20	2,656.23	2,547.35	108.87	24.397	
10,900.00	6,214.00	10,679.86	6,303.00	56.74	54.95	92.22	-4,134.93	4,697.20	2,656.30	2,545.37	110.93	23.946	
11,000.00	6,214.00	10,779.86	6,303.00	57.76	55.97	92.22	-4,134.27	4,797.20	2,656.37	2,543.38	112.99	23.509	
11,100.00	6,214.00	10,879.86	6,303.00	58.79	57.00	92.22	-4,133.60	4,897.19	2,656.45	2,541.38	115.06	23.087	
11,200.00	6,214.00	10,979.86	6,303.00	59.83	58.04	92.22	-4,132.94	4,997.19	2,656.52	2,539.38	117.14	22.678	
11,300.00	6,214.00	11,079.86	6,303.00	60.86	59.07	92.22	-4,132.28	5,097.19	2,656.60	2,537.37	119.22	22.283	
11,400.00	6,214.00	11,179.86	6,303.00	61.90	60.11	92.22	-4,131.62	5,197.19	2,656.67	2,535.36	121.31	21.900	
11,500.00	6,214.00	11,279.86	6,303.00	62.94	61.16	92.22	-4,130.96	5,297.19	2,656.74	2,533.34	123.40	21.529	
11,600.00	6,214.00	11,379.86	6,303.00	63.99	62.20	92.22	-4,130.29	5,397.18	2,656.82	2,531.31	125.50	21.169	
11,700.00	6,214.00	11,479.86	6,303.00	65.04	63.25	92.22	-4,129.63	5,497.18	2,656.89	2,529.28	127.61	20.821	
11,800.00	6,214.00	11,579.86	6,303.00	66.09	64.30	92.22	-4,128.97	5,597.18	2,656.96	2,527.25	129.72	20.483	
11,900.00	6,214.00	11,679.86	6,303.00	67.14	65.36	92.22	-4,128.31	5,697.18	2,657.04	2,525.21	131.83	20.155	
12,000.00	6,214.00	11,779.86	6,303.00	68.19	66.41	92.22	-4,127.65	5,797.17	2,657.11	2,523.17	133.95	19.837	
12,100.00	6,214.00	11,879.86	6,303.00	69.25	67.47	92.22	-4,126.99	5,897.17	2,657.19	2,521.12	136.07	19.529	
12,200.00	6,214.00	11,979.85	6,303.00	70.31	68.53	92.22	-4,126.32	5,997.17	2,657.26	2,519.07	138.19	19.229	
12,300.00	6,214.00	12,079.85	6,303.00	71.37	69.59	92.22	-4,125.66	6,097.17	2,657.33	2,517.01	140.32	18.938	
12,400.00	6,214.00	12,179.85	6,303.00	72.43	70.65	92.22	-4,125.00	6,197.17	2,657.41	2,514.96	142.45	18.655	
12,500.00	6,214.00	12,279.85	6,303.00	73.50	71.72	92.22	-4,124.34	6,297.16	2,657.48	2,512.89	144.59	18.380	
12,600.00	6,214.00	12,379.85	6,303.00	74.56	72.78	92.22	-4,123.68	6,397.16	2,657.56	2,510.83	146.73	18.112	
12,700.00	6,214.00	12,479.85	6,303.00	75.63	73.85	92.22	-4,123.02	6,497.16	2,657.63	2,508.76	148.87	17.852	
12,800.00	6,214.00	12,579.85	6,303.00	76.70	74.92	92.22	-4,122.35	6,597.16	2,657.70	2,506.69	151.01	17.599	
12,900.00	6,214.00	12,679.85	6,303.00	77.77	75.99	92.22	-4,121.69	6,697.15	2,657.78	2,504.62	153.16	17.353	
13,000.00	6,214.00	12,779.85	6,303.00	78.84	77.07	92.22	-4,121.03	6,797.15	2,657.85	2,502.54	155.31	17.113	
13,100.00	6,214.00	12,879.85	6,303.00	79.91	78.14	92.22	-4,120.37	6,897.15	2,657.93	2,500.46	157.47	16.879	
13,200.00	6,214.00	12,979.85	6,303.00	80.99	79.22	92.22	-4,119.71	6,997.15	2,658.00	2,498.38	159.62	16.652	
13,300.00	6,214.00	13,079.85	6,303.00	82.07	80.29	92.22	-4,119.04	7,097.15	2,658.07	2,496.29	161.78	16.430	
13,400.00	6,214.00	13,179.85	6,303.00	83.14	81.37	92.22	-4,118.38	7,197.14	2,658.15	2,494.21	163.94	16.214	
13,500.00	6,214.00	13,279.85	6,303.00	84.22	82.45	92.22	-4,117.72	7,297.14	2,658.22	2,492.12	166.10	16.004	
13,600.00	6,214.00	13,379.85	6,303.00	85.30	83.53	92.22	-4,117.06	7,397.14	2,658.29	2,490.03	168.27	15.798	
13,700.00	6,214.00	13,479.85	6,303.00	86.38	84.61	92.22	-4,116.40	7,497.14	2,658.37	2,487.94	170.43	15.598	
13,800.00	6,214.00	13,579.85	6,303.00	87.46	85.70	92.22	-4,115.74	7,597.13	2,658.44	2,485.84	172.60	15.402	
13,900.00	6,214.00	13,679.85	6,303.00	88.55	86.78	92.22	-4,115.07	7,697.13	2,658.52	2,483.75	174.77	15.211	
14,000.00	6,214.00	13,779.85	6,303.00	89.63	87.86	92.22	-4,114.41	7,797.13	2,658.59	2,481.65	176.94	15.025	
14,100.00	6,214.00	13,879.85	6,303.00	90.72	88.95	92.22	-4,113.75	7,897.13	2,658.66	2,479.55	179.12	14.843	
14,200.00	6,214.00	13,979.85	6,303.00	91.80	90.04	92.22	-4,113.09	7,997.13	2,658.74	2,477.44	181.29	14.665	
14,300.00	6,214.00	14,079.85	6,303.00	92.89	91.12	92.22	-4,112.43	8,097.12	2,658.81	2,475.34	183.47	14.492	
14,400.00	6,214.00	14,179.85	6,303.00	93.97	92.21	92.22	-4,111.77	8,197.12	2,658.89	2,473.24	185.65	14.322	
14,500.00	6,214.00	14,279.85	6,303.00	95.06	93.30	92.22	-4,111.10	8,297.12	2,658.96	2,471.13	187.83	14.156	
14,600.00	6,214.00	14,379.85	6,303.00	96.15	94.39	92.22	-4,110.44	8,397.12	2,659.03	2,469.02	190.01	13.994	
14,700.00	6,214.00	14,479.85	6,303.00	97.24	95.48	92.22	-4,109.78	8,497.11	2,659.11	2,466.91	192.20	13.835	
14,800.00	6,214.00	14,579.85	6,303.00	98.33	96.57	92.22	-4,109.12	8,597.11	2,659.18	2,464.80	194.38	13.680	
14,900.00	6,214.00	14,679.85	6,303.00	99.42	97.66	92.22	-4,108.46	8,697.11	2,659.26	2,462.69	196.57	13.529	
15,000.00	6,214.00	14,779.85	6,303.00	100.51	98.76	92.22	-4,107.79	8,797.11	2,659.33	2,460.58	198.75	13.380	
15,100.00	6,214.00	14,879.85	6,303.00	101.61	99.85	92.22	-4,107.13	8,897.11	2,659.40	2,458.46	200.94	13.235	
15,200.00	6,214.00	14,979.85	6,303.00	102.70	100.94	92.22	-4,106.47	8,997.10	2,659.48	2,456.35	203.13	13.092	
15,300.00	6,214.00	15,079.85	6,303.00	103.79	102.04	92.22	-4,105.81	9,097.10	2,659.55	2,454.23	205.32	12.953	
15,400.00	6,214.00	15,179.85	6,303.00	104.89	103.13	92.22	-4,105.15	9,197.10	2,659.63	2,452.11	207.51	12.817	
15,500.00	6,214.00	15,279.85	6,303.00	105.98	104.23	92.22	-4,104.49	9,297.10	2,659.70	2,449.99	209.71	12.683	
15,600.00	6,214.00	15,379.85	6,303.00	107.08	105.32	92.22	-4,103.82	9,397.09	2,659.77	2,447.87	211.90	12.552	
15,700.00	6,214.00	15,479.85	6,303.00	108.17	106.42	92.22	-4,103.16	9,497.09	2,659.85	2,445.75	214.10	12.424	
15,800.00	6,214.00	15,579.85	6,303.00	109.27	107.52	92.22	-4,102.50	9,597.09	2,659.92	2,443.63	216.29	12.298	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: (Permit) Koala 9 Fed Com - (B08) Koala 9 Fed Com 114H - Permit - APD-Rev00													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+SAG+FDIR (SQC2)													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,900.00	6,214.00	15,679.85	6,303.00	110.37	108.62	92.22	-4,101.84	9,697.09	2,659.99	2,441.50	218.49	12.174	
16,000.00	6,214.00	15,779.85	6,303.00	111.47	109.71	92.22	-4,101.18	9,797.09	2,660.07	2,439.38	220.69	12.054	
16,100.00	6,214.00	15,879.85	6,303.00	112.56	110.81	92.22	-4,100.52	9,897.08	2,660.14	2,437.26	222.89	11.935	
16,200.00	6,214.00	15,979.85	6,303.00	113.66	111.91	92.22	-4,099.85	9,997.08	2,660.22	2,435.13	225.09	11.819	
16,300.00	6,214.00	16,079.85	6,303.00	114.76	113.01	92.22	-4,099.19	10,097.08	2,660.29	2,433.00	227.29	11.705	
16,400.00	6,214.00	16,179.85	6,303.00	115.86	114.11	92.22	-4,098.53	10,197.08	2,660.36	2,430.87	229.49	11.593	
16,500.00	6,214.00	16,279.85	6,303.00	116.96	115.21	92.22	-4,097.87	10,297.07	2,660.44	2,428.75	231.69	11.483	
16,600.00	6,214.00	16,379.85	6,303.00	118.06	116.31	92.22	-4,097.21	10,397.07	2,660.51	2,426.62	233.89	11.375	
16,700.00	6,214.00	16,479.85	6,303.00	119.16	117.41	92.22	-4,096.54	10,497.07	2,660.59	2,424.49	236.10	11.269	
16,800.00	6,214.00	16,579.85	6,303.00	120.26	118.52	92.22	-4,095.88	10,597.07	2,660.66	2,422.36	238.30	11.165	
16,900.00	6,214.00	16,679.85	6,303.00	121.36	119.62	92.22	-4,095.22	10,697.07	2,660.73	2,420.22	240.51	11.063	
17,000.00	6,214.00	16,779.85	6,303.00	122.47	120.72	92.22	-4,094.56	10,797.06	2,660.81	2,418.09	242.71	10.963	
17,100.00	6,214.00	16,879.85	6,303.00	123.57	121.82	92.22	-4,093.90	10,897.06	2,660.88	2,415.96	244.92	10.864	
17,163.72	6,214.00	16,890.04	6,303.00	124.27	121.94	92.22	-4,093.83	10,907.25	2,661.47	2,415.59	245.88	10.824 ES, SF	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W02_GOVERNMENT AO COM #001_1524032 - Inc Only - Inc Only													Offset Site Error: 0.00 usft
Survey Program: 121-INC-ONLY													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,300.00	6,044.12	6,013.83	6,011.12	24.61	137.96	116.98	-3,844.38	-3,082.53	3,999.02	3,837.32	161.70	24.731	CC, ES
6,350.00	6,077.21	6,046.92	6,044.21	24.74	140.06	117.46	-3,844.38	-3,082.53	4,022.06	3,858.06	164.00	24.525	
6,400.00	6,107.17	6,076.88	6,074.17	24.85	141.97	117.21	-3,844.38	-3,082.53	4,048.24	3,882.15	166.09	24.373	
6,450.00	6,133.79	6,092.08	6,089.23	24.95	142.93	116.12	-3,841.99	-3,082.53	4,076.01	3,908.76	167.25	24.371	SF
6,500.00	6,156.86	6,102.05	6,099.18	25.04	143.57	114.19	-3,842.06	-3,082.53	4,107.99	3,939.93	168.06	24.444	
6,550.00	6,176.21	6,110.44	6,107.56	25.12	144.10	111.45	-3,842.17	-3,082.53	4,142.50	3,973.75	168.75	24.548	
6,600.00	6,191.68	6,117.17	6,114.27	25.19	144.53	107.81	-3,842.29	-3,082.53	4,179.24	4,009.91	169.33	24.681	
6,650.00	6,203.16	6,122.17	6,119.27	25.25	144.84	103.19	-3,842.39	-3,082.53	4,217.90	4,048.11	169.79	24.842	
6,700.00	6,210.56	6,181.38	6,177.56	25.31	148.62	98.76	-3,844.38	-3,082.53	4,258.84	4,085.16	173.68	24.521	
6,750.00	6,213.83	6,184.65	6,180.83	25.37	148.85	92.11	-3,844.38	-3,082.53	4,300.29	4,126.27	174.02	24.711	
6,764.30	6,214.00	6,184.82	6,181.00	25.39	148.86	90.00	-3,844.38	-3,082.53	4,312.33	4,138.27	174.07	24.774	
6,800.00	6,214.00	6,184.82	6,181.00	25.43	148.86	90.00	-3,844.38	-3,082.53	4,342.54	4,168.40	174.14	24.937	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W04_FEDERAL V #001_1526451 - Inc Only - Inc Only												Offset Site Error:	0.00 usft
Survey Program: 456-INC-ONLY												Offset Well Error:	0.00 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
3,300.00	3,220.74	3,195.26	3,194.74	12.17	69.82	71.54	-1,188.05	-1,896.82	1,980.82	1,898.94	81.88	24.190	
3,400.00	3,316.15	3,290.67	3,290.15	12.59	71.94	72.33	-1,188.05	-1,896.82	1,971.13	1,886.71	84.42	23.349	
3,500.00	3,411.56	3,383.42	3,382.86	13.01	73.99	73.15	-1,186.32	-1,896.82	1,961.37	1,874.47	86.90	22.570	
3,600.00	3,506.97	3,476.13	3,475.55	13.43	76.05	73.92	-1,187.03	-1,896.82	1,952.72	1,863.34	89.38	21.847	
3,700.00	3,602.38	3,577.01	3,576.38	13.85	78.27	74.75	-1,188.05	-1,896.82	1,944.54	1,852.52	92.02	21.132	
3,800.00	3,697.79	3,672.42	3,671.79	14.27	80.30	75.56	-1,188.05	-1,896.82	1,936.53	1,842.05	94.48	20.498	
3,900.00	3,793.20	3,767.82	3,767.20	14.69	82.33	76.39	-1,188.05	-1,896.82	1,928.94	1,832.01	96.93	19.900	
4,000.00	3,888.61	3,862.67	3,862.03	15.11	84.34	77.23	-1,187.60	-1,896.82	1,921.70	1,822.32	99.38	19.337	
4,100.00	3,984.02	3,957.46	3,956.83	15.53	86.36	78.05	-1,187.82	-1,896.82	1,915.04	1,813.22	101.82	18.808	
4,200.00	4,079.43	4,054.13	4,053.43	15.96	88.55	78.89	-1,188.05	-1,896.82	1,908.82	1,804.39	104.44	18.277	
4,300.00	4,174.84	4,149.54	4,148.84	16.38	90.93	79.74	-1,188.05	-1,896.82	1,903.02	1,795.77	107.25	17.744	
4,400.00	4,270.24	4,244.95	4,244.24	16.80	93.31	80.59	-1,188.05	-1,896.82	1,897.66	1,787.60	110.06	17.242	
4,500.00	4,365.65	4,339.41	4,338.67	17.23	95.67	81.48	-1,186.58	-1,896.82	1,892.57	1,779.72	112.85	16.771	
4,600.00	4,461.06	4,433.87	4,433.13	17.65	98.03	82.31	-1,187.18	-1,896.82	1,888.23	1,772.59	115.64	16.329	
4,700.00	4,556.47	4,531.35	4,530.47	18.08	100.53	83.16	-1,188.05	-1,896.82	1,884.36	1,765.79	118.57	15.892	
4,800.00	4,651.88	4,626.16	4,625.27	18.50	103.26	84.04	-1,187.52	-1,896.82	1,880.82	1,759.08	121.74	15.450	
4,900.00	4,747.29	4,722.28	4,721.29	18.92	106.13	84.90	-1,188.05	-1,896.82	1,877.84	1,752.80	125.04	15.018	
5,000.00	4,842.70	4,817.41	4,816.40	19.35	109.17	85.80	-1,186.83	-1,896.82	1,875.22	1,746.71	128.50	14.593	
5,100.00	4,938.11	4,911.74	4,910.69	19.78	112.17	86.63	-1,187.94	-1,896.82	1,873.20	1,741.26	131.94	14.198	
5,200.00	5,033.52	5,008.70	5,007.52	20.20	115.01	87.51	-1,188.05	-1,896.82	1,871.60	1,736.39	135.21	13.842	
5,300.00	5,128.93	5,104.11	5,102.93	20.63	117.79	88.39	-1,188.05	-1,896.82	1,870.48	1,732.06	138.42	13.513	
5,400.00	5,224.34	5,199.60	5,198.36	21.05	120.58	89.33	-1,185.67	-1,896.82	1,869.86	1,728.23	141.63	13.202	
5,482.15	5,302.72	5,278.39	5,277.14	21.40	122.88	90.04	-1,186.14	-1,896.82	1,869.71	1,725.43	144.28	12.959 CC	
5,500.00	5,319.75	5,295.56	5,294.30	21.48	123.38	90.19	-1,186.30	-1,896.82	1,869.71	1,724.86	144.86	12.907	
5,600.00	5,415.16	5,392.01	5,390.71	21.91	126.19	91.04	-1,187.67	-1,896.82	1,870.00	1,721.91	148.09	12.627	
5,700.00	5,510.57	5,486.05	5,484.57	22.33	128.64	91.89	-1,188.05	-1,896.82	1,870.78	1,719.81	150.97	12.392	
5,800.00	5,605.98	5,581.46	5,579.98	22.76	131.04	92.76	-1,188.05	-1,896.82	1,872.05	1,718.26	153.79	12.172	
5,859.18	5,662.44	5,637.92	5,636.44	23.01	132.46	93.28	-1,188.05	-1,896.82	1,873.03	1,717.56	155.47	12.048 ES	
5,900.00	5,701.37	5,677.03	5,675.51	23.18	133.45	106.56	-1,186.16	-1,896.82	1,875.42	1,718.79	156.62	11.974	
5,950.00	5,748.79	5,725.03	5,723.51	23.40	134.66	121.23	-1,186.28	-1,896.82	1,882.17	1,724.13	158.04	11.909	
6,000.00	5,795.60	5,772.50	5,770.97	23.60	135.85	133.14	-1,186.54	-1,896.82	1,893.27	1,733.83	159.43	11.875	
6,050.00	5,841.42	5,819.06	5,817.53	23.80	137.03	142.35	-1,186.92	-1,896.82	1,908.62	1,747.83	160.80	11.870 SF	
6,100.00	5,885.93	5,864.36	5,862.82	23.98	138.17	149.42	-1,187.43	-1,896.82	1,928.09	1,765.98	162.12	11.893	
6,150.00	5,928.77	5,908.05	5,906.49	24.16	139.27	154.97	-1,188.03	-1,896.82	1,951.51	1,788.13	163.38	11.945	
6,200.00	5,969.61	5,945.27	5,943.61	24.32	140.10	159.44	-1,188.05	-1,896.82	1,978.76	1,814.41	164.35	12.040	
6,250.00	6,008.16	5,983.82	5,982.16	24.47	140.95	163.23	-1,188.05	-1,896.82	2,009.56	1,844.22	165.34	12.154	
6,300.00	6,044.12	6,019.77	6,018.12	24.61	141.75	166.57	-1,188.05	-1,896.82	2,043.65	1,877.40	166.25	12.292	
6,350.00	6,077.21	6,052.86	6,051.21	24.74	142.48	169.67	-1,188.05	-1,896.82	2,080.76	1,913.67	167.09	12.453	
6,400.00	6,107.17	6,082.83	6,081.17	24.85	143.14	172.75	-1,188.05	-1,896.82	2,120.59	1,952.76	167.83	12.635	
6,450.00	6,133.79	6,109.45	6,107.79	24.95	143.73	176.04	-1,188.05	-1,896.82	2,162.84	1,994.35	168.49	12.837	
6,500.00	6,156.86	6,132.52	6,130.86	25.04	144.24	179.89	-1,188.05	-1,896.82	2,207.17	2,038.12	169.05	13.056	
6,550.00	6,176.21	6,151.86	6,150.21	25.12	144.67	-175.14	-1,188.05	-1,896.82	2,253.26	2,083.74	169.51	13.292	
6,600.00	6,191.68	6,167.49	6,165.82	25.19	145.02	-167.82	-1,186.70	-1,896.82	2,300.93	2,131.04	169.88	13.544	
6,650.00	6,203.16	6,179.14	6,177.47	25.25	145.27	-155.93	-1,186.71	-1,896.82	2,349.45	2,179.30	170.15	13.808	
6,700.00	6,210.56	6,186.65	6,184.98	25.31	145.44	-134.35	-1,186.72	-1,896.82	2,398.65	2,228.33	170.32	14.083	
6,750.00	6,213.83	6,189.97	6,188.30	25.37	145.51	-100.18	-1,186.72	-1,896.82	2,448.16	2,277.77	170.39	14.368	
6,764.30	6,214.00	6,190.14	6,188.47	25.39	145.52	-90.08	-1,186.72	-1,896.82	2,462.32	2,291.93	170.40	14.451	
6,800.00	6,214.00	6,190.14	6,188.47	25.43	145.52	-90.08	-1,186.72	-1,896.82	2,497.69	2,327.30	170.39	14.659	
6,900.00	6,214.00	6,190.14	6,188.47	25.56	145.52	-90.08	-1,186.72	-1,896.82	2,596.78	2,426.40	170.38	15.241	
7,000.00	6,214.00	6,190.14	6,188.47	25.73	145.52	-90.08	-1,186.72	-1,896.82	2,695.94	2,525.57	170.36	15.824	
7,100.00	6,214.00	6,190.14	6,188.47	25.94	145.52	-90.08	-1,186.72	-1,896.82	2,795.16	2,624.80	170.36	16.408	
7,200.00	6,214.00	6,190.14	6,188.47	26.21	145.52	-90.08	-1,186.72	-1,896.82	2,894.43	2,724.08	170.35	16.991	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W04_FEDERAL V #001_1526451 - Inc Only - Inc Only													Offset Site Error: 0.00 usft
Survey Program: 456-INC-ONLY													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
7,300.00	6,214.00	6,190.14	6,188.47	26.54	145.52	-90.08	-1,186.72	-1,896.82	2,993.75	2,823.41	170.35	17.575	
7,400.00	6,214.00	6,190.14	6,188.46	26.93	145.52	-90.08	-1,186.72	-1,896.82	3,093.12	2,922.77	170.34	18.158	
7,500.00	6,214.00	6,190.13	6,188.46	27.37	145.52	-90.08	-1,186.72	-1,896.82	3,192.52	3,022.18	170.34	18.742	
7,600.00	6,214.00	6,190.13	6,188.46	27.87	145.52	-90.08	-1,186.72	-1,896.82	3,291.96	3,121.62	170.34	19.325	
7,700.00	6,214.00	6,190.13	6,188.46	28.42	145.52	-90.08	-1,186.72	-1,896.82	3,391.44	3,221.09	170.35	19.909	
7,800.00	6,214.00	6,190.13	6,188.46	29.01	145.52	-90.08	-1,186.72	-1,896.82	3,490.94	3,320.59	170.35	20.493	
7,900.00	6,214.00	6,190.13	6,188.46	29.64	145.52	-90.08	-1,186.72	-1,896.82	3,590.47	3,420.11	170.36	21.076	
8,000.00	6,214.00	6,190.13	6,188.46	30.31	145.52	-90.08	-1,186.72	-1,896.82	3,690.03	3,519.66	170.37	21.659	
8,100.00	6,214.00	6,190.13	6,188.46	31.00	145.52	-90.08	-1,186.72	-1,896.82	3,789.61	3,619.24	170.37	22.243	
8,200.00	6,214.00	6,190.13	6,188.46	31.73	145.52	-90.08	-1,186.72	-1,896.82	3,889.21	3,718.83	170.38	22.826	
8,300.00	6,214.00	6,190.13	6,188.45	32.48	145.52	-90.08	-1,186.72	-1,896.82	3,988.83	3,818.44	170.40	23.409	
8,400.00	6,214.00	6,190.12	6,188.45	33.26	145.52	-90.08	-1,186.72	-1,896.82	4,088.47	3,918.06	170.41	23.992	
8,500.00	6,214.00	6,190.12	6,188.45	34.06	145.52	-90.08	-1,186.72	-1,896.82	4,188.13	4,017.71	170.42	24.575	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W05_FEDERAL V #002_1526702 - Inc Only - Inc Only													Offset Site Error:	0.00 usft
Survey Program:		400-INC-ONLY						Rule Assigned:				Offset Well Error:	0.00 usft	
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		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	Warning	
3,300.00	3,220.74	3,198.42	3,197.87	12.17	69.05	108.66	133.31	-1,884.39	2,001.36	1,920.23	81.12	24.670	CC, ES	
3,400.00	3,316.15	3,297.85	3,297.29	12.59	71.26	109.45	132.75	-1,884.39	2,011.34	1,927.61	83.73	24.021		
3,500.00	3,411.56	3,397.63	3,397.05	13.01	73.47	110.23	131.66	-1,884.39	2,021.51	1,935.17	86.35	23.412		
3,600.00	3,506.97	3,482.59	3,481.97	13.43	75.11	110.90	131.77	-1,884.39	2,032.47	1,944.09	88.38	22.997		
3,700.00	3,602.38	3,578.00	3,577.38	13.85	76.97	111.66	131.77	-1,884.39	2,043.79	1,953.15	90.64	22.549		
3,800.00	3,697.79	3,674.81	3,674.18	14.27	78.86	112.43	132.48	-1,884.39	2,055.78	1,962.85	92.93	22.123		
3,900.00	3,793.20	3,772.76	3,772.13	14.69	80.77	113.18	132.18	-1,884.39	2,067.72	1,972.49	95.24	21.712		
4,000.00	3,888.61	3,864.27	3,863.61	15.11	82.55	113.87	131.77	-1,884.39	2,079.97	1,982.55	97.42	21.351		
4,100.00	3,984.02	3,959.68	3,959.02	15.53	84.42	114.59	131.77	-1,884.39	2,092.75	1,993.07	99.68	20.995		
4,200.00	4,079.43	4,055.09	4,054.43	15.96	86.28	115.31	131.77	-1,884.39	2,105.88	2,003.94	101.94	20.659		
4,300.00	4,174.84	4,151.63	4,150.97	16.38	88.17	116.04	132.60	-1,884.39	2,119.74	2,015.52	104.22	20.339		
4,400.00	4,270.24	4,249.65	4,248.98	16.80	90.08	116.75	132.37	-1,884.39	2,133.44	2,026.91	106.53	20.027		
4,500.00	4,365.65	4,347.82	4,347.14	17.23	92.00	117.45	131.89	-1,884.39	2,147.35	2,038.51	108.84	19.730		
4,600.00	4,461.06	4,436.77	4,436.06	17.65	93.86	118.08	131.77	-1,884.39	2,161.74	2,050.65	111.09	19.460		
4,700.00	4,556.47	4,532.18	4,531.47	18.08	95.89	118.75	131.77	-1,884.39	2,176.51	2,063.01	113.51	19.175		
4,800.00	4,651.88	4,628.09	4,627.38	18.50	97.93	119.43	132.57	-1,884.39	2,192.01	2,076.08	115.93	18.907		
4,900.00	4,747.29	4,726.65	4,725.93	18.92	100.03	120.10	132.40	-1,884.39	2,207.32	2,088.90	118.42	18.640		
5,000.00	4,842.70	4,825.37	4,824.66	19.35	102.13	120.76	131.97	-1,884.39	2,222.78	2,101.87	120.91	18.384		
5,100.00	4,938.11	4,913.89	4,913.11	19.78	104.07	121.35	131.77	-1,884.39	2,238.63	2,115.41	123.22	18.167		
5,200.00	5,033.52	5,009.30	5,008.52	20.20	106.18	121.98	131.77	-1,884.39	2,254.89	2,129.17	125.72	17.936		
5,300.00	5,128.93	5,107.09	5,106.29	20.63	108.34	122.63	132.91	-1,884.39	2,272.08	2,143.82	128.27	17.714		
5,400.00	5,224.34	5,209.56	5,208.75	21.05	110.61	123.28	132.46	-1,884.39	2,288.66	2,157.73	130.92	17.481		
5,500.00	5,319.75	5,295.61	5,294.75	21.48	112.51	123.81	131.77	-1,884.39	2,305.31	2,172.12	133.20	17.308		
5,600.00	5,415.16	5,394.94	5,394.07	21.91	114.62	124.44	132.10	-1,884.39	2,322.85	2,187.16	135.69	17.119		
5,700.00	5,510.57	5,486.46	5,485.57	22.33	116.57	124.99	131.77	-1,884.39	2,340.24	2,202.23	138.01	16.957		
5,800.00	5,605.98	5,581.87	5,580.98	22.76	118.60	125.57	131.77	-1,884.39	2,358.08	2,217.66	140.42	16.793		
5,859.18	5,662.44	5,638.33	5,637.44	23.01	119.81	125.91	131.77	-1,884.39	2,368.75	2,226.91	141.85	16.700		
5,900.00	5,701.37	5,677.26	5,676.37	23.18	120.63	126.31	131.77	-1,884.39	2,377.29	2,234.46	142.83	16.645		
5,950.00	5,748.79	5,725.70	5,724.80	23.40	121.66	126.80	132.88	-1,884.39	2,391.49	2,247.45	144.04	16.603		
6,000.00	5,795.60	5,775.08	5,774.18	23.60	122.72	127.46	132.80	-1,884.39	2,408.18	2,262.92	145.26	16.578		
6,050.00	5,841.42	5,823.49	5,822.59	23.80	123.75	127.58	132.65	-1,884.39	2,427.91	2,281.45	146.46	16.578	SF	
6,100.00	5,885.93	5,870.55	5,869.64	23.98	124.75	127.46	132.42	-1,884.39	2,450.52	2,302.91	147.61	16.601		
6,150.00	5,928.77	5,915.89	5,914.98	24.16	125.71	127.46	132.13	-1,884.39	2,475.85	2,327.14	148.71	16.649		
6,200.00	5,969.61	5,959.17	5,958.25	24.32	126.63	127.46	131.79	-1,884.39	2,503.73	2,353.97	149.76	16.718		
6,250.00	6,008.16	5,984.13	5,983.16	24.47	127.21	127.46	131.77	-1,884.39	2,534.14	2,383.72	150.43	16.846		
6,300.00	6,044.12	6,020.09	6,019.12	24.61	128.03	127.46	131.77	-1,884.39	2,566.78	2,415.43	151.35	16.959		
6,350.00	6,077.21	6,053.17	6,052.21	24.74	128.80	127.46	131.77	-1,884.39	2,601.39	2,449.20	152.19	17.093		
6,400.00	6,107.17	6,083.14	6,082.17	24.85	129.49	127.46	131.77	-1,884.39	2,637.74	2,484.79	152.95	17.246		
6,450.00	6,133.79	6,109.76	6,108.79	24.95	130.10	127.46	131.77	-1,884.39	2,675.60	2,521.98	153.62	17.417		
6,500.00	6,156.86	6,132.83	6,131.86	25.04	130.63	127.46	131.77	-1,884.39	2,714.73	2,560.54	154.19	17.606		
6,550.00	6,176.21	6,152.17	6,151.21	25.12	131.08	127.46	131.77	-1,884.39	2,754.87	2,600.20	154.67	17.811		
6,600.00	6,191.68	6,167.65	6,166.68	25.19	131.43	127.46	131.77	-1,884.39	2,795.76	2,640.71	155.05	18.031		
6,650.00	6,203.16	6,179.13	6,178.16	25.25	131.70	127.46	131.77	-1,884.39	2,837.13	2,681.79	155.33	18.265		
6,700.00	6,210.56	6,186.53	6,185.56	25.31	131.87	127.46	131.77	-1,884.39	2,878.69	2,723.18	155.51	18.511		
6,750.00	6,213.83	6,189.80	6,188.83	25.37	131.94	127.46	131.77	-1,884.39	2,920.16	2,764.57	155.59	18.769		
6,764.30	6,214.00	6,189.97	6,189.00	25.39	131.95	127.46	131.77	-1,884.39	2,931.95	2,776.36	155.59	18.844		
6,800.00	6,214.00	6,189.97	6,189.00	25.43	131.95	127.46	131.77	-1,884.39	2,961.45	2,805.86	155.59	19.033		
6,900.00	6,214.00	6,189.97	6,189.00	25.56	131.95	127.46	131.77	-1,884.39	3,044.76	2,889.16	155.60	19.567		
7,000.00	6,214.00	6,189.97	6,189.00	25.73	131.95	127.46	131.77	-1,884.39	3,129.05	2,973.43	155.62	20.106		
7,100.00	6,214.00	6,189.97	6,189.00	25.94	131.95	127.46	131.77	-1,884.39	3,214.24	3,058.59	155.65	20.650		
7,200.00	6,214.00	6,189.97	6,189.00	26.21	131.95	127.46	131.77	-1,884.39	3,300.27	3,144.58	155.69	21.198		
7,300.00	6,214.00	6,189.97	6,189.00	26.54	131.95	127.46	131.77	-1,884.39	3,387.06	3,231.33	155.72	21.750		

