

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

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

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Colgate Operating, LLC 300 N Marienfeld Street, Suite 1000 Midland, Tx 79701		² OGRID Number 371449	
		³ Reason for Filing Code/ Effective Date RT	
⁴ API Number 30 – 015 – 47708	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 131H

II. ¹⁰ Surface Location

UL or lot no. D	Section 35	Township 19S	Range 28E	Lot Idn	Feet from the 655	North/South Line North	Feet from the 330	East/West line West	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 892	North/South line North	Feet from the 19	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

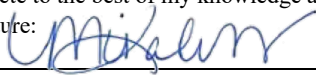
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
329097	LM TOUCHDOWN, LLC	O
329097	LM TOUCHDOWN, LLC	G

IV. Well Completion Data

²¹ Spud Date 01/05/2022	²² Ready Date 05/01/2022	²³ TD 19,280 MD 8,583 TVD	²⁴ PBTD 18,280 MD 8,396 TVD	²⁵ Perforations 8,921-13,984	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	³⁰ Sacks Cement
17.5		13.375		329	350 Tail
12.25		9.625		3,024	530 Lead 205 Tail
7.875		5.5		19,265	830 Lead 1,250 Tail

V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Mikah Thomas		Approved by: PATRICIA MARTINEZ	
Title: Operations Tech		Title: PETROLEUM SPECIALIST	
E-mail Address: mthomas@colgateenergy.com		Approval Date: 5/17/2022	
Date: 04/18/2022	Phone: 432-695-4272	RT EXPIRES 8/1/2022	

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		³ Reason for Filing Code/ Effective Date RT	
⁴ API Number 30 – 015 – 47708	⁵ Pool Name WINCHESTER; BONE SPRING		⁶ Pool Code 65010
⁷ Property Code 329804	⁸ Property Name SHAMROCK 34 FED COM		⁹ Well Number 131H

II. ¹⁰ Surface Location

UL or lot no. D	Section 35	Township 19S	Range 28E	Lot Idn	Feet from the 655	North/South Line North	Feet from the 330	East/West line West	County Eddy
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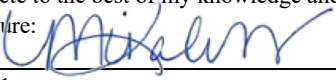
III. Oil and Gas Transporters

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

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Printed name: Mikah Thomas			Approved by: PATRICIA MARTINEZ		
Title: Operations Tech			Title: PETROLEUM SPECIALIST		
E-mail Address: mthomas@colgateenergy.com			Approval Date: 5/17/2022		
Date: 04/18/2022		Phone: 432-695-4272	RT EXPIRES 8/1/2022		

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

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811 S. First St., Artesia, NM 88210
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 30-015-47708	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 131H
7 OGRID No. 371449	8 Operator Name COLGATE OPERATING, LLC	9 Elevation 3317.7'

¹⁰ Surface Location

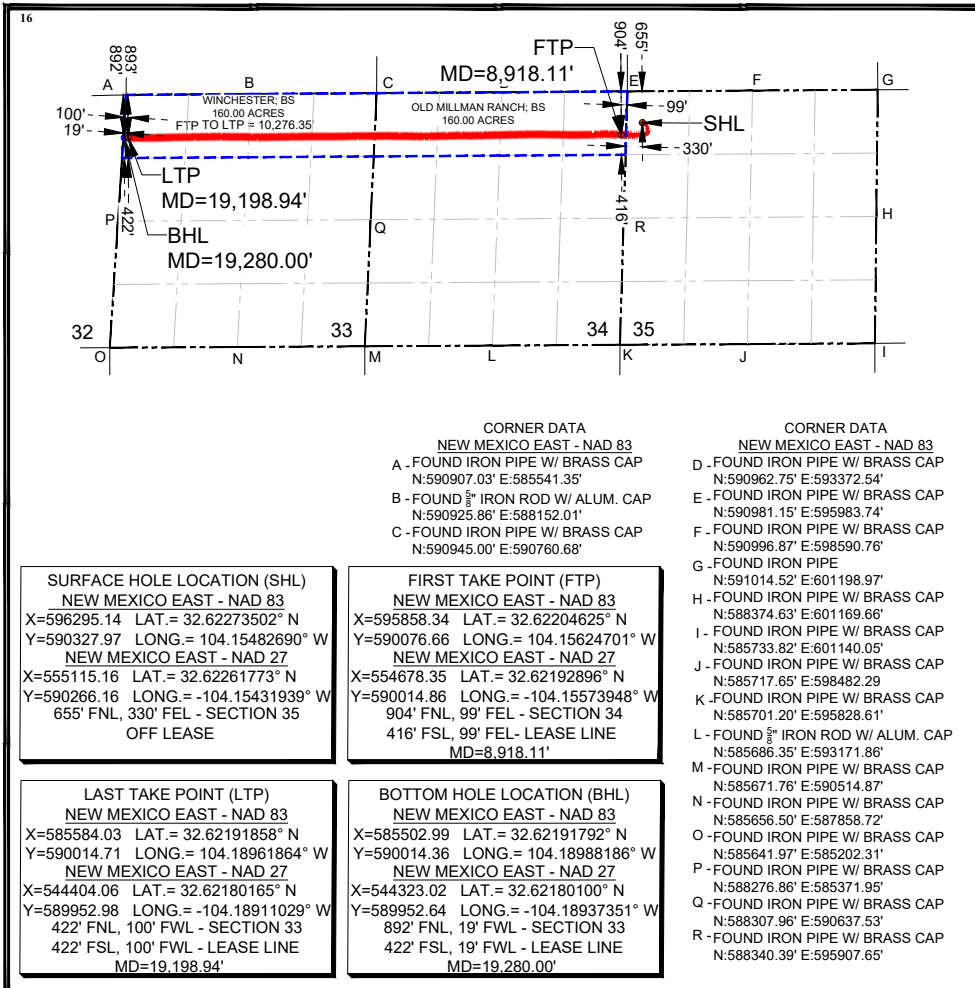
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	35	19-S	28-E		655'	NORTH	330'	WEST	EDDY

