

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Colgate Operating, LLC 300 N Marienfeld Street, Suite 1000 Midland, Tx 79701		² OGRID Number 371449	
		³ Reason for Filing Code/ Effective Date NW	
⁴ API Number 30 – 015 – 47824	⁵ Pool Name PARKWAY; BONE SPRING		⁶ Pool Code 49622
⁷ Property Code 329892	⁸ Property Name BLACK DIAMOND 34 FED		⁹ Well Number 133H

II. ¹⁰ Surface Location

UL or lot no. P	Section 34	Township 19S	Range 29E	Lot Idn	Feet from the 1135	North/South Line South	Feet from the 359	East/West line East	County Eddy
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¹¹ Bottom Hole Location

UL or lot no. J	Section 33	Township 19S	Range 29E	Lot Idn	Feet from the 1707	North/South line South	Feet from the 2601	East/West line East	County Eddy
¹² Lse Code F	¹³ Producing Method Code	¹⁴ Gas Connection Date 01/01/2021	¹⁵ C-129 Permit Number		¹⁶ C-129 Effective Date		¹⁷ C-129 Expiration Date		

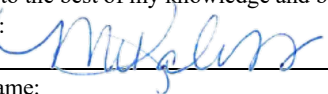
III. Oil and Gas Transporters

¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
329097	LM TOUCHDOWN, LLC	O
329097	LM TOUCHDOWN, LLC	G

IV. Well Completion Data

²¹ Spud Date 11/20/2021	²² Ready Date 03/04/2022	²³ TD 16,660 MD 9,086 TVD	²⁴ PBSD 16,560 MD 8,998 TVD	²⁵ Perforations 9,495 – 16,438	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	³⁰ Sacks Cement
22.375		18.625		349	620
14.75		11.75		1,481	273 Lead 250 Tail
10.625		8.625		3,387	500 Lead 155 Tail
7.875		5.5		16,650	530 Lead 915 Tail

V. Well Test Data

³¹ Date New Oil 3/21/22	³² Gas Delivery Date 3/21/22	³³ Test Date 4/6/22	³⁴ Test Length 24	³⁵ Tbg. Pressure 2000	³⁶ Csg. Pressure 320
³⁷ Choke Size 88/88	³⁸ Oil 1165	³⁹ Water 2798	⁴⁰ Gas 1547		⁴¹ Test Method
⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 			OIL CONSERVATION DIVISION		
Printed name: Mikah Thomas			Approved by: PATRICIA MARTINEZ		
Title: Sr. Regulatory Analyst			Title: PETROLEUM SPECIALIST		
E-mail Address: mthomas@colgateenergy.com			Approval Date: 6/13/2022		
Date: 05/15/2022		Phone: 432-695-4272			

DISTRICT I1825 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720**DISTRICT II**811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720**DISTRICT III**1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170**DISTRICT IV**1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3460 Fax: (505) 476-3462State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102

Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, N.M. 87505

Submit one copy to appropriate

District Office

AS-DRILLED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-47824	² Pool Code 49622	³ Pool Name PARKWAY; BONE SPRING
⁴ Property Code 329892	⁵ Property Name Black Diamond 34 Fed	⁶ Well Number 133H
⁷ GRID No. 371449	⁸ Operator Name Colgate Operating, LLC	⁹ Elevation 3330

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
P	34	19 S	29 E		1135	South	359	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
J	33	19 S	29 E		1707	South	2601	East	Eddy

¹² Dedicated Acres 240	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

¹⁶ Legend: ● = Surface Location ○ = Kick Off Point (KOP) ◇ = Bottom Hole Location △ = First Take Point (FTP) □ = Last Take Point (LTP) ⊙ = Found 1916 USGLO Brass Cap ⊗ = Found Monument	SURFACE LOCATION NAD 83 NMSPC ZONE 3001 Y= 586862.09 N X= 626938.85 E LAT.= 32.6130274° N LONG.= 104.0553242° W	KICK OFF POINT NAD 83 NMSPC ZONE 3001 Y= 587383.39 N X= 627236.62 E LAT.= 32.6144582° N LONG.= 104.0543527° W
	FIRST TAKE POINT NAD 83 NMSPC ZONE 3001 Y= 587484.82 N X= 626572.51 E LAT.= 32.6147418° N LONG.= 104.0565087° W	LAST TAKE POINT NAD 83 NMSPC ZONE 3001 Y= 587452.86 N X= 619635.94 E LAT.= 32.6147015° N LONG.= 104.0790372° W

CORNER COORDINATES TABLE
NAD 83 NME

A - Y= 588388.25 N, X= 616742.30 E
B - Y= 588372.64 N, X= 622012.21 E
C - Y= 588365.48 N, X= 627298.21 E
D - Y= 585749.79 N, X= 616744.48 E
E - Y= 585742.85 N, X= 619383.23 E
F - Y= 585732.66 N, X= 622020.74 E
G - Y= 585726.58 N, X= 624659.03 E
H - Y= 585727.74 N, X= 627298.28 E

CORNER COORDINATES TABLE
NAD 83 NME

A - LAT.=32.6172913° N, LONG.=104.0884280° W
B - LAT.=32.6172139° N, LONG.=104.0713123° W
C - LAT.=32.6171572° N, LONG.=104.0541443° W
D - LAT.=32.6100390° N, LONG.=104.0884407° W
E - LAT.=32.6100029° N, LONG.=104.0798712° W
F - LAT.=32.6099573° N, LONG.=104.0713057° W
G - LAT.=32.6099224° N, LONG.=104.0627377° W
H - LAT.=32.6099068° N, LONG.=104.0541665° W

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.

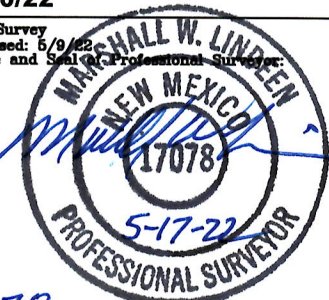
Mikah Thomas 05.22.2022
Signature Date
Mikah Thomas
Printed Name
mthomas@colgateenergy.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

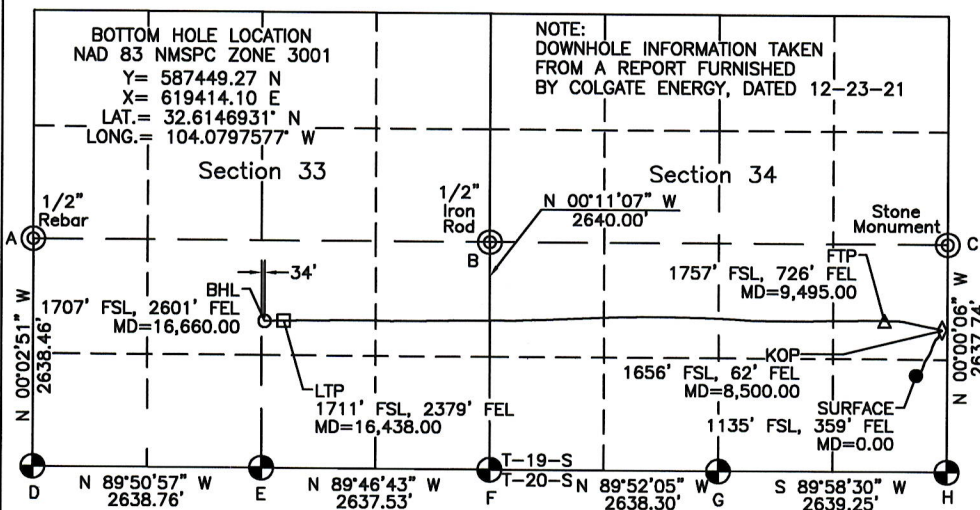
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

1/10/22

Date of Survey
Plat Revised: 5/9/22
Signature and Seal of Professional Surveyor



17078
Certificate Number





Colgate Energy

Eddy County, NM (N83-NME)

Black Diamond 34 Fed Com

Black Diamond 34 Fed Com 133H

30-015-47824

133H

Design: DRL

Standard Survey Report

23 December, 2021



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Project	Eddy County, NM (N83-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	Black Diamond 34 Fed Com		
Site Position:		Northing:	589,010.96 usft
From:	Map	Easting:	627,173.41 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.61893234
		Longitude:	-104.05454408

Well	Black Diamond 34 Fed Com 133H		
Well Position	+N/-S	0.00 usft	Northing: 586,862.09 usft
	+E/-W	0.00 usft	Easting: 626,938.85 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.15 °	Ground Level:	3,330.00 usft

Wellbore	133H		
Magnetics	Model Name	Sample Date	Declination (°)
	IFR	11/18/2021	6.94
			Dip Angle (°)
			60.32
			Field Strength (nT)
			47,795.60000000

Design	DRL		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			270.11

Survey Program	Date	12/23/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
14.58	16,602.00	Survey #1_Gordon (133H)	MWD+IFR1+SAG+FDIR (SQ OWSG MWD + IFR1 + Sag + FDIR Correction	
16,660.00	16,660.00	Survey #2_PTB (133H)	BLIND	BLIND

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	
14.58	0.11	252.86	14.58	0.00	-0.01	0.01	0.75	0.75	0.00	
29.17	0.22	252.87	29.17	-0.02	-0.05	0.05	0.75	0.75	0.07	
43.75	0.32	252.88	43.75	-0.04	-0.12	0.12	0.69	0.69	0.07	
58.33	0.43	252.89	58.33	-0.06	-0.21	0.21	0.75	0.75	0.07	
72.92	0.54	252.89	72.92	-0.10	-0.33	0.33	0.75	0.75	0.00	
87.50	0.65	252.90	87.50	-0.15	-0.47	0.47	0.75	0.75	0.07	
102.08	0.75	252.91	102.08	-0.20	-0.64	0.64	0.69	0.69	0.07	
116.67	0.86	252.92	116.67	-0.26	-0.84	0.84	0.75	0.75	0.07	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
131.25	0.97	252.93	131.24	-0.33	-1.06	1.06	0.75	0.75	0.07	
145.83	1.08	252.94	145.82	-0.40	-1.31	1.31	0.75	0.75	0.07	
160.42	1.19	252.95	160.41	-0.49	-1.59	1.59	0.75	0.75	0.07	
167.01	1.24	252.95	167.00	-0.53	-1.72	1.72	0.75	0.75	0.07	
Rustler										
175.00	1.30	252.96	174.99	-0.58	-1.89	1.89	0.75	0.75	0.07	
188.14	1.28	251.97	188.12	-0.67	-2.17	2.17	0.23	-0.15	-7.53	
201.29	1.26	250.82	201.27	-0.76	-2.45	2.45	0.25	-0.15	-8.75	
214.43	1.25	249.56	214.41	-0.86	-2.72	2.72	0.22	-0.08	-9.59	
227.57	1.23	248.25	227.54	-0.96	-2.98	2.98	0.26	-0.15	-9.97	
240.71	1.22	246.92	240.68	-1.07	-3.24	3.24	0.23	-0.08	-10.12	
253.86	1.21	245.63	253.83	-1.18	-3.50	3.50	0.22	-0.08	-9.81	
267.00	1.20	244.46	266.96	-1.30	-3.75	3.75	0.20	-0.08	-8.90	
281.22	1.20	243.44	281.18	-1.43	-4.02	4.01	0.15	0.00	-7.17	
295.44	1.21	242.56	295.40	-1.57	-4.28	4.28	0.15	0.07	-6.19	
309.67	1.22	241.80	309.62	-1.71	-4.55	4.55	0.13	0.07	-5.34	
323.89	1.23	241.13	323.84	-1.85	-4.82	4.81	0.12	0.07	-4.71	
338.11	1.24	240.55	338.06	-2.00	-5.09	5.08	0.11	0.07	-4.08	
352.33	1.24	240.06	352.27	-2.15	-5.35	5.35	0.07	0.00	-3.45	
366.56	1.24	239.65	366.50	-2.31	-5.62	5.61	0.06	0.00	-2.88	
380.78	1.23	239.35	380.72	-2.46	-5.88	5.88	0.08	-0.07	-2.11	
395.00	1.21	239.18	394.93	-2.62	-6.14	6.14	0.14	-0.14	-1.20	
402.07	1.19	239.20	402.00	-2.69	-6.27	6.27	0.28	-0.28	0.34	
Top of Salt										
409.46	1.17	239.23	409.39	-2.77	-6.40	6.40	0.28	-0.28	0.35	
423.92	1.12	239.45	423.85	-2.92	-6.65	6.64	0.35	-0.35	1.52	
438.38	1.06	239.81	438.31	-3.06	-6.89	6.88	0.42	-0.41	2.49	
452.85	0.99	240.32	452.77	-3.19	-7.11	7.11	0.49	-0.48	3.52	
467.31	0.92	240.99	467.23	-3.31	-7.32	7.32	0.49	-0.48	4.63	
481.77	0.85	241.84	481.69	-3.41	-7.52	7.51	0.49	-0.48	5.88	
496.23	0.78	242.89	496.15	-3.51	-7.70	7.69	0.49	-0.48	7.26	
510.69	0.70	244.20	510.61	-3.59	-7.87	7.86	0.57	-0.55	9.06	
525.15	0.63	245.83	525.07	-3.66	-8.02	8.01	0.50	-0.48	11.27	
539.62	0.56	247.85	539.54	-3.72	-8.16	8.15	0.50	-0.48	13.96	
554.08	0.49	250.35	553.99	-3.77	-8.28	8.27	0.51	-0.48	17.29	
568.54	0.43	253.36	568.45	-3.81	-8.39	8.38	0.45	-0.41	20.82	
583.00	0.38	256.81	582.91	-3.83	-8.49	8.48	0.38	-0.35	23.86	
597.46	0.32	254.17	597.37	-3.85	-8.58	8.57	0.43	-0.41	-18.26	
611.92	0.26	250.39	611.83	-3.88	-8.65	8.64	0.44	-0.41	-26.14	
626.38	0.21	244.59	626.29	-3.90	-8.70	8.69	0.38	-0.35	-40.11	
640.85	0.16	234.88	640.76	-3.92	-8.74	8.73	0.41	-0.35	-67.10	
655.31	0.11	217.08	655.22	-3.94	-8.77	8.76	0.45	-0.35	-123.10	
669.77	0.09	186.08	669.68	-3.97	-8.77	8.77	0.39	-0.14	-214.38	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
684.23	0.11	152.23	684.14	-3.99	-8.77	8.76	0.42	0.14	-234.09
698.69	0.14	131.15	698.60	-4.01	-8.75	8.74	0.38	0.21	-145.78
713.15	0.19	119.79	713.06	-4.04	-8.72	8.71	0.41	0.35	-78.56
727.62	0.25	113.19	727.53	-4.06	-8.67	8.66	0.45	0.41	-45.61
742.08	0.30	108.97	741.99	-4.09	-8.60	8.59	0.37	0.35	-29.18
756.54	0.36	106.08	756.45	-4.11	-8.52	8.51	0.43	0.41	-19.99
771.00	0.41	103.98	770.91	-4.14	-8.43	8.42	0.36	0.35	-14.52
784.63	0.46	99.07	784.54	-4.16	-8.33	8.32	0.46	0.37	-36.02
798.25	0.51	95.10	798.16	-4.17	-8.21	8.20	0.44	0.37	-29.15
811.88	0.56	91.86	811.79	-4.18	-8.09	8.08	0.43	0.37	-23.77
825.50	0.62	89.18	825.41	-4.18	-7.94	7.94	0.48	0.44	-19.68
839.13	0.67	86.92	839.04	-4.17	-7.79	7.78	0.41	0.37	-16.58
852.75	0.73	85.01	852.66	-4.16	-7.63	7.62	0.47	0.44	-14.02
866.38	0.78	83.37	866.29	-4.14	-7.45	7.44	0.40	0.37	-12.03
880.00	0.84	81.95	879.91	-4.12	-7.26	7.25	0.46	0.44	-10.43
894.46	0.95	84.16	894.36	-4.09	-7.03	7.02	0.80	0.76	15.28
908.92	1.06	85.90	908.82	-4.07	-6.78	6.77	0.79	0.76	12.03
923.38	1.17	87.32	923.28	-4.05	-6.50	6.49	0.78	0.76	9.82
937.85	1.29	88.48	937.75	-4.04	-6.19	6.18	0.85	0.83	8.02
952.31	1.40	89.47	952.20	-4.04	-5.85	5.84	0.78	0.76	6.85
966.77	1.51	90.30	966.66	-4.04	-5.48	5.47	0.77	0.76	5.74
981.23	1.62	91.02	981.11	-4.04	-5.09	5.08	0.77	0.76	4.98
995.69	1.74	91.64	995.57	-4.05	-4.66	4.65	0.84	0.83	4.29
1,010.15	1.85	92.19	1,010.02	-4.07	-4.21	4.20	0.77	0.76	3.80
1,024.62	1.96	92.68	1,024.48	-4.09	-3.73	3.72	0.77	0.76	3.39
1,039.08	2.07	93.11	1,038.93	-4.11	-3.22	3.21	0.77	0.76	2.97
1,053.54	2.19	93.50	1,053.38	-4.14	-2.69	2.68	0.84	0.83	2.70
1,068.00	2.30	93.85	1,067.83	-4.18	-2.12	2.11	0.77	0.76	2.42
1,082.38	2.27	92.90	1,082.20	-4.21	-1.55	1.54	0.34	-0.21	-6.61
1,096.77	2.24	91.76	1,096.58	-4.24	-0.98	0.97	0.37	-0.21	-7.92
1,111.15	2.22	90.49	1,110.95	-4.25	-0.42	0.41	0.37	-0.14	-8.83
1,125.54	2.19	89.13	1,125.33	-4.25	0.13	-0.14	0.42	-0.21	-9.45
1,139.92	2.16	87.71	1,139.70	-4.23	0.68	-0.68	0.43	-0.21	-9.87
1,154.31	2.14	86.26	1,154.08	-4.20	1.22	-1.22	0.40	-0.14	-10.08
1,157.24	2.13	85.97	1,157.00	-4.19	1.32	-1.33	0.43	-0.21	-10.05
Base of Salt									
1,168.69	2.11	84.80	1,168.45	-4.16	1.75	-1.76	0.43	-0.21	-10.18
1,183.08	2.09	83.36	1,182.83	-4.11	2.27	-2.28	0.39	-0.14	-10.01
1,197.46	2.06	81.96	1,197.20	-4.04	2.79	-2.80	0.41	-0.21	-9.74
1,211.85	2.04	80.64	1,211.58	-3.96	3.30	-3.30	0.36	-0.14	-9.17
1,226.23	2.01	79.44	1,225.95	-3.87	3.80	-3.80	0.36	-0.21	-8.34
1,240.62	1.98	78.44	1,240.33	-3.78	4.29	-4.30	0.32	-0.21	-6.95
1,255.00	1.95	77.75	1,254.70	-3.68	4.77	-4.78	0.27	-0.21	-4.80
1,269.30	1.90	77.97	1,268.99	-3.58	5.24	-5.25	0.35	-0.35	1.54