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W05_FEDERAL V #002_1526702 - Inc Only - Inc Only													Offset Site Error: 0.00 usft
Survey Program: 400-INC-ONLY													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (")	Offset Wellbore Centre		Rule Assigned:				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,400.00	6,214.00	6,189.97	6,189.00	26.93	131.95	-90.00	131.77	-1,884.39	3,474.56	3,318.79	155.77	22.306	
7,500.00	6,214.00	6,189.97	6,189.00	27.37	131.95	-90.00	131.77	-1,884.39	3,562.72	3,406.90	155.81	22.865	
7,600.00	6,214.00	6,189.97	6,189.00	27.87	131.95	-90.00	131.77	-1,884.39	3,651.49	3,495.62	155.86	23.427	
7,700.00	6,214.00	6,189.97	6,189.00	28.42	131.95	-90.00	131.77	-1,884.39	3,740.82	3,584.91	155.92	23.993	
7,800.00	6,214.00	6,189.97	6,189.00	29.01	131.95	-90.00	131.77	-1,884.39	3,830.69	3,674.72	155.97	24.560	



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W06_FEDERAL V #003_1526867 - Depth Only - Depth Only													Offset Site Error:	0.00 usft
Survey Program:		6300-INC-ONLY				Rule Assigned:				Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
2,800.00	2,743.69	2,720.69	2,720.69	10.10	171.85	79.15	-1,197.99	-4,352.30	4,410.77	4,228.84	181.92	24.245		
2,900.00	2,839.10	2,816.10	2,816.10	10.51	177.88	79.51	-1,197.99	-4,352.30	4,404.96	4,216.60	188.36	23.386		
3,000.00	2,934.51	2,911.51	2,911.51	10.92	183.91	79.88	-1,197.99	-4,352.30	4,399.36	4,204.55	194.80	22.584		
3,100.00	3,029.92	3,006.92	3,006.92	11.34	189.93	80.25	-1,197.99	-4,352.30	4,393.95	4,192.70	201.24	21.834		
3,200.00	3,125.33	3,102.33	3,102.33	11.75	195.96	80.61	-1,197.99	-4,352.30	4,388.73	4,181.05	207.69	21.132		
3,300.00	3,220.74	3,197.74	3,197.74	12.17	201.99	80.98	-1,197.99	-4,352.30	4,383.72	4,169.59	214.13	20.472		
3,400.00	3,316.15	3,293.15	3,293.15	12.59	208.01	81.35	-1,197.99	-4,352.30	4,378.90	4,158.33	220.57	19.852		
3,500.00	3,411.56	3,388.56	3,388.56	13.01	214.04	81.72	-1,197.99	-4,352.30	4,374.29	4,147.27	227.02	19.268		
3,600.00	3,506.97	3,483.97	3,483.97	13.43	220.06	82.09	-1,197.99	-4,352.30	4,369.87	4,136.41	233.47	18.717		
3,700.00	3,602.38	3,579.38	3,579.38	13.85	226.09	82.47	-1,197.99	-4,352.30	4,365.66	4,125.75	239.91	18.197		
3,800.00	3,697.79	3,674.79	3,674.79	14.27	232.12	82.84	-1,197.99	-4,352.30	4,361.65	4,115.29	246.36	17.704		
3,900.00	3,793.20	3,770.20	3,770.20	14.69	238.14	83.21	-1,197.99	-4,352.30	4,357.84	4,105.03	252.81	17.238		
4,000.00	3,888.61	3,865.61	3,865.61	15.11	244.17	83.58	-1,197.99	-4,352.30	4,354.23	4,094.97	259.26	16.795		
4,100.00	3,984.02	3,961.02	3,961.02	15.53	250.20	83.96	-1,197.99	-4,352.30	4,350.83	4,085.12	265.71	16.374		
4,200.00	4,079.43	4,056.43	4,056.43	15.96	256.22	84.33	-1,197.99	-4,352.30	4,347.63	4,075.47	272.16	15.974		
4,300.00	4,174.84	4,151.84	4,151.84	16.38	262.25	84.71	-1,197.99	-4,352.30	4,344.63	4,066.02	278.61	15.594		
4,400.00	4,270.24	4,247.24	4,247.24	16.80	268.28	85.08	-1,197.99	-4,352.30	4,341.84	4,056.78	285.06	15.231		
4,500.00	4,365.65	4,342.65	4,342.65	17.23	274.30	85.46	-1,197.99	-4,352.30	4,339.25	4,047.74	291.52	14.885		
4,600.00	4,461.06	4,438.06	4,438.06	17.65	280.33	85.84	-1,197.99	-4,352.30	4,336.87	4,038.90	297.97	14.555		
4,700.00	4,556.47	4,533.47	4,533.47	18.08	286.36	86.21	-1,197.99	-4,352.30	4,334.70	4,030.27	304.42	14.239		
4,800.00	4,651.88	4,628.88	4,628.88	18.50	292.38	86.59	-1,197.99	-4,352.30	4,332.73	4,021.85	310.87	13.937		
4,900.00	4,747.29	4,724.29	4,724.29	18.92	298.41	86.97	-1,197.99	-4,352.30	4,330.96	4,013.64	317.33	13.648		
5,000.00	4,842.70	4,819.70	4,819.70	19.35	304.44	87.35	-1,197.99	-4,352.30	4,329.41	4,005.63	323.78	13.371		
5,100.00	4,938.11	4,915.11	4,915.11	19.78	310.46	87.72	-1,197.99	-4,352.30	4,328.06	3,997.82	330.23	13.106		
5,200.00	5,033.52	5,010.52	5,010.52	20.20	316.49	88.10	-1,197.99	-4,352.30	4,326.91	3,990.22	336.69	12.851		
5,300.00	5,128.93	5,105.93	5,105.93	20.63	322.52	88.48	-1,197.99	-4,352.30	4,325.98	3,982.83	343.14	12.607		
5,400.00	5,224.34	5,201.34	5,201.34	21.05	328.54	88.86	-1,197.99	-4,352.30	4,325.25	3,975.65	349.59	12.372		
5,500.00	5,319.75	5,296.75	5,296.75	21.48	334.57	89.24	-1,197.99	-4,352.30	4,324.72	3,968.68	356.05	12.146		
5,600.00	5,415.16	5,392.16	5,392.16	21.91	340.60	89.62	-1,197.99	-4,352.30	4,324.41	3,961.91	362.50	11.929		
5,700.00	5,510.57	5,487.57	5,487.57	22.33	346.62	89.99	-1,197.99	-4,352.30	4,324.30	3,955.35	368.95	11.720		
5,701.67	5,512.16	5,489.16	5,489.16	22.34	346.72	90.00	-1,197.99	-4,352.30	4,324.30	3,955.24	369.06	11.717 CC		
5,800.00	5,605.98	5,582.98	5,582.98	22.76	352.65	90.37	-1,197.99	-4,352.30	4,324.40	3,948.99	375.41	11.519		
5,859.18	5,662.44	5,639.44	5,639.44	23.01	356.22	90.60	-1,197.99	-4,352.30	4,324.56	3,945.33	379.23	11.404		
5,900.00	5,701.37	5,678.37	5,678.37	23.18	358.67	103.61	-1,197.99	-4,352.30	4,326.16	3,944.30	381.86	11.329 ES		
5,950.00	5,748.79	5,725.79	5,725.79	23.40	361.67	118.00	-1,197.99	-4,352.30	4,332.12	3,947.05	385.06	11.250		
6,000.00	5,795.60	5,772.60	5,772.60	23.60	364.63	129.62	-1,197.99	-4,352.30	4,342.41	3,954.19	388.22	11.185		
6,050.00	5,841.42	5,818.42	5,818.42	23.80	367.52	138.52	-1,197.99	-4,352.30	4,356.98	3,965.66	391.31	11.134		
6,100.00	5,885.93	5,862.93	5,862.93	23.98	370.33	145.26	-1,197.99	-4,352.30	4,375.68	3,981.38	394.31	11.097		
6,150.00	5,928.77	5,905.77	5,905.77	24.16	373.04	150.44	-1,197.99	-4,352.30	4,398.39	4,001.20	397.19	11.074		
6,200.00	5,969.61	5,946.61	5,946.61	24.32	375.62	154.52	-1,197.99	-4,352.30	4,424.91	4,024.99	399.92	11.064 SF		
6,250.00	6,008.16	5,985.16	5,985.16	24.47	378.05	157.82	-1,197.99	-4,352.30	4,455.04	4,052.54	402.50	11.068		
6,300.00	6,044.12	6,021.12	6,021.12	24.61	380.32	160.59	-1,197.99	-4,352.30	4,488.54	4,083.65	404.90	11.086		
6,350.00	6,077.21	6,054.21	6,054.21	24.74	382.41	163.01	-1,197.99	-4,352.30	4,525.16	4,118.06	407.10	11.116		
6,400.00	6,107.17	6,084.17	6,084.17	24.85	384.31	165.23	-1,197.99	-4,352.30	4,564.59	4,155.51	409.08	11.158		
6,450.00	6,133.79	6,110.79	6,110.79	24.95	385.99	167.42	-1,197.99	-4,352.30	4,606.55	4,195.71	410.84	11.212		
6,500.00	6,156.86	6,133.86	6,133.86	25.04	387.45	169.78	-1,197.99	-4,352.30	4,650.70	4,238.34	412.36	11.278		
6,550.00	6,176.21	6,153.21	6,153.21	25.12	388.67	172.62	-1,197.99	-4,352.30	4,696.70	4,283.08	413.62	11.355		
6,600.00	6,191.68	6,168.68	6,168.68	25.19	389.64	176.63	-1,197.99	-4,352.30	4,744.21	4,329.58	414.63	11.442		
6,650.00	6,203.16	6,180.16	6,180.16	25.25	390.37	-176.44	-1,197.99	-4,352.30	4,792.86	4,377.48	415.38	11.539		
6,700.00	6,210.56	6,187.56	6,187.56	25.31	390.84	-160.31	-1,197.99	-4,352.30	4,842.27	4,426.42	415.85	11.644		
6,750.00	6,213.83	6,190.83	6,190.83	25.37	391.04	-110.39	-1,197.99	-4,352.30	4,892.09	4,476.03	416.06	11.758		
6,764.30	6,214.00	6,191.00	6,191.00	25.39	391.05	-90.00	-1,197.99	-4,352.30	4,906.35	4,490.28	416.07	11.792		

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W06_FEDERAL V #003_1526867 - Depth Only - Depth Only											Offset Site Error: 0.00 usft
Survey Program: 6300-INC-ONLY											Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	
6,800.00	6,214.00	6,191.00	6,191.00	25.43	391.05	-90.00	-1,197.99	-4,352.30	4,941.96	4,525.90	11.878
6,900.00	6,214.00	6,191.00	6,191.00	25.56	391.05	-90.00	-1,197.99	-4,352.30	5,041.72	4,625.66	12.118
7,000.00	6,214.00	6,191.00	6,191.00	25.73	391.05	-90.00	-1,197.99	-4,352.30	5,141.48	4,725.43	12.358
7,100.00	6,214.00	6,191.00	6,191.00	25.94	391.05	-90.00	-1,197.99	-4,352.30	5,241.26	4,825.21	12.598
7,200.00	6,214.00	6,191.00	6,191.00	26.21	391.05	-90.00	-1,197.99	-4,352.30	5,341.04	4,925.00	12.838
7,300.00	6,214.00	6,191.00	6,191.00	26.54	391.05	-90.00	-1,197.99	-4,352.30	5,440.83	5,024.79	13.078
7,400.00	6,214.00	6,191.00	6,191.00	26.93	391.05	-90.00	-1,197.99	-4,352.30	5,540.62	5,124.59	13.318
7,500.00	6,214.00	6,191.00	6,191.00	27.37	391.05	-90.00	-1,197.99	-4,352.30	5,640.43	5,224.39	13.558
7,600.00	6,214.00	6,191.00	6,191.00	27.87	391.05	-90.00	-1,197.99	-4,352.30	5,740.24	5,324.20	13.797
7,700.00	6,214.00	6,191.00	6,191.00	28.42	391.05	-90.00	-1,197.99	-4,352.30	5,840.06	5,424.02	14.037
7,800.00	6,214.00	6,191.00	6,191.00	29.01	391.05	-90.00	-1,197.99	-4,352.30	5,939.88	5,523.84	14.277
7,900.00	6,214.00	6,191.00	6,191.00	29.64	391.05	-90.00	-1,197.99	-4,352.30	6,039.71	5,623.66	14.517
8,000.00	6,214.00	6,191.00	6,191.00	30.31	391.05	-90.00	-1,197.99	-4,352.30	6,139.55	5,723.49	14.756
8,100.00	6,214.00	6,191.00	6,191.00	31.00	391.05	-90.00	-1,197.99	-4,352.30	6,239.39	5,823.32	14.996
8,200.00	6,214.00	6,191.00	6,191.00	31.73	391.05	-90.00	-1,197.99	-4,352.30	6,339.24	5,923.16	15.236
8,300.00	6,214.00	6,191.00	6,191.00	32.48	391.05	-90.00	-1,197.99	-4,352.30	6,439.09	6,023.00	15.475
8,400.00	6,214.00	6,191.00	6,191.00	33.26	391.05	-90.00	-1,197.99	-4,352.30	6,538.94	6,122.84	15.715
8,500.00	6,214.00	6,191.00	6,191.00	34.06	391.05	-90.00	-1,197.99	-4,352.30	6,638.80	6,222.69	15.954
8,600.00	6,214.00	6,191.00	6,191.00	34.87	391.05	-90.00	-1,197.99	-4,352.30	6,738.66	6,322.54	16.194
8,700.00	6,214.00	6,191.00	6,191.00	35.71	391.05	-90.00	-1,197.99	-4,352.30	6,838.53	6,422.39	16.433
8,800.00	6,214.00	6,191.00	6,191.00	36.56	391.05	-90.00	-1,197.99	-4,352.30	6,938.40	6,522.25	16.673
8,900.00	6,214.00	6,191.00	6,191.00	37.43	391.05	-90.00	-1,197.99	-4,352.30	7,038.28	6,622.11	16.912
9,000.00	6,214.00	6,191.00	6,191.00	38.31	391.05	-90.00	-1,197.99	-4,352.30	7,138.16	6,721.97	17.151
9,100.00	6,214.00	6,191.00	6,191.00	39.20	391.05	-90.00	-1,197.99	-4,352.30	7,238.04	6,821.83	17.390
9,200.00	6,214.00	6,191.00	6,191.00	40.11	391.05	-90.00	-1,197.99	-4,352.30	7,337.92	6,921.70	17.630
9,300.00	6,214.00	6,191.00	6,191.00	41.03	391.05	-90.00	-1,197.99	-4,352.30	7,437.81	7,021.56	17.869
9,400.00	6,214.00	6,191.00	6,191.00	41.95	391.05	-90.00	-1,197.99	-4,352.30	7,537.70	7,121.43	18.108
9,500.00	6,214.00	6,191.00	6,191.00	42.89	391.05	-90.00	-1,197.99	-4,352.30	7,637.60	7,221.30	18.347
9,600.00	6,214.00	6,191.00	6,191.00	43.84	391.05	-90.00	-1,197.99	-4,352.30	7,737.49	7,321.18	18.586
9,700.00	6,214.00	6,191.00	6,191.00	44.79	391.05	-90.00	-1,197.99	-4,352.30	7,837.39	7,421.05	18.824
9,800.00	6,214.00	6,191.00	6,191.00	45.75	391.05	-90.00	-1,197.99	-4,352.30	7,937.30	7,520.93	19.063
9,900.00	6,214.00	6,191.00	6,191.00	46.72	391.05	-90.00	-1,197.99	-4,352.30	8,037.20	7,620.80	19.302
10,000.00	6,214.00	6,191.00	6,191.00	47.70	391.05	-90.00	-1,197.99	-4,352.30	8,137.11	7,720.68	19.540
10,100.00	6,214.00	6,191.00	6,191.00	48.68	391.05	-90.00	-1,197.99	-4,352.30	8,237.02	7,820.56	19.779
10,200.00	6,214.00	6,191.00	6,191.00	49.67	391.05	-90.00	-1,197.99	-4,352.30	8,336.93	7,920.44	20.017
10,300.00	6,214.00	6,191.00	6,191.00	50.67	391.05	-90.00	-1,197.99	-4,352.30	8,436.84	8,020.33	20.256
10,400.00	6,214.00	6,191.00	6,191.00	51.67	391.05	-90.00	-1,197.99	-4,352.30	8,536.76	8,120.21	20.494
10,500.00	6,214.00	6,191.00	6,191.00	52.67	391.05	-90.00	-1,197.99	-4,352.30	8,636.67	8,220.09	20.732
10,600.00	6,214.00	6,191.00	6,191.00	53.68	391.05	-90.00	-1,197.99	-4,352.30	8,736.59	8,319.98	20.970
10,700.00	6,214.00	6,191.00	6,191.00	54.70	391.05	-90.00	-1,197.99	-4,352.30	8,836.51	8,419.87	21.209
10,800.00	6,214.00	6,191.00	6,191.00	55.71	391.05	-90.00	-1,197.99	-4,352.30	8,936.44	8,519.75	21.447
10,900.00	6,214.00	6,191.00	6,191.00	56.74	391.05	-90.00	-1,197.99	-4,352.30	9,036.36	8,619.64	21.684
11,000.00	6,214.00	6,191.00	6,191.00	57.76	391.05	-90.00	-1,197.99	-4,352.30	9,136.29	8,719.53	21.922
11,100.00	6,214.00	6,191.00	6,191.00	58.79	391.05	-90.00	-1,197.99	-4,352.30	9,236.21	8,819.42	22.160
11,200.00	6,214.00	6,191.00	6,191.00	59.83	391.05	-90.00	-1,197.99	-4,352.30	9,336.14	8,919.31	22.398
11,300.00	6,214.00	6,191.00	6,191.00	60.86	391.05	-90.00	-1,197.99	-4,352.30	9,436.07	9,019.20	22.635
11,400.00	6,214.00	6,191.00	6,191.00	61.90	391.05	-90.00	-1,197.99	-4,352.30	9,536.01	9,119.09	22.873
11,500.00	6,214.00	6,191.00	6,191.00	62.94	391.05	-90.00	-1,197.99	-4,352.30	9,635.94	9,218.98	23.110
11,600.00	6,214.00	6,191.00	6,191.00	63.99	391.05	-90.00	-1,197.99	-4,352.30	9,735.88	9,318.88	23.348
11,700.00	6,214.00	6,191.00	6,191.00	65.04	391.05	-90.00	-1,197.99	-4,352.30	9,835.81	9,418.77	23.585
11,800.00	6,214.00	6,191.00	6,191.00	66.09	391.05	-90.00	-1,197.99	-4,352.30	9,935.75	9,518.66	23.822
11,900.00	6,214.00	6,191.00	6,191.00	67.14	391.05	-90.00	-1,197.99	-4,352.30	10,035.69	9,618.56	24.059

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W06_FEDERAL V #003_1526867 - Depth Only - Depth Only													Offset Site Error: 0.00 usft
Survey Program: 6300-INC-ONLY							Rule Assigned:						Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Offset Wellbore Centre		Between		Minimum	Separation	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)		
12,000.00	6,214.00	6,191.00	6,191.00	68.19	391.05	-90.00	-1,197.99	-4,352.30	10,135.63	9,718.45	417.18	24.296	
12,100.00	6,214.00	6,191.00	6,191.00	69.25	391.05	-90.00	-1,197.99	-4,352.30	10,235.57	9,818.35	417.22	24.533	
12,200.00	6,214.00	6,191.00	6,191.00	70.31	391.05	-90.00	-1,197.99	-4,352.30	10,335.51	9,918.24	417.27	24.769	



