

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

State of New Mexico
Energy, Minerals & Natural Resources

Form C-104
Revised August 1, 2011

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 RT	
⁴ API Number 30 – 015 – 47751	⁵ Pool Name WINCHESTER; BONE SPRING		⁶ Pool Code 65010
⁷ Property Code 329804	⁸ Property Name SHAMROCK 34 FED COM		⁹ Well Number 132H

II. ¹⁰ Surface Location

UL or lot no. I	Section 34	Township 19S	Range 28E	Lot Idn	Feet from the 2609	North/South Line South	Feet from the 340	East/West line East	County Eddy
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¹¹ Bottom Hole Location

UL or lot no. E	Section 33	Township 19S	Range 28E	Lot Idn	Feet from the 2226	North/South line North	Feet from the 31	East/West line West	County Eddy
¹² Lse Code F	¹³ Producing Method Code		¹⁴ Gas Connection Date 05/01/2022		¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date		¹⁷ C-129 Expiration Date	

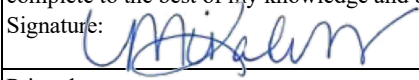
III. Oil and Gas Transporters

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 12/03/2021	²² Ready Date 05/01/2022	²³ TD 18,822 18,761 MD 8438 8,628 TVD	²⁴ PBTD 18,802 MD 8,444 TVD	²⁵ Perforations 8,959-18,589	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size	²⁹ Depth Set		³⁰ Sacks Cement
17.5		13.375	350		350 Tail
12.25		9.625	3,024		550 Lead 210 Tail
8.75		5.5	18,802		800 Lead 1,330 Tail

V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		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: Operations Tech			Title: PETROLEUM SPECIALIST		
E-mail Address: mthomas@colgateenergy.com			Approval Date: 5/10/2022		
Date: 04/18/2022		Phone: 432-695-4272	RT EXPIRES 8/1/2022		

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

OIL CONSERVATION DIVISION

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

AS-DRILLED

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-47751	² Pool Code 65010	³ Pool Name Winchester; Bone Spring
⁴ Property Code 329804	⁵ Property Name Shamrock 34 Fed Com	⁶ Well Number 132H
⁷ OGRID No. 371449	⁸ Operator Name Colgate Operating, LLC	⁹ Elevation 3310

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
I	34	19 S	28 E		2609	South	340	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
E	33	19 S	28 E		2226	North	31	West	Eddy

¹² Dedicated Acres 320.00	¹³ Joint or Infill	¹⁴ Consolidation Code C	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

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Legend:

- = Surface Location
- = Bottom Hole Location
- ◇ = Kick Off Point (KOP)
- △ = First Take Point (FTP)
- = Last Take Point (LTP)
- ⊙ = Found 1941 USGLO Brass Cap
- ⊙ = Found 1942 USGLO Brass Cap
- ⊙ = Found Monument

NOTE:
DOWNHOLE INFORMATION TAKEN
FROM A REPORT FURNISHED
BY COLGATE ENERGY, DATED 12-16-21

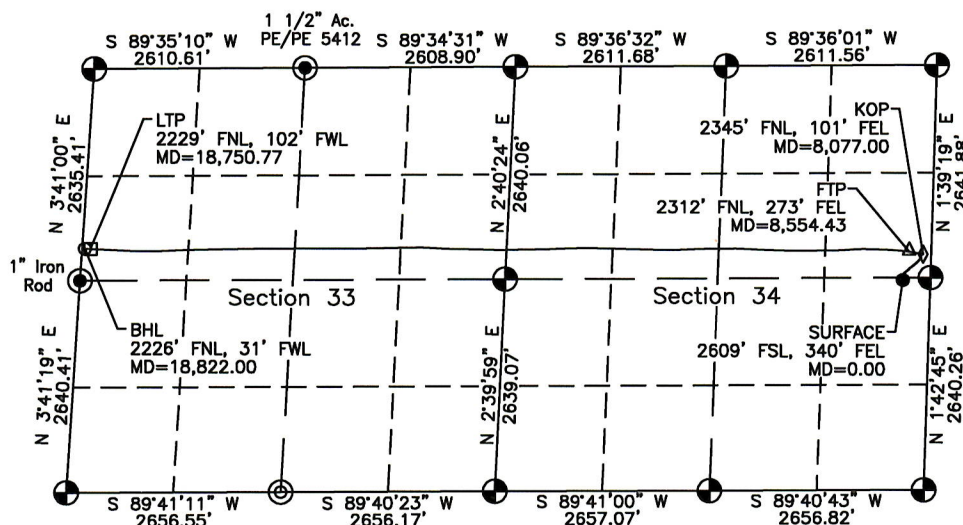
SURFACE LOCATION
NAD 83 NMSPC ZONE 3001
Y= 588309.04 N
X= 595566.64 E
LAT.= 32.6171889° N
LONG.= 104.1572040° W

KICK OFF POINT
NAD 83 NMSPC ZONE 3001
Y= 588634.46 N
X= 595814.76 E
LAT.= 32.6180822° N
LONG.= 104.1563964° W

FIRST TAKE POINT
NAD 83 NMSPC ZONE 3001
Y= 588666.67 N
X= 595643.85 E
LAT.= 32.6181716° N
LONG.= 104.1569513° W

LAST TAKE POINT
NAD 83 NMSPC ZONE 3001
Y= 588677.08 N
X= 585500.19 E
LAT.= 32.6182421° N
LONG.= 104.1898968° W

BOTTOM HOLE LOCATION
NAD 83 NMSPC ZONE 3001
Y= 588679.61 N
X= 585429.17 E
LAT.= 32.6182493° N
LONG.= 104.1901275° 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 01.17.2022
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.

Date of Survey
Signature and Seal of Professional Surveyor



17078
Certificate Number



Colgate Energy

Eddy County, NM (N83-NME)

Shamrock 34 Fed State Com

Shamrock 34 Fed Com 132H

30-015-47751

132H

Design: DRL

Standard Survey Report

16 December, 2021



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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	Shamrock 34 Fed State Com		
Site Position:		Northing:	590,282.94 usft
From:	Map	Easting:	596,293.88 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.62261125
		Longitude:	-104.15483124

Well	Shamrock 34 Fed Com 132H		
Well Position	+N/-S	0.00 usft	Northing: 588,309.04 usft
	+E/-W	0.00 usft	Easting: 595,566.64 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.09 °	Ground Level:	3,310.00 usft

Wellbore	132H		
Magnetics	Model Name	Sample Date	Declination (°)
	IFR	11/26/2021	7.12
			Dip Angle (°)
			60.34
			Field Strength (nT)
			47,737.10000000

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 (°)
			270.14

Survey Program	Date	12/16/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
14.21	18,761.00	Survey #01_Gordon (132H)	MWD+IFR1+SAG+FDIR (SQ OWSG MWD + IFR1 + Sag + FDIR Correction	
18,822.00	18,822.00	Survey #02_PTB (132H)	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	
14.21	0.02	251.65	14.21	0.00	0.00	0.00	0.14	0.14	0.00	
28.43	0.03	252.89	28.43	0.00	-0.01	0.01	0.07	0.07	8.72	
42.64	0.05	254.13	42.64	-0.01	-0.02	0.02	0.14	0.14	8.73	
56.86	0.06	255.39	56.86	-0.01	-0.03	0.03	0.07	0.07	8.86	
71.07	0.08	256.65	71.07	-0.01	-0.05	0.05	0.14	0.14	8.87	
85.29	0.09	257.92	85.29	-0.02	-0.07	0.07	0.07	0.07	8.93	
99.50	0.11	259.20	99.50	-0.02	-0.09	0.09	0.14	0.14	9.01	
105.00	0.12	259.76	105.00	-0.02	-0.10	0.10	0.15	0.14	10.27	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
Rustler										
113.71	0.13	260.49	113.71	-0.03	-0.12	0.12	0.14	0.14		8.33
127.93	0.14	261.78	127.93	-0.03	-0.16	0.16	0.07	0.07		9.07
142.14	0.16	263.07	142.14	-0.04	-0.19	0.19	0.14	0.14		9.08
156.36	0.17	264.37	156.36	-0.04	-0.23	0.23	0.08	0.07		9.14
170.57	0.19	265.66	170.57	-0.05	-0.28	0.28	0.14	0.14		9.08
184.79	0.20	266.96	184.79	-0.05	-0.33	0.33	0.08	0.07		9.14
199.00	0.22	268.26	199.00	-0.05	-0.38	0.38	0.14	0.14		9.15
212.14	0.29	265.55	212.14	-0.05	-0.44	0.44	0.54	0.53		-20.62
225.29	0.36	263.98	225.29	-0.06	-0.51	0.51	0.54	0.53		-11.94
238.43	0.43	262.99	238.43	-0.07	-0.60	0.60	0.54	0.53		-7.53
251.57	0.49	262.36	251.57	-0.09	-0.70	0.70	0.46	0.46		-4.79
264.71	0.56	261.94	264.71	-0.10	-0.82	0.82	0.53	0.53		-3.20
277.86	0.63	261.66	277.86	-0.12	-0.96	0.96	0.53	0.53		-2.13
291.00	0.70	261.49	291.00	-0.14	-1.11	1.11	0.53	0.53		-1.29
305.58	0.78	256.21	305.58	-0.18	-1.29	1.29	0.72	0.55		-36.21
320.17	0.86	251.98	320.16	-0.24	-1.50	1.49	0.69	0.55		-28.99
334.75	0.95	248.56	334.74	-0.32	-1.71	1.71	0.72	0.62		-23.46
349.33	1.04	245.76	349.32	-0.41	-1.94	1.94	0.70	0.62		-19.20
357.01	1.09	244.50	357.00	-0.47	-2.07	2.07	0.69	0.61		-16.45
Top of Salt										
363.92	1.13	243.45	363.91	-0.53	-2.19	2.19	0.69	0.62		-15.14
378.50	1.23	241.52	378.48	-0.67	-2.46	2.46	0.74	0.69		-13.24
393.08	1.32	239.89	393.06	-0.83	-2.74	2.74	0.67	0.62		-11.18
407.67	1.42	238.51	407.65	-1.01	-3.04	3.04	0.72	0.69		-9.46
422.25	1.51	237.33	422.22	-1.21	-3.36	3.36	0.65	0.62		-8.09
436.83	1.61	236.31	436.80	-1.43	-3.69	3.69	0.71	0.69		-7.00
451.42	1.70	235.42	451.38	-1.66	-4.04	4.04	0.64	0.62		-6.10
466.00	1.80	234.65	465.95	-1.92	-4.40	4.40	0.70	0.69		-5.28
480.83	1.80	231.96	480.78	-2.20	-4.78	4.77	0.57	0.00		-18.14
495.67	1.80	228.95	495.61	-2.49	-5.14	5.13	0.64	0.00		-20.28
510.50	1.81	225.77	510.43	-2.81	-5.48	5.47	0.68	0.07		-21.44
525.33	1.82	222.52	525.25	-3.15	-5.81	5.80	0.70	0.07		-21.92
540.17	1.84	219.27	540.09	-3.50	-6.12	6.11	0.71	0.13		-21.90
555.00	1.86	216.07	554.91	-3.88	-6.41	6.40	0.71	0.13		-21.58
570.00	1.84	212.88	569.90	-4.28	-6.68	6.67	0.70	-0.13		-21.27
585.00	1.82	209.72	584.89	-4.69	-6.93	6.92	0.69	-0.13		-21.07
600.00	1.80	206.62	599.89	-5.11	-7.16	7.14	0.67	-0.13		-20.67
615.00	1.79	203.63	614.88	-5.53	-7.36	7.34	0.63	-0.07		-19.93
630.00	1.77	200.80	629.87	-5.96	-7.53	7.52	0.60	-0.13		-18.87
645.00	1.76	198.26	644.86	-6.40	-7.69	7.67	0.53	-0.07		-16.93
658.44	1.74	196.49	658.30	-6.79	-7.81	7.79	0.43	-0.15		-13.17
671.89	1.71	194.97	671.74	-7.18	-7.92	7.90	0.41	-0.22		-11.30



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
683.15	1.69	193.85	683.00	-7.50	-8.00	7.98	0.33	-0.15	-9.95
Base of Salt									
685.33	1.69	193.63	685.18	-7.57	-8.02	8.00	0.33	-0.15	-10.10
698.78	1.67	192.44	698.62	-7.95	-8.11	8.09	0.30	-0.15	-8.85
712.22	1.65	191.36	712.05	-8.33	-8.19	8.17	0.28	-0.15	-8.04
725.67	1.63	190.37	725.50	-8.71	-8.26	8.24	0.26	-0.15	-7.36
739.11	1.61	189.47	738.93	-9.08	-8.32	8.30	0.24	-0.15	-6.70
752.56	1.59	188.67	752.38	-9.46	-8.38	8.36	0.22	-0.15	-5.95
766.00	1.57	187.97	765.81	-9.82	-8.44	8.41	0.21	-0.15	-5.21
779.43	1.56	187.37	779.24	-10.19	-8.49	8.46	0.14	-0.07	-4.47
792.86	1.55	186.88	792.66	-10.55	-8.53	8.51	0.12	-0.07	-3.65
806.29	1.54	186.50	806.09	-10.91	-8.57	8.55	0.11	-0.07	-2.83
819.71	1.53	186.23	819.50	-11.26	-8.61	8.59	0.09	-0.07	-2.01
833.14	1.52	186.08	832.93	-11.62	-8.65	8.62	0.08	-0.07	-1.12
846.57	1.51	186.09	846.35	-11.97	-8.69	8.66	0.07	-0.07	0.07
860.00	1.51	186.29	859.78	-12.32	-8.73	8.70	0.04	0.00	1.49
873.57	1.52	186.75	873.34	-12.68	-8.77	8.74	0.12	0.07	3.39
887.14	1.52	187.39	886.91	-13.04	-8.81	8.78	0.13	0.00	4.72
900.71	1.53	188.12	900.47	-13.40	-8.86	8.83	0.16	0.07	5.38
914.29	1.54	188.88	914.05	-13.76	-8.92	8.88	0.17	0.07	5.60
927.86	1.55	189.63	927.61	-14.12	-8.97	8.94	0.17	0.07	5.53
941.43	1.55	190.31	941.18	-14.48	-9.04	9.00	0.14	0.00	5.01
955.00	1.55	190.85	954.74	-14.84	-9.11	9.07	0.11	0.00	3.98
960.26	1.55	190.85	960.00	-14.98	-9.13	9.10	0.00	0.00	0.00
Yates									
968.43	1.54	191.07	968.17	-15.19	-9.17	9.14	0.14	-0.12	2.69
981.86	1.53	191.11	981.60	-15.55	-9.24	9.21	0.07	-0.07	0.30
995.29	1.51	191.04	995.02	-15.90	-9.31	9.27	0.15	-0.15	-0.52
1,008.71	1.49	190.93	1,008.44	-16.24	-9.38	9.34	0.15	-0.15	-0.82
1,022.14	1.46	190.80	1,021.86	-16.58	-9.44	9.40	0.22	-0.22	-0.97
1,035.57	1.44	190.70	1,035.29	-16.92	-9.51	9.47	0.15	-0.15	-0.74
1,049.00	1.42	190.66	1,048.71	-17.24	-9.57	9.53	0.15	-0.15	-0.30
1,062.57	1.41	190.77	1,062.28	-17.57	-9.63	9.59	0.08	-0.07	0.81
1,076.14	1.39	190.97	1,075.84	-17.90	-9.69	9.65	0.15	-0.15	1.47
1,089.71	1.38	191.26	1,089.41	-18.22	-9.76	9.71	0.09	-0.07	2.14
1,103.29	1.36	191.65	1,102.99	-18.54	-9.82	9.78	0.16	-0.15	2.87
1,116.86	1.35	192.15	1,116.55	-18.85	-9.89	9.84	0.11	-0.07	3.68
1,130.43	1.33	192.80	1,130.12	-19.16	-9.96	9.91	0.19	-0.15	4.79
1,144.00	1.31	193.65	1,143.69	-19.47	-10.03	9.98	0.21	-0.15	6.26
1,157.43	1.29	194.74	1,157.11	-19.76	-10.10	10.05	0.24	-0.15	8.12
1,170.86	1.27	196.04	1,170.54	-20.05	-10.18	10.13	0.26	-0.15	9.68
1,184.29	1.24	197.55	1,183.97	-20.33	-10.27	10.22	0.33	-0.22	11.24
1,197.71	1.22	199.23	1,197.38	-20.61	-10.36	10.31	0.31	-0.15	12.52
1,211.14	1.20	201.09	1,210.81	-20.87	-10.46	10.40	0.33	-0.15	13.85



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
1,224.57	1.19	203.13	1,224.24	-21.13	-10.56	10.51	0.33	-0.07	15.19
1,238.00	1.18	205.35	1,237.66	-21.39	-10.68	10.62	0.35	-0.07	16.53
1,251.57	1.18	207.77	1,251.23	-21.64	-10.80	10.75	0.37	0.00	17.83
1,265.14	1.18	210.33	1,264.80	-21.88	-10.94	10.88	0.39	0.00	18.87
1,278.71	1.18	212.86	1,278.37	-22.12	-11.08	11.03	0.38	0.00	18.64
1,292.29	1.19	215.24	1,291.94	-22.35	-11.24	11.18	0.37	0.07	17.53
1,305.86	1.20	217.30	1,305.51	-22.58	-11.41	11.35	0.33	0.07	15.18
1,319.43	1.21	218.90	1,319.08	-22.80	-11.58	11.53	0.26	0.07	11.79
1,333.00	1.22	219.80	1,332.64	-23.03	-11.77	11.71	0.16	0.07	6.63
1,346.43	1.23	219.69	1,346.07	-23.25	-11.95	11.89	0.08	0.07	-0.82
1,359.86	1.24	218.93	1,359.50	-23.47	-12.13	12.07	0.14	0.07	-5.66
1,373.29	1.25	217.78	1,372.92	-23.70	-12.31	12.26	0.20	0.07	-8.56
1,386.71	1.26	216.41	1,386.34	-23.93	-12.49	12.43	0.24	0.07	-10.21
1,400.14	1.27	214.97	1,399.77	-24.17	-12.66	12.60	0.25	0.07	-10.72
1,413.57	1.29	213.59	1,413.19	-24.42	-12.83	12.77	0.27	0.15	-10.28
1,427.00	1.31	212.41	1,426.62	-24.68	-13.00	12.94	0.25	0.15	-8.79
1,440.57	1.33	211.33	1,440.19	-24.94	-13.16	13.10	0.24	0.15	-7.96
1,454.14	1.35	210.47	1,453.75	-25.22	-13.33	13.26	0.21	0.15	-6.34
1,467.71	1.37	209.81	1,467.32	-25.49	-13.49	13.43	0.19	0.15	-4.86
1,481.29	1.39	209.33	1,480.90	-25.78	-13.65	13.59	0.17	0.15	-3.53
1,494.86	1.39	209.07	1,494.46	-26.07	-13.81	13.75	0.05	0.00	-1.92
1,508.43	1.39	209.09	1,508.03	-26.35	-13.97	13.91	0.00	0.00	0.15
1,522.00	1.35	209.50	1,521.59	-26.64	-14.13	14.06	0.30	-0.29	3.02
1,535.43	1.29	210.65	1,535.02	-26.90	-14.28	14.22	0.49	-0.45	8.56
1,548.86	1.20	212.38	1,548.45	-27.15	-14.44	14.37	0.73	-0.67	12.88
1,562.29	1.10	214.62	1,561.87	-27.38	-14.58	14.52	0.82	-0.74	16.68
1,575.71	1.00	217.34	1,575.29	-27.58	-14.73	14.66	0.83	-0.75	20.27
1,589.14	0.90	220.42	1,588.72	-27.75	-14.87	14.80	0.84	-0.74	22.93
1,602.57	0.81	223.58	1,602.15	-27.90	-15.00	14.93	0.76	-0.67	23.53
1,616.00	0.72	226.19	1,615.58	-28.03	-15.13	15.06	0.72	-0.67	19.43
1,629.57	0.46	239.42	1,629.15	-28.11	-15.24	15.17	2.15	-1.92	97.49
1,643.14	0.49	1.49	1,642.72	-28.08	-15.28	15.21	6.13	0.22	899.56
1,656.71	1.28	21.45	1,656.28	-27.88	-15.23	15.16	6.16	5.82	147.09
1,670.29	2.12	22.12	1,669.86	-27.51	-15.08	15.01	6.19	6.19	4.93
1,683.86	2.17	18.00	1,683.42	-27.03	-14.90	14.84	1.19	0.37	-30.36
1,697.43	2.17	13.39	1,696.98	-26.54	-14.76	14.70	1.29	0.00	-33.97
1,711.00	2.18	9.35	1,710.54	-26.04	-14.66	14.60	1.13	0.07	-29.77
1,724.43	2.16	7.06	1,723.96	-25.53	-14.59	14.53	0.66	-0.15	-17.05
1,737.86	2.15	5.75	1,737.38	-25.03	-14.53	14.47	0.37	-0.07	-9.75
1,751.29	2.15	5.11	1,750.80	-24.53	-14.48	14.42	0.18	0.00	-4.77
1,764.71	2.15	4.91	1,764.21	-24.03	-14.44	14.38	0.06	0.00	-1.49
1,778.14	2.16	5.01	1,777.63	-23.52	-14.40	14.34	0.08	0.07	0.74
1,791.57	2.16	5.30	1,791.05	-23.02	-14.35	14.29	0.08	0.00	2.16