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
1,283.60	1.86	78.61	1,283.29	-3.48	5.70	-5.71	0.32	-0.28	4.48	
1,297.90	1.81	79.58	1,297.58	-3.39	6.15	-6.16	0.41	-0.35	6.78	
1,312.20	1.76	80.83	1,311.87	-3.32	6.59	-6.60	0.44	-0.35	8.74	
1,326.50	1.72	82.33	1,326.16	-3.25	7.02	-7.02	0.42	-0.28	10.49	
1,340.80	1.68	84.05	1,340.46	-3.20	7.44	-7.45	0.45	-0.28	12.03	
1,355.10	1.64	85.99	1,354.75	-3.17	7.85	-7.86	0.48	-0.28	13.57	
1,369.40	1.61	88.12	1,369.05	-3.15	8.26	-8.26	0.47	-0.21	14.90	
1,383.70	1.59	90.46	1,383.34	-3.14	8.66	-8.66	0.48	-0.14	16.36	
1,398.00	1.58	92.98	1,397.64	-3.15	9.05	-9.06	0.49	-0.07	17.62	
1,407.37	1.57	94.68	1,407.00	-3.17	9.31	-9.31	0.52	-0.14	18.10	
Yates										
1,412.30	1.56	95.58	1,411.93	-3.18	9.44	-9.45	0.52	-0.13	18.33	
1,426.60	1.55	98.42	1,426.22	-3.23	9.83	-9.83	0.54	-0.07	19.86	
1,440.90	1.54	101.39	1,440.52	-3.30	10.21	-10.21	0.56	-0.07	20.77	
1,455.20	1.55	104.40	1,454.81	-3.38	10.58	-10.59	0.57	0.07	21.05	
1,469.50	1.56	107.38	1,469.11	-3.49	10.96	-10.96	0.57	0.07	20.84	
1,483.80	1.57	110.25	1,483.40	-3.61	11.33	-11.33	0.55	0.07	20.07	
1,498.10	1.59	112.94	1,497.70	-3.76	11.69	-11.70	0.54	0.14	18.81	
1,512.40	1.62	115.37	1,511.99	-3.92	12.06	-12.06	0.52	0.21	16.99	
1,526.70	1.64	117.42	1,526.29	-4.10	12.42	-12.43	0.43	0.14	14.34	
1,541.00	1.67	118.98	1,540.58	-4.30	12.79	-12.79	0.38	0.21	10.91	
1,555.46	1.68	120.01	1,555.03	-4.51	13.15	-13.16	0.22	0.07	7.12	
1,569.92	1.69	120.59	1,569.49	-4.72	13.52	-13.53	0.14	0.07	4.01	
1,584.38	1.70	120.87	1,583.94	-4.94	13.89	-13.90	0.09	0.07	1.94	
1,598.85	1.71	120.97	1,598.41	-5.16	14.26	-14.27	0.07	0.07	0.69	
1,613.31	1.73	120.94	1,612.86	-5.38	14.63	-14.64	0.14	0.14	-0.21	
1,627.77	1.74	120.84	1,627.31	-5.61	15.01	-15.02	0.07	0.07	-0.69	
1,642.23	1.76	120.70	1,641.77	-5.84	15.38	-15.40	0.14	0.14	-0.97	
1,656.69	1.77	120.55	1,656.22	-6.06	15.77	-15.78	0.08	0.07	-1.04	
1,671.15	1.79	120.42	1,670.67	-6.29	16.15	-16.17	0.14	0.14	-0.90	
1,685.62	1.80	120.34	1,685.13	-6.52	16.55	-16.56	0.07	0.07	-0.55	
1,700.08	1.81	120.34	1,699.59	-6.75	16.94	-16.95	0.07	0.07	0.00	
1,712.50	1.82	120.41	1,712.00	-6.95	17.28	-17.29	0.05	0.04	0.58	
Capitan										
1,714.54	1.82	120.47	1,714.04	-6.98	17.33	-17.35	0.24	0.22	2.84	
1,729.00	1.83	120.80	1,728.49	-7.22	17.73	-17.74	0.10	0.07	2.28	
1,743.46	1.84	121.42	1,742.95	-7.46	18.13	-18.14	0.15	0.07	4.29	
1,757.92	1.85	122.26	1,757.40	-7.70	18.52	-18.54	0.20	0.07	5.81	
1,772.38	1.86	123.23	1,771.85	-7.95	18.92	-18.93	0.23	0.07	6.71	
1,786.85	1.86	124.29	1,786.31	-8.22	19.31	-19.32	0.24	0.00	7.33	
1,801.31	1.87	125.40	1,800.77	-8.48	19.69	-19.71	0.26	0.07	7.68	
1,815.77	1.88	126.55	1,815.22	-8.76	20.08	-20.09	0.27	0.07	7.95	
1,830.23	1.88	127.71	1,829.67	-9.05	20.45	-20.47	0.26	0.00	8.02	
1,844.69	1.89	128.87	1,844.12	-9.34	20.83	-20.84	0.27	0.07	8.02	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
1,859.15	1.90	130.01	1,858.57	-9.65	21.20	-21.21	0.27	0.07	7.88
1,873.62	1.91	131.13	1,873.04	-9.96	21.56	-21.58	0.27	0.07	7.74
1,888.08	1.92	132.19	1,887.49	-10.28	21.92	-21.94	0.25	0.07	7.33
1,902.54	1.92	133.17	1,901.94	-10.61	22.28	-22.30	0.23	0.00	6.78
1,917.00	1.93	134.03	1,916.39	-10.94	22.63	-22.65	0.21	0.07	5.95
1,931.54	1.93	134.70	1,930.92	-11.29	22.98	-23.00	0.16	0.00	4.61
1,946.08	1.93	135.26	1,945.46	-11.63	23.33	-23.35	0.13	0.00	3.85
1,960.62	1.93	135.74	1,959.99	-11.98	23.67	-23.69	0.11	0.00	3.30
1,975.15	1.92	136.19	1,974.51	-12.33	24.01	-24.03	0.12	-0.07	3.10
1,989.69	1.92	136.63	1,989.04	-12.69	24.34	-24.37	0.10	0.00	3.03
2,004.23	1.92	137.09	2,003.57	-13.04	24.68	-24.70	0.11	0.00	3.16
2,018.77	1.91	137.59	2,018.10	-13.40	25.01	-25.03	0.13	-0.07	3.44
2,033.31	1.58	121.86	2,032.64	-13.68	25.34	-25.37	3.98	-2.27	-108.18
2,047.85	1.48	74.01	2,047.17	-13.74	25.69	-25.72	8.56	-0.69	-329.09
2,062.38	2.26	42.94	2,061.70	-13.48	26.07	-26.09	8.62	5.37	-213.83
2,076.92	2.48	40.39	2,076.22	-13.03	26.47	-26.49	1.68	1.51	-17.54
2,091.46	2.47	41.10	2,090.75	-12.55	26.88	-26.90	0.22	-0.07	4.88
2,106.00	2.46	41.94	2,105.28	-12.08	27.29	-27.31	0.26	-0.07	5.78
2,120.46	2.46	43.03	2,119.72	-11.62	27.71	-27.73	0.32	0.00	7.54
2,134.92	2.45	44.26	2,134.17	-11.18	28.14	-28.16	0.37	-0.07	8.51
2,149.38	2.44	45.58	2,148.62	-10.74	28.57	-28.59	0.40	-0.07	9.13
2,163.85	2.44	46.96	2,163.07	-10.31	29.02	-29.04	0.41	0.00	9.54
2,178.31	2.43	48.35	2,177.52	-9.90	29.47	-29.49	0.41	-0.07	9.61
2,192.77	2.42	49.74	2,191.97	-9.50	29.93	-29.95	0.41	-0.07	9.61
2,207.23	2.42	51.09	2,206.41	-9.11	30.40	-30.42	0.39	0.00	9.34
2,221.69	2.42	52.37	2,220.86	-8.73	30.88	-30.90	0.37	0.00	8.85
2,236.15	3.27	41.35	2,235.30	-8.24	31.40	-31.41	6.96	5.88	-76.21
2,250.62	4.16	31.38	2,249.74	-7.48	31.94	-31.96	7.58	6.15	-68.90
2,265.08	4.27	30.84	2,264.16	-6.57	32.49	-32.51	0.81	0.76	-3.73
2,279.54	4.25	31.47	2,278.58	-5.65	33.05	-33.06	0.35	-0.14	4.36
2,294.00	4.23	32.09	2,293.00	-4.74	33.61	-33.62	0.35	-0.14	4.29
2,308.38	4.20	32.61	2,307.35	-3.85	34.18	-34.18	0.34	-0.21	3.62
2,322.77	4.17	33.10	2,321.70	-2.97	34.75	-34.75	0.32	-0.21	3.41
2,337.15	4.14	33.56	2,336.04	-2.09	35.32	-35.32	0.31	-0.21	3.20
2,351.54	4.11	34.00	2,350.39	-1.23	35.90	-35.90	0.30	-0.21	3.06
2,365.92	4.08	34.41	2,364.74	-0.38	36.47	-36.47	0.29	-0.21	2.85
2,380.31	4.05	34.81	2,379.09	0.45	37.05	-37.05	0.29	-0.21	2.78
2,394.69	4.02	35.18	2,393.43	1.28	37.63	-37.63	0.28	-0.21	2.57
2,409.08	4.29	34.19	2,407.79	2.14	38.23	-38.22	1.94	1.88	-6.88
2,423.46	5.33	29.12	2,422.12	3.17	38.85	-38.85	7.81	7.23	-35.26
2,437.85	5.73	23.86	2,436.44	4.41	39.47	-39.46	4.48	2.78	-36.55
2,452.23	5.71	24.02	2,450.75	5.72	40.05	-40.04	0.18	-0.14	1.11
2,466.62	5.69	24.15	2,465.07	7.03	40.63	-40.62	0.17	-0.14	0.90



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
2,481.00	5.68	24.26	2,479.37	8.32	41.22	-41.20	0.10	-0.07	0.76	
2,495.46	5.68	24.35	2,493.76	9.63	41.81	-41.79	0.06	0.00	0.62	
2,509.92	5.68	24.42	2,508.15	10.93	42.40	-42.38	0.05	0.00	0.48	
2,524.38	5.69	24.47	2,522.54	12.24	42.99	-42.97	0.08	0.07	0.35	
2,538.85	5.70	24.50	2,536.94	13.54	43.58	-43.56	0.07	0.07	0.21	
2,553.31	5.72	24.52	2,551.33	14.85	44.18	-44.15	0.14	0.14	0.14	
2,567.77	5.73	24.54	2,565.72	16.16	44.78	-44.75	0.07	0.07	0.14	
2,582.23	5.75	24.54	2,580.10	17.48	45.38	-45.35	0.14	0.14	0.00	
2,596.69	5.77	24.53	2,594.49	18.80	45.98	-45.95	0.14	0.14	-0.07	
2,611.15	5.78	24.52	2,608.88	20.12	46.59	-46.55	0.07	0.07	-0.07	
2,625.62	5.80	24.50	2,623.27	21.45	47.19	-47.15	0.14	0.14	-0.14	
2,640.08	5.82	24.47	2,637.66	22.78	47.80	-47.76	0.14	0.14	-0.21	
2,654.54	5.84	24.43	2,652.04	24.12	48.41	-48.36	0.14	0.14	-0.28	
2,669.00	5.86	24.39	2,666.43	25.46	49.02	-48.97	0.14	0.14	-0.28	
2,683.46	5.88	24.35	2,680.81	26.81	49.63	-49.58	0.14	0.14	-0.28	
2,697.92	5.89	24.29	2,695.20	28.16	50.24	-50.18	0.08	0.07	-0.41	
2,712.38	5.91	24.24	2,709.58	29.52	50.85	-50.79	0.14	0.14	-0.35	
2,726.85	5.92	24.18	2,723.97	30.88	51.46	-51.40	0.08	0.07	-0.41	
2,741.31	5.94	24.11	2,738.36	32.24	52.07	-52.01	0.15	0.14	-0.48	
2,755.77	5.95	24.04	2,752.74	33.61	52.68	-52.62	0.09	0.07	-0.48	
2,770.23	5.97	23.96	2,767.12	34.98	53.29	-53.23	0.15	0.14	-0.55	
2,784.69	5.99	23.88	2,781.50	36.36	53.90	-53.83	0.15	0.14	-0.55	
2,799.15	6.00	23.79	2,795.88	37.74	54.51	-54.44	0.09	0.07	-0.62	
2,813.62	6.02	23.70	2,810.27	39.12	55.12	-55.05	0.15	0.14	-0.62	
2,828.08	6.04	23.61	2,824.65	40.52	55.73	-55.66	0.15	0.14	-0.62	
2,842.54	6.06	23.50	2,839.03	41.91	56.34	-56.26	0.16	0.14	-0.76	
2,857.00	6.08	23.39	2,853.41	43.32	56.95	-56.87	0.16	0.14	-0.76	
2,871.38	6.11	23.27	2,867.71	44.72	57.56	-57.47	0.23	0.21	-0.83	
2,885.77	6.14	23.13	2,882.02	46.13	58.16	-58.07	0.23	0.21	-0.97	
2,900.15	6.17	22.99	2,896.31	47.55	58.76	-58.67	0.23	0.21	-0.97	
2,914.54	6.20	22.85	2,910.62	48.97	59.37	-59.27	0.23	0.21	-0.97	
2,928.92	6.24	22.71	2,924.92	50.41	59.97	-59.87	0.30	0.28	-0.97	
2,943.31	6.27	22.57	2,939.22	51.86	60.57	-60.48	0.23	0.21	-0.97	
2,957.69	6.30	22.43	2,953.51	53.31	61.18	-61.07	0.23	0.21	-0.97	
2,972.08	6.33	22.30	2,967.82	54.78	61.78	-61.67	0.23	0.21	-0.90	
2,986.46	6.36	22.17	2,982.11	56.25	62.38	-62.27	0.23	0.21	-0.90	
3,000.85	6.39	22.05	2,996.41	57.73	62.98	-62.87	0.23	0.21	-0.83	
3,015.23	6.42	21.94	3,010.70	59.22	63.58	-63.47	0.23	0.21	-0.76	
3,029.62	6.44	21.86	3,025.00	60.71	64.18	-64.07	0.15	0.14	-0.56	
3,044.00	6.46	21.81	3,039.29	62.21	64.79	-64.67	0.14	0.14	-0.35	
3,058.54	6.47	21.81	3,053.74	63.73	65.39	-65.27	0.07	0.07	0.00	
3,073.08	6.47	21.84	3,068.18	65.25	66.00	-65.88	0.02	0.00	0.21	
3,087.62	6.48	21.90	3,082.63	66.77	66.61	-66.48	0.08	0.07	0.41	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
3,102.15	6.47	21.96	3,097.07	68.29	67.23	-67.09	0.08	-0.07	0.41	
3,116.69	6.47	22.04	3,111.52	69.81	67.84	-67.70	0.06	0.00	0.55	
3,131.23	6.47	22.11	3,125.96	71.33	68.45	-68.32	0.05	0.00	0.48	
3,145.77	6.46	22.19	3,140.41	72.85	69.07	-68.93	0.09	-0.07	0.55	
3,160.31	6.46	22.27	3,154.86	74.36	69.69	-69.55	0.06	0.00	0.55	
3,174.85	6.46	22.34	3,169.31	75.87	70.31	-70.17	0.05	0.00	0.48	
3,189.38	6.45	22.40	3,183.74	77.38	70.93	-70.78	0.08	-0.07	0.41	
3,203.92	6.45	22.45	3,198.19	78.89	71.56	-71.40	0.04	0.00	0.34	
3,218.46	6.46	22.49	3,212.64	80.41	72.18	-72.03	0.08	0.07	0.28	
3,233.00	6.48	22.49	3,227.09	81.92	72.81	-72.65	0.14	0.14	0.00	
3,246.00	6.50	22.47	3,240.00	83.28	73.37	-73.21	0.15	0.15	-0.15	
3,259.00	6.53	22.42	3,252.92	84.64	73.93	-73.77	0.23	0.23	-0.38	
3,272.00	6.57	22.36	3,265.83	86.01	74.50	-74.33	0.31	0.31	-0.46	
3,285.00	6.61	22.28	3,278.75	87.39	75.06	-74.90	0.32	0.31	-0.62	
3,298.00	6.65	22.20	3,291.66	88.78	75.63	-75.46	0.32	0.31	-0.62	
3,311.00	6.68	22.10	3,304.57	90.18	76.20	-76.03	0.25	0.23	-0.77	
3,324.63	6.72	21.99	3,318.11	91.65	76.80	-76.62	0.31	0.29	-0.81	
3,338.25	6.76	21.87	3,331.64	93.13	77.40	-77.22	0.31	0.29	-0.88	
3,351.88	6.79	21.74	3,345.17	94.63	77.99	-77.81	0.25	0.22	-0.95	
3,365.50	6.82	21.61	3,358.70	96.13	78.59	-78.40	0.25	0.22	-0.95	
3,379.13	6.84	21.46	3,372.23	97.64	79.18	-79.00	0.20	0.15	-1.10	
3,392.75	6.86	21.31	3,385.75	99.15	79.78	-79.59	0.20	0.15	-1.10	
3,406.38	6.87	21.14	3,399.28	100.67	80.37	-80.17	0.17	0.07	-1.25	
3,420.00	6.86	20.95	3,412.81	102.19	80.95	-80.75	0.18	-0.07	-1.40	
3,434.54	6.84	20.72	3,427.24	103.81	81.57	-81.37	0.23	-0.14	-1.58	
3,449.08	6.79	20.47	3,441.68	105.42	82.17	-81.97	0.40	-0.34	-1.72	
3,463.62	6.74	20.21	3,456.12	107.03	82.77	-82.56	0.40	-0.34	-1.79	
3,478.15	6.68	19.93	3,470.55	108.62	83.35	-83.14	0.47	-0.41	-1.93	
3,492.69	6.61	19.64	3,484.99	110.21	83.92	-83.71	0.53	-0.48	-1.99	
3,507.23	6.55	19.35	3,499.44	111.78	84.48	-84.26	0.47	-0.41	-1.99	
3,519.88	6.49	19.10	3,512.00	113.13	84.95	-84.73	0.53	-0.48	-1.99	
DLWR Mnt. Group										
3,521.77	6.48	19.06	3,513.88	113.33	85.02	-84.80	0.53	-0.48	-2.01	
3,536.31	6.41	18.76	3,528.33	114.88	85.55	-85.33	0.53	-0.48	-2.06	
3,550.85	6.34	18.47	3,542.78	116.41	86.06	-85.84	0.53	-0.48	-1.99	
3,565.38	6.27	18.18	3,557.22	117.92	86.57	-86.34	0.53	-0.48	-2.00	
3,579.92	6.20	17.92	3,571.68	119.42	87.06	-86.83	0.52	-0.48	-1.79	
3,594.46	6.13	17.68	3,586.13	120.91	87.53	-87.30	0.51	-0.48	-1.65	
3,609.00	6.08	17.49	3,600.59	122.39	88.00	-87.77	0.37	-0.34	-1.31	
3,623.46	6.03	17.41	3,614.97	123.84	88.46	-88.22	0.35	-0.35	-0.55	
3,637.92	6.00	17.37	3,629.35	125.29	88.91	-88.67	0.21	-0.21	-0.28	
3,652.38	5.96	17.37	3,643.73	126.72	89.36	-89.12	0.28	-0.28	0.00	
3,666.85	5.93	17.40	3,658.12	128.15	89.81	-89.56	0.21	-0.21	0.21	
3,681.31	5.90	17.45	3,672.51	129.58	90.25	-90.01	0.21	-0.21	0.35	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
3,695.77	5.87	17.51	3,686.89	130.99	90.70	-90.45	0.21	-0.21	0.41	
3,710.23	5.85	17.58	3,701.27	132.40	91.14	-90.89	0.15	-0.14	0.48	
3,724.69	5.82	17.66	3,715.66	133.80	91.59	-91.33	0.21	-0.21	0.55	
3,739.15	5.79	17.75	3,730.05	135.19	92.03	-91.77	0.22	-0.21	0.62	
3,753.62	5.76	17.83	3,744.44	136.58	92.48	-92.22	0.21	-0.21	0.55	
3,768.08	5.72	17.91	3,758.83	137.95	92.92	-92.66	0.28	-0.28	0.55	
3,782.54	5.68	17.98	3,773.22	139.32	93.37	-93.10	0.28	-0.28	0.48	
3,797.00	5.63	18.02	3,787.61	140.68	93.81	-93.54	0.35	-0.35	0.28	
3,811.38	5.57	17.99	3,801.92	142.01	94.24	-93.97	0.42	-0.42	-0.21	
3,825.77	5.49	17.92	3,816.24	143.33	94.67	-94.39	0.56	-0.56	-0.49	
3,840.15	5.41	17.84	3,830.56	144.63	95.09	-94.81	0.56	-0.56	-0.56	
3,854.54	5.33	17.75	3,844.88	145.91	95.50	-95.22	0.56	-0.56	-0.63	
3,868.92	5.25	17.66	3,859.20	147.18	95.90	-95.62	0.56	-0.56	-0.63	
3,883.31	5.17	17.57	3,873.53	148.42	96.30	-96.01	0.56	-0.56	-0.63	
3,897.69	5.09	17.51	3,887.86	149.65	96.68	-96.40	0.56	-0.56	-0.42	
3,912.08	5.02	17.46	3,902.19	150.86	97.07	-96.78	0.49	-0.49	-0.35	
3,926.46	4.95	17.46	3,916.51	152.05	97.44	-97.15	0.49	-0.49	0.00	
3,940.85	4.89	17.51	3,930.85	153.23	97.81	-97.52	0.42	-0.42	0.35	
3,955.23	4.84	17.65	3,945.18	154.39	98.18	-97.88	0.36	-0.35	0.97	
3,969.62	4.81	17.91	3,959.52	155.54	98.55	-98.25	0.26	-0.21	1.81	
3,984.00	4.81	18.34	3,973.85	156.69	98.92	-98.62	0.25	0.00	2.99	
3,998.31	4.85	19.04	3,988.11	157.83	99.31	-99.01	0.50	0.28	4.89	
4,012.62	4.92	19.89	4,002.37	158.98	99.72	-99.41	0.70	0.49	5.94	
4,026.92	5.01	20.79	4,016.61	160.14	100.15	-99.84	0.83	0.63	6.29	
4,041.23	5.11	21.69	4,030.87	161.31	100.60	-100.29	0.89	0.70	6.29	
4,055.54	5.21	22.55	4,045.12	162.51	101.09	-100.78	0.88	0.70	6.01	
4,069.85	5.31	23.33	4,059.37	163.71	101.60	-101.29	0.86	0.70	5.45	
4,084.15	6.28	28.00	4,073.59	165.01	102.23	-101.91	7.54	6.78	32.66	
4,098.46	7.47	29.61	4,087.80	166.51	103.06	-102.74	8.42	8.32	11.25	
4,112.77	7.57	30.08	4,101.99	168.14	103.99	-103.67	0.82	0.70	3.28	
4,127.08	7.67	30.53	4,116.17	169.77	104.95	-104.62	0.81	0.70	3.14	
4,141.38	7.77	30.95	4,130.34	171.42	105.93	-105.60	0.80	0.70	2.94	
4,155.69	7.85	31.32	4,144.52	173.09	106.93	-106.60	0.66	0.56	2.59	
4,170.00	7.91	31.62	4,158.69	174.76	107.96	-107.62	0.51	0.42	2.10	
4,184.54	7.92	31.82	4,173.10	176.47	109.01	-108.67	0.20	0.07	1.38	
4,199.08	7.90	31.93	4,187.50	178.17	110.07	-109.72	0.17	-0.14	0.76	
4,213.62	7.87	31.98	4,201.90	179.86	111.12	-110.78	0.21	-0.21	0.34	
4,228.15	7.82	31.99	4,216.29	181.54	112.17	-111.82	0.34	-0.34	0.07	
4,242.69	7.77	31.96	4,230.70	183.21	113.22	-112.87	0.35	-0.34	-0.21	
4,257.23	7.71	31.92	4,245.11	184.87	114.25	-113.90	0.41	-0.41	-0.28	
4,271.77	7.64	31.86	4,259.52	186.52	115.28	-114.92	0.48	-0.48	-0.41	
4,286.31	7.58	31.80	4,273.93	188.16	116.29	-115.93	0.42	-0.41	-0.41	
4,300.85	7.51	31.73	4,288.34	189.78	117.30	-116.93	0.49	-0.48	-0.48	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,315.38	7.45	31.66	4,302.75	191.39	118.29	-117.93	0.42	-0.41	-0.48
4,329.92	7.39	31.61	4,317.17	192.99	119.28	-118.91	0.42	-0.41	-0.34
4,344.46	7.33	31.59	4,331.59	194.58	120.25	-119.88	0.41	-0.41	-0.14
4,359.00	7.29	31.63	4,346.01	196.15	121.22	-120.85	0.28	-0.28	0.28
4,373.46	7.27	31.76	4,360.35	197.71	122.19	-121.81	0.18	-0.14	0.90
4,387.92	7.25	31.95	4,374.70	199.26	123.15	-122.77	0.22	-0.14	1.31
4,402.38	7.24	32.17	4,389.04	200.81	124.12	-123.73	0.20	-0.07	1.52
4,416.85	7.24	32.40	4,403.40	202.35	125.09	-124.70	0.20	0.00	1.59
4,431.31	7.24	32.64	4,417.74	203.89	126.07	-125.68	0.21	0.00	1.66
4,445.77	7.24	32.88	4,432.09	205.42	127.06	-126.66	0.21	0.00	1.66
4,460.23	7.23	33.11	4,446.43	206.95	128.05	-127.65	0.21	-0.07	1.59
4,474.69	7.23	33.33	4,460.78	208.47	129.05	-128.65	0.19	0.00	1.52
4,489.15	7.23	33.54	4,475.12	209.99	130.05	-129.65	0.18	0.00	1.45
4,503.62	7.23	33.72	4,489.48	211.50	131.06	-130.65	0.16	0.00	1.24
4,518.08	7.22	33.86	4,503.82	213.02	132.07	-131.66	0.14	-0.07	0.97
4,532.54	7.20	33.95	4,518.17	214.52	133.08	-132.67	0.16	-0.14	0.62
4,547.00	7.17	33.97	4,532.51	216.02	134.09	-133.68	0.21	-0.21	0.14
4,561.46	7.12	33.85	4,546.86	217.51	135.10	-134.68	0.36	-0.35	-0.83
4,575.92	7.06	33.65	4,561.21	219.00	136.09	-135.67	0.45	-0.41	-1.38
4,590.38	7.00	33.39	4,575.56	220.47	137.07	-136.64	0.47	-0.41	-1.80
4,604.85	6.93	33.08	4,589.92	221.94	138.03	-137.60	0.55	-0.48	-2.14
4,619.31	6.86	32.74	4,604.28	223.40	138.97	-138.54	0.56	-0.48	-2.35
4,633.77	6.79	32.38	4,618.64	224.85	139.89	-139.46	0.57	-0.48	-2.49
4,648.23	6.72	31.99	4,633.00	226.29	140.80	-140.37	0.58	-0.48	-2.70
4,662.69	6.65	31.60	4,647.36	227.72	141.69	-141.25	0.58	-0.48	-2.70
4,677.15	6.58	31.20	4,661.72	229.14	142.56	-142.12	0.58	-0.48	-2.77
4,691.62	6.52	30.80	4,676.10	230.55	143.41	-142.96	0.52	-0.41	-2.76
4,706.08	6.46	30.42	4,690.47	231.96	144.24	-143.79	0.51	-0.41	-2.63
4,720.54	6.41	30.08	4,704.83	233.36	145.05	-144.61	0.43	-0.35	-2.35
4,735.00	6.37	29.81	4,719.20	234.76	145.86	-145.41	0.35	-0.28	-1.87
4,749.38	6.36	29.68	4,733.50	236.14	146.65	-146.20	0.12	-0.07	-0.90
4,763.77	6.35	29.62	4,747.80	237.52	147.44	-146.98	0.08	-0.07	-0.42
4,778.15	6.36	29.59	4,762.09	238.91	148.22	-147.76	0.07	0.07	-0.21
4,792.54	6.37	29.59	4,776.39	240.29	149.01	-148.55	0.07	0.07	0.00
4,806.92	6.38	29.61	4,790.68	241.68	149.80	-149.34	0.07	0.07	0.14
4,821.31	6.40	29.62	4,804.98	243.08	150.59	-150.12	0.14	0.14	0.07
4,835.69	6.42	29.64	4,819.27	244.47	151.38	-150.91	0.14	0.14	0.14
4,850.08	6.44	29.65	4,833.57	245.87	152.18	-151.71	0.14	0.14	0.07
4,864.46	6.47	29.65	4,847.86	247.28	152.98	-152.51	0.21	0.21	0.00
4,878.85	6.49	29.63	4,862.16	248.69	153.78	-153.31	0.14	0.14	-0.14
4,893.23	6.52	29.58	4,876.45	250.10	154.59	-154.11	0.21	0.21	-0.35
4,907.62	6.55	29.49	4,890.74	251.53	155.40	-154.91	0.22	0.21	-0.63
4,922.00	6.58	29.34	4,905.03	252.96	156.20	-155.72	0.24	0.21	-1.04