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W07_PRE-ONGARD WELL #001_1527282 - Depth Only - Depth Only													Offset Site Error: 0.00 usft
Survey Program: 7450-INC-ONLY													Offset Well Error: 0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,500.00	2,457.46	2,410.46	2,410.46	8.87	152.26	24.40	-3,839.74	-1,618.49	3,855.94	3,695.20	160.74	23.988	
2,600.00	2,552.87	2,505.87	2,505.87	9.28	158.28	24.59	-3,839.74	-1,618.49	3,828.47	3,661.35	167.12	22.908	
2,700.00	2,648.28	2,601.28	2,601.28	9.69	164.31	24.78	-3,839.74	-1,618.49	3,801.04	3,627.54	173.51	21.907	
2,800.00	2,743.69	2,696.69	2,696.69	10.10	170.34	24.96	-3,839.74	-1,618.49	3,773.65	3,593.76	179.89	20.977	
2,900.00	2,839.10	2,792.10	2,792.10	10.51	176.36	25.16	-3,839.74	-1,618.49	3,746.30	3,560.03	186.28	20.112	
3,000.00	2,934.51	2,887.51	2,887.51	10.92	182.39	25.35	-3,839.74	-1,618.49	3,718.99	3,526.33	192.66	19.303	
3,100.00	3,029.92	2,982.92	2,982.92	11.34	188.42	25.55	-3,839.74	-1,618.49	3,691.72	3,492.67	199.05	18.547	
3,200.00	3,125.33	3,078.33	3,078.33	11.75	194.44	25.75	-3,839.74	-1,618.49	3,664.49	3,459.05	205.44	17.838	
3,300.00	3,220.74	3,173.74	3,173.74	12.17	200.47	25.95	-3,839.74	-1,618.49	3,637.30	3,425.48	211.83	17.171	
3,400.00	3,316.15	3,269.15	3,269.15	12.59	206.50	26.16	-3,839.74	-1,618.49	3,610.16	3,391.94	218.22	16.544	
3,500.00	3,411.56	3,364.56	3,364.56	13.01	212.52	26.37	-3,839.74	-1,618.49	3,583.06	3,358.45	224.61	15.952	
3,600.00	3,506.97	3,459.97	3,459.97	13.43	218.55	26.58	-3,839.74	-1,618.49	3,556.01	3,325.01	231.00	15.394	
3,700.00	3,602.38	3,555.38	3,555.38	13.85	224.58	26.79	-3,839.74	-1,618.49	3,529.01	3,291.61	237.39	14.866	
3,800.00	3,697.79	3,650.79	3,650.79	14.27	230.60	27.01	-3,839.74	-1,618.49	3,502.05	3,258.26	243.79	14.365	
3,900.00	3,793.20	3,746.20	3,746.20	14.69	236.63	27.24	-3,839.74	-1,618.49	3,475.14	3,224.96	250.18	13.890	
4,000.00	3,888.61	3,841.61	3,841.61	15.11	242.66	27.46	-3,839.74	-1,618.49	3,448.28	3,191.70	256.58	13.439	
4,100.00	3,984.02	3,937.02	3,937.02	15.53	248.68	27.69	-3,839.74	-1,618.49	3,421.47	3,158.50	262.98	13.010	
4,200.00	4,079.43	4,032.43	4,032.43	15.96	254.71	27.92	-3,839.74	-1,618.49	3,394.72	3,125.34	269.38	12.602	
4,300.00	4,174.84	4,127.84	4,127.84	16.38	260.73	28.16	-3,839.74	-1,618.49	3,368.02	3,092.24	275.78	12.213	
4,400.00	4,270.24	4,223.24	4,223.24	16.80	266.76	28.40	-3,839.74	-1,618.49	3,341.37	3,059.20	282.17	11.841	
4,500.00	4,365.65	4,318.65	4,318.65	17.23	272.79	28.64	-3,839.74	-1,618.49	3,314.79	3,026.21	288.58	11.487	
4,600.00	4,461.06	4,414.06	4,414.06	17.65	278.81	28.89	-3,839.74	-1,618.49	3,288.25	2,993.28	294.98	11.147	
4,700.00	4,556.47	4,509.47	4,509.47	18.08	284.84	29.14	-3,839.74	-1,618.49	3,261.78	2,960.40	301.38	10.823	
4,800.00	4,651.88	4,604.88	4,604.88	18.50	290.87	29.40	-3,839.74	-1,618.49	3,235.37	2,927.59	307.78	10.512	
4,900.00	4,747.29	4,700.29	4,700.29	18.92	296.89	29.66	-3,839.74	-1,618.49	3,209.02	2,894.83	314.19	10.214	
5,000.00	4,842.70	4,795.70	4,795.70	19.35	302.92	29.92	-3,839.74	-1,618.49	3,182.74	2,862.14	320.59	9.928	
5,100.00	4,938.11	4,891.11	4,891.11	19.78	308.95	30.19	-3,839.74	-1,618.49	3,156.52	2,829.52	327.00	9.653	
5,200.00	5,033.52	4,986.52	4,986.52	20.20	314.97	30.46	-3,839.74	-1,618.49	3,130.36	2,796.96	333.41	9.389	
5,300.00	5,128.93	5,081.93	5,081.93	20.63	321.00	30.74	-3,839.74	-1,618.49	3,104.28	2,764.46	339.82	9.135	
5,400.00	5,224.34	5,177.34	5,177.34	21.05	327.03	31.02	-3,839.74	-1,618.49	3,078.26	2,732.04	346.23	8.891	
5,500.00	5,319.75	5,272.75	5,272.75	21.48	333.05	31.31	-3,839.74	-1,618.49	3,052.32	2,699.69	352.64	8.656	
5,600.00	5,415.16	5,368.16	5,368.16	21.91	339.08	31.60	-3,839.74	-1,618.49	3,026.45	2,667.41	359.05	8.429	
5,700.00	5,510.57	5,463.57	5,463.57	22.33	345.11	31.89	-3,839.74	-1,618.49	3,000.66	2,635.20	365.46	8.211	
5,800.00	5,605.98	5,558.98	5,558.98	22.76	351.13	32.19	-3,839.74	-1,618.49	2,974.95	2,603.07	371.87	8.000	
5,859.18	5,662.44	5,615.44	5,615.44	23.01	354.70	32.37	-3,839.74	-1,618.49	2,959.77	2,584.10	375.67	7.879	
5,900.00	5,701.37	5,654.37	5,654.37	23.18	357.16	46.20	-3,839.74	-1,618.49	2,950.11	2,571.82	378.29	7.799	
5,950.00	5,748.79	5,701.79	5,701.79	23.40	360.15	61.41	-3,839.74	-1,618.49	2,940.54	2,559.05	381.49	7.708	
6,000.00	5,795.60	5,748.60	5,748.60	23.60	363.11	73.66	-3,839.74	-1,618.49	2,933.57	2,548.92	384.66	7.626	
6,050.00	5,841.42	5,794.42	5,794.42	23.80	366.00	82.99	-3,839.74	-1,618.49	2,929.31	2,541.55	387.76	7.554	
6,100.00	5,885.93	5,838.93	5,838.93	23.98	368.82	89.96	-3,839.74	-1,618.49	2,927.86	2,537.06	390.79	7.492	
6,100.38	5,886.25	5,839.25	5,839.25	23.98	368.84	90.00	-3,839.74	-1,618.49	2,927.86	2,537.04	390.82	7.492 CC	
6,150.00	5,928.77	5,881.77	5,881.77	24.16	371.52	95.13	-3,839.74	-1,618.49	2,929.29	2,535.57	393.72	7.440 ES	
6,200.00	5,969.61	5,922.61	5,922.61	24.32	374.10	98.93	-3,839.74	-1,618.49	2,933.68	2,537.16	396.52	7.399	
6,250.00	6,008.16	5,961.16	5,961.16	24.47	376.54	101.68	-3,839.74	-1,618.49	2,941.07	2,541.89	399.18	7.368	
6,300.00	6,044.12	5,997.12	5,997.12	24.61	378.81	103.57	-3,839.74	-1,618.49	2,951.47	2,549.80	401.67	7.348	
6,350.00	6,077.21	6,030.21	6,030.21	24.74	380.90	104.72	-3,839.74	-1,618.49	2,964.88	2,560.90	403.98	7.339 SF	
6,400.00	6,107.17	6,060.17	6,060.17	24.85	382.79	105.21	-3,839.74	-1,618.49	2,981.25	2,575.16	406.09	7.341	
6,450.00	6,133.79	6,086.79	6,086.79	24.95	384.47	105.09	-3,839.74	-1,618.49	3,000.50	2,592.51	407.99	7.354	
6,500.00	6,156.86	6,109.86	6,109.86	25.04	385.93	104.36	-3,839.74	-1,618.49	3,022.53	2,612.87	409.66	7.378	
6,550.00	6,176.21	6,129.21	6,129.21	25.12	387.15	103.03	-3,839.74	-1,618.49	3,047.19	2,636.10	411.09	7.413	
6,600.00	6,191.68	6,144.68	6,144.68	25.19	388.13	101.08	-3,839.74	-1,618.49	3,074.31	2,662.04	412.26	7.457	
6,650.00	6,203.16	6,156.16	6,156.16	25.25	388.85	98.48	-3,839.74	-1,618.49	3,103.67	2,690.49	413.18	7.512	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W07_PRE-ONGARD WELL #001_1527282 - Depth Only - Depth Only													Offset Site Error: 0.00 usft
Survey Program: 7450-INC-ONLY													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,700.00	6,210.56	6,163.56	6,163.56	25.31	389.32	95.21	-3,839.74	-1,618.49	3,135.04	2,721.21	413.83	7.576	
6,750.00	6,213.83	6,166.83	6,166.83	25.37	389.53	91.26	-3,839.74	-1,618.49	3,168.16	2,753.94	414.21	7.649	
6,764.30	6,214.00	6,167.00	6,167.00	25.39	389.54	90.00	-3,839.74	-1,618.49	3,177.91	2,763.63	414.27	7.671	
6,800.00	6,214.00	6,167.00	6,167.00	25.43	389.54	90.00	-3,839.74	-1,618.49	3,202.50	2,788.11	414.39	7.728	
6,900.00	6,214.00	6,167.00	6,167.00	25.56	389.54	90.00	-3,839.74	-1,618.49	3,272.47	2,857.75	414.72	7.891	
7,000.00	6,214.00	6,167.00	6,167.00	25.73	389.54	90.00	-3,839.74	-1,618.49	3,343.97	2,928.91	415.06	8.057	
7,100.00	6,214.00	6,167.00	6,167.00	25.94	389.54	90.00	-3,839.74	-1,618.49	3,416.90	3,001.50	415.40	8.226	
7,200.00	6,214.00	6,167.00	6,167.00	26.21	389.54	90.00	-3,839.74	-1,618.49	3,491.17	3,075.43	415.74	8.397	
7,300.00	6,214.00	6,167.00	6,167.00	26.54	389.54	90.00	-3,839.74	-1,618.49	3,566.70	3,150.62	416.08	8.572	
7,400.00	6,214.00	6,167.00	6,167.00	26.93	389.54	90.00	-3,839.74	-1,618.49	3,643.40	3,227.00	416.41	8.750	
7,500.00	6,214.00	6,167.00	6,167.00	27.37	389.54	90.00	-3,839.74	-1,618.49	3,721.21	3,304.48	416.73	8.929	
7,600.00	6,214.00	6,167.00	6,167.00	27.87	389.54	90.00	-3,839.74	-1,618.49	3,800.07	3,383.01	417.05	9.112	
7,700.00	6,214.00	6,167.00	6,167.00	28.42	389.54	90.00	-3,839.74	-1,618.49	3,879.89	3,462.52	417.37	9.296	
7,800.00	6,214.00	6,167.00	6,167.00	29.01	389.54	90.00	-3,839.74	-1,618.49	3,960.63	3,542.96	417.67	9.483	
7,900.00	6,214.00	6,167.00	6,167.00	29.64	389.54	90.00	-3,839.74	-1,618.49	4,042.24	3,624.26	417.97	9.671	
8,000.00	6,214.00	6,167.00	6,167.00	30.31	389.54	90.00	-3,839.74	-1,618.49	4,124.65	3,706.39	418.26	9.861	
8,100.00	6,214.00	6,167.00	6,167.00	31.00	389.54	90.00	-3,839.74	-1,618.49	4,207.83	3,789.28	418.55	10.053	
8,200.00	6,214.00	6,167.00	6,167.00	31.73	389.54	90.00	-3,839.74	-1,618.49	4,291.72	3,872.90	418.82	10.247	
8,300.00	6,214.00	6,167.00	6,167.00	32.48	389.54	90.00	-3,839.74	-1,618.49	4,376.29	3,957.20	419.09	10.442	
8,400.00	6,214.00	6,167.00	6,167.00	33.26	389.54	90.00	-3,839.74	-1,618.49	4,461.50	4,042.15	419.35	10.639	
8,500.00	6,214.00	6,167.00	6,167.00	34.06	389.54	90.00	-3,839.74	-1,618.49	4,547.31	4,127.71	419.61	10.837	
8,600.00	6,214.00	6,167.00	6,167.00	34.87	389.54	90.00	-3,839.74	-1,618.49	4,633.69	4,213.84	419.85	11.037	
8,700.00	6,214.00	6,167.00	6,167.00	35.71	389.54	90.00	-3,839.74	-1,618.49	4,720.61	4,300.52	420.09	11.237	
8,800.00	6,214.00	6,167.00	6,167.00	36.56	389.54	90.00	-3,839.74	-1,618.49	4,808.04	4,387.72	420.32	11.439	
8,900.00	6,214.00	6,167.00	6,167.00	37.43	389.54	90.00	-3,839.74	-1,618.49	4,895.95	4,475.40	420.55	11.642	
9,000.00	6,214.00	6,167.00	6,167.00	38.31	389.54	90.00	-3,839.74	-1,618.49	4,984.31	4,563.55	420.76	11.846	
9,100.00	6,214.00	6,167.00	6,167.00	39.20	389.54	90.00	-3,839.74	-1,618.49	5,073.11	4,652.13	420.98	12.051	
9,200.00	6,214.00	6,167.00	6,167.00	40.11	389.54	90.00	-3,839.74	-1,618.49	5,162.32	4,741.13	421.18	12.257	
9,300.00	6,214.00	6,167.00	6,167.00	41.03	389.54	90.00	-3,839.74	-1,618.49	5,251.91	4,830.53	421.38	12.464	
9,400.00	6,214.00	6,167.00	6,167.00	41.95	389.54	90.00	-3,839.74	-1,618.49	5,341.87	4,920.30	421.58	12.671	
9,500.00	6,214.00	6,167.00	6,167.00	42.89	389.54	90.00	-3,839.74	-1,618.49	5,432.19	5,010.42	421.77	12.880	
9,600.00	6,214.00	6,167.00	6,167.00	43.84	389.54	90.00	-3,839.74	-1,618.49	5,522.84	5,100.89	421.95	13.089	
9,700.00	6,214.00	6,167.00	6,167.00	44.79	389.54	90.00	-3,839.74	-1,618.49	5,613.81	5,191.67	422.13	13.299	
9,800.00	6,214.00	6,167.00	6,167.00	45.75	389.54	90.00	-3,839.74	-1,618.49	5,705.07	5,282.77	422.31	13.509	
9,900.00	6,214.00	6,167.00	6,167.00	46.72	389.54	90.00	-3,839.74	-1,618.49	5,796.63	5,374.15	422.48	13.721	
10,000.00	6,214.00	6,167.00	6,167.00	47.70	389.54	90.00	-3,839.74	-1,618.49	5,888.46	5,465.82	422.64	13.932	
10,100.00	6,214.00	6,167.00	6,167.00	48.68	389.54	90.00	-3,839.74	-1,618.49	5,980.56	5,557.75	422.81	14.145	
10,200.00	6,214.00	6,167.00	6,167.00	49.67	389.54	90.00	-3,839.74	-1,618.49	6,072.90	5,649.94	422.96	14.358	
10,300.00	6,214.00	6,167.00	6,167.00	50.67	389.54	90.00	-3,839.74	-1,618.49	6,165.48	5,742.36	423.12	14.572	
10,400.00	6,214.00	6,167.00	6,167.00	51.67	389.54	90.00	-3,839.74	-1,618.49	6,258.29	5,835.02	423.27	14.786	
10,500.00	6,214.00	6,167.00	6,167.00	52.67	389.54	90.00	-3,839.74	-1,618.49	6,351.32	5,927.91	423.42	15.000	
10,600.00	6,214.00	6,167.00	6,167.00	53.68	389.54	90.00	-3,839.74	-1,618.49	6,444.56	6,021.00	423.56	15.215	
10,700.00	6,214.00	6,167.00	6,167.00	54.70	389.54	90.00	-3,839.74	-1,618.49	6,538.00	6,114.30	423.70	15.431	
10,800.00	6,214.00	6,167.00	6,167.00	55.71	389.54	90.00	-3,839.74	-1,618.49	6,631.63	6,207.79	423.84	15.646	
10,900.00	6,214.00	6,167.00	6,167.00	56.74	389.54	90.00	-3,839.74	-1,618.49	6,725.44	6,301.46	423.98	15.863	
11,000.00	6,214.00	6,167.00	6,167.00	57.76	389.54	90.00	-3,839.74	-1,618.49	6,819.43	6,395.32	424.11	16.079	
11,100.00	6,214.00	6,167.00	6,167.00	58.79	389.54	90.00	-3,839.74	-1,618.49	6,913.59	6,489.35	424.24	16.296	
11,200.00	6,214.00	6,167.00	6,167.00	59.83	389.54	90.00	-3,839.74	-1,618.49	7,007.91	6,583.54	424.37	16.514	
11,300.00	6,214.00	6,167.00	6,167.00	60.86	389.54	90.00	-3,839.74	-1,618.49	7,102.38	6,677.89	424.50	16.731	
11,400.00	6,214.00	6,167.00	6,167.00	61.90	389.54	90.00	-3,839.74	-1,618.49	7,197.00	6,772.39	424.62	16.949	
11,500.00	6,214.00	6,167.00	6,167.00	62.94	389.54	90.00	-3,839.74	-1,618.49	7,291.77	6,867.03	424.74	17.168	
11,600.00	6,214.00	6,167.00	6,167.00	63.99	389.54	90.00	-3,839.74	-1,618.49	7,386.68	6,961.82	424.86	17.386	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W07_PRE-ONGARD WELL #001_1527282 - Depth Only - Depth Only												Offset Site Error:	0.00 usft
Survey Program: 7450-INC-ONLY												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
11,700.00	6,214.00	6,167.00	6,167.00	65.04	389.54	90.00	-3,839.74	-1,618.49	7,481.71	7,056.74	424.98	17.605	
11,800.00	6,214.00	6,167.00	6,167.00	66.09	389.54	90.00	-3,839.74	-1,618.49	7,576.88	7,151.79	425.09	17.824	
11,900.00	6,214.00	6,167.00	6,167.00	67.14	389.54	90.00	-3,839.74	-1,618.49	7,672.17	7,246.96	425.21	18.043	
12,000.00	6,214.00	6,167.00	6,167.00	68.19	389.54	90.00	-3,839.74	-1,618.49	7,767.58	7,342.26	425.32	18.263	
12,100.00	6,214.00	6,167.00	6,167.00	69.25	389.54	90.00	-3,839.74	-1,618.49	7,863.10	7,437.67	425.43	18.483	
12,200.00	6,214.00	6,167.00	6,167.00	70.31	389.54	90.00	-3,839.74	-1,618.49	7,958.73	7,533.19	425.54	18.703	
12,300.00	6,214.00	6,167.00	6,167.00	71.37	389.54	90.00	-3,839.74	-1,618.49	8,054.47	7,628.82	425.65	18.923	
12,400.00	6,214.00	6,167.00	6,167.00	72.43	389.54	90.00	-3,839.74	-1,618.49	8,150.31	7,724.55	425.75	19.143	
12,500.00	6,214.00	6,167.00	6,167.00	73.50	389.54	90.00	-3,839.74	-1,618.49	8,246.24	7,820.39	425.86	19.364	
12,600.00	6,214.00	6,167.00	6,167.00	74.56	389.54	90.00	-3,839.74	-1,618.49	8,342.28	7,916.32	425.96	19.585	
12,700.00	6,214.00	6,167.00	6,167.00	75.63	389.54	90.00	-3,839.74	-1,618.49	8,438.41	8,012.34	426.06	19.806	
12,800.00	6,214.00	6,167.00	6,167.00	76.70	389.54	90.00	-3,839.74	-1,618.49	8,534.62	8,108.46	426.16	20.027	
12,900.00	6,214.00	6,167.00	6,167.00	77.77	389.54	90.00	-3,839.74	-1,618.49	8,630.92	8,204.66	426.26	20.248	
13,000.00	6,214.00	6,167.00	6,167.00	78.84	389.54	90.00	-3,839.74	-1,618.49	8,727.31	8,300.94	426.36	20.469	
13,100.00	6,214.00	6,167.00	6,167.00	79.91	389.54	90.00	-3,839.74	-1,618.49	8,823.77	8,397.31	426.46	20.691	
13,200.00	6,214.00	6,167.00	6,167.00	80.99	389.54	90.00	-3,839.74	-1,618.49	8,920.31	8,493.75	426.56	20.912	
13,300.00	6,214.00	6,167.00	6,167.00	82.07	389.54	90.00	-3,839.74	-1,618.49	9,016.93	8,590.28	426.66	21.134	
13,400.00	6,214.00	6,167.00	6,167.00	83.14	389.54	90.00	-3,839.74	-1,618.49	9,113.62	8,686.87	426.75	21.356	
13,500.00	6,214.00	6,167.00	6,167.00	84.22	389.54	90.00	-3,839.74	-1,618.49	9,210.38	8,783.54	426.85	21.578	
13,600.00	6,214.00	6,167.00	6,167.00	85.30	389.54	90.00	-3,839.74	-1,618.49	9,307.21	8,880.27	426.94	21.800	
13,700.00	6,214.00	6,167.00	6,167.00	86.38	389.54	90.00	-3,839.74	-1,618.49	9,404.11	8,977.08	427.03	22.022	
13,800.00	6,214.00	6,167.00	6,167.00	87.46	389.54	90.00	-3,839.74	-1,618.49	9,501.07	9,073.95	427.13	22.244	
13,900.00	6,214.00	6,167.00	6,167.00	88.55	389.54	90.00	-3,839.74	-1,618.49	9,598.10	9,170.88	427.22	22.467	
14,000.00	6,214.00	6,167.00	6,167.00	89.63	389.54	90.00	-3,839.74	-1,618.49	9,695.18	9,267.87	427.31	22.689	
14,100.00	6,214.00	6,167.00	6,167.00	90.72	389.54	90.00	-3,839.74	-1,618.49	9,792.32	9,364.92	427.40	22.911	
14,200.00	6,214.00	6,167.00	6,167.00	91.80	389.54	90.00	-3,839.74	-1,618.49	9,889.52	9,462.03	427.49	23.134	
14,300.00	6,214.00	6,167.00	6,167.00	92.89	389.54	90.00	-3,839.74	-1,618.49	9,986.78	9,559.20	427.58	23.357	
14,400.00	6,214.00	6,167.00	6,167.00	93.97	389.54	90.00	-3,839.74	-1,618.49	10,084.08	9,656.42	427.67	23.579	
14,500.00	6,214.00	6,167.00	6,167.00	95.06	389.54	90.00	-3,839.74	-1,618.49	10,181.44	9,753.69	427.76	23.802	
14,600.00	6,214.00	6,167.00	6,167.00	96.15	389.54	90.00	-3,839.74	-1,618.49	10,278.86	9,851.01	427.84	24.025	
14,700.00	6,214.00	6,167.00	6,167.00	97.24	389.54	90.00	-3,839.74	-1,618.49	10,376.32	9,948.38	427.93	24.248	
14,800.00	6,214.00	6,167.00	6,167.00	98.33	389.54	90.00	-3,839.74	-1,618.49	10,473.82	10,045.80	428.02	24.470	
14,900.00	6,214.00	6,167.00	6,167.00	99.42	389.54	90.00	-3,839.74	-1,618.49	10,571.38	10,143.27	428.11	24.693	
15,000.00	6,214.00	6,167.00	6,167.00	100.51	389.54	90.00	-3,839.74	-1,618.49	10,668.98	10,240.79	428.19	24.916	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W09_GOVERNMENT AB #002_1521480 - Inc Only - Inc Only													Offset Site Error:	0.00 usft
Survey Program:		300-INC-ONLY					Rule Assigned:				Offset Well Error:	0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		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	Warning	
12,600.00	6,214.00	6,152.89	6,151.84	74.56	135.41	89.48	-2,449.54	10,265.27	4,007.70	3,843.83	163.86	24.457		
12,700.00	6,214.00	6,152.88	6,151.84	75.63	135.41	89.48	-2,449.54	10,265.27	3,911.01	3,746.79	164.22	23.816		
12,800.00	6,214.00	6,152.87	6,151.83	76.70	135.41	89.48	-2,449.54	10,265.27	3,814.49	3,649.89	164.60	23.175		
12,900.00	6,214.00	6,152.87	6,151.82	77.77	135.41	89.48	-2,449.54	10,265.27	3,718.15	3,553.14	165.01	22.532		
13,000.00	6,214.00	6,152.86	6,151.82	78.84	135.41	89.48	-2,449.54	10,265.27	3,622.01	3,456.54	165.47	21.889		
13,100.00	6,214.00	6,152.85	6,151.81	79.91	135.41	89.48	-2,449.54	10,265.27	3,526.09	3,360.12	165.96	21.246		
13,200.00	6,214.00	6,152.85	6,151.80	80.99	135.41	89.48	-2,449.54	10,265.27	3,430.40	3,263.89	166.50	20.603		
13,300.00	6,214.00	6,152.84	6,151.80	82.07	135.41	89.48	-2,449.54	10,265.27	3,334.96	3,167.87	167.09	19.959		
13,400.00	6,214.00	6,152.83	6,151.79	83.14	135.41	89.48	-2,449.54	10,265.27	3,239.80	3,072.06	167.73	19.315		
13,500.00	6,214.00	6,152.83	6,151.78	84.22	135.41	89.48	-2,449.54	10,265.27	3,144.93	2,976.50	168.43	18.672		
13,600.00	6,214.00	6,152.82	6,151.78	85.30	135.41	89.48	-2,449.54	10,265.27	3,050.40	2,881.20	169.20	18.029		
13,700.00	6,214.00	6,152.81	6,151.77	86.38	135.41	89.48	-2,449.53	10,265.27	2,956.23	2,786.19	170.03	17.386		
13,800.00	6,214.00	6,152.81	6,151.76	87.46	135.41	89.48	-2,449.53	10,265.27	2,862.45	2,691.50	170.95	16.745		
13,900.00	6,214.00	6,152.80	6,151.76	88.55	135.41	89.48	-2,449.53	10,265.27	2,769.10	2,597.16	171.95	16.104		
14,000.00	6,214.00	6,152.79	6,151.75	89.63	135.41	89.48	-2,449.53	10,265.27	2,676.24	2,503.20	173.04	15.466		
14,100.00	6,214.00	6,152.79	6,151.74	90.72	135.41	89.47	-2,449.53	10,265.27	2,583.91	2,409.67	174.24	14.830		
14,200.00	6,214.00	6,152.78	6,151.74	91.80	135.41	89.47	-2,449.53	10,265.27	2,492.17	2,316.62	175.55	14.196		
14,300.00	6,214.00	6,152.77	6,151.73	92.89	135.41	89.47	-2,449.53	10,265.27	2,401.09	2,224.11	176.99	13.567		
14,400.00	6,214.00	6,152.77	6,151.72	93.97	135.41	89.47	-2,449.53	10,265.27	2,310.75	2,132.19	178.56	12.941		
14,500.00	6,214.00	6,152.76	6,151.72	95.06	135.41	89.47	-2,449.53	10,265.27	2,221.24	2,040.95	180.29	12.320		
14,600.00	6,214.00	6,152.75	6,151.71	96.15	135.41	89.47	-2,449.53	10,265.27	2,132.66	1,950.47	182.19	11.706		
14,700.00	6,214.00	6,152.75	6,151.70	97.24	135.41	89.47	-2,449.53	10,265.27	2,045.13	1,860.86	184.27	11.099		
14,800.00	6,214.00	6,152.74	6,151.70	98.33	135.41	89.47	-2,449.53	10,265.27	1,958.80	1,772.25	186.55	10.500		
14,900.00	6,214.00	6,152.73	6,151.69	99.42	135.41	89.47	-2,449.53	10,265.27	1,873.83	1,684.77	189.05	9.912		
15,000.00	6,214.00	6,152.73	6,151.68	100.51	135.41	89.47	-2,449.53	10,265.27	1,790.41	1,598.61	191.80	9.335		
15,100.00	6,214.00	6,152.72	6,151.68	101.61	135.41	89.47	-2,449.53	10,265.27	1,708.77	1,513.96	194.81	8.772		
15,200.00	6,214.00	6,152.71	6,151.67	102.70	135.41	89.47	-2,449.53	10,265.27	1,629.18	1,431.08	198.09	8.224		
15,300.00	6,214.00	6,152.71	6,151.66	103.79	135.41	89.47	-2,449.53	10,265.27	1,551.95	1,350.28	201.67	7.695		
15,400.00	6,214.00	6,152.70	6,151.66	104.89	135.41	89.47	-2,449.53	10,265.27	1,477.45	1,271.90	205.56	7.188		
15,500.00	6,214.00	6,152.69	6,151.65	105.98	135.41	89.47	-2,449.53	10,265.27	1,406.13	1,196.37	209.75	6.704		
15,600.00	6,214.00	6,152.69	6,151.64	107.08	135.41	89.47	-2,449.53	10,265.27	1,338.48	1,124.23	214.25	6.247		
15,700.00	6,214.00	6,152.68	6,151.64	108.17	135.41	89.47	-2,449.53	10,265.27	1,275.09	1,056.08	219.01	5.822		
15,800.00	6,214.00	6,152.67	6,151.63	109.27	135.41	89.47	-2,449.53	10,265.27	1,216.63	992.65	223.98	5.432		
15,900.00	6,214.00	6,152.67	6,151.62	110.37	135.41	89.47	-2,449.53	10,265.27	1,163.84	934.78	229.06	5.081		
16,000.00	6,214.00	6,152.66	6,151.62	111.47	135.41	89.47	-2,449.53	10,265.27	1,117.52	883.39	234.13	4.773		
16,100.00	6,214.00	6,152.65	6,151.61	112.56	135.41	89.47	-2,449.53	10,265.27	1,078.51	839.51	239.00	4.513		
16,200.00	6,214.00	6,152.65	6,151.60	113.66	135.41	89.47	-2,449.53	10,265.27	1,047.62	804.15	243.47	4.303		
16,300.00	6,214.00	6,152.64	6,151.60	114.76	135.41	89.47	-2,449.53	10,265.27	1,025.59	778.28	247.31	4.147		
16,400.00	6,214.00	6,152.63	6,151.59	115.86	135.41	89.47	-2,449.53	10,265.27	1,013.00	762.69	250.31	4.047		
16,478.35	6,214.00	6,152.63	6,151.59	116.72	135.41	89.47	-2,449.53	10,265.27	1,009.96	757.99	251.97	4.008 CC		
16,500.00	6,214.00	6,152.63	6,151.58	116.96	135.41	89.47	-2,449.53	10,265.27	1,010.19	757.88	252.31	4.004 ES, SF		
16,600.00	6,214.00	6,152.62	6,151.58	118.06	135.41	89.47	-2,449.53	10,265.27	1,017.26	764.02	253.25	4.017		
16,700.00	6,214.00	6,152.61	6,151.57	119.16	135.40	89.47	-2,449.53	10,265.27	1,034.00	780.88	253.12	4.085		
16,800.00	6,214.00	6,152.61	6,151.56	120.26	135.40	89.46	-2,449.53	10,265.27	1,059.94	807.90	252.04	4.205		
16,900.00	6,214.00	6,152.60	6,151.56	121.36	135.40	89.46	-2,449.53	10,265.27	1,094.44	844.28	250.17	4.375		
17,000.00	6,214.00	6,152.59	6,151.55	122.47	135.40	89.46	-2,449.53	10,265.27	1,136.72	889.03	247.69	4.589		
17,100.00	6,214.00	6,152.59	6,151.54	123.57	135.40	89.46	-2,449.53	10,265.27	1,185.95	941.15	244.80	4.845		
17,163.72	6,214.00	6,152.58	6,151.54	124.27	135.40	89.46	-2,449.53	10,265.27	1,220.55	977.73	242.82	5.027		