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
1,805.00	2.17	5.71	1,804.47	-22.51	-14.30	14.25	0.14	0.07	3.05	
1,818.57	2.18	6.24	1,818.03	-22.00	-14.25	14.20	0.17	0.07	3.91	
1,832.14	2.18	6.80	1,831.59	-21.49	-14.19	14.14	0.16	0.00	4.13	
1,845.71	2.18	7.36	1,845.15	-20.98	-14.13	14.08	0.16	0.00	4.13	
1,859.29	2.19	7.90	1,858.72	-20.46	-14.06	14.01	0.17	0.07	3.98	
1,872.86	2.20	8.36	1,872.28	-19.95	-13.98	13.94	0.15	0.07	3.39	
1,886.43	2.20	8.71	1,885.84	-19.43	-13.91	13.86	0.10	0.00	2.58	
1,900.00	2.21	8.87	1,899.40	-18.92	-13.83	13.78	0.09	0.07	1.18	
1,913.43	2.22	8.73	1,912.82	-18.41	-13.75	13.70	0.08	0.07	-1.04	
1,926.86	2.23	8.42	1,926.24	-17.89	-13.67	13.63	0.12	0.07	-2.31	
1,940.29	2.24	8.01	1,939.66	-17.37	-13.60	13.55	0.14	0.07	-3.05	
1,953.71	2.25	7.56	1,953.07	-16.85	-13.52	13.48	0.15	0.07	-3.35	
1,967.14	2.26	7.12	1,966.49	-16.33	-13.46	13.42	0.15	0.07	-3.28	
1,980.57	2.28	6.75	1,979.91	-15.80	-13.39	13.35	0.18	0.15	-2.76	
1,994.00	2.29	6.49	1,993.33	-15.27	-13.33	13.29	0.11	0.07	-1.94	
2,007.57	2.30	6.42	2,006.89	-14.73	-13.27	13.23	0.08	0.07	-0.52	
2,021.14	2.32	6.48	2,020.45	-14.18	-13.21	13.17	0.15	0.15	0.44	
2,034.71	2.33	6.60	2,034.01	-13.64	-13.15	13.11	0.08	0.07	0.88	
2,048.29	2.34	6.76	2,047.58	-13.09	-13.08	13.05	0.09	0.07	1.18	
2,061.86	2.35	6.93	2,061.14	-12.54	-13.01	12.98	0.09	0.07	1.25	
2,075.43	2.36	7.07	2,074.69	-11.98	-12.95	12.92	0.09	0.07	1.03	
2,089.00	2.37	7.16	2,088.25	-11.43	-12.88	12.85	0.08	0.07	0.66	
2,102.43	2.38	7.14	2,101.67	-10.87	-12.81	12.78	0.07	0.07	-0.15	
2,115.86	2.38	7.06	2,115.09	-10.32	-12.74	12.71	0.02	0.00	-0.60	
2,129.29	2.38	6.93	2,128.51	-9.77	-12.67	12.65	0.04	0.00	-0.97	
2,142.71	2.39	6.77	2,141.92	-9.21	-12.60	12.58	0.09	0.07	-1.19	
2,156.14	2.39	6.58	2,155.33	-8.66	-12.54	12.52	0.06	0.00	-1.41	
2,169.57	2.40	6.37	2,168.75	-8.10	-12.48	12.46	0.10	0.07	-1.56	
2,183.00	2.41	6.14	2,182.17	-7.54	-12.42	12.40	0.10	0.07	-1.71	
2,196.43	2.42	5.88	2,195.59	-6.98	-12.36	12.34	0.11	0.07	-1.94	
2,209.86	2.44	5.60	2,209.01	-6.41	-12.30	12.28	0.17	0.15	-2.08	
2,223.29	2.46	5.32	2,222.42	-5.84	-12.24	12.23	0.17	0.15	-2.08	
2,236.71	2.48	5.03	2,235.83	-5.26	-12.19	12.18	0.18	0.15	-2.16	
2,250.14	2.50	4.76	2,249.25	-4.68	-12.14	12.13	0.17	0.15	-2.01	
2,263.57	2.52	4.50	2,262.67	-4.09	-12.09	12.08	0.17	0.15	-1.94	
2,277.00	2.54	4.25	2,276.08	-3.50	-12.05	12.04	0.17	0.15	-1.86	
2,290.57	2.54	4.03	2,289.64	-2.90	-12.01	12.00	0.07	0.00	-1.62	
2,304.14	2.55	3.83	2,303.20	-2.30	-11.96	11.96	0.10	0.07	-1.47	
2,317.71	2.55	3.67	2,316.75	-1.70	-11.93	11.92	0.05	0.00	-1.18	
2,331.29	2.56	3.55	2,330.32	-1.10	-11.89	11.88	0.08	0.07	-0.88	
2,344.86	2.56	3.49	2,343.88	-0.49	-11.85	11.85	0.02	0.00	-0.44	
2,358.43	2.56	3.52	2,357.43	0.11	-11.81	11.81	0.01	0.00	0.22	
2,372.00	2.56	3.67	2,370.99	0.72	-11.78	11.78	0.05	0.00	1.11	
2,385.57	2.56	4.03	2,384.55	1.32	-11.73	11.74	0.12	0.00	2.65	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
2,399.14	2.57	4.49	2,398.10	1.93	-11.69	11.69	0.17	0.07	3.39	
2,412.71	2.57	5.01	2,411.66	2.54	-11.64	11.65	0.17	0.00	3.83	
2,426.29	2.57	5.54	2,425.23	3.14	-11.58	11.59	0.18	0.00	3.90	
2,439.86	2.57	6.03	2,438.78	3.75	-11.52	11.53	0.16	0.00	3.61	
2,453.43	2.58	6.44	2,452.34	4.35	-11.46	11.47	0.15	0.07	3.02	
2,467.00	2.58	6.70	2,465.89	4.96	-11.39	11.40	0.09	0.00	1.92	
2,480.43	2.58	6.71	2,479.31	5.56	-11.31	11.33	0.00	0.00	0.07	
2,493.86	2.58	6.57	2,492.73	6.16	-11.24	11.26	0.05	0.00	-1.04	
2,507.29	2.57	6.34	2,506.14	6.76	-11.18	11.19	0.11	-0.07	-1.71	
2,520.71	2.57	6.08	2,519.55	7.36	-11.11	11.13	0.09	0.00	-1.94	
2,521.16	2.57	6.26	2,520.00	7.38	-11.11	11.13	1.77	0.01	39.44	
Capitan										
2,534.14	2.57	5.82	2,532.97	7.96	-11.05	11.07	0.15	0.00	-3.37	
2,547.57	2.57	5.62	2,546.38	8.56	-10.99	11.01	0.07	0.00	-1.49	
2,561.00	2.58	5.52	2,559.80	9.16	-10.93	10.95	0.08	0.07	-0.74	
2,574.57	2.59	5.61	2,573.36	9.77	-10.87	10.90	0.08	0.07	0.66	
2,588.14	2.60	5.80	2,586.91	10.38	-10.81	10.84	0.10	0.07	1.40	
2,601.71	2.62	6.06	2,600.47	10.99	-10.75	10.77	0.17	0.15	1.92	
2,615.29	2.64	6.36	2,614.03	11.61	-10.68	10.71	0.18	0.15	2.21	
2,628.86	2.66	6.66	2,627.59	12.24	-10.61	10.64	0.18	0.15	2.21	
2,642.43	2.67	6.95	2,641.14	12.86	-10.53	10.56	0.12	0.07	2.14	
2,656.00	2.69	7.20	2,654.70	13.49	-10.46	10.49	0.17	0.15	1.84	
2,669.43	2.70	7.41	2,668.11	14.12	-10.37	10.41	0.10	0.07	1.56	
2,682.86	2.71	7.57	2,681.53	14.75	-10.29	10.33	0.09	0.07	1.19	
2,696.29	2.71	7.68	2,694.94	15.38	-10.21	10.25	0.04	0.00	0.82	
2,709.71	2.72	7.75	2,708.35	16.01	-10.12	10.16	0.08	0.07	0.52	
2,723.14	2.73	7.75	2,721.76	16.64	-10.04	10.08	0.07	0.07	0.00	
2,736.57	2.74	7.67	2,735.18	17.27	-9.95	9.99	0.08	0.07	-0.60	
2,750.00	2.75	7.47	2,748.59	17.91	-9.87	9.91	0.10	0.07	-1.49	
2,763.57	2.77	7.10	2,762.15	18.56	-9.78	9.83	0.20	0.15	-2.73	
2,777.14	2.80	6.62	2,775.70	19.21	-9.70	9.75	0.28	0.22	-3.54	
2,790.71	2.82	6.07	2,789.26	19.88	-9.63	9.68	0.25	0.15	-4.05	
2,804.29	2.85	5.48	2,802.82	20.54	-9.56	9.61	0.31	0.22	-4.34	
2,817.86	2.87	4.87	2,816.37	21.22	-9.50	9.55	0.27	0.15	-4.50	
2,831.43	2.90	4.23	2,829.92	21.90	-9.45	9.50	0.32	0.22	-4.72	
2,845.00	2.92	3.57	2,843.48	22.59	-9.40	9.46	0.29	0.15	-4.86	
2,859.00	2.92	2.85	2,857.46	23.30	-9.36	9.42	0.26	0.00	-5.14	
2,873.00	2.93	2.13	2,871.44	24.01	-9.33	9.39	0.27	0.07	-5.14	
2,887.00	2.92	1.41	2,885.42	24.73	-9.31	9.37	0.27	-0.07	-5.14	
2,901.00	2.92	0.71	2,899.40	25.44	-9.29	9.36	0.25	0.00	-5.00	
2,915.00	2.92	0.05	2,913.39	26.15	-9.29	9.35	0.24	0.00	-4.71	
2,929.00	2.92	359.46	2,927.37	26.87	-9.29	9.36	0.21	0.00	-4.21	
2,943.00	2.93	358.95	2,941.35	27.58	-9.30	9.37	0.20	0.07	-3.64	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
2,957.00	2.93	358.58	2,955.33	28.29	-9.32	9.39	0.14	0.00	-2.64
2,971.38	2.95	358.41	2,969.69	29.03	-9.34	9.41	0.15	0.14	-1.18
2,985.75	2.97	358.36	2,984.04	29.77	-9.36	9.43	0.14	0.14	-0.35
3,000.13	2.99	358.40	2,998.40	30.52	-9.38	9.45	0.14	0.14	0.28
3,014.50	3.01	358.47	3,012.75	31.27	-9.40	9.48	0.14	0.14	0.49
3,028.88	3.04	358.55	3,027.11	32.03	-9.42	9.50	0.21	0.21	0.56
3,043.25	3.06	358.59	3,041.46	32.80	-9.44	9.52	0.14	0.14	0.28
3,054.80	3.07	358.57	3,053.00	33.41	-9.45	9.54	0.08	0.08	-0.15
DLWR Mnt. Group									
3,057.63	3.07	358.57	3,055.82	33.56	-9.46	9.54	0.05	0.05	-0.09
3,072.00	3.08	358.40	3,070.17	34.34	-9.48	9.56	0.09	0.07	-1.18
3,085.43	3.07	358.01	3,083.58	35.06	-9.50	9.59	0.17	-0.07	-2.90
3,098.86	3.06	357.50	3,096.99	35.77	-9.53	9.62	0.22	-0.07	-3.80
3,112.29	3.05	356.98	3,110.40	36.49	-9.56	9.65	0.22	-0.07	-3.87
3,125.71	3.04	356.52	3,123.81	37.20	-9.60	9.70	0.20	-0.07	-3.43
3,139.14	3.03	356.23	3,137.22	37.91	-9.65	9.74	0.14	-0.07	-2.16
3,152.57	3.03	356.22	3,150.63	38.62	-9.70	9.79	0.00	0.00	-0.07
3,166.00	3.05	356.65	3,164.04	39.33	-9.74	9.84	0.23	0.15	3.20
3,179.43	3.10	357.72	3,177.45	40.05	-9.78	9.87	0.57	0.37	7.97
3,192.86	3.16	359.14	3,190.86	40.78	-9.80	9.90	0.73	0.45	10.57
3,206.29	3.24	0.70	3,204.27	41.53	-9.80	9.90	0.88	0.60	11.62
3,219.71	3.33	2.27	3,217.67	42.30	-9.78	9.88	0.95	0.67	11.70
3,233.14	3.43	3.74	3,231.07	43.09	-9.73	9.84	0.99	0.74	10.95
3,246.57	3.52	5.01	3,244.48	43.90	-9.67	9.78	0.88	0.67	9.46
3,260.00	3.61	5.97	3,257.88	44.73	-9.59	9.70	0.80	0.67	7.15
3,273.57	4.16	14.07	3,271.42	45.63	-9.43	9.54	5.72	4.05	59.69
3,287.14	4.80	22.63	3,284.95	46.64	-9.09	9.20	6.81	4.72	63.08
3,300.71	5.04	24.90	3,298.47	47.70	-8.62	8.74	2.28	1.77	16.73
3,314.29	5.12	24.85	3,312.00	48.79	-8.12	8.23	0.59	0.59	-0.37
3,327.86	5.20	24.82	3,325.51	49.90	-7.60	7.72	0.59	0.59	-0.22
3,341.43	5.30	24.93	3,339.03	51.03	-7.08	7.21	0.74	0.74	0.81
3,355.00	5.40	25.32	3,352.54	52.17	-6.54	6.67	0.78	0.74	2.87
3,368.43	5.53	26.20	3,365.90	53.32	-5.99	6.12	1.15	0.97	6.55
3,381.86	5.67	27.32	3,379.27	54.49	-5.40	5.53	1.32	1.04	8.34
3,395.29	5.81	28.54	3,392.63	55.68	-4.77	4.90	1.38	1.04	9.08
3,408.71	5.95	29.75	3,405.98	56.88	-4.10	4.24	1.39	1.04	9.02
3,422.14	6.09	30.88	3,419.34	58.10	-3.39	3.53	1.37	1.04	8.41
3,435.57	6.21	31.85	3,432.69	59.32	-2.64	2.78	1.18	0.89	7.22
3,449.00	6.64	33.97	3,446.04	60.59	-1.82	1.97	3.66	3.20	15.79
3,462.57	7.51	37.40	3,459.50	61.94	-0.84	1.00	7.12	6.41	25.28
3,476.14	8.25	40.46	3,472.95	63.39	0.33	-0.17	6.27	5.45	22.55
3,489.71	8.25	40.55	3,486.38	64.87	1.59	-1.43	0.10	0.00	0.66
3,503.29	8.23	40.53	3,499.81	66.35	2.86	-2.69	0.15	-0.15	-0.15
3,516.86	8.20	40.41	3,513.25	67.82	4.11	-3.95	0.25	-0.22	-0.88



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
3,530.43	8.15	40.19	3,526.68	69.29	5.36	-5.19	0.43	-0.37	-1.62	
3,544.00	8.07	39.85	3,540.11	70.76	6.59	-6.42	0.69	-0.59	-2.51	
3,557.43	7.96	39.38	3,553.41	72.20	7.79	-7.61	0.95	-0.82	-3.50	
3,570.86	7.83	38.82	3,566.71	73.63	8.95	-8.77	1.12	-0.97	-4.17	
3,584.29	7.69	38.21	3,580.02	75.05	10.08	-9.90	1.21	-1.04	-4.54	
3,597.71	7.55	37.59	3,593.32	76.46	11.17	-10.99	1.21	-1.04	-4.62	
3,611.14	7.43	37.02	3,606.64	77.85	12.23	-12.04	1.05	-0.89	-4.24	
3,624.57	7.32	36.58	3,619.96	79.23	13.27	-13.07	0.92	-0.82	-3.28	
3,638.00	7.24	36.37	3,633.28	80.60	14.28	-14.08	0.63	-0.60	-1.56	
3,651.43	7.21	36.57	3,646.60	81.95	15.28	-15.08	0.29	-0.22	1.49	
3,664.86	7.22	37.00	3,659.93	83.31	16.29	-16.09	0.41	0.07	3.20	
3,678.29	7.25	37.56	3,673.25	84.65	17.32	-17.11	0.57	0.22	4.17	
3,691.71	7.30	38.20	3,686.56	85.99	18.36	-18.15	0.71	0.37	4.77	
3,705.14	7.36	38.87	3,699.88	87.33	19.43	-19.22	0.78	0.45	4.99	
3,718.57	7.42	39.53	3,713.20	88.67	20.52	-20.30	0.77	0.45	4.91	
3,732.00	7.48	40.16	3,726.52	90.01	21.64	-21.42	0.75	0.45	4.69	
3,745.57	7.61	42.47	3,739.97	91.35	22.81	-22.59	2.43	0.96	17.02	
3,759.14	8.06	47.81	3,753.41	92.65	24.12	-23.90	6.30	3.32	39.35	
3,772.71	8.34	48.69	3,766.84	93.94	25.57	-25.34	2.26	2.06	6.48	
3,786.29	8.39	49.18	3,780.28	95.23	27.06	-26.83	0.64	0.37	3.61	
3,799.86	8.44	49.65	3,793.70	96.53	28.57	-28.33	0.63	0.37	3.46	
3,813.43	8.46	50.06	3,807.12	97.81	30.09	-29.85	0.47	0.15	3.02	
3,827.00	8.46	50.39	3,820.55	99.09	31.62	-31.38	0.36	0.00	2.43	
3,836.56	8.42	50.51	3,830.00	99.98	32.71	-32.46	0.42	-0.37	1.26	
Lower Brushy Canyon										
3,840.43	8.41	50.56	3,833.83	100.34	33.14	-32.90	0.42	-0.37	1.27	
3,853.86	8.33	50.64	3,847.12	101.58	34.65	-34.41	0.60	-0.60	0.60	
3,867.29	8.23	50.66	3,860.41	102.81	36.15	-35.90	0.74	-0.74	0.15	
3,880.71	8.12	50.63	3,873.69	104.02	37.63	-37.37	0.82	-0.82	-0.22	
3,894.14	8.02	50.57	3,886.99	105.22	39.08	-38.83	0.75	-0.74	-0.45	
3,907.57	7.92	50.50	3,900.29	106.40	40.52	-40.26	0.75	-0.74	-0.52	
3,921.00	7.84	50.43	3,913.59	107.57	41.94	-41.68	0.60	-0.60	-0.52	
3,934.43	7.79	50.39	3,926.90	108.74	43.35	-43.08	0.37	-0.37	-0.30	
3,947.86	7.76	50.36	3,940.20	109.90	44.75	-44.48	0.23	-0.22	-0.22	
3,961.29	7.74	50.32	3,953.51	111.05	46.14	-45.87	0.15	-0.15	-0.30	
3,974.71	7.74	50.25	3,966.81	112.21	47.53	-47.26	0.07	0.00	-0.52	
3,988.14	7.75	50.16	3,980.12	113.36	48.92	-48.65	0.12	0.07	-0.67	
4,001.57	7.77	50.01	3,993.42	114.53	50.31	-50.03	0.21	0.15	-1.12	
4,015.00	7.80	49.81	4,006.73	115.70	51.70	-51.42	0.30	0.22	-1.49	
4,028.57	7.84	49.49	4,020.17	116.89	53.11	-52.83	0.44	0.29	-2.36	
4,042.14	7.90	49.12	4,033.62	118.11	54.52	-54.23	0.58	0.44	-2.73	
4,055.71	7.96	48.72	4,047.06	119.34	55.93	-55.64	0.60	0.44	-2.95	
4,069.29	8.03	48.30	4,060.50	120.59	57.35	-57.05	0.67	0.52	-3.09	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
4,082.86	8.10	47.90	4,073.94	121.86	58.76	-58.47	0.66	0.52	-2.95	
4,096.43	8.17	47.51	4,087.37	123.15	60.18	-59.88	0.66	0.52	-2.87	
4,110.00	8.23	47.18	4,100.81	124.46	61.61	-61.30	0.56	0.44	-2.43	
4,123.43	8.28	46.92	4,114.10	125.78	63.02	-62.71	0.46	0.37	-1.94	
4,136.86	8.33	46.69	4,127.39	127.10	64.43	-64.12	0.45	0.37	-1.71	
4,150.29	8.36	46.48	4,140.67	128.44	65.85	-65.53	0.32	0.22	-1.56	
4,163.71	8.39	46.24	4,153.95	129.79	67.26	-66.95	0.34	0.22	-1.79	
4,177.14	8.39	45.96	4,167.24	131.15	68.68	-68.35	0.30	0.00	-2.08	
4,190.57	8.37	45.58	4,180.52	132.52	70.08	-69.75	0.44	-0.15	-2.83	
4,200.15	8.33	45.21	4,190.00	133.49	71.07	-70.74	0.67	-0.37	-3.87	
Bone Spring Lime										
4,204.00	8.32	45.06	4,193.81	133.89	71.46	-71.14	0.67	-0.37	-3.89	
4,217.57	8.20	44.27	4,207.24	135.27	72.83	-72.50	1.22	-0.88	-5.82	
4,231.14	8.05	43.34	4,220.67	136.66	74.16	-73.83	1.47	-1.11	-6.85	
4,244.71	7.87	42.34	4,234.11	138.04	75.44	-75.10	1.67	-1.33	-7.37	
4,258.29	7.69	41.34	4,247.57	139.41	76.67	-76.33	1.66	-1.33	-7.36	
4,271.86	7.51	40.46	4,261.02	140.76	77.84	-77.50	1.58	-1.33	-6.48	
4,285.43	7.34	39.83	4,274.48	142.10	78.97	-78.62	1.39	-1.25	-4.64	
4,299.00	7.18	39.67	4,287.94	143.42	80.07	-79.72	1.19	-1.18	-1.18	
4,312.43	7.06	40.43	4,301.26	144.69	81.14	-80.79	1.14	-0.89	5.66	
4,325.86	6.96	41.68	4,314.59	145.93	82.22	-81.86	1.36	-0.74	9.31	
4,339.29	6.89	43.21	4,327.92	147.13	83.31	-82.95	1.47	-0.52	11.39	
4,352.71	6.84	44.83	4,341.25	148.28	84.42	-84.06	1.49	-0.37	12.07	
4,366.14	6.79	46.37	4,354.58	149.39	85.56	-85.20	1.41	-0.37	11.47	
4,379.57	6.75	47.66	4,367.92	150.47	86.72	-86.35	1.17	-0.30	9.61	
4,393.00	7.47	53.08	4,381.25	151.53	88.00	-87.63	7.32	5.36	40.36	
4,406.43	7.92	58.29	4,394.56	152.54	89.49	-89.11	6.18	3.35	38.79	
4,419.86	7.87	58.30	4,407.86	153.51	91.06	-90.68	0.37	-0.37	0.07	
4,433.29	7.82	58.13	4,421.16	154.48	92.61	-92.24	0.41	-0.37	-1.27	
4,446.71	7.77	57.84	4,434.46	155.44	94.16	-93.78	0.47	-0.37	-2.16	
4,460.14	7.71	57.45	4,447.77	156.41	95.68	-95.30	0.59	-0.45	-2.90	
4,473.57	7.65	57.00	4,461.08	157.38	97.19	-96.81	0.63	-0.45	-3.35	
4,487.00	7.59	56.49	4,474.39	158.36	98.68	-98.30	0.67	-0.45	-3.80	
4,500.57	7.50	55.96	4,487.84	159.35	100.16	-99.77	0.84	-0.66	-3.91	
4,514.14	7.40	55.40	4,501.30	160.34	101.62	-101.23	0.91	-0.74	-4.13	
4,527.71	7.30	54.82	4,514.75	161.33	103.04	-102.65	0.92	-0.74	-4.27	
4,541.29	7.19	54.21	4,528.23	162.33	104.44	-104.04	0.99	-0.81	-4.49	
4,554.86	7.08	53.58	4,541.69	163.32	105.80	-105.40	0.99	-0.81	-4.64	
4,568.43	6.96	52.95	4,555.16	164.31	107.13	-106.73	1.05	-0.88	-4.64	
4,582.00	6.85	52.34	4,568.63	165.30	108.42	-108.02	0.97	-0.81	-4.50	
4,595.43	6.72	51.84	4,581.97	166.28	109.68	-109.27	1.06	-0.97	-3.72	
4,608.86	6.59	51.37	4,595.31	167.24	110.90	-110.49	1.05	-0.97	-3.50	
4,622.29	6.47	50.92	4,608.65	168.20	112.08	-111.67	0.97	-0.89	-3.35	
4,635.71	6.37	50.47	4,621.98	169.15	113.25	-112.83	0.83	-0.75	-3.35	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
4,649.14	6.30	50.03	4,635.33	170.10	114.39	-113.97	0.63	-0.52	-3.28
4,662.57	6.26	49.61	4,648.68	171.05	115.51	-115.09	0.45	-0.30	-3.13
4,676.00	6.29	49.23	4,662.03	172.00	116.62	-116.20	0.38	0.22	-2.83
4,689.57	6.41	48.88	4,675.52	172.98	117.76	-117.33	0.93	0.88	-2.58
4,703.14	6.60	48.58	4,689.00	174.00	118.91	-118.49	1.42	1.40	-2.21
4,716.71	6.81	48.31	4,702.48	175.05	120.10	-119.67	1.56	1.55	-1.99
4,730.29	7.03	48.08	4,715.96	176.14	121.32	-120.89	1.63	1.62	-1.69
4,743.86	7.24	47.89	4,729.42	177.27	122.57	-122.14	1.56	1.55	-1.40
4,757.43	7.42	47.75	4,742.88	178.43	123.85	-123.42	1.33	1.33	-1.03
4,771.00	8.43	47.71	4,756.32	179.69	125.24	-124.80	7.44	7.44	-0.29
4,784.43	9.51	48.34	4,769.59	181.09	126.79	-126.35	8.07	8.04	4.69
4,797.86	10.57	49.68	4,782.81	182.62	128.56	-128.12	8.08	7.89	9.98
4,811.29	10.58	49.84	4,796.01	184.22	130.44	-129.99	0.23	0.07	1.19
4,824.71	10.57	50.06	4,809.21	185.80	132.33	-131.87	0.31	-0.07	1.64
4,838.14	10.55	50.29	4,822.41	187.38	134.22	-133.76	0.35	-0.15	1.71
4,851.57	10.52	50.49	4,835.61	188.94	136.11	-135.65	0.35	-0.22	1.49
4,865.00	10.49	50.64	4,848.82	190.50	138.00	-137.54	0.30	-0.22	1.12
4,878.57	10.46	50.67	4,862.16	192.06	139.91	-139.44	0.22	-0.22	0.22
4,892.14	10.43	50.61	4,875.51	193.62	141.81	-141.34	0.24	-0.22	-0.44
4,905.71	10.40	50.51	4,888.85	195.18	143.71	-143.23	0.26	-0.22	-0.74
4,919.29	10.37	50.36	4,902.21	196.74	145.59	-145.11	0.30	-0.22	-1.10
4,932.86	10.33	50.18	4,915.56	198.30	147.47	-146.98	0.38	-0.29	-1.33
4,946.43	10.30	49.98	4,928.91	199.86	149.33	-148.84	0.34	-0.22	-1.47
4,960.00	10.27	49.76	4,942.26	201.42	151.18	-150.69	0.36	-0.22	-1.62
4,973.43	10.23	49.52	4,955.48	202.97	153.01	-152.51	0.44	-0.30	-1.79
4,986.86	10.20	49.28	4,968.70	204.52	154.81	-154.31	0.39	-0.22	-1.79
5,000.29	10.17	49.03	4,981.91	206.07	156.61	-156.11	0.40	-0.22	-1.86
5,013.71	10.13	48.77	4,995.12	207.62	158.39	-157.88	0.45	-0.30	-1.94
5,027.14	10.10	48.52	5,008.34	209.18	160.16	-159.65	0.40	-0.22	-1.86
5,040.57	10.06	48.27	5,021.57	210.74	161.92	-161.40	0.44	-0.30	-1.86
5,054.00	10.03	48.03	5,034.79	212.31	163.67	-163.15	0.38	-0.22	-1.79
5,067.57	9.99	47.84	5,048.16	213.89	165.42	-164.89	0.38	-0.29	-1.40
5,081.14	9.95	47.66	5,061.52	215.47	167.16	-166.63	0.37	-0.29	-1.33
5,094.71	9.91	47.49	5,074.89	217.04	168.88	-168.35	0.37	-0.29	-1.25
5,108.29	9.86	47.32	5,088.27	218.62	170.60	-170.06	0.43	-0.37	-1.25
5,121.86	9.81	47.13	5,101.64	220.20	172.30	-171.76	0.44	-0.37	-1.40
5,135.43	9.76	46.93	5,115.01	221.77	173.99	-173.45	0.45	-0.37	-1.47
5,149.00	9.70	46.70	5,128.38	223.34	175.66	-175.11	0.53	-0.44	-1.69
5,162.43	9.64	46.44	5,141.62	224.89	177.30	-176.75	0.55	-0.45	-1.94
5,175.86	9.57	46.14	5,154.86	226.44	178.92	-178.36	0.64	-0.52	-2.23
5,189.29	9.50	45.82	5,168.11	227.98	180.52	-179.96	0.65	-0.52	-2.38
5,202.71	9.42	45.46	5,181.35	229.53	182.09	-181.53	0.74	-0.60	-2.68
5,216.14	9.33	45.07	5,194.60	231.07	183.65	-183.08	0.82	-0.67	-2.90