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,936.54	6.61	29.10	4,919.47	254.42	157.02	-156.53	0.28	0.21	-1.65	
4,951.08	6.64	28.80	4,933.92	255.89	157.83	-157.34	0.32	0.21	-2.06	
4,965.62	6.68	28.46	4,948.36	257.37	158.64	-158.14	0.39	0.28	-2.34	
4,980.15	6.71	28.09	4,962.79	258.86	159.44	-158.94	0.36	0.21	-2.55	
4,994.69	6.74	27.71	4,977.23	260.36	160.24	-159.74	0.37	0.21	-2.61	
5,009.23	6.78	27.32	4,991.67	261.88	161.03	-160.53	0.42	0.28	-2.68	
5,023.77	6.81	26.92	5,006.10	263.41	161.81	-161.31	0.39	0.21	-2.75	
5,038.31	6.85	26.52	5,020.54	264.96	162.59	-162.08	0.43	0.28	-2.75	
5,052.85	6.88	26.12	5,034.98	266.51	163.36	-162.85	0.39	0.21	-2.75	
5,067.38	6.91	25.72	5,049.40	268.08	164.12	-163.61	0.39	0.21	-2.75	
5,081.92	6.94	25.32	5,063.84	269.67	164.88	-164.36	0.39	0.21	-2.75	
5,096.46	6.97	24.94	5,078.27	271.26	165.63	-165.11	0.38	0.21	-2.61	
5,111.00	6.99	24.57	5,092.70	272.86	166.37	-165.84	0.34	0.14	-2.54	
5,125.38	7.00	24.21	5,106.97	274.46	167.09	-166.56	0.31	0.07	-2.50	
5,139.77	7.01	23.88	5,121.26	276.06	167.80	-167.27	0.29	0.07	-2.29	
5,154.15	7.01	23.55	5,135.53	277.67	168.51	-167.98	0.28	0.00	-2.29	
5,168.54	7.01	23.23	5,149.81	279.28	169.21	-168.67	0.27	0.00	-2.22	
5,182.92	7.01	22.92	5,164.08	280.90	169.90	-169.36	0.26	0.00	-2.16	
5,197.31	7.01	22.61	5,178.37	282.51	170.58	-170.03	0.26	0.00	-2.15	
5,211.69	7.00	22.30	5,192.64	284.14	171.25	-170.70	0.27	-0.07	-2.16	
5,226.08	6.99	21.99	5,206.92	285.76	171.91	-171.36	0.27	-0.07	-2.15	
5,240.46	6.98	21.68	5,221.20	287.38	172.56	-172.00	0.27	-0.07	-2.16	
5,254.85	6.97	21.37	5,235.48	289.01	173.20	-172.64	0.27	-0.07	-2.15	
5,269.23	6.95	21.05	5,249.75	290.63	173.83	-173.27	0.30	-0.14	-2.23	
5,283.62	6.93	20.74	5,264.04	292.26	174.45	-173.89	0.30	-0.14	-2.15	
5,298.00	6.90	20.41	5,278.31	293.88	175.06	-174.49	0.35	-0.21	-2.29	
5,312.54	6.86	20.09	5,292.75	295.51	175.66	-175.09	0.38	-0.28	-2.20	
5,327.08	6.82	19.76	5,307.19	297.14	176.25	-175.68	0.39	-0.28	-2.27	
5,341.62	6.77	19.43	5,321.62	298.76	176.83	-176.25	0.44	-0.34	-2.27	
5,356.15	6.72	19.09	5,336.05	300.37	177.39	-176.81	0.44	-0.34	-2.34	
5,370.69	6.66	18.75	5,350.49	301.97	177.94	-177.36	0.49	-0.41	-2.34	
5,385.23	6.60	18.41	5,364.94	303.56	178.47	-177.89	0.49	-0.41	-2.34	
5,399.77	6.54	18.07	5,379.38	305.14	178.99	-178.41	0.49	-0.41	-2.34	
5,407.44	6.51	17.89	5,387.00	305.97	179.26	-178.68	0.49	-0.41	-2.40	
Lower Brushy Canyon										
5,414.31	6.48	17.72	5,393.83	306.71	179.50	-178.91	0.49	-0.41	-2.42	
5,428.85	6.41	17.37	5,408.27	308.27	179.99	-179.40	0.55	-0.48	-2.41	
5,443.38	6.34	17.02	5,422.72	309.81	180.47	-179.87	0.55	-0.48	-2.41	
5,457.92	6.27	16.66	5,437.17	311.34	180.93	-180.33	0.55	-0.48	-2.48	
5,472.46	6.20	16.29	5,451.62	312.85	181.38	-180.78	0.56	-0.48	-2.54	
5,487.00	6.12	15.91	5,466.08	314.35	181.81	-181.21	0.62	-0.55	-2.61	
5,501.46	6.03	15.56	5,480.46	315.83	182.23	-181.62	0.67	-0.62	-2.42	
5,515.92	5.94	15.20	5,494.84	317.28	182.63	-182.02	0.67	-0.62	-2.49	
5,530.38	5.84	14.84	5,509.22	318.71	183.01	-182.40	0.74	-0.69	-2.49	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,544.85	5.74	14.47	5,523.62	320.12	183.38	-182.77	0.74	-0.69	-2.56	
5,559.31	5.65	14.12	5,538.01	321.51	183.74	-183.12	0.67	-0.62	-2.42	
5,573.77	5.55	13.76	5,552.40	322.88	184.08	-183.46	0.73	-0.69	-2.49	
5,588.23	5.45	13.43	5,566.79	324.23	184.40	-183.78	0.73	-0.69	-2.28	
5,602.69	5.35	13.11	5,581.19	325.56	184.71	-184.09	0.72	-0.69	-2.21	
5,617.15	5.25	12.83	5,595.58	326.86	185.01	-184.39	0.71	-0.69	-1.94	
5,631.62	5.15	12.61	5,609.99	328.14	185.30	-184.67	0.70	-0.69	-1.52	
5,646.08	5.06	12.46	5,624.40	329.39	185.58	-184.95	0.63	-0.62	-1.04	
5,660.54	4.97	12.45	5,638.80	330.63	185.85	-185.22	0.62	-0.62	-0.07	
5,675.00	4.89	12.63	5,653.21	331.84	186.12	-185.49	0.56	-0.55	1.24	
5,689.54	4.82	13.16	5,667.70	333.04	186.40	-185.76	0.57	-0.48	3.65	
5,704.08	4.77	13.90	5,682.19	334.22	186.68	-186.04	0.55	-0.34	5.09	
5,718.62	4.72	14.78	5,696.68	335.39	186.98	-186.34	0.61	-0.34	6.05	
5,733.15	4.67	15.77	5,711.16	336.53	187.29	-186.65	0.66	-0.34	6.81	
5,734.00	4.67	15.83	5,712.00	336.60	187.31	-186.67	0.65	-0.28	7.25	
Bone Spring Lime										
5,747.69	4.63	16.83	5,725.65	337.66	187.63	-186.98	0.65	-0.27	7.29	
5,762.23	4.59	17.93	5,740.14	338.78	187.97	-187.32	0.67	-0.28	7.57	
5,776.77	4.55	19.05	5,754.64	339.88	188.34	-187.69	0.67	-0.28	7.70	
5,791.31	4.52	20.18	5,769.13	340.96	188.73	-188.07	0.65	-0.21	7.77	
5,805.85	4.48	21.28	5,783.63	342.03	189.13	-188.47	0.65	-0.28	7.57	
5,820.38	4.45	22.32	5,798.11	343.08	189.55	-188.89	0.59	-0.21	7.16	
5,834.92	4.41	23.27	5,812.61	344.11	189.99	-189.33	0.57	-0.28	6.53	
5,849.46	4.38	24.06	5,827.10	345.13	190.43	-189.77	0.46	-0.21	5.43	
5,864.00	4.86	28.26	5,841.60	346.18	190.95	-190.29	4.04	3.30	28.89	
5,878.46	5.61	31.60	5,856.00	347.33	191.61	-190.94	5.60	5.19	23.10	
5,892.92	5.56	31.45	5,870.39	348.53	192.35	-191.68	0.36	-0.35	-1.04	
5,907.38	5.50	31.16	5,884.78	349.72	193.07	-192.40	0.46	-0.41	-2.01	
5,921.85	5.45	30.76	5,899.19	350.90	193.78	-193.11	0.43	-0.35	-2.76	
5,936.31	5.39	30.28	5,913.58	352.08	194.48	-193.80	0.52	-0.41	-3.32	
5,950.77	5.34	29.74	5,927.98	353.25	195.15	-194.47	0.49	-0.35	-3.73	
5,965.23	5.28	29.15	5,942.38	354.41	195.81	-195.13	0.56	-0.41	-4.08	
5,979.69	5.22	28.51	5,956.77	355.57	196.45	-195.76	0.58	-0.41	-4.43	
5,994.15	5.17	27.82	5,971.18	356.73	197.07	-196.38	0.55	-0.35	-4.77	
6,008.62	5.11	27.10	5,985.59	357.88	197.66	-196.98	0.61	-0.41	-4.98	
6,023.08	5.05	26.35	5,999.99	359.02	198.24	-197.55	0.62	-0.41	-5.19	
6,037.54	4.99	25.57	6,014.39	360.16	198.79	-198.10	0.63	-0.41	-5.39	
6,052.00	4.93	24.76	6,028.80	361.29	199.32	-198.63	0.64	-0.41	-5.60	
6,066.46	4.86	24.08	6,043.21	362.41	199.84	-199.14	0.63	-0.48	-4.70	
6,080.92	4.78	23.38	6,057.62	363.52	200.32	-199.63	0.69	-0.55	-4.84	
6,095.38	4.70	22.67	6,072.03	364.62	200.79	-200.09	0.69	-0.55	-4.91	
6,109.85	4.62	21.94	6,086.45	365.71	201.24	-200.54	0.69	-0.55	-5.04	
6,124.31	4.54	21.18	6,100.86	366.79	201.66	-200.96	0.69	-0.55	-5.26	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
6,138.77	4.46	20.40	6,115.28	367.85	202.06	-201.36	0.70	-0.55	-5.39
6,153.23	4.37	19.60	6,129.70	368.89	202.45	-201.74	0.75	-0.62	-5.53
6,167.69	4.29	18.78	6,144.11	369.92	202.80	-202.09	0.70	-0.55	-5.67
6,182.15	4.20	17.94	6,158.53	370.94	203.14	-202.43	0.76	-0.62	-5.81
6,196.62	4.11	17.11	6,172.97	371.94	203.46	-202.74	0.75	-0.62	-5.74
6,211.08	4.03	16.28	6,187.39	372.92	203.75	-203.04	0.69	-0.55	-5.74
6,225.54	3.93	15.50	6,201.82	373.89	204.03	-203.31	0.79	-0.69	-5.39
6,240.00	3.84	14.81	6,216.24	374.83	204.28	-203.56	0.70	-0.62	-4.77
6,254.38	4.26	20.53	6,230.59	375.80	204.59	-203.87	4.05	2.92	39.78
6,268.77	4.65	24.59	6,244.93	376.83	205.02	-204.30	3.48	2.71	28.21
6,283.15	4.55	24.61	6,259.27	377.88	205.50	-204.78	0.70	-0.70	0.14
6,297.54	4.44	24.70	6,273.61	378.90	205.97	-205.25	0.77	-0.76	0.63
6,311.92	4.32	24.83	6,287.95	379.90	206.43	-205.70	0.84	-0.83	0.90
6,326.31	4.21	24.96	6,302.30	380.87	206.89	-206.15	0.77	-0.76	0.90
6,340.69	4.10	25.05	6,316.64	381.81	207.33	-206.59	0.77	-0.76	0.63
6,355.08	4.53	32.02	6,330.99	382.76	207.84	-207.11	4.71	2.99	48.44
6,369.46	4.90	36.52	6,345.32	383.74	208.51	-207.77	3.64	2.57	31.29
6,383.85	4.78	36.39	6,359.66	384.71	209.23	-208.49	0.84	-0.83	-0.90
6,398.23	4.66	36.10	6,373.99	385.67	209.93	-209.19	0.85	-0.83	-2.02
6,412.62	4.54	35.51	6,388.34	386.60	210.61	-209.86	0.90	-0.83	-4.10
6,427.00	4.42	34.45	6,402.67	387.52	211.25	-210.51	1.01	-0.83	-7.37
6,441.38	4.31	32.48	6,417.01	388.44	211.86	-211.11	1.29	-0.76	-13.70
6,455.77	4.20	29.94	6,431.36	389.35	212.41	-211.66	1.52	-0.76	-17.65
6,470.15	4.11	27.01	6,445.70	390.27	212.91	-212.16	1.60	-0.63	-20.38
6,484.54	4.02	23.80	6,460.06	391.19	213.34	-212.59	1.70	-0.63	-22.31
6,498.92	3.95	20.43	6,474.40	392.11	213.72	-212.97	1.70	-0.49	-23.44
6,513.31	3.88	17.02	6,488.76	393.04	214.03	-213.28	1.69	-0.49	-23.70
6,527.69	3.81	13.68	6,503.11	393.97	214.29	-213.53	1.63	-0.49	-23.23
6,542.08	4.96	19.52	6,517.45	395.02	214.61	-213.85	8.56	7.99	40.58
6,556.46	5.21	19.29	6,531.78	396.22	215.03	-214.27	1.74	1.74	-1.60
6,570.85	5.09	17.05	6,546.11	397.45	215.44	-214.67	1.63	-0.83	-15.57
6,585.23	4.96	14.84	6,560.43	398.66	215.78	-215.02	1.62	-0.90	-15.37
6,599.62	4.80	12.83	6,574.77	399.85	216.08	-215.31	1.63	-1.11	-13.97
6,614.00	4.59	11.21	6,589.10	401.00	216.32	-215.55	1.73	-1.46	-11.27
6,628.46	4.28	12.21	6,603.52	402.10	216.55	-215.78	2.21	-2.14	6.92
6,642.92	3.94	14.44	6,617.94	403.10	216.79	-216.01	2.60	-2.35	15.42
6,657.38	3.59	17.85	6,632.37	404.02	217.05	-216.27	2.87	-2.42	23.58
6,671.85	3.26	22.46	6,646.82	404.83	217.35	-216.57	2.97	-2.28	31.86
6,686.31	2.97	28.25	6,661.26	405.54	217.68	-216.90	2.96	-2.01	40.04
6,700.77	2.73	35.03	6,675.70	406.15	218.06	-217.27	2.86	-1.66	46.89
6,715.23	2.93	39.03	6,690.14	406.72	218.49	-217.70	1.94	1.38	27.66
6,729.69	4.21	35.43	6,704.57	407.44	219.03	-218.24	8.98	8.85	-24.90
6,744.15	5.50	33.55	6,718.98	408.45	219.72	-218.93	8.99	8.92	-13.00
6,758.62	6.40	33.18	6,733.37	409.70	220.54	-219.75	6.23	6.22	-2.56