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W10_GOVERNMENT AB #003_1521774 - Inc Only - Inc Only													Offset Site Error:	0.00 usft
Survey Program:		350-INC-ONLY						Rule Assigned:				Offset Well Error:	0.00 usft	
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,500.00	6,214.00	6,163.31	6,163.04	52.67	115.48	89.55	-2,467.91	7,593.52	3,456.97	3,315.39	141.58	24.417		
10,600.00	6,214.00	6,163.30	6,163.03	53.68	115.48	89.55	-2,467.91	7,593.52	3,361.45	3,219.61	141.83	23.700		
10,700.00	6,214.00	6,163.30	6,163.03	54.70	115.48	89.55	-2,467.91	7,593.52	3,266.19	3,124.07	142.12	22.982		
10,800.00	6,214.00	6,163.29	6,163.02	55.71	115.48	89.55	-2,467.91	7,593.52	3,171.23	3,028.79	142.44	22.263		
10,900.00	6,214.00	6,163.28	6,163.02	56.74	115.48	89.55	-2,467.91	7,593.52	3,076.59	2,933.78	142.81	21.544		
11,000.00	6,214.00	6,163.28	6,163.01	57.76	115.48	89.55	-2,467.91	7,593.52	2,982.29	2,839.08	143.22	20.824		
11,100.00	6,214.00	6,163.27	6,163.00	58.79	115.48	89.55	-2,467.91	7,593.52	2,888.39	2,744.71	143.68	20.103		
11,200.00	6,214.00	6,163.27	6,163.00	59.83	115.48	89.55	-2,467.91	7,593.52	2,794.90	2,650.71	144.19	19.383		
11,300.00	6,214.00	6,163.26	6,162.99	60.86	115.48	89.55	-2,467.91	7,593.52	2,701.88	2,557.10	144.78	18.662		
11,400.00	6,214.00	6,163.26	6,162.99	61.90	115.48	89.54	-2,467.91	7,593.52	2,609.38	2,463.95	145.43	17.942		
11,500.00	6,214.00	6,163.25	6,162.98	62.94	115.48	89.54	-2,467.91	7,593.52	2,517.45	2,371.28	146.17	17.223		
11,600.00	6,214.00	6,163.24	6,162.98	63.99	115.48	89.54	-2,467.91	7,593.52	2,426.16	2,279.17	146.99	16.506		
11,700.00	6,214.00	6,163.24	6,162.97	65.04	115.48	89.54	-2,467.91	7,593.52	2,335.58	2,187.66	147.91	15.790		
11,800.00	6,214.00	6,163.23	6,162.96	66.09	115.48	89.54	-2,467.91	7,593.52	2,245.80	2,096.85	148.95	15.077		
11,900.00	6,214.00	6,163.23	6,162.96	67.14	115.48	89.54	-2,467.91	7,593.52	2,156.92	2,006.81	150.11	14.369		
12,000.00	6,214.00	6,163.22	6,162.95	68.19	115.48	89.54	-2,467.91	7,593.52	2,069.06	1,917.65	151.41	13.665		
12,100.00	6,214.00	6,163.22	6,162.95	69.25	115.48	89.54	-2,467.91	7,593.52	1,982.35	1,829.48	152.86	12.968		
12,200.00	6,214.00	6,163.21	6,162.94	70.31	115.48	89.54	-2,467.91	7,593.52	1,896.94	1,742.46	154.48	12.279		
12,300.00	6,214.00	6,163.20	6,162.94	71.37	115.48	89.54	-2,467.91	7,593.52	1,813.03	1,656.74	156.29	11.600		
12,400.00	6,214.00	6,163.20	6,162.93	72.43	115.48	89.54	-2,467.91	7,593.52	1,730.83	1,572.53	158.30	10.934		
12,500.00	6,214.00	6,163.19	6,162.92	73.50	115.48	89.54	-2,467.91	7,593.52	1,650.59	1,490.06	160.54	10.282		
12,600.00	6,214.00	6,163.19	6,162.92	74.56	115.48	89.54	-2,467.91	7,593.52	1,572.63	1,409.62	163.01	9.648		
12,700.00	6,214.00	6,163.18	6,162.91	75.63	115.48	89.54	-2,467.91	7,593.52	1,497.28	1,331.55	165.73	9.035		
12,800.00	6,214.00	6,163.17	6,162.91	76.70	115.48	89.54	-2,467.91	7,593.52	1,424.97	1,256.26	168.71	8.446		
12,900.00	6,214.00	6,163.17	6,162.90	77.77	115.48	89.54	-2,467.91	7,593.52	1,356.18	1,184.24	171.94	7.887		
13,000.00	6,214.00	6,163.16	6,162.90	78.84	115.48	89.54	-2,467.91	7,593.52	1,291.48	1,116.05	175.43	7.362		
13,100.00	6,214.00	6,163.16	6,162.89	79.91	115.48	89.54	-2,467.91	7,593.52	1,231.51	1,052.38	179.13	6.875		
13,200.00	6,214.00	6,163.15	6,162.88	80.99	115.48	89.54	-2,467.91	7,593.52	1,176.99	994.01	182.98	6.432		
13,300.00	6,214.00	6,163.15	6,162.88	82.07	115.48	89.54	-2,467.91	7,593.52	1,128.72	941.81	186.91	6.039		
13,400.00	6,214.00	6,163.14	6,162.87	83.14	115.48	89.54	-2,467.91	7,593.52	1,087.52	896.73	190.79	5.700		
13,500.00	6,214.00	6,163.13	6,162.87	84.22	115.48	89.54	-2,467.91	7,593.52	1,054.22	859.75	194.47	5.421		
13,600.00	6,214.00	6,163.13	6,162.86	85.30	115.48	89.54	-2,467.91	7,593.52	1,029.60	831.81	197.79	5.205		
13,700.00	6,214.00	6,163.12	6,162.85	86.38	115.48	89.54	-2,467.91	7,593.52	1,014.28	813.70	200.58	5.057		
13,800.00	6,214.00	6,163.12	6,162.85	87.46	115.48	89.54	-2,467.91	7,593.52	1,008.69	806.01	202.69	4.977		
13,806.54	6,214.00	6,163.12	6,162.85	87.53	115.48	89.54	-2,467.91	7,593.52	1,008.67	805.87	202.80	4.974 CC, ES		
13,900.00	6,214.00	6,163.11	6,162.84	88.55	115.48	89.54	-2,467.91	7,593.52	1,012.99	808.96	204.03	4.965 SF		
14,000.00	6,214.00	6,163.11	6,162.84	89.63	115.48	89.54	-2,467.91	7,593.52	1,027.06	822.47	204.58	5.020		
14,100.00	6,214.00	6,163.10	6,162.83	90.72	115.48	89.54	-2,467.91	7,593.52	1,050.49	846.10	204.40	5.139		
14,200.00	6,214.00	6,163.09	6,162.83	91.80	115.48	89.54	-2,467.91	7,593.52	1,082.69	879.13	203.57	5.319		
14,300.00	6,214.00	6,163.09	6,162.82	92.89	115.48	89.54	-2,467.91	7,593.52	1,122.91	920.68	202.23	5.553		
14,400.00	6,214.00	6,163.08	6,162.81	93.97	115.48	89.54	-2,467.91	7,593.52	1,170.30	969.80	200.51	5.837		
14,500.00	6,214.00	6,163.08	6,162.81	95.06	115.48	89.53	-2,467.91	7,593.52	1,224.05	1,025.51	198.54	6.165		
14,600.00	6,214.00	6,163.07	6,162.80	96.15	115.48	89.53	-2,467.91	7,593.52	1,283.35	1,086.91	196.44	6.533		
14,700.00	6,214.00	6,163.07	6,162.80	97.24	115.48	89.53	-2,467.91	7,593.52	1,347.47	1,153.19	194.28	6.936		
14,800.00	6,214.00	6,163.06	6,162.79	98.33	115.48	89.53	-2,467.91	7,593.52	1,415.76	1,223.63	192.14	7.369		
14,900.00	6,214.00	6,163.05	6,162.79	99.42	115.48	89.53	-2,467.91	7,593.52	1,487.64	1,297.60	190.04	7.828		
15,000.00	6,214.00	6,163.05	6,162.78	100.51	115.48	89.53	-2,467.91	7,593.52	1,562.61	1,374.59	188.03	8.311		
15,100.00	6,214.00	6,163.04	6,162.77	101.61	115.48	89.53	-2,467.91	7,593.52	1,640.26	1,454.15	186.11	8.813		
15,200.00	6,214.00	6,163.04	6,162.77	102.70	115.48	89.53	-2,467.91	7,593.52	1,720.22	1,535.91	184.31	9.333		
15,300.00	6,214.00	6,163.03	6,162.76	103.79	115.48	89.53	-2,467.91	7,593.52	1,802.18	1,619.57	182.61	9.869		
15,400.00	6,214.00	6,163.02	6,162.76	104.89	115.47	89.53	-2,467.91	7,593.52	1,885.88	1,704.85	181.02	10.418		
15,500.00	6,214.00	6,163.02	6,162.75	105.98	115.47	89.53	-2,467.91	7,593.52	1,971.10	1,791.55	179.54	10.978		

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W10_GOVERNMENT AB #003_1521774 - Inc Only - Inc Only												Offset Site Error:	0.00 usft
Survey Program: 350-INC-ONLY												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,600.00	6,214.00	6,163.01	6,162.75	107.08	115.47	89.53	-2,467.91	7,593.52	2,057.65	1,879.48	178.17	11.549	
15,700.00	6,214.00	6,163.01	6,162.74	108.17	115.47	89.53	-2,467.91	7,593.52	2,145.37	1,968.48	176.88	12.129	
15,800.00	6,214.00	6,163.00	6,162.73	109.27	115.47	89.53	-2,467.91	7,593.52	2,234.12	2,058.43	175.69	12.716	
15,900.00	6,214.00	6,163.00	6,162.73	110.37	115.47	89.53	-2,467.91	7,593.52	2,323.79	2,149.21	174.58	13.310	
16,000.00	6,214.00	6,162.99	6,162.72	111.47	115.47	89.53	-2,467.91	7,593.52	2,414.27	2,240.72	173.55	13.911	
16,100.00	6,214.00	6,162.98	6,162.72	112.56	115.47	89.53	-2,467.91	7,593.52	2,505.47	2,332.88	172.59	14.517	
16,200.00	6,214.00	6,162.98	6,162.71	113.66	115.47	89.53	-2,467.91	7,593.52	2,597.32	2,425.62	171.70	15.127	
16,300.00	6,214.00	6,162.97	6,162.71	114.76	115.47	89.53	-2,467.91	7,593.52	2,689.75	2,518.89	170.87	15.742	
16,400.00	6,214.00	6,162.97	6,162.70	115.86	115.47	89.53	-2,467.91	7,593.52	2,782.71	2,612.62	170.09	16.360	
16,500.00	6,214.00	6,162.96	6,162.69	116.96	115.47	89.53	-2,467.91	7,593.52	2,876.13	2,706.77	169.37	16.982	
16,600.00	6,214.00	6,162.96	6,162.69	118.06	115.47	89.53	-2,467.91	7,593.52	2,969.99	2,801.30	168.69	17.606	
16,700.00	6,214.00	6,162.95	6,162.68	119.16	115.47	89.53	-2,467.91	7,593.52	3,064.23	2,896.18	168.06	18.233	
16,800.00	6,214.00	6,162.94	6,162.68	120.26	115.47	89.53	-2,467.91	7,593.52	3,158.83	2,991.37	167.47	18.862	
16,900.00	6,214.00	6,162.94	6,162.67	121.36	115.47	89.53	-2,467.91	7,593.52	3,253.75	3,086.84	166.91	19.494	
17,000.00	6,214.00	6,162.93	6,162.66	122.47	115.47	89.53	-2,467.91	7,593.52	3,348.97	3,182.58	166.40	20.127	
17,100.00	6,214.00	6,162.93	6,162.66	123.57	115.47	89.53	-2,467.91	7,593.52	3,444.46	3,278.55	165.91	20.761	
17,163.72	6,214.00	6,162.92	6,162.66	124.27	115.47	89.53	-2,467.91	7,593.52	3,505.43	3,339.81	165.62	21.166	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W11_GOVERNMENT AB #006_1527846 - Inc Only - Inc Only												Offset Site Error: 0.00 usft
Survey Program: 156-INC-ONLY												Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		
8,300.00	6,214.00	6,176.36	6,174.00	32.48	155.95	-90.00	179.30	6,311.17	4,552.44	4,368.43	184.01	24.741
8,400.00	6,214.00	6,176.36	6,174.00	33.26	155.95	-90.00	179.30	6,311.17	4,459.37	4,275.07	184.30	24.196
8,500.00	6,214.00	6,176.36	6,174.00	34.06	155.95	-90.00	179.30	6,311.17	4,366.60	4,181.99	184.61	23.653
8,600.00	6,214.00	6,176.36	6,174.00	34.87	155.95	-90.00	179.30	6,311.17	4,274.16	4,089.22	184.94	23.111
8,700.00	6,214.00	6,176.36	6,174.00	35.71	155.95	-90.00	179.30	6,311.17	4,182.07	3,996.77	185.30	22.569
8,800.00	6,214.00	6,176.36	6,174.00	36.56	155.95	-90.00	179.30	6,311.17	4,090.35	3,904.67	185.68	22.029
8,900.00	6,214.00	6,176.36	6,174.00	37.43	155.95	-90.00	179.30	6,311.17	3,999.03	3,812.94	186.09	21.490
9,000.00	6,214.00	6,176.36	6,174.00	38.31	155.95	-90.00	179.30	6,311.17	3,908.13	3,721.61	186.53	20.952
9,100.00	6,214.00	6,176.36	6,174.00	39.20	155.95	-90.00	179.30	6,311.17	3,817.69	3,630.70	186.99	20.416
9,200.00	6,214.00	6,176.36	6,174.00	40.11	155.95	-90.00	179.30	6,311.17	3,727.74	3,540.25	187.49	19.882
9,300.00	6,214.00	6,176.36	6,174.00	41.03	155.95	-90.00	179.30	6,311.17	3,638.31	3,450.28	188.02	19.350
9,400.00	6,214.00	6,176.36	6,174.00	41.95	155.95	-90.00	179.30	6,311.17	3,549.44	3,360.85	188.59	18.821
9,500.00	6,214.00	6,176.36	6,174.00	42.89	155.95	-90.00	179.30	6,311.17	3,461.19	3,271.98	189.20	18.294
9,600.00	6,214.00	6,176.36	6,174.00	43.84	155.95	-90.00	179.30	6,311.17	3,373.58	3,183.73	189.85	17.769
9,700.00	6,214.00	6,176.36	6,174.00	44.79	155.95	-90.00	179.30	6,311.17	3,286.69	3,096.14	190.55	17.248
9,800.00	6,214.00	6,176.36	6,174.00	45.75	155.95	-90.00	179.30	6,311.17	3,200.56	3,009.27	191.29	16.731
9,900.00	6,214.00	6,176.36	6,174.00	46.72	155.95	-90.00	179.30	6,311.17	3,115.26	2,923.17	192.09	16.218
10,000.00	6,214.00	6,176.36	6,174.00	47.70	155.95	-90.00	179.30	6,311.17	3,030.86	2,837.92	192.93	15.709
10,100.00	6,214.00	6,176.36	6,174.00	48.68	155.95	-90.00	179.30	6,311.17	2,947.43	2,753.59	193.84	15.206
10,200.00	6,214.00	6,176.36	6,174.00	49.67	155.95	-90.00	179.30	6,311.17	2,865.07	2,670.27	194.80	14.708
10,300.00	6,214.00	6,176.36	6,174.00	50.67	155.95	-90.00	179.30	6,311.17	2,783.86	2,588.03	195.83	14.216
10,400.00	6,214.00	6,176.36	6,174.00	51.67	155.95	-90.00	179.30	6,311.17	2,703.91	2,506.99	196.92	13.731
10,500.00	6,214.00	6,176.36	6,174.00	52.67	155.95	-90.00	179.30	6,311.17	2,625.34	2,427.25	198.09	13.254
10,600.00	6,214.00	6,176.36	6,174.00	53.68	155.95	-90.00	179.30	6,311.17	2,548.27	2,348.95	199.32	12.785
10,700.00	6,214.00	6,176.36	6,174.00	54.70	155.95	-90.00	179.30	6,311.17	2,472.84	2,272.21	200.63	12.326
10,800.00	6,214.00	6,176.36	6,174.00	55.71	155.95	-90.00	179.30	6,311.17	2,399.20	2,197.19	202.01	11.877
10,900.00	6,214.00	6,176.36	6,174.00	56.74	155.95	-90.00	179.30	6,311.17	2,327.54	2,124.07	203.47	11.439
11,000.00	6,214.00	6,176.36	6,174.00	57.76	155.95	-90.00	179.30	6,311.17	2,258.03	2,053.03	205.00	11.015
11,100.00	6,214.00	6,176.36	6,174.00	58.79	155.95	-90.00	179.30	6,311.17	2,190.88	1,984.27	206.61	10.604
11,200.00	6,214.00	6,176.36	6,174.00	59.83	155.95	-90.00	179.30	6,311.17	2,126.32	1,918.03	208.28	10.209
11,300.00	6,214.00	6,176.36	6,174.00	60.86	155.95	-90.00	179.30	6,311.17	2,064.58	1,854.56	210.02	9.830
11,400.00	6,214.00	6,176.36	6,174.00	61.90	155.95	-90.00	179.30	6,311.17	2,005.93	1,794.11	211.81	9.470
11,500.00	6,214.00	6,176.36	6,174.00	62.94	155.95	-90.00	179.30	6,311.17	1,950.64	1,736.99	213.65	9.130
11,600.00	6,214.00	6,176.36	6,174.00	63.99	155.95	-90.00	179.30	6,311.17	1,899.02	1,683.51	215.51	8.812
11,700.00	6,214.00	6,176.36	6,174.00	65.04	155.95	-90.00	179.30	6,311.17	1,851.36	1,633.98	217.37	8.517
11,800.00	6,214.00	6,176.36	6,174.00	66.09	155.95	-90.00	179.30	6,311.17	1,807.98	1,588.75	219.23	8.247
11,900.00	6,214.00	6,176.36	6,174.00	67.14	155.95	-90.00	179.30	6,311.17	1,769.19	1,548.16	221.03	8.004
12,000.00	6,214.00	6,176.36	6,174.00	68.19	155.95	-90.00	179.30	6,311.17	1,735.31	1,512.54	222.77	7.790
12,100.00	6,214.00	6,176.36	6,174.00	69.25	155.95	-90.00	179.30	6,311.17	1,706.62	1,482.22	224.41	7.605
12,200.00	6,214.00	6,176.36	6,174.00	70.31	155.95	-90.00	179.30	6,311.17	1,683.40	1,457.49	225.91	7.452
12,300.00	6,214.00	6,176.36	6,174.00	71.37	155.95	-90.00	179.30	6,311.17	1,665.86	1,438.62	227.24	7.331
12,400.00	6,214.00	6,176.36	6,174.00	72.43	155.95	-90.00	179.30	6,311.17	1,654.19	1,425.81	228.38	7.243
12,500.00	6,214.00	6,176.36	6,174.00	73.50	155.95	-90.00	179.30	6,311.17	1,648.51	1,419.21	229.30	7.189
12,543.70	6,214.00	6,176.36	6,174.00	73.96	155.95	-90.00	179.30	6,311.17	1,647.94	1,418.30	229.63	7.176 CC, ES
12,600.00	6,214.00	6,176.36	6,174.00	74.56	155.95	-90.00	179.30	6,311.17	1,648.90	1,418.90	229.99	7.169 SF
12,700.00	6,214.00	6,176.36	6,174.00	75.63	155.95	-90.00	179.30	6,311.17	1,655.33	1,424.88	230.45	7.183
12,800.00	6,214.00	6,176.36	6,174.00	76.70	155.95	-90.00	179.30	6,311.17	1,667.75	1,437.09	230.66	7.230
12,900.00	6,214.00	6,176.36	6,174.00	77.77	155.95	-90.00	179.30	6,311.17	1,686.01	1,455.37	230.65	7.310
13,000.00	6,214.00	6,176.36	6,174.00	78.84	155.95	-90.00	179.30	6,311.17	1,709.94	1,479.53	230.41	7.421
13,100.00	6,214.00	6,176.36	6,174.00	79.91	155.95	-90.00	179.30	6,311.17	1,739.30	1,509.31	229.99	7.563
13,200.00	6,214.00	6,176.36	6,174.00	80.99	155.95	-90.00	179.30	6,311.17	1,773.81	1,544.42	229.39	7.733
13,300.00	6,214.00	6,176.36	6,174.00	82.07	155.95	-90.00	179.30	6,311.17	1,813.20	1,584.55	228.65	7.930

