

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

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

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Colgate Operating, LLC 300 N Marienfeld Street, Suite 1000 Midland, Tx 79701		² OGRID Number 371449	
		³ Reason for Filing Code/ Effective Date RT	
⁴ API Number 30 – 015 – 47706	⁵ Pool Name OLD MILLMAN RANCH; BS		⁶ Pool Code 48035
⁷ Property Code 329804	⁸ Property Name SHAMROCK 34 FED COM		⁹ Well Number 121H

II. ¹⁰ Surface Location

UL or lot no. D	Section 35	Township 19S	Range 28E	Lot Idn	Feet from the 700	North/South Line North	Feet from the 330	East/West line East	County Eddy
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¹¹ Bottom Hole Location

UL or lot no. D	Section 33	Township 19S	Range 28E	Lot Idn	Feet from the 925	North/South line North	Feet from the 14	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		

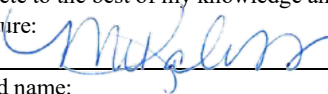
III. Oil and Gas Transporters

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 01/04/2022	²² Ready Date 05/10/2022	²³ TD 18,185 MD 7,487 TVD	²⁴ PBTD 18,077 MD 7,179 TVD	²⁵ Perforations 7,832-12,895	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	
17.5		13.375		328	
12.25		9.625		3,005	
8.75		5.5		18,170	

V. Well Test Data

³¹ Date New Oil 05/26/2022	³² Gas Delivery Date 05/26/2022	³³ Test Date 06/08/2022	³⁴ Test Length 24	³⁵ Tbg. Pressure 2175	³⁶ Csg. Pressure 437
³⁷ Choke Size 80/88	³⁸ Oil 2560	³⁹ Water 2473	⁴⁰ Gas 2213		⁴¹ Test Method
⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 			OIL CONSERVATION DIVISION		
Printed name: Mikah Thomas			Approved by: PATRICIA MARTINEZ		
Title: Sr. Regulatory Analyst			Title: PETROLEUM SPECIALIST		
E-mail Address: mthomas@colgateenergy.com			Approval Date: 8/12/2022		
Date: 06/08/2022		Phone: 432-695-4272			

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¹ Operator name and Address Colgate Operating, LLC 300 N Marienfeld Street, Suite 1000 Midland, Tx 79701		² OGRID Number 371449	
		³ Reason for Filing Code/ Effective Date NW	
⁴ API Number 30 – 015 – 47706	⁵ Pool Name WINCHESTER; BS		⁶ Pool Code 65010
⁷ Property Code 329804	⁸ Property Name SHAMROCK 34 FED STATE COM		⁹ Well Number 121H

II. ¹⁰ Surface Location

UL or lot no. D	Section 35	Township 19S	Range 28E	Lot Idn	Feet from the 700	North/South Line North	Feet from the 330	East/West line East	County Eddy
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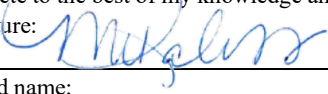
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329097	LM TOUCHDOWN, LLC	G

IV. Well Completion Data

²¹ Spud Date 01/04/2022	²² Ready Date 05/10/2022	²³ TD 18,185 MD 7,487 TVD	²⁴ PBTD 18,077 MD 7,179 TVD	²⁵ Perforations 12,895-17,957	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	³⁰ Sacks Cement
17.5		13.375		328	330 Tail
12.25		9.625		3,005	600 Lead 205 Tail
8.75		5.5		18,170	560 Lead 1,260 Tail

V. Well Test Data

³¹ Date New Oil 05/26/2022	³² Gas Delivery Date 05/26/2022	³³ Test Date 06/08/2022	³⁴ Test Length 24	³⁵ Tbg. Pressure 2175	³⁶ Csg. Pressure 437
³⁷ Choke Size 80/88	³⁸ Oil 2560	³⁹ Water 2473	⁴⁰ Gas 2213		⁴¹ Test Method
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Printed name: Mikah Thomas			Approved by: PATRICIA MARTINEZ		
Title: Sr. Regulatory Analyst			Title: PETROLEUM SPECIALIST		
E-mail Address: mthomas@colgateenergy.com			Approval Date: 8/12/2022		
Date: 06/06/2022		Phone: 432-695-4272			

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

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811 S. First St., Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-47706	2 Pool Code 48035	3 Pool Name OLD MILLMAN RANCH; BS
4 Property Code 329804	5 Property Name SHAMROCK 34 FED STATECOM	6 Well Number 121H
7 OGRID No. 371449	8 Operator Name COLGATE OPERATING, LLC	9 Elevation 3317.7'

10 Surface Location

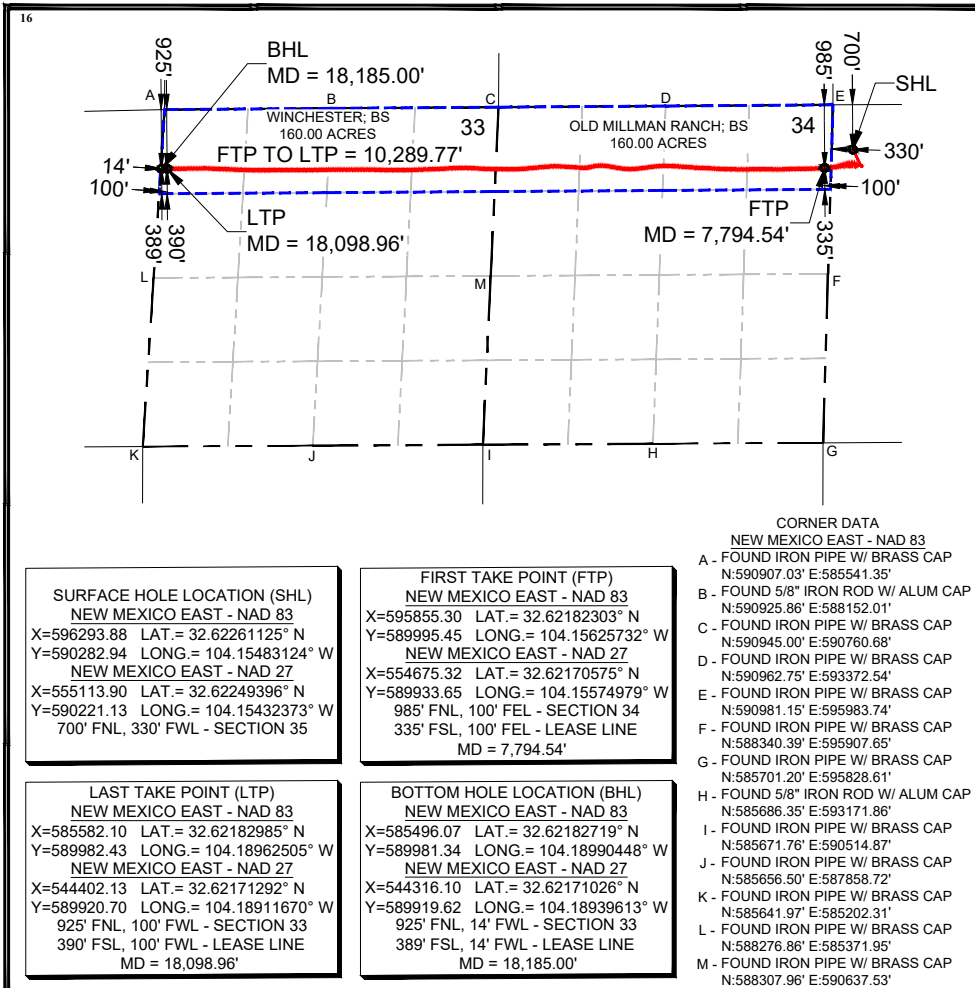
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	35	19-S	28-E		700'	NORTH	330'	EAST	EDDY

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
D	33	19-S	28-E		925'	NORTH	14'	WEST	EDDY

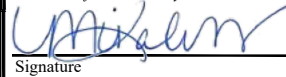
12 Dedicated Acres 160	13 Joint or Infill	14 Consolidation Code C	15 Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



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.

 02.24.2022
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:



Certificate Number

2/23/2022

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4 Property Code 329804	5 Property Name SHAMROCK 34 FED STATE COM	6 Well Number 121H
7 OGRID No. 371449	8 Operator Name COLGATE OPERATING, LLC	9 Elevation 3317.7'

10 Surface Location

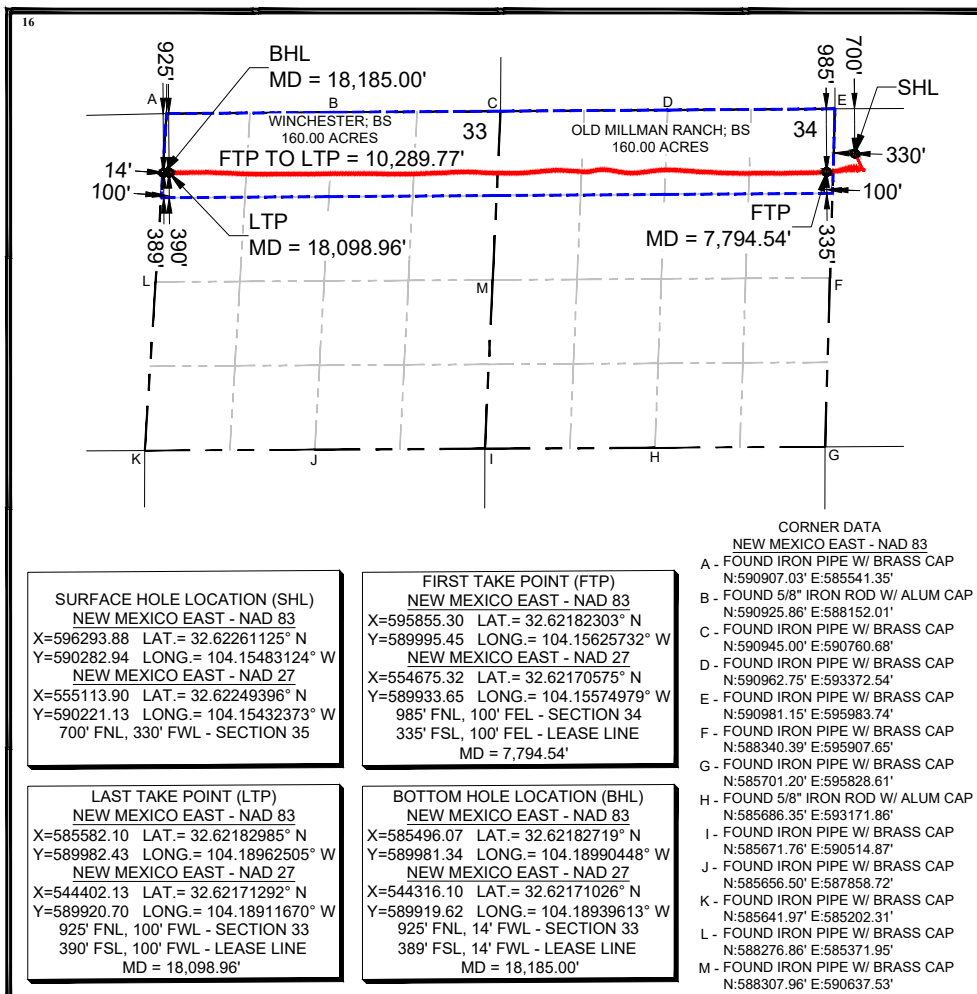
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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11 Bottom Hole Location If Different From Surface

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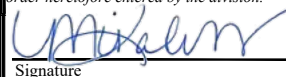
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 02.24.2022
Signature Date

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



Certificate Number

2/23/2022



Colgate Energy

Eddy County, NM (N83-NME)

Shamrock 34 Fed State Com

Shamrock 34 Fed State Com 121H

30-015-47706

121H

Design: DRL

Standard Survey Report

07 February, 2022



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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	Latitude:	32.62261125
From:	Map	Easting:	596,293.88 usft	Longitude:	-104.15483124
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well		Shamrock 34 Fed State Com 121H				
Well Position	+N/-S	0.00 usft	Northing:	590,282.94 usft	Latitude:	32.62261125
	+E/-W	0.00 usft	Easting:	596,293.88 usft	Longitude:	-104.15483124
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,318.00 usft
Grid Convergence:		0.10 °				

Wellbore	121H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IFR	12/28/2021	7.11	60.35	47,728.00000000

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)	Direction (°)	
	0.00	0.00	0.00		269.59

Survey Program	Date	2/7/2022			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
14.29	18,127.00	Survey #1_Gordon (121H)	MWD+IFR1+SAG+FDIR (SQ OWSG MWD + IFR1 + Sag + FDIR Correction		
18,185.00	18,185.00	Survey #2_PTB (121H)	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	
14.29	0.48	7.85	14.29	0.06	0.01	-0.01	3.36	3.36	0.00	
28.57	0.40	23.46	28.57	0.16	0.04	-0.04	1.00	-0.56	109.31	
42.86	0.75	15.90	42.86	0.30	0.08	-0.08	2.50	2.45	-52.90	
57.14	1.29	12.31	57.14	0.55	0.14	-0.15	3.81	3.78	-25.14	
71.43	1.19	13.35	71.42	0.85	0.21	-0.22	0.72	-0.70	7.28	
85.71	1.09	14.71	85.70	1.12	0.28	-0.29	0.73	-0.70	9.52	
100.00	0.99	16.44	99.99	1.37	0.35	-0.36	0.73	-0.70	12.11	
114.29	0.88	18.63	114.28	1.60	0.42	-0.43	0.81	-0.77	15.33	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
128.57	0.77	21.47	128.55	1.79	0.49	-0.50	0.82	-0.77	19.89
142.86	0.66	25.18	142.84	1.95	0.56	-0.57	0.83	-0.77	25.96
157.14	0.56	30.12	157.12	2.09	0.63	-0.64	0.79	-0.70	34.59
171.43	0.47	36.79	171.41	2.20	0.70	-0.71	0.76	-0.63	46.68
185.71	0.40	45.68	185.69	2.28	0.77	-0.79	0.68	-0.49	62.25
200.00	0.34	56.85	199.98	2.34	0.84	-0.86	0.65	-0.42	78.17
212.60	0.34	54.30	212.58	2.38	0.90	-0.92	0.12	0.00	-20.24
225.20	0.35	51.72	225.18	2.42	0.96	-0.98	0.15	0.08	-20.48
237.80	0.36	49.09	237.78	2.47	1.02	-1.04	0.15	0.08	-20.87
250.40	0.36	46.45	250.38	2.53	1.08	-1.10	0.13	0.00	-20.95
263.00	0.37	43.79	262.98	2.58	1.14	-1.16	0.16	0.08	-21.11
277.82	0.38	38.07	277.80	2.66	1.20	-1.22	0.26	0.07	-38.60
292.64	0.39	32.37	292.62	2.74	1.26	-1.28	0.27	0.07	-38.46
307.45	0.40	26.81	307.43	2.83	1.31	-1.33	0.27	0.07	-37.54
322.27	0.41	21.49	322.25	2.92	1.35	-1.37	0.26	0.07	-35.90
337.09	0.43	16.47	337.07	3.02	1.39	-1.41	0.28	0.13	-33.87
351.91	0.46	11.81	351.89	3.14	1.42	-1.44	0.32	0.20	-31.44
366.73	0.48	7.53	366.71	3.26	1.44	-1.46	0.27	0.13	-28.88
381.55	0.51	3.62	381.53	3.38	1.45	-1.47	0.30	0.20	-26.38
396.36	0.55	0.07	396.34	3.52	1.45	-1.48	0.35	0.27	-23.97
411.18	0.58	356.86	411.16	3.67	1.45	-1.47	0.29	0.20	-21.66
426.00	0.62	353.96	425.97	3.82	1.44	-1.46	0.34	0.27	-19.57
440.31	0.59	357.75	440.28	3.97	1.42	-1.45	0.35	-0.21	26.48
454.62	0.57	1.82	454.59	4.12	1.42	-1.45	0.32	-0.14	28.44
468.92	0.54	6.17	468.89	4.25	1.43	-1.46	0.36	-0.21	30.42
483.23	0.53	10.74	483.20	4.39	1.45	-1.48	0.31	-0.07	31.94
497.54	0.51	15.50	497.51	4.51	1.48	-1.51	0.33	-0.14	33.26
511.85	0.50	20.36	511.82	4.63	1.52	-1.55	0.31	-0.07	33.96
526.15	0.50	25.26	526.12	4.75	1.57	-1.60	0.30	0.00	34.27
540.46	0.50	30.10	540.43	4.86	1.63	-1.66	0.30	0.00	33.82
554.77	0.50	34.82	554.74	4.96	1.69	-1.73	0.29	0.00	32.98
569.08	0.51	39.34	569.05	5.06	1.77	-1.81	0.29	0.07	31.59
583.38	0.52	43.62	583.35	5.16	1.86	-1.89	0.28	0.07	29.93
597.69	0.53	47.62	597.66	5.25	1.95	-1.99	0.27	0.07	27.95
612.00	0.54	51.31	611.97	5.34	2.05	-2.09	0.25	0.07	25.79
626.73	0.56	52.85	626.70	5.42	2.16	-2.20	0.17	0.14	10.45
641.45	0.57	54.21	641.42	5.51	2.28	-2.32	0.11	0.07	9.24
656.18	0.58	55.39	656.14	5.60	2.40	-2.44	0.11	0.07	8.01
670.91	0.60	56.42	670.87	5.68	2.53	-2.57	0.15	0.14	6.99
685.64	0.61	57.29	685.60	5.77	2.66	-2.70	0.09	0.07	5.91
700.36	0.63	58.04	700.32	5.85	2.79	-2.83	0.15	0.14	5.10
715.09	0.64	58.65	715.05	5.94	2.93	-2.97	0.08	0.07	4.14
729.82	0.65	59.15	729.78	6.02	3.07	-3.11	0.08	0.07	3.39



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
744.55	0.67	59.54	744.51	6.11	3.22	-3.26	0.14	0.14	2.65	
759.27	0.68	59.83	759.23	6.20	3.37	-3.41	0.07	0.07	1.97	
774.00	0.69	60.02	773.96	6.29	3.52	-3.56	0.07	0.07	1.29	
788.38	0.71	59.05	788.34	6.37	3.67	-3.72	0.16	0.14	-6.75	
802.77	0.72	58.04	802.72	6.47	3.82	-3.87	0.11	0.07	-7.02	
817.15	0.74	56.99	817.10	6.57	3.98	-4.03	0.17	0.14	-7.30	
831.54	0.75	55.90	831.49	6.67	4.13	-4.18	0.12	0.07	-7.57	
845.92	0.77	54.79	845.87	6.78	4.29	-4.34	0.17	0.14	-7.72	
860.31	0.78	53.64	860.26	6.89	4.45	-4.50	0.13	0.07	-7.99	
874.69	0.80	52.46	874.64	7.01	4.61	-4.66	0.18	0.14	-8.21	
889.08	0.81	51.25	889.03	7.14	4.77	-4.82	0.14	0.07	-8.41	
903.46	0.83	50.02	903.41	7.27	4.93	-4.98	0.19	0.14	-8.55	
917.85	0.84	48.77	917.79	7.40	5.08	-5.14	0.14	0.07	-8.69	
932.23	0.86	47.49	932.17	7.55	5.24	-5.30	0.19	0.14	-8.90	
946.62	0.87	46.19	946.56	7.69	5.40	-5.46	0.15	0.07	-9.03	
961.00	0.89	44.88	960.94	7.85	5.56	-5.62	0.20	0.14	-9.11	
975.38	0.92	45.40	975.32	8.01	5.72	-5.78	0.22	0.21	3.62	
989.77	0.94	45.83	989.71	8.17	5.89	-5.95	0.15	0.14	2.99	
1,004.15	0.97	46.18	1,004.08	8.34	6.06	-6.12	0.21	0.21	2.43	
1,018.54	1.00	46.44	1,018.47	8.51	6.24	-6.30	0.21	0.21	1.81	
1,032.92	1.02	46.64	1,032.85	8.68	6.42	-6.48	0.14	0.14	1.39	
1,047.31	1.05	46.77	1,047.24	8.86	6.61	-6.68	0.21	0.21	0.90	
1,061.69	1.08	46.84	1,061.61	9.05	6.81	-6.87	0.21	0.21	0.49	
1,076.08	1.10	46.85	1,076.00	9.23	7.01	-7.07	0.14	0.14	0.07	
1,090.46	1.13	46.81	1,090.38	9.42	7.21	-7.28	0.21	0.21	-0.28	
1,104.85	1.16	46.72	1,104.77	9.62	7.42	-7.49	0.21	0.21	-0.63	
1,119.23	1.18	46.59	1,119.14	9.82	7.63	-7.70	0.14	0.14	-0.90	
1,133.62	1.21	46.41	1,133.53	10.03	7.85	-7.92	0.21	0.21	-1.25	
1,148.00	1.23	46.19	1,147.91	10.24	8.07	-8.15	0.14	0.14	-1.53	
1,162.38	1.22	47.03	1,162.28	10.45	8.30	-8.37	0.14	-0.07	5.84	
1,176.77	1.22	47.96	1,176.67	10.66	8.52	-8.60	0.14	0.00	6.46	
1,191.15	1.21	48.95	1,191.05	10.86	8.75	-8.83	0.16	-0.07	6.88	
1,205.54	1.20	49.97	1,205.43	11.06	8.98	-9.06	0.16	-0.07	7.09	
1,219.92	1.19	51.02	1,219.81	11.25	9.21	-9.29	0.17	-0.07	7.30	
1,234.31	1.18	52.07	1,234.20	11.43	9.44	-9.53	0.17	-0.07	7.30	
1,248.69	1.17	53.13	1,248.57	11.61	9.68	-9.76	0.17	-0.07	7.37	
1,263.08	1.17	54.18	1,262.96	11.79	9.92	-10.00	0.15	0.00	7.30	
1,277.46	1.16	55.21	1,277.34	11.96	10.15	-10.24	0.16	-0.07	7.16	
1,291.85	1.16	56.22	1,291.73	12.12	10.39	-10.48	0.14	0.00	7.02	
1,306.23	1.15	57.19	1,306.10	12.28	10.64	-10.72	0.15	-0.07	6.75	
1,320.62	1.14	58.11	1,320.49	12.43	10.88	-10.97	0.15	-0.07	6.39	
1,335.00	1.14	58.96	1,334.87	12.58	11.12	-11.21	0.12	0.00	5.91	
1,349.23	1.12	59.56	1,349.09	12.73	11.37	-11.46	0.16	-0.14	4.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
1,363.46	0.95	104.60	1,363.32	12.77	11.60	-11.69	5.68	-1.19	316.51
1,377.69	0.96	107.76	1,377.55	12.70	11.83	-11.92	0.38	0.07	22.21
1,391.92	0.98	108.07	1,391.78	12.63	12.06	-12.15	0.15	0.14	2.18
1,406.15	1.01	108.34	1,406.01	12.55	12.29	-12.38	0.21	0.21	1.90
1,420.38	1.03	108.57	1,420.23	12.47	12.53	-12.62	0.14	0.14	1.62
1,434.62	1.05	108.78	1,434.47	12.39	12.78	-12.86	0.14	0.14	1.47
1,448.85	1.07	108.95	1,448.70	12.30	13.03	-13.11	0.14	0.14	1.19
1,463.08	1.09	109.09	1,462.93	12.21	13.28	-13.37	0.14	0.14	0.98
1,477.31	1.10	109.21	1,477.15	12.12	13.54	-13.62	0.07	0.07	0.84
1,491.54	1.12	109.31	1,491.38	12.03	13.80	-13.88	0.14	0.14	0.70
1,505.77	1.14	109.38	1,505.61	11.94	14.06	-14.15	0.14	0.14	0.49
1,520.00	1.15	109.43	1,519.84	11.85	14.33	-14.41	0.07	0.07	0.35
1,534.38	1.14	110.67	1,534.21	11.75	14.60	-14.68	0.19	-0.07	8.62
1,548.77	1.13	112.06	1,548.60	11.64	14.86	-14.95	0.20	-0.07	9.66
1,563.15	1.12	113.51	1,562.98	11.53	15.12	-15.21	0.21	-0.07	10.08
1,577.54	1.11	114.91	1,577.36	11.42	15.38	-15.46	0.20	-0.07	9.73
1,591.92	1.40	141.69	1,591.74	11.22	15.61	-15.69	4.49	2.02	186.23
1,606.31	1.45	144.24	1,606.13	10.94	15.83	-15.91	0.56	0.35	17.72
1,620.69	1.47	144.97	1,620.50	10.64	16.04	-16.12	0.19	0.14	5.08
1,635.08	1.49	145.63	1,634.89	10.33	16.25	-16.33	0.18	0.14	4.59
1,649.46	1.51	146.22	1,649.26	10.02	16.46	-16.54	0.18	0.14	4.10
1,663.85	1.54	146.73	1,663.65	9.70	16.68	-16.75	0.23	0.21	3.54
1,678.23	1.56	147.16	1,678.02	9.38	16.89	-16.96	0.16	0.14	2.99
1,692.62	1.58	147.48	1,692.41	9.04	17.10	-17.17	0.15	0.14	2.22
1,707.00	1.60	147.68	1,706.78	8.71	17.32	-17.38	0.14	0.14	1.39
1,721.38	1.61	147.74	1,721.16	8.37	17.53	-17.59	0.07	0.07	0.42
1,735.77	1.62	147.65	1,735.54	8.02	17.75	-17.80	0.07	0.07	-0.63
1,750.15	1.62	147.45	1,749.91	7.68	17.97	-18.02	0.04	0.00	-1.39
1,764.54	1.63	147.19	1,764.30	7.34	18.19	-18.24	0.09	0.07	-1.81
1,778.92	1.63	146.88	1,778.67	6.99	18.41	-18.46	0.06	0.00	-2.16
1,793.31	1.63	146.53	1,793.06	6.65	18.63	-18.68	0.07	0.00	-2.43
1,807.69	1.64	146.17	1,807.43	6.31	18.86	-18.91	0.10	0.07	-2.50
1,822.08	1.65	145.81	1,821.81	5.97	19.09	-19.13	0.10	0.07	-2.50
1,836.46	1.65	145.45	1,836.19	5.63	19.33	-19.36	0.07	0.00	-2.50
1,850.85	1.66	145.11	1,850.57	5.28	19.56	-19.60	0.10	0.07	-2.36
1,865.23	1.68	144.80	1,864.95	4.94	19.80	-19.84	0.15	0.14	-2.16
1,879.62	1.70	144.53	1,879.33	4.60	20.05	-20.08	0.15	0.14	-1.88
1,894.00	1.72	144.32	1,893.70	4.25	20.30	-20.33	0.15	0.14	-1.46
1,908.38	1.75	144.05	1,908.08	3.89	20.55	-20.58	0.22	0.21	-1.88
1,922.77	1.78	143.82	1,922.46	3.54	20.81	-20.84	0.21	0.21	-1.60
1,937.15	1.82	143.63	1,936.83	3.17	21.08	-21.10	0.28	0.28	-1.32
1,951.54	1.86	143.47	1,951.22	2.80	21.36	-21.37	0.28	0.28	-1.11
1,965.92	1.90	143.33	1,965.59	2.42	21.64	-21.65	0.28	0.28	-0.97
1,980.31	1.95	143.24	1,979.97	2.03	21.93	-21.94	0.35	0.35	-0.63