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
5,229.57	9.24	44.64	5,207.85	232.60	185.18	-184.61	0.85	-0.67	-3.20	
5,243.00	9.15	44.15	5,221.11	234.13	186.68	-186.11	0.89	-0.67	-3.65	
5,256.57	9.04	43.60	5,234.51	235.68	188.17	-187.59	1.03	-0.81	-4.05	
5,270.14	8.92	43.00	5,247.91	237.22	189.62	-189.04	1.12	-0.88	-4.42	
5,283.71	8.80	42.36	5,261.32	238.76	191.04	-190.45	1.14	-0.88	-4.72	
5,297.29	8.69	41.70	5,274.74	240.29	192.42	-191.83	1.10	-0.81	-4.86	
5,310.86	8.57	41.02	5,288.16	241.82	193.76	-193.17	1.16	-0.88	-5.01	
5,324.43	8.47	40.35	5,301.58	243.35	195.07	-194.48	1.04	-0.74	-4.94	
5,338.00	8.37	39.72	5,315.00	244.87	196.35	-195.75	1.00	-0.74	-4.64	
5,351.43	8.28	39.22	5,328.29	246.37	197.59	-196.99	0.86	-0.67	-3.72	
5,364.86	8.21	38.76	5,341.58	247.86	198.80	-198.19	0.72	-0.52	-3.43	
5,378.29	8.15	38.33	5,354.87	249.36	199.99	-199.38	0.64	-0.45	-3.20	
5,391.71	8.09	37.92	5,368.16	250.85	201.16	-200.55	0.62	-0.45	-3.06	
5,405.14	8.03	37.51	5,381.46	252.34	202.31	-201.70	0.62	-0.45	-3.05	
5,418.57	7.98	37.10	5,394.76	253.83	203.45	-202.83	0.57	-0.37	-3.05	
5,432.00	7.94	36.70	5,408.06	255.31	204.56	-203.94	0.51	-0.30	-2.98	
5,445.57	7.90	36.31	5,421.50	256.82	205.68	-205.05	0.49	-0.29	-2.87	
5,459.14	7.87	35.92	5,434.94	258.32	206.77	-206.14	0.45	-0.22	-2.87	
5,472.71	7.84	35.50	5,448.38	259.83	207.85	-207.22	0.48	-0.22	-3.10	
5,486.29	7.80	35.04	5,461.84	261.34	208.92	-208.28	0.55	-0.29	-3.39	
5,499.86	7.77	34.52	5,475.28	262.85	209.97	-209.33	0.56	-0.22	-3.83	
5,513.43	7.72	33.92	5,488.73	264.36	211.00	-210.35	0.70	-0.37	-4.42	
5,527.00	7.67	33.20	5,502.18	265.87	212.00	-211.35	0.80	-0.37	-5.31	
5,540.57	7.59	32.30	5,515.62	267.39	212.98	-212.32	1.06	-0.59	-6.63	
5,554.14	7.51	31.24	5,529.08	268.90	213.92	-213.26	1.18	-0.59	-7.81	
5,567.71	7.41	30.06	5,542.53	270.42	214.82	-214.15	1.35	-0.74	-8.70	
5,581.29	7.31	28.75	5,556.00	271.93	215.67	-215.00	1.44	-0.74	-9.65	
5,594.86	7.21	27.29	5,569.46	273.45	216.47	-215.81	1.55	-0.74	-10.76	
5,608.43	7.10	25.65	5,582.93	274.96	217.23	-216.56	1.71	-0.81	-12.09	
5,622.00	6.98	23.77	5,596.39	276.47	217.92	-217.25	1.91	-0.88	-13.85	
5,635.43	6.82	21.72	5,609.73	277.96	218.55	-217.87	2.19	-1.19	-15.26	
5,648.86	6.65	19.42	5,623.06	279.43	219.10	-218.42	2.37	-1.27	-17.13	
5,662.29	6.49	16.93	5,636.41	280.89	219.58	-218.89	2.43	-1.19	-18.54	
5,675.71	6.33	14.31	5,649.74	282.33	219.98	-219.29	2.48	-1.19	-19.52	
5,689.14	6.20	11.61	5,663.09	283.76	220.31	-219.62	2.40	-0.97	-20.10	
5,702.57	6.09	8.94	5,676.44	285.18	220.57	-219.87	2.28	-0.82	-19.88	
5,716.00	6.00	6.41	5,689.80	286.58	220.76	-220.06	2.09	-0.67	-18.84	
5,729.57	5.90	4.37	5,703.30	287.98	220.89	-220.19	1.72	-0.74	-15.03	
5,743.14	5.82	2.54	5,716.80	289.36	220.98	-220.27	1.50	-0.59	-13.49	
5,756.71	5.76	0.87	5,730.30	290.73	221.02	-220.31	1.32	-0.44	-12.31	
5,770.29	5.71	359.37	5,743.81	292.09	221.02	-220.30	1.16	-0.37	-11.05	
5,783.86	5.67	358.04	5,757.31	293.43	220.99	-220.27	1.02	-0.29	-9.80	
5,797.43	5.65	356.91	5,770.82	294.77	220.93	-220.21	0.83	-0.15	-8.33	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
5,811.00	5.64	356.05	5,784.32	296.10	220.85	-220.12	0.63	-0.07	-6.34	
5,824.43	5.64	355.58	5,797.68	297.42	220.75	-220.02	0.34	0.00	-3.50	
5,837.86	5.80	2.23	5,811.05	298.75	220.73	-220.00	5.07	1.19	49.52	
5,851.29	6.08	11.56	5,824.41	300.13	220.90	-220.16	7.48	2.08	69.47	
5,864.71	6.30	17.38	5,837.75	301.53	221.26	-220.52	4.95	1.64	43.37	
5,878.14	6.31	17.61	5,851.10	302.93	221.70	-220.96	0.20	0.07	1.71	
5,891.57	6.33	18.06	5,864.45	304.34	222.15	-221.41	0.40	0.15	3.35	
5,905.00	6.34	18.80	5,877.79	305.75	222.62	-221.88	0.61	0.07	5.51	
5,918.57	6.29	19.91	5,891.28	307.15	223.12	-222.37	0.97	-0.37	8.18	
5,932.14	6.22	21.26	5,904.77	308.54	223.64	-222.88	1.20	-0.52	9.95	
5,945.71	6.13	22.76	5,918.26	309.89	224.18	-223.43	1.36	-0.66	11.05	
5,959.29	6.03	24.32	5,931.77	311.21	224.76	-224.00	1.42	-0.74	11.49	
5,972.86	5.92	25.85	5,945.26	312.49	225.36	-224.59	1.43	-0.81	11.27	
5,986.43	5.79	27.23	5,958.76	313.73	225.98	-225.21	1.41	-0.96	10.17	
6,000.00	5.78	32.00	5,972.26	314.92	226.65	-225.88	3.54	-0.07	35.15	
6,013.43	6.07	40.75	5,985.62	316.03	227.47	-226.70	7.06	2.16	65.15	
6,026.86	6.45	47.20	5,998.97	317.08	228.49	-227.71	5.95	2.83	48.03	
6,040.29	6.15	46.39	6,012.32	318.09	229.56	-228.79	2.33	-2.23	-6.03	
6,053.71	5.83	45.19	6,025.67	319.06	230.57	-229.79	2.56	-2.38	-8.94	
6,067.14	5.50	43.65	6,039.03	320.01	231.50	-230.71	2.71	-2.46	-11.47	
6,080.57	5.18	41.85	6,052.40	320.93	232.34	-231.56	2.69	-2.38	-13.40	
6,094.00	4.88	39.89	6,065.78	321.82	233.12	-232.33	2.57	-2.23	-14.59	
6,107.43	4.63	38.42	6,079.16	322.68	233.82	-233.03	2.07	-1.86	-10.95	
6,120.86	4.40	36.99	6,092.55	323.52	234.47	-233.67	1.91	-1.71	-10.65	
6,134.29	4.20	35.60	6,105.94	324.33	235.06	-234.27	1.68	-1.49	-10.35	
6,147.71	4.01	34.31	6,119.33	325.11	235.61	-234.82	1.57	-1.42	-9.61	
6,161.14	3.84	33.21	6,132.73	325.88	236.12	-235.33	1.38	-1.27	-8.19	
6,174.57	3.67	32.43	6,146.13	326.62	236.60	-235.80	1.32	-1.27	-5.81	
6,188.00	3.51	32.21	6,159.53	327.33	237.05	-236.25	1.20	-1.19	-1.64	
6,201.57	3.36	33.35	6,173.08	328.01	237.49	-236.69	1.21	-1.11	8.40	
6,215.14	3.43	44.99	6,186.63	328.63	238.00	-237.19	5.10	0.52	85.78	
6,228.71	3.81	60.47	6,200.17	329.14	238.67	-237.87	7.70	2.80	114.08	
6,242.29	3.74	63.69	6,213.72	329.56	239.46	-238.66	1.64	-0.52	23.71	
6,255.86	3.64	66.54	6,227.26	329.93	240.26	-239.45	1.54	-0.74	21.00	
6,269.43	3.55	69.62	6,240.80	330.24	241.05	-240.24	1.57	-0.66	22.70	
6,283.00	3.43	72.76	6,254.35	330.51	241.83	-241.02	1.66	-0.88	23.14	
6,296.43	3.22	74.60	6,267.76	330.73	242.57	-241.77	1.75	-1.56	13.70	
6,309.86	2.99	76.16	6,281.17	330.91	243.28	-242.47	1.82	-1.71	11.62	
6,323.29	2.74	77.57	6,294.58	331.07	243.93	-243.12	1.93	-1.86	10.50	
6,336.71	2.49	78.93	6,307.99	331.19	244.53	-243.72	1.92	-1.86	10.13	
6,350.14	2.25	80.28	6,321.40	331.29	245.08	-244.27	1.83	-1.79	10.05	
6,363.57	2.02	81.64	6,334.83	331.37	245.57	-244.76	1.75	-1.71	10.13	
6,377.00	1.83	82.99	6,348.25	331.43	246.02	-245.21	1.45	-1.41	10.05	
6,390.57	1.68	83.60	6,361.81	331.48	246.43	-245.62	1.11	-1.11	4.50	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
6,404.14	1.55	84.00	6,375.38	331.52	246.81	-246.00	0.96	-0.96	2.95	
6,417.71	1.45	84.20	6,388.94	331.56	247.16	-246.35	0.74	-0.74	1.47	
6,431.29	1.36	84.16	6,402.52	331.59	247.50	-246.68	0.66	-0.66	-0.29	
6,444.86	1.27	83.88	6,416.08	331.62	247.81	-246.99	0.66	-0.66	-2.06	
6,458.43	1.25	82.92	6,429.65	331.66	248.10	-247.29	0.21	-0.15	-7.07	
6,468.78	1.31	82.64	6,440.00	331.69	248.33	-247.52	0.59	0.59	-2.69	
1st Bone Spring SD										
6,472.00	1.33	82.56	6,443.22	331.70	248.40	-247.59	0.59	0.59	-2.53	
6,485.43	1.21	82.23	6,456.64	331.74	248.70	-247.89	0.90	-0.89	-2.46	
6,498.86	1.09	81.66	6,470.07	331.77	248.97	-248.16	0.90	-0.89	-4.24	
6,512.29	0.97	80.85	6,483.50	331.81	249.21	-248.39	0.90	-0.89	-6.03	
6,525.71	0.80	77.58	6,496.92	331.85	249.41	-248.60	1.32	-1.27	-24.37	
6,539.14	0.73	74.55	6,510.35	331.89	249.58	-248.77	0.60	-0.52	-22.56	
6,552.57	0.66	70.80	6,523.77	331.94	249.74	-248.93	0.62	-0.52	-27.92	
6,566.00	0.59	66.10	6,537.20	331.99	249.87	-249.06	0.65	-0.52	-35.00	
6,579.43	0.49	58.92	6,550.63	332.05	249.99	-249.18	0.90	-0.74	-53.46	
6,592.86	0.41	48.30	6,564.06	332.11	250.07	-249.26	0.86	-0.60	-79.08	
6,606.29	0.34	32.69	6,577.49	332.18	250.13	-249.32	0.92	-0.52	-116.23	
6,619.71	0.31	11.91	6,590.91	332.25	250.16	-249.35	0.90	-0.22	-154.84	
6,633.14	0.32	350.07	6,604.34	332.32	250.16	-249.35	0.89	0.07	-162.62	
6,646.57	0.38	332.48	6,617.77	332.40	250.13	-249.32	0.91	0.45	-130.98	
6,660.00	0.46	320.28	6,631.20	332.48	250.08	-249.26	0.89	0.60	-90.84	
6,673.57	0.59	302.40	6,644.77	332.56	249.98	-249.17	1.53	0.96	-131.76	
6,687.14	0.75	291.54	6,658.34	332.63	249.84	-249.03	1.50	1.18	-80.03	
6,690.80	0.80	289.40	6,662.00	332.64	249.80	-248.98	1.52	1.29	-58.49	
2nd Bone Spring LM										
6,700.71	0.93	284.72	6,671.91	332.69	249.65	-248.84	1.52	1.34	-47.22	
6,701.00	0.93	284.72	6,672.20	332.69	249.65	-248.83	0.00	0.00	0.00	
100FEL: 6701.00' MD, -248.83' VS,6672.20' TVD										
6,714.29	1.12	280.19	6,685.49	332.74	249.42	-248.60	1.55	1.43	-34.09	
6,727.86	1.31	277.00	6,699.05	332.78	249.13	-248.32	1.49	1.40	-23.51	
6,741.43	1.51	274.67	6,712.62	332.81	248.80	-247.99	1.53	1.47	-17.17	
6,755.00	1.70	272.89	6,726.18	332.84	248.42	-247.61	1.45	1.40	-13.12	
6,768.57	1.78	271.65	6,739.75	332.86	248.01	-247.19	0.65	0.59	-9.14	
6,782.14	1.89	270.42	6,753.31	332.86	247.57	-246.76	0.86	0.81	-9.06	
6,795.71	2.01	269.33	6,766.87	332.86	247.11	-246.30	0.93	0.88	-8.03	
6,809.29	2.13	268.48	6,780.44	332.85	246.62	-245.81	0.91	0.88	-6.26	
6,822.86	2.23	267.91	6,794.00	332.84	246.11	-245.29	0.75	0.74	-4.20	
6,836.43	2.30	267.70	6,807.56	332.82	245.57	-244.76	0.52	0.52	-1.55	
6,850.00	2.31	268.01	6,821.12	332.80	245.02	-244.21	0.12	0.07	2.28	
6,863.43	2.23	269.48	6,834.54	332.78	244.49	-243.68	0.74	-0.60	10.95	
6,876.86	2.10	271.83	6,847.96	332.79	243.99	-243.17	1.17	-0.97	17.50	
6,890.29	1.94	274.97	6,861.38	332.82	243.51	-242.70	1.45	-1.19	23.38	
6,903.71	1.77	278.78	6,874.80	332.87	243.08	-242.27	1.56	-1.27	28.39	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
6,917.14	1.60	283.06	6,888.22	332.94	242.69	-241.88	1.57	-1.27	31.87
6,930.57	1.44	287.33	6,901.65	333.03	242.35	-241.54	1.46	-1.19	31.79
6,944.00	0.84	323.74	6,915.07	333.16	242.13	-241.32	6.79	-4.47	271.11
6,957.43	1.06	26.34	6,928.50	333.36	242.13	-241.31	7.48	1.64	466.12
6,970.86	1.37	40.31	6,941.93	333.59	242.29	-241.47	3.18	2.31	104.02
6,984.29	1.21	33.65	6,955.36	333.83	242.47	-241.65	1.63	-1.19	-49.59
6,997.71	1.08	23.95	6,968.77	334.06	242.60	-241.78	1.74	-0.97	-72.28
7,011.14	1.00	11.66	6,982.20	334.29	242.67	-241.86	1.76	-0.60	-91.51
7,024.57	0.98	358.31	6,995.63	334.52	242.69	-241.88	1.72	-0.15	-99.40
7,038.00	1.00	346.02	7,009.06	334.75	242.66	-241.84	1.59	0.15	-91.51
7,051.57	0.95	335.65	7,022.63	334.97	242.59	-241.77	1.35	-0.37	-76.42
7,065.14	0.96	326.73	7,036.19	335.17	242.48	-241.66	1.10	0.07	-65.73
7,078.71	1.00	318.22	7,049.76	335.35	242.34	-241.52	1.11	0.29	-62.71
7,092.29	1.05	310.46	7,063.34	335.52	242.16	-241.34	1.09	0.37	-57.14
7,105.86	1.12	303.59	7,076.91	335.67	241.96	-241.14	1.09	0.52	-50.63
7,119.43	1.21	297.65	7,090.47	335.81	241.72	-240.90	1.11	0.66	-43.77
7,133.00	1.31	292.57	7,104.04	335.94	241.45	-240.63	1.10	0.74	-37.44
7,146.43	1.16	293.24	7,117.47	336.05	241.19	-240.36	1.12	-1.12	4.99
7,159.86	1.00	294.83	7,130.90	336.15	240.95	-240.13	1.21	-1.19	11.84
7,173.29	0.83	297.48	7,144.32	336.25	240.76	-239.94	1.30	-1.27	19.73
7,186.71	0.68	301.46	7,157.74	336.33	240.61	-239.78	1.18	-1.12	29.66
7,200.14	0.53	307.18	7,171.17	336.41	240.49	-239.67	1.20	-1.12	42.59
7,208.97	0.44	311.81	7,180.00	336.46	240.43	-239.61	1.07	-0.98	52.41
2nd Bone Spring SD									
7,213.57	0.40	315.00	7,184.60	336.48	240.41	-239.58	1.08	-0.95	69.40
7,227.00	0.21	35.77	7,198.03	336.54	240.39	-239.57	3.13	-1.41	601.41
7,240.43	0.85	89.93	7,211.46	336.56	240.50	-239.68	5.56	4.77	403.28
7,253.86	1.54	95.13	7,224.89	336.54	240.78	-239.96	5.20	5.14	38.72
7,267.29	1.50	91.47	7,238.31	336.52	241.14	-240.31	0.78	-0.30	-27.25
7,280.71	1.49	87.17	7,251.73	336.53	241.49	-240.66	0.84	-0.07	-32.04
7,294.14	1.48	82.57	7,265.15	336.56	241.83	-241.01	0.89	-0.07	-34.25
7,307.57	1.45	77.84	7,278.58	336.61	242.17	-241.35	0.93	-0.22	-35.22
7,321.00	1.67	72.23	7,292.00	336.71	242.52	-241.70	1.99	1.64	-41.77
7,334.57	1.50	69.61	7,305.57	336.83	242.88	-242.05	1.36	-1.25	-19.31
7,348.14	1.29	67.00	7,319.14	336.95	243.19	-242.36	1.62	-1.55	-19.23
7,361.71	1.06	63.98	7,332.70	337.07	243.44	-242.61	1.75	-1.69	-22.25
7,375.29	0.82	59.83	7,346.28	337.17	243.64	-242.81	1.84	-1.77	-30.56
7,388.86	0.59	53.03	7,359.85	337.26	243.78	-242.95	1.80	-1.69	-50.11
7,402.43	0.38	39.43	7,373.42	337.34	243.86	-243.04	1.75	-1.55	-100.22
7,416.00	0.24	8.24	7,386.99	337.40	243.89	-243.07	1.58	-1.03	-229.85
7,429.43	0.10	328.84	7,400.42	337.44	243.89	-243.07	1.30	-1.04	-293.37
7,442.86	0.15	244.40	7,413.85	337.44	243.87	-243.04	1.28	0.37	-628.74
7,456.29	0.31	225.93	7,427.28	337.41	243.83	-243.00	1.30	1.19	-137.53