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
6,773.08	6.18	35.67	6,747.74	411.01	221.44	-220.65	2.42	-1.52	17.22	
6,787.54	5.97	38.38	6,762.12	412.23	222.36	-221.56	2.46	-1.45	18.74	
6,802.00	5.78	41.04	6,776.51	413.37	223.30	-222.51	2.30	-1.31	18.40	
6,816.38	5.53	42.11	6,790.82	414.43	224.24	-223.45	1.89	-1.74	7.44	
6,830.77	5.31	42.90	6,805.14	415.43	225.16	-224.36	1.61	-1.53	5.49	
6,845.15	5.11	43.52	6,819.46	416.38	226.05	-225.25	1.44	-1.39	4.31	
6,859.54	4.92	44.00	6,833.80	417.29	226.92	-226.12	1.35	-1.32	3.34	
6,873.92	4.74	44.40	6,848.13	418.16	227.77	-226.96	1.27	-1.25	2.78	
6,888.31	4.58	44.74	6,862.47	418.99	228.59	-227.78	1.13	-1.11	2.36	
6,902.69	4.42	45.04	6,876.81	419.79	229.38	-228.58	1.12	-1.11	2.09	
6,917.08	4.28	45.31	6,891.15	420.56	230.16	-229.35	0.98	-0.97	1.88	
6,931.46	4.15	45.58	6,905.50	421.30	230.91	-230.10	0.91	-0.90	1.88	
6,945.85	4.03	45.87	6,919.85	422.02	231.65	-230.84	0.85	-0.83	2.02	
6,960.23	3.93	46.21	6,934.19	422.71	232.37	-231.55	0.71	-0.70	2.36	
6,974.62	3.87	46.63	6,948.55	423.39	233.07	-232.26	0.46	-0.42	2.92	
6,989.00	3.84	47.21	6,962.90	424.05	233.78	-232.97	0.34	-0.21	4.03	
7,003.46	3.87	48.02	6,977.33	424.70	234.50	-233.68	0.43	0.21	5.60	
7,017.92	3.95	48.90	6,991.75	425.36	235.24	-234.42	0.69	0.55	6.09	
7,032.38	4.05	49.75	7,006.18	426.01	236.00	-235.18	0.80	0.69	5.88	
7,046.85	4.16	50.53	7,020.61	426.68	236.80	-235.98	0.85	0.76	5.39	
7,061.31	4.26	51.20	7,035.03	427.35	237.62	-236.80	0.77	0.69	4.63	
7,075.77	4.35	51.71	7,049.45	428.02	238.47	-237.65	0.68	0.62	3.53	
7,090.23	4.96	52.27	7,063.86	428.75	239.39	-238.57	4.23	4.22	3.87	
7,104.69	6.05	52.24	7,078.25	429.60	240.49	-239.67	7.54	7.54	-0.21	
7,119.15	7.29	50.69	7,092.62	430.64	241.80	-240.98	8.66	8.58	-10.72	
7,123.57	7.49	50.35	7,097.00	431.01	242.24	-241.41	4.73	4.62	-7.70	
1st Bone Spring SD										
7,133.62	7.96	49.64	7,106.96	431.87	243.28	-242.45	4.73	4.63	-7.06	
7,148.08	8.01	49.55	7,121.28	433.18	244.81	-243.97	0.36	0.35	-0.62	
7,162.54	8.05	49.34	7,135.60	434.49	246.34	-245.51	0.34	0.28	-1.45	
7,177.00	8.06	48.93	7,149.91	435.81	247.87	-247.04	0.40	0.07	-2.84	
7,191.54	8.00	48.14	7,164.31	437.16	249.40	-248.56	0.86	-0.41	-5.43	
7,206.08	7.90	47.11	7,178.71	438.51	250.88	-250.04	1.20	-0.69	-7.08	
7,220.62	7.78	45.88	7,193.12	439.88	252.32	-251.47	1.42	-0.83	-8.46	
7,235.15	7.65	44.51	7,207.51	441.25	253.70	-252.86	1.55	-0.89	-9.43	
7,249.69	7.51	43.02	7,221.93	442.64	255.03	-254.18	1.66	-0.96	-10.25	
7,264.23	7.37	41.45	7,236.34	444.03	256.30	-255.44	1.70	-0.96	-10.80	
7,278.77	7.24	39.83	7,250.77	445.44	257.50	-256.64	1.68	-0.89	-11.14	
7,293.31	6.82	30.20	7,265.20	446.89	258.52	-257.66	8.59	-2.89	-66.23	
7,307.85	6.68	27.11	7,279.64	448.38	259.34	-258.48	2.68	-0.96	-21.25	
7,322.38	6.56	25.15	7,294.07	449.89	260.08	-259.21	1.76	-0.83	-13.49	
7,325.33	6.54	24.75	7,297.00	450.19	260.22	-259.36	1.74	-0.78	-13.64	
2nd Bone Spring LM										



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
7,336.92	6.45	23.14	7,308.52	451.39	260.75	-259.89	1.74	-0.75	-13.87	
7,351.46	6.34	21.14	7,322.97	452.89	261.36	-260.49	1.71	-0.76	-13.76	
7,366.00	6.22	19.25	7,337.42	454.38	261.91	-261.04	1.64	-0.83	-13.00	
7,380.46	6.04	18.23	7,351.80	455.85	262.41	-261.53	1.45	-1.24	-7.05	
7,394.92	5.86	17.40	7,366.18	457.27	262.87	-261.99	1.38	-1.24	-5.74	
7,409.38	5.68	16.70	7,380.57	458.66	263.29	-262.41	1.34	-1.24	-4.84	
7,423.85	5.50	16.07	7,394.97	460.01	263.69	-262.81	1.31	-1.24	-4.35	
7,438.31	5.32	15.50	7,409.36	461.33	264.06	-263.18	1.30	-1.24	-3.94	
7,452.77	5.14	14.94	7,423.76	462.60	264.41	-263.52	1.29	-1.24	-3.87	
7,467.23	4.95	14.38	7,438.17	463.83	264.73	-263.84	1.36	-1.31	-3.87	
7,481.69	4.76	13.81	7,452.57	465.01	265.03	-264.14	1.36	-1.31	-3.94	
7,496.15	4.57	13.21	7,466.99	466.16	265.30	-264.41	1.36	-1.31	-4.15	
7,510.62	4.38	12.56	7,481.41	467.26	265.56	-264.66	1.36	-1.31	-4.49	
7,525.08	4.19	11.83	7,495.83	468.31	265.78	-264.88	1.37	-1.31	-5.05	
7,539.54	3.99	10.97	7,510.25	469.33	265.99	-265.09	1.45	-1.38	-5.95	
7,554.00	3.79	9.93	7,524.68	470.29	266.17	-265.26	1.47	-1.38	-7.19	
7,568.54	3.58	8.62	7,539.19	471.21	266.32	-265.41	1.56	-1.44	-9.01	
7,583.08	3.37	7.04	7,553.70	472.09	266.44	-265.53	1.59	-1.44	-10.87	
7,597.62	3.16	5.21	7,568.22	472.91	266.53	-265.62	1.61	-1.44	-12.59	
7,612.15	2.96	3.10	7,582.73	473.68	266.58	-265.67	1.58	-1.38	-14.52	
7,626.69	2.76	0.70	7,597.25	474.41	266.61	-265.70	1.60	-1.38	-16.51	
7,641.23	2.58	358.02	7,611.78	475.08	266.60	-265.69	1.51	-1.24	-18.43	
7,655.77	3.38	8.26	7,626.30	475.84	266.65	-265.74	6.59	5.50	70.43	
7,670.31	4.42	11.48	7,640.80	476.81	266.82	-265.91	7.31	7.15	22.15	
7,684.85	4.24	9.85	7,655.30	477.89	267.03	-266.11	1.50	-1.24	-11.21	
7,699.38	4.07	7.99	7,669.79	478.93	267.19	-266.27	1.49	-1.17	-12.80	
7,713.92	3.91	5.85	7,684.30	479.93	267.31	-266.39	1.50	-1.10	-14.72	
7,728.46	3.77	3.36	7,698.81	480.90	267.39	-266.47	1.50	-0.96	-17.13	
7,743.00	3.66	0.45	7,713.31	481.84	267.42	-266.50	1.50	-0.76	-20.01	
7,757.46	3.57	357.28	7,727.75	482.75	267.41	-266.48	1.52	-0.62	-21.92	
7,771.92	3.51	353.71	7,742.18	483.64	267.34	-266.41	1.58	-0.41	-24.69	
7,786.38	3.47	349.96	7,756.61	484.51	267.21	-266.28	1.60	-0.28	-25.93	
7,800.85	3.45	346.19	7,771.06	485.37	267.03	-266.10	1.58	-0.14	-26.05	
7,815.31	3.45	342.54	7,785.49	486.21	266.80	-265.86	1.52	0.00	-25.24	
7,829.77	3.44	339.14	7,799.92	487.03	266.51	-265.58	1.41	-0.07	-23.51	
7,844.23	3.85	351.86	7,814.35	487.91	266.29	-265.35	6.25	2.84	87.97	
7,858.69	4.69	6.36	7,828.77	488.98	266.28	-265.35	9.42	5.81	100.28	
7,873.15	5.07	9.68	7,843.18	490.20	266.46	-265.52	3.27	2.63	22.96	
7,887.62	5.01	7.62	7,857.60	491.45	266.65	-265.70	1.32	-0.41	-14.24	
7,902.08	4.94	5.67	7,872.00	492.70	266.79	-265.85	1.27	-0.48	-13.49	
7,916.54	4.86	4.05	7,886.41	493.93	266.90	-265.95	1.11	-0.55	-11.20	
7,922.15	4.82	3.67	7,892.00	494.40	266.93	-265.98	0.90	-0.69	-6.76	
2nd Bone Spring SD										
7,931.00	4.76	3.06	7,900.82	495.14	266.97	-266.02	0.90	-0.69	-6.90	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
7,945.46	4.62	3.79	7,915.23	496.32	267.04	-266.09	1.05	-0.97	5.05
7,959.92	4.47	5.44	7,929.64	497.46	267.14	-266.18	1.38	-1.04	11.41
7,974.38	4.33	7.78	7,944.06	498.56	267.26	-266.31	1.57	-0.97	16.18
7,988.85	4.20	10.62	7,958.49	499.63	267.44	-266.48	1.71	-0.90	19.63
8,003.31	4.10	13.76	7,972.91	500.65	267.66	-266.69	1.72	-0.69	21.72
8,017.77	4.01	16.97	7,987.34	501.63	267.93	-266.96	1.69	-0.62	22.20
8,032.23	4.47	30.31	8,001.76	502.60	268.36	-267.39	7.50	3.18	92.25
8,046.69	5.43	39.66	8,016.16	503.62	269.08	-268.11	8.65	6.64	64.66
8,061.15	5.41	42.07	8,030.56	504.65	269.97	-269.00	1.58	-0.14	16.67
8,075.62	5.41	44.57	8,044.96	505.64	270.91	-269.94	1.63	0.00	17.28
8,090.08	5.44	47.00	8,059.36	506.60	271.89	-270.92	1.60	0.21	16.80
8,104.54	5.48	49.20	8,073.75	507.51	272.91	-271.94	1.47	0.28	15.21
8,119.00	5.51	50.99	8,088.15	508.40	273.97	-273.00	1.20	0.21	12.38
8,133.46	5.47	52.03	8,102.54	509.26	275.06	-274.08	0.74	-0.28	7.19
8,147.92	5.44	52.67	8,116.94	510.10	276.15	-275.17	0.47	-0.21	4.43
8,162.38	5.41	53.05	8,131.33	510.93	277.24	-276.25	0.32	-0.21	2.63
8,176.85	5.39	53.25	8,145.74	511.75	278.32	-277.34	0.19	-0.14	1.38
8,191.31	5.37	53.35	8,160.13	512.56	279.41	-278.43	0.15	-0.14	0.69
8,205.77	5.35	53.37	8,174.53	513.36	280.50	-279.51	0.14	-0.14	0.14
8,220.23	5.32	53.35	8,188.93	514.16	281.57	-280.59	0.21	-0.21	-0.14
8,234.69	5.29	53.34	8,203.33	514.96	282.65	-281.66	0.21	-0.21	-0.07
8,249.15	5.25	53.35	8,217.72	515.76	283.71	-282.72	0.28	-0.28	0.07
8,263.62	5.19	53.43	8,232.13	516.54	284.77	-283.78	0.42	-0.41	0.55
8,273.53	5.13	53.57	8,242.00	517.07	285.49	-284.49	0.64	-0.62	1.44
3rd Bone Spring LM									
8,278.08	5.10	53.64	8,246.54	517.31	285.81	-284.82	0.64	-0.62	1.47
8,292.54	4.98	54.08	8,260.94	518.06	286.84	-285.84	0.87	-0.83	3.04
8,307.00	4.80	54.92	8,275.35	518.78	287.84	-286.84	1.34	-1.24	5.81
8,321.50	4.55	56.84	8,289.80	519.44	288.82	-287.82	2.03	-1.72	13.24
8,336.00	4.25	59.52	8,304.26	520.03	289.76	-288.76	2.51	-2.07	18.48
8,350.50	3.94	62.95	8,318.72	520.53	290.67	-289.67	2.72	-2.14	23.66
8,365.00	3.63	67.14	8,333.19	520.93	291.54	-290.54	2.86	-2.14	28.90
8,379.50	3.34	72.11	8,347.66	521.24	292.36	-291.36	2.89	-2.00	34.28
8,394.00	3.09	77.75	8,362.14	521.45	293.15	-292.14	2.78	-1.72	38.90
8,408.50	2.89	83.82	8,376.62	521.57	293.89	-292.89	2.58	-1.38	41.86
8,423.00	2.75	89.74	8,391.10	521.61	294.60	-293.60	2.23	-0.97	40.83
8,437.86	2.55	92.83	8,405.95	521.60	295.29	-294.29	1.65	-1.35	20.79
8,452.71	2.41	95.42	8,420.78	521.55	295.93	-294.93	1.21	-0.94	17.44
8,467.57	2.30	97.47	8,435.63	521.49	296.54	-295.53	0.93	-0.74	13.80
8,482.43	2.21	98.89	8,450.48	521.40	297.12	-296.11	0.71	-0.61	9.56
8,497.29	2.14	99.51	8,465.33	521.31	297.67	-296.67	0.50	-0.47	4.17
8,500.00	1.86	97.60	8,468.03	521.30	297.77	-296.76	10.61	-10.33	-70.42
KOP: 8500.00' MD, -296.76' VS, 8468.03' TVD									
8,512.14	0.69	70.05	8,480.17	521.30	298.03	-297.03	10.61	-9.64	-226.95



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
8,527.00	1.92	296.64	8,495.03	521.44	297.89	-296.89	16.46	8.28	-897.78
8,540.57	4.12	284.58	8,508.58	521.66	297.22	-296.21	16.79	16.21	-88.87
8,554.14	6.42	282.49	8,522.09	521.95	296.00	-295.00	17.01	16.95	-15.40
8,567.71	8.72	282.56	8,535.54	522.34	294.26	-293.26	16.95	16.95	0.52
8,581.29	10.98	282.73	8,548.92	522.85	291.99	-290.99	16.64	16.64	1.25
8,594.86	13.25	283.32	8,562.19	523.49	289.22	-288.21	16.75	16.73	4.35
8,608.43	15.49	284.10	8,575.33	524.29	285.95	-284.94	16.57	16.51	5.75
8,622.00	17.57	285.82	8,588.34	525.29	282.22	-281.21	15.74	15.33	12.68
8,635.43	19.80	287.06	8,601.06	526.51	278.09	-277.08	16.87	16.60	9.23
8,648.86	21.94	288.47	8,613.61	527.97	273.54	-272.52	16.37	15.93	10.50
8,662.29	24.12	289.32	8,625.97	529.68	268.57	-267.55	16.42	16.23	6.33
8,675.71	25.07	288.52	8,638.17	531.49	263.28	-262.26	7.50	7.08	-5.96
8,683.59	25.23	287.41	8,645.31	532.52	260.10	-259.08	6.32	2.05	-14.06
100FEL: 8683.59' MD, -259.08' VS, 8645.30' TVD									
8,689.14	25.35	286.64	8,650.32	533.21	257.83	-256.81	6.32	2.14	-13.91
8,702.57	25.77	284.73	8,662.44	534.78	252.25	-251.23	6.89	3.13	-14.22
8,716.00	26.14	283.01	8,674.51	536.19	246.55	-245.52	6.25	2.76	-12.81
8,729.43	27.85	283.41	8,686.48	537.58	240.61	-239.58	12.80	12.73	2.98
8,742.86	29.74	282.67	8,698.25	539.04	234.31	-233.28	14.32	14.07	-5.51
8,756.29	31.68	281.99	8,709.80	540.50	227.61	-226.57	14.67	14.45	-5.06
8,769.71	33.57	281.67	8,721.10	541.99	220.53	-219.49	14.14	14.08	-2.38
8,783.14	33.47	280.97	8,732.29	543.44	213.26	-212.21	2.97	-0.74	-5.21
8,796.57	33.15	280.32	8,743.52	544.80	206.01	-204.96	3.57	-2.38	-4.84
8,810.00	32.82	279.77	8,754.78	546.08	198.81	-197.76	3.32	-2.46	-4.10
8,823.43	32.96	279.54	8,766.06	547.30	191.62	-190.57	1.40	1.04	-1.71
8,836.86	34.75	279.64	8,777.21	548.55	184.24	-183.19	13.33	13.33	0.74
8,850.29	36.53	280.21	8,788.13	549.90	176.54	-175.48	13.48	13.25	4.24
8,863.71	38.30	279.18	8,798.79	551.27	168.50	-167.44	13.99	13.19	-7.68
8,877.14	38.32	279.08	8,809.32	552.59	160.28	-159.22	0.49	0.15	-0.74
8,890.57	38.03	279.18	8,819.88	553.91	152.08	-151.02	2.21	-2.16	0.74
8,904.00	38.48	279.48	8,830.43	555.26	143.88	-142.81	3.62	3.35	2.23
8,917.43	40.26	280.06	8,840.81	556.70	135.48	-134.41	13.53	13.25	4.32
8,925.61	41.42	280.45	8,847.00	557.66	130.22	-129.15	14.48	14.14	4.76
3rd Spring LM									
8,930.86	42.16	280.69	8,850.91	558.30	126.78	-125.71	14.48	14.16	4.58
8,944.29	43.93	280.05	8,860.73	559.95	117.76	-116.69	13.57	13.18	-4.77
8,957.71	45.76	280.92	8,870.24	561.67	108.46	-107.38	14.38	13.64	6.48
8,971.14	45.82	281.07	8,879.61	563.51	99.01	-97.93	0.92	0.45	1.12
8,984.57	45.76	281.16	8,888.97	565.36	89.56	-88.48	0.66	-0.45	0.67
8,998.00	47.12	281.08	8,898.23	567.24	80.01	-78.92	10.14	10.13	-0.60
9,009.49	48.81	281.28	8,905.92	568.89	71.65	-70.55	14.73	14.67	1.74
01-FTP(BD34-133H-v04)									
9,011.29	49.07	281.31	8,907.10	569.16	70.31	-69.22	14.73	14.67	1.69