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
1,994.69	1.99	143.18	1,994.34	1.64	22.22	-22.23	0.28	0.28	-0.42
2,009.08	2.04	143.16	2,008.72	1.23	22.52	-22.53	0.35	0.35	-0.14
2,023.46	2.08	143.21	2,023.09	0.82	22.83	-22.84	0.28	0.28	0.35
2,037.85	2.13	143.32	2,037.47	0.39	23.15	-23.15	0.35	0.35	0.76
2,052.23	2.17	143.54	2,051.84	-0.04	23.47	-23.47	0.28	0.28	1.53
2,066.62	2.22	143.90	2,066.22	-0.48	23.80	-23.79	0.36	0.35	2.50
2,081.00	2.26	144.47	2,080.59	-0.94	24.13	-24.12	0.32	0.28	3.96
2,095.31	2.77	149.43	2,094.89	-1.47	24.47	-24.46	3.87	3.56	34.66
2,109.62	3.69	154.42	2,109.18	-2.18	24.84	-24.83	6.72	6.43	34.87
2,123.92	4.14	156.20	2,123.44	-3.07	25.25	-25.23	3.26	3.15	12.45
2,138.23	4.20	156.81	2,137.71	-4.02	25.66	-25.63	0.52	0.42	4.26
2,152.54	4.27	157.44	2,151.99	-4.99	26.07	-26.04	0.59	0.49	4.40
2,166.85	4.35	158.05	2,166.25	-5.99	26.48	-26.44	0.64	0.56	4.26
2,181.15	4.42	158.62	2,180.51	-7.01	26.88	-26.83	0.58	0.49	3.99
2,195.46	4.49	159.13	2,194.78	-8.04	27.29	-27.23	0.56	0.49	3.56
2,209.77	4.56	159.55	2,209.04	-9.10	27.68	-27.62	0.54	0.49	2.94
2,224.08	5.30	162.38	2,223.30	-10.26	28.08	-28.01	5.44	5.17	19.78
2,238.38	5.68	162.63	2,237.54	-11.57	28.49	-28.41	2.66	2.66	1.75
2,252.69	5.75	162.73	2,251.78	-12.93	28.92	-28.82	0.49	0.49	0.70
2,267.00	5.81	162.83	2,266.01	-14.30	29.34	-29.24	0.43	0.42	0.70
2,281.31	5.85	163.04	2,280.25	-15.69	29.77	-29.66	0.32	0.28	1.47
2,295.62	5.88	163.27	2,294.48	-17.09	30.19	-30.07	0.27	0.21	1.61
2,309.92	5.91	163.50	2,308.71	-18.50	30.61	-30.48	0.27	0.21	1.61
2,324.23	5.94	163.73	2,322.94	-19.92	31.03	-30.89	0.27	0.21	1.61
2,338.54	5.96	163.93	2,337.17	-21.34	31.44	-31.29	0.20	0.14	1.40
2,352.85	5.99	164.12	2,351.41	-22.77	31.85	-31.69	0.25	0.21	1.33
2,367.15	6.01	164.29	2,365.63	-24.21	32.26	-32.09	0.19	0.14	1.19
2,381.46	6.03	164.44	2,379.86	-25.66	32.67	-32.48	0.18	0.14	1.05
2,395.77	6.06	164.57	2,394.09	-27.11	33.07	-32.87	0.23	0.21	0.91
2,410.08	6.08	164.69	2,408.32	-28.57	33.47	-33.26	0.17	0.14	0.84
2,424.38	6.11	164.79	2,422.54	-30.03	33.87	-33.65	0.22	0.21	0.70
2,438.69	6.13	164.88	2,436.77	-31.51	34.27	-34.04	0.16	0.14	0.63
2,453.00	6.16	164.98	2,450.99	-32.99	34.67	-34.43	0.22	0.21	0.70
2,467.15	6.20	165.08	2,465.06	-34.46	35.06	-34.81	0.29	0.28	0.71
2,481.31	6.24	165.19	2,479.14	-35.94	35.45	-35.20	0.29	0.28	0.78
2,495.46	6.28	165.30	2,493.20	-37.43	35.85	-35.58	0.30	0.28	0.78
2,509.62	6.32	165.39	2,507.28	-38.93	36.24	-35.96	0.29	0.28	0.64
2,523.77	6.36	165.48	2,521.34	-40.45	36.63	-36.34	0.29	0.28	0.64
2,537.92	6.40	165.56	2,535.41	-41.97	37.03	-36.72	0.29	0.28	0.57
2,552.08	6.44	165.63	2,549.48	-43.50	37.42	-37.11	0.29	0.28	0.49
2,566.23	6.49	165.69	2,563.54	-45.05	37.81	-37.49	0.36	0.35	0.42
2,580.38	6.53	165.74	2,577.60	-46.60	38.21	-37.88	0.29	0.28	0.35
2,594.54	6.58	165.80	2,591.66	-48.17	38.61	-38.26	0.36	0.35	0.42



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
2,608.69	6.62	165.85	2,605.72	-49.75	39.01	-38.65	0.29	0.28	0.35	
2,622.85	6.67	165.91	2,619.78	-51.33	39.41	-39.04	0.36	0.35	0.42	
2,637.00	6.72	166.00	2,633.84	-52.93	39.81	-39.43	0.36	0.35	0.64	
2,651.23	6.77	166.13	2,647.97	-54.56	40.21	-39.82	0.37	0.35	0.91	
2,665.46	6.83	166.28	2,662.10	-56.19	40.61	-40.21	0.44	0.42	1.05	
2,679.69	6.88	166.43	2,676.23	-57.84	41.01	-40.60	0.37	0.35	1.05	
2,693.92	6.93	166.57	2,690.35	-59.51	41.41	-40.98	0.37	0.35	0.98	
2,708.15	6.99	166.70	2,704.48	-61.18	41.81	-41.37	0.44	0.42	0.91	
2,722.38	7.04	166.81	2,718.60	-62.88	42.21	-41.76	0.36	0.35	0.77	
2,736.62	7.09	166.90	2,732.73	-64.58	42.61	-42.14	0.36	0.35	0.63	
2,750.85	7.14	166.97	2,746.85	-66.30	43.00	-42.53	0.36	0.35	0.49	
2,765.08	7.18	167.00	2,760.97	-68.03	43.40	-42.92	0.28	0.28	0.21	
2,779.31	7.22	167.00	2,775.09	-69.76	43.80	-43.30	0.28	0.28	0.00	
2,793.54	7.24	166.95	2,789.21	-71.51	44.21	-43.69	0.15	0.14	-0.35	
2,807.77	7.26	166.85	2,803.32	-73.26	44.61	-44.09	0.17	0.14	-0.70	
2,822.00	7.26	166.66	2,817.44	-75.01	45.03	-44.49	0.17	0.00	-1.34	
2,835.63	7.23	166.35	2,830.96	-76.68	45.43	-44.88	0.36	-0.22	-2.27	
2,849.25	7.19	166.02	2,844.47	-78.34	45.84	-45.27	0.42	-0.29	-2.42	
2,862.88	6.49	167.85	2,858.01	-79.92	46.20	-45.63	5.38	-5.14	13.43	
2,876.50	5.71	169.76	2,871.55	-81.34	46.49	-45.90	5.92	-5.73	14.02	
2,890.13	5.66	169.57	2,885.11	-82.67	46.73	-46.14	0.39	-0.37	-1.39	
2,903.75	5.61	169.41	2,898.67	-83.98	46.97	-46.37	0.38	-0.37	-1.17	
2,917.38	5.57	169.27	2,912.23	-85.29	47.22	-46.61	0.31	-0.29	-1.03	
2,931.00	5.53	169.14	2,925.79	-86.58	47.47	-46.84	0.31	-0.29	-0.95	
2,944.63	5.52	169.05	2,939.35	-87.87	47.71	-47.08	0.10	-0.07	-0.66	
2,958.25	5.53	168.95	2,952.91	-89.16	47.96	-47.32	0.10	0.07	-0.73	
2,971.88	5.54	168.84	2,966.48	-90.45	48.22	-47.57	0.11	0.07	-0.81	
2,985.50	5.55	168.69	2,980.03	-91.74	48.47	-47.82	0.13	0.07	-1.10	
2,999.13	5.57	168.49	2,993.60	-93.03	48.73	-48.07	0.20	0.15	-1.47	
3,012.75	5.59	168.18	3,007.16	-94.33	49.00	-48.33	0.27	0.15	-2.28	
3,026.38	5.61	167.73	3,020.72	-95.63	49.28	-48.59	0.35	0.15	-3.30	
3,040.00	5.62	167.06	3,034.28	-96.93	49.57	-48.88	0.49	0.07	-4.92	
3,054.38	5.64	165.99	3,048.59	-98.30	49.90	-49.19	0.74	0.14	-7.44	
3,068.77	5.65	164.68	3,062.91	-99.67	50.26	-49.54	0.90	0.07	-9.10	
3,083.15	5.66	163.25	3,077.22	-101.03	50.65	-49.92	0.98	0.07	-9.94	
3,097.54	5.67	161.75	3,091.54	-102.39	51.08	-50.34	1.03	0.07	-10.42	
3,111.92	5.67	160.25	3,105.85	-103.73	51.54	-50.80	1.03	0.00	-10.43	
3,126.31	5.68	158.80	3,120.16	-105.07	52.04	-51.28	1.00	0.07	-10.08	
3,140.69	5.54	156.21	3,134.48	-106.36	52.57	-51.81	2.01	-0.97	-18.01	
3,155.08	4.89	147.59	3,148.81	-107.52	53.18	-52.41	7.06	-4.52	-59.90	
3,169.46	4.68	143.82	3,163.14	-108.51	53.86	-53.08	2.63	-1.46	-26.22	
3,183.85	4.65	142.46	3,177.48	-109.44	54.56	-53.78	0.80	-0.21	-9.45	
3,198.23	4.61	141.08	3,191.81	-110.36	55.28	-54.49	0.82	-0.28	-9.60	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
3,212.62	4.56	139.68	3,206.16	-111.24	56.01	-55.21	0.85	-0.35	-9.73
3,227.00	4.51	138.24	3,220.49	-112.10	56.76	-55.95	0.86	-0.35	-10.01
3,241.31	4.41	137.12	3,234.76	-112.92	57.51	-56.70	0.93	-0.70	-7.83
3,255.62	4.30	136.02	3,249.03	-113.71	58.25	-57.44	0.97	-0.77	-7.69
3,269.92	4.19	134.94	3,263.29	-114.47	59.00	-58.18	0.95	-0.77	-7.55
3,284.23	4.07	133.88	3,277.56	-115.19	59.73	-58.91	0.99	-0.84	-7.41
3,298.54	3.95	132.86	3,291.83	-115.88	60.46	-59.63	0.98	-0.84	-7.13
3,312.85	3.83	131.91	3,306.11	-116.53	61.18	-60.34	0.95	-0.84	-6.64
3,327.15	3.71	131.08	3,320.38	-117.15	61.88	-61.04	0.92	-0.84	-5.80
3,341.46	3.04	142.66	3,334.67	-117.76	62.46	-61.62	6.66	-4.68	80.92
3,355.77	2.93	142.26	3,348.96	-118.35	62.91	-62.06	0.78	-0.77	-2.80
3,370.08	2.83	142.06	3,363.25	-118.92	63.35	-62.50	0.70	-0.70	-1.40
3,384.38	2.72	142.07	3,377.53	-119.46	63.78	-62.92	0.77	-0.77	0.07
3,398.69	2.61	142.33	3,391.83	-119.99	64.19	-63.33	0.77	-0.77	1.82
3,413.00	2.51	142.89	3,406.12	-120.50	64.58	-63.71	0.72	-0.70	3.91
3,427.46	2.41	143.71	3,420.57	-120.99	64.95	-64.08	0.73	-0.69	5.67
3,441.92	2.31	144.92	3,435.02	-121.48	65.29	-64.42	0.77	-0.69	8.37
3,456.38	2.22	146.49	3,449.47	-121.95	65.62	-64.74	0.76	-0.62	10.86
3,470.85	2.13	148.43	3,463.92	-122.41	65.91	-65.03	0.80	-0.62	13.41
3,485.31	2.05	150.72	3,478.38	-122.87	66.18	-65.30	0.80	-0.55	15.84
3,499.77	1.98	153.34	3,492.83	-123.32	66.42	-65.53	0.80	-0.48	18.12
3,514.23	1.91	156.28	3,507.28	-123.76	66.63	-65.74	0.84	-0.48	20.33
3,528.69	1.85	159.48	3,521.73	-124.20	66.81	-65.92	0.84	-0.41	22.13
3,543.15	1.81	162.84	3,536.18	-124.64	66.95	-66.06	0.79	-0.28	23.24
3,557.62	1.79	166.21	3,550.65	-125.07	67.08	-66.18	0.74	-0.14	23.29
3,572.08	1.78	169.34	3,565.10	-125.51	67.17	-66.27	0.68	-0.07	21.65
3,586.54	1.80	171.92	3,579.55	-125.96	67.24	-66.34	0.57	0.14	17.84
3,601.00	1.84	173.51	3,594.00	-126.42	67.30	-66.40	0.45	0.28	11.00
3,615.31	1.91	175.17	3,608.31	-126.88	67.35	-66.44	0.62	0.49	11.60
3,629.62	2.01	176.49	3,622.61	-127.37	67.38	-66.47	0.77	0.70	9.22
3,643.92	2.14	177.54	3,636.90	-127.89	67.41	-66.49	0.95	0.91	7.34
3,658.23	2.29	178.38	3,651.20	-128.44	67.43	-66.51	1.07	1.05	5.87
3,672.54	2.44	179.04	3,665.50	-129.03	67.44	-66.52	1.07	1.05	4.61
3,686.85	2.59	179.54	3,679.79	-129.66	67.45	-66.52	1.06	1.05	3.49
3,701.15	2.74	179.86	3,694.08	-130.32	67.46	-66.52	1.05	1.05	2.24
3,715.46	3.03	178.19	3,708.37	-131.04	67.47	-66.53	2.11	2.03	-11.67
3,729.77	3.94	171.87	3,722.65	-131.91	67.55	-66.60	6.89	6.36	-44.16
3,744.08	4.19	171.15	3,736.93	-132.91	67.70	-66.75	1.78	1.75	-5.03
3,758.38	4.28	170.66	3,751.19	-133.95	67.87	-66.91	0.68	0.63	-3.43
3,772.69	4.37	170.05	3,765.46	-135.02	68.05	-67.08	0.71	0.63	-4.26
3,787.00	4.43	169.30	3,779.72	-136.10	68.24	-67.27	0.58	0.42	-5.24
3,801.38	4.45	168.29	3,794.06	-137.19	68.46	-67.48	0.56	0.14	-7.02
3,815.77	4.45	167.10	3,808.41	-138.28	68.70	-67.71	0.64	0.00	-8.27
3,830.15	4.43	165.74	3,822.74	-139.36	68.96	-67.96	0.75	-0.14	-9.46



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
3,844.54	4.40	164.26	3,837.09	-140.43	69.25	-68.24	0.82	-0.21	-10.28
3,858.92	4.37	162.66	3,851.43	-141.49	69.56	-68.55	0.88	-0.21	-11.13
3,873.31	4.33	160.96	3,865.78	-142.52	69.90	-68.88	0.94	-0.28	-11.81
3,887.69	4.29	159.17	3,880.12	-143.54	70.27	-69.24	0.98	-0.28	-12.45
3,902.08	4.26	157.32	3,894.47	-144.53	70.67	-69.63	0.98	-0.21	-12.86
3,916.46	4.22	155.43	3,908.81	-145.51	71.09	-70.05	1.01	-0.28	-13.14
3,930.85	4.19	153.50	3,923.16	-146.46	71.55	-70.50	1.01	-0.21	-13.41
3,945.23	4.16	151.57	3,937.50	-147.39	72.03	-70.97	1.00	-0.21	-13.42
3,959.62	4.13	149.69	3,951.85	-148.30	72.54	-71.48	0.97	-0.21	-13.06
3,974.00	4.11	147.91	3,966.20	-149.18	73.07	-72.00	0.90	-0.14	-12.38
3,988.23	4.05	146.57	3,980.39	-150.03	73.62	-72.55	0.79	-0.42	-9.42
4,002.46	3.99	145.35	3,994.59	-150.86	74.18	-73.10	0.73	-0.42	-8.57
4,016.69	3.92	144.22	4,008.78	-151.66	74.75	-73.66	0.74	-0.49	-7.94
4,030.92	3.86	143.14	4,022.98	-152.44	75.32	-74.23	0.67	-0.42	-7.59
4,045.15	3.79	142.09	4,037.18	-153.19	75.89	-74.80	0.70	-0.49	-7.38
4,059.38	3.72	141.04	4,051.38	-153.92	76.47	-75.37	0.69	-0.49	-7.38
4,073.62	3.65	139.98	4,065.59	-154.63	77.06	-75.95	0.69	-0.49	-7.44
4,087.85	4.50	144.27	4,079.78	-155.43	77.67	-76.56	6.34	5.97	30.15
4,102.08	4.43	143.27	4,093.97	-156.32	78.33	-77.21	0.74	-0.49	-7.03
4,116.31	4.36	142.25	4,108.16	-157.19	78.99	-77.86	0.74	-0.49	-7.17
4,130.54	4.28	141.30	4,122.35	-158.03	79.65	-78.52	0.75	-0.56	-6.68
4,144.77	4.20	140.53	4,136.54	-158.85	80.31	-79.17	0.69	-0.56	-5.41
4,159.00	4.11	140.10	4,150.73	-159.64	80.97	-79.83	0.67	-0.63	-3.02
4,173.38	4.02	140.40	4,165.07	-160.43	81.62	-80.47	0.64	-0.63	2.09
4,187.77	3.91	141.15	4,179.43	-161.20	82.25	-81.10	0.85	-0.76	5.21
4,202.15	3.81	142.24	4,193.78	-161.96	82.85	-81.69	0.86	-0.70	7.58
4,216.54	3.70	143.58	4,208.14	-162.71	83.42	-82.25	0.98	-0.76	9.31
4,230.92	3.60	145.09	4,222.49	-163.45	83.96	-82.78	0.96	-0.70	10.50
4,245.31	3.50	146.68	4,236.85	-164.19	84.46	-83.28	0.98	-0.69	11.05
4,259.69	3.41	148.24	4,251.20	-164.92	84.92	-83.74	0.91	-0.63	10.85
4,274.08	4.13	147.89	4,265.56	-165.72	85.42	-84.23	5.01	5.00	-2.43
4,288.46	4.74	150.09	4,279.90	-166.67	85.99	-84.80	4.40	4.24	15.30
4,302.85	4.65	150.77	4,294.24	-167.70	86.57	-85.37	0.74	-0.63	4.73
4,317.23	4.56	151.45	4,308.57	-168.71	87.13	-85.92	0.73	-0.63	4.73
4,331.62	4.47	152.15	4,322.92	-169.71	87.67	-86.45	0.73	-0.63	4.86
4,346.00	4.39	152.87	4,337.26	-170.69	88.18	-86.96	0.68	-0.56	5.01
4,360.38	4.32	153.36	4,351.59	-171.67	88.67	-87.44	0.55	-0.49	3.41
4,374.77	4.25	153.89	4,365.94	-172.63	89.15	-87.91	0.56	-0.49	3.68
4,389.15	4.19	154.44	4,380.28	-173.58	89.61	-88.37	0.50	-0.42	3.82
4,403.54	4.13	155.01	4,394.64	-174.53	90.06	-88.81	0.51	-0.42	3.96
4,417.92	4.07	155.57	4,408.98	-175.46	90.49	-89.23	0.50	-0.42	3.89
4,432.31	4.02	156.10	4,423.33	-176.39	90.90	-89.64	0.43	-0.35	3.68
4,446.69	4.37	156.21	4,437.68	-177.35	91.33	-90.06	2.43	2.43	0.76