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
7,469.71	0.48	220.20	7,440.70	337.34	243.76	-242.94	1.30	1.27	-42.70
7,483.14	0.65	217.51	7,454.13	337.24	243.68	-242.86	1.28	1.27	-20.03
7,496.57	0.82	215.96	7,467.56	337.10	243.58	-242.75	1.27	1.27	-11.54
7,510.00	0.99	214.97	7,480.98	336.93	243.46	-242.63	1.27	1.27	-7.37
7,523.57	0.98	211.01	7,494.55	336.73	243.33	-242.51	0.51	-0.07	-29.18
7,537.14	0.97	207.03	7,508.12	336.53	243.22	-242.39	0.50	-0.07	-29.33
7,550.71	0.97	203.05	7,521.69	336.32	243.12	-242.30	0.50	0.00	-29.33
7,564.29	0.98	199.10	7,535.27	336.11	243.04	-242.22	0.50	0.07	-29.09
7,577.86	0.99	195.23	7,548.83	335.88	242.97	-242.15	0.50	0.07	-28.52
7,591.43	1.00	191.44	7,562.40	335.66	242.91	-242.09	0.49	0.07	-27.93
7,605.00	1.02	187.77	7,575.97	335.42	242.87	-242.05	0.50	0.15	-27.04
7,618.43	1.11	184.18	7,589.40	335.17	242.85	-242.03	0.83	0.67	-26.73
7,631.86	1.22	181.69	7,602.83	334.90	242.83	-242.02	0.90	0.82	-18.54
7,645.29	1.33	179.62	7,616.25	334.60	242.83	-242.01	0.89	0.82	-15.41
7,658.71	1.44	177.87	7,629.67	334.28	242.84	-242.02	0.88	0.82	-13.04
7,672.14	1.55	176.37	7,643.09	333.93	242.86	-242.04	0.87	0.82	-11.17
7,685.57	1.66	175.08	7,656.52	333.55	242.88	-242.07	0.86	0.82	-9.61
7,699.00	1.78	173.95	7,669.94	333.15	242.92	-242.11	0.93	0.89	-8.41
7,712.57	1.79	174.18	7,683.51	332.73	242.97	-242.15	0.09	0.07	1.69
7,726.14	1.82	174.62	7,697.07	332.30	243.01	-242.20	0.24	0.22	3.24
7,739.71	1.86	175.08	7,710.63	331.87	243.05	-242.24	0.31	0.29	3.39
7,753.29	1.89	175.42	7,724.20	331.43	243.08	-242.27	0.24	0.22	2.50
7,766.86	1.91	175.51	7,737.77	330.98	243.12	-242.31	0.15	0.15	0.66
7,780.43	1.91	175.18	7,751.33	330.53	243.16	-242.35	0.08	0.00	-2.43
7,794.00	1.88	174.19	7,764.89	330.08	243.20	-242.39	0.33	-0.22	-7.30
7,807.43	1.80	171.73	7,778.32	329.65	243.25	-242.45	0.84	-0.60	-18.32
7,820.86	1.70	168.11	7,791.74	329.25	243.32	-242.52	1.11	-0.74	-26.95
7,834.29	1.59	163.34	7,805.16	328.88	243.42	-242.61	1.31	-0.82	-35.52
7,847.71	1.49	157.49	7,818.58	328.54	243.54	-242.73	1.39	-0.75	-43.59
7,849.13	1.48	156.81	7,820.00	328.50	243.55	-242.75	1.40	-0.66	-47.54
3rd Bone Spring LM									
7,861.14	1.41	150.77	7,832.00	328.23	243.68	-242.88	1.40	-0.59	-50.33
7,874.57	1.37	143.72	7,845.43	327.96	243.86	-243.06	1.31	-0.30	-52.49
7,888.00	1.37	137.24	7,858.86	327.71	244.06	-243.26	1.15	0.00	-48.25
7,901.75	1.34	132.03	7,872.60	327.48	244.30	-243.49	0.92	-0.22	-37.89
7,915.50	1.34	127.23	7,886.35	327.28	244.54	-243.74	0.82	0.00	-34.91
7,929.25	1.36	122.99	7,900.10	327.09	244.81	-244.01	0.74	0.15	-30.84
7,943.00	1.37	119.34	7,913.84	326.92	245.09	-244.29	0.64	0.07	-26.55
7,956.75	1.36	116.27	7,927.59	326.77	245.38	-244.58	0.54	-0.07	-22.33
7,970.50	1.59	114.67	7,941.33	326.62	245.70	-244.90	1.70	1.67	-11.64
7,984.25	1.82	113.60	7,955.08	326.45	246.07	-245.27	1.69	1.67	-7.78
7,998.00	2.05	112.75	7,968.82	326.27	246.50	-245.70	1.69	1.67	-6.18
8,011.71	1.83	113.36	7,982.52	326.09	246.92	-246.13	1.61	-1.60	4.45
8,025.43	1.57	114.89	7,996.24	325.92	247.30	-246.50	1.92	-1.90	11.15



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
8,039.14	1.30	117.56	8,009.94	325.77	247.60	-246.81	2.03	-1.97	19.47
8,052.86	1.04	121.83	8,023.66	325.63	247.85	-247.05	2.00	-1.90	31.12
8,066.57	0.80	128.40	8,037.37	325.51	248.03	-247.23	1.91	-1.75	47.92
8,077.00	0.55	138.18	8,047.80	325.42	248.12	-247.32	2.61	-2.37	93.75
KOP: 8077.00' MD, -247.32' VS, 8047.80' TVD									
8,080.29	0.48	143.30	8,051.09	325.40	248.14	-247.34	2.61	-2.20	155.69
8,094.00	0.78	279.51	8,064.80	325.37	248.08	-247.28	8.57	2.19	993.51
8,107.57	2.28	282.99	8,078.36	325.45	247.73	-246.93	11.07	11.05	25.64
8,121.14	3.73	279.96	8,091.91	325.58	247.03	-246.23	10.75	10.69	-22.33
8,134.71	5.08	282.26	8,105.44	325.79	246.01	-245.21	10.03	9.95	16.95
8,148.29	6.29	282.59	8,118.95	326.08	244.69	-243.90	8.91	8.91	2.43
8,161.86	7.56	282.75	8,132.42	326.43	243.10	-242.30	9.36	9.36	1.18
8,175.43	9.06	283.88	8,145.85	326.89	241.19	-240.39	11.12	11.05	8.33
8,189.00	10.58	284.35	8,159.22	327.45	238.94	-238.14	11.22	11.20	3.46
8,202.57	12.09	284.00	8,172.53	328.11	236.36	-235.56	11.14	11.13	-2.58
8,216.14	13.44	284.67	8,185.76	328.85	233.45	-232.65	10.01	9.95	4.94
8,229.71	14.44	285.32	8,198.93	329.70	230.30	-229.49	7.46	7.37	4.79
8,243.29	15.72	286.15	8,212.04	330.65	226.90	-226.09	9.56	9.43	6.11
8,256.86	16.84	285.45	8,225.07	331.69	223.24	-222.42	8.38	8.25	-5.16
8,270.43	17.78	282.21	8,238.02	332.65	219.32	-218.50	9.92	6.93	-23.88
8,284.00	18.96	280.07	8,250.90	333.48	215.12	-214.31	10.01	8.70	-15.77
8,297.43	20.25	279.28	8,263.55	334.23	210.68	-209.86	9.81	9.61	-5.88
8,310.86	21.55	279.11	8,276.10	335.00	205.95	-205.13	9.69	9.68	-1.27
8,324.29	22.83	279.23	8,288.54	335.81	200.94	-200.12	9.54	9.53	0.89
8,337.71	24.09	279.53	8,300.85	336.68	195.67	-194.85	9.43	9.39	2.24
8,351.14	25.19	279.38	8,313.05	337.60	190.15	-189.32	8.20	8.19	-1.12
8,364.57	26.32	279.06	8,325.15	338.53	184.39	-183.56	8.48	8.41	-2.38
8,378.00	27.50	278.95	8,337.12	339.48	178.38	-177.55	8.79	8.79	-0.82
8,391.57	28.68	279.38	8,349.10	340.50	172.08	-171.24	8.82	8.70	3.17
8,405.14	29.88	279.85	8,360.93	341.61	165.53	-164.70	9.00	8.84	3.46
8,418.71	30.99	280.74	8,372.63	342.84	158.77	-157.93	8.83	8.18	6.56
8,432.29	32.15	279.86	8,384.20	344.11	151.78	-150.93	9.19	8.54	-6.48
8,445.86	33.42	279.70	8,395.61	345.36	144.53	-143.69	9.38	9.36	-1.18
8,457.18	34.54	279.93	8,405.00	346.44	138.30	-137.45	9.94	9.87	2.08
3rd Bone Spring SD									
8,459.43	34.76	279.98	8,406.85	346.66	137.04	-136.19	9.94	9.88	2.00
8,473.00	36.15	280.41	8,417.90	348.05	129.29	-128.44	10.41	10.24	3.17
8,486.57	37.59	280.70	8,428.76	349.54	121.29	-120.44	10.69	10.61	2.14
8,500.14	39.09	280.80	8,439.40	351.11	113.02	-112.16	11.06	11.05	0.74
8,513.71	40.62	280.64	8,449.82	352.73	104.48	-103.61	11.30	11.27	-1.18
8,527.29	42.18	280.40	8,460.00	354.37	95.65	-94.78	11.55	11.49	-1.77
8,540.86	43.68	280.29	8,469.94	356.03	86.55	-85.68	11.07	11.05	-0.81
8,554.43	44.98	279.18	8,479.65	357.63	77.21	-76.33	11.16	9.58	-8.18



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
00-FTP(S-132H)									
8,568.00	46.41	278.30	8,489.12	359.11	67.61	-66.73	11.51	10.54	-6.48
8,581.43	47.88	277.56	8,498.26	360.46	57.86	-56.98	11.67	10.95	-5.51
8,594.86	49.37	277.04	8,507.13	361.74	47.86	-46.98	11.47	11.09	-3.87
8,608.29	50.93	277.05	8,515.74	363.01	37.63	-36.74	11.62	11.62	0.07
8,621.71	52.50	277.16	8,524.05	364.31	27.18	-26.29	11.72	11.70	0.82
8,635.14	53.74	276.22	8,532.11	365.56	16.51	-15.62	10.80	9.23	-7.00
8,648.57	55.14	275.37	8,539.92	366.66	5.64	-4.74	11.63	10.42	-6.33
8,662.00	56.75	275.17	8,547.45	367.69	-5.44	6.34	12.05	11.99	-1.49
8,675.57	58.40	275.27	8,554.72	368.73	-16.85	17.75	12.18	12.16	0.74
8,689.14	60.07	275.85	8,561.66	369.86	-28.45	29.35	12.84	12.31	4.27
8,702.71	61.69	275.50	8,568.27	371.03	-40.25	41.15	12.15	11.94	-2.58
8,703.75	61.78	275.48	8,568.76	371.12	-41.16	42.07	8.71	8.47	-2.31
01-OVS(S-132H)									
8,716.29	62.84	275.19	8,574.59	372.15	-52.21	53.12	8.71	8.47	-2.28
8,729.86	64.30	274.31	8,580.63	373.16	-64.32	65.24	12.23	10.76	-6.48
8,743.43	65.98	273.80	8,586.33	374.03	-76.60	77.52	12.84	12.38	-3.76
8,757.00	67.26	273.58	8,591.72	374.83	-89.03	89.95	9.55	9.43	-1.62
8,770.57	68.99	273.34	8,596.77	375.59	-101.60	102.52	12.85	12.75	-1.77
8,784.14	70.69	273.08	8,601.45	376.30	-114.32	115.24	12.66	12.53	-1.92
8,797.71	72.17	273.19	8,605.77	377.00	-127.17	128.09	10.93	10.91	0.81
8,811.29	73.89	273.45	8,609.73	377.76	-140.13	141.06	12.80	12.67	1.91
8,824.86	75.16	273.03	8,613.35	378.49	-153.19	154.11	9.82	9.36	-3.10
8,838.43	76.77	273.14	8,616.64	379.20	-166.33	167.26	11.89	11.86	0.81
8,852.00	78.40	273.57	8,619.56	379.98	-179.56	180.49	12.40	12.01	3.17
8,865.43	79.60	273.50	8,622.12	380.79	-192.72	193.65	8.95	8.94	-0.52
8,878.86	81.43	273.47	8,624.34	381.60	-205.94	206.88	13.63	13.63	-0.22
8,892.29	83.28	273.36	8,626.12	382.39	-219.23	220.16	13.80	13.78	-0.82
8,905.71	85.11	273.16	8,627.48	383.15	-232.56	233.49	13.72	13.64	-1.49
8,919.14	86.44	272.50	8,628.47	383.81	-245.94	246.87	11.05	9.90	-4.91
8,932.57	87.90	272.03	8,629.13	384.34	-259.34	260.28	11.42	10.87	-3.50
8,946.00	89.56	271.37	8,629.43	384.74	-272.76	273.70	13.30	12.36	-4.91
8,959.57	91.32	271.53	8,629.33	385.08	-286.32	287.26	13.02	12.97	1.18
8,973.14	93.00	271.41	8,628.82	385.43	-299.88	300.82	12.41	12.38	-0.88
8,975.00	93.07	271.41	8,628.72	385.48	-301.74	302.68	3.54	3.54	-0.15
EOC: 8975.00' MD, 302.68' VS, 8628.72' TVD									
8,986.71	93.48	271.39	8,628.05	385.76	-313.42	314.36	3.54	3.54	-0.15
8,991.52	93.51	271.41	8,627.75	385.88	-318.22	319.16	0.80	0.66	0.44
02-LP(S-132H)									
9,000.29	93.57	271.45	8,627.21	386.10	-326.97	327.92	0.80	0.66	0.44
9,013.86	93.69	271.52	8,626.35	386.45	-340.51	341.45	1.02	0.88	0.52
9,027.43	93.82	271.57	8,625.47	386.81	-354.05	354.99	1.03	0.96	0.37
9,041.00	94.00	271.61	8,624.54	387.19	-367.58	368.53	1.36	1.33	0.29
9,054.57	94.27	271.62	8,623.56	387.57	-381.11	382.06	1.99	1.99	0.07