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		892'	NORTH	19'	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.

Mikah Thomas 03.14.2022
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:

12177
REGISTERED PROFESSIONAL SURVEYOR
Certificate Number

2/23/2022

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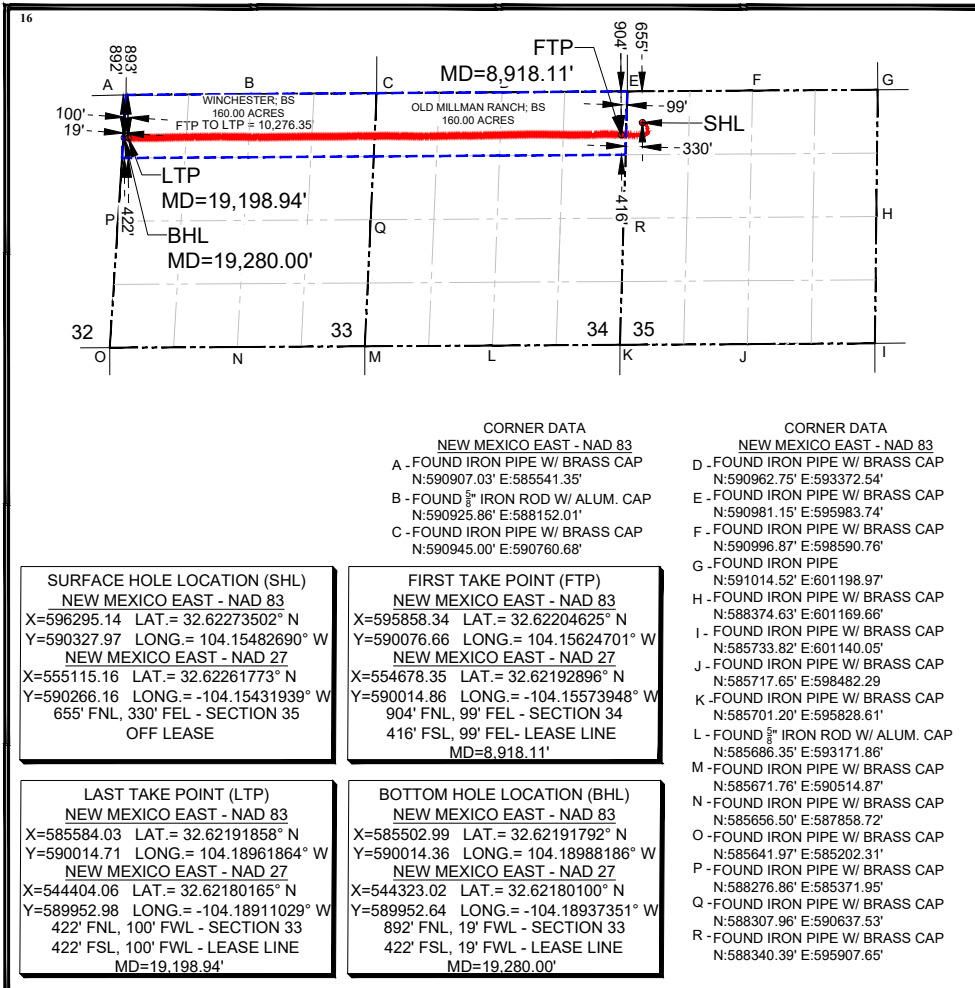
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Mikah Thomas 03.14.2022
Signature Date

Mikah Thomas

Printed Name

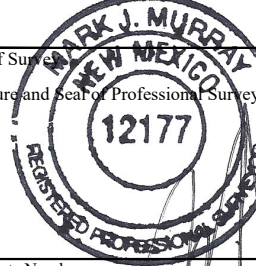
mthomas@colgateenergy.com

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 131H

30-015-47708

131H

Design: DRL

Standard Survey Report

22 January, 2022



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Project	Eddy County, NM (N83-NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Shamrock 34 Fed State Com			
Site Position:		Northing:	590,282.94 usft	Latitude:	32.62261125
From:	Map	Easting:	596,293.88 usft	Longitude:	-104.15483124
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Shamrock 34 Fed State Com 131H					
Well Position	+N/-S	0.00 usft	Northing:	590,327.97 usft	Latitude:	32.62273502
	+E/-W	0.00 usft	Easting:	596,295.14 usft	Longitude:	-104.15482690
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,318.00 usft
Grid Convergence:		0.10 °				