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
4,461.08	4.79	156.15	4,452.02	-178.40	91.79	-90.51	2.92	2.92	-0.42
4,475.46	4.73	156.28	4,466.35	-179.49	92.28	-90.99	0.42	-0.42	0.90
4,489.85	4.68	156.34	4,480.69	-180.57	92.75	-91.45	0.35	-0.35	0.42
4,504.23	4.62	156.35	4,495.02	-181.64	93.22	-91.91	0.42	-0.42	0.07
4,518.62	4.56	156.28	4,509.37	-182.70	93.68	-92.37	0.42	-0.42	-0.49
4,533.00	4.49	156.12	4,523.70	-183.73	94.14	-92.82	0.49	-0.49	-1.11
4,547.31	4.41	155.75	4,537.97	-184.75	94.59	-93.27	0.59	-0.56	-2.59
4,561.62	4.33	155.28	4,552.24	-185.74	95.04	-93.71	0.61	-0.56	-3.28
4,575.92	4.25	154.73	4,566.50	-186.71	95.49	-94.16	0.63	-0.56	-3.85
4,590.23	4.16	154.15	4,580.77	-187.66	95.95	-94.60	0.70	-0.63	-4.05
4,604.54	4.07	153.55	4,595.04	-188.58	96.40	-95.05	0.70	-0.63	-4.19
4,618.85	3.98	152.95	4,609.32	-189.47	96.85	-95.49	0.69	-0.63	-4.19
4,633.15	3.90	152.36	4,623.58	-190.35	97.30	-95.94	0.63	-0.56	-4.13
4,647.46	3.81	151.80	4,637.86	-191.20	97.75	-96.38	0.68	-0.63	-3.91
4,661.77	3.73	151.28	4,652.14	-192.02	98.20	-96.82	0.61	-0.56	-3.63
4,676.08	3.65	150.84	4,666.42	-192.83	98.65	-97.26	0.59	-0.56	-3.07
4,690.38	3.58	150.52	4,680.69	-193.62	99.09	-97.70	0.51	-0.49	-2.24
4,704.69	3.51	150.37	4,694.98	-194.39	99.52	-98.13	0.49	-0.49	-1.05
4,719.00	3.45	150.49	4,709.26	-195.14	99.95	-98.55	0.42	-0.42	0.84
4,733.38	3.41	151.12	4,723.61	-195.89	100.37	-98.97	0.38	-0.28	4.38
4,747.77	3.39	152.01	4,737.98	-196.64	100.78	-99.37	0.39	-0.14	6.18
4,762.15	3.37	153.05	4,752.33	-197.40	101.17	-99.76	0.45	-0.14	7.23
4,776.54	3.36	154.16	4,766.70	-198.15	101.55	-100.13	0.46	-0.07	7.71
4,790.92	3.36	155.24	4,781.05	-198.91	101.91	-100.48	0.44	0.00	7.51
4,805.31	3.35	156.19	4,795.42	-199.68	102.25	-100.82	0.39	-0.07	6.60
4,819.69	3.94	158.46	4,809.77	-200.53	102.60	-101.17	4.22	4.10	15.79
4,834.08	4.54	159.64	4,824.12	-201.52	102.98	-101.54	4.21	4.17	8.20
4,848.46	4.54	159.82	4,838.45	-202.59	103.38	-101.93	0.10	0.00	1.25
4,862.85	4.54	159.90	4,852.80	-203.66	103.77	-102.31	0.04	0.00	0.56
4,877.23	4.54	159.87	4,867.13	-204.73	104.16	-102.69	0.02	0.00	-0.21
4,891.62	4.53	159.72	4,881.48	-205.79	104.55	-103.08	0.11	-0.07	-1.04
4,906.00	4.50	159.40	4,895.81	-206.85	104.95	-103.47	0.27	-0.21	-2.23
4,920.38	4.46	158.75	4,910.15	-207.90	105.35	-103.86	0.45	-0.28	-4.52
4,934.77	4.41	157.89	4,924.50	-208.94	105.76	-104.26	0.58	-0.35	-5.98
4,949.15	4.35	156.89	4,938.84	-209.95	106.18	-104.68	0.68	-0.42	-6.95
4,963.54	4.29	155.79	4,953.18	-210.94	106.62	-105.11	0.71	-0.42	-7.64
4,977.92	4.23	154.62	4,967.53	-211.91	107.07	-105.55	0.73	-0.42	-8.14
4,992.31	4.16	153.40	4,981.88	-212.86	107.53	-106.00	0.79	-0.49	-8.48
5,006.69	4.10	152.14	4,996.22	-213.78	108.00	-106.47	0.76	-0.42	-8.76
5,021.08	4.04	150.89	5,010.57	-214.68	108.49	-106.95	0.74	-0.42	-8.69
5,035.46	3.98	149.65	5,024.92	-215.55	108.99	-107.44	0.73	-0.42	-8.62
5,049.85	3.92	148.48	5,039.27	-216.40	109.50	-107.95	0.70	-0.42	-8.13
5,064.23	3.87	147.42	5,053.62	-217.23	110.01	-108.46	0.61	-0.35	-7.37



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
5,078.62	3.81	146.56	5,067.98	-218.04	110.54	-108.98	0.58	-0.42	-5.98	
5,093.00	3.77	146.04	5,082.33	-218.83	111.07	-109.50	0.37	-0.28	-3.62	
5,107.31	3.73	146.26	5,096.61	-219.61	111.59	-110.01	0.30	-0.28	1.54	
5,121.62	3.70	146.81	5,110.89	-220.38	112.10	-110.52	0.33	-0.21	3.84	
5,135.92	3.67	147.57	5,125.16	-221.15	112.60	-111.01	0.40	-0.21	5.31	
5,150.23	3.65	148.42	5,139.44	-221.93	113.08	-111.49	0.40	-0.14	5.94	
5,164.54	3.62	149.28	5,153.72	-222.70	113.55	-111.95	0.43	-0.21	6.01	
5,178.85	3.60	150.03	5,168.00	-223.48	114.01	-112.40	0.36	-0.14	5.24	
5,193.15	4.17	152.21	5,182.27	-224.33	114.47	-112.87	4.12	3.99	15.24	
5,207.46	4.90	154.20	5,196.53	-225.34	114.98	-113.37	5.22	5.10	13.91	
5,221.77	4.88	154.19	5,210.79	-226.44	115.51	-113.89	0.14	-0.14	-0.07	
5,236.08	4.86	154.08	5,225.05	-227.53	116.04	-114.41	0.15	-0.14	-0.77	
5,250.38	4.83	153.87	5,239.30	-228.62	116.57	-114.93	0.24	-0.21	-1.47	
5,264.69	4.80	153.55	5,253.56	-229.69	117.10	-115.46	0.28	-0.21	-2.24	
5,279.00	4.76	153.07	5,267.82	-230.76	117.64	-115.99	0.40	-0.28	-3.35	
5,293.38	4.70	152.27	5,282.15	-231.81	118.18	-116.52	0.62	-0.42	-5.56	
5,307.77	4.64	151.29	5,296.49	-232.84	118.74	-117.07	0.69	-0.42	-6.81	
5,322.15	4.57	150.18	5,310.82	-233.85	119.30	-117.63	0.79	-0.49	-7.72	
5,336.54	4.50	148.96	5,325.17	-234.83	119.88	-118.20	0.83	-0.49	-8.48	
5,350.92	4.42	147.67	5,339.51	-235.78	120.47	-118.78	0.89	-0.56	-8.97	
5,365.31	4.34	146.31	5,353.85	-236.71	121.06	-119.37	0.91	-0.56	-9.45	
5,379.69	4.26	144.88	5,368.19	-237.60	121.67	-119.97	0.93	-0.56	-9.94	
5,394.08	4.17	143.40	5,382.54	-238.45	122.29	-120.58	0.98	-0.63	-10.28	
5,408.46	4.09	141.87	5,396.89	-239.28	122.92	-121.21	0.95	-0.56	-10.64	
5,422.85	3.99	140.29	5,411.24	-240.06	123.56	-121.84	1.04	-0.69	-10.98	
5,437.23	3.90	138.67	5,425.59	-240.82	124.20	-122.47	1.00	-0.63	-11.27	
5,451.62	3.80	136.99	5,439.94	-241.53	124.85	-123.12	1.05	-0.69	-11.67	
5,466.00	3.69	135.28	5,454.29	-242.21	125.50	-123.76	1.09	-0.76	-11.89	
5,480.31	3.53	134.28	5,468.58	-242.84	126.14	-124.40	1.20	-1.12	-6.99	
5,494.62	3.36	133.34	5,482.86	-243.44	126.76	-125.01	1.25	-1.19	-6.57	
5,508.92	3.18	132.44	5,497.14	-244.00	127.36	-125.61	1.31	-1.26	-6.29	
5,523.23	3.00	131.53	5,511.43	-244.51	127.93	-126.18	1.30	-1.26	-6.36	
5,537.54	2.82	130.56	5,525.72	-244.99	128.48	-126.72	1.30	-1.26	-6.78	
5,551.85	2.64	129.45	5,540.01	-245.43	129.00	-127.24	1.31	-1.26	-7.76	
5,566.15	3.08	135.39	5,554.29	-245.91	129.52	-127.76	3.71	3.08	41.54	
5,580.46	3.90	142.81	5,568.58	-246.57	130.09	-128.32	6.53	5.73	51.85	
5,594.77	4.71	145.91	5,582.85	-247.45	130.71	-128.94	5.89	5.66	21.66	
5,609.08	4.55	144.61	5,597.11	-248.39	131.37	-129.59	1.34	-1.12	-9.08	
5,623.38	4.38	143.14	5,611.37	-249.29	132.03	-130.24	1.43	-1.19	-10.28	
5,637.69	4.20	141.65	5,625.64	-250.14	132.68	-130.89	1.48	-1.26	-10.41	
5,652.00	4.00	140.35	5,639.91	-250.94	133.32	-131.52	1.54	-1.40	-9.08	
5,666.31	3.76	139.84	5,654.19	-251.68	133.94	-132.14	1.69	-1.68	-3.56	
5,680.62	3.51	139.76	5,668.47	-252.37	134.53	-132.72	1.75	-1.75	-0.56	
5,694.92	3.25	140.07	5,682.74	-253.02	135.07	-133.26	1.82	-1.82	2.17	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
5,709.23	2.99	140.72	5,697.03	-253.62	135.57	-133.75	1.83	-1.82	4.54	
5,723.54	2.73	141.71	5,711.32	-254.17	136.02	-134.19	1.85	-1.82	6.92	
5,737.85	2.49	142.99	5,725.62	-254.69	136.41	-134.59	1.73	-1.68	8.94	
5,752.15	2.65	155.02	5,739.90	-255.24	136.74	-134.91	3.93	1.12	84.13	
5,766.46	3.18	169.04	5,754.20	-255.93	136.96	-135.12	6.18	3.70	97.97	
5,780.77	3.01	170.66	5,768.48	-256.69	137.09	-135.25	1.34	-1.19	11.32	
5,795.08	2.85	172.54	5,782.78	-257.41	137.20	-135.35	1.30	-1.12	13.14	
5,809.38	2.70	174.58	5,797.06	-258.10	137.28	-135.43	1.26	-1.05	14.27	
5,823.69	2.56	176.61	5,811.35	-258.75	137.33	-135.47	1.17	-0.98	14.19	
5,838.00	2.44	178.40	5,825.65	-259.38	137.36	-135.50	1.00	-0.84	12.51	
5,852.31	2.31	178.04	5,839.95	-259.97	137.37	-135.51	0.91	-0.91	-2.52	
5,866.62	2.20	177.20	5,854.25	-260.53	137.40	-135.53	0.80	-0.77	-5.87	
5,880.92	2.10	176.07	5,868.54	-261.07	137.43	-135.56	0.76	-0.70	-7.90	
5,895.23	2.01	174.77	5,882.84	-261.58	137.47	-135.59	0.71	-0.63	-9.08	
5,909.54	1.93	173.39	5,897.14	-262.07	137.52	-135.64	0.65	-0.56	-9.64	
5,923.85	1.85	171.98	5,911.44	-262.54	137.58	-135.70	0.65	-0.56	-9.85	
5,938.15	1.78	170.57	5,925.73	-262.98	137.65	-135.76	0.58	-0.49	-9.86	
5,952.46	1.71	169.17	5,940.04	-263.41	137.73	-135.84	0.57	-0.49	-9.78	
5,966.77	1.64	167.77	5,954.34	-263.82	137.81	-135.92	0.57	-0.49	-9.78	
5,981.08	1.57	166.32	5,968.65	-264.21	137.90	-136.00	0.57	-0.49	-10.13	
5,995.38	1.51	164.75	5,982.94	-264.59	137.99	-136.10	0.51	-0.42	-10.98	
6,009.69	1.45	162.88	5,997.25	-264.94	138.10	-136.20	0.54	-0.42	-13.07	
6,024.00	1.40	160.49	6,011.55	-265.28	138.21	-136.31	0.54	-0.35	-16.70	
6,038.38	1.32	158.12	6,025.93	-265.60	138.33	-136.43	0.68	-0.56	-16.48	
6,052.77	1.25	155.08	6,040.31	-265.89	138.46	-136.55	0.68	-0.49	-21.13	
6,067.15	1.18	151.54	6,054.69	-266.17	138.59	-136.69	0.71	-0.49	-24.62	
6,081.54	1.11	147.61	6,069.08	-266.41	138.74	-136.83	0.73	-0.49	-27.31	
6,095.92	1.05	143.43	6,083.46	-266.64	138.89	-136.98	0.69	-0.42	-29.07	
6,110.31	0.99	135.96	6,097.84	-266.83	139.06	-137.14	1.01	-0.42	-51.91	
6,124.69	0.99	132.69	6,112.22	-267.01	139.24	-137.32	0.39	0.00	-22.74	
6,139.08	0.99	129.42	6,126.61	-267.17	139.42	-137.51	0.39	0.00	-22.72	
6,153.46	1.00	126.17	6,140.99	-267.32	139.62	-137.70	0.40	0.07	-22.60	
6,167.85	1.00	122.94	6,155.37	-267.47	139.83	-137.91	0.39	0.00	-22.45	
6,182.23	1.01	119.74	6,169.75	-267.60	140.04	-138.12	0.40	0.07	-22.25	
6,196.62	1.02	116.59	6,184.14	-267.72	140.27	-138.35	0.39	0.07	-21.89	
6,211.00	1.03	113.50	6,198.52	-267.83	140.50	-138.58	0.39	0.07	-21.49	
6,225.38	0.99	109.48	6,212.90	-267.92	140.74	-138.81	0.57	-0.28	-27.96	
6,239.77	0.95	105.63	6,227.28	-267.99	140.97	-139.05	0.53	-0.28	-26.75	
6,254.15	0.92	101.48	6,241.66	-268.05	141.20	-139.27	0.51	-0.21	-28.86	
6,268.54	0.90	97.02	6,256.05	-268.08	141.42	-139.50	0.51	-0.14	-30.99	
6,282.92	0.87	92.29	6,270.43	-268.10	141.64	-139.72	0.55	-0.21	-32.89	
6,297.31	0.86	87.30	6,284.82	-268.10	141.86	-139.94	0.53	-0.07	-34.68	
6,311.69	0.85	82.12	6,299.19	-268.08	142.07	-140.15	0.54	-0.07	-36.02	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
6,326.08	0.85	76.80	6,313.58	-268.04	142.28	-140.36	0.55	0.00	-36.97
6,340.46	0.85	71.43	6,327.96	-267.98	142.49	-140.57	0.55	0.00	-37.34
6,354.85	0.86	66.10	6,342.35	-267.91	142.69	-140.77	0.56	0.07	-37.04
6,369.23	0.88	60.87	6,356.73	-267.81	142.88	-140.96	0.57	0.14	-36.37
6,383.62	0.90	55.84	6,371.12	-267.69	143.07	-141.15	0.56	0.14	-34.95
6,398.00	0.93	51.04	6,385.49	-267.56	143.26	-141.34	0.57	0.21	-33.38
6,412.38	0.99	40.95	6,399.87	-267.39	143.43	-141.51	1.25	0.42	-70.17
6,426.77	1.08	32.20	6,414.26	-267.18	143.58	-141.67	1.26	0.63	-60.81
6,441.15	1.19	24.87	6,428.64	-266.93	143.72	-141.80	1.27	0.76	-50.97
6,455.54	1.32	18.82	6,443.02	-266.64	143.83	-141.92	1.29	0.90	-42.04
6,469.92	1.46	13.83	6,457.40	-266.30	143.93	-142.02	1.29	0.97	-34.70
6,484.31	1.60	9.71	6,471.78	-265.93	144.01	-142.10	1.24	0.97	-28.63
6,498.69	1.76	6.27	6,486.16	-265.51	144.07	-142.16	1.31	1.11	-23.92
6,513.08	1.92	3.38	6,500.54	-265.05	144.10	-142.20	1.29	1.11	-20.08
6,527.46	1.71	359.63	6,514.91	-264.59	144.12	-142.22	1.68	-1.46	-26.08
6,541.85	1.22	344.41	6,529.30	-264.23	144.07	-142.18	4.32	-3.41	-105.77
6,556.23	1.34	345.72	6,543.68	-263.92	143.99	-142.10	0.86	0.83	9.11
6,570.62	1.47	346.78	6,558.06	-263.58	143.91	-142.02	0.92	0.90	7.37
6,585.00	1.60	347.66	6,572.44	-263.20	143.82	-141.94	0.92	0.90	6.12
6,599.31	1.56	347.89	6,586.74	-262.82	143.74	-141.86	0.28	-0.28	1.61
6,613.62	1.52	348.59	6,601.05	-262.44	143.66	-141.78	0.31	-0.28	4.89
6,627.92	1.47	349.60	6,615.34	-262.07	143.59	-141.71	0.40	-0.35	7.06
6,642.23	1.43	350.80	6,629.65	-261.72	143.53	-141.65	0.35	-0.28	8.39
6,656.54	1.39	352.06	6,643.95	-261.37	143.48	-141.60	0.35	-0.28	8.81
6,670.85	1.36	353.29	6,658.26	-261.03	143.43	-141.56	0.29	-0.21	8.60
6,685.15	1.32	354.37	6,672.55	-260.70	143.40	-141.53	0.33	-0.28	7.55
6,699.46	1.29	355.14	6,686.86	-260.37	143.37	-141.50	0.24	-0.21	5.38
6,713.77	1.27	355.39	6,701.17	-260.05	143.34	-141.48	0.15	-0.14	1.75
6,728.08	1.25	354.84	6,715.47	-259.74	143.31	-141.45	0.16	-0.14	-3.84
6,742.38	1.24	353.09	6,729.77	-259.43	143.28	-141.42	0.27	-0.07	-12.24
6,756.69	1.25	349.63	6,744.08	-259.12	143.23	-141.38	0.53	0.07	-24.18
6,771.00	1.30	343.95	6,758.38	-258.81	143.16	-141.31	0.95	0.35	-39.69
6,785.00	1.44	336.31	6,772.38	-258.50	143.05	-141.19	1.64	1.00	-54.57
6,799.00	1.64	328.91	6,786.37	-258.17	142.87	-141.02	2.01	1.43	-52.86
6,813.00	1.89	322.67	6,800.37	-257.81	142.63	-140.78	2.25	1.79	-44.57
6,827.00	2.16	317.68	6,814.36	-257.43	142.31	-140.47	2.30	1.93	-35.64
6,841.00	2.43	313.72	6,828.35	-257.03	141.92	-140.08	2.24	1.93	-28.29
6,846.00	2.60	311.57	6,833.34	-256.88	141.76	-139.92	3.80	3.30	-42.97
KOP: 6846.00' MD, -139.91' VS, 6833.34' TVD									
6,855.00	2.90	308.33	6,842.33	-256.61	141.43	-139.59	3.80	3.39	-36.02
6,869.00	4.82	297.89	6,856.30	-256.11	140.63	-138.79	14.55	13.71	-74.57
6,882.43	6.72	293.10	6,869.66	-255.54	139.41	-137.58	14.58	14.15	-35.67
6,895.86	8.51	287.84	6,882.97	-254.93	137.74	-135.91	14.29	13.33	-39.17
6,909.29	10.40	286.96	6,896.22	-254.27	135.63	-133.81	14.11	14.07	-6.55