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
9,068.14	94.51	271.60	8,622.52	387.95	-394.63	395.58	1.77	1.77	-0.15	
9,081.71	94.73	271.56	8,621.43	388.32	-408.16	409.10	1.65	1.62	-0.29	
9,095.29	94.89	271.50	8,620.29	388.68	-421.68	422.63	1.26	1.18	-0.44	
9,108.86	95.04	271.42	8,619.12	389.03	-435.20	436.15	1.25	1.11	-0.59	
9,122.43	94.88	270.97	8,617.94	389.31	-448.71	449.66	3.51	-1.18	-3.32	
9,136.00	94.72	270.34	8,616.81	389.46	-462.24	463.19	4.77	-1.18	-4.64	
9,149.43	94.99	270.22	8,615.67	389.53	-475.62	476.57	2.20	2.01	-0.89	
9,162.86	95.16	270.01	8,614.48	389.56	-488.99	489.94	2.01	1.27	-1.56	
9,176.29	95.35	269.77	8,613.25	389.53	-502.37	503.32	2.27	1.41	-1.79	
9,189.71	95.57	269.53	8,611.98	389.45	-515.73	516.68	2.42	1.64	-1.79	
9,203.14	95.76	269.29	8,610.65	389.31	-529.09	530.04	2.27	1.41	-1.79	
9,216.57	95.08	268.41	8,609.38	389.04	-542.46	543.41	8.26	-5.06	-6.55	
9,230.00	94.03	267.36	8,608.32	388.55	-555.84	556.78	11.04	-7.82	-7.82	
9,243.57	93.76	266.88	8,607.39	387.87	-569.36	570.30	4.05	-1.99	-3.54	
9,257.14	93.76	266.60	8,606.50	387.10	-582.88	583.82	2.06	0.00	-2.06	
9,270.71	93.72	266.32	8,605.62	386.26	-596.39	597.33	2.08	-0.29	-2.06	
9,284.29	93.60	266.06	8,604.75	385.36	-609.91	610.85	2.11	-0.88	-1.91	
9,297.86	93.41	265.82	8,603.92	384.40	-623.42	624.36	2.25	-1.40	-1.77	
9,311.43	92.20	265.53	8,603.26	383.38	-636.94	637.87	9.17	-8.92	-2.14	
9,325.00	91.42	265.33	8,602.83	382.30	-650.46	651.39	5.93	-5.75	-1.47	
9,338.57	91.00	265.29	8,602.54	381.19	-663.98	664.91	3.11	-3.10	-0.29	
9,352.14	90.70	265.29	8,602.34	380.08	-677.50	678.43	2.21	-2.21	0.00	
9,365.71	90.53	265.32	8,602.20	378.97	-691.03	691.95	1.27	-1.25	0.22	
9,379.29	90.39	265.35	8,602.09	377.86	-704.56	705.48	1.05	-1.03	0.22	
9,392.86	90.20	265.37	8,602.02	376.76	-718.09	719.01	1.41	-1.40	0.15	
9,406.43	90.03	265.70	8,601.99	375.71	-731.62	732.53	2.74	-1.25	2.43	
9,420.00	89.96	267.25	8,601.99	374.87	-745.16	746.07	11.43	-0.52	11.42	
9,433.43	89.88	268.91	8,602.01	374.42	-758.58	759.49	12.37	-0.60	12.36	
9,446.86	89.76	269.02	8,602.05	374.18	-772.01	772.92	1.21	-0.89	0.82	
9,460.29	89.74	268.82	8,602.11	373.93	-785.44	786.35	1.50	-0.15	-1.49	
9,473.71	89.81	268.63	8,602.16	373.63	-798.85	799.76	1.51	0.52	-1.42	
9,487.14	89.90	268.45	8,602.20	373.29	-812.28	813.19	1.50	0.67	-1.34	
9,500.57	90.05	268.32	8,602.20	372.91	-825.70	826.61	1.48	1.12	-0.97	
9,514.00	90.21	268.29	8,602.17	372.51	-839.13	840.04	1.21	1.19	-0.22	
9,527.57	90.38	268.40	8,602.10	372.12	-852.69	853.60	1.49	1.25	0.81	
9,541.14	90.48	268.60	8,602.00	371.76	-866.26	867.16	1.65	0.74	1.47	
9,554.71	90.57	268.83	8,601.88	371.46	-879.82	880.73	1.82	0.66	1.69	
9,568.29	90.65	269.08	8,601.73	371.21	-893.40	894.30	1.93	0.59	1.84	
9,581.86	91.20	269.34	8,601.51	371.03	-906.97	907.87	4.48	4.05	1.92	
9,595.43	91.80	269.58	8,601.16	370.90	-920.53	921.43	4.76	4.42	1.77	
9,609.00	91.91	269.73	8,600.72	370.82	-934.09	935.00	1.37	0.81	1.11	
9,622.57	91.96	269.78	8,600.26	370.76	-947.66	948.56	0.52	0.37	0.37	
9,636.14	91.96	269.77	8,599.80	370.71	-961.22	962.12	0.07	0.00	-0.07	
9,649.71	91.93	269.72	8,599.34	370.64	-974.78	975.68	0.43	-0.22	-0.37	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
9,663.29	91.87	269.64	8,598.89	370.57	-988.35	989.25	0.74	-0.44	-0.59
9,676.86	91.80	269.53	8,598.45	370.47	-1,001.91	1,002.82	0.96	-0.52	-0.81
9,690.43	91.72	269.39	8,598.03	370.34	-1,015.48	1,016.38	1.19	-0.59	-1.03
9,704.00	91.64	269.22	8,597.64	370.18	-1,029.04	1,029.94	1.38	-0.59	-1.25
9,717.57	91.57	269.01	8,597.26	369.97	-1,042.60	1,043.50	1.63	-0.52	-1.55
9,731.14	91.50	268.77	8,596.89	369.71	-1,056.17	1,057.07	1.84	-0.52	-1.77
9,744.71	91.42	268.53	8,596.55	369.39	-1,069.73	1,070.63	1.86	-0.59	-1.77
9,758.29	91.34	268.30	8,596.22	369.01	-1,083.30	1,084.20	1.79	-0.59	-1.69
9,771.86	91.26	268.12	8,595.91	368.59	-1,096.86	1,097.76	1.45	-0.59	-1.33
9,785.43	91.18	268.00	8,595.62	368.13	-1,110.42	1,111.31	1.06	-0.59	-0.88
9,799.00	91.65	268.21	8,595.29	367.68	-1,123.98	1,124.87	3.79	3.46	1.55
9,812.43	91.66	268.36	8,594.90	367.28	-1,137.40	1,138.29	1.12	0.07	1.12
9,825.86	91.52	268.54	8,594.53	366.91	-1,150.81	1,151.71	1.70	-1.04	1.34
9,839.29	91.39	268.76	8,594.19	366.60	-1,164.24	1,165.13	1.90	-0.97	1.64
9,852.71	91.28	268.97	8,593.87	366.33	-1,177.65	1,178.54	1.77	-0.82	1.56
9,866.14	91.18	269.16	8,593.59	366.11	-1,191.08	1,191.97	1.60	-0.74	1.41
9,879.57	91.54	269.49	8,593.27	365.95	-1,204.50	1,205.39	3.64	2.68	2.46
9,893.00	92.03	270.26	8,592.85	365.93	-1,217.92	1,218.81	6.79	3.65	5.73
9,906.57	92.21	271.01	8,592.35	366.08	-1,231.48	1,232.37	5.68	1.33	5.53
9,920.14	92.05	270.88	8,591.84	366.30	-1,245.04	1,245.93	1.52	-1.18	-0.96
9,933.71	91.94	270.71	8,591.37	366.49	-1,258.60	1,259.50	1.49	-0.81	-1.25
9,947.29	91.86	270.52	8,590.92	366.63	-1,272.18	1,273.07	1.52	-0.59	-1.40
9,960.86	91.80	270.34	8,590.49	366.74	-1,285.74	1,286.63	1.40	-0.44	-1.33
9,974.43	91.74	270.20	8,590.07	366.80	-1,299.30	1,300.19	1.12	-0.44	-1.03
9,988.00	91.69	270.11	8,589.66	366.84	-1,312.86	1,313.76	0.76	-0.37	-0.66
10,001.57	91.63	270.14	8,589.27	366.87	-1,326.43	1,327.32	0.49	-0.44	0.22
10,015.14	91.59	270.23	8,588.89	366.91	-1,339.99	1,340.89	0.73	-0.29	0.66
10,028.71	91.55	270.35	8,588.51	366.98	-1,353.56	1,354.45	0.93	-0.29	0.88
10,042.29	91.52	270.48	8,588.15	367.08	-1,367.13	1,368.03	0.98	-0.22	0.96
10,055.86	91.51	270.59	8,587.79	367.20	-1,380.70	1,381.59	0.81	-0.07	0.81
10,069.43	92.47	271.22	8,587.32	367.42	-1,394.26	1,395.15	8.46	7.07	4.64
10,083.00	93.33	271.60	8,586.63	367.75	-1,407.81	1,408.70	6.93	6.34	2.80
10,096.43	93.29	271.61	8,585.86	368.13	-1,421.21	1,422.10	0.31	-0.30	0.07
10,109.86	93.22	271.61	8,585.10	368.50	-1,434.61	1,435.51	0.52	-0.52	0.00
10,123.29	93.09	271.60	8,584.36	368.88	-1,448.02	1,448.91	0.97	-0.97	-0.07
10,136.71	92.97	271.59	8,583.65	369.25	-1,461.41	1,462.31	0.90	-0.89	-0.07
10,150.14	92.85	271.57	8,582.97	369.62	-1,474.82	1,475.72	0.91	-0.89	-0.15
10,163.57	92.72	271.56	8,582.31	369.99	-1,488.23	1,489.13	0.97	-0.97	-0.07
10,177.00	92.58	271.56	8,581.69	370.35	-1,501.64	1,502.54	1.04	-1.04	0.00
10,190.57	92.45	271.58	8,581.10	370.72	-1,515.19	1,516.09	0.97	-0.96	0.15
10,204.14	92.33	271.62	8,580.53	371.10	-1,528.74	1,529.65	0.93	-0.88	0.29
10,217.71	92.22	271.66	8,579.99	371.49	-1,542.30	1,543.20	0.86	-0.81	0.29
10,231.29	92.12	271.71	8,579.48	371.89	-1,555.86	1,556.77	0.82	-0.74	0.37



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
10,244.86	92.04	271.76	8,578.99	372.30	-1,569.42	1,570.32	0.70	-0.59	0.37
10,258.43	91.96	271.81	8,578.51	372.72	-1,582.97	1,583.88	0.70	-0.59	0.37
10,272.00	91.91	271.85	8,578.05	373.16	-1,596.53	1,597.43	0.47	-0.37	0.29
10,285.57	91.86	271.90	8,577.61	373.60	-1,610.08	1,610.99	0.52	-0.37	0.37
10,299.14	91.81	271.94	8,577.17	374.05	-1,623.64	1,624.55	0.47	-0.37	0.29
10,312.71	91.75	271.98	8,576.75	374.52	-1,637.19	1,638.10	0.53	-0.44	0.29
10,326.29	91.69	272.02	8,576.34	374.99	-1,650.76	1,651.67	0.53	-0.44	0.29
10,339.86	91.62	272.05	8,575.95	375.47	-1,664.32	1,665.23	0.56	-0.52	0.22
10,353.43	91.55	272.09	8,575.58	375.96	-1,677.87	1,678.78	0.59	-0.52	0.29
10,367.00	91.47	272.12	8,575.22	376.46	-1,691.43	1,692.34	0.63	-0.59	0.22
10,380.43	91.38	272.16	8,574.89	376.96	-1,704.84	1,705.76	0.73	-0.67	0.30
10,393.86	91.29	272.19	8,574.57	377.47	-1,718.26	1,719.18	0.71	-0.67	0.22
10,407.29	91.19	272.22	8,574.28	377.99	-1,731.68	1,732.60	0.78	-0.74	0.22
10,420.71	91.09	272.27	8,574.01	378.51	-1,745.08	1,746.00	0.83	-0.75	0.37
10,434.14	90.99	272.32	8,573.77	379.05	-1,758.50	1,759.42	0.83	-0.74	0.37
10,447.57	90.91	272.40	8,573.55	379.61	-1,771.92	1,772.84	0.84	-0.60	0.60
10,461.00	90.82	272.51	8,573.35	380.18	-1,785.33	1,786.26	1.06	-0.67	0.82
10,474.57	90.81	272.68	8,573.15	380.79	-1,798.89	1,799.81	1.25	-0.07	1.25
10,488.14	90.87	272.87	8,572.95	381.45	-1,812.44	1,813.37	1.47	0.44	1.40
10,501.71	90.99	273.08	8,572.73	382.16	-1,825.99	1,826.92	1.78	0.88	1.55
10,515.29	91.16	273.28	8,572.48	382.91	-1,839.55	1,840.48	1.93	1.25	1.47
10,528.86	91.39	273.47	8,572.18	383.71	-1,853.09	1,854.02	2.20	1.69	1.40
10,542.43	92.28	272.88	8,571.74	384.46	-1,866.63	1,867.57	7.87	6.56	-4.35
10,556.00	93.60	272.35	8,571.05	385.08	-1,880.17	1,881.11	10.48	9.73	-3.91
10,569.57	94.96	272.27	8,570.03	385.62	-1,893.69	1,894.63	10.04	10.02	-0.59
10,583.14	94.84	272.38	8,568.87	386.17	-1,907.20	1,908.14	1.20	-0.88	0.81
10,596.71	94.71	272.48	8,567.74	386.74	-1,920.71	1,921.65	1.21	-0.96	0.74
10,610.29	94.55	272.58	8,566.65	387.34	-1,934.23	1,935.18	1.39	-1.18	0.74
10,623.86	94.38	272.66	8,565.59	387.96	-1,947.75	1,948.69	1.38	-1.25	0.59
10,637.43	94.20	272.74	8,564.58	388.60	-1,961.27	1,962.21	1.45	-1.33	0.59
10,651.00	94.05	272.80	8,563.60	389.25	-1,974.79	1,975.73	1.19	-1.11	0.44
10,664.57	93.97	272.83	8,562.65	389.92	-1,988.31	1,989.25	0.63	-0.59	0.22
10,678.14	93.95	272.85	8,561.71	390.59	-2,001.83	2,002.78	0.21	-0.15	0.15
10,691.71	93.98	272.86	8,560.78	391.26	-2,015.35	2,016.30	0.23	0.22	0.07
10,705.29	94.03	272.87	8,559.83	391.94	-2,028.88	2,029.83	0.38	0.37	0.07
10,718.86	94.09	272.87	8,558.87	392.62	-2,042.40	2,043.35	0.44	0.44	0.00
10,732.43	94.40	271.92	8,557.86	393.18	-2,055.92	2,056.87	7.35	2.28	-7.00
10,746.00	94.90	270.57	8,556.76	393.48	-2,069.44	2,070.39	10.58	3.68	-9.95
10,759.57	95.24	269.69	8,555.56	393.51	-2,082.96	2,083.91	6.93	2.51	-6.48
10,773.14	95.23	269.67	8,554.32	393.43	-2,096.47	2,097.42	0.16	-0.07	-0.15
10,786.71	95.19	269.66	8,553.09	393.35	-2,109.98	2,110.94	0.30	-0.29	-0.07
10,800.29	95.10	269.64	8,551.87	393.27	-2,123.51	2,124.46	0.68	-0.66	-0.15
10,813.86	94.98	269.61	8,550.68	393.18	-2,137.02	2,137.98	0.91	-0.88	-0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
10,827.43	94.83	269.59	8,549.52	393.09	-2,150.54	2,151.50	1.12	-1.11	-0.15	
10,841.00	94.68	269.56	8,548.40	392.99	-2,164.07	2,165.02	1.13	-1.11	-0.22	
10,854.43	94.54	269.54	8,547.32	392.88	-2,177.45	2,178.41	1.05	-1.04	-0.15	
10,867.86	94.42	269.51	8,546.27	392.77	-2,190.84	2,191.80	0.92	-0.89	-0.22	
10,881.29	94.31	269.48	8,545.25	392.65	-2,204.23	2,205.19	0.85	-0.82	-0.22	
10,894.71	94.23	269.45	8,544.25	392.53	-2,217.61	2,218.57	0.64	-0.60	-0.22	
10,908.14	94.18	269.42	8,543.26	392.40	-2,231.01	2,231.96	0.43	-0.37	-0.22	
10,921.57	94.16	269.40	8,542.29	392.26	-2,244.40	2,245.35	0.21	-0.15	-0.15	
10,935.00	94.15	269.37	8,541.31	392.11	-2,257.80	2,258.75	0.23	-0.07	-0.22	
10,948.57	94.16	269.34	8,540.33	391.96	-2,271.33	2,272.28	0.23	0.07	-0.22	
10,962.14	94.19	269.32	8,539.34	391.80	-2,284.86	2,285.81	0.27	0.22	-0.15	
10,975.71	94.24	269.30	8,538.34	391.64	-2,298.39	2,299.34	0.40	0.37	-0.15	
10,989.29	94.28	269.29	8,537.34	391.47	-2,311.94	2,312.89	0.30	0.29	-0.07	
11,002.86	94.32	269.27	8,536.32	391.30	-2,325.47	2,326.42	0.33	0.29	-0.15	
11,016.43	94.37	269.26	8,535.29	391.13	-2,339.00	2,339.95	0.38	0.37	-0.07	
11,030.00	94.43	269.25	8,534.25	390.95	-2,352.53	2,353.47	0.45	0.44	-0.07	
11,043.57	94.51	269.25	8,533.19	390.78	-2,366.05	2,367.00	0.59	0.59	0.00	
11,057.14	94.59	269.25	8,532.12	390.60	-2,379.58	2,380.53	0.59	0.59	0.00	
11,070.71	94.68	269.24	8,531.02	390.42	-2,393.10	2,394.05	0.67	0.66	-0.07	
11,084.29	94.76	269.23	8,529.90	390.24	-2,406.64	2,407.58	0.59	0.59	-0.07	
11,097.86	94.83	269.20	8,528.77	390.06	-2,420.16	2,421.10	0.56	0.52	-0.22	
11,111.43	94.85	269.15	8,527.62	389.86	-2,433.68	2,434.62	0.40	0.15	-0.37	
11,125.00	94.77	269.06	8,526.48	389.65	-2,447.20	2,448.14	0.89	-0.59	-0.66	
11,138.57	94.54	268.89	8,525.38	389.41	-2,460.72	2,461.67	2.11	-1.69	-1.25	
11,152.14	94.29	268.70	8,524.34	389.12	-2,474.25	2,475.19	2.31	-1.84	-1.40	
11,165.71	94.04	268.49	8,523.35	388.79	-2,487.78	2,488.72	2.40	-1.84	-1.55	
11,179.29	93.83	268.27	8,522.42	388.41	-2,501.32	2,502.26	2.24	-1.55	-1.62	
11,192.86	93.64	268.07	8,521.54	387.98	-2,514.86	2,515.80	2.03	-1.40	-1.47	
11,206.43	93.16	267.77	8,520.73	387.48	-2,528.39	2,529.33	4.17	-3.54	-2.21	
11,220.00	93.08	267.65	8,519.99	386.94	-2,541.93	2,542.87	1.06	-0.59	-0.88	
11,233.57	93.04	267.61	8,519.27	386.38	-2,555.47	2,556.41	0.42	-0.29	-0.29	
11,247.14	93.05	267.61	8,518.55	385.82	-2,569.01	2,569.94	0.07	0.07	0.00	
11,260.71	93.09	267.64	8,517.82	385.26	-2,582.55	2,583.48	0.37	0.29	0.22	
11,274.29	93.15	267.68	8,517.08	384.70	-2,596.10	2,597.03	0.53	0.44	0.29	
11,287.86	93.21	267.72	8,516.33	384.16	-2,609.63	2,610.57	0.53	0.44	0.29	
11,301.43	93.25	267.75	8,515.56	383.62	-2,623.17	2,624.10	0.37	0.29	0.22	
11,315.00	93.27	267.74	8,514.79	383.09	-2,636.71	2,637.64	0.16	0.15	-0.07	
11,328.43	93.26	267.68	8,514.03	382.55	-2,650.11	2,651.03	0.45	-0.07	-0.45	
11,341.86	93.20	267.58	8,513.27	382.00	-2,663.51	2,664.43	0.87	-0.45	-0.74	
11,355.29	93.13	267.47	8,512.53	381.42	-2,676.90	2,677.83	0.97	-0.52	-0.82	
11,368.71	92.99	267.36	8,511.81	380.82	-2,690.29	2,691.21	1.33	-1.04	-0.82	
11,382.14	92.81	267.26	8,511.13	380.19	-2,703.69	2,704.61	1.53	-1.34	-0.74	
11,395.57	92.59	267.20	8,510.50	379.54	-2,717.09	2,718.01	1.70	-1.64	-0.45	
11,409.00	92.38	267.19	8,509.92	378.88	-2,730.49	2,731.41	1.57	-1.56	-0.07	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
11,422.57	92.18	267.28	8,509.38	378.23	-2,744.03	2,744.95	1.62	-1.47	0.66
11,436.14	92.03	267.41	8,508.88	377.60	-2,757.58	2,758.49	1.46	-1.11	0.96
11,449.71	91.90	267.57	8,508.42	377.01	-2,771.13	2,772.04	1.52	-0.96	1.18
11,463.29	91.73	267.73	8,507.99	376.45	-2,784.69	2,785.60	1.72	-1.25	1.18
11,476.86	91.51	267.87	8,507.60	375.93	-2,798.24	2,799.15	1.92	-1.62	1.03
11,490.43	91.37	268.56	8,507.26	375.51	-2,811.80	2,812.71	5.19	-1.03	5.08
11,504.00	91.25	269.69	8,506.95	375.30	-2,825.37	2,826.28	8.37	-0.88	8.33
11,517.57	91.08	270.36	8,506.67	375.30	-2,838.93	2,839.84	5.09	-1.25	4.94
11,531.14	90.84	270.30	8,506.45	375.38	-2,852.50	2,853.41	1.82	-1.77	-0.44
11,544.71	90.73	270.22	8,506.26	375.44	-2,866.07	2,866.98	1.00	-0.81	-0.59
11,558.29	90.65	270.13	8,506.10	375.49	-2,879.65	2,880.56	0.89	-0.59	-0.66
11,571.86	90.59	270.05	8,505.95	375.51	-2,893.22	2,894.13	0.74	-0.44	-0.59
11,585.43	90.56	269.98	8,505.82	375.51	-2,906.79	2,907.70	0.56	-0.22	-0.52
11,599.00	90.53	269.95	8,505.69	375.50	-2,920.36	2,921.27	0.31	-0.22	-0.22
11,612.57	90.50	269.98	8,505.56	375.49	-2,933.93	2,934.84	0.31	-0.22	0.22
11,626.14	90.49	270.05	8,505.45	375.50	-2,947.50	2,948.40	0.52	-0.07	0.52
11,639.71	90.49	270.14	8,505.33	375.52	-2,961.07	2,961.97	0.66	0.00	0.66
11,653.29	90.50	270.25	8,505.21	375.57	-2,974.65	2,975.55	0.81	0.07	0.81
11,666.86	90.52	270.35	8,505.09	375.64	-2,988.21	2,989.12	0.75	0.15	0.74
11,680.43	91.28	270.60	8,504.88	375.75	-3,001.78	3,002.69	5.90	5.60	1.84
11,694.00	92.02	270.96	8,504.49	375.93	-3,015.35	3,016.25	6.06	5.45	2.65
11,707.43	91.97	271.04	8,504.02	376.17	-3,028.76	3,029.67	0.70	-0.37	0.60
11,720.86	91.92	271.12	8,503.57	376.42	-3,042.18	3,043.10	0.70	-0.37	0.60
11,734.29	91.90	271.19	8,503.12	376.69	-3,055.60	3,056.52	0.54	-0.15	0.52
11,747.71	91.89	271.26	8,502.67	376.98	-3,069.01	3,069.93	0.53	-0.07	0.52
11,761.14	91.89	271.31	8,502.23	377.28	-3,082.43	3,083.35	0.37	0.00	0.37
11,774.57	92.39	271.49	8,501.73	377.61	-3,095.85	3,096.76	3.96	3.72	1.34
11,788.00	92.63	271.58	8,501.14	377.97	-3,109.26	3,110.18	1.91	1.79	0.67
11,801.57	92.62	271.57	8,500.52	378.34	-3,122.81	3,123.73	0.10	-0.07	-0.07
11,815.14	92.60	271.54	8,499.90	378.71	-3,136.36	3,137.28	0.27	-0.15	-0.22
11,828.71	92.56	271.50	8,499.29	379.07	-3,149.92	3,150.83	0.42	-0.29	-0.29
11,842.29	92.55	271.45	8,498.69	379.42	-3,163.48	3,164.40	0.38	-0.07	-0.37
11,855.86	92.55	271.39	8,498.08	379.75	-3,177.03	3,177.95	0.44	0.00	-0.44
11,869.43	92.56	271.35	8,497.48	380.08	-3,190.58	3,191.50	0.30	0.07	-0.29
11,883.00	92.56	271.31	8,496.87	380.39	-3,204.14	3,205.06	0.29	0.00	-0.29
11,896.57	92.58	271.28	8,496.26	380.70	-3,217.69	3,218.61	0.27	0.15	-0.22
11,910.14	92.59	271.26	8,495.65	381.00	-3,231.24	3,232.16	0.16	0.07	-0.15
11,923.71	92.59	271.25	8,495.04	381.30	-3,244.79	3,245.72	0.07	0.00	-0.07
11,937.29	92.57	271.24	8,494.43	381.59	-3,258.36	3,259.28	0.16	-0.15	-0.07
11,950.86	92.55	271.24	8,493.82	381.88	-3,271.91	3,272.83	0.15	-0.15	0.00
11,964.43	92.52	271.23	8,493.22	382.18	-3,285.46	3,286.39	0.23	-0.22	-0.07
11,978.00	92.49	271.22	8,492.63	382.47	-3,299.02	3,299.94	0.23	-0.22	-0.07
11,991.57	92.45	271.20	8,492.04	382.75	-3,312.57	3,313.50	0.33	-0.29	-0.15