Wellbore	131H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IFR	12/28/2021	7.12	60.35	47,728.00000000

Design	DRL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		269.59

Survey Program	Date	1/22/2022			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
14.29	19,219.00	Survey #01_Gordon (131H)	MWD+IFR1+SAG+FDIR (SQ OWSG MWD + IFR1 + Sag + FDIR Correction		
19,280.00	19,280.00	Survey #02_PTB (131H)	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	0.07	203.85	14.29	-0.01	0.00	0.00	0.49	0.49	0.00	
28.57	0.14	204.02	28.57	-0.03	-0.01	0.01	0.49	0.49	1.19	
42.86	0.21	204.18	42.86	-0.07	-0.03	0.03	0.49	0.49	1.12	
57.14	0.28	204.35	57.14	-0.13	-0.06	0.06	0.49	0.49	1.19	
71.43	0.35	204.52	71.43	-0.20	-0.09	0.09	0.49	0.49	1.19	
85.71	0.41	204.70	85.71	-0.29	-0.13	0.13	0.42	0.42	1.26	
97.00	0.47	204.84	97.00	-0.36	-0.17	0.17	0.49	0.49	1.23	
Rustler										



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
100.00	0.48	204.87	100.00	-0.39	-0.18	0.18	0.49	0.49	1.05	
114.29	0.54	205.05	114.29	-0.50	-0.23	0.23	0.42	0.42	1.26	
128.57	0.61	205.23	128.57	-0.63	-0.29	0.29	0.49	0.49	1.26	
142.86	0.67	205.42	142.86	-0.78	-0.36	0.36	0.42	0.42	1.33	
157.14	0.73	205.60	157.14	-0.93	-0.43	0.44	0.42	0.42	1.26	
171.43	0.79	205.79	171.42	-1.10	-0.52	0.52	0.42	0.42	1.33	
185.71	0.85	205.98	185.70	-1.29	-0.61	0.61	0.42	0.42	1.33	
200.00	0.91	206.17	199.99	-1.48	-0.70	0.71	0.42	0.42	1.33	
212.80	0.96	208.80	212.79	-1.67	-0.80	0.81	0.51	0.39	20.55	
225.60	1.02	211.17	225.59	-1.86	-0.91	0.92	0.57	0.47	18.52	
238.40	1.07	213.32	238.39	-2.06	-1.03	1.05	0.50	0.39	16.80	
251.20	1.13	215.29	251.18	-2.26	-1.17	1.19	0.55	0.47	15.39	
264.00	1.18	217.10	263.98	-2.47	-1.32	1.34	0.48	0.39	14.14	
278.11	1.08	217.86	278.09	-2.69	-1.49	1.51	0.72	-0.71	5.39	
292.22	0.96	219.22	292.20	-2.89	-1.65	1.67	0.87	-0.85	9.64	
306.33	0.84	221.24	306.30	-3.06	-1.79	1.81	0.88	-0.85	14.32	
320.44	0.72	224.04	320.41	-3.20	-1.92	1.95	0.89	-0.85	19.84	
334.56	0.60	227.82	334.53	-3.31	-2.04	2.06	0.90	-0.85	26.77	
348.67	1.01	227.43	348.64	-3.44	-2.19	2.21	2.91	2.91	-2.76	
349.03	1.01	227.43	349.00	-3.45	-2.19	2.21	0.00	0.00	0.00	
Top of Salt										
362.78	1.09	228.64	362.75	-3.62	-2.38	2.40	0.60	0.58	8.80	
376.89	1.58	237.12	376.85	-3.81	-2.64	2.67	3.74	3.47	60.10	
391.00	1.54	238.05	390.96	-4.02	-2.97	2.99	0.34	-0.28	6.59	
404.14	1.55	238.23	404.09	-4.20	-3.27	3.30	0.08	0.08	1.37	
417.29	1.58	238.05	417.24	-4.39	-3.57	3.60	0.23	0.23	-1.37	
430.43	1.63	237.47	430.37	-4.59	-3.88	3.92	0.40	0.38	-4.41	
443.57	1.68	236.44	443.51	-4.80	-4.20	4.24	0.44	0.38	-7.84	
456.71	1.74	234.84	456.64	-5.02	-4.52	4.56	0.58	0.46	-12.18	
469.86	1.79	232.47	469.79	-5.26	-4.85	4.89	0.67	0.38	-18.02	
483.00	1.83	228.96	482.92	-5.52	-5.17	5.21	0.90	0.30	-26.71	
496.29	1.84	223.40	496.20	-5.82	-5.48	5.52	1.34	0.08	-41.84	
509.57	1.85	217.01	509.48	-6.14	-5.75	5.80	1.55	0.08	-48.12	
522.86	2.43	197.35	522.76	-6.58	-5.97	6.01	6.98	4.36	-147.93	
536.14	2.63	190.48	536.02	-7.15	-6.11	6.16	2.73	1.51	-51.73	
549.43	2.76	184.93	549.30	-7.77	-6.19	6.25	2.19	0.98	-41.76	
562.71	2.86	180.70	562.56	-8.42	-6.22	6.28	1.73	0.75	-31.85	