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
6,922.71	12.31	285.86	6,909.38	-253.53	133.10	-131.28	14.32	14.23	-8.20
6,936.14	13.75	283.80	6,922.46	-252.75	130.17	-128.36	11.26	10.72	-15.34
6,949.57	15.38	284.96	6,935.46	-251.91	126.90	-125.09	12.33	12.14	8.64
6,963.00	17.19	285.62	6,948.35	-250.92	123.27	-121.47	13.55	13.48	4.91
6,976.14	19.00	285.89	6,960.84	-249.81	119.34	-117.55	13.79	13.77	2.05
6,989.29	20.80	286.04	6,973.20	-248.58	115.04	-113.26	13.69	13.69	1.14
7,002.43	22.54	287.14	6,985.41	-247.19	110.39	-108.62	13.60	13.24	8.37
7,015.57	24.26	288.06	6,997.47	-245.61	105.42	-103.65	13.38	13.09	7.00
7,028.71	25.68	287.49	7,009.38	-243.92	100.13	-98.38	10.96	10.81	-4.34
7,041.86	26.80	285.33	7,021.18	-242.28	94.56	-92.82	11.19	8.52	-16.43
7,055.00	28.15	283.55	7,032.84	-240.77	88.69	-86.96	12.02	10.27	-13.55
7,068.43	29.43	283.13	7,044.61	-239.28	82.39	-80.68	9.65	9.53	-3.13
7,081.86	29.69	282.23	7,056.29	-237.83	75.93	-74.22	3.83	1.94	-6.70
7,095.29	29.97	281.29	7,067.94	-236.46	69.39	-67.69	4.06	2.08	-7.00
7,108.71	30.20	280.40	7,079.55	-235.20	62.78	-61.10	3.74	1.71	-6.63
7,122.14	30.74	278.99	7,091.13	-234.05	56.07	-54.39	6.67	4.02	-10.50
7,135.57	31.67	277.18	7,102.61	-233.08	49.18	-47.51	9.83	6.92	-13.48
7,149.00	32.56	275.62	7,113.99	-232.28	42.09	-40.42	9.06	6.63	-11.62
7,162.29	33.10	274.31	7,125.16	-231.66	34.91	-33.25	6.71	4.06	-9.86
7,175.57	33.04	273.24	7,136.28	-231.18	27.68	-26.02	4.42	-0.45	-8.06
7,188.86	32.06	273.21	7,147.49	-230.78	20.54	-18.89	7.37	-7.37	-0.23
7,202.14	31.04	273.19	7,158.80	-230.39	13.60	-11.95	7.68	-7.68	-0.15
7,215.43	30.91	272.36	7,170.20	-230.06	6.77	-5.12	3.36	-0.98	-6.25
7,228.71	31.65	271.46	7,181.55	-229.83	-0.12	1.77	6.59	5.57	-6.78
7,242.00	32.69	271.11	7,192.80	-229.67	-7.20	8.84	7.95	7.83	-2.63
7,255.29	33.60	270.70	7,203.93	-229.56	-14.46	16.10	7.05	6.85	-3.09
7,268.57	34.07	270.42	7,214.96	-229.48	-21.86	23.50	3.73	3.54	-2.11
7,281.86	33.76	269.42	7,225.99	-229.49	-29.27	30.91	4.80	-2.33	-7.52
7,295.14	33.49	268.38	7,237.04	-229.64	-36.62	38.27	4.79	-2.03	-7.83
7,308.43	33.64	267.19	7,248.12	-229.92	-43.97	45.61	5.08	1.13	-8.95
7,321.71	34.62	265.80	7,259.11	-230.38	-51.40	53.05	9.43	7.38	-10.47
7,335.00	35.87	264.79	7,269.96	-231.01	-59.04	60.70	10.38	9.41	-7.60
7,348.43	37.12	263.71	7,280.76	-231.81	-66.99	68.65	10.46	9.31	-8.04
7,361.86	38.42	262.89	7,291.38	-232.77	-75.16	76.82	10.38	9.68	-6.11
7,375.29	39.41	261.80	7,301.83	-233.89	-83.52	85.19	8.96	7.37	-8.12
7,388.71	40.47	260.89	7,312.12	-235.19	-92.04	93.72	9.02	7.90	-6.78
7,402.14	41.55	259.97	7,322.25	-236.66	-100.73	102.42	9.21	8.04	-6.85
7,415.57	42.78	259.20	7,332.20	-238.29	-109.59	111.30	9.93	9.16	-5.73
7,429.00	44.18	258.80	7,341.95	-240.05	-118.66	120.38	10.62	10.42	-2.98
7,442.29	45.40	258.74	7,351.38	-241.87	-127.85	129.58	9.19	9.18	-0.45
7,455.57	46.40	258.04	7,360.62	-243.79	-137.19	138.93	8.43	7.53	-5.27
7,468.86	47.83	258.07	7,369.67	-245.81	-146.72	148.47	10.76	10.76	0.23
7,482.14	49.11	257.94	7,378.47	-247.87	-156.44	158.21	9.67	9.64	-0.98



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
7,495.43	50.46	257.77	7,387.05	-250.01	-166.36	168.15	10.20	10.16	-1.28	
7,508.71	51.95	257.88	7,395.37	-252.19	-176.48	178.28	11.24	11.22	0.83	
7,522.00	53.49	257.96	7,403.42	-254.41	-186.82	188.64	11.60	11.59	0.60	
7,535.29	55.06	257.90	7,411.18	-256.66	-197.37	199.20	11.82	11.81	-0.45	
7,548.57	56.74	257.78	7,418.63	-258.98	-208.12	209.97	12.67	12.65	-0.90	
7,561.86	58.55	257.78	7,425.74	-261.35	-219.09	220.96	13.62	13.62	0.00	
7,575.14	60.38	258.01	7,432.48	-263.75	-230.27	232.16	13.86	13.78	1.73	
7,588.43	62.25	258.32	7,438.86	-266.14	-241.69	243.58	14.22	14.07	2.33	
7,601.71	64.12	258.81	7,444.85	-268.49	-253.30	255.22	14.46	14.08	3.69	
7,615.00	65.98	259.56	7,450.46	-270.75	-265.14	267.07	14.90	14.00	5.64	
7,628.43	67.81	260.55	7,455.73	-272.89	-277.30	279.25	15.22	13.63	7.37	
7,641.86	69.66	261.56	7,460.60	-274.83	-289.67	291.63	15.46	13.78	7.52	
7,655.29	71.52	262.48	7,465.06	-276.59	-302.21	304.18	15.28	13.85	6.85	
7,668.71	73.43	263.42	7,469.10	-278.16	-314.91	316.89	15.72	14.23	7.00	
7,682.14	74.59	264.75	7,472.80	-279.49	-327.75	329.74	12.85	8.64	9.90	
7,695.57	76.35	265.41	7,476.17	-280.60	-340.70	342.70	13.94	13.10	4.91	
7,709.00	78.35	265.88	7,479.11	-281.60	-353.77	355.77	15.28	14.89	3.50	
7,722.29	80.43	266.21	7,481.56	-282.50	-366.80	368.81	15.84	15.65	2.48	
7,735.57	82.47	266.17	7,483.54	-283.37	-379.90	381.92	15.36	15.36	-0.30	
7,748.86	84.41	265.88	7,485.05	-284.29	-393.07	395.10	14.76	14.60	-2.18	
7,762.14	86.42	265.88	7,486.12	-285.24	-406.27	408.31	15.14	15.14	0.00	
7,775.43	88.33	265.86	7,486.72	-286.19	-419.52	421.55	14.37	14.37	-0.15	
7,788.71	89.91	266.21	7,486.93	-287.11	-432.76	434.81	12.19	11.90	2.64	
7,791.00	89.99	266.22	7,486.93	-287.26	-435.05	437.09	3.74	3.69	0.60	
EOC: 7791.00' MD, 437.09' VS, 7486.93' TVD										
7,794.54	90.12	266.25	7,486.93	-287.50	-438.58	440.63	3.74	3.69	0.60	
100FEL: 7794.54' MD, 440.63' VS, 7486.93' TVD										
7,794.98	90.14	266.25	7,486.93	-287.52	-439.02	441.07	3.74	3.69	0.60	
01-FTP(S-121H)										
7,802.00	90.40	266.29	7,486.89	-287.98	-446.02	448.07	3.74	3.69	0.60	
7,815.29	90.56	266.14	7,486.78	-288.86	-459.28	461.34	1.65	1.20	-1.13	
7,828.57	90.71	266.02	7,486.63	-289.77	-472.53	474.59	1.45	1.13	-0.90	
7,841.86	90.83	265.92	7,486.45	-290.70	-485.79	487.86	1.18	0.90	-0.75	
7,855.14	90.97	265.86	7,486.25	-291.65	-499.03	501.11	1.15	1.05	-0.45	
7,868.43	91.10	265.84	7,486.01	-292.61	-512.28	514.37	0.99	0.98	-0.15	
7,881.71	91.24	265.86	7,485.74	-293.57	-525.53	527.61	1.06	1.05	0.15	
7,895.00	91.39	265.96	7,485.43	-294.52	-538.78	540.87	1.36	1.13	0.75	
7,908.29	91.51	266.18	7,485.09	-295.43	-552.03	554.13	1.89	0.90	1.66	
7,921.57	91.59	266.46	7,484.73	-296.28	-565.28	567.39	2.19	0.60	2.11	
7,934.86	91.67	266.77	7,484.36	-297.07	-578.54	580.65	2.41	0.60	2.33	
7,948.14	91.74	267.06	7,483.96	-297.78	-591.80	593.91	2.25	0.53	2.18	
7,961.43	91.79	267.30	7,483.55	-298.44	-605.07	607.19	1.84	0.38	1.81	
7,974.71	91.39	267.64	7,483.18	-299.02	-618.33	620.45	3.95	-3.01	2.56	
7,988.00	89.90	268.59	7,483.03	-299.46	-631.61	633.74	13.30	-11.21	7.15	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
8,001.29	88.79	270.32	7,483.19	-299.59	-644.90	647.02	15.47	-8.35	13.02	
8,014.57	88.87	270.29	7,483.46	-299.52	-658.17	660.30	0.64	0.60	-0.23	
8,027.86	89.04	270.05	7,483.70	-299.48	-671.46	673.59	2.21	1.28	-1.81	
8,041.14	89.27	269.78	7,483.90	-299.50	-684.74	686.87	2.67	1.73	-2.03	
8,054.43	89.56	269.51	7,484.03	-299.58	-698.03	700.16	2.98	2.18	-2.03	
8,067.71	89.86	269.26	7,484.10	-299.72	-711.31	713.44	2.94	2.26	-1.88	
8,081.00	90.18	269.08	7,484.09	-299.91	-724.60	726.72	2.76	2.41	-1.35	
8,094.29	90.46	269.01	7,484.02	-300.13	-737.89	740.01	2.17	2.11	-0.53	
8,107.57	90.72	269.01	7,483.88	-300.36	-751.16	753.29	1.96	1.96	0.00	
8,120.86	90.95	269.05	7,483.69	-300.59	-764.45	766.58	1.76	1.73	0.30	
8,134.14	91.18	269.11	7,483.44	-300.80	-777.73	779.86	1.79	1.73	0.45	
8,147.43	91.43	269.17	7,483.14	-301.00	-791.01	793.14	1.93	1.88	0.45	
8,160.71	91.71	269.22	7,482.78	-301.19	-804.28	806.42	2.14	2.11	0.38	
8,174.00	92.01	269.23	7,482.34	-301.37	-817.57	819.70	2.26	2.26	0.08	
8,187.29	92.24	269.20	7,481.85	-301.55	-830.85	832.98	1.75	1.73	-0.23	
8,200.57	92.43	269.13	7,481.31	-301.74	-844.11	846.25	1.52	1.43	-0.53	
8,213.86	92.58	269.04	7,480.73	-301.96	-857.39	859.53	1.32	1.13	-0.68	
8,227.14	92.71	268.92	7,480.12	-302.19	-870.65	872.79	1.33	0.98	-0.90	
8,240.43	92.81	268.80	7,479.48	-302.46	-883.92	886.07	1.17	0.75	-0.90	
8,253.71	91.12	268.76	7,479.02	-302.74	-897.19	899.34	12.73	-12.73	-0.30	
8,267.00	89.22	269.11	7,478.98	-302.99	-910.48	912.62	14.54	-14.30	2.63	
8,280.29	89.31	268.93	7,479.15	-303.21	-923.77	925.91	1.51	0.68	-1.35	
8,293.57	89.44	268.73	7,479.30	-303.48	-937.04	939.19	1.80	0.98	-1.51	
8,306.86	89.64	268.52	7,479.40	-303.80	-950.33	952.48	2.18	1.50	-1.58	
8,320.14	89.89	268.31	7,479.46	-304.17	-963.60	965.76	2.46	1.88	-1.58	
8,333.43	90.17	268.09	7,479.45	-304.59	-976.89	979.04	2.68	2.11	-1.66	
8,346.71	90.39	267.88	7,479.39	-305.05	-990.16	992.32	2.29	1.66	-1.58	
8,360.00	90.55	267.68	7,479.28	-305.57	-1,003.44	1,005.60	1.93	1.20	-1.50	
8,373.29	90.57	267.52	7,479.15	-306.13	-1,016.72	1,018.88	1.21	0.15	-1.20	
8,386.57	90.54	267.37	7,479.02	-306.72	-1,029.98	1,032.15	1.15	-0.23	-1.13	
8,399.86	90.53	267.24	7,478.89	-307.34	-1,043.26	1,045.43	0.98	-0.08	-0.98	
8,413.14	90.54	267.13	7,478.77	-307.99	-1,056.52	1,058.70	0.83	0.08	-0.83	
8,426.43	90.56	267.04	7,478.64	-308.67	-1,069.79	1,071.97	0.69	0.15	-0.68	
8,439.71	89.28	267.59	7,478.66	-309.29	-1,083.06	1,085.24	10.49	-9.64	4.14	
8,453.00	88.43	268.41	7,478.93	-309.76	-1,096.34	1,098.53	8.89	-6.40	6.17	
8,466.43	87.61	269.39	7,479.39	-310.01	-1,109.76	1,111.95	9.51	-6.11	7.30	
8,479.86	87.76	269.42	7,479.93	-310.15	-1,123.17	1,125.36	1.14	1.12	0.22	
8,493.29	87.94	269.47	7,480.44	-310.28	-1,136.59	1,138.79	1.39	1.34	0.37	
8,506.71	88.22	269.52	7,480.89	-310.40	-1,150.01	1,152.20	2.12	2.09	0.37	
8,520.14	88.64	269.57	7,481.26	-310.51	-1,163.43	1,165.62	3.15	3.13	0.37	
8,533.57	89.15	269.60	7,481.51	-310.61	-1,176.86	1,179.05	3.80	3.80	0.22	
8,547.00	89.54	270.21	7,481.67	-310.63	-1,190.29	1,192.48	5.39	2.90	4.54	
8,560.29	90.69	270.90	7,481.64	-310.50	-1,203.58	1,205.77	10.09	8.65	5.19	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
8,573.57	91.55	271.06	7,481.38	-310.27	-1,216.85	1,219.04	6.59	6.48	1.20
8,586.86	91.83	271.00	7,480.99	-310.03	-1,230.13	1,232.32	2.15	2.11	-0.45
8,600.14	92.06	270.91	7,480.54	-309.81	-1,243.40	1,245.59	1.86	1.73	-0.68
8,613.43	92.27	270.82	7,480.04	-309.61	-1,256.68	1,258.87	1.72	1.58	-0.68
8,626.71	92.47	270.73	7,479.49	-309.43	-1,269.95	1,272.13	1.65	1.51	-0.68
8,640.00	92.72	270.65	7,478.89	-309.27	-1,283.23	1,285.41	1.97	1.88	-0.60
8,653.71	93.04	270.59	7,478.20	-309.12	-1,296.92	1,299.10	2.37	2.33	-0.44
8,667.43	93.38	270.53	7,477.43	-308.99	-1,310.62	1,312.79	2.52	2.48	-0.44
8,681.14	93.60	270.48	7,476.59	-308.87	-1,324.30	1,326.48	1.65	1.60	-0.36
8,694.86	93.73	270.42	7,475.72	-308.76	-1,337.99	1,340.17	1.04	0.95	-0.44
8,708.57	93.73	270.36	7,474.83	-308.67	-1,351.67	1,353.85	0.44	0.00	-0.44
8,722.29	93.64	270.30	7,473.94	-308.59	-1,365.36	1,367.54	0.79	-0.66	-0.44
8,736.00	93.47	270.23	7,473.09	-308.53	-1,379.05	1,381.22	1.34	-1.24	-0.51
8,749.14	93.33	270.16	7,472.31	-308.48	-1,392.16	1,394.33	1.19	-1.07	-0.53
8,762.29	93.27	270.10	7,471.56	-308.45	-1,405.29	1,407.46	0.64	-0.46	-0.46
8,775.43	93.25	270.04	7,470.81	-308.44	-1,418.41	1,420.58	0.48	-0.15	-0.46
8,788.57	93.26	269.97	7,470.06	-308.43	-1,431.53	1,433.70	0.54	0.08	-0.53
8,801.71	93.29	269.91	7,469.31	-308.45	-1,444.65	1,446.82	0.51	0.23	-0.46
8,814.86	93.33	269.85	7,468.55	-308.48	-1,457.78	1,459.95	0.55	0.30	-0.46
8,828.00	93.37	269.79	7,467.79	-308.52	-1,470.89	1,473.06	0.55	0.30	-0.46
8,841.29	93.42	269.72	7,467.00	-308.57	-1,484.16	1,486.33	0.65	0.38	-0.53
8,854.57	93.48	269.66	7,466.20	-308.65	-1,497.41	1,499.59	0.64	0.45	-0.45
8,867.86	93.57	269.60	7,465.38	-308.73	-1,510.68	1,512.85	0.81	0.68	-0.45
8,881.14	93.68	269.54	7,464.54	-308.83	-1,523.93	1,526.10	0.94	0.83	-0.45
8,894.43	93.79	269.49	7,463.68	-308.94	-1,537.19	1,539.37	0.91	0.83	-0.38
8,907.71	93.89	269.45	7,462.79	-309.07	-1,550.44	1,552.62	0.81	0.75	-0.30
8,921.00	93.95	269.44	7,461.88	-309.19	-1,563.70	1,565.87	0.46	0.45	-0.08
8,934.29	93.95	269.45	7,460.96	-309.32	-1,576.96	1,579.13	0.08	0.00	0.08
8,947.57	93.97	269.49	7,460.05	-309.44	-1,590.21	1,592.38	0.34	0.15	0.30
8,960.86	94.00	269.53	7,459.12	-309.56	-1,603.46	1,605.64	0.38	0.23	0.30
8,974.14	94.04	269.58	7,458.19	-309.66	-1,616.71	1,618.89	0.48	0.30	0.38
8,987.43	94.07	269.63	7,457.25	-309.75	-1,629.97	1,632.14	0.44	0.23	0.38
9,000.71	94.12	269.67	7,456.30	-309.83	-1,643.21	1,645.39	0.48	0.38	0.30
9,014.00	94.17	269.68	7,455.34	-309.91	-1,656.47	1,658.64	0.38	0.38	0.08
9,027.29	94.22	269.66	7,454.37	-309.98	-1,669.72	1,671.90	0.41	0.38	-0.15
9,040.57	94.27	269.63	7,453.39	-310.07	-1,682.97	1,685.14	0.44	0.38	-0.23
9,053.86	94.33	269.59	7,452.39	-310.16	-1,696.22	1,698.39	0.54	0.45	-0.30
9,067.14	94.38	269.56	7,451.38	-310.26	-1,709.46	1,711.64	0.44	0.38	-0.23
9,080.43	94.43	269.56	7,450.36	-310.36	-1,722.71	1,724.89	0.38	0.38	0.00
9,093.71	94.46	269.60	7,449.33	-310.45	-1,735.95	1,738.13	0.38	0.23	0.30
9,107.00	94.48	269.71	7,448.30	-310.53	-1,749.20	1,751.38	0.84	0.15	0.83
9,120.43	94.45	269.94	7,447.25	-310.57	-1,762.59	1,764.77	1.72	-0.22	1.71
9,133.86	94.42	270.24	7,446.21	-310.55	-1,775.98	1,778.16	2.24	-0.22	2.23



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
9,147.29	94.39	270.56	7,445.18	-310.46	-1,789.37	1,791.54	2.39	-0.22	2.38
9,160.71	94.37	270.89	7,444.16	-310.29	-1,802.75	1,804.92	2.46	-0.15	2.46
9,174.14	94.34	271.19	7,443.14	-310.05	-1,816.14	1,818.31	2.24	-0.22	2.23
9,187.57	94.10	271.40	7,442.15	-309.75	-1,829.53	1,831.70	2.37	-1.79	1.56
9,201.00	93.82	271.55	7,441.22	-309.40	-1,842.92	1,845.09	2.36	-2.08	1.12
9,214.43	93.78	271.60	7,440.33	-309.03	-1,856.32	1,858.48	0.48	-0.30	0.37
9,227.86	93.76	271.59	7,439.45	-308.66	-1,869.71	1,871.87	0.17	-0.15	-0.07
9,241.29	93.76	271.54	7,438.57	-308.29	-1,883.11	1,885.27	0.37	0.00	-0.37
9,254.71	93.76	271.48	7,437.69	-307.94	-1,896.49	1,898.65	0.45	0.00	-0.45
9,268.14	93.76	271.41	7,436.81	-307.60	-1,909.89	1,912.04	0.52	0.00	-0.52
9,281.57	93.75	271.35	7,435.93	-307.28	-1,923.29	1,925.44	0.45	-0.07	-0.45
9,295.00	93.74	271.33	7,435.05	-306.97	-1,936.69	1,938.83	0.17	-0.07	-0.15
9,308.14	93.70	271.38	7,434.20	-306.66	-1,949.79	1,951.94	0.49	-0.30	0.38
9,321.29	93.67	271.46	7,433.35	-306.33	-1,962.91	1,965.06	0.65	-0.23	0.61
9,334.43	93.68	271.57	7,432.51	-305.98	-1,976.02	1,978.16	0.84	0.08	0.84
9,347.57	93.70	271.70	7,431.66	-305.61	-1,989.13	1,991.27	1.00	0.15	0.99
9,360.71	93.74	271.84	7,430.81	-305.21	-2,002.24	2,004.37	1.11	0.30	1.07
9,373.86	93.79	271.98	7,429.95	-304.77	-2,015.35	2,017.48	1.13	0.38	1.06
9,387.00	93.68	272.14	7,429.09	-304.30	-2,028.45	2,030.58	1.48	-0.84	1.22
9,400.29	93.08	272.32	7,428.31	-303.78	-2,041.71	2,043.83	4.71	-4.51	1.35
9,413.57	92.93	272.49	7,427.61	-303.22	-2,054.96	2,057.08	1.71	-1.13	1.28
9,426.86	92.87	272.68	7,426.94	-302.63	-2,068.22	2,070.33	1.50	-0.45	1.43
9,440.14	92.82	272.88	7,426.28	-301.98	-2,081.47	2,083.58	1.55	-0.38	1.51
9,453.43	92.80	273.06	7,425.63	-301.29	-2,094.72	2,096.83	1.36	-0.15	1.35
9,466.71	92.81	273.21	7,424.98	-300.57	-2,107.97	2,110.06	1.13	0.08	1.13
9,480.00	92.83	273.31	7,424.33	-299.81	-2,121.22	2,123.31	0.77	0.15	0.75
9,493.43	92.81	273.31	7,423.67	-299.04	-2,134.61	2,136.70	0.15	-0.15	0.00
9,506.86	92.78	273.25	7,423.01	-298.27	-2,148.00	2,150.08	0.50	-0.22	-0.45
9,520.29	92.74	273.16	7,422.36	-297.52	-2,161.40	2,163.47	0.73	-0.30	-0.67
9,533.71	92.70	273.05	7,421.73	-296.80	-2,174.78	2,176.85	0.87	-0.30	-0.82
9,547.14	92.67	272.93	7,421.10	-296.10	-2,188.18	2,190.24	0.92	-0.22	-0.89
9,560.57	92.64	272.83	7,420.48	-295.42	-2,201.58	2,203.64	0.78	-0.22	-0.74
9,574.00	92.62	272.74	7,419.86	-294.77	-2,214.98	2,217.03	0.69	-0.15	-0.67
9,587.43	92.60	272.71	7,419.25	-294.13	-2,228.38	2,230.43	0.27	-0.15	-0.22
9,600.86	92.58	272.70	7,418.64	-293.50	-2,241.78	2,243.82	0.17	-0.15	-0.07
9,614.29	92.56	272.71	7,418.04	-292.87	-2,255.18	2,257.22	0.17	-0.15	0.07
9,627.71	92.56	272.73	7,417.44	-292.23	-2,268.57	2,270.61	0.15	0.00	0.15
9,641.14	92.56	272.74	7,416.84	-291.59	-2,281.97	2,284.00	0.07	0.00	0.07
9,654.57	92.55	272.74	7,416.24	-290.95	-2,295.38	2,297.40	0.07	-0.07	0.00
9,668.00	92.54	272.72	7,415.64	-290.31	-2,308.78	2,310.80	0.17	-0.07	-0.15
9,681.43	92.50	272.66	7,415.05	-289.68	-2,322.18	2,324.19	0.54	-0.30	-0.45
9,694.86	92.48	272.59	7,414.47	-289.06	-2,335.58	2,337.59	0.54	-0.15	-0.52
9,708.29	92.46	272.50	7,413.89	-288.47	-2,348.99	2,350.99	0.69	-0.15	-0.67
9,721.71	92.44	272.44	7,413.32	-287.89	-2,362.38	2,364.38	0.47	-0.15	-0.45



