

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

State of New Mexico
Energy, Minerals & Natural Resources

Form C-104
Revised August 1, 2011

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

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Colgate Operating, LLC 300 N Marienfeld Street, Suite 1000 Midland, Tx 79701		² OGRID Number 371449	
		³ Reason for Filing Code/ Effective Date RT	
⁴ API Number 30 – 015 – 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

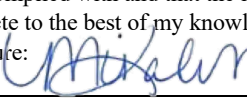
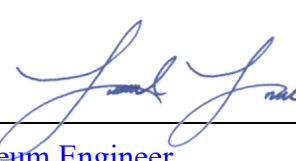
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
329097	LM TOUCHDOWN, LLC	O
329097	LM TOUCHDOWN, LLC	G

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 7,795-12,947	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	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Mikah Thomas		Approved by: 	
Title: Operations Tech		Title: Petroleum Engineer	
E-mail Address: mthomas@colgateenergy.com		Approval Date: 05/20/22	
Date: 04/06/2022	Phone: 432-695-4272	COA: C-104 RT expires on 08/08/22	

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		³ Reason for Filing Code/ Effective Date RT	
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 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
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III. Oil and Gas Transporters

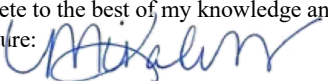
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
329097	LM TOUCHDOWN, LLC	O
329097	LM TOUCHDOWN, LLC	G

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 12,947-18,099	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	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Mikah Thomas		Approved by: 	
Title: Operations Tech		Title: Petroleum Engineer	
E-mail Address: mthomas@colgateenergy.com		Approval Date: 05/20/22	
Date: 04/06/2022	Phone: 432-695-4272	COA: C-104 RT expires on 08/08/22	

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

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Phone: (575) 748-1283 Fax: (575) 748-9720

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

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

¹⁰ Surface Location

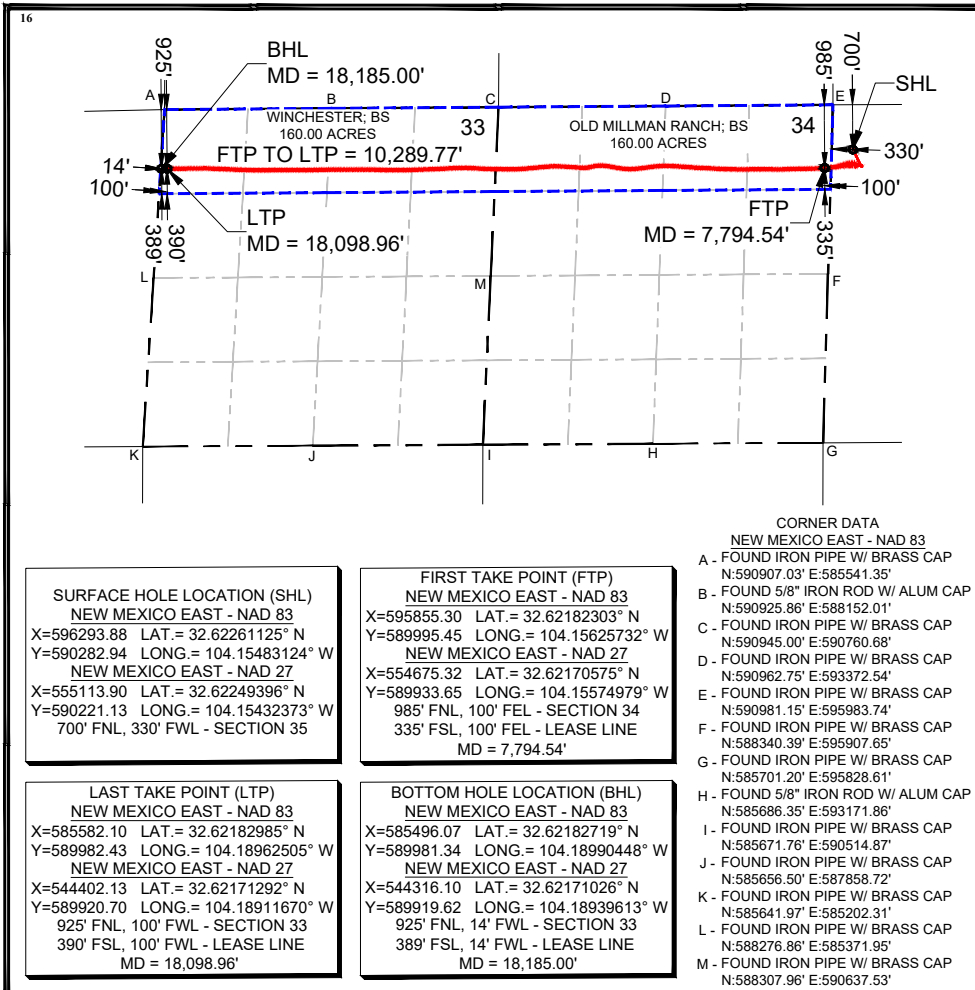
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	35	19-S	28-E		700'	NORTH	330'	EAST	EDDY

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.