576.00	2.95	177.34	575.84	-9.09	-6.21	6.27	1.45	0.68	-25.28	
589.43	2.95	174.87	589.25	-9.78	-6.16	6.23	0.95	0.00	-18.39	
602.86	2.95	173.24	602.66	-10.47	-6.09	6.17	0.62	0.00	-12.14	
616.29	2.96	172.11	616.07	-11.16	-6.00	6.08	0.44	0.07	-8.41	
629.71	2.97	171.27	629.47	-11.84	-5.90	5.99	0.33	0.07	-6.26	
643.14	2.99	170.54	642.89	-12.53	-5.79	5.88	0.32	0.15	-5.44	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
656.57	3.02	169.77	656.30	-13.23	-5.67	5.77	0.37	0.22	-5.73
670.00	3.07	168.78	669.71	-13.93	-5.54	5.64	0.54	0.37	-7.37
683.31	3.17	167.59	683.00	-14.64	-5.39	5.49	0.89	0.74	-8.94
Base of Salt									
683.43	3.17	167.58	683.12	-14.64	-5.39	5.49	0.89	0.75	-8.66
696.86	3.28	166.34	696.53	-15.38	-5.22	5.33	0.97	0.82	-9.23
710.29	2.69	148.63	709.94	-16.02	-4.96	5.08	8.10	-4.39	-131.87
723.71	2.71	137.84	723.35	-16.52	-4.59	4.70	3.78	0.15	-80.40
737.14	2.85	136.79	736.76	-17.00	-4.14	4.27	1.11	1.04	-7.82
750.57	2.98	135.87	750.17	-17.50	-3.67	3.80	1.03	0.97	-6.85
764.00	3.09	135.01	763.58	-18.00	-3.17	3.30	0.89	0.82	-6.40
777.29	3.14	134.15	776.85	-18.51	-2.66	2.79	0.51	0.38	-6.47
790.57	3.17	133.28	790.11	-19.02	-2.13	2.27	0.43	0.23	-6.55
803.86	3.17	132.36	803.38	-19.52	-1.59	1.73	0.38	0.00	-6.92
817.14	3.16	131.33	816.64	-20.00	-1.05	1.19	0.43	-0.08	-7.76
830.43	3.14	130.14	829.91	-20.48	-0.49	0.64	0.51	-0.15	-8.95
843.71	3.12	128.68	843.17	-20.94	0.07	0.08	0.62	-0.15	-10.99
857.00	3.09	126.83	856.44	-21.38	0.64	-0.48	0.79	-0.23	-13.92
871.86	3.05	124.10	871.28	-21.84	1.28	-1.13	1.02	-0.27	-18.37
886.71	3.02	121.00	886.11	-22.27	1.95	-1.79	1.12	-0.20	-20.88
901.57	2.99	117.85	900.95	-22.65	2.62	-2.46	1.13	-0.20	-21.20
910.63	2.39	116.60	910.00	-22.84	3.00	-2.84	6.63	-6.60	-13.85
Yates									
916.43	2.01	115.40	915.80	-22.94	3.20	-3.04	6.63	-6.59	-20.60
931.29	1.12	103.12	930.65	-23.09	3.58	-3.41	6.37	-5.99	-82.64
946.14	1.15	95.71	945.50	-23.13	3.87	-3.70	1.01	0.20	-49.90
961.00	1.18	89.59	960.35	-23.15	4.17	-4.01	0.86	0.20	-41.18
974.29	1.16	86.38	973.64	-23.14	4.44	-4.28	0.52	-0.15	-24.15
987.57	1.15	84.42	986.92	-23.12	4.71	-4.54	0.31	-0.08	-14.76
1,000.86	1.13	83.29	1,000.21	-23.09	4.97	-4.81	0.23	-0.15	-8.50
1,014.14	1.11	82.62	1,013.48	-23.06	5.23	-5.06	0.18	-0.15	-5.05
1,027.43	1.10	82.16	1,026.77	-23.02	5.48	-5.32	0.10	-0.08	-3.46
1,040.71	1.09	81.63	1,040.05	-22.99	5.73	-5.57	0.11	-0.08	-3.99
1,054.00	1.08	80.72	1,053.34	-22.95	5.98	-5.82	0.15	-0.08	-6.85
1,067.43	1.08	79.00	1,066.76	-22.90	6.23	-6.07	0.24	0.00	-12.81
1,080.86	1.09	76.91	1,080.19	-22.85	6.48	-6.32	0.30	0.07	-15.56
1,094.29	1.11	74.67	1,093.62	-22.79	6.73	-6.57	0.35	0.15	-16.68
1,107.71	1.13	72.42	1,107.04	-22.71	6.98	-6.82	0.36	0.15	-16.77
1,121.14	1.14	70.31	1,120.46	-22.63	7.23	-7.07	0.32	0.07	-15.71
1,134.57	1.16	68.45	1,133.89	-22.53	7.49	-7.33	0.32	0.15	-13.85
1,148.00	1.17	66.98	1,147.32	-22.43	7.74	-7.58	0.23	0.07	-10.95
1,161.29	1.18	66.09	1,160.61	-22.32	7.99	-7.83	0.16	0.08	-6.70
1,174.57	1.18	65.58	1,173.88	-22.21	8.24	-8.08	0.08	0.00	-3.84
1,187.86	1.18	65.31	1,187.17	-22.10	8.49	-8.33	0.04	0.00	-2.03