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
12,005.14	92.41	271.19	8,491.47	383.03	-3,326.13	3,327.05	0.30	-0.29	-0.07	
12,018.71	92.38	271.18	8,490.90	383.31	-3,339.68	3,340.61	0.23	-0.22	-0.07	
12,032.29	92.32	271.17	8,490.34	383.59	-3,353.25	3,354.18	0.45	-0.44	-0.07	
12,045.86	92.27	271.17	8,489.80	383.87	-3,366.80	3,367.73	0.37	-0.37	0.00	
12,059.43	92.22	271.19	8,489.27	384.15	-3,380.36	3,381.29	0.40	-0.37	0.15	
12,073.00	92.17	271.23	8,488.75	384.44	-3,393.92	3,394.85	0.47	-0.37	0.29	
12,086.43	92.12	271.32	8,488.25	384.73	-3,407.34	3,408.27	0.77	-0.37	0.67	
12,099.86	92.05	271.43	8,487.76	385.06	-3,420.75	3,421.68	0.97	-0.52	0.82	
12,113.29	91.95	271.55	8,487.29	385.41	-3,434.17	3,435.10	1.16	-0.74	0.89	
12,126.71	91.87	271.66	8,486.84	385.78	-3,447.58	3,448.51	1.01	-0.60	0.82	
12,140.14	91.80	271.77	8,486.41	386.18	-3,460.99	3,461.93	0.97	-0.52	0.82	
12,153.57	92.00	271.79	8,485.97	386.60	-3,474.41	3,475.34	1.50	1.49	0.15	
12,167.00	93.10	271.59	8,485.37	387.00	-3,487.82	3,488.76	8.32	8.19	-1.49	
12,180.57	93.13	271.60	8,484.63	387.37	-3,501.37	3,502.30	0.23	0.22	0.07	
12,194.14	93.23	271.59	8,483.88	387.75	-3,514.91	3,515.85	0.74	0.74	-0.07	
12,207.71	93.28	271.57	8,483.11	388.12	-3,528.45	3,529.39	0.40	0.37	-0.15	
12,221.29	93.28	271.54	8,482.33	388.49	-3,542.01	3,542.94	0.22	0.00	-0.22	
12,234.86	93.28	271.50	8,481.55	388.85	-3,555.55	3,556.49	0.29	0.00	-0.29	
12,248.43	93.27	271.46	8,480.78	389.20	-3,569.09	3,570.03	0.30	-0.07	-0.29	
12,262.00	93.26	271.42	8,480.01	389.54	-3,582.64	3,583.58	0.30	-0.07	-0.29	
12,275.57	93.25	271.38	8,479.24	389.87	-3,596.18	3,597.12	0.30	-0.07	-0.29	
12,289.14	93.24	271.34	8,478.47	390.19	-3,609.72	3,610.67	0.30	-0.07	-0.29	
12,302.71	93.23	271.30	8,477.70	390.51	-3,623.27	3,624.21	0.30	-0.07	-0.29	
12,316.29	93.22	271.26	8,476.94	390.81	-3,636.82	3,637.77	0.30	-0.07	-0.29	
12,329.86	93.20	271.22	8,476.18	391.10	-3,650.37	3,651.31	0.33	-0.15	-0.29	
12,343.43	93.18	271.18	8,475.42	391.39	-3,663.92	3,664.86	0.33	-0.15	-0.29	
12,357.00	93.15	271.14	8,474.67	391.66	-3,677.46	3,678.41	0.37	-0.22	-0.29	
12,370.57	93.10	271.10	8,473.93	391.92	-3,691.01	3,691.96	0.47	-0.37	-0.29	
12,377.66	93.09	271.08	8,473.55	392.06	-3,698.09	3,699.04	0.33	-0.15	-0.29	
03-V3700(S-132H)										
12,384.14	93.08	271.06	8,473.20	392.18	-3,704.56	3,705.50	0.33	-0.15	-0.29	
12,397.71	93.07	271.02	8,472.47	392.43	-3,718.10	3,719.05	0.30	-0.07	-0.29	
12,411.29	93.05	270.98	8,471.75	392.66	-3,731.66	3,732.61	0.33	-0.15	-0.29	
12,424.86	93.05	270.93	8,471.03	392.89	-3,745.21	3,746.16	0.37	0.00	-0.37	
12,438.43	93.08	270.87	8,470.30	393.10	-3,758.76	3,759.71	0.49	0.22	-0.44	
12,452.00	93.12	270.80	8,469.57	393.30	-3,772.31	3,773.26	0.59	0.29	-0.52	
12,465.43	93.08	270.72	8,468.84	393.48	-3,785.72	3,786.67	0.67	-0.30	-0.60	
12,478.86	93.01	270.62	8,468.13	393.63	-3,799.13	3,800.08	0.91	-0.52	-0.74	
12,492.29	92.96	270.53	8,467.43	393.77	-3,812.54	3,813.49	0.77	-0.37	-0.67	
12,505.71	92.88	270.43	8,466.74	393.88	-3,825.94	3,826.89	0.95	-0.60	-0.75	
12,519.14	92.74	270.34	8,466.09	393.97	-3,839.36	3,840.31	1.24	-1.04	-0.67	
12,532.57	92.23	270.19	8,465.50	394.03	-3,852.77	3,853.72	3.96	-3.80	-1.12	
12,546.00	91.63	270.03	8,465.05	394.06	-3,866.20	3,867.15	4.62	-4.47	-1.19	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
12,559.57	91.51	270.00	8,464.68	394.06	-3,879.76	3,880.71	0.91	-0.88	-0.22
12,573.14	91.44	269.99	8,464.33	394.06	-3,893.33	3,894.28	0.52	-0.52	-0.07
12,586.71	91.43	269.99	8,463.99	394.06	-3,906.89	3,907.84	0.07	-0.07	0.00
12,600.29	91.43	269.98	8,463.65	394.05	-3,920.47	3,921.42	0.07	0.00	-0.07
12,613.86	91.43	269.97	8,463.31	394.05	-3,934.03	3,934.98	0.07	0.00	-0.07
12,627.43	91.40	269.94	8,462.98	394.04	-3,947.60	3,948.55	0.31	-0.22	-0.22
12,641.00	91.37	269.89	8,462.65	394.02	-3,961.17	3,962.12	0.43	-0.22	-0.37
12,654.57	91.32	269.80	8,462.33	393.98	-3,974.73	3,975.68	0.76	-0.37	-0.66
12,668.14	91.30	269.68	8,462.02	393.92	-3,988.30	3,989.25	0.90	-0.15	-0.88
12,681.71	91.36	269.55	8,461.71	393.83	-4,001.86	4,002.81	1.05	0.44	-0.96
12,695.29	91.44	269.42	8,461.37	393.71	-4,015.44	4,016.39	1.12	0.59	-0.96
12,708.86	91.51	269.28	8,461.03	393.55	-4,029.00	4,029.95	1.15	0.52	-1.03
12,722.43	91.46	269.14	8,460.67	393.37	-4,042.57	4,043.52	1.10	-0.37	-1.03
12,736.00	90.54	268.72	8,460.44	393.11	-4,056.13	4,057.08	7.45	-6.78	-3.10
12,749.43	90.28	268.59	8,460.34	392.80	-4,069.56	4,070.51	2.16	-1.94	-0.97
12,762.86	90.19	268.52	8,460.29	392.46	-4,082.98	4,083.93	0.85	-0.67	-0.52
12,776.29	90.11	268.45	8,460.25	392.10	-4,096.41	4,097.36	0.79	-0.60	-0.52
12,789.71	90.06	268.38	8,460.23	391.73	-4,109.82	4,110.77	0.64	-0.37	-0.52
12,803.14	90.04	268.32	8,460.22	391.35	-4,123.25	4,124.19	0.47	-0.15	-0.45
12,816.57	90.05	268.26	8,460.21	390.94	-4,136.67	4,137.62	0.45	0.07	-0.45
12,830.00	90.07	268.20	8,460.19	390.53	-4,150.10	4,151.04	0.47	0.15	-0.45
12,843.57	90.13	268.13	8,460.17	390.10	-4,163.66	4,164.60	0.68	0.44	-0.52
12,857.14	90.19	268.07	8,460.13	389.65	-4,177.22	4,178.16	0.63	0.44	-0.44
12,870.71	90.27	268.01	8,460.08	389.18	-4,190.78	4,191.72	0.74	0.59	-0.44
12,884.29	90.34	267.95	8,460.01	388.70	-4,204.36	4,205.29	0.68	0.52	-0.44
12,897.86	90.39	267.89	8,459.92	388.21	-4,217.92	4,218.85	0.58	0.37	-0.44
12,911.43	90.40	267.83	8,459.83	387.70	-4,231.48	4,232.41	0.45	0.07	-0.44
12,925.00	90.41	267.78	8,459.73	387.18	-4,245.04	4,245.97	0.38	0.07	-0.37
12,938.57	90.37	267.74	8,459.64	386.65	-4,258.60	4,259.53	0.42	-0.29	-0.29
12,952.14	90.32	267.70	8,459.56	386.11	-4,272.15	4,273.09	0.47	-0.37	-0.29
12,965.71	90.30	267.66	8,459.48	385.56	-4,285.71	4,286.64	0.33	-0.15	-0.29
12,979.29	90.29	267.62	8,459.41	385.00	-4,299.28	4,300.21	0.30	-0.07	-0.29
12,992.86	90.30	267.58	8,459.34	384.44	-4,312.84	4,313.77	0.30	0.07	-0.29
13,006.43	90.28	267.53	8,459.27	383.86	-4,326.40	4,327.32	0.40	-0.15	-0.37
13,020.00	90.18	267.48	8,459.22	383.27	-4,339.95	4,340.88	0.82	-0.74	-0.37
13,033.43	89.97	267.41	8,459.20	382.67	-4,353.37	4,354.29	1.65	-1.56	-0.52
13,046.86	89.68	267.34	8,459.24	382.05	-4,366.79	4,367.71	2.22	-2.16	-0.52
13,060.29	89.32	267.27	8,459.36	381.42	-4,380.20	4,381.12	2.73	-2.68	-0.52
13,073.71	88.94	267.20	8,459.56	380.77	-4,393.60	4,394.52	2.88	-2.83	-0.52
13,087.14	88.55	267.13	8,459.86	380.11	-4,407.01	4,407.93	2.95	-2.90	-0.52
13,100.57	88.19	267.93	8,460.24	379.53	-4,420.43	4,421.34	6.53	-2.68	5.96
13,114.00	88.13	268.96	8,460.67	379.17	-4,433.84	4,434.76	7.68	-0.45	7.67
13,127.57	88.10	269.24	8,461.12	378.95	-4,447.41	4,448.32	2.07	-0.22	2.06
13,141.14	88.04	269.23	8,461.57	378.77	-4,460.97	4,461.88	0.45	-0.44	-0.07



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)	
13,154.71	88.07	269.23	8,462.04	378.59	-4,474.53	4,475.44	0.22	0.22	0.00	
13,168.29	88.12	269.22	8,462.49	378.41	-4,488.10	4,489.01	0.38	0.37	-0.07	
13,181.86	88.18	269.22	8,462.92	378.22	-4,501.66	4,502.57	0.44	0.44	0.00	
13,195.43	88.23	269.22	8,463.35	378.04	-4,515.22	4,516.13	0.37	0.37	0.00	
13,209.00	88.26	269.22	8,463.77	377.85	-4,528.78	4,529.69	0.22	0.22	0.00	
13,222.57	88.25	269.20	8,464.18	377.67	-4,542.35	4,543.26	0.16	-0.07	-0.15	
13,236.14	88.23	269.18	8,464.60	377.47	-4,555.91	4,556.82	0.21	-0.15	-0.15	
13,249.71	88.23	269.16	8,465.01	377.28	-4,569.47	4,570.38	0.15	0.00	-0.15	
13,263.29	88.24	269.13	8,465.43	377.08	-4,583.04	4,583.95	0.23	0.07	-0.22	
13,276.86	88.27	269.10	8,465.85	376.87	-4,596.61	4,597.51	0.31	0.22	-0.22	
13,290.43	88.37	269.08	8,466.24	376.65	-4,610.17	4,611.07	0.75	0.74	-0.15	
13,304.00	88.53	269.05	8,466.61	376.43	-4,623.73	4,624.64	1.20	1.18	-0.22	
13,317.57	88.75	269.02	8,466.93	376.20	-4,637.30	4,638.20	1.64	1.62	-0.22	
13,331.14	88.97	268.98	8,467.20	375.96	-4,650.86	4,651.77	1.65	1.62	-0.29	
13,344.71	89.15	268.95	8,467.43	375.72	-4,664.43	4,665.33	1.34	1.33	-0.22	
13,358.29	89.26	268.92	8,467.61	375.47	-4,678.00	4,678.91	0.84	0.81	-0.22	
13,371.86	89.29	268.89	8,467.79	375.21	-4,691.57	4,692.47	0.31	0.22	-0.22	
13,385.43	89.26	268.86	8,467.96	374.94	-4,705.14	4,706.04	0.31	-0.22	-0.22	
13,399.00	89.24	268.83	8,468.14	374.67	-4,718.70	4,719.60	0.27	-0.15	-0.22	
13,412.43	89.25	268.80	8,468.31	374.39	-4,732.13	4,733.03	0.24	0.07	-0.22	
13,425.86	89.25	268.77	8,468.49	374.11	-4,745.55	4,746.45	0.22	0.00	-0.22	
13,439.29	89.22	268.74	8,468.67	373.81	-4,758.98	4,759.88	0.32	-0.22	-0.22	
13,452.71	89.13	268.71	8,468.86	373.51	-4,772.39	4,773.29	0.71	-0.67	-0.22	
13,466.14	89.03	268.67	8,469.08	373.21	-4,785.82	4,786.72	0.80	-0.74	-0.30	
13,479.57	88.98	268.63	8,469.31	372.89	-4,799.24	4,800.14	0.48	-0.37	-0.30	
13,493.00	88.95	268.58	8,469.55	372.56	-4,812.67	4,813.56	0.43	-0.22	-0.37	
13,506.57	88.95	268.51	8,469.80	372.22	-4,826.23	4,827.13	0.52	0.00	-0.52	
13,520.14	88.98	268.43	8,470.05	371.86	-4,839.79	4,840.69	0.63	0.22	-0.59	
13,533.71	89.03	268.36	8,470.28	371.48	-4,853.36	4,854.25	0.63	0.37	-0.52	
13,547.29	89.05	268.29	8,470.51	371.08	-4,866.93	4,867.82	0.54	0.15	-0.52	
13,560.86	89.04	268.24	8,470.73	370.67	-4,880.49	4,881.38	0.38	-0.07	-0.37	
13,574.43	88.98	268.22	8,470.97	370.25	-4,894.05	4,894.94	0.47	-0.44	-0.15	
13,588.00	88.93	268.23	8,471.22	369.83	-4,907.61	4,908.50	0.38	-0.37	0.07	
13,601.57	88.90	268.30	8,471.47	369.42	-4,921.17	4,922.06	0.56	-0.22	0.52	
13,615.14	88.83	268.41	8,471.74	369.03	-4,934.74	4,935.62	0.96	-0.52	0.81	
13,628.71	88.74	268.55	8,472.03	368.67	-4,948.30	4,949.18	1.23	-0.66	1.03	
13,642.29	88.56	268.68	8,472.35	368.34	-4,961.87	4,962.76	1.63	-1.33	0.96	
13,655.86	88.29	268.82	8,472.72	368.05	-4,975.43	4,976.32	2.24	-1.99	1.03	
13,669.43	88.18	269.55	8,473.14	367.85	-4,988.99	4,989.88	5.44	-0.81	5.38	
13,680.24	88.15	270.32	8,473.49	367.84	-4,999.80	5,000.68	7.15	-0.30	7.15	
04-V5000(S-132H)										
13,683.00	88.14	270.52	8,473.58	367.86	-5,002.56	5,003.44	7.15	-0.29	7.15	
13,696.43	88.15	271.15	8,474.01	368.06	-5,015.98	5,016.86	4.69	0.07	4.69	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
13,709.86	88.20	271.27	8,474.44	368.34	-5,029.40	5,030.28	0.97	0.37	0.89
13,723.29	88.38	271.39	8,474.84	368.65	-5,042.82	5,043.71	1.61	1.34	0.89
13,736.71	88.58	271.51	8,475.20	368.99	-5,056.23	5,057.12	1.74	1.49	0.89
13,750.14	88.78	271.61	8,475.51	369.36	-5,069.65	5,070.54	1.66	1.49	0.74
13,763.57	89.33	271.77	8,475.73	369.75	-5,083.07	5,083.96	4.27	4.10	1.19
13,777.00	89.81	271.90	8,475.83	370.18	-5,096.50	5,097.39	3.70	3.57	0.97
13,790.57	89.97	271.92	8,475.85	370.64	-5,110.06	5,110.95	1.19	1.18	0.15
13,804.14	90.10	271.91	8,475.85	371.09	-5,123.62	5,124.51	0.96	0.96	-0.07
13,817.71	90.18	271.89	8,475.81	371.54	-5,137.18	5,138.08	0.61	0.59	-0.15
13,831.29	90.21	271.86	8,475.77	371.98	-5,150.76	5,151.65	0.31	0.22	-0.22
13,844.86	90.20	271.82	8,475.72	372.42	-5,164.32	5,165.21	0.30	-0.07	-0.29
13,858.43	90.12	271.77	8,475.68	372.84	-5,177.88	5,178.78	0.70	-0.59	-0.37
13,872.00	89.95	271.70	8,475.67	373.26	-5,191.45	5,192.34	1.35	-1.25	-0.52
13,885.57	89.66	271.62	8,475.72	373.65	-5,205.01	5,205.91	2.22	-2.14	-0.59
13,899.14	89.29	271.52	8,475.84	374.02	-5,218.58	5,219.47	2.82	-2.73	-0.74
13,912.71	88.96	271.43	8,476.05	374.37	-5,232.14	5,233.04	2.52	-2.43	-0.66
13,926.29	88.77	271.33	8,476.32	374.70	-5,245.71	5,246.61	1.58	-1.40	-0.74
13,939.86	88.70	271.25	8,476.62	375.00	-5,259.28	5,260.18	0.78	-0.52	-0.59
13,953.43	88.72	271.17	8,476.92	375.29	-5,272.84	5,273.74	0.61	0.15	-0.59
13,967.00	88.80	271.12	8,477.22	375.56	-5,286.40	5,287.31	0.70	0.59	-0.37
13,980.57	88.92	271.11	8,477.49	375.82	-5,299.97	5,300.87	0.89	0.88	-0.07
13,994.14	89.09	271.11	8,477.72	376.09	-5,313.53	5,314.44	1.25	1.25	0.00
14,007.71	89.32	271.13	8,477.91	376.35	-5,327.10	5,328.00	1.70	1.69	0.15
14,021.29	89.57	271.16	8,478.04	376.62	-5,340.68	5,341.58	1.85	1.84	0.22
14,034.86	89.82	271.17	8,478.11	376.90	-5,354.24	5,355.15	1.84	1.84	0.07
14,048.43	90.02	271.18	8,478.13	377.18	-5,367.81	5,368.72	1.48	1.47	0.07
14,062.00	90.15	271.16	8,478.11	377.45	-5,381.38	5,382.28	0.97	0.96	-0.15
14,075.43	90.18	271.09	8,478.07	377.72	-5,394.80	5,395.71	0.57	0.22	-0.52
14,088.86	90.16	271.00	8,478.03	377.96	-5,408.23	5,409.14	0.69	-0.15	-0.67
14,102.29	90.11	270.90	8,478.00	378.19	-5,421.66	5,422.57	0.83	-0.37	-0.74
14,115.71	89.98	270.80	8,477.99	378.38	-5,435.08	5,435.99	1.22	-0.97	-0.75
14,129.14	89.76	270.71	8,478.02	378.56	-5,448.51	5,449.42	1.77	-1.64	-0.67
14,142.57	89.48	270.64	8,478.11	378.72	-5,461.94	5,462.85	2.15	-2.08	-0.52
14,156.00	89.13	270.60	8,478.28	378.86	-5,475.36	5,476.27	2.62	-2.61	-0.30
14,169.57	88.88	270.61	8,478.51	379.01	-5,488.93	5,489.84	1.84	-1.84	0.07
14,183.14	88.74	270.65	8,478.79	379.16	-5,502.50	5,503.41	1.07	-1.03	0.29
14,196.71	88.73	270.72	8,479.09	379.32	-5,516.06	5,516.97	0.52	-0.07	0.52
14,210.29	88.76	270.80	8,479.39	379.50	-5,529.64	5,530.55	0.63	0.22	0.59
14,223.86	88.79	270.90	8,479.68	379.70	-5,543.21	5,544.12	0.77	0.22	0.74
14,237.43	89.11	270.95	8,479.93	379.92	-5,556.77	5,557.68	2.39	2.36	0.37
14,251.00	89.82	271.00	8,480.06	380.15	-5,570.34	5,571.25	5.25	5.23	0.37
14,264.57	89.76	271.17	8,480.10	380.41	-5,583.91	5,584.82	1.33	-0.44	1.25
14,278.14	89.41	271.35	8,480.20	380.71	-5,597.47	5,598.39	2.90	-2.58	1.33
14,291.71	89.18	271.54	8,480.37	381.05	-5,611.04	5,611.95	2.20	-1.69	1.40