[Signature]

02.24.2022

Signature

Date

Mikah Thomas

Printed Name

mthomas@colgateenergy.com

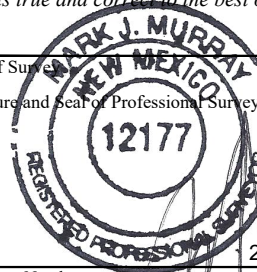
E-mail Address

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



2/23/2022

Certificate Number

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Phone: (575) 393-6161 Fax: (575) 393-0720

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

10 Surface Location

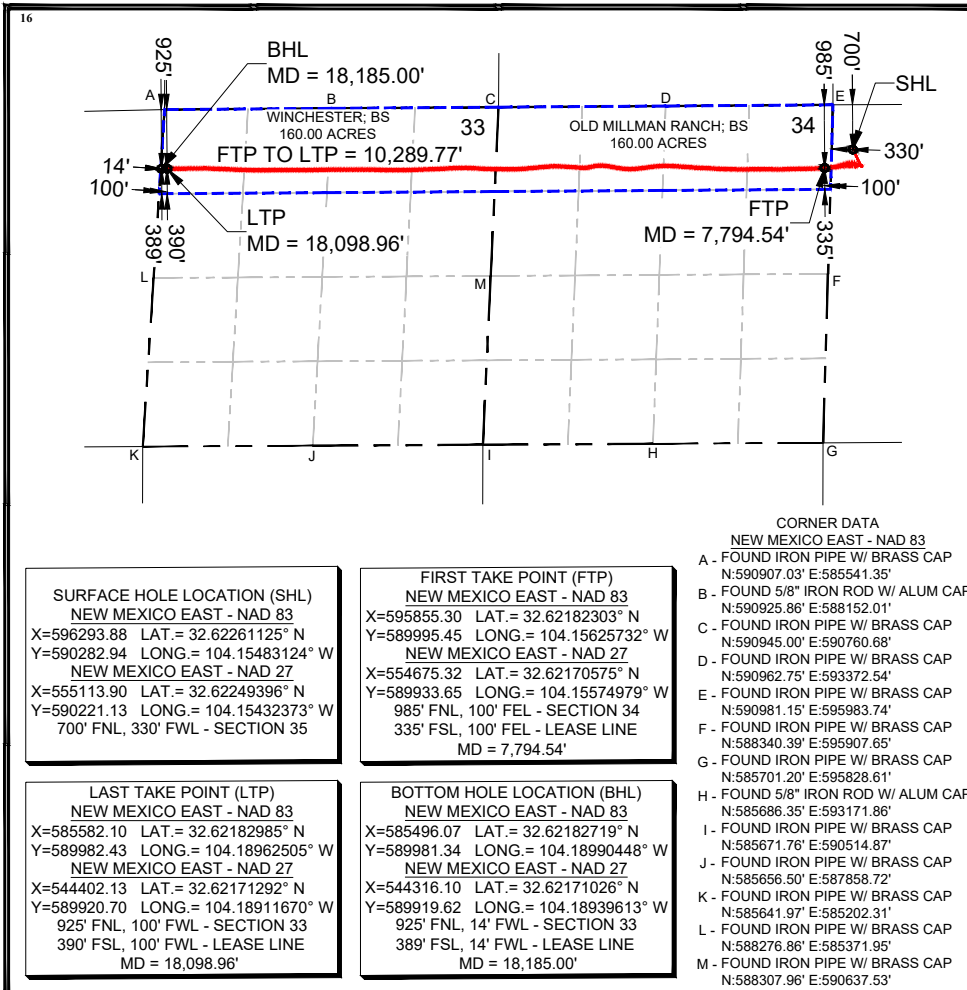
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D	35	19-S	28-E		700'	NORTH	330'	EAST	EDDY

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

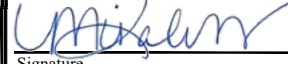
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 02.24.2022
Signature Date

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
From:	Map	Easting:	596,293.88 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.62261125
		Longitude:	-104.15483124

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

Wellbore	121H		
Magnetics	Model Name	Sample Date	Declination (°)
	IFR	12/28/2021	7.11
			Dip Angle (°)
			60.35
			Field Strength (nT)
			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)
	0.00	0.00	0.00
			Direction (°)
			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: _____

District I

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Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
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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 107416

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 107416
	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.

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

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

CONDITIONS

Action 107416

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 107416
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
llowe	COA: C-104 RT expires on 08/08/22 for both the Pool/Formations	5/20/2022