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
1,201.14	1.19	65.15	1,200.45	-21.98	8.74	-8.58	0.08	0.08	-1.20	
1,214.43	1.19	65.01	1,213.73	-21.86	8.99	-8.83	0.02	0.00	-1.05	
1,227.71	1.20	64.80	1,227.01	-21.75	9.24	-9.08	0.08	0.08	-1.58	
1,241.00	1.22	64.41	1,240.30	-21.63	9.49	-9.34	0.16	0.15	-2.93	
1,254.43	1.24	63.91	1,253.73	-21.50	9.75	-9.60	0.17	0.15	-3.72	
1,267.86	1.28	63.31	1,267.15	-21.37	10.02	-9.86	0.31	0.30	-4.47	
1,281.29	1.32	62.67	1,280.58	-21.23	10.29	-10.13	0.32	0.30	-4.77	
1,294.71	1.36	62.07	1,294.00	-21.09	10.57	-10.41	0.32	0.30	-4.47	
1,308.14	1.40	61.53	1,307.42	-20.93	10.85	-10.70	0.31	0.30	-4.02	
1,321.57	1.44	61.11	1,320.85	-20.77	11.14	-10.99	0.31	0.30	-3.13	
1,335.00	1.48	60.86	1,334.27	-20.61	11.44	-11.29	0.30	0.30	-1.86	
1,348.29	1.51	60.87	1,347.56	-20.44	11.74	-11.60	0.23	0.23	0.08	
1,361.57	1.54	61.04	1,360.83	-20.27	12.05	-11.91	0.23	0.23	1.28	
1,374.86	1.57	61.29	1,374.12	-20.09	12.37	-12.23	0.23	0.23	1.88	
1,388.14	1.59	61.58	1,387.39	-19.92	12.69	-12.55	0.16	0.15	2.18	
1,401.43	1.61	61.87	1,400.68	-19.74	13.02	-12.88	0.16	0.15	2.18	
1,414.71	1.63	62.14	1,413.95	-19.57	13.35	-13.21	0.16	0.15	2.03	
1,428.00	1.64	62.35	1,427.24	-19.39	13.68	-13.55	0.09	0.08	1.58	
1,441.14	1.65	62.48	1,440.37	-19.21	14.02	-13.88	0.08	0.08	0.99	
1,454.29	1.65	62.54	1,453.52	-19.04	14.35	-14.22	0.01	0.00	0.46	
1,467.43	1.65	62.57	1,466.65	-18.87	14.69	-14.56	0.01	0.00	0.23	
1,480.57	1.65	62.62	1,479.79	-18.69	15.03	-14.89	0.01	0.00	0.38	
1,493.71	1.65	62.71	1,492.92	-18.52	15.36	-15.23	0.02	0.00	0.68	
1,506.86	1.65	62.90	1,506.07	-18.34	15.70	-15.57	0.04	0.00	1.44	
1,520.00	1.65	63.25	1,519.20	-18.17	16.04	-15.91	0.08	0.00	2.66	
1,533.29	1.66	63.88	1,532.48	-18.00	16.38	-16.25	0.16	0.08	4.74	
1,546.57	1.67	64.64	1,545.76	-17.83	16.73	-16.60	0.18	0.08	5.72	
1,559.86	1.68	65.46	1,559.04	-17.67	17.08	-16.95	0.20	0.08	6.17	
1,573.14	1.70	66.28	1,572.32	-17.51	17.44	-17.31	0.24	0.15	6.17	
1,586.43	1.72	67.02	1,585.60	-17.35	17.80	-17.68	0.22	0.15	5.57	
1,599.71	1.73	67.65	1,598.88	-17.20	18.17	-18.05	0.16	0.08	4.74	
1,613.00	1.75	68.09	1,612.16	-17.05	18.54	-18.42	0.18	0.15	3.31	
1,626.29	1.76	68.31	1,625.44	-16.90	18.92	-18.80	0.09	0.08	1.66	
1,639.57	1.77	68.33	1,638.72	-16.75	19.30	-19.18	0.08	0.08	0.15	
1,652.86	1.78	68.21	1,652.00	-16.59	19.68	-19.57	0.08	0.08	-0.90	
1,666.14	1.79	67.99	1,665.27	-16.44	20.07	-19.95	0.09	0.08	-1.66	
1,679.43	1.80	67.67	1,678.56	-16.28	20.45	-20.34	0.11	0.08	-2.41	
1,692.71	1.81	67.28	1,691.83	-16.12	20.84	-20.72	0.12	0.08	-2.94	
1,706.00	1.83	66.81	1,705.11	-15.96	21.23	-21.11	0.19	0.15	-3.54	
1,719.29	1.84	66.26	1,718.40	-15.79	21.62	-21.51	0.15	0.08	-4.14	