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W11_GOVERNMENT AB #006_1527846 - Inc Only - Inc Only												Offset Site Error:	0.00 usft
Survey Program: 156-INC-ONLY												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,400.00	6,214.00	6,176.36	6,174.00	83.14	155.95	-90.00	179.30	6,311.17	1,857.13	1,629.34	227.79	8.153	
13,500.00	6,214.00	6,176.36	6,174.00	84.22	155.95	-90.00	179.30	6,311.17	1,905.31	1,678.47	226.83	8.400	
13,600.00	6,214.00	6,176.36	6,174.00	85.30	155.95	-90.00	179.30	6,311.17	1,957.41	1,731.60	225.81	8.668	
13,700.00	6,214.00	6,176.36	6,174.00	86.38	155.95	-90.00	179.30	6,311.17	2,013.14	1,788.39	224.74	8.957	
13,800.00	6,214.00	6,176.36	6,174.00	87.46	155.95	-90.00	179.30	6,311.17	2,072.19	1,848.55	223.64	9.266	
13,900.00	6,214.00	6,176.36	6,174.00	88.55	155.95	-90.00	179.30	6,311.17	2,134.30	1,911.77	222.53	9.591	
14,000.00	6,214.00	6,176.36	6,174.00	89.63	155.95	-90.00	179.30	6,311.17	2,199.20	1,977.78	221.42	9.932	
14,100.00	6,214.00	6,176.36	6,174.00	90.72	155.95	-90.00	179.30	6,311.17	2,266.66	2,046.34	220.32	10.288	
14,200.00	6,214.00	6,176.36	6,174.00	91.80	155.95	-90.00	179.30	6,311.17	2,336.45	2,117.22	219.23	10.657	
14,300.00	6,214.00	6,176.36	6,174.00	92.89	155.95	-90.00	179.30	6,311.17	2,408.38	2,190.20	218.18	11.039	
14,400.00	6,214.00	6,176.36	6,174.00	93.97	155.95	-90.00	179.30	6,311.17	2,482.24	2,265.10	217.15	11.431	
14,500.00	6,214.00	6,176.36	6,174.00	95.06	155.95	-90.00	179.30	6,311.17	2,557.89	2,341.74	216.15	11.834	
14,600.00	6,214.00	6,176.36	6,174.00	96.15	155.95	-90.00	179.30	6,311.17	2,635.16	2,419.97	215.19	12.246	
14,700.00	6,214.00	6,176.36	6,174.00	97.24	155.95	-90.00	179.30	6,311.17	2,713.91	2,499.64	214.27	12.666	
14,800.00	6,214.00	6,176.36	6,174.00	98.33	155.95	-90.00	179.30	6,311.17	2,794.03	2,580.64	213.38	13.094	
14,900.00	6,214.00	6,176.36	6,174.00	99.42	155.95	-90.00	179.30	6,311.17	2,875.38	2,662.85	212.53	13.529	
15,000.00	6,214.00	6,176.36	6,174.00	100.51	155.95	-90.00	179.30	6,311.17	2,957.89	2,746.16	211.72	13.971	
15,100.00	6,214.00	6,176.36	6,174.00	101.61	155.95	-90.00	179.30	6,311.17	3,041.44	2,830.49	210.95	14.418	
15,200.00	6,214.00	6,176.36	6,174.00	102.70	155.95	-90.00	179.30	6,311.17	3,125.96	2,915.75	210.21	14.871	
15,300.00	6,214.00	6,176.36	6,174.00	103.79	155.95	-90.00	179.30	6,311.17	3,211.37	3,001.86	209.51	15.328	
15,400.00	6,214.00	6,176.36	6,174.00	104.89	155.95	-90.00	179.30	6,311.17	3,297.60	3,088.76	208.84	15.790	
15,500.00	6,214.00	6,176.36	6,174.00	105.98	155.95	-90.00	179.30	6,311.17	3,384.58	3,176.38	208.20	16.256	
15,600.00	6,214.00	6,176.36	6,174.00	107.08	155.95	-90.00	179.30	6,311.17	3,472.27	3,264.67	207.60	16.726	
15,700.00	6,214.00	6,176.36	6,174.00	108.17	155.95	-90.00	179.30	6,311.17	3,560.61	3,353.59	207.02	17.199	
15,800.00	6,214.00	6,176.36	6,174.00	109.27	155.95	-90.00	179.30	6,311.17	3,649.54	3,443.07	206.47	17.676	
15,900.00	6,214.00	6,176.36	6,174.00	110.37	155.95	-90.00	179.30	6,311.17	3,739.04	3,533.09	205.95	18.155	
16,000.00	6,214.00	6,176.36	6,174.00	111.47	155.95	-90.00	179.30	6,311.17	3,829.06	3,623.60	205.46	18.637	
16,100.00	6,214.00	6,176.36	6,174.00	112.56	155.95	-90.00	179.30	6,311.17	3,919.56	3,714.58	204.99	19.121	
16,200.00	6,214.00	6,176.36	6,174.00	113.66	155.95	-90.00	179.30	6,311.17	4,010.51	3,805.98	204.54	19.608	
16,300.00	6,214.00	6,176.36	6,174.00	114.76	155.95	-90.00	179.30	6,311.17	4,101.89	3,897.77	204.11	20.096	
16,400.00	6,214.00	6,176.36	6,174.00	115.86	155.95	-90.00	179.30	6,311.17	4,193.65	3,989.94	203.71	20.586	
16,500.00	6,214.00	6,176.36	6,174.00	116.96	155.95	-90.00	179.30	6,311.17	4,285.79	4,082.46	203.33	21.078	
16,600.00	6,214.00	6,176.36	6,174.00	118.06	155.95	-90.00	179.30	6,311.17	4,378.27	4,175.31	202.96	21.572	
16,700.00	6,214.00	6,176.36	6,174.00	119.16	155.95	-90.00	179.30	6,311.17	4,471.08	4,268.46	202.62	22.067	
16,800.00	6,214.00	6,176.36	6,174.00	120.26	155.95	-90.00	179.30	6,311.17	4,564.18	4,361.90	202.29	22.563	
16,900.00	6,214.00	6,176.36	6,174.00	121.36	155.95	-90.00	179.30	6,311.17	4,657.58	4,455.60	201.97	23.060	
17,000.00	6,214.00	6,176.36	6,174.00	122.47	155.95	-90.00	179.30	6,311.17	4,751.24	4,549.56	201.68	23.559	
17,100.00	6,214.00	6,176.36	6,174.00	123.57	155.95	-90.00	179.30	6,311.17	4,845.16	4,643.76	201.40	24.058	
17,163.72	6,214.00	6,176.36	6,174.00	124.27	155.95	-90.00	179.30	6,311.17	4,905.12	4,703.90	201.22	24.377	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W12_GOVERNMENT AB #007_1527847 - Inc Only - Inc Only											Offset Site Error: 0.00 usft
Survey Program: 155-INC-ONLY											Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	
9,300.00	6,214.00	6,171.63	6,168.41	41.03	166.78	-90.01	191.57	7,631.66	4,853.50	4,656.65	24.655
9,400.00	6,214.00	6,171.63	6,168.41	41.95	166.78	-90.01	191.57	7,631.66	4,759.58	4,562.36	24.134
9,500.00	6,214.00	6,171.63	6,168.41	42.89	166.78	-90.01	191.57	7,631.66	4,665.91	4,468.31	23.613
9,600.00	6,214.00	6,171.63	6,168.41	43.84	166.78	-90.01	191.57	7,631.66	4,572.52	4,374.51	23.093
9,700.00	6,214.00	6,171.63	6,168.41	44.79	166.78	-90.01	191.57	7,631.66	4,479.40	4,280.97	22.574
9,800.00	6,214.00	6,171.63	6,168.41	45.75	166.78	-90.01	191.57	7,631.66	4,386.59	4,187.70	22.055
9,900.00	6,214.00	6,171.63	6,168.41	46.72	166.78	-90.01	191.57	7,631.66	4,294.11	4,094.73	21.538
10,000.00	6,214.00	6,171.63	6,168.41	47.70	166.78	-90.01	191.57	7,631.66	4,201.96	4,002.08	21.022
10,100.00	6,214.00	6,171.63	6,168.41	48.68	166.78	-90.01	191.57	7,631.66	4,110.19	3,909.76	20.507
10,200.00	6,214.00	6,171.62	6,168.41	49.67	166.78	-90.01	191.57	7,631.66	4,018.81	3,817.80	19.994
10,300.00	6,214.00	6,171.62	6,168.41	50.67	166.78	-90.01	191.57	7,631.66	3,927.84	3,726.23	19.482
10,400.00	6,214.00	6,171.62	6,168.41	51.67	166.78	-90.01	191.57	7,631.66	3,837.33	3,635.07	18.972
10,500.00	6,214.00	6,171.62	6,168.41	52.67	166.78	-90.01	191.57	7,631.66	3,747.30	3,544.36	18.465
10,600.00	6,214.00	6,171.62	6,168.41	53.68	166.78	-90.01	191.57	7,631.66	3,657.79	3,454.12	17.959
10,700.00	6,214.00	6,171.62	6,168.41	54.70	166.78	-90.01	191.57	7,631.66	3,568.83	3,364.39	17.456
10,800.00	6,214.00	6,171.62	6,168.41	55.71	166.78	-90.01	191.57	7,631.66	3,480.48	3,275.21	16.956
10,900.00	6,214.00	6,171.62	6,168.41	56.74	166.78	-90.01	191.57	7,631.66	3,392.77	3,186.64	16.459
11,000.00	6,214.00	6,171.62	6,168.41	57.76	166.78	-90.01	191.57	7,631.66	3,305.75	3,098.70	15.966
11,100.00	6,214.00	6,171.62	6,168.41	58.79	166.78	-90.01	191.57	7,631.66	3,219.50	3,011.47	15.476
11,200.00	6,214.00	6,171.62	6,168.41	59.83	166.78	-90.01	191.57	7,631.66	3,134.06	2,924.99	14.991
11,300.00	6,214.00	6,171.62	6,168.41	60.86	166.78	-90.01	191.57	7,631.66	3,049.50	2,839.34	14.510
11,400.00	6,214.00	6,171.62	6,168.41	61.90	166.78	-90.01	191.57	7,631.66	2,965.91	2,754.58	14.035
11,500.00	6,214.00	6,171.62	6,168.40	62.94	166.78	-90.01	191.57	7,631.66	2,883.36	2,670.80	13.565
11,600.00	6,214.00	6,171.62	6,168.40	63.99	166.78	-90.01	191.57	7,631.66	2,801.95	2,588.08	13.101
11,700.00	6,214.00	6,171.62	6,168.40	65.04	166.78	-90.01	191.57	7,631.66	2,721.78	2,506.53	12.645
11,800.00	6,214.00	6,171.62	6,168.40	66.09	166.78	-90.01	191.57	7,631.66	2,642.96	2,426.24	12.196
11,900.00	6,214.00	6,171.62	6,168.40	67.14	166.78	-90.01	191.57	7,631.66	2,565.61	2,347.36	11.755
12,000.00	6,214.00	6,171.62	6,168.40	68.19	166.78	-90.01	191.57	7,631.66	2,489.88	2,270.00	11.324
12,100.00	6,214.00	6,171.62	6,168.40	69.25	166.78	-90.01	191.57	7,631.66	2,415.92	2,194.32	10.902
12,200.00	6,214.00	6,171.62	6,168.40	70.31	166.78	-90.01	191.57	7,631.66	2,343.89	2,120.50	10.492
12,300.00	6,214.00	6,171.62	6,168.40	71.37	166.78	-90.01	191.57	7,631.66	2,273.98	2,048.70	10.094
12,400.00	6,214.00	6,171.62	6,168.40	72.43	166.78	-90.01	191.57	7,631.66	2,206.38	1,979.15	9.710
12,500.00	6,214.00	6,171.62	6,168.40	73.50	166.78	-90.01	191.57	7,631.66	2,141.33	1,912.05	9.340
12,600.00	6,214.00	6,171.62	6,168.40	74.56	166.78	-90.01	191.57	7,631.66	2,079.05	1,847.66	8.985
12,700.00	6,214.00	6,171.62	6,168.40	75.63	166.78	-90.01	191.57	7,631.66	2,019.80	1,786.25	8.648
12,800.00	6,214.00	6,171.62	6,168.40	76.70	166.78	-90.01	191.57	7,631.66	1,963.86	1,728.11	8.330
12,900.00	6,214.00	6,171.62	6,168.40	77.77	166.78	-90.01	191.57	7,631.66	1,911.51	1,673.53	8.032
13,000.00	6,214.00	6,171.62	6,168.40	78.84	166.78	-90.01	191.57	7,631.66	1,863.07	1,622.86	7.756
13,100.00	6,214.00	6,171.62	6,168.40	79.91	166.78	-90.01	191.57	7,631.66	1,818.84	1,576.43	7.503
13,200.00	6,214.00	6,171.62	6,168.40	80.99	166.78	-90.01	191.57	7,631.66	1,779.14	1,534.58	7.275
13,300.00	6,214.00	6,171.62	6,168.40	82.07	166.78	-90.01	191.57	7,631.66	1,744.27	1,497.66	7.073
13,400.00	6,214.00	6,171.62	6,168.40	83.14	166.78	-90.01	191.57	7,631.66	1,714.54	1,466.00	6.899
13,500.00	6,214.00	6,171.62	6,168.40	84.22	166.78	-90.01	191.57	7,631.66	1,690.20	1,439.92	6.753
13,600.00	6,214.00	6,171.62	6,168.40	85.30	166.78	-90.01	191.57	7,631.66	1,671.51	1,419.67	6.637
13,700.00	6,214.00	6,171.62	6,168.40	86.38	166.78	-90.01	191.57	7,631.66	1,658.64	1,405.50	6.552
13,800.00	6,214.00	6,171.62	6,168.40	87.46	166.78	-90.01	191.57	7,631.66	1,651.74	1,397.55	6.498
13,864.25	6,214.00	6,171.62	6,168.40	88.16	166.78	-90.01	191.57	7,631.66	1,650.49	1,395.78	6.480 CC, ES
13,900.00	6,214.00	6,171.62	6,168.40	88.55	166.78	-90.01	191.57	7,631.66	1,650.88	1,395.93	6.475 SF
14,000.00	6,214.00	6,171.62	6,168.40	89.63	166.78	-90.01	191.57	7,631.66	1,656.06	1,400.65	6.484
14,100.00	6,214.00	6,171.62	6,168.40	90.72	166.78	-90.01	191.57	7,631.66	1,667.24	1,411.65	6.523
14,200.00	6,214.00	6,171.62	6,168.40	91.80	166.78	-90.01	191.57	7,631.66	1,684.29	1,428.81	6.593
14,300.00	6,214.00	6,171.62	6,168.40	92.89	166.78	-90.01	191.57	7,631.66	1,707.04	1,451.94	6.692

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W12_GOVERNMENT AB #007_1527847 - Inc Only - Inc Only												Offset Site Error:	0.00 usft
Survey Program: 155-INC-ONLY												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		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	
14,400.00	6,214.00	6,171.62	6,168.40	93.97	166.78	-90.01	191.57	7,631.66	1,735.27	1,480.78	254.49	6.819	
14,500.00	6,214.00	6,171.62	6,168.40	95.06	166.78	-90.01	191.57	7,631.66	1,768.70	1,515.03	253.67	6.973	
14,600.00	6,214.00	6,171.62	6,168.40	96.15	166.78	-90.01	191.57	7,631.66	1,807.06	1,554.39	252.66	7.152	
14,700.00	6,214.00	6,171.62	6,168.40	97.24	166.78	-90.01	191.57	7,631.66	1,850.03	1,598.51	251.51	7.356	
14,800.00	6,214.00	6,171.62	6,168.40	98.33	166.78	-90.01	191.57	7,631.66	1,897.30	1,647.05	250.25	7.582	
14,900.00	6,214.00	6,171.61	6,168.40	99.42	166.78	-90.01	191.57	7,631.66	1,948.56	1,699.66	248.91	7.828	
15,000.00	6,214.00	6,171.61	6,168.40	100.51	166.78	-90.01	191.57	7,631.66	2,003.51	1,756.01	247.50	8.095	
15,100.00	6,214.00	6,171.61	6,168.40	101.61	166.78	-90.01	191.57	7,631.66	2,061.84	1,815.78	246.07	8.379	
15,200.00	6,214.00	6,171.61	6,168.40	102.70	166.78	-90.01	191.57	7,631.66	2,123.29	1,878.68	244.61	8.680	
15,300.00	6,214.00	6,171.61	6,168.40	103.79	166.78	-90.01	191.57	7,631.66	2,187.58	1,944.42	243.16	8.996	
15,400.00	6,214.00	6,171.61	6,168.40	104.89	166.78	-90.01	191.57	7,631.66	2,254.48	2,012.75	241.73	9.327	
15,500.00	6,214.00	6,171.61	6,168.40	105.98	166.78	-90.01	191.57	7,631.66	2,323.75	2,083.43	240.32	9.670	
15,600.00	6,214.00	6,171.61	6,168.40	107.08	166.78	-90.01	191.57	7,631.66	2,395.20	2,156.26	238.94	10.024	
15,700.00	6,214.00	6,171.61	6,168.40	108.17	166.78	-90.01	191.57	7,631.66	2,468.63	2,231.02	237.60	10.390	
15,800.00	6,214.00	6,171.61	6,168.40	109.27	166.78	-90.01	191.57	7,631.66	2,543.87	2,307.56	236.31	10.765	
15,900.00	6,214.00	6,171.61	6,168.40	110.37	166.78	-90.01	191.57	7,631.66	2,620.77	2,385.71	235.06	11.149	
16,000.00	6,214.00	6,171.61	6,168.40	111.47	166.78	-90.01	191.57	7,631.66	2,699.18	2,465.32	233.86	11.542	
16,100.00	6,214.00	6,171.61	6,168.40	112.56	166.78	-90.01	191.57	7,631.66	2,778.98	2,546.27	232.70	11.942	
16,200.00	6,214.00	6,171.61	6,168.39	113.66	166.78	-90.01	191.57	7,631.66	2,860.05	2,628.45	231.60	12.349	
16,300.00	6,214.00	6,171.61	6,168.39	114.76	166.78	-90.01	191.57	7,631.66	2,942.28	2,711.73	230.55	12.762	
16,400.00	6,214.00	6,171.61	6,168.39	115.86	166.78	-90.01	191.57	7,631.66	3,025.59	2,796.05	229.54	13.181	
16,500.00	6,214.00	6,171.61	6,168.39	116.96	166.78	-90.01	191.57	7,631.66	3,109.87	2,881.30	228.58	13.605	
16,600.00	6,214.00	6,171.61	6,168.39	118.06	166.78	-90.01	191.57	7,631.66	3,195.07	2,967.41	227.66	14.034	
16,700.00	6,214.00	6,171.61	6,168.39	119.16	166.78	-90.01	191.57	7,631.66	3,281.10	3,054.31	226.79	14.468	
16,800.00	6,214.00	6,171.61	6,168.39	120.26	166.78	-90.01	191.57	7,631.66	3,367.90	3,141.95	225.95	14.905	
16,900.00	6,214.00	6,171.61	6,168.39	121.36	166.78	-90.01	191.57	7,631.66	3,455.42	3,230.26	225.16	15.346	
17,000.00	6,214.00	6,171.61	6,168.39	122.47	166.78	-90.01	191.57	7,631.66	3,543.60	3,319.19	224.41	15.791	
17,100.00	6,214.00	6,171.61	6,168.39	123.57	166.78	-90.01	191.57	7,631.66	3,632.39	3,408.70	223.69	16.239	
17,163.72	6,214.00	6,171.61	6,168.39	124.27	166.78	-90.01	191.57	7,631.66	3,689.26	3,466.01	223.25	16.525	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W13_GOVERNMENT AB #008_1527863 - Inc Only - Inc Only													Offset Site Error:	0.00 usft
Survey Program:		150-INC-ONLY					Rule Assigned:				Offset Well Error:	0.00 usft		
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
11,100.00	6,214.00	6,174.45	6,172.52	58.79	143.88	-90.13	51.17	8,978.25	4,375.02	4,196.15	178.88	24.458		
11,200.00	6,214.00	6,174.45	6,172.52	59.83	143.88	-90.13	51.17	8,978.25	4,281.22	4,101.78	179.44	23.859		
11,300.00	6,214.00	6,174.45	6,172.52	60.86	143.88	-90.13	51.17	8,978.25	4,187.71	4,007.67	180.04	23.260		
11,400.00	6,214.00	6,174.45	6,172.52	61.90	143.88	-90.13	51.17	8,978.25	4,094.51	3,913.84	180.67	22.663		
11,500.00	6,214.00	6,174.45	6,172.52	62.94	143.88	-90.13	51.17	8,978.25	4,001.63	3,820.29	181.33	22.068		
11,600.00	6,214.00	6,174.44	6,172.51	63.99	143.88	-90.13	51.17	8,978.25	3,909.10	3,727.06	182.04	21.474		
11,700.00	6,214.00	6,174.44	6,172.51	65.04	143.88	-90.13	51.17	8,978.25	3,816.95	3,634.17	182.78	20.882		
11,800.00	6,214.00	6,174.44	6,172.51	66.09	143.88	-90.13	51.17	8,978.25	3,725.21	3,541.64	183.57	20.293		
11,900.00	6,214.00	6,174.44	6,172.51	67.14	143.88	-90.13	51.17	8,978.25	3,633.90	3,449.49	184.40	19.706		
12,000.00	6,214.00	6,174.44	6,172.51	68.19	143.88	-90.13	51.17	8,978.25	3,543.06	3,357.77	185.29	19.122		
12,100.00	6,214.00	6,174.44	6,172.50	69.25	143.88	-90.13	51.17	8,978.25	3,452.72	3,266.50	186.22	18.541		
12,200.00	6,214.00	6,174.43	6,172.50	70.31	143.88	-90.13	51.17	8,978.25	3,362.94	3,175.72	187.21	17.963		
12,300.00	6,214.00	6,174.43	6,172.50	71.37	143.88	-90.13	51.17	8,978.25	3,273.74	3,085.48	188.26	17.389		
12,400.00	6,214.00	6,174.43	6,172.50	72.43	143.88	-90.13	51.17	8,978.25	3,185.19	2,995.81	189.37	16.820		
12,500.00	6,214.00	6,174.43	6,172.50	73.50	143.88	-90.13	51.17	8,978.25	3,097.33	2,906.78	190.55	16.254		
12,600.00	6,214.00	6,174.43	6,172.49	74.56	143.88	-90.13	51.17	8,978.25	3,010.23	2,818.43	191.81	15.694		
12,700.00	6,214.00	6,174.42	6,172.49	75.63	143.88	-90.13	51.17	8,978.25	2,923.96	2,730.83	193.14	15.139		
12,800.00	6,214.00	6,174.42	6,172.49	76.70	143.88	-90.13	51.17	8,978.25	2,838.59	2,644.05	194.55	14.591		
12,900.00	6,214.00	6,174.42	6,172.49	77.77	143.88	-90.13	51.17	8,978.25	2,754.21	2,558.16	196.04	14.049		
13,000.00	6,214.00	6,174.42	6,172.49	78.84	143.88	-90.13	51.17	8,978.25	2,670.90	2,473.27	197.63	13.515		
13,100.00	6,214.00	6,174.42	6,172.48	79.91	143.88	-90.13	51.17	8,978.25	2,588.77	2,389.46	199.31	12.989		
13,200.00	6,214.00	6,174.41	6,172.48	80.99	143.88	-90.13	51.17	8,978.25	2,507.94	2,306.85	201.09	12.472		
13,300.00	6,214.00	6,174.41	6,172.48	82.07	143.88	-90.13	51.17	8,978.25	2,428.54	2,225.57	202.98	11.965		
13,400.00	6,214.00	6,174.41	6,172.48	83.14	143.88	-90.13	51.17	8,978.25	2,350.72	2,145.75	204.97	11.469		
13,500.00	6,214.00	6,174.41	6,172.48	84.22	143.88	-90.13	51.17	8,978.25	2,274.62	2,067.55	207.07	10.985		
13,600.00	6,214.00	6,174.41	6,172.47	85.30	143.88	-90.13	51.17	8,978.25	2,200.45	1,991.16	209.29	10.514		
13,700.00	6,214.00	6,174.40	6,172.47	86.38	143.88	-90.13	51.17	8,978.25	2,128.38	1,916.77	211.61	10.058		
13,800.00	6,214.00	6,174.40	6,172.47	87.46	143.88	-90.13	51.17	8,978.25	2,058.65	1,844.61	214.05	9.618		
13,900.00	6,214.00	6,174.40	6,172.47	88.55	143.88	-90.13	51.17	8,978.25	1,991.51	1,774.92	216.58	9.195		
14,000.00	6,214.00	6,174.40	6,172.47	89.63	143.88	-90.13	51.18	8,978.25	1,927.21	1,708.00	219.21	8.792		
14,100.00	6,214.00	6,174.40	6,172.46	90.72	143.88	-90.13	51.18	8,978.25	1,866.06	1,644.15	221.91	8.409		
14,200.00	6,214.00	6,174.39	6,172.46	91.80	143.88	-90.13	51.18	8,978.25	1,808.38	1,583.70	224.67	8.049		
14,300.00	6,214.00	6,174.39	6,172.46	92.89	143.88	-90.13	51.18	8,978.25	1,754.50	1,527.04	227.46	7.713		
14,400.00	6,214.00	6,174.39	6,172.46	93.97	143.88	-90.13	51.18	8,978.25	1,704.79	1,474.54	230.25	7.404		
14,500.00	6,214.00	6,174.39	6,172.46	95.06	143.88	-90.13	51.18	8,978.25	1,659.63	1,426.64	232.99	7.123		
14,600.00	6,214.00	6,174.39	6,172.45	96.15	143.88	-90.13	51.18	8,978.25	1,619.39	1,383.75	235.63	6.872		
14,700.00	6,214.00	6,174.38	6,172.45	97.24	143.88	-90.13	51.18	8,978.25	1,584.44	1,346.31	238.13	6.654		
14,800.00	6,214.00	6,174.38	6,172.45	98.33	143.88	-90.13	51.18	8,978.25	1,555.15	1,314.73	240.42	6.468		
14,900.00	6,214.00	6,174.38	6,172.45	99.42	143.88	-90.13	51.18	8,978.25	1,531.84	1,289.40	242.44	6.318		
15,000.00	6,214.00	6,174.38	6,172.45	100.51	143.88	-90.13	51.18	8,978.25	1,514.79	1,270.64	244.15	6.204		
15,100.00	6,214.00	6,174.38	6,172.44	101.61	143.88	-90.13	51.18	8,978.25	1,504.21	1,258.72	245.49	6.127		
15,200.00	6,214.00	6,174.37	6,172.44	102.70	143.88	-90.13	51.18	8,978.25	1,500.23	1,253.80	246.43	6.088		
15,209.78	6,214.00	6,174.37	6,172.44	102.81	143.88	-90.13	51.18	8,978.25	1,500.20	1,253.70	246.50	6.086 CC, ES		
15,300.00	6,214.00	6,174.37	6,172.44	103.79	143.88	-90.13	51.18	8,978.25	1,502.91	1,255.96	246.95	6.086 SF		
15,400.00	6,214.00	6,174.37	6,172.44	104.89	143.88	-90.13	51.18	8,978.25	1,512.21	1,265.16	247.04	6.121		
15,500.00	6,214.00	6,174.37	6,172.44	105.98	143.88	-90.13	51.18	8,978.25	1,528.01	1,281.28	246.73	6.193		
15,600.00	6,214.00	6,174.37	6,172.43	107.08	143.88	-90.13	51.18	8,978.25	1,550.12	1,304.07	246.04	6.300		
15,700.00	6,214.00	6,174.36	6,172.43	108.17	143.88	-90.13	51.18	8,978.25	1,578.26	1,333.24	245.02	6.441		
15,800.00	6,214.00	6,174.36	6,172.43	109.27	143.88	-90.13	51.18	8,978.25	1,612.13	1,368.43	243.70	6.615		
15,900.00	6,214.00	6,174.36	6,172.43	110.37	143.88	-90.13	51.18	8,978.25	1,651.36	1,409.22	242.15	6.820		
16,000.00	6,214.00	6,174.36	6,172.43	111.47	143.88	-90.13	51.18	8,978.25	1,695.59	1,455.19	240.41	7.053		
16,100.00	6,214.00	6,174.36	6,172.43	112.56	143.88	-90.13	51.18	8,978.25	1,744.44	1,505.91	238.53	7.313		

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W13_GOVERNMENT AB #008_1527863 - Inc Only - Inc Only													Offset Site Error: 0.00 usft
Survey Program: 150-INC-ONLY													Offset Well Error: 0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
16,200.00	6,214.00	6,174.35	6,172.42	113.66	143.88	-90.13	51.18	8,978.25	1,797.53	1,560.96	236.57	7.598	
16,300.00	6,214.00	6,174.35	6,172.42	114.76	143.88	-90.13	51.18	8,978.25	1,854.50	1,619.95	234.55	7.907	
16,400.00	6,214.00	6,174.35	6,172.42	115.86	143.88	-90.13	51.18	8,978.25	1,915.00	1,682.48	232.52	8.236	
16,500.00	6,214.00	6,174.35	6,172.42	116.96	143.88	-90.13	51.18	8,978.25	1,978.70	1,748.21	230.49	8.585	
16,600.00	6,214.00	6,174.35	6,172.42	118.06	143.88	-90.13	51.18	8,978.25	2,045.31	1,816.82	228.49	8.951	
16,700.00	6,214.00	6,174.35	6,172.41	119.16	143.88	-90.13	51.18	8,978.25	2,114.56	1,888.02	226.54	9.334	
16,800.00	6,214.00	6,174.34	6,172.41	120.26	143.88	-90.13	51.18	8,978.25	2,186.18	1,961.55	224.64	9.732	
16,900.00	6,214.00	6,174.34	6,172.41	121.36	143.88	-90.13	51.18	8,978.25	2,259.97	2,037.16	222.80	10.143	
17,000.00	6,214.00	6,174.34	6,172.41	122.47	143.88	-90.13	51.18	8,978.25	2,335.70	2,114.66	221.04	10.567	
17,100.00	6,214.00	6,174.34	6,172.41	123.57	143.88	-90.13	51.18	8,978.25	2,413.20	2,193.85	219.35	11.002	
17,163.72	6,214.00	6,174.34	6,172.40	124.27	143.88	-90.13	51.18	8,978.25	2,463.43	2,245.11	218.31	11.284	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W14_ GOVERNMENT AB #009_1527964 - MWD/Inc - MWD/Inc													Offset Site Error: 0.00 usft
Survey Program: 100-OWSG MWD Rev 5													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Separation Factor	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)		
15,000.00	6,214.00	6,678.00	6,603.96	100.51	15.72	-105.93	102.18	10,304.07	2,220.06	2,126.82	93.24	23.810	
15,100.00	6,214.00	6,678.00	6,603.96	101.61	15.72	-105.93	102.18	10,304.07	2,152.09	2,056.19	95.90	22.441	
15,200.00	6,214.00	6,678.00	6,603.96	102.70	15.72	-105.93	102.18	10,304.07	2,086.70	1,988.05	98.65	21.153	
15,300.00	6,214.00	6,678.00	6,603.96	103.79	15.72	-105.93	102.18	10,304.07	2,024.14	1,922.67	101.47	19.948	
15,400.00	6,214.00	6,678.00	6,603.96	104.89	15.72	-105.93	102.18	10,304.07	1,964.67	1,860.32	104.35	18.828	
15,500.00	6,214.00	6,678.00	6,603.96	105.98	15.72	-105.93	102.18	10,304.07	1,908.60	1,801.34	107.26	17.794	
15,600.00	6,214.00	6,678.00	6,603.96	107.08	15.72	-105.93	102.18	10,304.07	1,856.22	1,746.04	110.18	16.847	
15,700.00	6,214.00	6,662.37	6,588.76	108.17	15.65	-105.38	105.37	10,305.86	1,807.79	1,694.65	113.14	15.978	
15,800.00	6,214.00	6,652.39	6,579.06	109.27	15.61	-105.02	107.42	10,307.02	1,763.64	1,647.62	116.02	15.201	
15,900.00	6,214.00	6,642.19	6,569.16	110.37	15.57	-104.66	109.51	10,308.22	1,724.10	1,605.31	118.79	14.513	
16,000.00	6,214.00	6,631.78	6,559.04	111.47	15.52	-104.29	111.66	10,309.45	1,689.49	1,568.07	121.41	13.915	
16,100.00	6,214.00	6,621.13	6,548.70	112.56	15.48	-103.91	113.85	10,310.73	1,660.11	1,536.28	123.83	13.407	
16,200.00	6,214.00	6,610.25	6,538.13	113.66	15.43	-103.53	116.11	10,312.05	1,636.25	1,510.27	125.98	12.988	
16,300.00	6,214.00	6,599.12	6,527.33	114.76	15.38	-103.13	118.41	10,313.41	1,618.13	1,490.31	127.82	12.659	
16,400.00	6,214.00	6,587.73	6,516.29	115.86	15.33	-102.73	120.78	10,314.83	1,605.97	1,476.66	129.31	12.420	
16,500.00	6,214.00	6,576.09	6,504.99	116.96	15.28	-102.31	123.21	10,316.29	1,599.88	1,469.47	130.41	12.268	
16,549.05	6,214.00	6,570.28	6,499.36	117.50	15.26	-102.11	124.42	10,317.02	1,599.14	1,468.34	130.80	12.226 CC, ES	
16,600.00	6,214.00	6,564.18	6,493.44	118.06	15.23	-101.89	125.70	10,317.80	1,599.94	1,468.84	131.10	12.204 SF	
16,700.00	6,214.00	6,551.86	6,481.50	119.16	15.18	-101.45	128.27	10,319.38	1,606.14	1,474.77	131.37	12.226	
16,800.00	6,214.00	6,538.81	6,468.85	120.26	15.13	-100.99	131.01	10,321.07	1,618.40	1,487.16	131.25	12.331	
16,900.00	6,214.00	6,525.76	6,456.20	121.36	15.08	-100.52	133.75	10,322.75	1,636.59	1,505.86	130.73	12.519	
17,000.00	6,214.00	6,512.70	6,443.55	122.47	15.03	-100.06	136.48	10,324.43	1,660.51	1,530.66	129.85	12.788	
17,100.00	6,214.00	6,499.65	6,430.90	123.57	14.97	-99.60	139.22	10,326.12	1,689.92	1,561.26	128.66	13.135	
17,163.72	6,214.00	6,492.00	6,423.48	124.27	14.94	-99.33	140.82	10,327.10	1,711.39	1,583.64	127.75	13.396	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W15_GOVERNMENT AB FEDERAL #011_1540853 - MWD - MWD												Offset Site Error:	0.00 usft
Survey Program: 359-OWSG MWD Rev 5												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,400.00	6,214.00	6,196.15	6,193.58	72.43	19.55	-91.63	-1,229.68	7,402.10	1,245.85	1,195.37	50.48	24.679	
12,500.00	6,214.00	6,195.56	6,192.99	73.50	19.55	-91.48	-1,229.68	7,402.10	1,147.73	1,096.45	51.28	22.380	
12,600.00	6,214.00	6,194.97	6,192.39	74.56	19.55	-91.34	-1,229.68	7,402.10	1,049.97	997.71	52.26	20.091	
12,700.00	6,214.00	6,194.37	6,191.80	75.63	19.55	-91.19	-1,229.68	7,402.11	952.68	899.20	53.47	17.815	
12,800.00	6,214.00	6,193.78	6,191.20	76.70	19.55	-91.04	-1,229.68	7,402.11	856.01	801.00	55.01	15.561	
12,900.00	6,214.00	6,193.18	6,190.61	77.77	19.55	-90.89	-1,229.68	7,402.11	760.20	703.20	57.00	13.337	
13,000.00	6,214.00	6,192.58	6,190.01	78.84	19.55	-90.75	-1,229.69	7,402.12	665.62	605.99	59.63	11.162	
13,100.00	6,214.00	6,191.99	6,189.41	79.91	19.55	-90.60	-1,229.69	7,402.12	572.88	509.67	63.21	9.063	
13,200.00	6,214.00	6,191.39	6,188.82	80.99	19.55	-90.45	-1,229.69	7,402.12	483.06	414.85	68.21	7.082	
13,300.00	6,214.00	6,190.79	6,188.22	82.07	19.55	-90.30	-1,229.69	7,402.13	398.11	322.83	75.28	5.289	
13,400.00	6,214.00	6,190.19	6,187.62	83.14	19.55	-90.15	-1,229.69	7,402.13	321.93	236.83	85.10	3.783	
13,500.00	6,214.00	6,189.59	6,187.02	84.22	19.54	-90.00	-1,229.70	7,402.13	262.26	165.34	96.93	2.706	
13,600.00	6,214.00	6,188.99	6,186.42	85.30	19.54	-89.86	-1,229.70	7,402.14	232.22	127.52	104.71	2.218	
13,624.28	6,214.00	6,188.85	6,186.27	85.56	19.54	-89.82	-1,229.70	7,402.14	230.95	126.14	104.81	2.203 CC, ES, SF	
13,700.00	6,214.00	6,188.39	6,185.82	86.38	19.54	-89.71	-1,229.70	7,402.14	243.05	143.11	99.93	2.432	
13,800.00	6,214.00	6,187.79	6,185.22	87.46	19.54	-89.56	-1,229.70	7,402.15	290.20	203.12	87.07	3.333	
13,900.00	6,214.00	6,187.19	6,184.61	88.55	19.54	-89.41	-1,229.70	7,402.15	359.66	284.54	75.13	4.787	
14,000.00	6,214.00	6,186.58	6,184.01	89.63	19.54	-89.26	-1,229.70	7,402.15	441.02	374.49	66.54	6.628	
14,100.00	6,214.00	6,185.98	6,183.41	90.72	19.54	-89.11	-1,229.71	7,402.16	528.81	468.10	60.71	8.710	
14,200.00	6,214.00	6,185.38	6,182.80	91.80	19.54	-88.96	-1,229.71	7,402.16	620.31	563.54	56.77	10.928	
14,300.00	6,214.00	6,184.77	6,182.20	92.89	19.54	-88.81	-1,229.71	7,402.16	714.09	660.04	54.05	13.212	
14,400.00	6,214.00	6,184.17	6,181.59	93.97	19.54	-88.66	-1,229.71	7,402.17	809.36	757.21	52.14	15.521	
14,500.00	6,214.00	6,183.56	6,180.99	95.06	19.54	-88.51	-1,229.71	7,402.17	905.65	854.86	50.78	17.834	
14,600.00	6,214.00	6,182.95	6,180.38	96.15	19.54	-88.36	-1,229.72	7,402.17	1,002.66	952.87	49.80	20.136	
14,700.00	6,214.00	6,182.34	6,179.77	97.24	19.54	-88.21	-1,229.72	7,402.18	1,100.21	1,051.15	49.07	22.422	
14,800.00	6,214.00	6,181.74	6,179.16	98.33	19.54	-88.06	-1,229.72	7,402.18	1,198.17	1,149.64	48.53	24.689	