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
14,305.29	89.08	271.74	8,480.58	381.44	-5,624.61	5,625.52	1.65	-0.74	1.47
14,318.86	88.99	271.92	8,480.80	381.87	-5,638.17	5,639.09	1.48	-0.66	1.33
14,332.43	89.73	272.28	8,480.96	382.37	-5,651.73	5,652.65	6.06	5.45	2.65
14,346.00	90.52	272.53	8,480.93	382.94	-5,665.29	5,666.21	6.11	5.82	1.84
14,359.57	91.34	272.51	8,480.71	383.53	-5,678.84	5,679.76	6.04	6.04	-0.15
14,373.14	91.03	272.60	8,480.43	384.14	-5,692.40	5,693.32	2.38	-2.28	0.66
14,386.71	90.58	272.77	8,480.24	384.77	-5,705.95	5,706.87	3.54	-3.32	1.25
14,400.29	90.38	272.95	8,480.12	385.45	-5,719.51	5,720.44	1.98	-1.47	1.33
14,413.86	90.41	273.12	8,480.03	386.17	-5,733.06	5,733.99	1.27	0.22	1.25
14,427.43	90.59	273.29	8,479.91	386.93	-5,746.61	5,747.54	1.82	1.33	1.25
14,441.00	91.82	273.14	8,479.62	387.69	-5,760.16	5,761.09	9.13	9.06	-1.11
14,454.43	93.12	272.96	8,479.05	388.40	-5,773.56	5,774.49	9.77	9.68	-1.34
14,467.86	94.40	272.62	8,478.16	389.06	-5,786.94	5,787.87	9.86	9.53	-2.53
14,481.29	94.63	272.76	8,477.11	389.68	-5,800.31	5,801.25	2.00	1.71	1.04
14,494.71	94.67	273.00	8,476.02	390.36	-5,813.67	5,814.61	1.81	0.30	1.79
14,508.14	94.66	273.23	8,474.93	391.08	-5,827.04	5,827.98	1.71	-0.07	1.71
14,521.57	94.61	273.41	8,473.84	391.86	-5,840.40	5,841.34	1.39	-0.37	1.34
14,535.00	94.51	273.51	8,472.77	392.67	-5,853.77	5,854.71	1.05	-0.74	0.74
14,548.57	94.44	273.46	8,471.72	393.49	-5,867.27	5,868.21	0.63	-0.52	-0.37
14,562.14	94.40	273.32	8,470.67	394.29	-5,880.78	5,881.72	1.07	-0.29	-1.03
14,575.71	94.39	273.12	8,469.63	395.05	-5,894.28	5,895.23	1.47	-0.07	-1.47
14,589.29	94.40	272.90	8,468.59	395.76	-5,907.81	5,908.75	1.62	0.07	-1.62
14,602.86	94.44	272.67	8,467.54	396.42	-5,921.32	5,922.27	1.72	0.29	-1.69
14,616.43	94.27	272.11	8,466.51	396.98	-5,934.84	5,935.79	4.30	-1.25	-4.13
14,630.00	93.62	270.94	8,465.58	397.34	-5,948.37	5,949.32	9.85	-4.79	-8.62
14,643.57	93.26	270.28	8,464.77	397.49	-5,961.92	5,962.87	5.53	-2.65	-4.86
14,657.14	93.22	270.13	8,464.00	397.53	-5,975.46	5,976.42	1.14	-0.29	-1.11
14,670.71	93.14	269.99	8,463.25	397.55	-5,989.01	5,989.97	1.19	-0.59	-1.03
14,684.29	93.01	269.85	8,462.52	397.53	-6,002.57	6,003.53	1.41	-0.96	-1.03
14,697.86	92.79	269.71	8,461.83	397.48	-6,016.13	6,017.08	1.92	-1.62	-1.03
14,711.43	92.13	269.68	8,461.25	397.41	-6,029.68	6,030.64	4.87	-4.86	-0.22
14,725.00	90.98	269.55	8,460.88	397.31	-6,043.25	6,044.20	8.53	-8.47	-0.96
14,738.43	89.64	269.50	8,460.81	397.20	-6,056.68	6,057.63	9.98	-9.98	-0.37
14,751.86	88.87	269.58	8,460.98	397.10	-6,070.10	6,071.06	5.76	-5.73	0.60
14,765.29	88.79	269.41	8,461.26	396.98	-6,083.53	6,084.48	1.40	-0.60	-1.27
14,778.71	88.78	269.24	8,461.54	396.82	-6,096.95	6,097.90	1.27	-0.07	-1.27
14,792.14	88.81	269.06	8,461.82	396.62	-6,110.37	6,111.32	1.36	0.22	-1.34
14,805.57	88.89	268.91	8,462.09	396.38	-6,123.80	6,124.75	1.27	0.60	-1.12
14,819.00	88.96	268.79	8,462.34	396.11	-6,137.22	6,138.17	1.03	0.52	-0.89
14,832.57	88.98	268.73	8,462.59	395.82	-6,150.79	6,151.74	0.47	0.15	-0.44
14,846.14	88.96	268.71	8,462.83	395.52	-6,164.35	6,165.30	0.21	-0.15	-0.15
14,859.71	88.91	268.71	8,463.08	395.21	-6,177.92	6,178.86	0.37	-0.37	0.00
14,873.29	88.87	268.72	8,463.35	394.91	-6,191.49	6,192.44	0.30	-0.29	0.07



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
14,886.86	88.83	268.74	8,463.62	394.60	-6,205.05	6,206.00	0.33	-0.29	0.15
14,900.43	88.78	268.76	8,463.90	394.31	-6,218.62	6,219.56	0.40	-0.37	0.15
14,914.00	88.71	268.77	8,464.20	394.02	-6,232.18	6,233.13	0.52	-0.52	0.07
14,927.43	88.63	268.75	8,464.51	393.73	-6,245.61	6,246.55	0.61	-0.60	-0.15
14,940.86	88.56	268.72	8,464.84	393.43	-6,259.03	6,259.97	0.57	-0.52	-0.22
14,954.29	88.50	268.69	8,465.19	393.13	-6,272.45	6,273.39	0.50	-0.45	-0.22
14,967.71	88.45	268.65	8,465.54	392.81	-6,285.86	6,286.80	0.48	-0.37	-0.30
14,981.14	88.42	268.62	8,465.91	392.49	-6,299.28	6,300.22	0.32	-0.22	-0.22
14,994.57	88.42	268.60	8,466.28	392.17	-6,312.70	6,313.64	0.15	0.00	-0.15
15,008.00	88.41	268.59	8,466.65	391.84	-6,326.12	6,327.06	0.11	-0.07	-0.07
15,021.57	88.42	268.60	8,467.03	391.51	-6,339.69	6,340.62	0.10	0.07	0.07
15,035.14	88.41	268.63	8,467.40	391.18	-6,353.25	6,354.18	0.23	-0.07	0.22
15,048.71	88.42	268.67	8,467.78	390.86	-6,366.81	6,367.74	0.30	0.07	0.29
15,062.29	88.45	268.71	8,468.15	390.55	-6,380.38	6,381.31	0.37	0.22	0.29
15,075.86	88.49	268.75	8,468.51	390.25	-6,393.94	6,394.87	0.42	0.29	0.29
15,089.43	88.53	268.79	8,468.86	389.96	-6,407.50	6,408.44	0.42	0.29	0.29
15,103.00	88.57	268.83	8,469.21	389.68	-6,421.07	6,422.00	0.42	0.29	0.29
15,116.43	88.57	268.86	8,469.54	389.41	-6,434.49	6,435.42	0.22	0.00	0.22
15,129.86	88.56	268.88	8,469.88	389.14	-6,447.91	6,448.84	0.17	-0.07	0.15
15,143.29	88.54	268.90	8,470.22	388.88	-6,461.33	6,462.27	0.21	-0.15	0.15
15,156.71	88.54	268.91	8,470.56	388.62	-6,474.75	6,475.68	0.07	0.00	0.07
15,170.14	88.53	268.92	8,470.90	388.37	-6,488.17	6,489.10	0.11	-0.07	0.07
15,183.57	88.50	268.93	8,471.25	388.12	-6,501.59	6,502.52	0.24	-0.22	0.07
15,197.00	88.50	268.94	8,471.60	387.87	-6,515.02	6,515.95	0.07	0.00	0.07
15,210.57	88.50	268.95	8,471.96	387.62	-6,528.58	6,529.51	0.07	0.00	0.07
15,224.14	88.48	268.96	8,472.32	387.37	-6,542.14	6,543.07	0.16	-0.15	0.07
15,237.71	88.47	268.97	8,472.68	387.13	-6,555.71	6,556.63	0.10	-0.07	0.07
15,251.29	88.44	268.98	8,473.04	386.88	-6,569.28	6,570.21	0.23	-0.22	0.07
15,264.86	88.39	268.99	8,473.42	386.64	-6,582.84	6,583.77	0.38	-0.37	0.07
15,278.43	88.33	269.01	8,473.81	386.41	-6,596.40	6,597.33	0.47	-0.44	0.15
15,292.00	88.26	269.03	8,474.21	386.17	-6,609.97	6,610.89	0.54	-0.52	0.15
15,305.43	88.25	269.06	8,474.62	385.95	-6,623.39	6,624.31	0.24	-0.07	0.22
15,318.86	88.29	269.09	8,475.02	385.73	-6,636.81	6,637.73	0.37	0.30	0.22
15,332.29	88.34	269.12	8,475.42	385.52	-6,650.23	6,651.16	0.43	0.37	0.22
15,345.71	88.38	269.16	8,475.80	385.32	-6,663.65	6,664.57	0.42	0.30	0.30
15,359.14	88.44	269.20	8,476.18	385.13	-6,677.07	6,677.99	0.54	0.45	0.30
15,372.57	88.55	269.23	8,476.53	384.95	-6,690.49	6,691.41	0.85	0.82	0.22
15,386.00	88.69	269.26	8,476.85	384.77	-6,703.92	6,704.84	1.07	1.04	0.22
15,399.57	88.75	269.28	8,477.16	384.60	-6,717.48	6,718.40	0.47	0.44	0.15
15,413.14	88.74	269.30	8,477.45	384.43	-6,731.05	6,731.97	0.16	-0.07	0.15
15,426.71	88.69	269.31	8,477.76	384.26	-6,744.62	6,745.53	0.38	-0.37	0.07
15,440.29	88.70	269.33	8,478.07	384.10	-6,758.19	6,759.11	0.16	0.07	0.15
15,453.86	88.79	269.36	8,478.36	383.95	-6,771.76	6,772.67	0.70	0.66	0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
15,467.43	88.88	269.40	8,478.64	383.80	-6,785.32	6,786.24	0.73	0.66	0.29
15,481.00	88.94	269.46	8,478.90	383.67	-6,798.89	6,799.81	0.63	0.44	0.44
15,494.43	89.03	269.56	8,479.14	383.55	-6,812.32	6,813.23	1.00	0.67	0.74
15,507.86	89.16	269.68	8,479.35	383.46	-6,825.75	6,826.66	1.32	0.97	0.89
15,521.29	89.32	269.81	8,479.53	383.40	-6,839.17	6,840.09	1.53	1.19	0.97
15,534.71	89.51	269.94	8,479.66	383.37	-6,852.59	6,853.51	1.72	1.42	0.97
15,548.14	89.73	270.06	8,479.75	383.37	-6,866.02	6,866.94	1.87	1.64	0.89
15,561.57	89.97	270.17	8,479.79	383.40	-6,879.45	6,880.37	1.97	1.79	0.82
15,575.00	90.19	270.26	8,479.77	383.45	-6,892.88	6,893.80	1.77	1.64	0.67
15,588.57	90.35	270.31	8,479.70	383.52	-6,906.45	6,907.37	1.24	1.18	0.37
15,602.14	90.43	270.34	8,479.61	383.60	-6,920.02	6,920.94	0.63	0.59	0.22
15,615.71	90.45	270.35	8,479.51	383.68	-6,933.59	6,934.51	0.16	0.15	0.07
15,629.29	90.42	270.34	8,479.41	383.76	-6,947.17	6,948.09	0.23	-0.22	-0.07
15,642.86	90.40	270.33	8,479.31	383.84	-6,960.74	6,961.66	0.16	-0.15	-0.07
15,656.43	90.38	270.31	8,479.22	383.91	-6,974.31	6,975.23	0.21	-0.15	-0.15
15,670.00	90.37	270.28	8,479.13	383.98	-6,987.88	6,988.80	0.23	-0.07	-0.22
15,683.43	90.36	270.24	8,479.04	384.04	-7,001.31	7,002.23	0.31	-0.07	-0.30
15,696.86	90.37	270.19	8,478.96	384.10	-7,014.74	7,015.66	0.38	0.07	-0.37
15,710.29	90.36	270.14	8,478.87	384.13	-7,028.17	7,029.09	0.38	-0.07	-0.37
15,723.71	90.26	270.09	8,478.80	384.16	-7,041.59	7,042.51	0.83	-0.75	-0.37
15,737.14	90.09	270.04	8,478.76	384.18	-7,055.02	7,055.94	1.32	-1.27	-0.37
15,750.57	89.89	269.98	8,478.76	384.18	-7,068.45	7,069.37	1.55	-1.49	-0.45
15,764.00	89.71	269.93	8,478.81	384.17	-7,081.88	7,082.80	1.39	-1.34	-0.37
15,777.57	89.59	269.88	8,478.89	384.15	-7,095.45	7,096.36	0.96	-0.88	-0.37
15,791.14	89.51	269.83	8,479.00	384.11	-7,109.02	7,109.93	0.70	-0.59	-0.37
15,804.71	89.48	269.78	8,479.11	384.06	-7,122.59	7,123.50	0.43	-0.22	-0.37
15,818.29	89.50	269.74	8,479.24	384.01	-7,136.17	7,137.08	0.33	0.15	-0.29
15,831.86	89.54	269.70	8,479.35	383.94	-7,149.74	7,150.65	0.42	0.29	-0.29
15,845.43	89.59	269.67	8,479.45	383.87	-7,163.30	7,164.22	0.43	0.37	-0.22
15,859.00	89.65	269.65	8,479.54	383.79	-7,176.87	7,177.79	0.47	0.44	-0.15
15,872.43	89.71	269.65	8,479.62	383.70	-7,190.30	7,191.22	0.45	0.45	0.00
15,885.86	89.78	269.67	8,479.68	383.62	-7,203.73	7,204.65	0.54	0.52	0.15
15,899.29	89.84	269.69	8,479.72	383.55	-7,217.16	7,218.08	0.47	0.45	0.15
15,912.71	89.90	269.71	8,479.75	383.48	-7,230.58	7,231.50	0.47	0.45	0.15
15,926.14	89.95	269.74	8,479.77	383.42	-7,244.01	7,244.93	0.43	0.37	0.22
15,939.57	89.98	269.76	8,479.78	383.36	-7,257.44	7,258.36	0.27	0.22	0.15
15,953.00	90.02	269.78	8,479.78	383.30	-7,270.87	7,271.79	0.33	0.30	0.15
15,966.57	90.07	269.78	8,479.77	383.25	-7,284.44	7,285.36	0.37	0.37	0.00
15,980.14	90.12	269.78	8,479.74	383.20	-7,298.01	7,298.93	0.37	0.37	0.00
15,993.71	90.16	269.77	8,479.71	383.15	-7,311.58	7,312.50	0.30	0.29	-0.07
16,007.29	90.18	269.76	8,479.67	383.09	-7,325.16	7,326.08	0.16	0.15	-0.07
16,020.86	90.19	269.74	8,479.63	383.03	-7,338.73	7,339.65	0.16	0.07	-0.15
16,034.43	90.17	269.73	8,479.58	382.97	-7,352.30	7,353.22	0.16	-0.15	-0.07
16,048.00	90.14	269.70	8,479.55	382.90	-7,365.87	7,366.78	0.31	-0.22	-0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
16,061.43	90.10	269.68	8,479.52	382.83	-7,379.30	7,380.21	0.33	-0.30	-0.15
16,074.86	90.07	269.65	8,479.50	382.75	-7,392.73	7,393.64	0.32	-0.22	-0.22
16,088.29	90.06	269.62	8,479.48	382.66	-7,406.16	7,407.07	0.24	-0.07	-0.22
16,101.71	90.09	269.59	8,479.47	382.57	-7,419.58	7,420.49	0.32	0.22	-0.22
16,115.14	90.13	269.56	8,479.44	382.47	-7,433.01	7,433.92	0.37	0.30	-0.22
16,128.57	90.18	269.53	8,479.41	382.36	-7,446.44	7,447.35	0.43	0.37	-0.22
16,142.00	90.23	269.51	8,479.36	382.25	-7,459.87	7,460.78	0.40	0.37	-0.15
16,155.71	90.27	269.48	8,479.30	382.13	-7,473.58	7,474.49	0.36	0.29	-0.22
16,169.43	90.31	269.46	8,479.23	382.00	-7,487.30	7,488.21	0.33	0.29	-0.15
16,181.26	90.34	269.45	8,479.16	381.89	-7,499.13	7,500.04	0.30	0.29	-0.07
05-V7500(S-132H)									
16,183.14	90.35	269.45	8,479.15	381.87	-7,501.01	7,501.92	0.30	0.29	-0.07
16,196.86	90.41	269.43	8,479.06	381.74	-7,514.73	7,515.64	0.46	0.44	-0.15
16,210.57	90.50	269.41	8,478.95	381.60	-7,528.43	7,529.34	0.67	0.66	-0.15
16,224.29	90.56	269.39	8,478.82	381.46	-7,542.15	7,543.06	0.46	0.44	-0.15
16,238.00	90.65	269.37	8,478.68	381.31	-7,555.86	7,556.77	0.67	0.66	-0.15
16,251.43	90.73	269.34	8,478.52	381.16	-7,569.29	7,570.20	0.64	0.60	-0.22
16,264.86	90.81	269.31	8,478.34	381.00	-7,582.72	7,583.63	0.64	0.60	-0.22
16,278.29	90.88	269.28	8,478.14	380.83	-7,596.14	7,597.05	0.57	0.52	-0.22
16,291.71	90.90	269.26	8,477.93	380.66	-7,609.56	7,610.47	0.21	0.15	-0.15
16,305.14	90.86	269.24	8,477.72	380.49	-7,622.99	7,623.90	0.33	-0.30	-0.15
16,318.57	90.75	269.24	8,477.53	380.31	-7,636.42	7,637.32	0.82	-0.82	0.00
16,332.00	90.65	269.27	8,477.37	380.13	-7,649.84	7,650.75	0.78	-0.74	0.22
16,345.43	90.65	269.32	8,477.22	379.97	-7,663.27	7,664.18	0.37	0.00	0.37
16,358.86	90.75	269.40	8,477.05	379.82	-7,676.70	7,677.61	0.95	0.74	0.60
16,372.29	90.90	269.49	8,476.86	379.69	-7,690.13	7,691.03	1.30	1.12	0.67
16,385.71	91.08	269.58	8,476.63	379.58	-7,703.55	7,704.45	1.50	1.34	0.67
16,399.14	91.28	269.68	8,476.35	379.49	-7,716.97	7,717.88	1.66	1.49	0.74
16,412.57	91.48	269.76	8,476.03	379.43	-7,730.40	7,731.30	1.60	1.49	0.60
16,426.00	91.67	269.84	8,475.66	379.38	-7,743.82	7,744.73	1.53	1.41	0.60
16,439.57	91.82	269.89	8,475.25	379.35	-7,757.39	7,758.29	1.17	1.11	0.37
16,453.14	91.90	269.92	8,474.81	379.33	-7,770.95	7,771.85	0.63	0.59	0.22
16,466.71	91.93	269.94	8,474.35	379.31	-7,784.51	7,785.42	0.27	0.22	0.15
16,480.29	91.93	269.94	8,473.89	379.30	-7,798.09	7,798.99	0.00	0.00	0.00
16,493.86	91.92	269.94	8,473.44	379.28	-7,811.65	7,812.55	0.07	-0.07	0.00
16,507.43	91.89	269.92	8,472.99	379.27	-7,825.21	7,826.11	0.27	-0.22	-0.15
16,521.00	91.87	269.88	8,472.54	379.24	-7,838.77	7,839.68	0.33	-0.15	-0.29
16,534.43	91.84	269.82	8,472.11	379.21	-7,852.20	7,853.10	0.50	-0.22	-0.45
16,547.86	91.79	269.74	8,471.68	379.16	-7,865.62	7,866.52	0.70	-0.37	-0.60
16,561.29	91.69	269.66	8,471.27	379.08	-7,879.04	7,879.95	0.95	-0.74	-0.60
16,574.71	91.59	269.57	8,470.89	378.99	-7,892.46	7,893.36	1.00	-0.75	-0.67
16,588.14	91.50	269.49	8,470.53	378.88	-7,905.88	7,906.78	0.90	-0.67	-0.60
16,601.57	91.42	269.43	8,470.19	378.76	-7,919.31	7,920.21	0.74	-0.60	-0.45