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,024.57	51.06	281.65	8,915.63	571.19	60.33	-59.24	15.11	14.98	2.56	
9,037.86	53.05	281.93	8,923.80	573.33	50.07	-48.97	15.07	14.97	2.11	
9,051.14	54.97	282.36	8,931.60	575.59	39.57	-38.46	14.69	14.46	3.24	
9,064.43	54.78	282.46	8,939.25	577.92	28.95	-27.84	1.56	-1.43	0.75	
9,077.71	54.58	282.58	8,946.93	580.27	18.38	-17.26	1.68	-1.51	0.90	
9,091.00	54.39	282.69	8,954.65	582.64	7.82	-6.70	1.58	-1.43	0.83	
9,104.43	55.38	282.68	8,962.37	585.05	-2.90	4.02	7.37	7.37	-0.07	
9,117.86	57.34	282.85	8,969.81	587.52	-13.80	14.93	14.63	14.59	1.27	
9,131.29	59.39	282.90	8,976.85	590.07	-24.95	26.08	15.27	15.26	0.37	
9,144.71	61.46	282.15	8,983.48	592.60	-36.34	37.48	16.17	15.42	-5.59	
9,158.14	61.55	282.17	8,989.88	595.09	-47.88	49.02	0.68	0.67	0.15	
9,171.57	61.48	282.20	8,996.29	597.58	-59.42	60.56	0.56	-0.52	0.22	
9,172.87	61.52	282.19	8,996.91	597.82	-60.54	61.68	3.04	2.98	-0.67	
00-OVS(BD34-133H-v04)										
9,185.00	61.88	282.11	9,002.66	600.07	-70.97	72.13	3.04	2.98	-0.67	
9,198.43	63.52	281.69	9,008.82	602.53	-82.65	83.81	12.52	12.21	-3.13	
9,211.86	65.61	281.11	9,014.59	604.92	-94.54	95.70	16.04	15.56	-4.32	
9,225.29	67.68	280.14	9,019.91	607.20	-106.66	107.82	16.78	15.41	-7.22	
9,238.71	69.64	279.03	9,024.80	609.28	-118.98	120.15	16.51	14.61	-8.27	
9,252.14	69.76	278.67	9,029.45	611.21	-131.43	132.60	2.67	0.89	-2.68	
9,265.57	69.76	278.36	9,034.10	613.08	-143.89	145.07	2.17	0.00	-2.31	
9,279.00	69.75	278.07	9,038.75	614.88	-156.36	157.54	2.03	-0.07	-2.16	
9,292.57	71.05	276.80	9,043.30	616.53	-169.04	170.22	13.02	9.58	-9.36	
9,306.14	72.57	275.15	9,047.54	617.88	-181.86	183.04	16.09	11.20	-12.16	
9,319.71	73.97	273.31	9,051.44	618.83	-194.82	196.00	16.58	10.32	-13.56	
9,333.29	75.34	271.50	9,055.04	619.38	-207.90	209.09	16.34	10.09	-13.33	
9,346.86	75.20	271.50	9,058.49	619.73	-221.02	222.21	1.03	-1.03	0.00	
9,360.43	75.08	271.52	9,061.97	620.07	-234.13	235.32	0.90	-0.88	0.15	
9,374.00	74.98	271.58	9,065.47	620.43	-247.24	248.43	0.85	-0.74	0.44	
9,387.29	74.98	271.67	9,068.92	620.79	-260.07	261.26	0.65	0.00	0.68	
9,400.57	76.92	270.75	9,072.14	621.06	-272.95	274.14	16.08	14.61	-6.93	
01-LP(BD34-133H-v04)										
9,413.86	79.17	270.76	9,074.89	621.23	-285.95	287.14	16.93	16.93	0.08	
9,427.14	81.39	270.48	9,077.14	621.37	-299.03	300.23	16.85	16.72	-2.11	
9,440.43	81.66	270.59	9,079.09	621.50	-312.18	313.37	2.19	2.03	0.83	
9,453.71	81.79	270.74	9,081.01	621.65	-325.32	326.51	1.49	0.98	1.13	
9,467.00	82.62	271.40	9,082.81	621.90	-338.48	339.68	7.95	6.25	4.97	
9,480.57	84.44	271.94	9,084.34	622.29	-351.96	353.15	13.98	13.41	3.98	
9,494.14	86.80	271.65	9,085.37	622.71	-365.48	366.68	17.52	17.39	-2.14	
9,507.71	89.12	271.04	9,085.86	623.03	-379.04	380.24	17.68	17.10	-4.50	
9,520.00	91.14	270.23	9,085.83	623.17	-391.33	392.52	17.71	16.42	-6.63	
EOC: 9520.00' MD, 392.52' VS, 9085.83' TVD										
9,521.29	91.35	270.14	9,085.80	623.17	-392.62	393.81	17.71	16.42	-6.63	
9,534.86	91.54	270.11	9,085.46	623.20	-406.18	407.38	1.42	1.40	-0.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,548.43	91.59	270.16	9,085.09	623.23	-419.75	420.94	0.52	0.37	0.37	
9,562.00	91.64	270.21	9,084.71	623.28	-433.31	434.51	0.52	0.37	0.37	
9,575.43	91.66	270.24	9,084.32	623.33	-446.74	447.93	0.27	0.15	0.22	
9,588.86	91.68	270.25	9,083.93	623.39	-460.16	461.36	0.17	0.15	0.07	
9,602.29	91.69	270.26	9,083.53	623.45	-473.59	474.78	0.11	0.07	0.07	
9,615.71	91.70	270.25	9,083.14	623.51	-487.00	488.20	0.11	0.07	-0.07	
9,629.14	91.71	270.23	9,082.74	623.56	-500.42	501.62	0.17	0.07	-0.15	
9,642.57	91.73	270.19	9,082.33	623.61	-513.85	515.04	0.33	0.15	-0.30	
9,656.00	91.75	270.12	9,081.92	623.65	-527.27	528.47	0.54	0.15	-0.52	
9,669.57	91.78	270.00	9,081.51	623.66	-540.84	542.03	0.91	0.22	-0.88	
9,683.14	91.81	269.87	9,081.08	623.65	-554.40	555.59	0.98	0.22	-0.96	
9,696.71	91.85	269.71	9,080.65	623.60	-567.96	569.16	1.21	0.29	-1.18	
9,710.29	91.88	269.56	9,080.21	623.51	-581.53	582.73	1.13	0.22	-1.10	
9,723.86	91.91	269.42	9,079.76	623.39	-595.10	596.29	1.05	0.22	-1.03	
9,737.43	91.91	269.30	9,079.31	623.24	-608.66	609.85	0.88	0.00	-0.88	
9,751.00	91.90	269.21	9,078.85	623.06	-622.22	623.41	0.67	-0.07	-0.66	
9,764.43	91.84	269.19	9,078.42	622.87	-635.64	636.84	0.47	-0.45	-0.15	
9,777.86	91.77	269.20	9,077.99	622.69	-649.06	650.26	0.53	-0.52	0.07	
9,791.29	91.68	269.24	9,077.59	622.50	-662.49	663.68	0.73	-0.67	0.30	
9,804.71	91.60	269.29	9,077.20	622.33	-675.90	677.09	0.70	-0.60	0.37	
9,818.14	91.52	269.35	9,076.84	622.17	-689.32	690.52	0.74	-0.60	0.45	
9,831.57	91.45	269.41	9,076.49	622.03	-702.75	703.94	0.69	-0.52	0.45	
9,845.00	91.42	269.47	9,076.15	621.89	-716.17	717.37	0.50	-0.22	0.45	
9,858.43	91.43	269.53	9,075.82	621.78	-729.60	730.79	0.45	0.07	0.45	
9,871.86	91.48	269.58	9,075.48	621.67	-743.02	744.22	0.53	0.37	0.37	
9,885.29	91.54	269.62	9,075.13	621.58	-756.45	757.64	0.54	0.45	0.30	
9,898.71	91.60	269.66	9,074.76	621.50	-769.86	771.05	0.54	0.45	0.30	
9,912.14	91.67	269.69	9,074.38	621.42	-783.29	784.48	0.57	0.52	0.22	
9,925.57	91.72	269.72	9,073.98	621.35	-796.71	797.90	0.43	0.37	0.22	
9,939.00	91.76	269.73	9,073.57	621.29	-810.13	811.33	0.31	0.30	0.07	
9,952.57	91.76	269.71	9,073.15	621.22	-823.70	824.89	0.15	0.00	-0.15	
9,966.14	91.74	269.68	9,072.74	621.15	-837.26	838.45	0.27	-0.15	-0.22	
9,979.71	91.71	269.64	9,072.33	621.07	-850.83	852.02	0.37	-0.22	-0.29	
9,993.29	91.67	269.60	9,071.93	620.98	-864.40	865.59	0.42	-0.29	-0.29	
10,006.86	91.63	269.55	9,071.54	620.88	-877.96	879.15	0.47	-0.29	-0.37	
10,020.43	91.60	269.50	9,071.16	620.76	-891.53	892.72	0.43	-0.22	-0.37	
10,034.00	91.59	269.45	9,070.78	620.64	-905.09	906.28	0.38	-0.07	-0.37	
10,047.57	91.61	269.40	9,070.40	620.50	-918.66	919.84	0.40	0.15	-0.37	
10,061.14	91.65	269.36	9,070.01	620.36	-932.22	933.41	0.42	0.29	-0.29	
10,074.71	91.69	269.31	9,069.62	620.20	-945.78	946.97	0.47	0.29	-0.37	
10,088.29	91.74	269.27	9,069.21	620.03	-959.36	960.54	0.47	0.37	-0.29	
10,101.86	91.78	269.22	9,068.80	619.85	-972.92	974.11	0.47	0.29	-0.37	
10,115.43	91.82	269.17	9,068.37	619.66	-986.48	987.67	0.47	0.29	-0.37	
10,129.00	91.84	269.12	9,067.94	619.46	-1,000.04	1,001.23	0.40	0.15	-0.37	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
10,142.43	91.83	269.06	9,067.51	619.25	-1,013.46	1,014.65	0.45	-0.07	-0.45
10,155.86	91.80	268.99	9,067.08	619.02	-1,026.88	1,028.07	0.57	-0.22	-0.52
10,169.29	91.77	268.93	9,066.66	618.77	-1,040.31	1,041.49	0.50	-0.22	-0.45
10,182.71	91.73	268.85	9,066.25	618.51	-1,053.72	1,054.90	0.67	-0.30	-0.60
10,196.14	91.70	268.78	9,065.85	618.24	-1,067.14	1,068.32	0.57	-0.22	-0.52
10,209.57	91.67	268.70	9,065.46	617.94	-1,080.56	1,081.74	0.64	-0.22	-0.60
10,223.00	91.66	268.62	9,065.07	617.63	-1,093.98	1,095.16	0.60	-0.07	-0.60
10,236.57	91.68	268.53	9,064.67	617.29	-1,107.54	1,108.72	0.68	0.15	-0.66
10,250.14	91.71	268.45	9,064.27	616.93	-1,121.10	1,122.28	0.63	0.22	-0.59
10,263.71	91.75	268.36	9,063.86	616.55	-1,134.66	1,135.84	0.73	0.29	-0.66
10,277.29	91.80	268.28	9,063.44	616.16	-1,148.22	1,149.41	0.69	0.37	-0.59
10,290.86	91.85	268.22	9,063.01	615.74	-1,161.78	1,162.96	0.58	0.37	-0.44
10,304.43	91.89	268.17	9,062.56	615.32	-1,175.34	1,176.52	0.47	0.29	-0.37
10,318.00	91.91	268.16	9,062.11	614.88	-1,188.89	1,190.07	0.16	0.15	-0.07
10,331.43	91.92	268.21	9,061.66	614.46	-1,202.31	1,203.49	0.38	0.07	0.37
10,344.86	91.92	268.28	9,061.21	614.04	-1,215.73	1,216.90	0.52	0.00	0.52
10,358.29	91.90	268.36	9,060.77	613.65	-1,229.14	1,230.32	0.61	-0.15	0.60
10,371.71	91.88	268.45	9,060.32	613.28	-1,242.55	1,243.72	0.69	-0.15	0.67
10,385.14	91.86	268.52	9,059.89	612.92	-1,255.97	1,257.14	0.54	-0.15	0.52
10,398.57	91.84	268.56	9,059.45	612.58	-1,269.39	1,270.56	0.33	-0.15	0.30
10,412.00	92.24	269.42	9,058.97	612.34	-1,282.81	1,283.98	7.06	2.98	6.40
10,425.57	92.53	270.54	9,058.41	612.34	-1,296.36	1,297.54	8.52	2.14	8.25
10,439.14	92.56	270.70	9,057.81	612.49	-1,309.92	1,311.09	1.20	0.22	1.18
10,452.71	92.54	270.52	9,057.20	612.63	-1,323.47	1,324.65	1.33	-0.15	-1.33
10,466.29	92.52	270.33	9,056.60	612.73	-1,337.04	1,338.22	1.41	-0.15	-1.40
10,479.86	92.51	270.13	9,056.01	612.79	-1,350.60	1,351.77	1.47	-0.07	-1.47
10,493.43	92.51	269.94	9,055.41	612.79	-1,364.16	1,365.33	1.40	0.00	-1.40
10,507.00	92.53	269.78	9,054.82	612.76	-1,377.71	1,378.89	1.19	0.15	-1.18
10,520.43	92.58	269.68	9,054.22	612.70	-1,391.13	1,392.30	0.83	0.37	-0.74
10,533.86	92.65	269.62	9,053.61	612.62	-1,404.54	1,405.72	0.69	0.52	-0.45
10,547.29	92.73	269.58	9,052.98	612.52	-1,417.96	1,419.13	0.67	0.60	-0.30
10,560.71	92.81	269.55	9,052.33	612.42	-1,431.36	1,432.54	0.64	0.60	-0.22
10,574.14	92.90	269.54	9,051.66	612.31	-1,444.78	1,445.95	0.67	0.67	-0.07
10,587.57	92.99	269.52	9,050.97	612.20	-1,458.19	1,459.36	0.69	0.67	-0.15
10,601.00	93.08	269.50	9,050.26	612.09	-1,471.60	1,472.77	0.69	0.67	-0.15
10,614.43	93.17	269.46	9,049.53	611.97	-1,485.01	1,486.18	0.73	0.67	-0.30
10,627.86	93.24	269.43	9,048.77	611.84	-1,498.42	1,499.59	0.57	0.52	-0.22
10,641.29	93.30	269.39	9,048.01	611.70	-1,511.82	1,513.00	0.54	0.45	-0.30
10,654.71	93.33	269.36	9,047.23	611.55	-1,525.22	1,526.39	0.32	0.22	-0.22
10,668.14	93.14	269.68	9,046.47	611.44	-1,538.63	1,539.80	2.77	-1.41	2.38
10,681.57	92.73	270.42	9,045.79	611.45	-1,552.04	1,553.21	6.29	-3.05	5.51
10,695.00	92.60	270.44	9,045.16	611.55	-1,565.46	1,566.63	0.98	-0.97	0.15
10,708.43	92.35	270.49	9,044.58	611.66	-1,578.87	1,580.04	1.90	-1.86	0.37