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
9,735.14	92.42	272.39	7,412.75	-287.33	-2,375.79	2,377.78	0.40	-0.15	-0.37	
9,748.57	92.40	272.40	7,412.18	-286.77	-2,389.20	2,391.19	0.17	-0.15	0.07	
9,762.00	92.36	272.49	7,411.63	-286.19	-2,402.60	2,404.59	0.73	-0.30	0.67	
9,775.29	92.29	272.70	7,411.09	-285.59	-2,415.87	2,417.85	1.66	-0.53	1.58	
9,788.57	92.22	272.98	7,410.56	-284.93	-2,429.12	2,431.10	2.17	-0.53	2.11	
9,801.86	92.14	273.31	7,410.06	-284.21	-2,442.38	2,444.35	2.55	-0.60	2.48	
9,815.14	92.05	273.64	7,409.57	-283.40	-2,455.63	2,457.59	2.57	-0.68	2.48	
9,828.43	91.94	273.95	7,409.11	-282.52	-2,468.88	2,470.84	2.47	-0.83	2.33	
9,841.71	91.85	274.22	7,408.67	-281.58	-2,482.12	2,484.07	2.14	-0.68	2.03	
9,855.00	91.19	274.19	7,408.32	-280.60	-2,495.37	2,497.31	4.97	-4.97	-0.23	
9,855.63	91.16	274.19	7,408.31	-280.56	-2,496.00	2,497.94	4.17	-4.17	0.00	
02-v2500(S-121H)										
9,868.43	90.63	274.19	7,408.11	-279.62	-2,508.76	2,510.70	4.17	-4.17	0.00	
9,881.86	90.64	274.30	7,407.96	-278.63	-2,522.15	2,524.08	0.82	0.07	0.82	
9,895.29	90.69	274.38	7,407.80	-277.61	-2,535.54	2,537.47	0.70	0.37	0.60	
9,908.71	90.74	274.44	7,407.63	-276.58	-2,548.92	2,550.84	0.58	0.37	0.45	
9,922.14	90.81	274.48	7,407.45	-275.53	-2,562.31	2,564.22	0.60	0.52	0.30	
9,935.57	90.88	274.49	7,407.25	-274.48	-2,575.70	2,577.60	0.53	0.52	0.07	
9,949.00	90.95	274.48	7,407.04	-273.43	-2,589.09	2,590.98	0.53	0.52	-0.07	
9,962.29	90.98	274.43	7,406.82	-272.40	-2,602.33	2,604.22	0.44	0.23	-0.38	
9,975.57	90.98	274.35	7,406.59	-271.39	-2,615.57	2,617.45	0.60	0.00	-0.60	
9,988.86	90.96	274.26	7,406.36	-270.39	-2,628.82	2,630.69	0.69	-0.15	-0.68	
10,002.14	90.94	274.16	7,406.14	-269.41	-2,642.07	2,643.93	0.77	-0.15	-0.75	
10,015.43	90.94	274.06	7,405.93	-268.46	-2,655.32	2,657.17	0.75	0.00	-0.75	
10,028.71	90.96	273.96	7,405.71	-267.53	-2,668.57	2,670.41	0.77	0.15	-0.75	
10,042.00	91.01	273.88	7,405.48	-266.62	-2,681.82	2,683.66	0.71	0.38	-0.60	
10,055.29	91.09	273.81	7,405.23	-265.73	-2,695.08	2,696.91	0.80	0.60	-0.53	
10,068.57	91.20	273.76	7,404.97	-264.86	-2,708.33	2,710.15	0.91	0.83	-0.38	
10,081.86	91.31	273.71	7,404.68	-263.99	-2,721.59	2,723.41	0.91	0.83	-0.38	
10,095.14	91.42	273.65	7,404.36	-263.14	-2,734.84	2,736.65	0.94	0.83	-0.45	
10,108.43	91.49	273.59	7,404.02	-262.30	-2,748.10	2,749.90	0.69	0.53	-0.45	
10,121.71	91.46	273.51	7,403.68	-261.48	-2,761.35	2,763.15	0.64	-0.23	-0.60	
10,135.00	91.33	273.41	7,403.36	-260.68	-2,774.61	2,776.40	1.23	-0.98	-0.75	
10,148.29	91.03	273.19	7,403.08	-259.91	-2,787.87	2,789.66	2.80	-2.26	-1.66	
10,161.57	90.82	272.75	7,402.87	-259.22	-2,801.13	2,802.92	3.67	-1.58	-3.31	
10,174.86	90.50	272.55	7,402.72	-258.61	-2,814.41	2,816.19	2.84	-2.41	-1.50	
10,188.14	90.37	272.37	7,402.62	-258.04	-2,827.67	2,829.45	1.67	-0.98	-1.36	
10,201.43	90.35	272.17	7,402.53	-257.51	-2,840.95	2,842.72	1.51	-0.15	-1.50	
10,214.71	90.33	271.92	7,402.45	-257.04	-2,854.23	2,855.99	1.89	-0.15	-1.88	
10,228.00	90.25	271.61	7,402.39	-256.63	-2,867.51	2,869.27	2.41	-0.60	-2.33	
10,241.43	90.06	271.20	7,402.35	-256.30	-2,880.93	2,882.70	3.36	-1.41	-3.05	
10,254.86	89.81	270.74	7,402.37	-256.07	-2,894.36	2,896.12	3.90	-1.86	-3.43	
10,268.29	89.54	270.25	7,402.44	-255.96	-2,907.79	2,909.55	4.17	-2.01	-3.65	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
10,281.71	89.24	269.75	7,402.58	-255.96	-2,921.21	2,922.97	4.34	-2.24	-3.73
10,295.14	88.92	269.27	7,402.80	-256.07	-2,934.64	2,936.40	4.30	-2.38	-3.57
10,308.57	88.58	268.81	7,403.09	-256.30	-2,948.06	2,949.82	4.26	-2.53	-3.43
10,322.00	88.44	268.26	7,403.44	-256.64	-2,961.48	2,963.25	4.22	-1.04	-4.10
10,335.29	88.44	267.72	7,403.80	-257.11	-2,974.76	2,976.53	4.06	0.00	-4.06
10,348.57	88.18	267.37	7,404.20	-257.67	-2,988.02	2,989.79	3.28	-1.96	-2.64
10,361.86	87.88	267.07	7,404.65	-258.32	-3,001.29	3,003.06	3.19	-2.26	-2.26
10,375.14	87.60	266.77	7,405.18	-259.03	-3,014.54	3,016.32	3.09	-2.11	-2.26
10,388.43	87.34	266.47	7,405.76	-259.81	-3,027.79	3,029.58	2.99	-1.96	-2.26
10,401.71	87.12	266.17	7,406.40	-260.67	-3,041.03	3,042.82	2.80	-1.66	-2.26
10,415.00	86.98	265.84	7,407.09	-261.59	-3,054.27	3,056.07	2.69	-1.05	-2.48
10,428.43	87.21	265.30	7,407.77	-262.63	-3,067.64	3,069.45	4.37	1.71	-4.02
10,441.86	87.61	264.82	7,408.38	-263.78	-3,081.01	3,082.82	4.65	2.98	-3.57
10,455.29	87.94	264.41	7,408.90	-265.04	-3,094.37	3,096.19	3.92	2.46	-3.05
10,468.71	87.98	263.83	7,409.38	-266.42	-3,107.71	3,109.54	4.33	0.30	-4.32
10,482.14	88.11	263.21	7,409.83	-267.93	-3,121.05	3,122.89	4.71	0.97	-4.62
10,495.57	88.30	262.60	7,410.25	-269.59	-3,134.37	3,136.22	4.76	1.41	-4.54
10,509.00	88.59	262.05	7,410.62	-271.38	-3,147.67	3,149.54	4.63	2.16	-4.10
10,522.29	89.23	261.76	7,410.87	-273.25	-3,160.83	3,162.70	5.29	4.82	-2.18
10,535.57	90.01	261.84	7,410.96	-275.15	-3,173.97	3,175.86	5.90	5.87	0.60
10,548.86	90.86	262.17	7,410.86	-276.99	-3,187.13	3,189.03	6.86	6.40	2.48
10,562.14	91.72	262.38	7,410.56	-278.78	-3,200.29	3,202.20	6.67	6.48	1.58
10,575.43	92.50	262.52	7,410.07	-280.52	-3,213.46	3,215.38	5.96	5.87	1.05
10,588.71	93.63	262.23	7,409.36	-282.28	-3,226.60	3,228.54	8.78	8.51	-2.18
10,602.00	94.75	261.98	7,408.39	-284.10	-3,239.73	3,241.68	8.63	8.43	-1.88
10,615.43	95.60	262.00	7,407.18	-285.97	-3,252.97	3,254.93	6.33	6.33	0.15
10,628.86	96.24	262.49	7,405.79	-287.77	-3,266.21	3,268.18	5.99	4.77	3.65
10,642.29	96.62	263.16	7,404.29	-289.44	-3,279.45	3,281.44	5.71	2.83	4.99
10,655.71	96.89	263.19	7,402.71	-291.02	-3,292.68	3,294.68	2.02	2.01	0.22
10,669.14	97.01	263.26	7,401.09	-292.59	-3,305.92	3,307.93	1.03	0.89	0.52
10,682.57	97.09	263.38	7,399.44	-294.14	-3,319.16	3,321.18	1.07	0.60	0.89
10,696.00	97.16	263.57	7,397.77	-295.66	-3,332.40	3,334.43	1.50	0.52	1.41
10,709.29	97.28	263.84	7,396.10	-297.10	-3,345.50	3,347.54	2.21	0.90	2.03
10,722.57	97.47	264.17	7,394.40	-298.48	-3,358.60	3,360.65	2.85	1.43	2.48
10,735.86	97.75	264.54	7,392.64	-299.78	-3,371.71	3,373.77	3.47	2.11	2.78
10,749.14	98.10	264.94	7,390.81	-300.98	-3,384.81	3,386.87	3.98	2.64	3.01
10,762.43	98.50	265.37	7,388.89	-302.09	-3,397.91	3,399.99	4.39	3.01	3.24
10,775.71	98.99	265.81	7,386.87	-303.10	-3,411.00	3,413.08	4.93	3.69	3.31
10,789.00	99.23	266.56	7,384.76	-303.97	-3,424.09	3,426.18	5.86	1.81	5.64
10,802.43	99.52	267.47	7,382.58	-304.66	-3,437.32	3,439.42	7.03	2.16	6.78
10,815.86	99.82	268.33	7,380.32	-305.15	-3,450.55	3,452.65	6.70	2.23	6.40
10,829.29	100.30	269.09	7,377.97	-305.45	-3,463.77	3,465.87	6.62	3.57	5.66
10,842.71	100.71	269.89	7,375.53	-305.57	-3,476.97	3,479.07	6.61	3.06	5.96
10,856.14	101.05	270.75	7,372.99	-305.49	-3,490.16	3,492.25	6.78	2.53	6.40



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
10,869.57	101.10	271.66	7,370.41	-305.21	-3,503.33	3,505.43	6.66	0.37	6.78
10,883.00	100.43	272.40	7,367.90	-304.75	-3,516.52	3,518.61	7.36	-4.99	5.51
10,896.29	100.11	273.16	7,365.53	-304.11	-3,529.58	3,531.67	6.12	-2.41	5.72
10,909.57	100.05	273.98	7,363.21	-303.30	-3,542.63	3,544.71	6.10	-0.45	6.17
10,922.86	99.90	274.82	7,360.91	-302.29	-3,555.68	3,557.75	6.33	-1.13	6.32
10,936.14	99.68	275.61	7,358.65	-301.10	-3,568.71	3,570.78	6.09	-1.66	5.95
10,949.43	99.00	276.01	7,356.49	-299.78	-3,581.76	3,583.81	5.92	-5.12	3.01
10,962.71	97.92	276.29	7,354.54	-298.37	-3,594.82	3,596.86	8.40	-8.13	2.11
10,976.00	96.86	276.73	7,352.83	-296.88	-3,607.91	3,609.94	8.63	-7.98	3.31
10,989.43	95.65	276.94	7,351.37	-295.29	-3,621.17	3,623.19	9.14	-9.01	1.56
11,002.86	94.65	277.66	7,350.16	-293.59	-3,634.43	3,636.44	9.16	-7.45	5.36
11,016.29	93.77	278.47	7,349.17	-291.71	-3,647.70	3,649.69	8.89	-6.55	6.03
11,029.71	93.71	279.09	7,348.30	-289.66	-3,660.93	3,662.91	4.63	-0.45	4.62
11,043.14	93.79	279.69	7,347.42	-287.48	-3,674.15	3,676.11	4.50	0.60	4.47
11,056.57	93.91	280.25	7,346.52	-285.16	-3,687.35	3,689.29	4.26	0.89	4.17
11,070.00	93.99	280.67	7,345.59	-282.73	-3,700.52	3,702.45	3.18	0.60	3.13
11,083.43	93.97	280.85	7,344.66	-280.22	-3,713.69	3,715.60	1.35	-0.15	1.34
11,096.86	93.80	280.88	7,343.75	-277.70	-3,726.85	3,728.74	1.29	-1.27	0.22
11,110.29	93.52	280.82	7,342.89	-275.18	-3,740.01	3,741.88	2.13	-2.08	-0.45
11,123.71	93.14	280.70	7,342.12	-272.67	-3,753.17	3,755.03	2.97	-2.83	-0.89
11,137.14	92.67	280.56	7,341.43	-270.20	-3,766.35	3,768.19	3.65	-3.50	-1.04
11,150.57	92.08	280.41	7,340.88	-267.76	-3,779.55	3,781.37	4.53	-4.39	-1.12
11,164.00	90.85	279.94	7,340.53	-265.39	-3,792.76	3,794.56	9.80	-9.16	-3.50
11,177.43	89.85	279.06	7,340.45	-263.17	-3,806.01	3,807.79	9.92	-7.45	-6.55
11,190.86	88.68	278.44	7,340.62	-261.13	-3,819.28	3,821.05	9.86	-8.71	-4.62
11,204.29	87.54	277.78	7,341.07	-259.23	-3,832.57	3,834.32	9.81	-8.49	-4.91
11,217.71	86.38	277.10	7,341.78	-257.50	-3,845.85	3,847.60	10.02	-8.64	-5.07
11,231.14	85.58	276.78	7,342.72	-255.88	-3,859.15	3,860.89	6.41	-5.96	-2.38
11,244.57	84.92	276.46	7,343.83	-254.34	-3,872.45	3,874.17	5.46	-4.91	-2.38
11,258.00	84.32	275.90	7,345.09	-252.90	-3,885.74	3,887.45	6.10	-4.47	-4.17
11,271.29	83.89	274.90	7,346.46	-251.65	-3,898.90	3,900.60	8.15	-3.24	-7.52
11,284.57	84.03	273.39	7,347.85	-250.70	-3,912.07	3,913.77	11.36	1.05	-11.37
11,297.86	84.48	271.69	7,349.19	-250.11	-3,925.28	3,926.97	13.17	3.39	-12.79
11,311.14	85.17	270.05	7,350.38	-249.91	-3,938.51	3,940.19	13.35	5.20	-12.35
11,324.43	86.12	268.55	7,351.39	-250.07	-3,951.76	3,953.45	13.33	7.15	-11.29
11,337.71	87.13	267.09	7,352.17	-250.58	-3,965.00	3,966.70	13.35	7.61	-10.99
11,351.00	87.36	265.26	7,352.81	-251.46	-3,978.25	3,979.95	13.86	1.73	-13.77
11,364.29	87.86	263.65	7,353.37	-252.75	-3,991.46	3,993.17	12.68	3.76	-12.11
11,377.57	88.18	261.97	7,353.83	-254.41	-4,004.63	4,006.35	12.87	2.41	-12.65
11,390.86	88.62	260.28	7,354.20	-256.46	-4,017.76	4,019.49	13.14	3.31	-12.72
11,404.14	89.56	258.88	7,354.41	-258.86	-4,030.82	4,032.56	12.70	7.08	-10.54
11,417.43	90.85	257.71	7,354.36	-261.56	-4,043.83	4,045.60	13.10	9.71	-8.80
11,430.71	92.16	256.55	7,354.01	-264.51	-4,056.77	4,058.56	13.17	9.86	-8.73



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
11,444.00	93.98	256.03	7,353.30	-267.66	-4,069.66	4,071.47	14.24	13.69	-3.91
11,457.29	95.78	255.70	7,352.17	-270.89	-4,082.50	4,084.34	13.77	13.54	-2.48
11,470.57	97.10	257.17	7,350.68	-273.99	-4,095.33	4,097.19	14.82	9.94	11.07
11,483.86	98.46	258.65	7,348.88	-276.74	-4,108.20	4,110.08	15.05	10.23	11.14
11,497.14	99.48	260.36	7,346.81	-279.13	-4,121.10	4,122.99	14.86	7.68	12.88
11,510.43	100.58	261.95	7,344.50	-281.15	-4,134.03	4,135.94	14.40	8.28	11.96
11,523.71	101.34	263.53	7,341.97	-282.79	-4,146.97	4,148.88	13.01	5.72	11.90
11,537.00	101.36	265.37	7,339.35	-284.05	-4,159.93	4,161.86	13.58	0.15	13.84
11,550.29	101.34	267.13	7,336.74	-284.91	-4,172.94	4,174.87	12.98	-0.15	13.24
11,563.57	101.18	268.80	7,334.15	-285.37	-4,185.95	4,187.89	12.39	-1.20	12.58
11,576.86	100.84	270.39	7,331.61	-285.46	-4,199.00	4,200.93	12.02	-2.56	11.96
11,590.14	100.28	271.82	7,329.17	-285.21	-4,212.05	4,213.98	11.39	-4.22	10.77
11,603.43	99.63	272.54	7,326.88	-284.71	-4,225.13	4,227.06	7.24	-4.89	5.42
11,616.71	99.66	273.06	7,324.65	-284.07	-4,238.20	4,240.13	3.87	0.23	3.92
11,630.00	98.66	273.42	7,322.54	-283.33	-4,251.30	4,253.22	7.99	-7.52	2.71
11,643.43	97.37	273.64	7,320.66	-282.51	-4,264.58	4,266.49	9.74	-9.61	1.64
11,656.86	96.12	273.77	7,319.09	-281.65	-4,277.89	4,279.79	9.36	-9.31	0.97
11,670.29	95.17	273.26	7,317.76	-280.83	-4,291.23	4,293.13	8.02	-7.07	-3.80
11,683.71	94.24	272.85	7,316.66	-280.12	-4,304.58	4,306.48	7.57	-6.93	-3.06
11,697.14	93.54	273.04	7,315.75	-279.43	-4,317.96	4,319.85	5.40	-5.21	1.41
11,710.57	92.99	273.41	7,314.99	-278.67	-4,331.35	4,333.23	4.93	-4.10	2.76
11,724.00	92.50	273.74	7,314.34	-277.84	-4,344.74	4,346.61	4.40	-3.65	2.46
11,738.29	92.21	273.93	7,313.76	-276.88	-4,358.98	4,360.85	2.43	-2.03	1.33
11,752.57	92.06	274.03	7,313.23	-275.89	-4,373.22	4,375.08	1.26	-1.05	0.70
11,766.86	92.01	274.07	7,312.72	-274.88	-4,387.46	4,389.32	0.45	-0.35	0.28
11,781.14	92.03	274.07	7,312.21	-273.87	-4,401.70	4,403.55	0.14	0.14	0.00
11,795.43	92.11	274.03	7,311.70	-272.86	-4,415.95	4,417.78	0.63	0.56	-0.28
11,809.71	92.18	273.98	7,311.16	-271.87	-4,430.18	4,432.01	0.60	0.49	-0.35
11,824.00	92.13	273.92	7,310.63	-270.88	-4,444.43	4,446.25	0.55	-0.35	-0.42
11,838.17	91.83	273.85	7,310.14	-269.92	-4,458.56	4,460.37	2.17	-2.12	-0.49
11,852.33	91.43	273.79	7,309.73	-268.98	-4,472.68	4,474.49	2.86	-2.82	-0.42
11,866.50	91.05	273.72	7,309.43	-268.05	-4,486.81	4,488.62	2.73	-2.68	-0.49
11,880.67	90.59	273.67	7,309.22	-267.14	-4,500.95	4,502.75	3.27	-3.25	-0.35
11,894.83	90.02	273.35	7,309.15	-266.27	-4,515.09	4,516.88	4.62	-4.03	-2.26
11,909.00	89.48	272.17	7,309.21	-265.59	-4,529.24	4,531.02	9.16	-3.81	-8.33
11,922.43	89.15	271.58	7,309.37	-265.15	-4,542.66	4,544.44	5.03	-2.46	-4.39
11,935.86	88.87	271.64	7,309.60	-264.77	-4,556.08	4,557.86	2.13	-2.08	0.45
11,949.29	88.65	271.71	7,309.89	-264.38	-4,569.51	4,571.28	1.72	-1.64	0.52
11,962.71	88.56	271.76	7,310.22	-263.97	-4,582.92	4,584.69	0.77	-0.67	0.37
11,976.14	88.53	271.78	7,310.56	-263.56	-4,596.33	4,598.10	0.27	-0.22	0.15
11,989.57	88.52	271.74	7,310.91	-263.15	-4,609.75	4,611.52	0.31	-0.07	-0.30
12,003.00	88.43	271.61	7,311.27	-262.75	-4,623.17	4,624.93	1.18	-0.67	-0.97
12,016.29	88.14	271.34	7,311.66	-262.41	-4,636.45	4,638.21	2.98	-2.18	-2.03