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W16_GOVERNMENT AB FEDERAL #014_1540854 - MWD - MWD												Offset Site Error:	0.00 usft
Survey Program: 155-OWSG MWD Rev 5												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
11,400.00	6,214.00	6,214.11	6,211.58	61.90	19.49	-93.31	-1,077.19	6,380.68	1,266.06	1,212.09	53.97	23.457	
11,500.00	6,214.00	6,212.93	6,210.39	62.94	19.49	-93.13	-1,077.16	6,380.69	1,171.37	1,116.15	55.22	21.211	
11,600.00	6,214.00	6,211.75	6,209.21	63.99	19.49	-92.96	-1,077.14	6,380.71	1,077.64	1,020.92	56.72	19.000	
11,700.00	6,214.00	6,210.57	6,208.03	65.04	19.49	-92.79	-1,077.11	6,380.72	985.15	926.62	58.52	16.833	
11,800.00	6,214.00	6,209.39	6,206.86	66.09	19.49	-92.61	-1,077.08	6,380.73	894.26	833.55	60.72	14.728	
11,900.00	6,214.00	6,208.22	6,205.68	67.14	19.49	-92.44	-1,077.06	6,380.75	805.54	742.13	63.41	12.704	
12,000.00	6,214.00	6,207.04	6,204.51	68.19	19.49	-92.27	-1,077.03	6,380.76	719.79	653.07	66.72	10.788	
12,100.00	6,214.00	6,205.88	6,203.34	69.25	19.49	-92.10	-1,077.01	6,380.77	638.19	567.41	70.77	9.017	
12,200.00	6,214.00	6,204.71	6,202.18	70.31	19.49	-91.93	-1,076.98	6,380.79	562.56	486.91	75.65	7.437	
12,300.00	6,214.00	6,203.55	6,201.02	71.37	19.50	-91.76	-1,076.96	6,380.80	495.63	414.42	81.21	6.103	
12,400.00	6,214.00	6,202.39	6,199.86	72.43	19.50	-91.59	-1,076.93	6,380.81	441.40	354.55	86.85	5.082	
12,500.00	6,214.00	6,201.23	6,198.70	73.50	19.50	-91.42	-1,076.91	6,380.83	404.98	313.81	91.17	4.442	
12,600.00	6,214.00	6,200.08	6,197.55	74.56	19.50	-91.25	-1,076.88	6,380.84	391.39	299.07	92.32	4.239 ES, SF	
12,604.13	6,214.00	6,200.03	6,197.50	74.61	19.50	-91.24	-1,076.88	6,380.84	391.37	299.09	92.28	4.241 CC	
12,700.00	6,214.00	6,198.93	6,196.40	75.63	19.50	-91.08	-1,076.86	6,380.85	402.94	313.43	89.51	4.502	
12,800.00	6,214.00	6,197.78	6,195.25	76.70	19.50	-90.91	-1,076.83	6,380.87	437.64	353.74	83.90	5.216	
12,900.00	6,214.00	6,196.63	6,194.10	77.77	19.50	-90.75	-1,076.81	6,380.88	490.61	413.13	77.48	6.332	
13,000.00	6,214.00	6,195.49	6,192.96	78.84	19.50	-90.58	-1,076.78	6,380.89	556.65	485.11	71.54	7.781	
13,100.00	6,214.00	6,194.35	6,191.82	79.91	19.50	-90.41	-1,076.76	6,380.90	631.68	565.11	66.57	9.488	
13,200.00	6,214.00	6,193.00	6,190.47	80.99	19.50	-90.22	-1,076.73	6,380.92	712.87	650.28	62.59	11.389	
13,300.00	6,214.00	6,192.08	6,189.55	82.07	19.50	-90.08	-1,076.71	6,380.93	798.33	738.88	59.45	13.428	
13,400.00	6,214.00	6,190.93	6,188.40	83.14	19.50	-89.91	-1,076.68	6,380.94	886.84	829.86	56.99	15.562	
13,500.00	6,214.00	6,189.79	6,187.26	84.22	19.50	-89.75	-1,076.66	6,380.96	977.57	922.52	55.05	17.758	
13,600.00	6,214.00	6,188.64	6,186.11	85.30	19.50	-89.58	-1,076.63	6,380.97	1,069.95	1,016.43	53.52	19.993	
13,700.00	6,214.00	6,187.49	6,184.96	86.38	19.50	-89.41	-1,076.61	6,380.98	1,163.59	1,111.29	52.30	22.250	
13,800.00	6,214.00	6,186.34	6,183.81	87.46	19.50	-89.24	-1,076.58	6,380.99	1,258.21	1,206.89	51.32	24.517	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W17_GOVERNMENT AB FEDERAL #013_1540920 - MWD - MWD												Offset Site Error:	0.00 usft
Survey Program: 267-OWSG MWD Rev 5												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,000.00	6,214.00	6,184.66	6,182.18	100.51	25.51	-90.18	-1,067.74	10,234.97	1,504.94	1,442.66	62.28	24.165	
15,100.00	6,214.00	6,184.96	6,182.48	101.61	25.51	-90.23	-1,067.75	10,234.97	1,408.26	1,344.53	63.74	22.094	
15,200.00	6,214.00	6,185.27	6,182.79	102.70	25.51	-90.28	-1,067.75	10,234.97	1,312.08	1,246.64	65.44	20.049	
15,300.00	6,214.00	6,185.57	6,183.09	103.79	25.51	-90.32	-1,067.76	10,234.98	1,216.52	1,149.07	67.45	18.036	
15,400.00	6,214.00	6,185.88	6,183.40	104.89	25.51	-90.37	-1,067.76	10,234.98	1,121.73	1,051.89	69.83	16.063	
15,500.00	6,214.00	6,186.18	6,183.70	105.98	25.51	-90.42	-1,067.77	10,234.98	1,027.92	955.23	72.69	14.140	
15,600.00	6,214.00	6,186.49	6,184.01	107.08	25.51	-90.46	-1,067.77	10,234.98	935.40	859.24	76.16	12.282	
15,700.00	6,214.00	6,186.79	6,184.31	108.17	25.51	-90.51	-1,067.77	10,234.98	844.59	764.19	80.40	10.504	
15,800.00	6,214.00	6,187.09	6,184.61	109.27	25.51	-90.56	-1,067.78	10,234.98	756.10	670.46	85.64	8.829	
15,900.00	6,214.00	6,187.40	6,184.92	110.37	25.51	-90.60	-1,067.78	10,234.98	670.85	578.70	92.15	7.280	
16,000.00	6,214.00	6,187.70	6,185.22	111.47	25.51	-90.65	-1,067.79	10,234.98	590.25	490.04	100.21	5.890	
16,100.00	6,214.00	6,188.00	6,185.52	112.56	25.51	-90.70	-1,067.79	10,234.98	516.47	406.48	110.00	4.695	
16,200.00	6,214.00	6,188.30	6,185.82	113.66	25.51	-90.74	-1,067.80	10,234.98	452.88	331.65	121.22	3.736	
16,300.00	6,214.00	6,188.61	6,186.13	114.76	25.51	-90.79	-1,067.80	10,234.98	404.29	271.91	132.38	3.054	
16,400.00	6,214.00	6,188.91	6,186.43	115.86	25.51	-90.84	-1,067.81	10,234.99	376.56	236.42	140.14	2.687	
16,458.24	6,214.00	6,189.08	6,186.60	116.50	25.51	-90.86	-1,067.81	10,234.99	372.03	230.50	141.54	2.629	CC, ES, SF
16,500.00	6,214.00	6,189.21	6,186.73	116.96	25.51	-90.88	-1,067.81	10,234.99	374.37	233.55	140.82	2.658	
16,600.00	6,214.00	6,189.51	6,187.03	118.06	25.51	-90.93	-1,067.82	10,234.99	398.13	264.15	133.98	2.972	
16,700.00	6,214.00	6,189.81	6,187.33	119.16	25.51	-90.97	-1,067.82	10,234.99	443.69	320.73	122.96	3.609	
16,800.00	6,214.00	6,190.11	6,187.63	120.26	25.51	-91.02	-1,067.82	10,234.99	505.18	393.81	111.37	4.536	
16,900.00	6,214.00	6,190.41	6,187.93	121.36	25.51	-91.07	-1,067.83	10,234.99	577.55	476.46	101.09	5.713	
17,000.00	6,214.00	6,190.71	6,188.23	122.47	25.51	-91.11	-1,067.83	10,234.99	657.20	564.62	92.58	7.099	
17,100.00	6,214.00	6,191.01	6,188.53	123.57	25.51	-91.16	-1,067.84	10,234.99	741.80	656.07	85.73	8.653	
17,163.72	6,214.00	6,191.20	6,188.72	124.27	25.51	-91.19	-1,067.84	10,234.99	797.56	715.46	82.10	9.714	

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



Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Offset Design: Koala 9 Fed Com Offsets - W18_GOVERNMENT AB FEDERAL #012_1541049 - MWD - MWD												Offset Site Error:	0.00 usft
Survey Program: 144-OWSG MWD Rev 5												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,900.00	6,214.00	6,323.14	6,215.87	88.55	22.63	-93.04	-905.13	9,122.35	1,545.59	1,481.22	64.38	24.009	
14,000.00	6,214.00	6,330.51	6,222.97	89.63	22.66	-93.80	-907.03	9,122.94	1,452.39	1,386.06	66.33	21.897	
14,100.00	6,214.00	6,337.83	6,230.01	90.72	22.69	-94.56	-908.91	9,123.53	1,360.11	1,291.55	68.55	19.840	
14,200.00	6,214.00	6,345.09	6,237.00	91.80	22.72	-95.32	-910.76	9,124.10	1,268.95	1,197.85	71.11	17.846	
14,300.00	6,214.00	6,352.29	6,243.95	92.89	22.75	-96.07	-912.59	9,124.67	1,179.18	1,105.14	74.04	15.926	
14,400.00	6,214.00	6,359.44	6,250.85	93.97	22.78	-96.82	-914.40	9,125.24	1,091.15	1,013.71	77.43	14.092	
14,500.00	6,214.00	6,366.54	6,257.70	95.06	22.81	-97.57	-916.18	9,125.79	1,005.29	923.94	81.36	12.357	
14,600.00	6,214.00	6,373.59	6,264.50	96.15	22.84	-98.32	-917.94	9,126.35	922.24	836.34	85.90	10.737	
14,700.00	6,214.00	6,380.58	6,271.25	97.24	22.87	-99.06	-919.67	9,126.89	842.81	751.69	91.12	9.249	
14,800.00	6,214.00	6,387.52	6,277.96	98.33	22.90	-99.80	-921.38	9,127.43	768.13	671.07	97.05	7.915	
14,900.00	6,214.00	6,394.42	6,284.62	99.42	22.93	-100.54	-923.07	9,127.96	699.72	596.11	103.61	6.753	
15,000.00	6,214.00	6,404.00	6,293.89	100.51	22.97	-101.56	-925.40	9,128.70	639.61	529.17	110.44	5.792	
15,100.00	6,214.00	6,408.53	6,298.27	101.61	22.99	-102.05	-926.50	9,129.05	590.32	473.24	117.08	5.042	
15,200.00	6,214.00	6,416.26	6,305.74	102.70	23.02	-102.87	-928.38	9,129.65	554.74	432.44	122.30	4.536	
15,300.00	6,214.00	6,424.17	6,313.39	103.79	23.05	-103.72	-930.30	9,130.28	535.62	410.68	124.94	4.287	
15,354.92	6,214.00	6,428.60	6,317.67	104.40	23.07	-104.20	-931.38	9,130.63	532.81	407.87	124.94	4.264 CC, ES, SF	
15,400.00	6,214.00	6,432.28	6,321.23	104.89	23.09	-104.59	-932.28	9,130.92	534.71	410.57	124.13	4.308	
15,500.00	6,214.00	6,440.58	6,329.25	105.98	23.12	-105.48	-934.31	9,131.59	552.09	432.12	119.97	4.602	
15,600.00	6,214.00	6,449.09	6,337.47	107.08	23.16	-106.39	-936.39	9,132.28	586.15	472.67	113.48	5.165	
15,700.00	6,214.00	6,457.82	6,345.90	108.17	23.20	-107.33	-938.54	9,133.00	634.18	528.22	105.97	5.985	
15,800.00	6,214.00	6,466.76	6,354.53	109.27	23.23	-108.28	-940.74	9,133.75	693.30	594.83	98.47	7.040	
15,900.00	6,214.00	6,475.93	6,363.39	110.37	23.27	-109.26	-943.00	9,134.53	760.92	669.33	91.59	8.308	
16,000.00	6,214.00	6,485.35	6,372.47	111.47	23.31	-110.26	-945.33	9,135.34	834.97	749.43	85.54	9.762	
16,100.00	6,214.00	6,495.01	6,381.80	112.56	23.35	-111.28	-947.73	9,136.17	913.89	833.54	80.35	11.374	
16,200.00	6,214.00	6,502.55	6,389.07	113.66	23.38	-112.07	-949.60	9,136.83	996.52	920.54	75.98	13.116	
16,300.00	6,214.00	6,510.25	6,396.51	114.76	23.42	-112.88	-951.50	9,137.50	1,082.03	1,009.74	72.29	14.967	
16,400.00	6,214.00	6,517.92	6,403.91	115.86	23.45	-113.69	-953.39	9,138.17	1,169.79	1,100.60	69.19	16.907	
16,500.00	6,214.00	6,525.56	6,411.29	116.96	23.48	-114.48	-955.25	9,138.83	1,259.32	1,192.74	66.57	18.917	
16,600.00	6,214.00	6,533.15	6,418.62	118.06	23.51	-115.27	-957.10	9,139.48	1,350.27	1,285.91	64.36	20.980	
16,700.00	6,214.00	6,540.72	6,425.93	119.16	23.54	-116.04	-958.93	9,140.13	1,442.38	1,379.89	62.48	23.085	

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

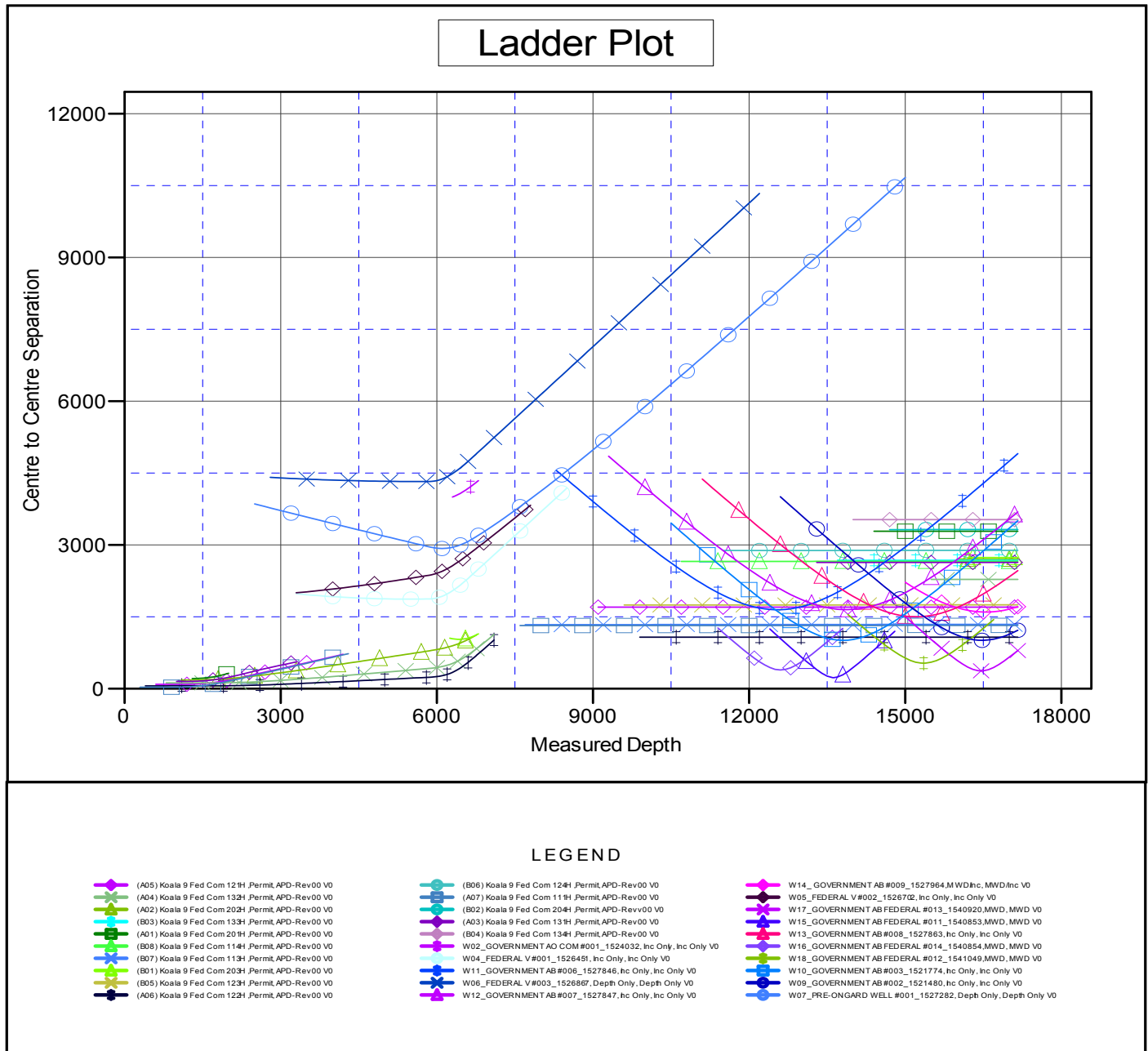


Anticollision Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well (A08) Koala 9 Fed Com 112H
Project:	(Permit) Eddy County, NM (83-NME)	TVD Reference:	3288+30 @ 3318.00usft
Reference Site:	(Permit) Koala 9 Fed Com	MD Reference:	3288+30 @ 3318.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	(A08) Koala 9 Fed Com 112H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Permit	Database:	EDM 5000.14 Single User Db
Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3288+30 @ 3318.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.33333334

Coordinates are relative to: (A08) Koala 9 Fed Com 112H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.08°



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



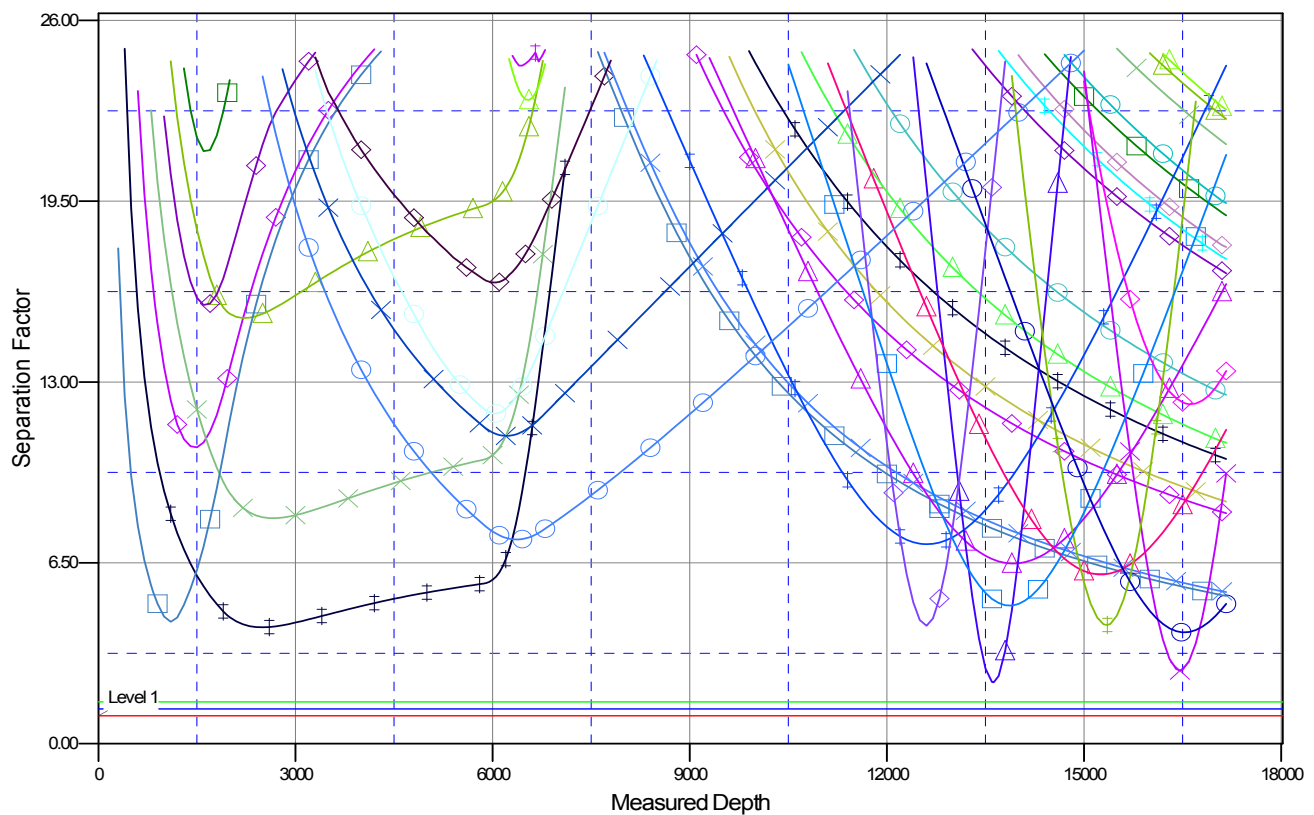
Anticollision Report

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Reference Design:	APD-Rev00	Offset TVD Reference:	Offset Datum

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 Offset Depths are relative to Offset Datum
 Central Meridian is -104.33333334

Coordinates are relative to: (A08) Koala 9 Fed Com 112H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.08°

Separation Factor Plot



LEGEND

(A05) Koala 9 Fed Com 121H, Permit, APD-Rev00 V0	(B06) Koala 9 Fed Com 124H, Permit, APD-Rev00 V0	W14_ GOVERNMENT AB#009_1527964.MWD, Inc, MWD, Inc V0
(A04) Koala 9 Fed Com 132H, Permit, APD-Rev00 V0	(A07) Koala 9 Fed Com 111H, Permit, APD-Rev00 V0	W05_ FEDERAL V#002_1526702, Inc Only, Inc Only V0
(A02) Koala 9 Fed Com 203H, Permit, APD-Rev00 V0	(B02) Koala 9 Fed Com 204H, Permit, APD-Rev00 V0	W17_ GOVERNMENT AB#FEDERAL #013_1540920.MWD, MWD V0
(B03) Koala 9 Fed Com 133H, Permit, APD-Rev00 V0	(A03) Koala 9 Fed Com 131H, Permit, APD-Rev00 V0	W15_ GOVERNMENT AB#FEDERAL #011_1540853.MWD, MWD V0
(A01) Koala 9 Fed Com 201H, Permit, APD-Rev00 V0	(B04) Koala 9 Fed Com 134H, Permit, APD-Rev00 V0	W13_ GOVERNMENT AB#008_1527863, Inc Only, Inc Only V0
(B08) Koala 9 Fed Com 114H, Permit, APD-Rev00 V0	W02_ GOVERNMENT AD COM #001_1524032, Inc Only, Inc Only V0	W16_ GOVERNMENT AB#FEDERAL #014_1540854.MWD, MWD V0
(B07) Koala 9 Fed Com 113H, Permit, APD-Rev00 V0	W04_ FEDERAL V#001_1526451, Inc Only, Inc Only V0	W18_ GOVERNMENT AB#FEDERAL #012_1541049.MWD, MWD V0
(B01) Koala 9 Fed Com 203H, Permit, APD-Rev00 V0	W11_ GOVERNMENT AB#006_1527846, Inc Only, Inc Only V0	W10_ GOVERNMENT AB#003_1521774, Inc Only, Inc Only V0
(B05) Koala 9 Fed Com 123H, Permit, APD-Rev00 V0	W06_ FEDERAL V#003_1526867, Depth Only, Depth Only V0	W09_ GOVERNMENT AB#002_1521480, Inc Only, Inc Only V0
(A06) Koala 9 Fed Com 122H, Permit, APD-Rev00 V0	W12_ GOVERNMENT AB#007_1527847, Inc Only, Inc Only V0	W07_ PRE-ONGARD WELL #001_1527282, Depth Only, Depth Only V0

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

Permian Resources - Koala 9 Fed Com 112H

1. Geologic Formations

Formation	Elevation	TVD	Target
Rustler	-3077	241	No
Top of Salt	-2936	382	No
Capitan	-800	2518	No
Tansill	-2550	768	No
Yates	-2475	843	No
Seven Rivers	-2100	1218	No
Queen	-1509	1809	No
Grayburg	-1300	2018	No
San Andres	-900	2418	No
Delaware Mountain Group	-325	2993	No
Bone Spring Lime	1250	4568	No
1st Bone Spring Sand	2800	6118	Yes
2nd Bone Spring Sand	NP	NP	No
3rd Bone Spring Sand	NP	NP	No

2. Blowout Prevention

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	x	Tested to:
12.25	13-5/8"	5M	Annular	x	2500 psi
			Blind Ram	x	5000 psi
			Pipe Ram	x	
			Double Ram		
			Other*		
8.75	13-5/8"	5M	Annular	x	2500 psi
			Blind Ram	x	5000 psi
			Pipe Ram	x	
			Double Ram		
			Other*		

Equipment: 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 the components installed will be functional and tested. All BOPE connections shall be flanged, welded or clamped. All choke lines shall be straight unless targeted with running tees or tee blocks are used, and choke lines shall be anchored to prevent whip and reduce vibrations. All valves in the choke line & the choke manifold shall be full opening as to not cause restrictions and to allow for straight fluid paths to minimize potential erosion. All gauges utilized in the well control system shall be of a type designed for drilling fluid service. A top drive inside BOP valve will be utilized at all times. Subs equipped with full opening valves sized to fit the drill pipe and collars will be available on the rig floor in the open position. The key to operate said valve equipped subs will be on the rig floor at all times. The accumulator system will have sufficient capacity to open the HCR and close all three sets of rams plus the annular preventer while retaining at least 300 psi above precharge on the closing manifold (accumulator system shall be capable of doing so without using the closing unit pumps). The fluid reservoir capacity will be double the usable fluid volume of the accumulator system capacity, and the fluid level will be maintained at the manufacturer's recommended level. Prior to connecting the closing unit to the BOP stack, an accumulator precharge pressure test shall be performed to ensure the precharge pressure is within 100 psi of the desired precharge pressure (only nitrogen gas will be used to precharge). Two independent power sources will be made available at all times to power the closing unit pumps so that the pumps can automatically start when the closing valve manifold pressure has decreased to the preset level. Closing unit pumps will be sized to allow opening of HCR and closing of annular preventer on 5" drill pipe achieving at least 200 psi above precharge pressure with the accumulator system isolated from service in less than two minutes. A valve shall be installed in the closing line as close to the annular preventer as possible to act as a locking device; the valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative. Remote controls capable of opening and closing all preventers & the HCR shall be readily accessible to the driller; master controls with the same capability will be operable at the accumulator. The wellhead will be a multibowl speed head allowing for hangoff of intermediate casing & isolation of the 133/8 x 95/8 annulus without breaking the connection between the BOP & wellhead to install an additional casing head. A wear bushing will be installed & inspected frequently to guard against internal wear to wellhead. VBRs (variablebore rams) will be run in upper rambody of BOP stack to provide redundancy to annular preventer while RIH w/ production casing;

Requesting Variance? YES

Variance request: Flex hose and offline cement variances, see attachments in section 8.