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
10,721.86	91.45	270.87	9,044.14	611.82	-1,592.29	1,593.47	7.27	-6.70	2.83	
10,735.29	90.93	271.04	9,043.86	612.05	-1,605.72	1,606.89	4.07	-3.87	1.27	
10,748.71	90.49	271.15	9,043.69	612.30	-1,619.14	1,620.31	3.38	-3.28	0.82	
10,762.14	90.07	271.24	9,043.63	612.58	-1,632.56	1,633.74	3.20	-3.13	0.67	
10,775.57	89.69	271.32	9,043.65	612.88	-1,645.99	1,647.16	2.89	-2.83	0.60	
10,789.00	89.38	271.37	9,043.76	613.20	-1,659.42	1,660.59	2.34	-2.31	0.37	
10,802.43	89.22	271.38	9,043.93	613.52	-1,672.84	1,674.02	1.19	-1.19	0.07	
10,815.86	89.15	271.35	9,044.12	613.84	-1,686.27	1,687.44	0.57	-0.52	-0.22	
10,829.29	89.14	271.30	9,044.32	614.15	-1,699.69	1,700.87	0.38	-0.07	-0.37	
10,842.71	89.17	271.25	9,044.52	614.45	-1,713.11	1,714.28	0.43	0.22	-0.37	
10,856.14	89.23	271.18	9,044.70	614.73	-1,726.53	1,727.71	0.69	0.45	-0.52	
10,869.57	89.31	271.11	9,044.88	615.00	-1,739.96	1,741.13	0.79	0.60	-0.52	
10,883.00	89.39	271.04	9,045.03	615.25	-1,753.38	1,754.56	0.79	0.60	-0.52	
10,896.43	89.48	270.96	9,045.16	615.49	-1,766.81	1,767.99	0.90	0.67	-0.60	
10,909.86	89.58	270.90	9,045.27	615.71	-1,780.24	1,781.42	0.87	0.74	-0.45	
10,923.29	89.68	270.84	9,045.36	615.91	-1,793.67	1,794.85	0.87	0.74	-0.45	
10,936.71	89.80	270.81	9,045.42	616.10	-1,807.09	1,808.27	0.92	0.89	-0.22	
10,950.14	89.93	270.81	9,045.45	616.29	-1,820.51	1,821.69	0.97	0.97	0.00	
10,963.57	90.08	270.85	9,045.45	616.49	-1,833.94	1,835.12	1.16	1.12	0.30	
10,977.00	90.27	270.97	9,045.41	616.70	-1,847.37	1,848.55	1.67	1.41	0.89	
10,990.43	90.50	271.21	9,045.32	616.96	-1,860.80	1,861.98	2.48	1.71	1.79	
11,003.86	90.76	271.52	9,045.17	617.28	-1,874.22	1,875.41	3.01	1.94	2.31	
11,017.29	91.04	271.85	9,044.96	617.67	-1,887.65	1,888.83	3.22	2.08	2.46	
11,030.71	91.34	272.18	9,044.68	618.14	-1,901.06	1,902.24	3.32	2.24	2.46	
11,044.14	91.64	272.49	9,044.33	618.69	-1,914.47	1,915.65	3.21	2.23	2.31	
11,057.57	91.00	273.21	9,044.02	619.36	-1,927.88	1,929.06	7.17	-4.77	5.36	
11,071.00	90.14	273.71	9,043.89	620.17	-1,941.28	1,942.47	7.41	-6.40	3.72	
11,084.43	89.36	273.61	9,043.95	621.02	-1,954.69	1,955.87	5.86	-5.81	-0.74	
11,097.86	89.87	273.80	9,044.04	621.89	-1,968.09	1,969.28	4.05	3.80	1.41	
11,111.29	90.43	273.97	9,044.00	622.80	-1,981.49	1,982.68	4.36	4.17	1.27	
11,124.71	90.99	274.14	9,043.83	623.75	-1,994.87	1,996.07	4.36	4.17	1.27	
11,138.14	91.50	274.28	9,043.54	624.74	-2,008.26	2,009.46	3.94	3.80	1.04	
11,151.57	91.31	274.28	9,043.21	625.74	-2,021.65	2,022.85	1.41	-1.41	0.00	
11,165.00	90.49	274.00	9,043.00	626.71	-2,035.04	2,036.24	6.45	-6.11	-2.08	
11,178.57	89.53	273.62	9,043.00	627.61	-2,048.58	2,049.79	7.61	-7.07	-2.80	
11,192.14	88.52	273.40	9,043.23	628.44	-2,062.13	2,063.33	7.62	-7.44	-1.62	
11,205.71	88.13	273.31	9,043.63	629.23	-2,075.67	2,076.87	2.95	-2.87	-0.66	
11,219.29	88.12	273.23	9,044.07	630.01	-2,089.22	2,090.42	0.59	-0.07	-0.59	
11,232.86	88.09	273.14	9,044.52	630.76	-2,102.76	2,103.97	0.70	-0.22	-0.66	
11,246.43	88.04	273.04	9,044.98	631.49	-2,116.30	2,117.51	0.82	-0.37	-0.74	
11,260.00	88.01	272.95	9,045.45	632.20	-2,129.85	2,131.06	0.70	-0.22	-0.66	
11,273.43	88.01	272.87	9,045.91	632.88	-2,143.25	2,144.46	0.60	0.00	-0.60	
11,286.86	88.03	272.80	9,046.38	633.55	-2,156.66	2,157.87	0.54	0.15	-0.52	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
11,300.29	88.06	272.74	9,046.84	634.20	-2,170.06	2,171.28	0.50	0.22	-0.45	
11,313.71	88.11	272.68	9,047.28	634.83	-2,183.46	2,184.67	0.58	0.37	-0.45	
11,327.14	88.15	272.63	9,047.72	635.45	-2,196.87	2,198.08	0.48	0.30	-0.37	
11,340.57	88.21	272.58	9,048.15	636.06	-2,210.28	2,211.49	0.58	0.45	-0.37	
11,354.00	88.26	272.53	9,048.56	636.66	-2,223.69	2,224.91	0.53	0.37	-0.37	
11,367.43	88.32	272.49	9,048.96	637.25	-2,237.10	2,238.32	0.54	0.45	-0.30	
11,380.86	88.39	272.44	9,049.35	637.83	-2,250.51	2,251.73	0.64	0.52	-0.37	
11,394.29	88.45	272.40	9,049.72	638.39	-2,263.92	2,265.15	0.54	0.45	-0.30	
11,407.71	88.52	272.36	9,050.07	638.95	-2,277.33	2,278.55	0.60	0.52	-0.30	
11,421.14	88.59	272.31	9,050.41	639.50	-2,290.74	2,291.97	0.64	0.52	-0.37	
11,434.57	88.66	272.26	9,050.73	640.03	-2,304.16	2,305.38	0.64	0.52	-0.37	
11,448.00	88.73	272.21	9,051.04	640.56	-2,317.57	2,318.80	0.64	0.52	-0.37	
11,461.43	88.81	272.14	9,051.33	641.07	-2,330.99	2,332.22	0.79	0.60	-0.52	
11,474.86	88.90	272.06	9,051.60	641.56	-2,344.41	2,345.64	0.90	0.67	-0.60	
11,488.29	88.98	271.98	9,051.85	642.03	-2,357.83	2,359.06	0.84	0.60	-0.60	
11,501.71	89.06	271.90	9,052.08	642.48	-2,371.24	2,372.47	0.84	0.60	-0.60	
11,515.14	89.14	271.82	9,052.29	642.92	-2,384.66	2,385.89	0.84	0.60	-0.60	
11,528.57	89.22	271.74	9,052.48	643.34	-2,398.08	2,399.31	0.84	0.60	-0.60	
11,542.00	89.29	271.66	9,052.65	643.74	-2,411.51	2,412.74	0.79	0.52	-0.60	
11,555.43	89.34	271.58	9,052.81	644.12	-2,424.93	2,426.16	0.70	0.37	-0.60	
11,568.86	89.39	271.51	9,052.96	644.48	-2,438.35	2,439.59	0.64	0.37	-0.52	
11,582.29	89.43	271.44	9,053.10	644.82	-2,451.78	2,453.01	0.60	0.30	-0.52	
11,595.71	89.48	271.38	9,053.23	645.15	-2,465.19	2,466.43	0.58	0.37	-0.45	
11,609.14	89.53	271.32	9,053.34	645.47	-2,478.62	2,479.85	0.58	0.37	-0.45	
11,622.57	89.59	271.28	9,053.45	645.77	-2,492.05	2,493.28	0.54	0.45	-0.30	
11,636.00	89.66	271.24	9,053.54	646.07	-2,505.47	2,506.71	0.60	0.52	-0.30	
11,649.43	89.75	271.22	9,053.60	646.36	-2,518.90	2,520.14	0.69	0.67	-0.15	
11,662.86	89.85	271.21	9,053.65	646.64	-2,532.33	2,533.56	0.75	0.74	-0.07	
11,676.29	89.96	271.21	9,053.67	646.93	-2,545.75	2,546.99	0.82	0.82	0.00	
11,689.71	90.08	271.21	9,053.67	647.21	-2,559.17	2,560.41	0.89	0.89	0.00	
11,703.14	90.20	271.21	9,053.64	647.49	-2,572.60	2,573.84	0.89	0.89	0.00	
11,716.57	90.99	271.37	9,053.50	647.80	-2,586.02	2,587.26	6.00	5.88	1.19	
11,730.00	91.26	271.39	9,053.23	648.12	-2,599.45	2,600.69	2.02	2.01	0.15	
11,743.57	91.39	271.37	9,052.92	648.45	-2,613.01	2,614.25	0.97	0.96	-0.15	
11,757.14	91.53	271.34	9,052.57	648.77	-2,626.57	2,627.81	1.06	1.03	-0.22	
11,770.71	91.66	271.30	9,052.20	649.08	-2,640.13	2,641.37	1.00	0.96	-0.29	
11,784.29	91.80	271.27	9,051.79	649.38	-2,653.70	2,654.94	1.05	1.03	-0.22	
11,797.86	91.93	271.23	9,051.34	649.68	-2,667.26	2,668.50	1.00	0.96	-0.29	
11,811.43	92.07	271.19	9,050.87	649.97	-2,680.82	2,682.06	1.07	1.03	-0.29	
11,825.00	92.20	271.15	9,050.37	650.24	-2,694.38	2,695.62	1.00	0.96	-0.29	
11,838.43	92.34	271.11	9,049.83	650.51	-2,707.79	2,709.04	1.08	1.04	-0.30	
11,851.86	92.46	271.07	9,049.27	650.76	-2,721.21	2,722.45	0.94	0.89	-0.30	
11,865.29	92.59	271.03	9,048.68	651.01	-2,734.63	2,735.87	1.01	0.97	-0.30	
11,878.71	92.71	270.99	9,048.06	651.25	-2,748.03	2,749.27	0.94	0.89	-0.30	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
11,892.14	92.82	270.94	9,047.41	651.47	-2,761.44	2,762.69	0.90	0.82	-0.37
11,905.57	92.92	270.89	9,046.74	651.69	-2,774.85	2,776.10	0.83	0.74	-0.37
11,919.00	93.00	270.84	9,046.04	651.89	-2,788.26	2,789.51	0.70	0.60	-0.37
11,930.90	93.06	270.78	9,045.42	652.06	-2,800.14	2,801.39	0.74	0.52	-0.52
02-2800(BD34-133H-v04)									
11,932.43	93.07	270.77	9,045.33	652.08	-2,801.67	2,802.92	0.74	0.52	-0.52
11,945.86	93.11	270.70	9,044.61	652.25	-2,815.08	2,816.33	0.60	0.30	-0.52
11,959.29	93.16	270.62	9,043.88	652.40	-2,828.49	2,829.74	0.70	0.37	-0.60
11,972.71	93.20	270.55	9,043.13	652.54	-2,841.89	2,843.14	0.60	0.30	-0.52
11,986.14	93.25	270.47	9,042.38	652.66	-2,855.30	2,856.55	0.70	0.37	-0.60
11,999.57	92.53	270.18	9,041.70	652.73	-2,868.71	2,869.96	5.78	-5.36	-2.16
12,013.00	91.49	270.29	9,041.23	652.79	-2,882.13	2,883.38	7.79	-7.74	0.82
12,026.57	90.43	270.38	9,041.00	652.87	-2,895.70	2,896.95	7.84	-7.81	0.66
12,040.14	90.37	270.29	9,040.91	652.95	-2,909.27	2,910.52	0.80	-0.44	-0.66
12,053.71	90.48	270.17	9,040.80	653.00	-2,922.84	2,924.09	1.20	0.81	-0.88
12,067.29	90.60	270.06	9,040.68	653.03	-2,936.42	2,937.67	1.20	0.88	-0.81
12,080.86	90.72	269.95	9,040.52	653.03	-2,949.99	2,951.24	1.20	0.88	-0.81
12,094.43	90.83	269.85	9,040.34	653.01	-2,963.56	2,964.80	1.10	0.81	-0.74
12,108.00	90.94	269.78	9,040.13	652.96	-2,977.12	2,978.37	0.96	0.81	-0.52
12,121.29	91.02	269.76	9,039.90	652.91	-2,990.41	2,991.66	0.62	0.60	-0.15
12,134.57	91.10	269.76	9,039.65	652.86	-3,003.69	3,004.94	0.60	0.60	0.00
12,147.86	91.17	269.78	9,039.39	652.80	-3,016.98	3,018.23	0.55	0.53	0.15
12,161.14	91.24	269.80	9,039.11	652.75	-3,030.25	3,031.50	0.55	0.53	0.15
12,174.43	91.33	269.83	9,038.81	652.71	-3,043.54	3,044.79	0.71	0.68	0.23
12,187.71	91.42	269.85	9,038.49	652.67	-3,056.82	3,058.06	0.69	0.68	0.15
12,201.00	91.54	269.87	9,038.15	652.64	-3,070.10	3,071.35	0.92	0.90	0.15
12,214.57	91.71	269.87	9,037.77	652.61	-3,083.67	3,084.91	1.25	1.25	0.00
12,228.14	91.90	269.86	9,037.34	652.58	-3,097.23	3,098.48	1.40	1.40	-0.07
12,241.71	92.10	269.84	9,036.87	652.54	-3,110.79	3,112.04	1.48	1.47	-0.15
12,255.29	92.31	269.81	9,036.34	652.50	-3,124.36	3,125.61	1.56	1.55	-0.22
12,268.86	92.52	269.78	9,035.77	652.45	-3,137.92	3,139.17	1.56	1.55	-0.22
12,282.43	92.72	269.75	9,035.15	652.40	-3,151.48	3,152.72	1.49	1.47	-0.22
12,296.00	92.90	269.72	9,034.49	652.33	-3,165.03	3,166.28	1.34	1.33	-0.22
12,309.29	93.05	269.69	9,033.80	652.27	-3,178.30	3,179.55	1.15	1.13	-0.23
12,322.57	93.18	269.66	9,033.07	652.19	-3,191.56	3,192.81	1.00	0.98	-0.23
12,335.86	93.30	269.62	9,032.32	652.11	-3,204.83	3,206.08	0.95	0.90	-0.30
12,349.14	93.40	269.59	9,031.55	652.02	-3,218.09	3,219.33	0.79	0.75	-0.23
12,362.43	93.48	269.56	9,030.75	651.92	-3,231.35	3,232.60	0.64	0.60	-0.23
12,375.71	93.55	269.52	9,029.94	651.81	-3,244.61	3,245.85	0.61	0.53	-0.30
12,389.00	93.59	269.48	9,029.11	651.70	-3,257.87	3,259.12	0.43	0.30	-0.30
12,402.43	93.61	269.43	9,028.26	651.57	-3,271.27	3,272.52	0.40	0.15	-0.37
12,415.86	93.60	269.38	9,027.42	651.43	-3,284.68	3,285.92	0.38	-0.07	-0.37
12,429.29	93.58	269.33	9,026.58	651.28	-3,298.08	3,299.32	0.40	-0.15	-0.37



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
12,442.71	93.56	269.28	9,025.74	651.12	-3,311.47	3,312.72	0.40	-0.15	-0.37	
12,456.14	93.54	269.22	9,024.91	650.94	-3,324.87	3,326.12	0.47	-0.15	-0.45	
12,469.57	93.53	269.17	9,024.08	650.75	-3,338.28	3,339.52	0.38	-0.07	-0.37	
12,483.00	92.80	269.25	9,023.34	650.57	-3,351.69	3,352.93	5.47	-5.44	0.60	
12,496.43	91.78	269.13	9,022.81	650.38	-3,365.10	3,366.35	7.65	-7.59	-0.89	
12,509.86	90.86	268.78	9,022.50	650.13	-3,378.53	3,379.77	7.33	-6.85	-2.61	
12,523.29	90.71	268.66	9,022.31	649.83	-3,391.95	3,393.19	1.43	-1.12	-0.89	
12,536.71	90.77	268.58	9,022.14	649.51	-3,405.37	3,406.61	0.75	0.45	-0.60	
12,550.14	90.84	268.50	9,021.95	649.17	-3,418.79	3,420.03	0.79	0.52	-0.60	
12,563.57	90.90	268.41	9,021.75	648.80	-3,432.22	3,433.46	0.81	0.45	-0.67	
12,577.00	90.94	268.33	9,021.53	648.42	-3,445.64	3,446.88	0.67	0.30	-0.60	
12,590.43	90.96	268.25	9,021.31	648.02	-3,459.06	3,460.30	0.61	0.15	-0.60	
12,603.86	90.97	268.17	9,021.08	647.60	-3,472.48	3,473.72	0.60	0.07	-0.60	
12,617.29	90.98	268.10	9,020.85	647.17	-3,485.90	3,487.14	0.53	0.07	-0.52	
12,630.71	90.98	268.04	9,020.62	646.71	-3,499.31	3,500.55	0.45	0.00	-0.45	
12,644.14	90.99	267.98	9,020.39	646.25	-3,512.73	3,513.97	0.45	0.07	-0.45	
12,657.57	91.01	267.94	9,020.16	645.77	-3,526.15	3,527.39	0.33	0.15	-0.30	
12,671.00	91.05	267.90	9,019.92	645.28	-3,539.57	3,540.80	0.42	0.30	-0.30	
12,684.29	91.12	267.89	9,019.67	644.79	-3,552.85	3,554.08	0.53	0.53	-0.08	
12,697.57	91.21	267.89	9,019.40	644.31	-3,566.12	3,567.35	0.68	0.68	0.00	
12,710.86	91.31	267.90	9,019.10	643.82	-3,579.40	3,580.63	0.76	0.75	0.08	
12,724.14	91.42	267.91	9,018.79	643.33	-3,592.66	3,593.89	0.83	0.83	0.08	
12,737.43	91.54	267.93	9,018.44	642.85	-3,605.94	3,607.17	0.92	0.90	0.15	
12,750.71	91.66	267.94	9,018.07	642.37	-3,619.21	3,620.43	0.91	0.90	0.08	
12,764.00	91.79	267.95	9,017.67	641.89	-3,632.48	3,633.71	0.98	0.98	0.08	
12,777.29	91.92	267.95	9,017.24	641.42	-3,645.76	3,646.98	0.98	0.98	0.00	
12,790.57	92.05	267.94	9,016.78	640.94	-3,659.02	3,660.24	0.98	0.98	-0.08	
12,803.86	92.19	267.93	9,016.29	640.47	-3,672.29	3,673.52	1.06	1.05	-0.08	
12,817.14	92.33	267.91	9,015.77	639.98	-3,685.55	3,686.78	1.06	1.05	-0.15	
12,830.43	92.46	267.90	9,015.21	639.50	-3,698.82	3,700.04	0.98	0.98	-0.08	
12,843.71	92.60	267.88	9,014.63	639.01	-3,712.08	3,713.30	1.06	1.05	-0.15	
12,857.00	92.75	267.87	9,014.01	638.52	-3,725.35	3,726.57	1.13	1.13	-0.08	
12,870.29	92.89	267.86	9,013.35	638.02	-3,738.61	3,739.83	1.06	1.05	-0.08	
12,883.57	93.03	267.86	9,012.67	637.53	-3,751.87	3,753.08	1.05	1.05	0.00	
12,896.86	93.18	267.86	9,011.95	637.03	-3,765.13	3,766.34	1.13	1.13	0.00	
12,910.14	93.32	267.85	9,011.19	636.54	-3,778.38	3,779.59	1.06	1.05	-0.08	
12,923.43	93.46	267.85	9,010.41	636.04	-3,791.63	3,792.85	1.05	1.05	0.00	
12,936.71	93.59	267.84	9,009.59	635.54	-3,804.88	3,806.09	0.98	0.98	-0.08	
12,950.00	93.71	267.82	9,008.75	635.04	-3,818.13	3,819.35	0.92	0.90	-0.15	
12,963.43	93.82	267.80	9,007.86	634.53	-3,831.52	3,832.74	0.83	0.82	-0.15	
12,976.86	93.91	267.78	9,006.96	634.01	-3,844.91	3,846.12	0.69	0.67	-0.15	
12,990.29	94.01	267.75	9,006.03	633.49	-3,858.30	3,859.51	0.78	0.74	-0.22	
13,003.71	94.10	267.72	9,005.08	632.96	-3,871.68	3,872.89	0.71	0.67	-0.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,017.14	94.19	267.70	9,004.11	632.42	-3,885.06	3,886.27	0.69	0.67	-0.15	
13,030.57	94.29	267.68	9,003.12	631.88	-3,898.44	3,899.65	0.76	0.74	-0.15	
13,044.00	94.39	267.67	9,002.10	631.34	-3,911.82	3,913.03	0.75	0.74	-0.07	
13,057.43	94.52	267.68	9,001.06	630.80	-3,925.20	3,926.41	0.97	0.97	0.07	
13,070.86	94.65	267.69	8,999.98	630.26	-3,938.58	3,939.78	0.97	0.97	0.07	
13,084.29	94.78	267.71	8,998.88	629.72	-3,951.95	3,953.15	0.98	0.97	0.15	
13,097.71	94.89	267.73	8,997.75	629.19	-3,965.31	3,966.51	0.83	0.82	0.15	
13,111.14	94.98	267.74	8,996.59	628.66	-3,978.68	3,979.88	0.67	0.67	0.07	
13,124.57	95.03	267.74	8,995.42	628.13	-3,992.05	3,993.25	0.37	0.37	0.00	
13,138.00	95.02	267.73	8,994.25	627.60	-4,005.42	4,006.62	0.11	-0.07	-0.07	
13,151.29	94.90	267.68	8,993.10	627.07	-4,018.65	4,019.85	0.98	-0.90	-0.38	
13,164.57	94.74	267.62	8,991.98	626.53	-4,031.87	4,033.07	1.29	-1.20	-0.45	
13,177.86	94.55	267.54	8,990.91	625.97	-4,045.11	4,046.30	1.55	-1.43	-0.60	
13,191.14	94.35	267.45	8,989.87	625.39	-4,058.33	4,059.53	1.65	-1.51	-0.68	
13,204.43	94.17	267.35	8,988.89	624.79	-4,071.57	4,072.77	1.55	-1.35	-0.75	
13,217.71	93.87	267.37	8,987.96	624.18	-4,084.81	4,086.00	2.26	-2.26	0.15	
13,231.00	93.36	267.16	8,987.12	623.55	-4,098.05	4,099.24	4.15	-3.84	-1.58	
13,244.57	92.69	267.29	8,986.40	622.89	-4,111.59	4,112.78	5.03	-4.94	0.96	
13,258.14	91.89	267.86	8,985.86	622.32	-4,125.14	4,126.32	7.24	-5.90	4.20	
13,271.71	91.79	267.73	8,985.42	621.79	-4,138.69	4,139.88	1.21	-0.74	-0.96	
13,285.29	91.83	267.47	8,985.00	621.23	-4,152.25	4,153.44	1.94	0.29	-1.91	
13,298.86	91.88	267.21	8,984.56	620.60	-4,165.80	4,166.98	1.95	0.37	-1.92	
13,312.43	91.92	266.99	8,984.11	619.91	-4,179.34	4,180.53	1.65	0.29	-1.62	
13,326.00	91.94	266.84	8,983.65	619.18	-4,192.89	4,194.07	1.11	0.15	-1.11	
13,339.43	91.94	266.81	8,983.19	618.44	-4,206.29	4,207.47	0.22	0.00	-0.22	
13,352.86	91.91	266.84	8,982.74	617.69	-4,219.69	4,220.87	0.32	-0.22	0.22	
13,366.29	91.88	266.92	8,982.30	616.96	-4,233.09	4,234.27	0.64	-0.22	0.60	
13,379.71	91.85	267.00	8,981.86	616.25	-4,246.49	4,247.66	0.64	-0.22	0.60	
13,393.14	91.82	267.08	8,981.43	615.56	-4,259.89	4,261.07	0.64	-0.22	0.60	
13,406.57	91.61	267.43	8,981.03	614.92	-4,273.30	4,274.47	3.04	-1.56	2.61	
13,420.00	91.15	268.36	8,980.71	614.42	-4,286.72	4,287.89	7.72	-3.43	6.92	
13,433.57	90.83	269.36	8,980.47	614.15	-4,300.28	4,301.45	7.74	-2.36	7.37	
13,447.14	90.66	269.50	8,980.30	614.02	-4,313.85	4,315.02	1.62	-1.25	1.03	
13,460.71	90.71	269.33	8,980.13	613.88	-4,327.42	4,328.59	1.31	0.37	-1.25	
13,474.29	90.76	269.14	8,979.96	613.70	-4,341.00	4,342.17	1.45	0.37	-1.40	
13,487.86	90.82	268.95	8,979.77	613.47	-4,354.56	4,355.73	1.47	0.44	-1.40	
13,501.43	90.88	268.76	8,979.57	613.20	-4,368.13	4,369.30	1.47	0.44	-1.40	
13,515.00	90.92	268.60	8,979.36	612.89	-4,381.69	4,382.86	1.22	0.29	-1.18	
13,528.43	90.94	268.47	8,979.14	612.54	-4,395.12	4,396.29	0.98	0.15	-0.97	
13,541.86	90.94	268.38	8,978.92	612.18	-4,408.54	4,409.71	0.67	0.00	-0.67	
13,555.29	90.94	268.30	8,978.70	611.79	-4,421.96	4,423.13	0.60	0.00	-0.60	
13,568.71	90.94	268.22	8,978.48	611.38	-4,435.38	4,436.54	0.60	0.00	-0.60	
13,582.14	90.93	268.16	8,978.26	610.95	-4,448.80	4,449.96	0.45	-0.07	-0.45	
13,595.57	90.92	268.09	8,978.04	610.52	-4,462.22	4,463.38	0.53	-0.07	-0.52	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,609.00	90.92	268.02	8,977.83	610.06	-4,475.64	4,476.80	0.52	0.00	-0.52
13,622.29	90.92	267.94	8,977.61	609.59	-4,488.92	4,490.08	0.60	0.00	-0.60
13,635.57	90.93	267.86	8,977.40	609.10	-4,502.19	4,503.35	0.61	0.08	-0.60
13,648.86	90.93	267.77	8,977.18	608.60	-4,515.47	4,516.63	0.68	0.00	-0.68
13,662.14	90.93	267.69	8,976.97	608.07	-4,528.74	4,529.89	0.60	0.00	-0.60
13,675.43	90.92	267.61	8,976.75	607.53	-4,542.01	4,543.17	0.61	-0.08	-0.60
13,688.71	90.90	267.54	8,976.54	606.97	-4,555.28	4,556.44	0.55	-0.15	-0.53
13,702.00	90.85	267.48	8,976.34	606.39	-4,568.55	4,569.71	0.59	-0.38	-0.45
13,715.43	90.76	267.43	8,976.15	605.79	-4,581.97	4,583.12	0.77	-0.67	-0.37
13,728.86	90.65	267.40	8,975.99	605.19	-4,595.39	4,596.54	0.85	-0.82	-0.22
13,742.29	90.53	267.37	8,975.85	604.57	-4,608.80	4,609.95	0.92	-0.89	-0.22
13,755.71	90.42	267.34	8,975.74	603.95	-4,622.21	4,623.36	0.85	-0.82	-0.22
13,769.14	90.32	267.31	8,975.65	603.33	-4,635.62	4,636.77	0.78	-0.74	-0.22
13,782.57	90.25	268.32	8,975.58	602.82	-4,649.04	4,650.19	7.54	-0.52	7.52
13,796.00	90.18	269.49	8,975.53	602.56	-4,662.47	4,663.62	8.73	-0.52	8.71
13,809.43	90.21	270.68	8,975.49	602.58	-4,675.90	4,677.05	8.86	0.22	8.86
13,822.86	90.23	271.15	8,975.44	602.79	-4,689.33	4,690.47	3.50	0.15	3.50
13,836.29	90.21	271.04	8,975.38	603.05	-4,702.75	4,703.90	0.83	-0.15	-0.82
13,849.71	90.19	270.92	8,975.34	603.28	-4,716.17	4,717.32	0.91	-0.15	-0.89
13,863.14	90.18	270.80	8,975.29	603.48	-4,729.60	4,730.75	0.90	-0.07	-0.89
13,876.57	90.17	270.68	8,975.25	603.65	-4,743.03	4,744.18	0.90	-0.07	-0.89
13,890.00	90.16	270.55	8,975.21	603.80	-4,756.46	4,757.61	0.97	-0.07	-0.97
13,903.43	90.15	270.43	8,975.18	603.91	-4,769.89	4,771.04	0.90	-0.07	-0.89
13,916.86	90.15	270.32	8,975.14	604.00	-4,783.32	4,784.47	0.82	0.00	-0.82
13,930.29	90.16	270.21	8,975.11	604.06	-4,796.75	4,797.90	0.82	0.07	-0.82
13,943.71	90.17	270.10	8,975.07	604.10	-4,810.17	4,811.32	0.82	0.07	-0.82
13,957.14	90.18	270.00	8,975.03	604.11	-4,823.60	4,824.75	0.75	0.07	-0.74
13,970.57	90.20	269.91	8,974.98	604.10	-4,837.03	4,838.18	0.69	0.15	-0.67
13,984.00	90.24	269.83	8,974.93	604.07	-4,850.46	4,851.61	0.67	0.30	-0.60
13,997.43	90.29	269.77	8,974.87	604.02	-4,863.89	4,865.04	0.58	0.37	-0.45
14,010.86	90.35	269.72	8,974.79	603.96	-4,877.32	4,878.47	0.58	0.45	-0.37
14,024.29	90.42	269.67	8,974.70	603.89	-4,890.75	4,891.90	0.64	0.52	-0.37
14,037.71	90.51	269.64	8,974.59	603.81	-4,904.16	4,905.31	0.71	0.67	-0.22
14,051.14	90.61	269.62	8,974.46	603.72	-4,917.59	4,918.74	0.76	0.74	-0.15
14,064.57	90.73	269.61	8,974.31	603.63	-4,931.02	4,932.17	0.90	0.89	-0.07
14,078.00	90.88	269.61	8,974.12	603.54	-4,944.45	4,945.60	1.12	1.12	0.00
14,091.43	91.07	269.63	8,973.89	603.45	-4,957.88	4,959.03	1.42	1.41	0.15
14,104.86	91.28	269.66	8,973.61	603.37	-4,971.31	4,972.45	1.58	1.56	0.22
14,118.29	91.51	269.69	8,973.29	603.29	-4,984.73	4,985.88	1.73	1.71	0.22
14,131.71	91.73	269.73	8,972.91	603.23	-4,998.15	4,999.29	1.67	1.64	0.30
14,132.47	91.74	269.73	8,972.88	603.22	-4,998.90	5,000.05	1.74	1.71	0.30
03-5000(BD34-133H-v04)									
14,145.14	91.96	269.77	8,972.48	603.17	-5,011.57	5,012.72	1.74	1.71	0.30