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
12,029.57	87.77	270.56	7,312.14	-262.19	-4,649.72	4,651.48	6.50	-2.79	-5.87
12,042.86	87.41	269.37	7,312.70	-262.20	-4,663.00	4,664.76	9.35	-2.71	-8.95
12,056.14	86.91	268.93	7,313.35	-262.40	-4,676.26	4,678.02	5.01	-3.77	-3.31
12,069.43	86.39	268.47	7,314.13	-262.70	-4,689.53	4,691.29	5.22	-3.91	-3.46
12,082.71	85.91	268.05	7,315.02	-263.10	-4,702.77	4,704.53	4.80	-3.61	-3.16
12,096.00	86.55	267.13	7,315.90	-263.66	-4,716.02	4,717.79	8.42	4.82	-6.92
12,109.43	86.90	266.03	7,316.66	-264.46	-4,729.40	4,731.17	8.58	2.61	-8.19
12,122.86	86.61	265.85	7,317.42	-265.41	-4,742.78	4,744.56	2.54	-2.16	-1.34
12,136.29	86.41	265.70	7,318.24	-266.39	-4,756.15	4,757.93	1.86	-1.49	-1.12
12,149.71	86.26	265.56	7,319.10	-267.42	-4,769.50	4,771.29	1.53	-1.12	-1.04
12,163.14	86.17	265.44	7,319.99	-268.47	-4,782.86	4,784.66	1.12	-0.67	-0.89
12,176.57	86.11	265.31	7,320.89	-269.55	-4,796.22	4,798.02	1.06	-0.45	-0.97
12,190.00	86.10	265.16	7,321.80	-270.66	-4,809.57	4,811.38	1.12	-0.07	-1.12
12,203.29	86.75	265.27	7,322.63	-271.77	-4,822.79	4,824.61	4.96	4.89	0.83
12,216.57	88.03	265.55	7,323.24	-272.83	-4,836.01	4,837.84	9.87	9.64	2.11
12,229.86	88.76	265.43	7,323.61	-273.87	-4,849.25	4,851.09	5.57	5.49	-0.90
12,243.14	88.92	265.18	7,323.88	-274.96	-4,862.49	4,864.33	2.23	1.20	-1.88
12,256.43	89.04	264.93	7,324.11	-276.11	-4,875.72	4,877.58	2.09	0.90	-1.88
12,269.71	89.10	264.70	7,324.33	-277.31	-4,888.95	4,890.81	1.79	0.45	-1.73
12,283.00	89.14	264.50	7,324.53	-278.56	-4,902.18	4,904.05	1.53	0.30	-1.50
12,296.43	89.13	264.39	7,324.74	-279.86	-4,915.54	4,917.42	0.82	-0.07	-0.82
12,309.86	89.07	264.32	7,324.95	-281.18	-4,928.91	4,930.79	0.69	-0.45	-0.52
12,323.29	88.99	264.28	7,325.17	-282.51	-4,942.27	4,944.16	0.67	-0.60	-0.30
12,336.71	88.90	264.26	7,325.42	-283.85	-4,955.62	4,957.52	0.69	-0.67	-0.15
12,350.14	88.80	264.25	7,325.69	-285.19	-4,968.98	4,970.89	0.75	-0.74	-0.07
12,363.57	88.70	264.25	7,325.98	-286.54	-4,982.34	4,984.26	0.74	-0.74	0.00
12,377.00	88.63	264.25	7,326.30	-287.88	-4,995.70	4,997.63	0.52	-0.52	0.00
12,382.85	88.61	264.25	7,326.44	-288.47	-5,001.52	5,003.45	0.31	-0.30	-0.08
03-v5000(S-121H)									
12,390.29	88.59	264.24	7,326.62	-289.22	-5,008.92	5,010.86	0.31	-0.30	-0.08
12,403.57	88.61	264.22	7,326.94	-290.55	-5,022.12	5,024.07	0.21	0.15	-0.15
12,416.86	88.71	264.20	7,327.25	-291.89	-5,035.34	5,037.30	0.77	0.75	-0.15
12,430.14	88.90	264.17	7,327.53	-293.24	-5,048.55	5,050.52	1.45	1.43	-0.23
12,443.43	89.11	264.14	7,327.76	-294.59	-5,061.77	5,063.75	1.60	1.58	-0.23
12,456.71	89.44	264.58	7,327.93	-295.89	-5,074.99	5,076.97	4.14	2.48	3.31
12,470.00	89.97	265.67	7,328.00	-297.02	-5,088.23	5,090.22	9.12	3.99	8.20
12,483.29	90.70	266.57	7,327.92	-297.92	-5,101.49	5,103.49	8.72	5.49	6.77
12,496.57	91.05	266.51	7,327.72	-298.72	-5,114.74	5,116.75	2.67	2.64	-0.45
12,509.86	91.13	266.39	7,327.46	-299.55	-5,128.00	5,130.01	1.09	0.60	-0.90
12,523.14	91.14	266.26	7,327.20	-300.40	-5,141.25	5,143.27	0.98	0.08	-0.98
12,536.43	91.11	266.15	7,326.94	-301.28	-5,154.51	5,156.53	0.86	-0.23	-0.83
12,549.71	91.08	266.07	7,326.69	-302.18	-5,167.76	5,169.79	0.64	-0.23	-0.60
12,563.00	91.06	266.05	7,326.44	-303.09	-5,181.01	5,183.05	0.21	-0.15	-0.15
12,576.29	91.11	266.11	7,326.19	-304.00	-5,194.27	5,196.31	0.59	0.38	0.45



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
12,589.57	91.18	266.23	7,325.92	-304.89	-5,207.52	5,209.57	1.05	0.53	0.90
12,602.86	91.29	266.37	7,325.64	-305.74	-5,220.78	5,222.83	1.34	0.83	1.05
12,616.14	91.46	266.52	7,325.32	-306.57	-5,234.03	5,236.09	1.71	1.28	1.13
12,629.43	91.67	266.67	7,324.95	-307.36	-5,247.29	5,249.35	1.94	1.58	1.13
12,642.71	91.89	266.87	7,324.54	-308.10	-5,260.54	5,262.61	2.24	1.66	1.51
12,656.00	91.77	268.17	7,324.12	-308.68	-5,273.81	5,275.89	9.82	-0.90	9.78
12,669.29	92.15	269.46	7,323.66	-308.95	-5,287.09	5,289.17	10.11	2.86	9.71
12,682.57	92.48	270.59	7,323.13	-308.95	-5,300.36	5,302.44	8.86	2.48	8.51
12,695.86	92.69	270.56	7,322.53	-308.82	-5,313.64	5,315.71	1.60	1.58	-0.23
12,709.14	92.91	270.51	7,321.88	-308.69	-5,326.90	5,328.97	1.70	1.66	-0.38
12,722.43	93.13	270.45	7,321.18	-308.58	-5,340.17	5,342.24	1.72	1.66	-0.45
12,735.71	93.32	270.41	7,320.43	-308.48	-5,353.43	5,355.50	1.46	1.43	-0.30
12,749.00	93.47	270.38	7,319.64	-308.39	-5,366.70	5,368.77	1.15	1.13	-0.23
12,762.43	93.55	270.40	7,318.82	-308.30	-5,380.10	5,382.17	0.61	0.60	0.15
12,775.86	93.59	270.44	7,317.98	-308.20	-5,393.50	5,395.57	0.42	0.30	0.30
12,789.29	93.59	270.50	7,317.14	-308.09	-5,406.91	5,408.97	0.45	0.00	0.45
12,802.71	93.58	270.57	7,316.30	-307.96	-5,420.30	5,422.37	0.53	-0.07	0.52
12,816.14	93.57	270.63	7,315.47	-307.82	-5,433.70	5,435.77	0.45	-0.07	0.45
12,829.57	93.55	270.68	7,314.63	-307.67	-5,447.11	5,449.17	0.40	-0.15	0.37
12,843.00	93.55	270.72	7,313.80	-307.51	-5,460.51	5,462.57	0.30	0.00	0.30
12,856.29	93.60	270.72	7,312.97	-307.34	-5,473.77	5,475.83	0.38	0.38	0.00
12,869.57	93.66	270.70	7,312.13	-307.18	-5,487.03	5,489.08	0.48	0.45	-0.15
12,882.86	93.70	270.67	7,311.28	-307.02	-5,500.29	5,502.34	0.38	0.30	-0.23
12,896.14	93.75	270.65	7,310.42	-306.87	-5,513.54	5,515.59	0.41	0.38	-0.15
12,909.43	93.80	270.62	7,309.54	-306.72	-5,526.80	5,528.85	0.44	0.38	-0.23
12,922.71	93.85	270.61	7,308.66	-306.58	-5,540.05	5,542.10	0.38	0.38	-0.08
12,936.00	93.91	270.62	7,307.76	-306.43	-5,553.31	5,555.36	0.46	0.45	0.08
12,949.29	93.94	270.67	7,306.85	-306.28	-5,566.56	5,568.61	0.44	0.23	0.38
12,962.57	93.96	270.75	7,305.93	-306.12	-5,579.81	5,581.86	0.62	0.15	0.60
12,975.86	93.98	270.84	7,305.01	-305.94	-5,593.07	5,595.11	0.69	0.15	0.68
12,989.14	94.03	270.94	7,304.08	-305.73	-5,606.31	5,608.36	0.84	0.38	0.75
13,002.43	94.04	271.04	7,303.15	-305.50	-5,619.57	5,621.61	0.75	0.08	0.75
13,015.71	93.97	271.14	7,302.22	-305.25	-5,632.82	5,634.86	0.92	-0.53	0.75
13,029.00	93.83	271.24	7,301.32	-304.97	-5,646.07	5,648.11	1.29	-1.05	0.75
13,042.43	92.48	271.33	7,300.58	-304.67	-5,659.48	5,661.51	10.07	-10.05	0.67
13,055.86	91.27	271.72	7,300.14	-304.32	-5,672.90	5,674.93	9.47	-9.01	2.90
13,069.29	90.49	272.08	7,299.93	-303.87	-5,686.32	5,688.35	6.40	-5.81	2.68
13,082.71	90.55	272.22	7,299.81	-303.37	-5,699.73	5,701.75	1.13	0.45	1.04
13,096.14	90.64	272.36	7,299.67	-302.83	-5,713.14	5,715.17	1.24	0.67	1.04
13,109.57	90.77	272.50	7,299.51	-302.26	-5,726.56	5,728.58	1.42	0.97	1.04
13,123.00	90.89	272.62	7,299.31	-301.66	-5,739.98	5,741.99	1.26	0.89	0.89
13,136.29	90.97	272.72	7,299.10	-301.04	-5,753.25	5,755.26	0.96	0.60	0.75
13,149.57	91.02	272.79	7,298.87	-300.40	-5,766.51	5,768.52	0.65	0.38	0.53



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
13,162.86	91.06	272.86	7,298.62	-299.75	-5,779.78	5,781.78	0.61	0.30	0.53	
13,176.14	91.10	272.92	7,298.37	-299.08	-5,793.05	5,795.04	0.54	0.30	0.45	
13,189.43	91.16	272.97	7,298.11	-298.40	-5,806.32	5,808.30	0.59	0.45	0.38	
13,202.71	91.23	273.03	7,297.83	-297.70	-5,819.57	5,821.56	0.69	0.53	0.45	
13,216.00	91.27	273.10	7,297.54	-296.99	-5,832.84	5,834.82	0.61	0.30	0.53	
13,229.43	91.25	273.18	7,297.25	-296.26	-5,846.25	5,848.22	0.61	-0.15	0.60	
13,242.86	91.20	273.27	7,296.96	-295.50	-5,859.65	5,861.62	0.77	-0.37	0.67	
13,256.29	91.12	273.35	7,296.69	-294.73	-5,873.06	5,875.02	0.84	-0.60	0.60	
13,269.71	91.05	273.42	7,296.44	-293.93	-5,886.45	5,888.41	0.74	-0.52	0.52	
13,283.14	90.96	273.47	7,296.20	-293.13	-5,899.86	5,901.80	0.77	-0.67	0.37	
13,296.57	90.87	273.48	7,295.99	-292.31	-5,913.26	5,915.20	0.67	-0.67	0.07	
13,310.00	90.78	273.43	7,295.79	-291.50	-5,926.67	5,928.60	0.77	-0.67	-0.37	
13,323.29	90.65	273.29	7,295.63	-290.72	-5,939.93	5,941.86	1.44	-0.98	-1.05	
13,336.57	90.49	273.09	7,295.50	-289.99	-5,953.19	5,955.11	1.93	-1.20	-1.51	
13,349.86	90.31	272.87	7,295.40	-289.30	-5,966.46	5,968.38	2.14	-1.35	-1.66	
13,363.14	90.11	272.63	7,295.35	-288.66	-5,979.73	5,981.64	2.35	-1.51	-1.81	
13,376.43	89.89	272.39	7,295.35	-288.08	-5,993.00	5,994.91	2.45	-1.66	-1.81	
13,389.71	89.76	271.63	7,295.39	-287.61	-6,006.28	6,008.18	5.81	-0.98	-5.72	
13,403.00	89.66	270.52	7,295.46	-287.36	-6,019.56	6,021.46	8.39	-0.75	-8.35	
13,416.43	89.40	270.26	7,295.57	-287.27	-6,032.99	6,034.89	2.74	-1.94	-1.94	
13,429.86	89.23	270.10	7,295.73	-287.23	-6,046.42	6,048.32	1.74	-1.27	-1.19	
13,443.29	89.16	269.95	7,295.92	-287.22	-6,059.85	6,061.75	1.23	-0.52	-1.12	
13,456.71	89.14	269.80	7,296.12	-287.25	-6,073.27	6,075.17	1.13	-0.15	-1.12	
13,470.14	89.16	269.64	7,296.32	-287.32	-6,086.70	6,088.60	1.20	0.15	-1.19	
13,483.57	89.20	269.46	7,296.51	-287.42	-6,100.12	6,102.02	1.37	0.30	-1.34	
13,497.00	89.25	269.27	7,296.69	-287.57	-6,113.55	6,115.45	1.46	0.37	-1.41	
13,510.29	89.31	269.04	7,296.86	-287.77	-6,126.84	6,128.74	1.79	0.45	-1.73	
13,523.57	89.37	268.79	7,297.01	-288.02	-6,140.12	6,142.02	1.94	0.45	-1.88	
13,536.86	89.45	268.54	7,297.15	-288.33	-6,153.40	6,155.31	1.97	0.60	-1.88	
13,550.14	89.53	268.29	7,297.27	-288.69	-6,166.68	6,168.58	1.98	0.60	-1.88	
13,563.43	89.63	268.07	7,297.37	-289.12	-6,179.96	6,181.87	1.82	0.75	-1.66	
13,576.71	89.75	267.87	7,297.44	-289.59	-6,193.23	6,195.14	1.76	0.90	-1.51	
13,590.00	91.15	267.59	7,297.33	-290.11	-6,206.51	6,208.43	10.74	10.53	-2.11	
13,603.29	91.84	267.44	7,296.99	-290.69	-6,219.78	6,221.70	5.31	5.19	-1.13	
13,616.57	91.77	267.38	7,296.57	-291.29	-6,233.04	6,234.97	0.69	-0.53	-0.45	
13,629.86	91.68	267.35	7,296.17	-291.90	-6,246.31	6,248.24	0.71	-0.68	-0.23	
13,643.14	91.56	267.33	7,295.79	-292.52	-6,259.57	6,261.51	0.92	-0.90	-0.15	
13,656.43	91.45	267.31	7,295.44	-293.14	-6,272.84	6,274.78	0.84	-0.83	-0.15	
13,669.71	91.35	267.29	7,295.12	-293.76	-6,286.10	6,288.05	0.77	-0.75	-0.15	
13,683.00	91.28	267.27	7,294.81	-294.39	-6,299.38	6,301.32	0.55	-0.53	-0.15	
13,696.29	91.25	267.23	7,294.52	-295.03	-6,312.65	6,314.60	0.38	-0.23	-0.30	
13,709.57	91.24	267.18	7,294.23	-295.68	-6,325.91	6,327.86	0.38	-0.08	-0.38	
13,722.86	91.24	267.13	7,293.94	-296.34	-6,339.18	6,341.14	0.38	0.00	-0.38	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)	
13,736.14	91.21	267.07	7,293.66	-297.01	-6,352.44	6,354.40	0.51	-0.23	-0.45	
13,749.43	91.17	267.01	7,293.38	-297.70	-6,365.71	6,367.68	0.54	-0.30	-0.45	
13,762.71	91.14	266.95	7,293.12	-298.40	-6,378.97	6,380.94	0.51	-0.23	-0.45	
13,776.00	91.10	266.89	7,292.86	-299.11	-6,392.24	6,394.21	0.54	-0.30	-0.45	
13,789.43	91.11	266.84	7,292.60	-299.84	-6,405.64	6,407.63	0.38	0.07	-0.37	
13,802.86	91.16	266.78	7,292.33	-300.59	-6,419.05	6,421.04	0.58	0.37	-0.45	
13,816.29	91.24	266.72	7,292.05	-301.35	-6,432.46	6,434.45	0.74	0.60	-0.45	
13,829.71	91.33	266.66	7,291.75	-302.13	-6,445.85	6,447.85	0.81	0.67	-0.45	
13,843.14	91.42	266.60	7,291.43	-302.92	-6,459.25	6,461.25	0.81	0.67	-0.45	
13,856.57	91.55	266.76	7,291.08	-303.69	-6,472.66	6,474.66	1.53	0.97	1.19	
13,870.00	91.94	267.83	7,290.67	-304.33	-6,486.06	6,488.08	8.48	2.90	7.97	
13,883.29	92.34	268.57	7,290.17	-304.74	-6,499.34	6,501.35	6.33	3.01	5.57	
13,896.57	92.35	268.44	7,289.63	-305.09	-6,512.60	6,514.62	0.98	0.08	-0.98	
13,909.86	92.32	268.29	7,289.09	-305.47	-6,525.88	6,527.89	1.15	-0.23	-1.13	
13,923.14	92.28	268.15	7,288.56	-305.88	-6,539.14	6,541.16	1.10	-0.30	-1.05	
13,936.43	92.25	268.01	7,288.03	-306.33	-6,552.41	6,554.44	1.08	-0.23	-1.05	
13,949.71	92.21	267.90	7,287.51	-306.80	-6,565.67	6,567.70	0.88	-0.30	-0.83	
13,963.00	92.16	267.82	7,287.01	-307.30	-6,578.94	6,580.97	0.71	-0.38	-0.60	
13,976.29	92.12	267.81	7,286.51	-307.80	-6,592.21	6,594.25	0.31	-0.30	-0.08	
13,989.57	92.07	267.84	7,286.03	-308.31	-6,605.48	6,607.51	0.44	-0.38	0.23	
14,002.86	92.01	267.88	7,285.55	-308.80	-6,618.75	6,620.79	0.54	-0.45	0.30	
14,016.14	91.94	267.95	7,285.10	-309.28	-6,632.01	6,634.06	0.75	-0.53	0.53	
14,029.43	91.85	268.01	7,284.66	-309.75	-6,645.29	6,647.33	0.81	-0.68	0.45	
14,042.71	91.76	268.07	7,284.24	-310.21	-6,658.55	6,660.60	0.81	-0.68	0.45	
14,056.00	91.66	268.12	7,283.84	-310.65	-6,671.83	6,673.88	0.84	-0.75	0.38	
14,069.29	91.61	268.14	7,283.46	-311.08	-6,685.11	6,687.16	0.41	-0.38	0.15	
14,082.57	91.57	268.14	7,283.09	-311.51	-6,698.37	6,700.43	0.30	-0.30	0.00	
14,095.86	91.55	268.13	7,282.73	-311.94	-6,711.65	6,713.71	0.17	-0.15	-0.08	
14,109.14	91.52	268.12	7,282.38	-312.38	-6,724.92	6,726.98	0.24	-0.23	-0.08	
14,122.43	91.49	268.10	7,282.03	-312.82	-6,738.20	6,740.26	0.27	-0.23	-0.15	
14,135.71	91.45	268.08	7,281.69	-313.26	-6,751.47	6,753.54	0.34	-0.30	-0.15	
14,149.00	91.41	268.06	7,281.35	-313.71	-6,764.75	6,766.82	0.34	-0.30	-0.15	
14,162.43	91.36	268.05	7,281.03	-314.16	-6,778.16	6,780.24	0.38	-0.37	-0.07	
14,175.86	91.29	268.04	7,280.72	-314.62	-6,791.58	6,793.66	0.53	-0.52	-0.07	
14,189.29	91.21	268.03	7,280.43	-315.08	-6,805.00	6,807.08	0.60	-0.60	-0.07	
14,202.71	91.14	268.02	7,280.15	-315.54	-6,818.41	6,820.49	0.53	-0.52	-0.07	
14,216.14	91.06	268.00	7,279.89	-316.01	-6,831.83	6,833.92	0.61	-0.60	-0.15	
14,229.57	90.97	267.99	7,279.66	-316.48	-6,845.25	6,847.34	0.67	-0.67	-0.07	
14,243.00	90.90	267.97	7,279.44	-316.95	-6,858.67	6,860.76	0.54	-0.52	-0.15	
14,256.43	90.87	267.95	7,279.23	-317.43	-6,872.09	6,874.18	0.27	-0.22	-0.15	
14,269.86	90.86	267.92	7,279.03	-317.92	-6,885.51	6,887.61	0.24	-0.07	-0.22	
14,283.29	90.89	267.89	7,278.82	-318.41	-6,898.93	6,901.03	0.32	0.22	-0.22	
14,296.71	90.96	267.86	7,278.60	-318.90	-6,912.34	6,914.44	0.57	0.52	-0.22	
14,310.14	91.09	267.82	7,278.36	-319.41	-6,925.76	6,927.86	1.01	0.97	-0.30	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
14,323.57	91.32	267.85	7,278.08	-319.92	-6,939.17	6,941.28	1.73	1.71	0.22
14,337.00	92.11	269.03	7,277.68	-320.28	-6,952.59	6,954.71	10.57	5.88	8.79
14,350.14	92.23	269.31	7,277.18	-320.47	-6,965.72	6,967.84	2.32	0.91	2.13
14,363.29	92.68	270.51	7,276.62	-320.49	-6,978.86	6,980.97	9.74	3.42	9.13
14,376.43	92.76	270.43	7,276.00	-320.39	-6,991.98	6,994.10	0.86	0.61	-0.61
14,389.57	92.79	270.35	7,275.36	-320.30	-7,005.11	7,007.22	0.65	0.23	-0.61
14,402.71	92.77	270.27	7,274.72	-320.23	-7,018.23	7,020.34	0.63	-0.15	-0.61
14,415.86	92.72	270.19	7,274.09	-320.17	-7,031.37	7,033.48	0.72	-0.38	-0.61
14,429.00	92.64	270.12	7,273.48	-320.14	-7,044.49	7,046.60	0.81	-0.61	-0.53
14,442.43	92.53	270.06	7,272.87	-320.12	-7,057.91	7,060.02	0.93	-0.82	-0.45
14,455.86	92.40	270.01	7,272.29	-320.11	-7,071.33	7,073.44	1.04	-0.97	-0.37
14,469.29	92.29	269.97	7,271.74	-320.11	-7,084.74	7,086.85	0.87	-0.82	-0.30
14,482.71	92.20	269.93	7,271.22	-320.12	-7,098.15	7,100.26	0.73	-0.67	-0.30
14,496.14	92.13	269.89	7,270.71	-320.14	-7,111.58	7,113.68	0.60	-0.52	-0.30
14,509.57	92.08	269.85	7,270.22	-320.17	-7,125.00	7,127.10	0.48	-0.37	-0.30
14,523.00	92.05	269.81	7,269.73	-320.21	-7,138.42	7,140.53	0.37	-0.22	-0.30
14,536.43	92.03	269.77	7,269.26	-320.26	-7,151.84	7,153.95	0.33	-0.15	-0.30
14,549.86	92.02	269.73	7,268.78	-320.32	-7,165.26	7,167.37	0.31	-0.07	-0.30
14,563.29	92.00	269.71	7,268.31	-320.39	-7,178.68	7,180.79	0.21	-0.15	-0.15
14,576.71	91.98	269.69	7,267.84	-320.46	-7,192.09	7,194.20	0.21	-0.15	-0.15
14,590.14	91.96	269.70	7,267.38	-320.53	-7,205.52	7,207.62	0.17	-0.15	0.07
14,603.57	91.96	269.75	7,266.92	-320.59	-7,218.94	7,221.05	0.37	0.00	0.37
14,617.00	91.94	269.86	7,266.47	-320.64	-7,232.36	7,234.47	0.83	-0.15	0.82
14,630.29	91.89	270.06	7,266.02	-320.65	-7,245.64	7,247.75	1.55	-0.38	1.50
14,643.57	91.82	270.30	7,265.59	-320.61	-7,258.91	7,261.02	1.88	-0.53	1.81
14,656.86	91.73	270.57	7,265.18	-320.50	-7,272.20	7,274.31	2.14	-0.68	2.03
14,670.14	91.62	270.83	7,264.79	-320.34	-7,285.47	7,287.58	2.13	-0.83	1.96
14,683.43	91.48	271.07	7,264.43	-320.12	-7,298.75	7,300.86	2.09	-1.05	1.81
14,696.71	90.94	271.26	7,264.15	-319.85	-7,312.03	7,314.13	4.31	-4.07	1.43
14,710.00	89.56	271.58	7,264.10	-319.52	-7,325.31	7,327.41	10.66	-10.38	2.41
14,723.29	88.97	272.00	7,264.27	-319.11	-7,338.60	7,340.69	5.45	-4.44	3.16
14,736.57	88.88	272.00	7,264.51	-318.64	-7,351.87	7,353.96	0.68	-0.68	0.00
14,749.86	88.82	271.97	7,264.78	-318.18	-7,365.15	7,367.23	0.50	-0.45	-0.23
14,763.14	88.77	271.92	7,265.06	-317.73	-7,378.42	7,380.50	0.53	-0.38	-0.38
14,776.43	88.72	271.86	7,265.35	-317.30	-7,391.69	7,393.78	0.59	-0.38	-0.45
14,789.71	88.68	271.80	7,265.65	-316.87	-7,404.96	7,407.04	0.54	-0.30	-0.45
14,803.00	88.63	271.74	7,265.97	-316.46	-7,418.24	7,420.32	0.59	-0.38	-0.45
14,816.29	88.57	271.70	7,266.29	-316.06	-7,431.52	7,433.60	0.54	-0.45	-0.30
14,829.57	88.51	271.66	7,266.63	-315.67	-7,444.79	7,446.86	0.54	-0.45	-0.30
14,842.86	88.46	271.62	7,266.98	-315.29	-7,458.07	7,460.14	0.48	-0.38	-0.30
14,856.14	88.40	271.58	7,267.34	-314.92	-7,471.34	7,473.41	0.54	-0.45	-0.30
14,869.43	88.35	271.51	7,267.72	-314.56	-7,484.62	7,486.68	0.65	-0.38	-0.53
14,882.12	88.29	271.43	7,268.09	-314.24	-7,497.30	7,499.36	0.75	-0.45	-0.60