Testing Procedure: 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 30 day intervals e. checked daily as to mechanical operating conditions. The ram type preventer(s) will be tested using a test plug to 250 psi (low) and 5,000 psi (high) (casinghead WP) with a test plug upon its installation onto the 13 surface casing. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing. The annular type preventer(s) shall be tested to 3500 psi. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer. A Sundry Notice (Form 3160 5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test. If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure. The BLM office will be provided with a minimum of four (4) hours notice of BOP testing to allow witnessing. The BOP Configuration, choke manifold layout, and accumulator system, will be in compliance with Onshore Order 2 for a 5,000 psi system. A remote accumulator and a multi-bowl system will be used, please see attachment in section 8 for multi-bowl procedure. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM 'witnessed BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.

Choke Diagram Attachment: 5 M Choe Manifold

BOP Diagram Attachment: BOP Schematic

3. Casing

String	Hole Size	Casing Size	Top	Bottom	Top TVD	Bottom TVD	Length	Grade	Weight	Connection	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	17.5	13.375	0	770	0	770	770	J55	54.5	BTC	2.82	3.01	Dry	6.40	Dry	6.01
Intermediate	12.25	9.625	0	2943	0	2943	2943	J55	36	BTC	3.68	1.84	Dry	3.10	Dry	2.74
Production	8.75	5.5	0	6764	0	6214	6764	P110RY	17	GeoConn	2.31	2.42	Dry	2.66	Dry	2.66
Production	7.875	5.5	6764	17163	6214	6214	10399	P110RY	17	GeoConn	2.31	2.42	Dry	2.66	Dry	2.66
BLM Min Safety Factor											1.125	1		1.6		1.6

Non API casing spec sheets and casing design assumptions attached.

4. Cement

String	Lead/Tail	Top MD	Bottom MD	Quantity (sx)	Yield	Density	Cu Ft	Excess %	Cement Type	Additives
Surface	Lead	0	570	430	1.88	12.9	800	100%	Class C	EconoCem-HLC + 5% Salt + 5% Kol-Seal
Surface	Tail	570	770	160	1.34	14.8	210	50%	Class C	Accelerator
Intermediate	Lead	0	2350	500	2.08	12.7	1030	50%	Class C	Salt, Extender, and LCM
Intermediate	Tail	2350	2943	210	1.34	14.8	280	50%	Class C	Accelerator
Production	Lead	2443	5859	490	2.41	11.5	1170	40%	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
Production	Tail	5859	17163	1470	1.73	12.5	2540	25%	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder

5. Circulating Medium

Mud System Type: Closed

Will an air or gas system be used: No

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

Cuttings Volume: 8180 Cu Ft

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight	Max Weight
0	770	Water Based Mud	8.6	10
770	2943	Water Based Mud	9	10
2943	6764	Water Based Mud	9	10
6764	17163	OBM	9	10

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:

DIRECTIONAL SURVEY, GAMMA RAY LOG,

Coring operation description for the well:

N/A

7. Pressure

Anticipated Bottom Hole Pressure	3240	psi
Anticipated Surface Pressure	1864.2	psi
Anticipated Bottom Hole Temperature	121	°F
Anticipated Abnormal pressure, temp, or geo hazards	No	

8. Other Information

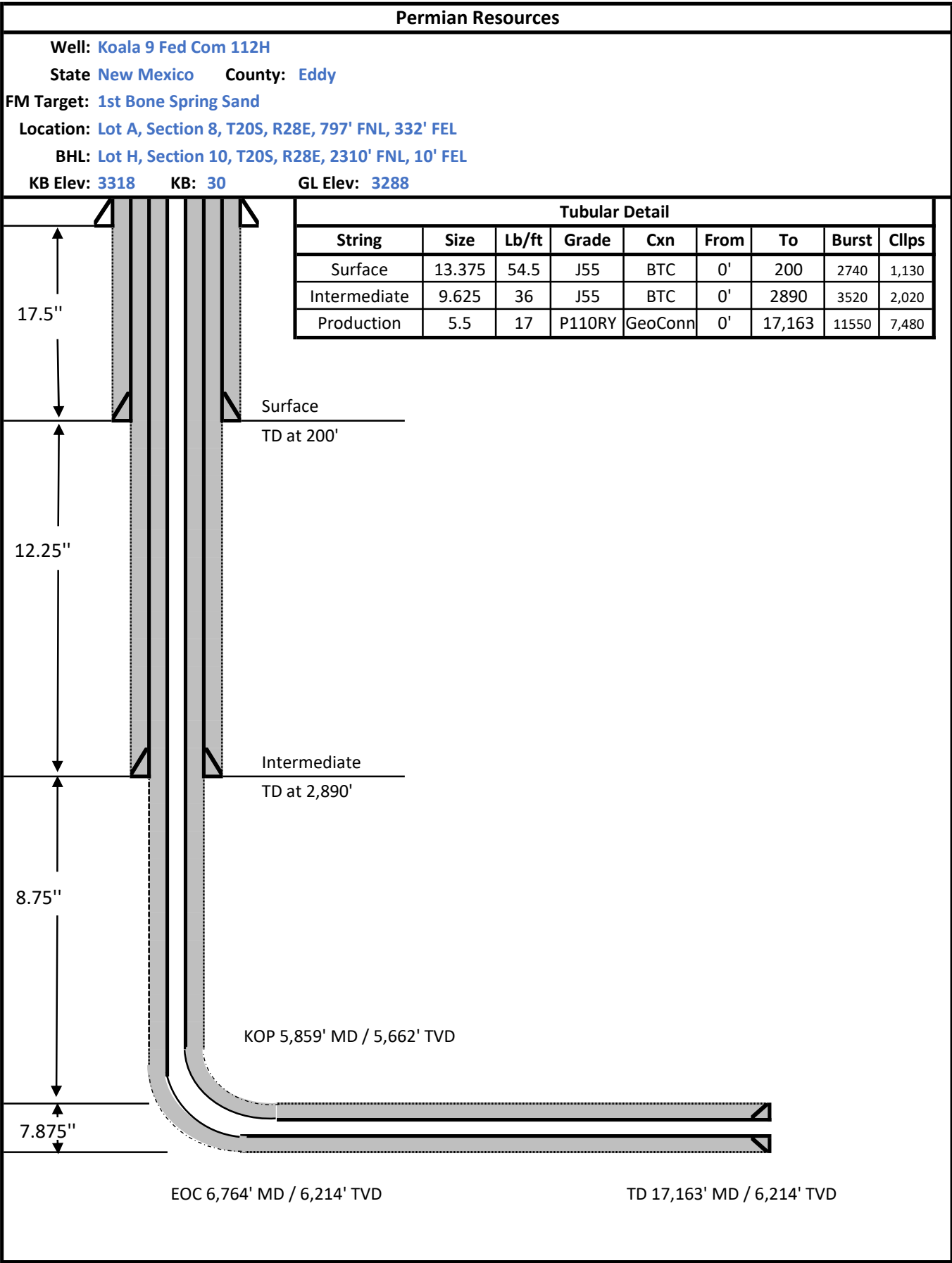
Well Plan and AC Report: attached

Batching Drilling Procedure: attached

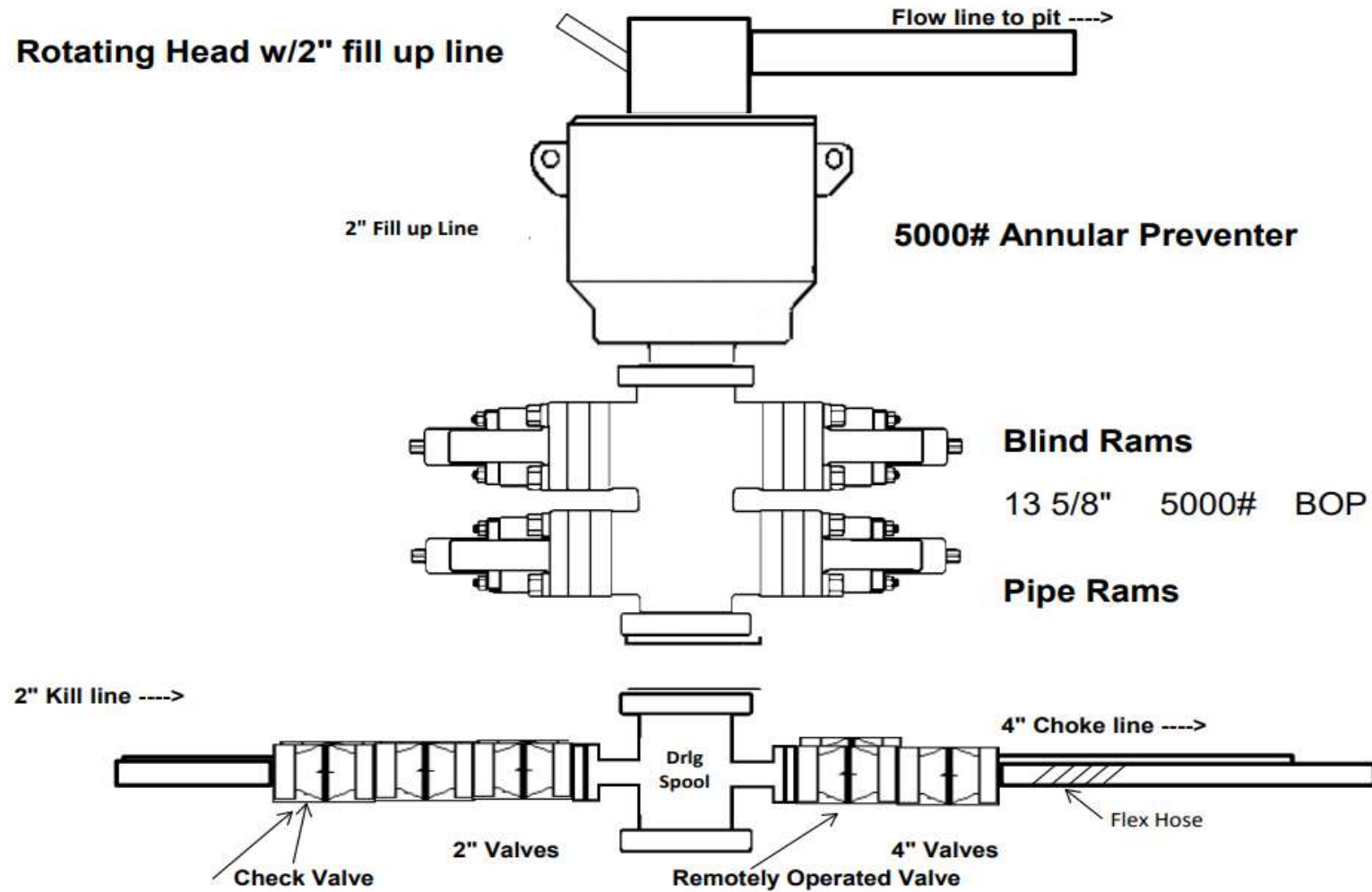
WBD: attached

Flex Hose Specs: attached

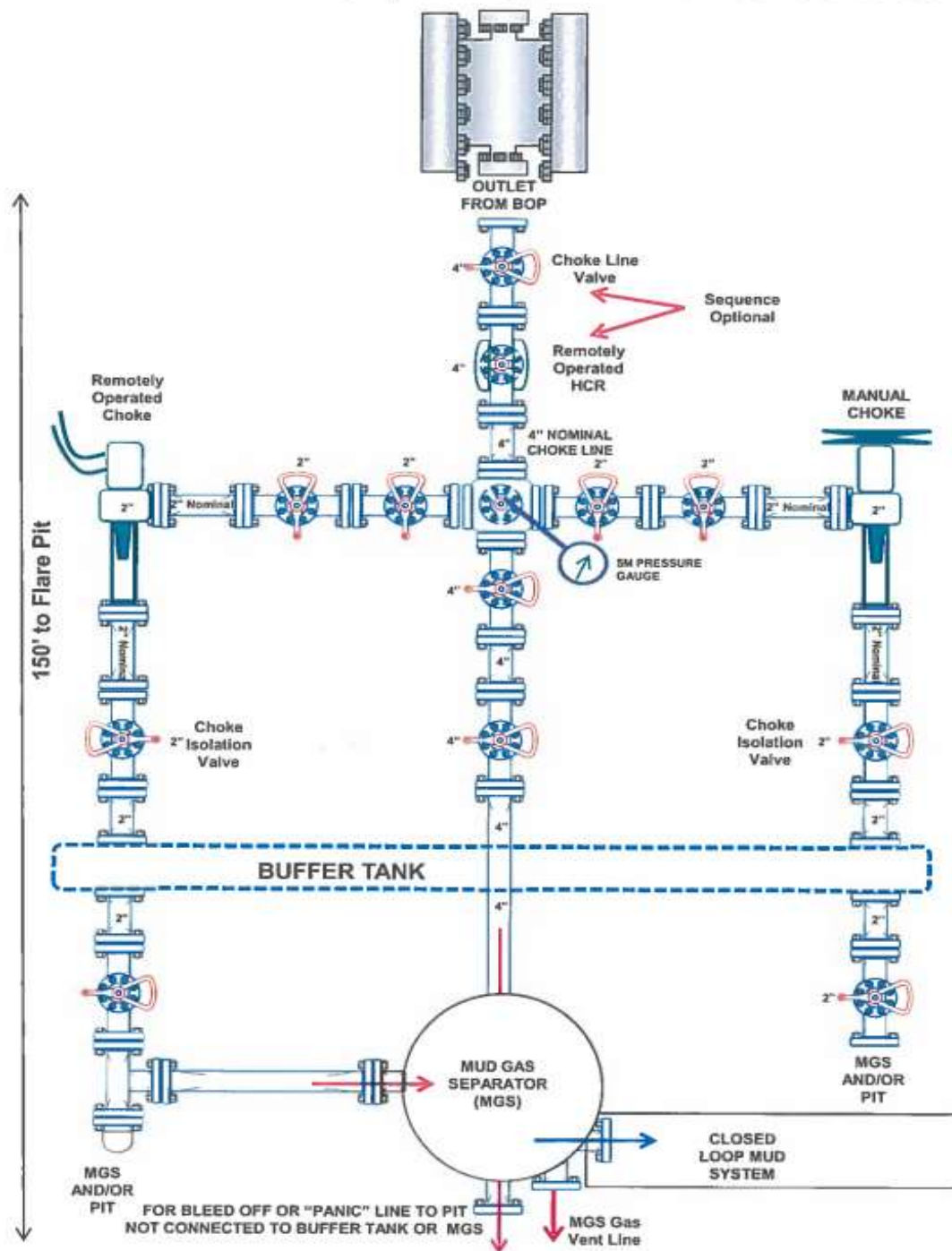
Offline Cementing Procedure Attached:



5,000 psi BOP Schematic



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





ContiTech

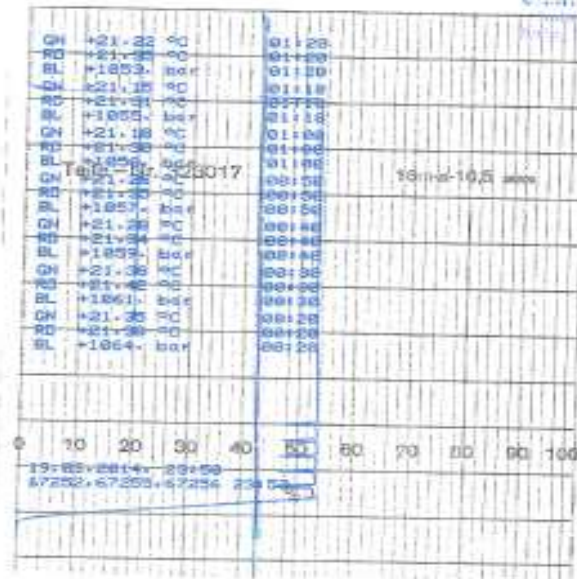
CONTITECH RUBBER Industrial Kft.	No:QC-DB- 210/ 2014 Page: 9 / 113
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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 504	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500409659	
CONTITECH RUBBER order N°: 538236		HOSE TYPE: 3" ID		Choke and Kill Hose	
HOSE SERIAL N°: 67255		NOMINAL / ACTUAL LENGTH:		10,67 m / 10,77 m	
W.P.: 68,9 MPa 10000 psi		T.P.: 103,4 MPa 15000 psi		Duration: 60 min	
Pressure test with water at ambient temperature					
See attachment. (1 page)					
↑ 10 mm = 10 Min. → 10 mm = 20 MPa					
COUPLINGS Type		Serial N°		Quality	
3" coupling with		9251 9254		AISI 4130	
4 1/16" 10K API b.w. Flange end				AISI 4130	
				A0578N	
				035608	
Not Designed For Well Testing				API Spec 16 C	
				Temperature rate: "B"	
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.					
COUNTRY OF ORIGIN HUNGARY/EU					
Date:		Inspector		Quality Control	
20. March 2014.				ContiTech Rubber Industrial Oil Quality Control Dept.  	

CentTech Rubber Industrial Kft., Budapest 10, H-8728 Szigliget | H-8701 P.O.Box 352 Szigliget, Hungary
Phone: +36 87 584 737 | Fax: +36 82 546 738 | e-mail: info@bud.centtech.hu | Internet: www.centtech-rubber.hu; www.centtech.hu
The Court of Company Law or Registry Court | Registry Court No: Cg.99-09-00293 | EU VAT No: HU11537209
Barna Zsuzsanna Cz. Rt., Budapest | H-1076-06-26830003

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE No: 501, 504, 505

Page: 1 / 1



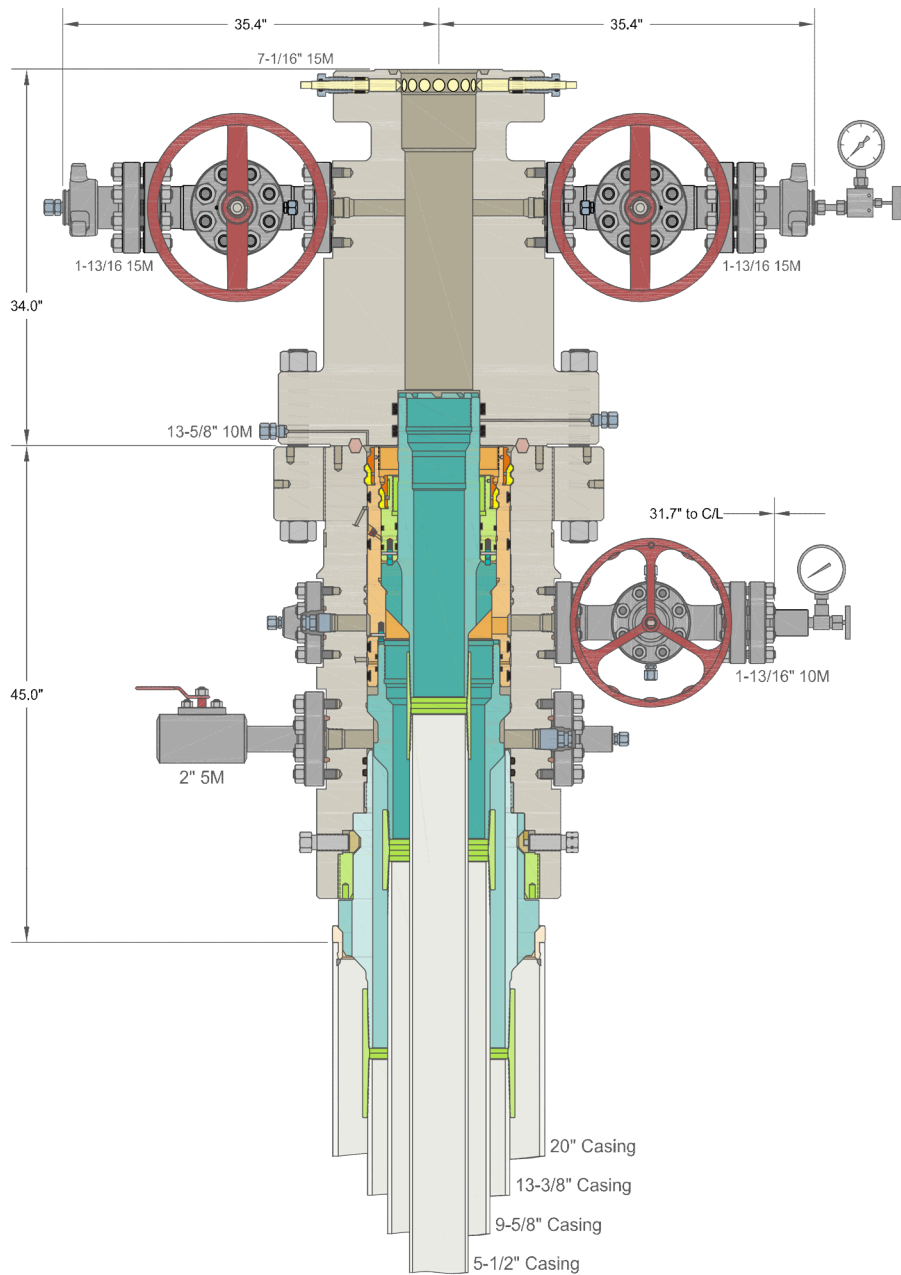


CONTITECH RUBBER Industrial Kft.	No:QC-DB- 210/ 2014
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	ContiTech

Hose Data Sheet

CRI Order No.	538236
Customer	ContiTech Oil & Marine Corp.
Customer Order No.	4500409659
Item No.	1
Hose Type	Flexible Hose
Standard	API SPEC 16 C
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
Type of coupling other end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St. steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max. design temperature [°C]	100
Min. design temperature [°C]	-20
Min. Bend Radius operating [m]	0,90
Min. Bend Radius storage [m]	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC		CENTENNIAL RESOURCE DEVELOPMENT LEE CO, NM	
20" x 13-3/8" x 9-5/8" x 5-1/2" 10M MBU-3T-CFL-R-DBLO System With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head, 20" Landing Ring & Pin Down Mandrel Casing Hangers	DRAWN	DLE	10JUN20
	APPRV		
DRAWING NO.		HBE0000338	

Permian Resources Casing Design Criteria

A sundry will be requested if any lesser grade or different size casing is substituted. All casing will be centralized as specified in On Shore Order II. Casing will be tested as specified in On Shore Order II.

Casing Design Assumptions:

Surface

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate I

- 1) Burst Design Loads
 - a) Displacement to Gas
 - (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.

- (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate or Intermediate II

- 1) Burst Design Loads
 - a) Gas Kick Profile
 - (1) Internal: Load profile based on influx encountered in lateral portion of wellbore with a maximum influx volume of 150 bbl and a kick intensity of 1.5 ppg using maximum anticipated MW of 9.9 ppg.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
 - b) Lost Returns with Mud Drop
 - (1) Internal: Lost circulation at the deepest TVD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 - 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 - 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Production

- 1) Burst Design Loads
 - a) Injection Down Casing
 - (1) Internal: Surface pressure plus injection fluid gradient.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - b) Casing Pressure Test (Drilling)
 - (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
 - (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
 - c) Casing Pressure Test (Production)
 - (1) Internal: The design pressure test should be the greater of the planned test pressure prior to simulation down the casing, the regulatory test pressure, and the expected gas lift system pressure. The design test fluid should be the fluid associated with the pressure test having the greatest pressure.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
 - d) Tubing Leak
 - (1) Internal: SITP plus a packer fluid gradient to the top of packer.
 - (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
- 2) Collapse Loads
 - a) Cementing
 - (1) Internal: Displacement fluid density.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
 - b) Full Evacuation
 - (1) Internal: Full void pipe.
 - (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
- 3) Tension Loads
 - a) Overpull Force
 1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
 - b) Green Cement Casing Test
 1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Permian Resources

Multi-Well Pad Batch Drilling Procedure

Surface Casing - PR intends to Batch set all 13-3/8" casing to a depth approved in the APD. 17-1/2" 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 17-1/2" Surface hole to Approved Depth with Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land 13-3/8" 54.5# J55 BTC 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

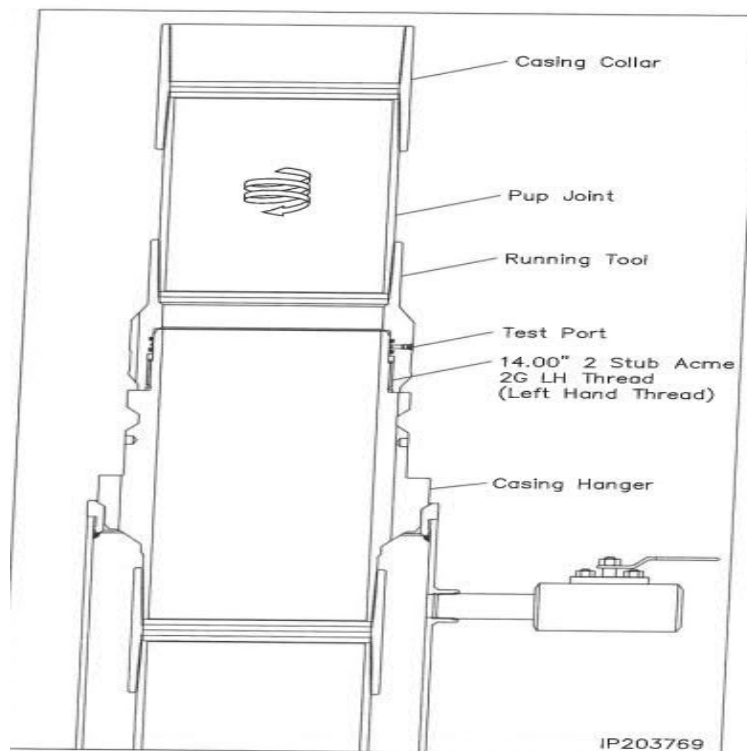


Illustration 1-1

Intermediate Casing – PR intends to Batch set all intermediate casing strings to a depth approved in the APD, typically set into Lamar. 12-1/4" Intermediate Holes will be batch drilled by the rig. Appropriate notifications will be made prior 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 13-3/8" 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.