1,732.57	1.85	65.65	1,731.67	-15.61	22.01	-21.90	0.17	0.08	-4.59	
1,745.86	1.86	64.97	1,744.95	-15.43	22.40	-22.29	0.18	0.08	-5.12	
1,759.14	1.86	64.23	1,758.23	-15.25	22.79	-22.68	0.18	0.00	-5.57	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
1,772.43	1.87	63.40	1,771.51	-15.06	23.18	-23.07	0.22	0.08	-6.25	
1,785.71	1.86	62.47	1,784.78	-14.86	23.56	-23.46	0.24	-0.08	-7.00	
1,799.00	1.84	61.40	1,798.07	-14.66	23.94	-23.84	0.30	-0.15	-8.05	
1,812.43	1.81	60.19	1,811.49	-14.45	24.32	-24.21	0.36	-0.22	-9.01	
1,825.86	1.75	58.81	1,824.91	-14.24	24.67	-24.57	0.55	-0.45	-10.28	
1,839.29	1.70	57.22	1,838.34	-14.02	25.02	-24.92	0.52	-0.37	-11.84	
1,852.71	1.64	55.37	1,851.75	-13.81	25.34	-25.24	0.60	-0.45	-13.79	
1,866.14	1.57	53.22	1,865.18	-13.59	25.65	-25.55	0.69	-0.52	-16.01	
1,879.57	1.51	50.70	1,878.60	-13.37	25.93	-25.84	0.67	-0.45	-18.76	
1,893.00	1.45	47.68	1,892.03	-13.14	26.20	-26.10	0.73	-0.45	-22.49	
1,906.43	1.39	44.50	1,905.45	-12.91	26.43	-26.34	0.74	-0.45	-23.68	
1,919.86	1.29	39.60	1,918.88	-12.68	26.65	-26.55	1.13	-0.74	-36.49	
1,933.29	1.23	35.31	1,932.30	-12.44	26.83	-26.74	0.83	-0.45	-31.94	
1,946.71	1.19	30.69	1,945.72	-12.21	26.98	-26.89	0.79	-0.30	-34.43	
1,960.14	1.15	25.94	1,959.15	-11.96	27.11	-27.02	0.78	-0.30	-35.37	
1,973.57	1.13	21.40	1,972.58	-11.72	27.22	-27.13	0.69	-0.15	-33.80	
1,987.00	1.11	17.45	1,986.00	-11.47	27.30	-27.22	0.59	-0.15	-29.41	
2,000.29	1.09	15.01	1,999.29	-11.23	27.38	-27.29	0.38	-0.15	-18.36	
2,013.57	1.07	13.20	2,012.57	-10.98	27.44	-27.36	0.30	-0.15	-13.63	
2,026.86	1.06	11.81	2,025.86	-10.74	27.49	-27.41	0.21	-0.08	-10.46	
2,040.14	1.06	10.69	2,039.13	-10.50	27.54	-27.46	0.16	0.00	-8.43	
2,053.43	1.08	10.86	2,052.42	-10.26	27.58	-27.51	0.15	0.15	1.28	
2,066.71	1.10	11.75	2,065.70	-10.01	27.63	-27.56	0.20	0.15	6.70	
2,080.00	1.13	12.60	2,078.99	-9.76	27.69	-27.62	0.26	0.23	6.40	
2,093.43	1.12	11.86	2,092.41	-9.50	27.74	-27.68	0.13	-0.07	-5.51	
2,106.86	1.12	11.19	2,105.84	-9.24	27.80	-27.73	0.10	0.00	-4.99	
2,120.29	1.12	10.61	2,119.27	-8.99	27.85	-27.78	0.08	0.00	-4.32	
2,133.71	1.13	10.12	2,132.69	-8.73	27.89	-27.83	0.10	0.07	-3.65	
2,147.14	1.13	9.75	2,146.11	-8.47	27.94	-27.88	0.05	0.00	-2.76	
2,160.57	1.14	9.54	2,159.54	-8.20	27.98	-27.92	0.08	0.07	-1.56	
2,174.00	1.15	9.52	2,172.97	-7.94	28.03	-27.97	0.07	0.07	-0.15	
2,187.29	1.17	9.88	2,186.26	-7.67	28.07	-28.02	0.16	0.15	2.71	
2,200.57	1.18	10.40	2,199.53	-7.41	28.12	-28.07	0.11	0.08	3.92	
2,213.86	1.20	10.98	2,212.82	-7.13	28.17	-28.12	0.18	0.15	4.36	
2,227.14	1.22	11.53	2,226.10	-6.86	28.23	-28.18	0.17	0.15	4.14	
2,240.43	1.25	11.99	2,239.38	-6.58	28.29	-28.24	0.24	0.23	3.46	