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
14,158.57	92.17	269.80	8,971.99	603.12	-5,024.99	5,026.14	1.58	1.56	0.22	
14,172.00	92.35	269.81	8,971.46	603.07	-5,038.41	5,039.56	1.34	1.34	0.07	
14,185.43	92.49	269.80	8,970.89	603.03	-5,051.83	5,052.98	1.05	1.04	-0.07	
14,198.86	92.60	269.78	8,970.30	602.98	-5,065.24	5,066.39	0.83	0.82	-0.15	
14,212.29	92.69	269.74	8,969.68	602.92	-5,078.66	5,079.81	0.73	0.67	-0.30	
14,225.71	92.76	269.70	8,969.04	602.86	-5,092.06	5,093.21	0.60	0.52	-0.30	
14,239.14	92.81	269.65	8,968.39	602.78	-5,105.48	5,106.63	0.53	0.37	-0.37	
14,252.57	92.84	269.60	8,967.73	602.69	-5,118.89	5,120.04	0.43	0.22	-0.37	
14,266.00	92.84	269.54	8,967.06	602.59	-5,132.30	5,133.45	0.45	0.00	-0.45	
14,279.57	92.79	269.47	8,966.39	602.47	-5,145.86	5,147.00	0.63	-0.37	-0.52	
14,293.14	92.73	269.41	8,965.74	602.34	-5,159.41	5,160.56	0.62	-0.44	-0.44	
14,306.71	92.66	269.34	8,965.10	602.19	-5,172.97	5,174.11	0.73	-0.52	-0.52	
14,320.29	92.59	269.27	8,964.48	602.03	-5,186.53	5,187.68	0.73	-0.52	-0.52	
14,333.86	92.55	269.21	8,963.87	601.85	-5,200.09	5,201.23	0.53	-0.29	-0.44	
14,347.43	91.62	269.08	8,963.38	601.65	-5,213.64	5,214.79	6.92	-6.85	-0.96	
14,361.00	90.65	269.66	8,963.11	601.50	-5,227.21	5,228.36	8.33	-7.15	4.27	
14,374.29	89.59	269.74	8,963.08	601.43	-5,240.50	5,241.65	8.00	-7.98	0.60	
14,387.57	89.51	269.67	8,963.19	601.36	-5,253.78	5,254.92	0.80	-0.60	-0.53	
14,400.86	89.63	269.63	8,963.29	601.28	-5,267.07	5,268.21	0.95	0.90	-0.30	
14,414.14	89.76	269.58	8,963.36	601.19	-5,280.35	5,281.49	1.05	0.98	-0.38	
14,427.43	89.90	269.54	8,963.40	601.08	-5,293.64	5,294.78	1.10	1.05	-0.30	
14,440.71	90.04	269.51	8,963.40	600.97	-5,306.92	5,308.06	1.08	1.05	-0.23	
14,454.00	90.16	269.48	8,963.38	600.86	-5,320.21	5,321.35	0.93	0.90	-0.23	
14,467.29	90.27	269.46	8,963.33	600.73	-5,333.50	5,334.64	0.84	0.83	-0.15	
14,480.57	90.37	269.45	8,963.26	600.61	-5,346.78	5,347.92	0.76	0.75	-0.08	
14,493.86	90.46	269.45	8,963.16	600.48	-5,360.06	5,361.21	0.68	0.68	0.00	
14,507.14	90.54	269.45	8,963.04	600.35	-5,373.34	5,374.49	0.60	0.60	0.00	
14,520.43	90.62	269.45	8,962.91	600.23	-5,386.63	5,387.77	0.60	0.60	0.00	
14,533.71	90.71	269.44	8,962.75	600.10	-5,399.91	5,401.05	0.68	0.68	-0.08	
14,547.00	90.79	269.44	8,962.58	599.97	-5,413.20	5,414.34	0.60	0.60	0.00	
14,560.57	90.87	269.44	8,962.38	599.83	-5,426.77	5,427.91	0.59	0.59	0.00	
14,574.14	90.95	269.44	8,962.17	599.70	-5,440.33	5,441.48	0.59	0.59	0.00	
14,587.71	91.04	269.43	8,961.93	599.57	-5,453.90	5,455.04	0.67	0.66	-0.07	
14,601.29	91.12	269.42	8,961.68	599.43	-5,467.48	5,468.62	0.59	0.59	-0.07	
14,614.86	91.20	269.40	8,961.40	599.29	-5,481.05	5,482.19	0.61	0.59	-0.15	
14,628.43	91.29	269.38	8,961.11	599.15	-5,494.61	5,495.75	0.68	0.66	-0.15	
14,642.00	91.37	269.35	8,960.79	599.00	-5,508.18	5,509.32	0.63	0.59	-0.22	
14,655.57	91.45	269.31	8,960.46	598.84	-5,521.74	5,522.88	0.66	0.59	-0.29	
14,669.14	91.53	269.27	8,960.11	598.67	-5,535.31	5,536.45	0.66	0.59	-0.29	
14,682.71	91.61	269.22	8,959.73	598.49	-5,548.87	5,550.01	0.70	0.59	-0.37	
14,696.29	91.69	269.16	8,959.34	598.30	-5,562.44	5,563.58	0.74	0.59	-0.44	
14,709.86	91.75	269.10	8,958.94	598.09	-5,576.01	5,577.14	0.63	0.44	-0.44	
14,723.43	91.81	269.04	8,958.51	597.87	-5,589.57	5,590.70	0.63	0.44	-0.44	
14,737.00	91.86	268.99	8,958.08	597.64	-5,603.13	5,604.27	0.52	0.37	-0.37	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,750.29	91.89	268.93	8,957.64	597.40	-5,616.41	5,617.55	0.50	0.23	-0.45
14,763.57	91.91	268.88	8,957.20	597.15	-5,629.68	5,630.82	0.41	0.15	-0.38
14,776.86	91.92	268.82	8,956.76	596.88	-5,642.96	5,644.09	0.46	0.08	-0.45
14,790.14	91.92	268.76	8,956.32	596.60	-5,656.23	5,657.36	0.45	0.00	-0.45
14,803.43	91.91	268.68	8,955.87	596.30	-5,669.51	5,670.64	0.61	-0.08	-0.60
14,816.71	91.25	268.97	8,955.51	596.03	-5,682.78	5,683.91	5.43	-4.97	2.18
14,830.00	90.26	269.48	8,955.33	595.85	-5,696.07	5,697.20	8.38	-7.45	3.84
14,843.43	89.24	270.17	8,955.39	595.81	-5,709.50	5,710.63	9.17	-7.59	5.14
14,856.86	88.26	270.77	8,955.68	595.92	-5,722.92	5,724.06	8.56	-7.30	4.47
14,870.29	87.79	270.78	8,956.14	596.10	-5,736.34	5,737.48	3.50	-3.50	0.07
14,883.71	87.66	270.46	8,956.68	596.25	-5,749.75	5,750.89	2.57	-0.97	-2.38
14,897.14	87.52	270.12	8,957.24	596.31	-5,763.17	5,764.30	2.74	-1.04	-2.53
14,910.57	87.39	269.79	8,957.84	596.30	-5,776.59	5,777.72	2.64	-0.97	-2.46
14,924.00	87.31	269.52	8,958.46	596.22	-5,790.00	5,791.14	2.09	-0.60	-2.01
14,937.43	87.28	269.36	8,959.09	596.09	-5,803.42	5,804.55	1.21	-0.22	-1.19
14,950.86	87.31	269.27	8,959.73	595.93	-5,816.83	5,817.96	0.71	0.22	-0.67
14,964.29	87.36	269.22	8,960.35	595.75	-5,830.25	5,831.38	0.53	0.37	-0.37
14,977.71	87.43	269.20	8,960.96	595.57	-5,843.65	5,844.78	0.54	0.52	-0.15
14,991.14	87.52	269.19	8,961.55	595.38	-5,857.07	5,858.20	0.67	0.67	-0.07
15,004.57	87.63	269.20	8,962.12	595.19	-5,870.48	5,871.61	0.82	0.82	0.07
15,018.00	87.74	269.20	8,962.66	595.01	-5,883.90	5,885.03	0.82	0.82	0.00
15,031.57	87.87	269.19	8,963.18	594.82	-5,897.46	5,898.59	0.96	0.96	-0.07
15,045.14	88.00	269.17	8,963.67	594.62	-5,911.02	5,912.15	0.97	0.96	-0.15
15,058.71	88.14	269.16	8,964.13	594.42	-5,924.58	5,925.71	1.03	1.03	-0.07
15,072.29	88.27	269.14	8,964.55	594.22	-5,938.15	5,939.28	0.97	0.96	-0.15
15,085.86	88.39	269.13	8,964.95	594.02	-5,951.71	5,952.84	0.89	0.88	-0.07
15,099.43	88.50	269.12	8,965.32	593.81	-5,965.28	5,966.41	0.81	0.81	-0.07
15,113.00	88.58	269.13	8,965.66	593.60	-5,978.84	5,979.97	0.59	0.59	0.07
15,126.43	88.62	269.15	8,965.99	593.40	-5,992.27	5,993.39	0.33	0.30	0.15
15,139.86	88.63	269.18	8,966.31	593.21	-6,005.69	6,006.82	0.24	0.07	0.22
15,153.29	88.62	269.21	8,966.64	593.02	-6,019.12	6,020.24	0.24	-0.07	0.22
15,166.71	88.59	269.24	8,966.96	592.84	-6,032.53	6,033.66	0.32	-0.22	0.22
15,180.14	88.56	269.26	8,967.30	592.66	-6,045.95	6,047.08	0.27	-0.22	0.15
15,193.57	88.11	270.21	8,967.69	592.60	-6,059.38	6,060.51	7.82	-3.35	7.07
15,207.00	87.69	271.23	8,968.18	592.77	-6,072.80	6,073.93	8.21	-3.13	7.59
15,220.57	87.47	271.57	8,968.75	593.10	-6,086.35	6,087.48	2.98	-1.62	2.51
15,234.14	87.39	271.59	8,969.36	593.47	-6,099.90	6,101.03	0.61	-0.59	0.15
15,247.71	87.23	271.54	8,970.00	593.84	-6,113.45	6,114.58	1.24	-1.18	-0.37
15,261.29	87.07	271.49	8,970.67	594.20	-6,127.01	6,128.14	1.23	-1.18	-0.37
15,274.86	86.92	271.44	8,971.38	594.55	-6,140.56	6,141.69	1.17	-1.11	-0.37
15,288.43	86.78	271.39	8,972.13	594.88	-6,154.10	6,155.23	1.10	-1.03	-0.37
15,302.00	86.68	271.34	8,972.90	595.20	-6,167.65	6,168.78	0.82	-0.74	-0.37
15,315.57	86.63	271.31	8,973.70	595.52	-6,181.19	6,182.32	0.43	-0.37	-0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
15,329.14	86.63	271.27	8,974.49	595.82	-6,194.73	6,195.87	0.29	0.00	-0.29	
15,342.71	86.65	271.24	8,975.29	596.12	-6,208.28	6,209.41	0.27	0.15	-0.22	
15,356.29	86.69	271.21	8,976.08	596.41	-6,221.83	6,222.97	0.37	0.29	-0.22	
15,369.86	86.73	271.18	8,976.86	596.69	-6,235.38	6,236.51	0.37	0.29	-0.22	
15,383.43	86.79	271.15	8,977.62	596.97	-6,248.92	6,250.06	0.49	0.44	-0.22	
15,397.00	86.85	271.10	8,978.38	597.23	-6,262.47	6,263.60	0.58	0.44	-0.37	
15,410.43	86.91	271.05	8,979.11	597.48	-6,275.88	6,277.01	0.58	0.45	-0.37	
15,423.86	86.97	270.98	8,979.82	597.72	-6,289.29	6,290.42	0.69	0.45	-0.52	
15,437.29	87.03	270.91	8,980.53	597.94	-6,302.69	6,303.83	0.69	0.45	-0.52	
15,450.71	87.10	270.84	8,981.21	598.15	-6,316.10	6,317.23	0.74	0.52	-0.52	
15,464.14	87.16	270.77	8,981.89	598.34	-6,329.51	6,330.64	0.69	0.45	-0.52	
15,477.57	87.22	270.70	8,982.55	598.51	-6,342.92	6,344.06	0.69	0.45	-0.52	
15,491.00	87.27	270.63	8,983.19	598.66	-6,356.33	6,357.47	0.64	0.37	-0.52	
15,504.29	87.32	270.57	8,983.82	598.80	-6,369.61	6,370.75	0.59	0.38	-0.45	
15,517.57	87.36	270.51	8,984.43	598.93	-6,382.87	6,384.01	0.54	0.30	-0.45	
15,530.86	87.40	270.46	8,985.04	599.04	-6,396.15	6,397.29	0.48	0.30	-0.38	
15,544.14	87.44	270.41	8,985.64	599.14	-6,409.42	6,410.55	0.48	0.30	-0.38	
15,557.43	87.48	270.35	8,986.23	599.23	-6,422.69	6,423.83	0.54	0.30	-0.45	
15,570.71	87.51	270.30	8,986.81	599.30	-6,435.96	6,437.10	0.44	0.23	-0.38	
15,584.00	87.53	270.24	8,987.38	599.37	-6,449.24	6,450.38	0.48	0.15	-0.45	
15,597.43	87.55	270.17	8,987.96	599.42	-6,462.65	6,463.79	0.54	0.15	-0.52	
15,610.86	87.56	270.11	8,988.53	599.45	-6,476.07	6,477.21	0.45	0.07	-0.45	
15,624.29	87.58	270.04	8,989.10	599.47	-6,489.49	6,490.63	0.54	0.15	-0.52	
15,637.71	87.59	269.97	8,989.67	599.47	-6,502.90	6,504.04	0.53	0.07	-0.52	
15,651.14	87.61	269.90	8,990.23	599.45	-6,516.32	6,517.45	0.54	0.15	-0.52	
15,664.57	87.64	269.84	8,990.79	599.42	-6,529.73	6,530.87	0.50	0.22	-0.45	
15,678.00	87.69	269.77	8,991.33	599.38	-6,543.15	6,544.29	0.64	0.37	-0.52	
15,691.57	87.76	269.71	8,991.87	599.31	-6,556.71	6,557.85	0.68	0.52	-0.44	
15,705.14	87.84	269.65	8,992.39	599.24	-6,570.27	6,571.41	0.74	0.59	-0.44	
15,718.71	87.94	269.60	8,992.89	599.15	-6,583.83	6,584.97	0.82	0.74	-0.37	
15,732.29	88.04	269.54	8,993.37	599.05	-6,597.40	6,598.54	0.86	0.74	-0.44	
15,745.86	88.13	269.49	8,993.82	598.93	-6,610.97	6,612.10	0.76	0.66	-0.37	
15,759.43	88.23	269.43	8,994.25	598.80	-6,624.53	6,625.67	0.86	0.74	-0.44	
15,773.00	88.31	269.37	8,994.66	598.66	-6,638.09	6,639.23	0.74	0.59	-0.44	
15,786.29	88.38	269.31	8,995.05	598.51	-6,651.37	6,652.51	0.69	0.53	-0.45	
15,799.57	88.43	269.24	8,995.42	598.34	-6,664.65	6,665.79	0.65	0.38	-0.53	
15,812.86	88.47	269.18	8,995.78	598.16	-6,677.93	6,679.07	0.54	0.30	-0.45	
15,826.14	88.51	269.12	8,996.13	597.96	-6,691.21	6,692.34	0.54	0.30	-0.45	
15,839.43	88.55	269.06	8,996.47	597.75	-6,704.49	6,705.63	0.54	0.30	-0.45	
15,852.71	88.57	269.01	8,996.80	597.53	-6,717.76	6,718.90	0.41	0.15	-0.38	
15,866.00	88.59	268.97	8,997.13	597.29	-6,731.05	6,732.18	0.34	0.15	-0.30	
15,879.57	88.60	268.94	8,997.46	597.05	-6,744.61	6,745.75	0.23	0.07	-0.22	
15,893.14	88.60	268.92	8,997.80	596.79	-6,758.18	6,759.31	0.15	0.00	-0.15	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)	
15,906.71	88.59	268.91	8,998.13	596.54	-6,771.74	6,772.87	0.10	-0.07	-0.07	
15,920.29	88.59	268.89	8,998.46	596.27	-6,785.31	6,786.44	0.15	0.00	-0.15	
15,933.86	88.60	268.88	8,998.80	596.01	-6,798.88	6,800.01	0.10	0.07	-0.07	
15,947.43	88.59	268.92	8,999.13	595.75	-6,812.44	6,813.57	0.30	-0.07	0.29	
15,961.00	88.28	269.67	8,999.50	595.58	-6,826.00	6,827.13	5.98	-2.28	5.53	
15,974.43	88.53	269.83	8,999.87	595.52	-6,839.43	6,840.56	2.21	1.86	1.19	
15,987.86	88.58	269.80	9,000.21	595.48	-6,852.85	6,853.98	0.43	0.37	-0.22	
16,001.29	88.63	269.77	9,000.54	595.43	-6,866.28	6,867.41	0.43	0.37	-0.22	
16,014.71	88.68	269.73	9,000.85	595.37	-6,879.70	6,880.83	0.48	0.37	-0.30	
16,028.14	88.74	269.69	9,001.16	595.30	-6,893.12	6,894.25	0.54	0.45	-0.30	
16,041.57	88.79	269.66	9,001.44	595.23	-6,906.55	6,907.68	0.43	0.37	-0.22	
16,055.00	88.83	269.62	9,001.72	595.14	-6,919.98	6,921.11	0.42	0.30	-0.30	
16,068.57	88.87	269.58	9,002.00	595.05	-6,933.54	6,934.67	0.42	0.29	-0.29	
16,082.14	88.90	269.54	9,002.26	594.95	-6,947.11	6,948.24	0.37	0.22	-0.29	
16,095.71	88.93	269.51	9,002.52	594.83	-6,960.68	6,961.81	0.31	0.22	-0.22	
16,109.29	88.97	269.47	9,002.77	594.71	-6,974.25	6,975.38	0.42	0.29	-0.29	
16,122.86	89.01	269.44	9,003.00	594.58	-6,987.82	6,988.95	0.37	0.29	-0.22	
16,136.43	89.07	269.42	9,003.23	594.45	-7,001.39	7,002.52	0.47	0.44	-0.15	
16,150.00	89.14	269.41	9,003.44	594.31	-7,014.96	7,016.08	0.52	0.52	-0.07	
16,163.43	89.25	269.41	9,003.63	594.17	-7,028.38	7,029.51	0.82	0.82	0.00	
16,176.86	89.38	269.42	9,003.79	594.03	-7,041.81	7,042.94	0.97	0.97	0.07	
16,190.29	89.52	269.44	9,003.92	593.90	-7,055.24	7,056.37	1.05	1.04	0.15	
16,203.71	89.67	269.45	9,004.02	593.77	-7,068.66	7,069.79	1.12	1.12	0.07	
16,217.14	89.82	269.46	9,004.08	593.64	-7,082.09	7,083.22	1.12	1.12	0.07	
16,230.57	89.96	269.47	9,004.10	593.52	-7,095.52	7,096.64	1.05	1.04	0.07	
16,244.00	90.08	269.47	9,004.10	593.39	-7,108.95	7,110.07	0.89	0.89	0.00	
16,257.43	90.19	269.45	9,004.07	593.27	-7,122.38	7,123.50	0.83	0.82	-0.15	
16,270.86	90.28	269.41	9,004.01	593.13	-7,135.81	7,136.93	0.73	0.67	-0.30	
16,284.29	90.36	269.38	9,003.94	592.99	-7,149.24	7,150.36	0.64	0.60	-0.22	
16,297.71	90.43	269.33	9,003.84	592.84	-7,162.65	7,163.78	0.64	0.52	-0.37	
16,311.14	90.51	269.29	9,003.73	592.68	-7,176.08	7,177.21	0.67	0.60	-0.30	
16,324.57	90.58	269.24	9,003.61	592.51	-7,189.51	7,190.64	0.64	0.52	-0.37	
16,338.00	90.66	269.20	9,003.46	592.32	-7,202.94	7,204.06	0.67	0.60	-0.30	
16,351.29	90.75	269.17	9,003.30	592.13	-7,216.23	7,217.35	0.71	0.68	-0.23	
16,364.57	90.84	269.13	9,003.11	591.94	-7,229.50	7,230.63	0.74	0.68	-0.30	
16,377.86	90.94	269.11	9,002.91	591.73	-7,242.79	7,243.91	0.77	0.75	-0.15	
16,391.14	91.04	269.09	9,002.68	591.52	-7,256.07	7,257.19	0.77	0.75	-0.15	
16,404.43	91.14	269.07	9,002.42	591.31	-7,269.35	7,270.48	0.77	0.75	-0.15	
16,417.71	91.23	269.06	9,002.15	591.09	-7,282.63	7,283.75	0.68	0.68	-0.08	
16,431.00	91.32	269.06	9,001.85	590.88	-7,295.91	7,297.03	0.68	0.68	0.00	
16,444.43	91.41	269.08	9,001.53	590.66	-7,309.34	7,310.46	0.69	0.67	0.15	
16,457.86	91.48	269.11	9,001.20	590.45	-7,322.76	7,323.88	0.57	0.52	0.22	
16,471.29	91.56	269.14	9,000.84	590.24	-7,336.19	7,337.31	0.64	0.60	0.22	
16,484.71	91.63	269.17	9,000.47	590.04	-7,349.60	7,350.72	0.57	0.52	0.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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)
16,498.14	91.70	269.20	9,000.08	589.85	-7,363.02	7,364.14	0.57	0.52	0.22
16,511.57	91.77	269.21	8,999.67	589.67	-7,376.44	7,377.56	0.53	0.52	0.07
16,525.00	91.84	269.21	8,999.25	589.48	-7,389.87	7,390.98	0.52	0.52	0.00
16,537.83	91.90	269.19	8,998.83	589.30	-7,402.69	7,403.81	0.49	0.47	-0.16
16,550.67	91.97	269.14	8,998.39	589.12	-7,415.52	7,416.64	0.67	0.55	-0.39
16,563.50	92.04	269.09	8,997.94	588.92	-7,428.34	7,429.46	0.67	0.55	-0.39
16,576.33	92.11	269.04	8,997.48	588.71	-7,441.16	7,442.28	0.67	0.55	-0.39
16,589.17	92.17	268.98	8,997.00	588.49	-7,453.99	7,455.11	0.66	0.47	-0.47
16,594.13	92.19	268.96	8,996.81	588.40	-7,458.94	7,460.06	0.56	0.47	-0.31
05-LTP(BD34-133H-v04)									
16,602.00	92.23	268.94	8,996.51	588.25	-7,466.81	7,467.92	0.56	0.47	-0.31
Final MWD Survey: 16602.00' MD, 92.23°INC, 268.94°AZ									
16,634.72	92.23	268.94	8,995.23	587.65	-7,499.50	7,500.62	0.00	0.00	0.00
04-7500(BD34-133H-v04)									
16,660.00	92.23	268.94	8,994.25	587.18	-7,524.75	7,525.87	0.00	0.00	0.00
PTB: 16660.00' MD, 92.23°INC, 268.94°AZ - 06-PBHL(BD34-133H-v04)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
167.01	167.00	Rustler				
402.07	402.00	Top of Salt				
1,157.24	1,157.00	Base of Salt				
1,407.37	1,407.00	Yates				
1,712.50	1,712.00	Capitan				
3,519.88	3,512.00	DLWR Mnt. Group				
5,407.44	5,387.00	Lower Brushy Canyon				
5,734.00	5,712.00	Bone Spring Lime				
7,123.57	7,097.00	1st Bone Spring SD				
7,325.33	7,297.00	2nd Bone Spring LM				
7,922.15	7,892.00	2nd Bone Spring SD				
8,273.53	8,242.00	3rd Bone Spring LM				
8,925.61	8,847.00	3rd Spring LM				