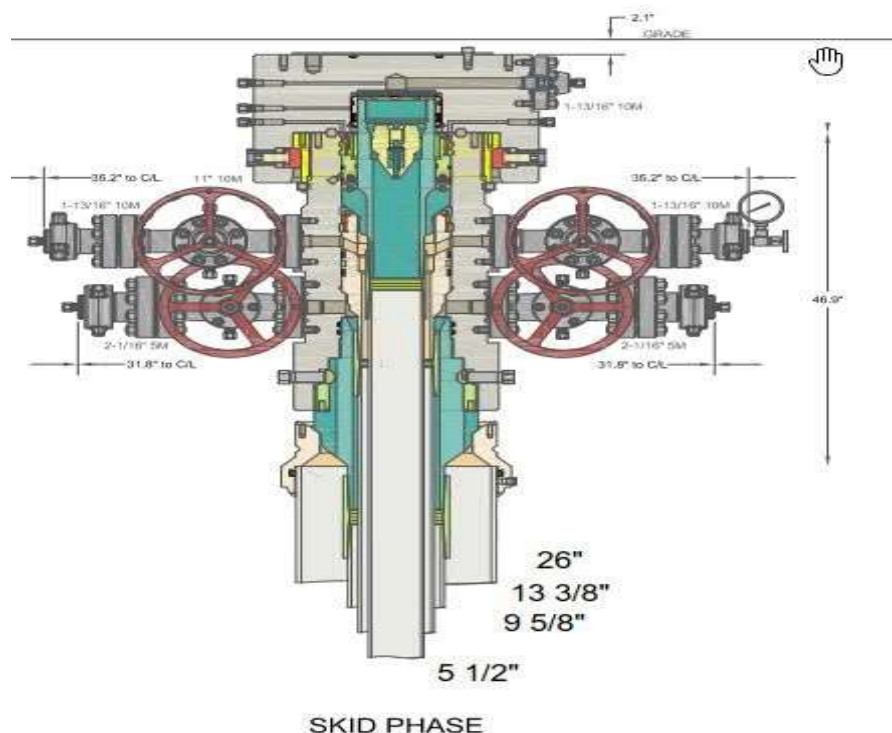


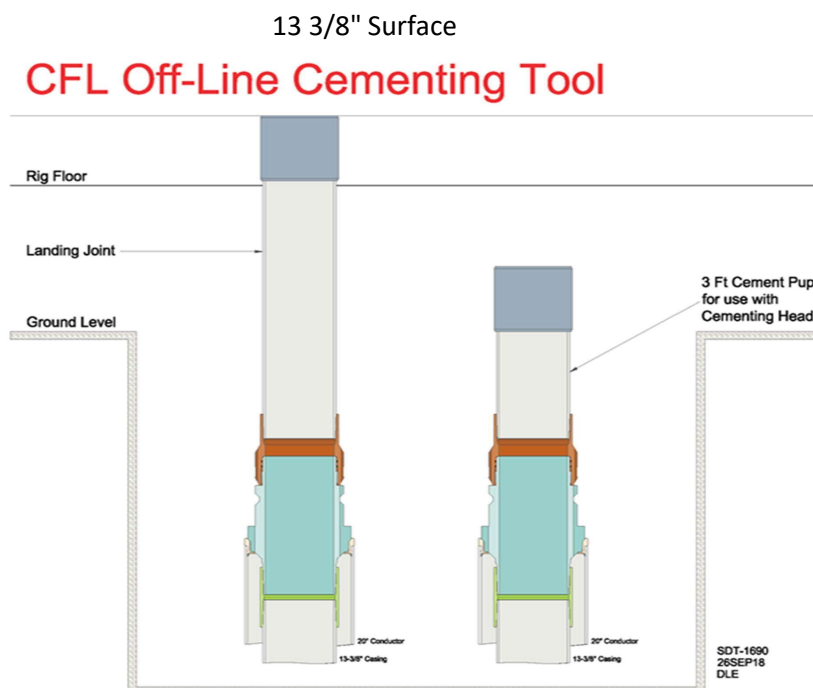
Illustration 2-2

Production Casing – PR 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.

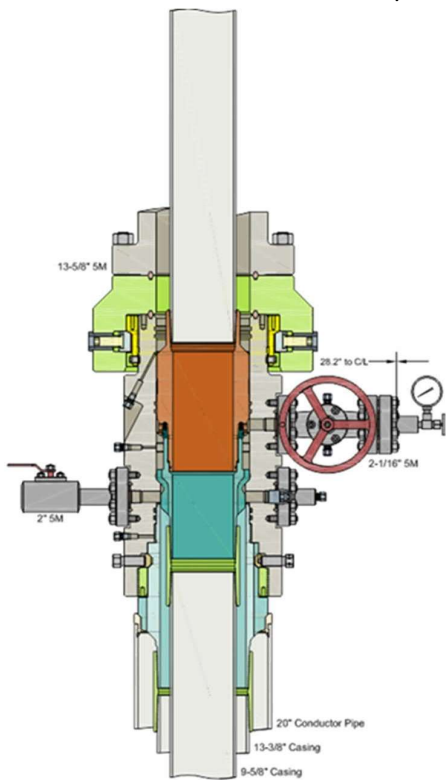
1. Big Rig will remove the nightcap and install and test BOPE.
2. Install wear bushing then drill Intermediate shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
3. Drill Vertical hole to KOP – Trip out for Curve BHA.
4. Drill Curve, landing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

Permian Resources Offline Cementing Procedure 13-3/8" & 9-5/8" Casing

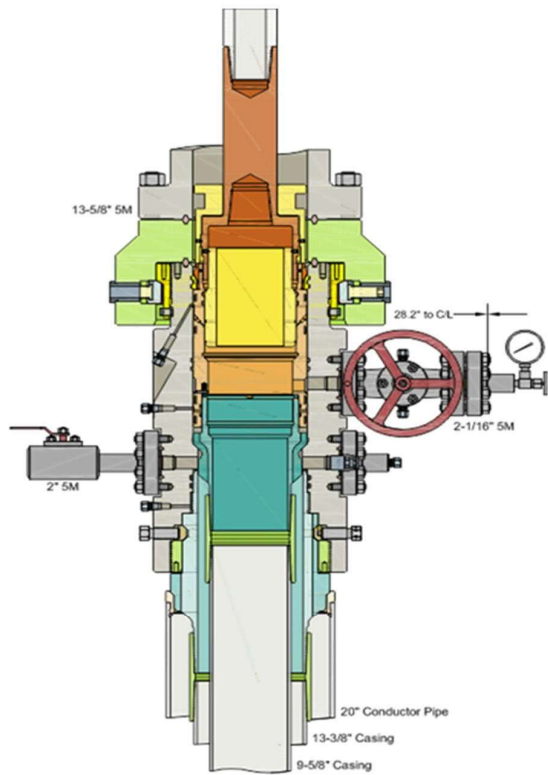
1. Drill hole to Total Depth with Rig and perform wellbore cleanup cycles.
2. Run and casing to Depth.
3. Land casing with mandrel.
4. Circulate 1.5 csg capacity.
5. Flow test – Confirm well is static and floats are holding.
6. Set Annular packoff and pressure test. Test to 5k.
7. Nipple down BOP and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



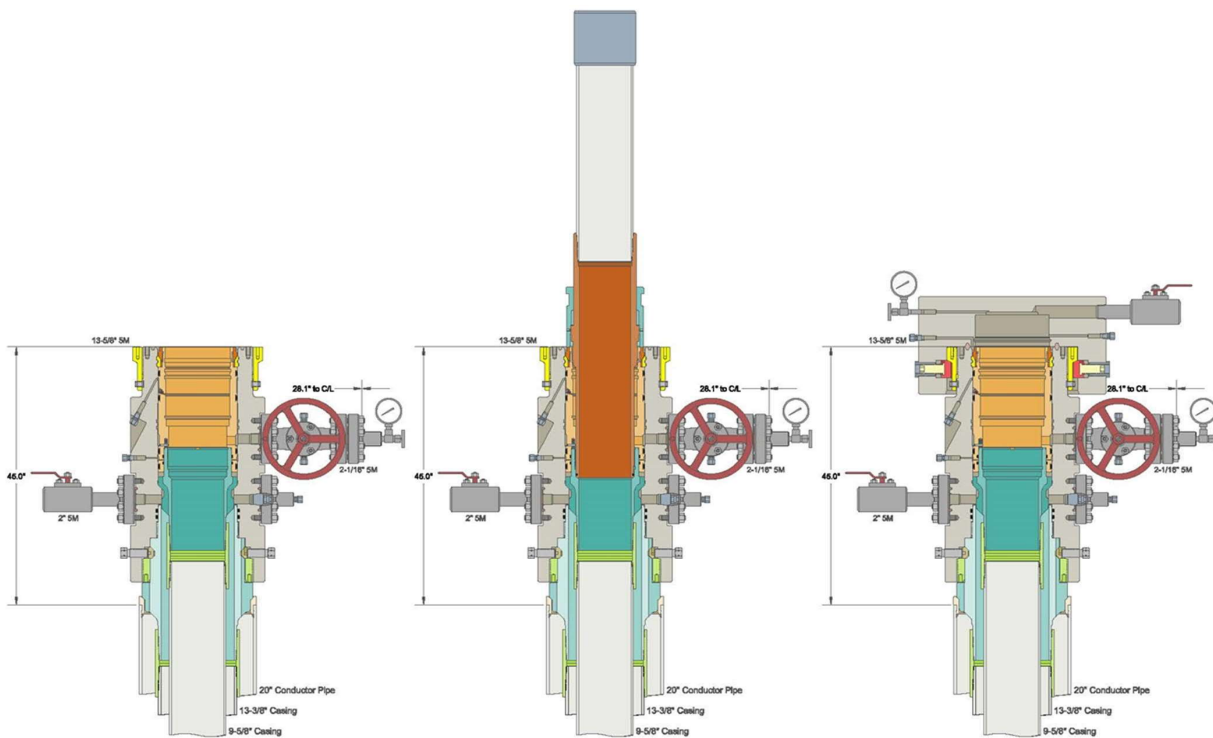
9 5/8" Intermediate



Run 9-5/8" Casing
Land Casing on 9-5/8" Mandrel Hanger
Cement 9-5/8" Casing
Retrieve Running Tool

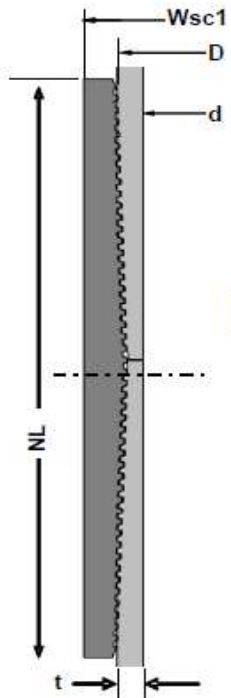


Run 13-5/8" Packoff
Test Upper and Lower Seals
Engage Lockring
Retrieve Running Tool



Metal One Corp. 	GEOCONN-SC Pipe: SeAH P110RY 95%PBW (SMYS110ksi) *1 Coupling: P110RY (SMYS110ksi) Connection Data Sheet	Page Date Rev.	MAI GC 5.5 17 SeAH P110RY 95%RBW+SC-Cplg6.050 P110RY 3-Feb-21 0
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GEOCONN-SC



Geometry	Imperial		S.I.	
Pipe Body				
Grade *1	P110RY	-	P110RY	-
SMYS	110	ksi	110	ksi
Pipe OD (D)	5.500	in	139.70	mm
Weight	17.00	lb/ft	25.33	kg/m
Wall Thickness (t)	0.304	in	7.72	mm
Pipe ID (d)	4.892	in	124.26	mm
Drift Dia.	4.767	in	121.08	mm
Connection				
Coupling SMYS	110	ksi	110	ksi
SC-Coupling OD (Wsc1)	6.050	in	153.67	mm
Coupling Length (NL)	8.350	in	212.09	mm
Make up Loss	4.125	in	104.78	mm
Pipe Critical Area	4.96	in ²	3,202	mm ²
Box Critical Area	6.10	in ²	3,937	mm ²
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			

Performance	Imperial		S.I.	
Performance Properties for Pipe Body				
S.M.Y.S. *1	546	kips	2,428	kN
M.I.Y.P. *1	11,550	psi	79.66	MPa
Collapse Strength *1	7,480	psi	51.59	MPa
Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body *1: SeAH P110RY 95%RBW: SMYS110ksi, MIYP11,550psi				
Performance Properties for Connection				
Min. Connection Joint Strength	100%		of S.M.Y.S.	
Min. Compression Yield	100%		of S.M.Y.S.	
Internal Pressure	100%		of M.I.Y.P.	
External Pressure	100%		of Collapse Strength	
Max. DLS (deg. /100ft)			>90	
Recommended Torque				
Min.	10,800	ft-lb	14,600	N-m
Opti.	12,000	ft-lb	16,200	N-m
Max.	13,200	ft-lb	17,800	N-m
Operational Max.	15,600	ft-lb	21,100	N-m
Note : Operational Max. torque can be applied for high torque application				

Legal Notice

The use of this information is at the reader/user's risk and no warranty is implied or expressed by Metal One Corporation or its parents, subsidiaries or affiliates (herein collectively referred to as "Metal One") with respect to the use of information contained herein. The information provided on this Connection Data Sheet is for informational purposes only, and was prepared by reference to engineering information that is specific to the subject products, without regard to safety-related factors, all of which are the sole responsibility of the operators and users of the subject connectors. Metal One assumes no responsibility for any errors with respect to this information.

Statements regarding the suitability of products for certain types of applications are based on Metal One's knowledge of typical requirements that are often placed on Metal One products in standard well configurations. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.

The products described in this Connection Data Sheet are not recommended for use in deep water offshore applications. For more information, please refer to http://www.mto.co.jp/mto-con/ Images/top/WebsiteTerms_Active_20333287_1.pdf the contents of which are incorporated by reference into this Connection Data Sheet.



CONTITECH RUBBER Industrial Kft.	No:QC-DB- 210/ 2014
	Page: 15 / 113
	ContiTech

Hose Data Sheet

CRI Order No.	538236
Customer	ContiTech Oil & Marine Corp.
Customer Order No.	4500409659
Item No.	1
Hose Type	Flexible Hose
Standard	API SPEC 16 C
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
Type of coupling other end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St. steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max. design temperature [°C]	100
Min. design temperature [°C]	-20
Min. Bend Radius operating [m]	0,90
Min. Bend Radius storage [m]	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

Printed: TIRETECHZICsontosG - 2014.03.10 15:22:17

Permian Resources

Multi-Well Pad Batch Drilling Procedure

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2. Run and land 13-3/8" 54.5# J55 BTC 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.
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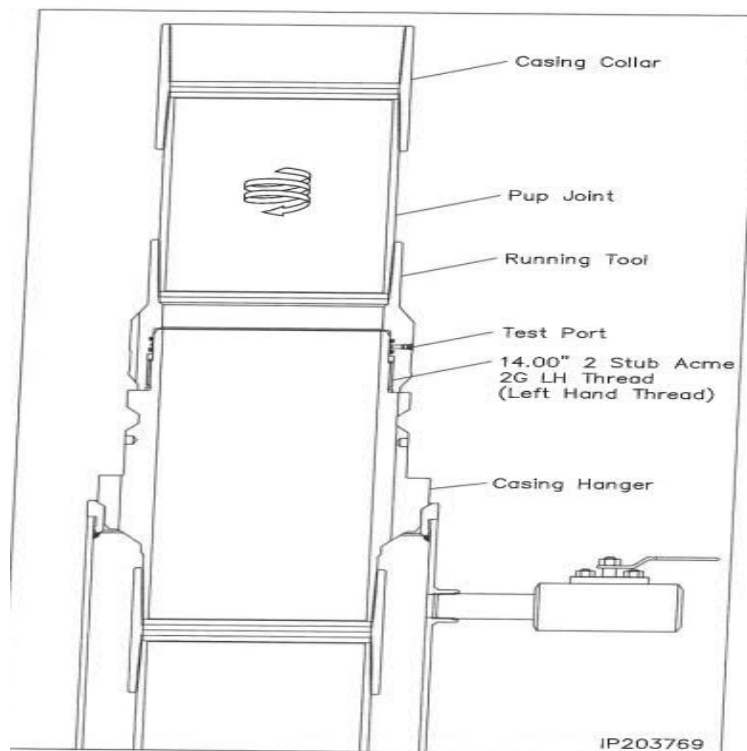


Illustration 1-1

Intermediate Casing – PR intends to Batch set all intermediate casing strings to a depth approved in the APD, typically set into Lamar. 12-1/4" Intermediate Holes will be batch drilled by the rig. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

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10. Install nightcap – skid rig to adjacent well to drill Intermediate hole.

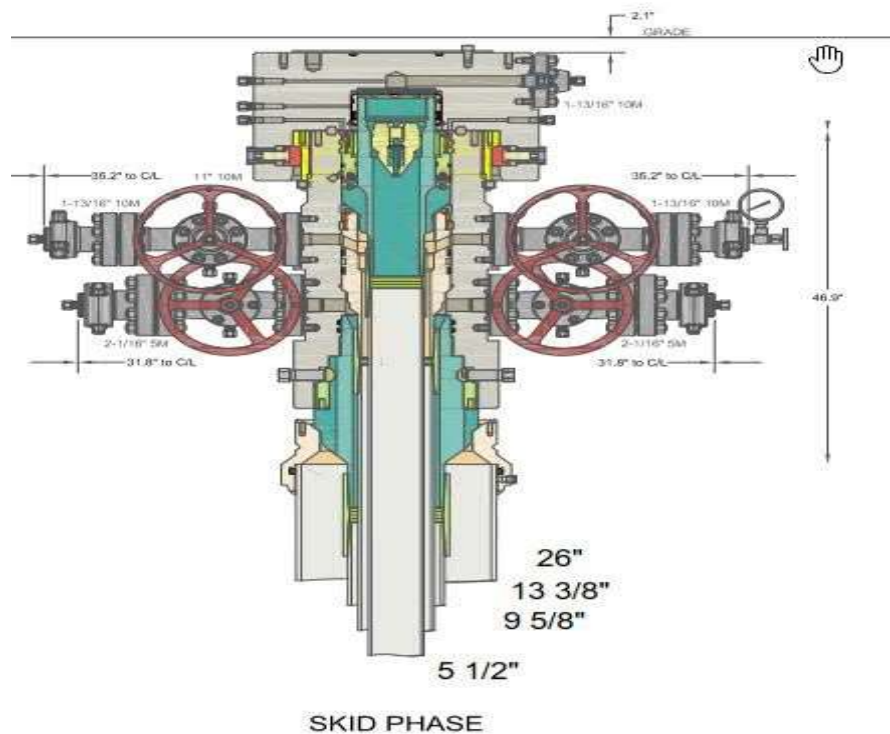


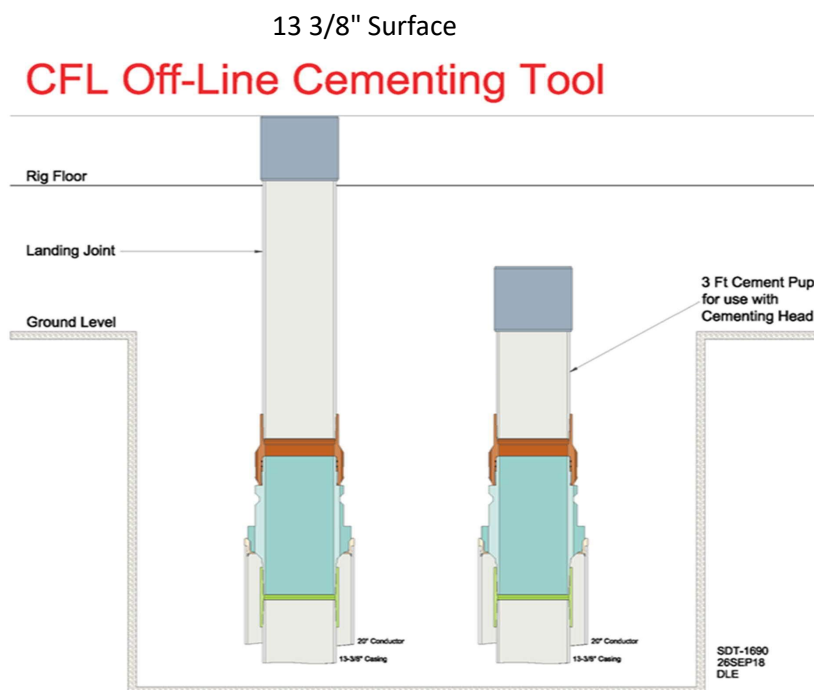
Illustration 2-2

Production Casing – PR 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.

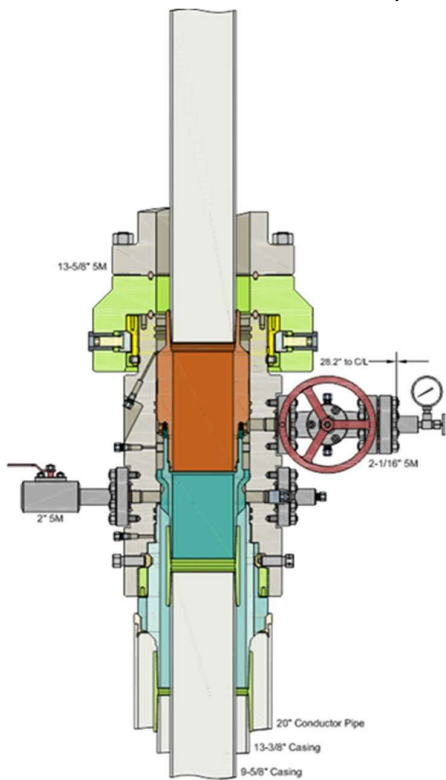
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Permian Resources Offline Cementing Procedure 13-3/8" & 9-5/8" Casing

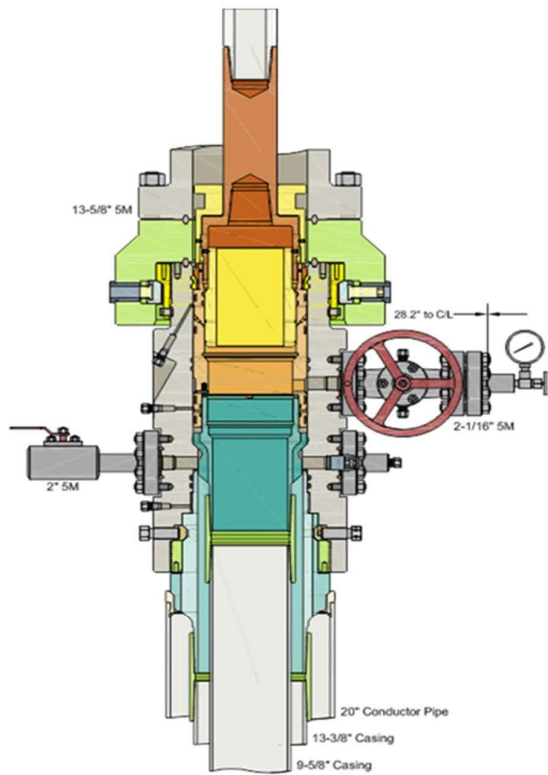
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8. Skid rig to next well on pad
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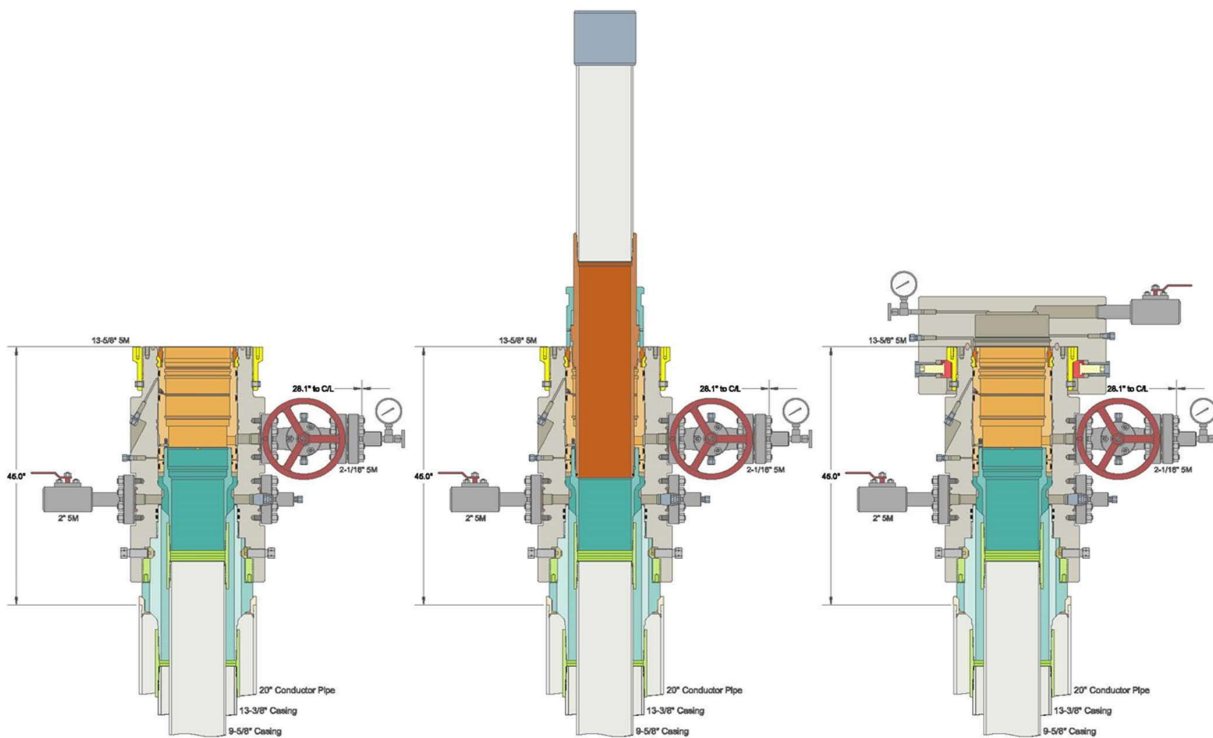
9 5/8" Intermediate



Run 9-5/8" Casing
Land Casing on 9-5/8" Mandrel Hanger
Cement 9-5/8" Casing
Retrieve Running Tool



Run 13-5/8" Packoff
Test Upper and Lower Seals
Engage Lockring
Retrieve Running Tool





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

Bond Info Data

09/26/2023

APD ID: 10400085978

Submission Date: 06/09/2022

Operator Name: COLGATE OPERATING LLC

Well Name: KOALA 9 FED COM

Well Number: 112H

Well Type: OIL WELL

Well Work Type: Drill

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

Bond

Federal/Indian APD: FED

BLM Bond number: NMB001382

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information

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 269024

CONDITIONS

Operator: Permian Resources Operating, LLC 1001 17th Street, Suite 1800 Denver, CO 80202	OGRID: 372165
	Action Number: 269024
	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	9/28/2023
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	9/28/2023
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	9/28/2023
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	9/28/2023
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	9/28/2023