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
16,615.00	91.33	269.38	8,469.86	378.62	-7,932.73	7,933.63	0.77	-0.67	-0.37
16,628.57	91.27	269.38	8,469.56	378.47	-7,946.30	7,947.20	0.44	-0.44	0.00
16,642.14	91.23	269.40	8,469.26	378.33	-7,959.86	7,960.76	0.33	-0.29	0.15
16,655.71	91.20	269.43	8,468.97	378.19	-7,973.43	7,974.33	0.31	-0.22	0.22
16,669.29	91.20	269.46	8,468.69	378.06	-7,987.01	7,987.91	0.22	0.00	0.22
16,682.86	91.24	269.48	8,468.40	377.93	-8,000.57	8,001.47	0.33	0.29	0.15
16,696.43	91.29	269.48	8,468.10	377.81	-8,014.14	8,015.04	0.37	0.37	0.00
16,710.00	91.38	269.44	8,467.78	377.68	-8,027.70	8,028.60	0.73	0.66	-0.29
16,723.43	91.49	269.33	8,467.45	377.54	-8,041.13	8,042.03	1.16	0.82	-0.82
16,736.86	91.61	269.19	8,467.08	377.36	-8,054.55	8,055.45	1.37	0.89	-1.04
16,750.29	91.72	269.03	8,466.69	377.15	-8,067.98	8,068.87	1.45	0.82	-1.19
16,763.71	91.78	268.87	8,466.28	376.91	-8,081.39	8,082.28	1.27	0.45	-1.19
16,777.14	91.74	268.72	8,465.87	376.63	-8,094.81	8,095.70	1.16	-0.30	-1.12
16,790.57	91.00	268.76	8,465.55	376.33	-8,108.23	8,109.13	5.52	-5.51	0.30
16,804.00	89.69	268.87	8,465.47	376.05	-8,121.66	8,122.55	9.79	-9.75	0.82
16,817.57	89.47	268.84	8,465.57	375.78	-8,135.22	8,136.12	1.64	-1.62	-0.22
16,831.14	89.48	268.80	8,465.69	375.50	-8,148.79	8,149.68	0.30	0.07	-0.29
16,844.71	89.48	268.78	8,465.82	375.22	-8,162.36	8,163.25	0.15	0.00	-0.15
16,858.29	89.53	268.77	8,465.93	374.93	-8,175.93	8,176.83	0.38	0.37	-0.07
16,871.86	89.57	268.76	8,466.04	374.63	-8,189.50	8,190.39	0.30	0.29	-0.07
16,885.43	89.59	268.76	8,466.14	374.34	-8,203.07	8,203.96	0.15	0.15	0.00
16,899.00	89.59	268.76	8,466.24	374.05	-8,216.63	8,217.52	0.00	0.00	0.00
16,912.43	89.57	268.76	8,466.33	373.76	-8,230.06	8,230.95	0.15	-0.15	0.00
16,925.86	89.54	268.77	8,466.44	373.47	-8,243.49	8,244.37	0.24	-0.22	0.07
16,939.29	89.52	268.78	8,466.55	373.18	-8,256.91	8,257.80	0.17	-0.15	0.07
16,952.71	89.55	268.78	8,466.66	372.89	-8,270.33	8,271.22	0.22	0.22	0.00
16,966.14	89.62	268.79	8,466.76	372.61	-8,283.76	8,284.64	0.53	0.52	0.07
16,979.57	89.68	268.80	8,466.84	372.33	-8,297.18	8,298.07	0.45	0.45	0.07
16,993.00	89.73	268.81	8,466.91	372.05	-8,310.61	8,311.49	0.38	0.37	0.07
17,006.57	89.74	268.82	8,466.97	371.77	-8,324.18	8,325.06	0.10	0.07	0.07
17,020.14	89.74	268.82	8,467.03	371.49	-8,337.74	8,338.63	0.00	0.00	0.00
17,033.71	89.72	268.83	8,467.09	371.21	-8,351.31	8,352.19	0.16	-0.15	0.07
17,047.29	89.70	268.83	8,467.16	370.93	-8,364.89	8,365.77	0.15	-0.15	0.00
17,060.86	89.70	268.83	8,467.23	370.65	-8,378.45	8,379.34	0.00	0.00	0.00
17,074.43	89.74	268.84	8,467.30	370.38	-8,392.02	8,392.90	0.30	0.29	0.07
17,088.00	89.78	268.84	8,467.36	370.10	-8,405.59	8,406.47	0.29	0.29	0.00
17,101.43	89.82	268.83	8,467.40	369.83	-8,419.02	8,419.89	0.31	0.30	-0.07
17,114.86	89.80	268.83	8,467.45	369.56	-8,432.44	8,433.32	0.15	-0.15	0.00
17,128.29	89.75	268.82	8,467.50	369.28	-8,445.87	8,446.75	0.38	-0.37	-0.07
17,141.71	89.69	268.82	8,467.57	369.00	-8,459.29	8,460.16	0.45	-0.45	0.00
17,155.14	89.62	268.81	8,467.65	368.73	-8,472.71	8,473.59	0.53	-0.52	-0.07
17,168.57	89.48	268.79	8,467.75	368.45	-8,486.14	8,487.02	1.05	-1.04	-0.15
17,182.00	89.33	268.77	8,467.89	368.16	-8,499.57	8,500.44	1.13	-1.12	-0.15



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
17,195.57	89.24	268.75	8,468.06	367.87	-8,513.13	8,514.01	0.68	-0.66	-0.15
17,209.14	89.18	268.71	8,468.25	367.56	-8,526.70	8,527.57	0.53	-0.44	-0.29
17,222.71	89.16	268.68	8,468.45	367.26	-8,540.26	8,541.13	0.27	-0.15	-0.22
17,236.29	89.15	268.65	8,468.65	366.94	-8,553.84	8,554.71	0.23	-0.07	-0.22
17,249.86	89.15	268.62	8,468.85	366.62	-8,567.40	8,568.27	0.22	0.00	-0.22
17,263.43	89.13	268.60	8,469.05	366.29	-8,580.97	8,581.84	0.21	-0.15	-0.15
17,277.00	89.13	268.59	8,469.26	365.95	-8,594.53	8,595.40	0.07	0.00	-0.07
17,290.43	89.16	268.60	8,469.46	365.63	-8,607.96	8,608.82	0.24	0.22	0.07
17,303.86	89.20	268.63	8,469.65	365.30	-8,621.38	8,622.25	0.37	0.30	0.22
17,317.29	89.25	268.66	8,469.83	364.98	-8,634.81	8,635.67	0.43	0.37	0.22
17,330.71	89.30	268.69	8,470.00	364.67	-8,648.22	8,649.09	0.43	0.37	0.22
17,344.14	89.34	268.72	8,470.16	364.37	-8,661.65	8,662.51	0.37	0.30	0.22
17,357.57	89.36	268.74	8,470.31	364.07	-8,675.07	8,675.94	0.21	0.15	0.15
17,371.00	89.35	268.76	8,470.46	363.78	-8,688.50	8,689.36	0.17	-0.07	0.15
17,384.57	89.35	268.75	8,470.62	363.48	-8,702.06	8,702.93	0.07	0.00	-0.07
17,398.14	89.38	268.74	8,470.77	363.19	-8,715.63	8,716.49	0.23	0.22	-0.07
17,411.71	89.42	268.72	8,470.91	362.89	-8,729.20	8,730.06	0.33	0.29	-0.15
17,425.29	89.47	268.69	8,471.04	362.58	-8,742.77	8,743.63	0.43	0.37	-0.22
17,438.86	89.52	268.65	8,471.16	362.26	-8,756.34	8,757.20	0.47	0.37	-0.29
17,452.43	89.59	268.61	8,471.27	361.94	-8,769.90	8,770.76	0.59	0.52	-0.29
17,466.00	89.68	268.56	8,471.35	361.60	-8,783.47	8,784.33	0.76	0.66	-0.37
17,479.43	89.79	268.50	8,471.42	361.26	-8,796.89	8,797.75	0.93	0.82	-0.45
17,492.86	89.91	268.43	8,471.45	360.90	-8,810.32	8,811.17	1.03	0.89	-0.52
17,506.29	90.01	268.36	8,471.46	360.52	-8,823.74	8,824.60	0.91	0.74	-0.52
17,519.71	90.13	268.29	8,471.44	360.13	-8,837.16	8,838.01	1.04	0.89	-0.52
17,533.14	90.25	268.21	8,471.40	359.72	-8,850.58	8,851.43	1.07	0.89	-0.60
17,546.57	90.35	268.14	8,471.33	359.29	-8,864.01	8,864.86	0.91	0.74	-0.52
17,560.00	90.42	268.07	8,471.24	358.85	-8,877.43	8,878.28	0.74	0.52	-0.52
17,573.57	90.44	267.99	8,471.14	358.38	-8,890.99	8,891.84	0.61	0.15	-0.59
17,587.14	90.46	267.92	8,471.03	357.90	-8,904.55	8,905.40	0.54	0.15	-0.52
17,600.71	90.52	267.86	8,470.91	357.40	-8,918.11	8,918.96	0.63	0.44	-0.44
17,614.29	90.60	267.79	8,470.78	356.88	-8,931.68	8,932.53	0.78	0.59	-0.52
17,627.86	90.69	267.73	8,470.63	356.35	-8,945.24	8,946.08	0.80	0.66	-0.44
17,641.43	90.80	267.67	8,470.45	355.81	-8,958.80	8,959.64	0.92	0.81	-0.44
17,655.00	90.92	267.61	8,470.25	355.25	-8,972.35	8,973.19	0.99	0.88	-0.44
17,668.43	91.01	267.56	8,470.02	354.68	-8,985.77	8,986.61	0.77	0.67	-0.37
17,681.86	91.09	267.52	8,469.78	354.11	-8,999.19	9,000.02	0.67	0.60	-0.30
17,695.29	91.13	267.48	8,469.52	353.52	-9,012.60	9,013.44	0.42	0.30	-0.30
17,708.71	91.15	267.44	8,469.25	352.93	-9,026.00	9,026.84	0.33	0.15	-0.30
17,722.14	91.16	267.41	8,468.98	352.32	-9,039.42	9,040.25	0.24	0.07	-0.22
17,735.57	91.17	267.38	8,468.71	351.71	-9,052.83	9,053.66	0.24	0.07	-0.22
17,749.00	91.21	267.36	8,468.43	351.10	-9,066.24	9,067.07	0.33	0.30	-0.15
17,762.57	91.23	267.35	8,468.14	350.47	-9,079.80	9,080.63	0.16	0.15	-0.07
17,776.14	91.24	267.34	8,467.85	349.84	-9,093.35	9,094.18	0.10	0.07	-0.07



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
17,789.71	91.26	267.35	8,467.55	349.22	-9,106.90	9,107.73	0.16	0.15	0.07
17,803.29	91.28	267.36	8,467.25	348.59	-9,120.46	9,121.29	0.16	0.15	0.07
17,816.86	91.31	267.38	8,466.94	347.97	-9,134.02	9,134.84	0.27	0.22	0.15
17,830.43	91.33	267.41	8,466.63	347.35	-9,147.57	9,148.39	0.27	0.15	0.22
17,844.00	91.37	267.47	8,466.31	346.74	-9,161.12	9,161.94	0.53	0.29	0.44
17,857.43	91.32	267.55	8,465.99	346.16	-9,174.53	9,175.35	0.70	-0.37	0.60
17,870.86	91.25	267.64	8,465.69	345.60	-9,187.95	9,188.77	0.85	-0.52	0.67
17,884.29	91.11	267.74	8,465.42	345.06	-9,201.37	9,202.18	1.28	-1.04	0.74
17,897.71	90.83	267.83	8,465.19	344.54	-9,214.77	9,215.59	2.19	-2.09	0.67
17,911.14	90.46	267.91	8,465.04	344.04	-9,228.19	9,229.01	2.82	-2.76	0.60
17,924.57	89.98	268.60	8,464.99	343.63	-9,241.62	9,242.43	6.26	-3.57	5.14
17,938.00	89.51	269.76	8,465.05	343.44	-9,255.04	9,255.86	9.32	-3.50	8.64
17,951.57	89.13	270.47	8,465.21	343.46	-9,268.61	9,269.43	5.93	-2.80	5.23
17,965.14	88.92	270.40	8,465.44	343.57	-9,282.18	9,282.99	1.63	-1.55	-0.52
17,978.71	88.82	270.31	8,465.71	343.65	-9,295.75	9,296.56	0.99	-0.74	-0.66
17,992.29	88.78	270.20	8,465.99	343.71	-9,309.33	9,310.14	0.86	-0.29	-0.81
18,005.86	88.74	270.10	8,466.28	343.75	-9,322.89	9,323.70	0.79	-0.29	-0.74
18,019.43	88.74	269.99	8,466.58	343.76	-9,336.46	9,337.27	0.81	0.00	-0.81
18,033.00	88.76	269.89	8,466.88	343.74	-9,350.03	9,350.84	0.75	0.15	-0.74
18,046.43	88.79	269.82	8,467.17	343.71	-9,363.45	9,364.26	0.57	0.22	-0.52
18,059.86	88.82	269.76	8,467.45	343.66	-9,376.88	9,377.69	0.50	0.22	-0.45
18,073.29	88.87	269.71	8,467.72	343.60	-9,390.31	9,391.12	0.53	0.37	-0.37
18,086.71	88.92	269.69	8,467.98	343.53	-9,403.72	9,404.54	0.40	0.37	-0.15
18,100.14	89.02	269.68	8,468.22	343.45	-9,417.15	9,417.96	0.75	0.74	-0.07
18,113.57	89.16	269.71	8,468.43	343.38	-9,430.58	9,431.39	1.07	1.04	0.22
18,127.00	89.31	269.78	8,468.61	343.32	-9,444.01	9,444.82	1.23	1.12	0.52
18,140.57	89.37	269.92	8,468.77	343.29	-9,457.58	9,458.39	1.12	0.44	1.03
18,154.14	89.39	270.10	8,468.91	343.29	-9,471.15	9,471.96	1.33	0.15	1.33
18,167.71	89.39	270.31	8,469.06	343.34	-9,484.72	9,485.53	1.55	0.00	1.55
18,181.29	89.31	270.52	8,469.21	343.44	-9,498.29	9,499.11	1.65	-0.59	1.55
18,194.86	89.16	270.73	8,469.39	343.58	-9,511.86	9,512.67	1.90	-1.11	1.55
18,208.43	89.58	270.99	8,469.54	343.79	-9,525.43	9,526.24	3.64	3.10	1.92
18,222.00	90.06	271.61	8,469.58	344.10	-9,539.00	9,539.81	5.78	3.54	4.57
18,235.43	89.99	271.95	8,469.58	344.51	-9,552.42	9,553.23	2.58	-0.52	2.53
18,248.86	90.03	272.14	8,469.58	344.99	-9,565.84	9,566.66	1.45	0.30	1.41
18,262.29	90.17	272.33	8,469.55	345.52	-9,579.26	9,580.08	1.76	1.04	1.41
18,275.71	90.34	272.51	8,469.49	346.08	-9,592.67	9,593.49	1.84	1.27	1.34
18,289.14	90.53	272.67	8,469.39	346.69	-9,606.08	9,606.90	1.85	1.41	1.19
18,302.57	91.17	272.82	8,469.19	347.33	-9,619.50	9,620.32	4.89	4.77	1.12
18,316.00	92.07	272.95	8,468.81	348.01	-9,632.91	9,633.73	6.77	6.70	0.97
18,329.43	92.48	273.01	8,468.28	348.71	-9,646.31	9,647.13	3.09	3.05	0.45
18,342.86	92.62	273.04	8,467.68	349.41	-9,659.70	9,660.53	1.07	1.04	0.22
18,356.29	92.76	273.05	8,467.05	350.13	-9,673.10	9,673.93	1.05	1.04	0.07



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	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)
18,369.71	92.88	273.04	8,466.39	350.84	-9,686.49	9,687.31	0.90	0.89	-0.07
18,383.14	92.96	273.03	8,465.71	351.55	-9,699.88	9,700.71	0.60	0.60	-0.07
18,396.57	93.02	273.02	8,465.01	352.26	-9,713.27	9,714.10	0.45	0.45	-0.07
18,410.00	93.07	273.00	8,464.29	352.96	-9,726.66	9,727.50	0.40	0.37	-0.15
18,423.57	93.17	272.97	8,463.55	353.67	-9,740.20	9,741.03	0.77	0.74	-0.22
18,437.14	93.25	272.95	8,462.79	354.37	-9,753.73	9,754.56	0.61	0.59	-0.15
18,450.71	93.31	272.92	8,462.02	355.06	-9,767.26	9,768.10	0.49	0.44	-0.22
18,464.29	93.37	272.89	8,461.23	355.75	-9,780.80	9,781.64	0.49	0.44	-0.22
18,477.86	93.41	272.85	8,460.42	356.43	-9,794.33	9,795.17	0.42	0.29	-0.29
18,491.43	93.47	272.82	8,459.61	357.10	-9,807.85	9,808.70	0.49	0.44	-0.22
18,505.00	93.52	272.78	8,458.78	357.76	-9,821.38	9,822.23	0.47	0.37	-0.29
18,518.43	93.54	272.75	8,457.96	358.40	-9,834.77	9,835.62	0.27	0.15	-0.22
18,531.86	93.53	272.71	8,457.13	359.04	-9,848.16	9,849.01	0.31	-0.07	-0.30
18,545.29	93.51	272.67	8,456.30	359.67	-9,861.55	9,862.40	0.33	-0.15	-0.30
18,558.71	93.48	272.63	8,455.48	360.29	-9,874.93	9,875.78	0.37	-0.22	-0.30
18,572.14	93.46	272.59	8,454.67	360.90	-9,888.32	9,889.18	0.33	-0.15	-0.30
18,585.57	93.47	272.55	8,453.86	361.50	-9,901.72	9,902.57	0.31	0.07	-0.30
18,599.00	93.51	272.51	8,453.04	362.09	-9,915.11	9,915.96	0.42	0.30	-0.30
18,612.57	93.55	272.46	8,452.21	362.68	-9,928.64	9,929.50	0.47	0.29	-0.37
18,626.14	93.56	272.41	8,451.37	363.26	-9,942.17	9,943.03	0.38	0.07	-0.37
18,639.71	93.57	272.36	8,450.52	363.82	-9,955.70	9,956.56	0.38	0.07	-0.37
18,653.29	93.57	272.31	8,449.68	364.37	-9,969.25	9,970.11	0.37	0.00	-0.37
18,666.86	93.59	272.26	8,448.83	364.91	-9,982.78	9,983.64	0.40	0.15	-0.37
18,680.43	93.61	272.21	8,447.98	365.44	-9,996.31	9,997.17	0.40	0.15	-0.37
18,684.20	93.61	272.20	8,447.74	365.59	-10,000.07	10,000.94	0.30	0.07	-0.29
06-V10000(S-132H)									
18,694.00	93.62	272.17	8,447.12	365.96	-10,009.84	10,010.71	0.30	0.07	-0.29
18,707.40	93.69	272.14	8,446.27	366.46	-10,023.21	10,024.07	0.57	0.52	-0.22
18,720.80	93.77	272.11	8,445.40	366.96	-10,036.57	10,037.44	0.64	0.60	-0.22
18,734.20	93.83	272.08	8,444.51	367.45	-10,049.93	10,050.80	0.50	0.45	-0.22
18,747.60	93.88	272.06	8,443.61	367.93	-10,063.29	10,064.16	0.40	0.37	-0.15
18,750.77	93.89	272.06	8,443.39	368.04	-10,066.45	10,067.32	0.40	0.37	-0.15
07-LTP(S-132H)									
18,753.00	93.90	272.05	8,443.24	368.12	-10,068.68	10,069.55	0.40	0.37	-0.15
100FWL: 18753.00' MD, 10069.55' VS, 8443.24' TVD									
18,761.00	93.93	272.04	8,442.69	368.41	-10,076.65	10,077.52	0.40	0.37	-0.15
Final MWD Survey: 18761.00' MD, 93.93°INC, 272.04°AZ									
18,822.00	93.93	272.04	8,438.51	370.57	-10,137.47	10,138.35	0.00	0.00	0.00
PTB: 18822.00' MD, 93.93°INC, 272.04°AZ - 08-PBHL(S-132H)									



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed Com 132H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3310+30 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3310+30 @ 3340.00usft
Well:	Shamrock 34 Fed Com 132H	North Reference:	Grid
Wellbore:	132H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
105.00	105.00	Rustler				
357.01	357.00	Top of Salt				
683.15	683.00	Base of Salt				
960.26	960.00	Yates				
2,521.16	2,520.00	Capitan				
3,054.80	3,053.00	DLWR Mnt. Group				
3,836.56	3,830.00	Lower Brushy Canyon				
4,200.15	4,190.00	Bone Spring Lime				
6,468.78	6,440.00	1st Bone Spring SD				
6,690.80	6,662.00	2nd Bone Spring LM				
7,208.97	7,180.00	2nd Bone Spring SD				
7,849.13	7,820.00	3rd Bone Spring LM				
8,457.18	8,405.00	3rd Bone Spring SD				

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
6,701.00	6,672.20	332.69	249.65	100FEL: 6701.00' MD, -248.83' VS,6672.20' TVD	
8,077.00	8,047.80	325.42	248.12	KOP: 8077.00' MD, -247.32' VS,8047.80' TVD	
8,975.00	8,628.72	385.48	-301.74	EOC: 8975.00' MD, 302.68' VS,8628.72' TVD	
18,753.00	8,443.24	368.12	-10,068.68	100FWL: 18753.00' MD, 10069.55' VS,8443.24' TVD	
18,761.00	8,442.69	368.41	-10,076.65	Final MWD Survey: 18761.00' MD, 93.93°INC, 272.04°AZ	
18,822.00	8,438.51	370.57	-10,137.47	PTB: 18822.00' MD, 93.93°INC, 272.04°AZ	

Checked By: _____ Approved By: _____ Date: _____

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 99577

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 99577
	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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CONDITIONS

Action 99577

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 99577
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	RT EXPIRES 8/1/2022	5/10/2022