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
04-v7500(S-121H)									
14,882.71	88.29	271.43	7,268.11	-314.22	-7,497.89	7,499.95	0.75	-0.45	-0.60
14,896.00	88.28	271.30	7,268.51	-313.91	-7,511.17	7,513.23	0.98	-0.08	-0.98
14,909.29	88.35	271.11	7,268.90	-313.63	-7,524.46	7,526.51	1.52	0.53	-1.43
14,922.57	88.43	270.89	7,269.27	-313.40	-7,537.73	7,539.78	1.76	0.60	-1.66
14,935.86	88.57	270.66	7,269.62	-313.22	-7,551.01	7,553.06	2.03	1.05	-1.73
14,949.14	88.73	270.43	7,269.93	-313.09	-7,564.29	7,566.34	2.11	1.20	-1.73
14,962.43	88.89	270.22	7,270.21	-313.01	-7,577.58	7,579.62	1.99	1.20	-1.58
14,975.71	89.21	270.04	7,270.43	-312.98	-7,590.85	7,592.90	2.76	2.41	-1.36
14,989.00	90.68	269.85	7,270.44	-313.00	-7,604.14	7,606.19	11.15	11.06	-1.43
15,002.29	91.86	269.72	7,270.15	-313.05	-7,617.43	7,619.47	8.93	8.88	-0.98
15,015.57	91.86	269.74	7,269.72	-313.11	-7,630.70	7,632.75	0.15	0.00	0.15
15,028.86	91.86	269.80	7,269.28	-313.16	-7,643.99	7,646.03	0.45	0.00	0.45
15,042.14	91.86	269.87	7,268.85	-313.20	-7,657.26	7,659.30	0.53	0.00	0.53
15,055.43	91.86	269.95	7,268.42	-313.22	-7,670.54	7,672.59	0.60	0.00	0.60
15,068.71	91.87	270.03	7,267.99	-313.22	-7,683.81	7,685.86	0.61	0.08	0.60
15,082.00	91.87	270.11	7,267.56	-313.21	-7,697.10	7,699.14	0.60	0.00	0.60
15,095.29	91.84	270.16	7,267.13	-313.18	-7,710.38	7,712.42	0.44	-0.23	0.38
15,108.57	91.81	270.20	7,266.70	-313.14	-7,723.65	7,725.70	0.38	-0.23	0.30
15,121.86	91.76	270.23	7,266.29	-313.09	-7,736.94	7,738.98	0.44	-0.38	0.23
15,135.14	91.71	270.25	7,265.89	-313.03	-7,750.21	7,752.25	0.41	-0.38	0.15
15,148.43	91.65	270.27	7,265.50	-312.97	-7,763.49	7,765.54	0.48	-0.45	0.15
15,161.71	91.56	270.29	7,265.12	-312.90	-7,776.77	7,778.81	0.69	-0.68	0.15
15,175.00	91.47	270.30	7,264.77	-312.84	-7,790.05	7,792.09	0.68	-0.68	0.08
15,188.43	91.41	270.31	7,264.44	-312.76	-7,803.48	7,805.52	0.45	-0.45	0.07
15,201.86	91.36	270.31	7,264.11	-312.69	-7,816.91	7,818.94	0.37	-0.37	0.00
15,215.29	91.32	270.31	7,263.80	-312.62	-7,830.33	7,832.37	0.30	-0.30	0.00
15,228.71	91.29	270.30	7,263.49	-312.55	-7,843.75	7,845.78	0.24	-0.22	-0.07
15,242.14	91.26	270.28	7,263.19	-312.48	-7,857.17	7,859.21	0.27	-0.22	-0.15
15,255.57	91.25	270.24	7,262.90	-312.42	-7,870.60	7,872.64	0.31	-0.07	-0.30
15,269.00	91.24	270.18	7,262.61	-312.37	-7,884.03	7,886.06	0.45	-0.07	-0.45
15,282.29	91.27	270.09	7,262.32	-312.34	-7,897.31	7,899.35	0.71	0.23	-0.68
15,295.57	91.33	269.98	7,262.01	-312.33	-7,910.59	7,912.62	0.94	0.45	-0.83
15,308.86	91.40	269.86	7,261.70	-312.35	-7,923.88	7,925.91	1.05	0.53	-0.90
15,322.14	91.47	269.74	7,261.37	-312.40	-7,937.15	7,939.19	1.05	0.53	-0.90
15,335.43	91.56	269.63	7,261.01	-312.47	-7,950.44	7,952.47	1.07	0.68	-0.83
15,348.71	92.70	269.62	7,260.52	-312.56	-7,963.71	7,965.74	8.58	8.58	-0.08
15,362.00	93.40	269.64	7,259.81	-312.64	-7,976.98	7,979.01	5.27	5.27	0.15
15,375.29	93.49	269.60	7,259.01	-312.73	-7,990.25	7,992.28	0.74	0.68	-0.30
15,388.57	93.53	269.57	7,258.20	-312.83	-8,003.50	8,005.53	0.38	0.30	-0.23
15,401.86	93.54	269.55	7,257.38	-312.93	-8,016.76	8,018.80	0.17	0.08	-0.15
15,415.14	93.54	269.54	7,256.56	-313.03	-8,030.02	8,032.05	0.08	0.00	-0.08
15,428.43	93.51	269.53	7,255.75	-313.14	-8,043.28	8,045.32	0.24	-0.23	-0.08
15,441.71	93.48	269.52	7,254.94	-313.25	-8,056.54	8,058.57	0.24	-0.23	-0.08



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
15,455.00	93.44	269.50	7,254.13	-313.36	-8,069.80	8,071.84	0.34	-0.30	-0.15
15,468.43	93.40	269.48	7,253.33	-313.48	-8,083.21	8,085.25	0.33	-0.30	-0.15
15,481.86	93.35	269.45	7,252.54	-313.61	-8,096.61	8,098.65	0.43	-0.37	-0.22
15,495.29	93.30	269.42	7,251.76	-313.74	-8,110.02	8,112.06	0.43	-0.37	-0.22
15,508.71	93.25	269.38	7,251.00	-313.88	-8,123.42	8,125.46	0.48	-0.37	-0.30
15,522.14	93.21	269.35	7,250.24	-314.03	-8,136.83	8,138.87	0.37	-0.30	-0.22
15,535.57	93.16	269.31	7,249.49	-314.19	-8,150.24	8,152.27	0.48	-0.37	-0.30
15,549.00	93.11	269.26	7,248.76	-314.35	-8,163.64	8,165.68	0.53	-0.37	-0.37
15,562.43	93.05	269.22	7,248.04	-314.53	-8,177.05	8,179.09	0.54	-0.45	-0.30
15,575.86	92.98	269.17	7,247.33	-314.72	-8,190.46	8,192.51	0.64	-0.52	-0.37
15,589.29	92.90	269.13	7,246.64	-314.92	-8,203.87	8,205.92	0.67	-0.60	-0.30
15,602.71	92.80	269.08	7,245.97	-315.13	-8,217.28	8,219.32	0.83	-0.75	-0.37
15,616.14	92.70	269.04	7,245.33	-315.35	-8,230.69	8,232.73	0.80	-0.74	-0.30
15,629.57	92.59	268.99	7,244.71	-315.58	-8,244.10	8,246.15	0.90	-0.82	-0.37
15,643.00	92.49	268.95	7,244.12	-315.82	-8,257.52	8,259.57	0.80	-0.74	-0.30
15,656.43	92.39	268.92	7,243.54	-316.07	-8,270.93	8,272.98	0.78	-0.74	-0.22
15,669.86	92.30	268.89	7,242.99	-316.33	-8,284.35	8,286.40	0.71	-0.67	-0.22
15,683.29	92.21	268.86	7,242.47	-316.59	-8,297.77	8,299.82	0.71	-0.67	-0.22
15,696.71	92.12	268.83	7,241.96	-316.86	-8,311.17	8,313.23	0.71	-0.67	-0.22
15,710.14	92.05	268.80	7,241.47	-317.14	-8,324.59	8,326.65	0.57	-0.52	-0.22
15,723.57	91.99	268.76	7,241.00	-317.42	-8,338.01	8,340.07	0.54	-0.45	-0.30
15,737.00	91.95	268.70	7,240.54	-317.72	-8,351.43	8,353.49	0.54	-0.30	-0.45
15,750.29	91.91	268.62	7,240.09	-318.03	-8,364.71	8,366.77	0.67	-0.30	-0.60
15,763.57	91.89	268.53	7,239.65	-318.36	-8,377.98	8,380.04	0.69	-0.15	-0.68
15,776.86	91.88	268.44	7,239.21	-318.71	-8,391.25	8,393.32	0.68	-0.08	-0.68
15,790.14	91.88	268.35	7,238.77	-319.08	-8,404.52	8,406.59	0.68	0.00	-0.68
15,803.43	91.89	268.29	7,238.34	-319.47	-8,417.80	8,419.87	0.46	0.08	-0.45
15,816.71	91.91	268.26	7,237.90	-319.87	-8,431.07	8,433.14	0.27	0.15	-0.23
15,830.00	91.91	268.27	7,237.45	-320.27	-8,444.34	8,446.42	0.08	0.00	0.08
15,843.43	91.89	268.37	7,237.01	-320.67	-8,457.76	8,459.84	0.76	-0.15	0.74
15,856.86	91.87	268.52	7,236.57	-321.03	-8,471.18	8,473.26	1.13	-0.15	1.12
15,870.29	91.83	268.69	7,236.13	-321.36	-8,484.60	8,486.68	1.30	-0.30	1.27
15,883.71	91.79	268.86	7,235.71	-321.65	-8,498.01	8,500.09	1.30	-0.30	1.27
15,897.14	91.74	269.02	7,235.30	-321.89	-8,511.43	8,513.51	1.25	-0.37	1.19
15,910.57	91.67	269.15	7,234.90	-322.11	-8,524.85	8,526.94	1.10	-0.52	0.97
15,924.00	91.60	269.64	7,234.51	-322.25	-8,538.27	8,540.36	3.68	-0.52	3.65
15,937.43	91.55	270.66	7,234.15	-322.22	-8,551.70	8,553.79	7.60	-0.37	7.59
15,950.86	91.50	270.67	7,233.79	-322.06	-8,565.12	8,567.21	0.38	-0.37	0.07
15,964.29	91.47	270.53	7,233.44	-321.92	-8,578.55	8,580.63	1.07	-0.22	-1.04
15,977.71	91.41	270.38	7,233.10	-321.81	-8,591.96	8,594.05	1.20	-0.45	-1.12
15,991.14	91.37	270.21	7,232.78	-321.74	-8,605.39	8,607.47	1.30	-0.30	-1.27
16,004.57	91.35	270.06	7,232.46	-321.71	-8,618.82	8,620.90	1.13	-0.15	-1.12
16,018.00	91.34	269.94	7,232.14	-321.71	-8,632.24	8,634.32	0.90	-0.07	-0.89



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
16,031.29	91.36	269.87	7,231.83	-321.73	-8,645.53	8,647.61	0.55	0.15	-0.53
16,044.57	91.38	269.84	7,231.51	-321.77	-8,658.80	8,660.88	0.27	0.15	-0.23
16,057.86	91.40	269.83	7,231.19	-321.81	-8,672.09	8,674.17	0.17	0.15	-0.08
16,071.14	91.43	269.84	7,230.86	-321.84	-8,685.37	8,687.45	0.24	0.23	0.08
16,084.43	91.46	269.86	7,230.53	-321.88	-8,698.65	8,700.73	0.27	0.23	0.15
16,097.71	91.47	269.88	7,230.19	-321.91	-8,711.93	8,714.01	0.17	0.08	0.15
16,111.00	91.47	269.91	7,229.85	-321.93	-8,725.21	8,727.29	0.23	0.00	0.23
16,124.43	91.43	269.93	7,229.51	-321.95	-8,738.64	8,740.72	0.33	-0.30	0.15
16,137.86	91.36	269.96	7,229.18	-321.96	-8,752.06	8,754.14	0.57	-0.52	0.22
16,151.29	91.29	269.98	7,228.87	-321.97	-8,765.49	8,767.57	0.54	-0.52	0.15
16,164.71	91.22	270.00	7,228.57	-321.97	-8,778.91	8,780.99	0.54	-0.52	0.15
16,178.14	91.17	270.02	7,228.29	-321.97	-8,792.33	8,794.41	0.40	-0.37	0.15
16,191.57	91.13	270.03	7,228.03	-321.97	-8,805.76	8,807.84	0.31	-0.30	0.07
16,205.00	91.10	270.03	7,227.76	-321.96	-8,819.19	8,821.27	0.22	-0.22	0.00
16,218.29	91.09	270.03	7,227.51	-321.95	-8,832.48	8,834.55	0.08	-0.08	0.00
16,231.57	91.09	270.02	7,227.26	-321.95	-8,845.75	8,847.83	0.08	0.00	-0.08
16,244.86	91.09	270.00	7,227.00	-321.94	-8,859.04	8,861.12	0.15	0.00	-0.15
16,258.14	91.07	269.99	7,226.75	-321.94	-8,872.32	8,874.40	0.17	-0.15	-0.08
16,271.43	91.05	269.97	7,226.51	-321.95	-8,885.61	8,887.68	0.21	-0.15	-0.15
16,284.71	91.02	269.96	7,226.27	-321.96	-8,898.89	8,900.96	0.24	-0.23	-0.08
16,298.00	90.99	269.96	7,226.04	-321.97	-8,912.17	8,914.25	0.23	-0.23	0.00
16,311.43	90.96	269.97	7,225.81	-321.98	-8,925.60	8,927.68	0.24	-0.22	0.07
16,324.86	90.93	269.99	7,225.59	-321.98	-8,939.03	8,941.11	0.27	-0.22	0.15
16,338.29	90.91	270.01	7,225.37	-321.98	-8,952.46	8,954.53	0.21	-0.15	0.15
16,351.71	90.90	270.03	7,225.16	-321.98	-8,965.88	8,967.95	0.17	-0.07	0.15
16,365.14	90.91	270.04	7,224.95	-321.97	-8,979.30	8,981.38	0.11	0.07	0.07
16,378.57	90.92	270.04	7,224.73	-321.96	-8,992.73	8,994.81	0.07	0.07	0.00
16,392.00	90.93	270.02	7,224.51	-321.95	-9,006.16	9,008.23	0.17	0.07	-0.15
16,405.29	90.89	269.97	7,224.30	-321.95	-9,019.45	9,021.52	0.48	-0.30	-0.38
16,418.57	90.81	269.91	7,224.11	-321.97	-9,032.73	9,034.80	0.75	-0.60	-0.45
16,431.86	90.66	269.83	7,223.94	-322.00	-9,046.02	9,048.09	1.28	-1.13	-0.60
16,445.14	90.50	269.75	7,223.80	-322.04	-9,059.30	9,061.37	1.35	-1.20	-0.60
16,458.43	90.34	269.67	7,223.70	-322.11	-9,072.59	9,074.66	1.35	-1.20	-0.60
16,471.71	90.65	269.75	7,223.59	-322.18	-9,085.87	9,087.94	2.41	2.33	0.60
16,485.00	90.98	269.85	7,223.40	-322.23	-9,099.15	9,101.23	2.59	2.48	0.75
16,498.14	90.92	269.79	7,223.18	-322.27	-9,112.29	9,114.36	0.65	-0.46	-0.46
16,511.29	90.90	269.74	7,222.97	-322.32	-9,125.44	9,127.51	0.41	-0.15	-0.38
16,524.43	90.90	269.69	7,222.77	-322.39	-9,138.58	9,140.65	0.38	0.00	-0.38
16,537.57	90.91	269.65	7,222.56	-322.46	-9,151.72	9,153.79	0.31	0.08	-0.30
16,550.71	90.90	269.61	7,222.35	-322.55	-9,164.85	9,166.93	0.31	-0.08	-0.30
16,563.86	90.89	269.58	7,222.15	-322.64	-9,178.00	9,180.08	0.24	-0.08	-0.23
16,577.00	90.88	269.56	7,221.94	-322.74	-9,191.14	9,193.21	0.17	-0.08	-0.15
16,590.14	90.85	269.56	7,221.75	-322.84	-9,204.28	9,206.35	0.23	-0.23	0.00