2,253.71	1.27	12.25	2,252.66	-6.29	28.35	-28.30	0.16	0.15	1.96	
2,267.00	1.29	12.23	2,265.95	-6.00	28.41	-28.37	0.15	0.15	-0.15	
2,280.14	1.31	11.87	2,279.08	-5.71	28.47	-28.43	0.16	0.15	-2.74	
2,293.29	1.33	11.25	2,292.23	-5.41	28.53	-28.49	0.19	0.15	-4.71	
2,306.43	1.34	10.49	2,305.37	-5.11	28.59	-28.55	0.15	0.08	-5.78	
2,319.57	1.36	9.67	2,318.50	-4.81	28.65	-28.61	0.21	0.15	-6.24	
2,332.71	1.37	8.87	2,331.64	-4.50	28.70	-28.66	0.16	0.08	-6.09	
2,345.86	1.38	8.13	2,344.79	-4.19	28.74	-28.71	0.15	0.08	-5.63	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
2,359.00	1.39	7.53	2,357.92	-3.87	28.79	-28.76	0.13	0.08	-4.57	
2,372.29	1.38	7.18	2,371.21	-3.56	28.83	-28.80	0.10	-0.08	-2.63	
2,385.57	1.37	6.99	2,384.48	-3.24	28.87	-28.84	0.08	-0.08	-1.43	
2,398.86	1.36	6.91	2,397.77	-2.92	28.90	-28.88	0.08	-0.08	-0.60	
2,412.14	1.35	6.90	2,411.05	-2.61	28.94	-28.92	0.08	-0.08	-0.08	
2,425.43	1.34	6.92	2,424.33	-2.30	28.98	-28.96	0.08	-0.08	0.15	
2,438.71	1.33	6.92	2,437.61	-2.00	29.02	-29.00	0.08	-0.08	0.00	
2,452.00	1.33	6.87	2,450.90	-1.69	29.05	-29.04	0.01	0.00	-0.38	
2,465.14	1.35	6.72	2,464.03	-1.38	29.09	-29.08	0.15	0.15	-1.14	
2,478.29	1.37	6.54	2,477.18	-1.07	29.13	-29.12	0.16	0.15	-1.37	
2,491.43	1.39	6.34	2,490.32	-0.76	29.16	-29.16	0.16	0.15	-1.52	
2,504.57	1.42	6.16	2,503.45	-0.44	29.20	-29.19	0.23	0.23	-1.37	
2,517.71	1.45	6.03	2,516.59	-0.11	29.23	-29.23	0.23	0.23	-0.99	
2,530.86	1.47	5.98	2,529.73	0.22	29.27	-29.27	0.15	0.15	-0.38	
2,544.00	1.50	6.05	2,542.87	0.56	29.30	-29.31	0.23	0.23	0.53	
2,549.13	1.51	6.15	2,548.00	0.69	29.32	-29.32	0.15	0.14	1.95	
Capitan										
2,557.29	1.52	6.32	2,556.15	0.91	29.34	-29.35	0.16	0.16	2.09	
2,570.57	1.54	6.69	2,569.43	1.26	29.38	-29.39	0.17	0.15	2.79	
2,583.86	1.56	7.09	2,582.71	1.62	29.42	-29.43	0.17	0.15	3.01	
2,597.14	1.58	7.49	2,595.99	1.98	29.47	-29.48	0.17	0.15	3.01	
2,610.43	1.59	7.84	2,609.27	2.34	29.52	-29.53	0.10	0.08	2.63	
2,623.71	1.60	8.08	2,622.55	2.71	29.57	-29.59	0.09	0.08	1.81	
2,637.00	1.61	8.14	2,635.83	3.08	29.62	-29.64	0.08	0.08	0.45	
2,650.00	1.61	7.90	2,648.83	3.44	29.67	-29.70	0.05	0.00	-1.85	
2,663.00	1.60	7.46	2,661.82	3.80	29.72	-29.75	0.12	-0.08	-3.38	
2,676.00	1.60	6.85	2,674.82	4.16	29.77	-29.80	0.13	0.00	-4.69	
2,689.00	1.59	6.07	2,687.81	4.52	29.81	-29.84	0.18	-0.08	-6.00	
2,702.00	1.59	5.12	2,700.81	4.88	29.84	-29.88	0.20	0.00	-7.31	
2,715.00	1.59	3.96	2,713.80	5.24	29.87	-29.91	0.25	0.00	-8.92	
2,728.00	1.59	2.53	2,726.80	5.60	29.89	-29.93	0.31	0.00	-11.00	
2,741.29	1.60	0.62	2,740.08	5.97	29.90	-29.94	0.41	0.08	-14.37	
2,754.57	1.62	358.69	2,753.36	6.34	29.90	-29.94	0.44	0.15	-14.53	
2,767.86	1.43	350.80	2,766.64	6.69	29.87	-29.92	2.13	-1.43	-59.37	