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Black Diamond 34 Fed Com 133H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3330+22 @ 3352.00usft
Site:	Black Diamond 34 Fed Com	MD Reference:	3330+22 @ 3352.00usft
Well:	Black Diamond 34 Fed Com 133H	North Reference:	Grid
Wellbore:	133H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,500.00	8,468.03	521.30	297.77	KOP: 8500.00' MD, -296.76' VS, 8468.03' TVD
8,683.59	8,645.31	532.52	260.10	100FEL: 8683.59' MD, -259.08' VS, 8645.30' TVD
9,520.00	9,085.83	623.17	-391.33	EOC: 9520.00' MD, 392.52' VS, 9085.83' TVD
16,602.00	8,996.51	588.25	-7,466.81	Final MWD Survey: 16602.00' MD, 92.23°INC, 268.94°AZ
16,660.00	8,994.25	587.18	-7,524.75	PTB: 16660.00' MD, 92.23°INC, 268.94°AZ

Checked By: _____ Approved By: _____ Date: _____

Office
 District I – (575) 393-6161
 1625 N. French Dr., Hobbs, NM 88240
 District II – (575) 748-1283
 811 S. First St., Artesia, NM 88210
 District III – (505) 334-6178
 1000 Rio Brazos Rd., Aztec, NM 87410
 District IV – (505) 476-3460
 1220 S. St. Francis Dr., Santa Fe, NM
 87505

State of New Mexico
 Energy, Minerals and Natural Resources

Form C-103
 Revised July 18, 2013

OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

WELL API NO. 30-015-47824
5. Indicate Type of Lease STATE ☐ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Black Diamond 34 Fed
8. Well Number 133H
9. OGRID Number 371449
10. Pool name or Wildcat Parkway; Bone Spring
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3330 GL

SUNDRY NOTICES AND REPORTS ON WELLS
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐
 2. Name of Operator
Colgate Operating, LLC
 3. Address of Operator
300 North Marienfeld, Suite 1,000 – Midland, Tx 79701
 4. Well Location
 Unit Letter: P 1135 feet from the South line and 359 feet from the East line
 Section: 34 Township: 19S Range: 29E NMPM County: Eddy

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK ☐	REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐	ALTERING CASING ☐
PULL OR ALTER CASING ☐	COMMENCE DRILLING OPNS. ☐
DOWNHOLE COMMINGLE ☐	P AND A ☐
CLOSED-LOOP SYSTEM ☐	CASING/CEMENT JOB ☐
OTHER: ☐	OTHER: New Well Completion ☒

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

1/20/2022- Pressured up casing to 7,000 psi with a 15 minute test and 8,000 psi with a 15 minute test
 2/27/2022- Perf and frac stages 1-40.
 Perfs 9,495 – 16,438
 Frac with 303,796 bbl liquid and 15,657,729 lbs of proppant
 3/02/2022- Drilled out plugs
 Turn over to production. Tubing 2.875 @ 9,097
 TD 16,660 - PBTD 16,560

Spud Date: 11/20/2021

Rig Release Date: 12/24/2021

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE: Mikah Thomas

TITLE: Sr. Regulatory Analyst

DATE: 05/15/2022

Type or print name Mikah Thomas

E-mail address: mtomas@colgateenergy.com

PHONE: 432-695-4272

For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any): _____

Submit To Appropriate District Office Two Copies <u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 811 S. First St., Artesia, NM 88210 <u>District III</u> 1000 Rio Brazos Rd., Aztec, NM 87410 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505		State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505				Form C-105 Revised April 3, 2017				
WELL COMPLETION OR RECOMPLETION REPORT AND LOG										
4. Reason for filing: ☒ COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only) ☐ C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)								5. Lease Name or Unit Agreement Name Black Diamond 34 Fed		
7. Type of Completion: ☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER								6. Well Number: 133H		
8. Name of Operator Colgate Operating, LLC						9. OGRID 371449				
10. Address of Operator 300 North Marcienfeld, Suite 1,000 Midland, Texas 79705						11. Pool name or Wildcat Parkway; Bone Spring				
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	P	34	19S	29E		1135	South	359	East	Eddy
BH:	J	33	19S	29E		1707	South	2601	East	Eddy
13. Date Spudded 11/20/2021	14. Date T.D. Reached 12/21/2021		15. Date Rig Released 12/24/2021			16. Date Completed (Ready to Produce) 3/2/2022		17. Elevations (DF and RKB, RT, GR, etc.) 3330		
18. Total Measured Depth of Well 16,660			19. Plug Back Measured Depth 16,560			20. Was Directional Survey Made? Yes		21. Type Electric and Other Logs Run Gamma Ray		
22. Producing Interval(s), of this completion - Top, Bottom, Name 9,495-16,438 Parkway; Bone Spring										
23. CASING RECORD (Report all strings set in well)										
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED
18.625		87.5		349		22.375		Prem Plus 620 sx 1.34		
11.75		54.5		1,481		17.5		Prem Plus 273 sx 2.08, 250 sx 1.34		
8.625		36		3,387		10.625		Prem Plus 500 sx 2.07, 155 sx 1.34		
5.5		17		16,650		7.875		Prem 530 sx 2.41, 915 sx 1.73		
24. LINER RECORD										
SIZE	TOP	BOTTOM	SACKS CEMENT		SCREEN		25. TUBING RECORD			
							SIZE		DEPTH SET	PACKER SET
							2 7/8		9097	
26. Perforation record (interval, size, and number) 9,495-16,438 0.37 1,314 holes						27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.				
						DEPTH INTERVAL		AMOUNT AND KIND MATERIAL USED		
						9,495-16,438		Total Proppant 15,657,729 – Total Fluid 303,796		
28. PRODUCTION										
Date First Production 03/21/2022		Production Method (<i>Flowing, gas lift, pumping - Size and type pump</i>) Gas Lift				Well Status (<i>Prod. or Shut-in</i>) Producing				
Date of Test 04/6/2022	Hours Tested 24	Choke Size 88/88	Prod'n For Test Period	Oil – Bbl 1165	Gas – MCF 1547	Water - Bbl. 2798	Gas - Oil Ratio			
Flow Tubing Press. 2000	Casing Pressure 320	Calculated 24-Hour Rate	Oil - Bbl. 1165	Gas - MCF 1547	Water - Bbl. 2798	Oil Gravity - API - (<i>Corr.</i>) 42.8				
29. Disposition of Gas (<i>Sold, used for fuel, vented, etc.</i>) Sold								30. Test Witnessed By Colgate Operating, LLC		
31. List Attachments C-102, C-103, C-104, Directionnel Survey										
32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.								33. Rig Release Date:		
34. If an on-site burial was used at the well, report the exact location of the on-site burial:										
Latitude				Longitude				NAD83		

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature

Printed

Name: Mikah Thomas

Title: Sr. Regulatory Analyst

Date: 05/15/2022

E-mail Address: mthomas@colgateenergy.com

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well and not later than 60 days after completion of closure. When submitted as a completion report, this shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 11, 12 and 26-31 shall be reported for each zone.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Rustler- 167	T. Canyon	T. Ojo Alamo	T. Penn A"
T. Salt- 402	T. Strawn	T. Kirtland	T. Penn. "B"
B. Salt- 1157	T. Atoka	T. Fruitland	T. Penn. "C"
T. Yates- 1407	T. Miss	T. Pictured Cliffs	T. Penn. "D"
T. DLWR Mnt. Group- 3520	T. Devonian	T. Cliff House	T. Leadville
T. L Brushy Canyon- 5407	T. Silurian	T. Menefee	T. Madison
T. BS Lime- 5734	T. Montoya	T. Point Lookout	T. Elbert
T. 1 st Bone Spring SD- 7124	T. Simpson	T. Mancos	T. McCracken
T. 2 nd Bone Spring LM- 7325	T. McKee	T. Gallup	T. Ignacio Otzte
T. 2 nd Bone Spring SD- 7922	T. Ellenburger	Base Greenhorn	T. Granite
T. 3 rd Bone Spring LM- 8274	T. Gr. Wash	T. Dakota	
T. 3 rd Bone Spring SD- 8926	T. Delaware Sand	T. Morrison	
T. Drinkard	T. Bone Springs	T. Todilto	
T. Abo	T. Capitan- 1713	T. Entrada	
T. Wolfcamp	T.	T. Wingate	
T. Penn	T.	T. Chinle	
T. Cisco (Bough C)	T.	T. Permian	

OIL OR GAS SANDS OR ZONES

No. 1, from.....to.....

No. 3, from.....to.....

No. 2, from.....to.....

No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....

No. 2, from.....to.....feet.....

No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology	From	To	Thickness In Feet	Lithology
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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

ACKNOWLEDGMENTS

Action 116253

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 116253
	Action Type: [C-104] Completion Packet (C-104C)

ACKNOWLEDGMENTS

☒	I hereby certify that the required Water Use Report has been, or will be, submitted for this wells completion.
☒	I hereby certify that the required FracFocus disclosure has been, or will be, submitted for this wells completion.

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

CONDITIONS

Action 116253

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 116253
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	File 3160-4 Completion Report and 3160-5 Completion Sundry within 10 days to NMOCD after BLM approval.	6/13/2022