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
16,603.29	90.80	269.56	7,221.56	-322.94	-9,217.43	9,219.50	0.38	-0.38	0.00
16,616.43	90.73	269.58	7,221.38	-323.04	-9,230.57	9,232.64	0.55	-0.53	0.15
16,629.57	90.66	269.60	7,221.22	-323.13	-9,243.70	9,245.78	0.55	-0.53	0.15
16,642.71	90.59	269.63	7,221.08	-323.22	-9,256.84	9,258.92	0.58	-0.53	0.23
16,655.86	90.53	269.68	7,220.95	-323.30	-9,269.99	9,272.07	0.59	-0.46	0.38
16,669.00	90.51	269.74	7,220.83	-323.37	-9,283.13	9,285.21	0.48	-0.15	0.46
16,682.43	90.59	269.83	7,220.70	-323.42	-9,296.56	9,298.64	0.90	0.60	0.67
16,695.86	90.73	269.93	7,220.55	-323.44	-9,309.99	9,312.07	1.28	1.04	0.74
16,709.29	90.98	270.03	7,220.35	-323.45	-9,323.42	9,325.49	2.00	1.86	0.74
16,722.71	91.25	270.13	7,220.08	-323.43	-9,336.84	9,338.91	2.15	2.01	0.75
16,736.14	91.51	270.21	7,219.76	-323.39	-9,350.26	9,352.34	2.03	1.94	0.60
16,749.57	91.75	270.33	7,219.38	-323.33	-9,363.69	9,365.76	2.00	1.79	0.89
16,763.00	92.12	271.51	7,218.93	-323.11	-9,377.11	9,379.18	9.20	2.76	8.79
16,776.29	92.37	272.32	7,218.41	-322.67	-9,390.38	9,392.45	6.37	1.88	6.09
16,789.57	92.42	272.23	7,217.85	-322.14	-9,403.64	9,405.70	0.77	0.38	-0.68
16,802.86	92.45	272.12	7,217.29	-321.64	-9,416.91	9,418.97	0.86	0.23	-0.83
16,816.14	92.46	272.00	7,216.72	-321.16	-9,430.16	9,432.22	0.91	0.08	-0.90
16,829.43	92.46	271.89	7,216.15	-320.71	-9,443.43	9,445.49	0.83	0.00	-0.83
16,842.71	92.45	271.80	7,215.58	-320.28	-9,456.70	9,458.75	0.68	-0.08	-0.68
16,856.00	92.43	271.75	7,215.01	-319.87	-9,469.97	9,472.01	0.40	-0.15	-0.38
16,869.43	92.40	271.79	7,214.45	-319.46	-9,483.38	9,485.42	0.37	-0.22	0.30
16,882.86	92.39	271.87	7,213.88	-319.03	-9,496.79	9,498.83	0.60	-0.07	0.60
16,896.29	92.37	271.98	7,213.33	-318.58	-9,510.20	9,512.24	0.83	-0.15	0.82
16,909.71	92.35	272.10	7,212.77	-318.10	-9,523.60	9,525.63	0.91	-0.15	0.89
16,923.14	92.32	272.21	7,212.23	-317.60	-9,537.01	9,539.04	0.85	-0.22	0.82
16,936.57	92.30	272.31	7,211.69	-317.07	-9,550.42	9,552.44	0.76	-0.15	0.74
16,950.00	92.28	272.38	7,211.15	-316.52	-9,563.83	9,565.85	0.54	-0.15	0.52
16,963.14	92.28	272.39	7,210.63	-315.97	-9,576.95	9,578.96	0.08	0.00	0.08
16,976.29	92.28	272.36	7,210.10	-315.43	-9,590.07	9,592.09	0.23	0.00	-0.23
16,989.43	92.27	272.32	7,209.58	-314.89	-9,603.19	9,605.20	0.31	-0.08	-0.30
17,002.57	92.26	272.26	7,209.06	-314.37	-9,616.31	9,618.31	0.46	-0.08	-0.46
17,015.71	92.23	272.21	7,208.55	-313.85	-9,629.43	9,631.43	0.44	-0.23	-0.38
17,028.86	92.20	272.16	7,208.04	-313.35	-9,642.56	9,644.56	0.44	-0.23	-0.38
17,042.00	92.19	272.14	7,207.54	-312.86	-9,655.68	9,657.67	0.17	-0.08	-0.15
17,055.29	92.22	272.15	7,207.02	-312.36	-9,668.95	9,670.94	0.24	0.23	0.08
17,068.57	92.27	272.19	7,206.50	-311.86	-9,682.21	9,684.20	0.48	0.38	0.30
17,081.86	92.33	272.24	7,205.97	-311.35	-9,695.48	9,697.46	0.59	0.45	0.38
17,095.14	92.39	272.29	7,205.42	-310.82	-9,708.74	9,710.72	0.59	0.45	0.38
17,108.43	92.45	272.35	7,204.86	-310.29	-9,722.01	9,723.98	0.64	0.45	0.45
17,121.71	92.51	272.40	7,204.29	-309.74	-9,735.27	9,737.23	0.59	0.45	0.38
17,135.00	92.55	272.44	7,203.70	-309.18	-9,748.53	9,750.49	0.43	0.30	0.30
17,148.14	92.57	272.46	7,203.12	-308.61	-9,761.65	9,763.60	0.22	0.15	0.15
17,161.29	92.58	272.47	7,202.52	-308.05	-9,774.77	9,776.72	0.11	0.08	0.08
17,174.43	92.57	272.47	7,201.93	-307.48	-9,787.88	9,789.83	0.08	-0.08	0.00



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
17,187.57	92.55	272.46	7,201.35	-306.92	-9,801.00	9,802.94	0.17	-0.15	-0.08
17,200.71	92.52	272.45	7,200.77	-306.36	-9,814.11	9,816.06	0.24	-0.23	-0.08
17,213.86	92.50	272.43	7,200.19	-305.80	-9,827.24	9,829.18	0.21	-0.15	-0.15
17,227.00	92.47	272.41	7,199.62	-305.24	-9,840.36	9,842.29	0.27	-0.23	-0.15
17,240.14	92.44	272.39	7,199.06	-304.69	-9,853.47	9,855.40	0.27	-0.23	-0.15
17,253.29	92.41	272.36	7,198.50	-304.15	-9,866.60	9,868.52	0.32	-0.23	-0.23
17,266.43	92.38	272.34	7,197.95	-303.61	-9,879.72	9,881.64	0.27	-0.23	-0.15
17,279.57	92.35	272.32	7,197.41	-303.08	-9,892.83	9,894.75	0.27	-0.23	-0.15
17,292.71	92.33	272.31	7,196.87	-302.55	-9,905.95	9,907.86	0.17	-0.15	-0.08
17,305.86	92.32	272.31	7,196.34	-302.02	-9,919.08	9,920.99	0.08	-0.08	0.00
17,319.00	92.32	272.33	7,195.81	-301.49	-9,932.20	9,934.10	0.15	0.00	0.15
17,332.43	92.34	272.40	7,195.26	-300.93	-9,945.61	9,947.51	0.54	0.15	0.52
17,345.86	92.35	272.47	7,194.71	-300.36	-9,959.01	9,960.91	0.53	0.07	0.52
17,359.29	92.35	272.56	7,194.16	-299.77	-9,972.42	9,974.31	0.67	0.00	0.67
17,372.71	92.35	272.63	7,193.61	-299.17	-9,985.81	9,987.70	0.52	0.00	0.52
17,381.33	92.34	272.66	7,193.26	-298.77	-9,994.42	9,996.30	0.40	-0.15	0.37
05-v10000(S-121H)									
17,386.14	92.33	272.68	7,193.06	-298.54	-9,999.22	10,001.10	0.40	-0.15	0.37
17,399.57	92.31	272.69	7,192.52	-297.92	-10,012.62	10,014.50	0.17	-0.15	0.07
17,413.00	92.27	272.63	7,191.98	-297.29	-10,026.03	10,027.90	0.54	-0.30	-0.45
17,426.29	92.20	272.46	7,191.46	-296.70	-10,039.30	10,041.16	1.38	-0.53	-1.28
17,439.57	92.10	272.23	7,190.97	-296.16	-10,052.55	10,054.42	1.89	-0.75	-1.73
17,452.86	91.96	271.97	7,190.50	-295.67	-10,065.83	10,067.69	2.22	-1.05	-1.96
17,466.14	91.75	271.71	7,190.07	-295.25	-10,079.09	10,080.95	2.52	-1.58	-1.96
17,479.43	91.52	271.46	7,189.69	-294.88	-10,092.37	10,094.22	2.56	-1.73	-1.88
17,492.71	91.30	271.25	7,189.36	-294.57	-10,105.65	10,107.49	2.29	-1.66	-1.58
17,506.00	91.16	270.39	7,189.07	-294.38	-10,118.93	10,120.78	6.55	-1.05	-6.47
17,519.43	91.12	269.24	7,188.81	-294.42	-10,132.36	10,134.21	8.57	-0.30	-8.56
17,532.86	91.06	269.00	7,188.55	-294.63	-10,145.78	10,147.63	1.84	-0.45	-1.79
17,546.29	91.01	269.08	7,188.31	-294.85	-10,159.21	10,161.06	0.70	-0.37	0.60
17,559.71	90.97	269.18	7,188.08	-295.05	-10,172.63	10,174.48	0.80	-0.30	0.75
17,573.14	90.94	269.29	7,187.85	-295.23	-10,186.05	10,187.90	0.85	-0.22	0.82
17,586.57	90.91	269.40	7,187.64	-295.39	-10,199.48	10,201.33	0.85	-0.22	0.82
17,600.00	90.88	269.49	7,187.43	-295.52	-10,212.91	10,214.76	0.71	-0.22	0.67
17,613.29	90.87	269.53	7,187.22	-295.63	-10,226.20	10,228.05	0.31	-0.08	0.30
17,626.57	90.87	269.54	7,187.02	-295.74	-10,239.47	10,241.33	0.08	0.00	0.08
17,639.86	90.88	269.53	7,186.82	-295.85	-10,252.76	10,254.62	0.11	0.08	-0.08
17,653.14	90.89	269.51	7,186.61	-295.96	-10,266.04	10,267.90	0.17	0.08	-0.15
17,666.43	90.91	269.49	7,186.41	-296.07	-10,279.33	10,281.18	0.21	0.15	-0.15
17,679.71	90.94	269.46	7,186.19	-296.20	-10,292.61	10,294.46	0.32	0.23	-0.23
17,693.00	90.96	269.45	7,185.97	-296.32	-10,305.89	10,307.75	0.17	0.15	-0.08
17,706.29	90.95	269.44	7,185.75	-296.45	-10,319.18	10,321.04	0.11	-0.08	-0.08
17,719.57	90.93	269.44	7,185.53	-296.58	-10,332.46	10,334.32	0.15	-0.15	0.00



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	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)
17,732.86	90.90	269.45	7,185.32	-296.71	-10,345.75	10,347.60	0.24	-0.23	0.08
17,746.14	90.90	269.46	7,185.11	-296.84	-10,359.02	10,360.88	0.08	0.00	0.08
17,759.43	90.90	269.46	7,184.90	-296.96	-10,372.31	10,374.17	0.00	0.00	0.00
17,772.71	90.91	269.47	7,184.69	-297.08	-10,385.59	10,387.45	0.11	0.08	0.08
17,786.00	90.94	269.46	7,184.48	-297.21	-10,398.88	10,400.74	0.24	0.23	-0.08
17,799.43	90.98	269.45	7,184.25	-297.34	-10,412.30	10,414.17	0.31	0.30	-0.07
17,812.86	91.02	269.43	7,184.02	-297.47	-10,425.73	10,427.59	0.33	0.30	-0.15
17,826.29	91.06	269.41	7,183.77	-297.60	-10,439.16	10,441.02	0.33	0.30	-0.15
17,839.71	91.08	269.39	7,183.52	-297.74	-10,452.58	10,454.44	0.21	0.15	-0.15
17,853.14	91.08	269.37	7,183.27	-297.89	-10,466.00	10,467.87	0.15	0.00	-0.15
17,866.57	91.09	269.35	7,183.02	-298.04	-10,479.43	10,481.29	0.17	0.07	-0.15
17,880.00	91.08	269.34	7,182.76	-298.19	-10,492.86	10,494.72	0.11	-0.07	-0.07
17,893.29	91.08	269.35	7,182.51	-298.34	-10,506.14	10,508.01	0.08	0.00	0.08
17,906.57	91.06	269.36	7,182.26	-298.49	-10,519.42	10,521.29	0.17	-0.15	0.08
17,919.86	91.05	269.38	7,182.02	-298.64	-10,532.71	10,534.57	0.17	-0.08	0.15
17,933.14	91.03	269.40	7,181.78	-298.78	-10,545.98	10,547.85	0.21	-0.15	0.15
17,946.43	91.01	269.41	7,181.54	-298.92	-10,559.27	10,561.14	0.17	-0.15	0.08
17,959.71	90.99	269.43	7,181.31	-299.05	-10,572.55	10,574.42	0.21	-0.15	0.15
17,973.00	90.97	269.44	7,181.08	-299.18	-10,585.84	10,587.71	0.17	-0.15	0.08
17,986.43	90.93	269.44	7,180.86	-299.32	-10,599.26	10,601.13	0.30	-0.30	0.00
17,999.86	90.89	269.44	7,180.65	-299.45	-10,612.69	10,614.56	0.30	-0.30	0.00
18,013.29	90.85	269.43	7,180.44	-299.58	-10,626.12	10,627.99	0.31	-0.30	-0.07
18,026.71	90.79	269.41	7,180.25	-299.72	-10,639.54	10,641.41	0.47	-0.45	-0.15
18,040.14	90.72	269.40	7,180.07	-299.86	-10,652.96	10,654.84	0.53	-0.52	-0.07
18,053.57	90.64	269.38	7,179.91	-300.00	-10,666.39	10,668.27	0.61	-0.60	-0.15
18,067.00	90.56	269.36	7,179.77	-300.15	-10,679.82	10,681.70	0.61	-0.60	-0.15
18,082.00	90.46	269.34	7,179.64	-300.32	-10,694.82	10,696.70	0.68	-0.67	-0.13
18,097.00	90.35	269.31	7,179.53	-300.49	-10,709.82	10,711.69	0.76	-0.73	-0.20
18,098.96	90.34	269.31	7,179.52	-300.52	-10,711.78	10,713.65	0.75	-0.73	-0.13
100FWL: 18098.96' MD, 10713.62' VS, 7179.63' TVD									
18,103.90	90.30	269.30	7,179.49	-300.58	-10,716.72	10,718.60	0.75	-0.73	-0.13
06-LTP(S-121H)									
18,112.00	90.24	269.29	7,179.46	-300.68	-10,724.82	10,726.69	0.75	-0.73	-0.13
18,127.00	90.15	269.27	7,179.41	-300.86	-10,739.82	10,741.69	0.61	-0.60	-0.13
Final MWD Survey: 18127.00' MD, 90.15°INC, 269.27°AZ									
18,185.00	90.15	269.27	7,179.25	-301.60	-10,797.81	10,799.69	0.00	0.00	0.00
PTB: 18185.00' MD, 90.15°INC, 269.27°AZ - 07-PBHL(S-121H)									



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3318+22 @ 3340.00usft
Site:	Shamrock 34 Fed State Com	MD Reference:	3318+22 @ 3340.00usft
Well:	Shamrock 34 Fed State Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,846.00	6,833.34	-256.88	141.76	KOP: 6846.00' MD, -139.91' VS, 6833.34' TVD
7,791.00	7,486.93	-287.26	-435.05	EOC: 7791.00' MD, 437.09' VS, 7486.93' TVD
7,794.54	7,486.93	-287.50	-438.58	100FEL: 7794.54' MD, 440.63' VS, 7486.93' TVD
18,098.96	7,179.52	-300.52	-10,711.78	100FWL: 18098.96' MD, 10713.62' VS, 7179.63' TVD
18,127.00	7,179.41	-300.86	-10,739.82	Final MWD Survey: 18127.00' MD, 90.15°INC, 269.27°AZ
18,185.00	7,179.25	-301.60	-10,797.81	PTB: 18185.00' MD, 90.15°INC, 269.27°AZ

Checked By: _____ Approved By: _____ Date: _____

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

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

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

WELL API NO. 30-015-47706
5. Indicate Type of Lease STATE ☐ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Shamrock 34 Fed State Com
8. Well Number 121H
9. OGRID Number 371449
10. Pool name or Wildcat Winchester; BS & Old Millman Ranch

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐	
2. Name of Operator Colgate Operating, LLC	
3. Address of Operator 300 North Marienfeld, Suite 1,000 – Midland, Tx 79701	
4. Well Location Unit Letter: <u>D</u> <u>700</u> feet from the <u>North</u> line and <u>330</u> feet from the <u>East</u> line Section: <u>35</u> Township: <u>19S</u> Range: <u>28E</u> NMPM County: <u>Eddy</u>	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3318 GL	

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

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

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

4/28/2022- Perf and frac stages 1-58.
Perfs 7,832-17,957
Frac with 391,362 bbl liquid and 20,362,201lbs of proppant
05/16/2022- Drilled out plugs
Turn over to production. Tubing 2.875 @ 7,564
TD 18,185 - PBTD 18,077

Spud Date: 01/04/2022

Rig Release Date: 02/06/2022

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

SIGNATURE: Mikah Thomas

TITLE: Sr. Regulatory Analyst

DATE: 06/08/2022

Type or print name Mikah Thomas

E-mail address: mthomas@colgateenergy.com

PHONE: 432-695-4272

For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any): _____

Submit To Appropriate District Office Two Copies <u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 811 S. First St., Artesia, NM 88210 <u>District III</u> 1000 Rio Brazos Rd., Aztec, NM 87410 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505		State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505			Form C-105 Revised April 3, 2017					
WELL COMPLETION OR RECOMPLETION REPORT AND LOG								1. WELL API NO. 30-015-47706		
4. Reason for filing: ☒ COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only) ☐ C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)								5. Lease Name or Unit Agreement Name Shamrock 34 Fed State Com		
								6. Well Number: 121H		
7. Type of Completion: ☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER										
8. Name of Operator Colgate Operating, LLC						9. OGRID 371449				
10. Address of Operator 300 North Mareienfeld, Suite 1,000 Midland, Texas 79705						11. Pool name or Wildcat Winchester; BS & Old Millman Ranch				
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	D	35	19S	28E		700	North	330	East	Eddy
BH:	D	33	19S	28E		925	North	14	West	Eddy
13. Date Spudded 01/04/2022	14. Date T.D. Reached 02/03/2022		15. Date Rig Released 02/06/2022			16. Date Completed (Ready to Produce) 05/16/2022		17. Elevations (DF and RKB, RT, GR, etc.) 3318		
18. Total Measured Depth of Well 18,185			19. Plug Back Measured Depth 18,077			20. Was Directional Survey Made? Yes		21. Type Electric and Other Logs Run Gamma Ray		
22. Producing Interval(s), of this completion - Top, Bottom, Name 7,832-12,895 Old Millman Ranch and 12,895-17,957 Winchester BS										
23. CASING RECORD (Report all strings set in well)										
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED
13.375		54.5		328		17.5		Prem Plus 330 sx 1.34		
9.625		36		3,005		12.25		Prem Plus 600 sx 2.07, 205 sx 1.34		
5.5		17		18,170		8.75		Prem 560 sx 2.41, 1,260 sx 1.73		
24. LINER RECORD										
SIZE	TOP	BOTTOM	SACKS CEMENT		SCREEN		25. TUBING RECORD			
							SIZE		DEPTH SET	
							2 7/8		7,564	
26. Perforation record (interval, size, and number) 7,832-17,957 0.37 1,845 holes						27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.				
						DEPTH INTERVAL		AMOUNT AND KIND MATERIAL USED		
						7,832-17,957		Total Proppant 20,362,201 – Total Fluid 391,362		
28. PRODUCTION										
Date First Production 05/26/2022		Production Method (<i>Flowing, gas lift, pumping - Size and type pump</i>) Gas Lift					Well Status (<i>Prod. or Shut-in</i>) Producing			
Date of Test 06/08/2022	Hours Tested 24	Choke Size 80/88	Prod'n For Test Period	Oil – Bbl 2,560	Gas – MCF 2,213	Water - Bbl. 2,473	Gas - Oil Ratio			
Flow Tubing Press. 2,175	Casing Pressure 437	Calculated 24- Hour Rate	Oil - Bbl. 2,560	Gas - MCF 2,213	Water - Bbl. 2,473	Oil Gravity - API - (<i>Corr.</i>) 45.6				
29. Disposition of Gas (<i>Sold, used for fuel, vented, etc.</i>) Sold							30. Test Witnessed By Colgate Operating, LLC			
31. List Attachments C-102, C-103, C-104, Directionnel Survey										
32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.							33. Rig Release Date:			
34. If an on-site burial was used at the well, report the exact location of the on-site burial: Latitude Longitude NAD83										

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

Signature

Printed

Name: Mikah Thomas

Title: Sr. Regulatory Analyst

Date: 06/08/2022

E-mail Address: mthomas@colgateenergy.com

INSTRUCTIONS

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

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Rustler- 97	T. Canyon	T. Ojo Alamo	T. Penn A"
T. Salt- 349	T. Strawn	T. Kirtland	T. Penn. "B"
B. Salt- 683	T. Atoka	T. Fruitland	T. Penn. "C"
T. Yates- 910	T. Miss	T. Pictured Cliffs	T. Penn. "D"
T. DLWR Mnt. Group- 3070	T. Devonian	T. Cliff House	T. Leadville
T. L Brushy Canyon- 3821	T. Silurian	T. Menefee	T. Madison
T. BS Lime- 4048	T. Montoya	T. Point Lookout	T. Elbert
T. 1 st Bone Spring SD- 6413	T. Simpson	T. Mancos	T. McCracken
T. 2 nd Bone Spring LM- 6613	T. McKee	T. Gallup	T. Ignacio Otzte
T. 2 nd Bone Spring SD- 7360	T. Ellenburger	Base Greenhorn	T. Granite
T. 3 rd Bone Spring LM-	T. Gr. Wash	T. Dakota	
T. 3 rd Bone Spring SD-	T. Delaware Sand	T. Morrison	
T. Drinkard	T. Bone Springs	T. Todilto	
T. Abo	T. Capitan- 2551	T. Entrada	
T. Wolfcamp	T.	T. Wingate	
T. Penn	T.	T. Chinle	
T. Cisco (Bough C)	T.	T. Permian	

OIL OR GAS SANDS OR ZONES

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

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

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

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

IMPORTANT WATER SANDS

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

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

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

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

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology	From	To	Thickness In Feet	Lithology
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District I

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

District II

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

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

ACKNOWLEDGMENTS

Action 128539

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 128539
	Action Type: [C-104] Completion Packet (C-104C)

ACKNOWLEDGMENTS

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

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

CONDITIONS

Action 128539

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 128539
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	File 3160-4 Completion Report and 3160-5 Completion Sundry within 10 days to NMOCD after BLM approval.	8/12/2022