2,781.14	1.04	310.28	2,779.92	6.93	29.75	-29.80	7.00	-2.94	-305.12	
2,794.43	1.30	285.23	2,793.21	7.05	29.51	-29.56	4.27	1.96	-188.49	
2,807.71	1.35	284.55	2,806.48	7.13	29.22	-29.27	0.39	0.38	-5.12	
2,821.00	1.39	284.02	2,819.77	7.21	28.91	-28.96	0.32	0.30	-3.99	
2,834.29	1.42	283.51	2,833.06	7.29	28.59	-28.64	0.24	0.23	-3.84	
2,847.57	1.43	283.03	2,846.33	7.36	28.27	-28.32	0.12	0.08	-3.61	
2,860.86	1.44	282.61	2,859.62	7.44	27.95	-28.00	0.11	0.08	-3.16	
2,874.14	1.44	282.30	2,872.89	7.51	27.62	-27.67	0.06	0.00	-2.33	
2,887.43	1.45	282.15	2,886.18	7.58	27.29	-27.35	0.08	0.08	-1.13	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
2,900.71	1.46	282.21	2,899.46	7.65	26.96	-27.02	0.08	0.08	0.45	
2,914.00	1.47	282.57	2,912.74	7.72	26.63	-26.69	0.10	0.08	2.71	
2,926.00	1.50	283.28	2,924.74	7.79	26.33	-26.38	0.29	0.25	5.92	
2,938.00	1.54	284.11	2,936.73	7.87	26.02	-26.07	0.38	0.33	6.92	
2,950.00	1.57	284.89	2,948.73	7.95	25.70	-25.76	0.31	0.25	6.50	
2,965.00	1.60	285.65	2,963.72	8.06	25.30	-25.36	0.24	0.20	5.07	
2,980.00	1.62	286.31	2,978.72	8.17	24.90	-24.96	0.18	0.13	4.40	
2,995.00	1.62	287.00	2,993.71	8.30	24.49	-24.55	0.13	0.00	4.60	
3,010.00	1.61	287.84	3,008.71	8.42	24.09	-24.15	0.17	-0.07	5.60	
3,025.00	1.58	289.02	3,023.70	8.55	23.69	-23.75	0.30	-0.20	7.87	
3,040.00	1.71	284.13	3,038.69	8.68	23.28	-23.34	1.27	0.87	-32.60	
3,053.43	2.25	272.97	3,052.12	8.74	22.82	-22.88	4.92	4.02	-83.10	
3,065.33	2.77	266.83	3,064.00	8.73	22.30	-22.36	4.92	4.38	-51.64	
DLWR Mnt. Group										
3,066.86	2.84	266.20	3,065.53	8.73	22.23	-22.29	4.92	4.50	-40.84	
3,080.29	2.82	266.96	3,078.95	8.69	21.57	-21.63	0.32	-0.15	5.66	
3,093.71	2.57	270.47	3,092.35	8.68	20.93	-21.00	2.23	-1.86	26.15	
3,107.14	2.31	275.02	3,105.77	8.70	20.36	-20.43	2.41	-1.94	33.88	
3,120.57	2.08	280.49	3,119.19	8.77	19.85	-19.92	2.31	-1.71	40.73	
3,134.00	1.90	286.32	3,132.61	8.88	19.40	-19.46	2.02	-1.34	43.41	
3,147.29	1.74	289.21	3,145.89	9.00	19.00	-19.06	1.39	-1.20	21.75	
3,160.57	2.01	281.71	3,159.17	9.12	18.58	-18.65	2.74	2.03	-56.48	
3,173.86	1.92	283.19	3,172.45	9.22	18.14	-18.20	0.78	-0.68	11.14	
3,187.14	1.86	284.47	3,185.72	9.32	17.71	-17.78	0.55	-0.45	9.64	
3,200.43	1.80	285.61	3,199.00	9.43	17.30	-17.37	0.53	-0.45	8.58	
3,213.71	1.76	286.67	3,212.28	9.55	16.90	-16.97	0.39	-0.30	7.98	
3,227.00	1.72	287.68	3,225.56	9.67	16.52	-16.59	0.38	-0.30	7.60	
3,240.29	1.85	283.43	3,238.85	9.78	16.12	-16.19	1.40	0.98	-31.98	
3,253.57	1.99	279.74	3,252.12	9.86	15.68	-15.76	1.41	1.05	-27.79	
3,266.86	1.94	280.51	3,265.40	9.94	15.24	-15.31	0.43	-0.38	5.79	
3,280.14	1.90	281.23	3,278.67	10.03	14.80	-14.87	0.35	-0.30	5.42	
3,293.43	1.85	281.87	3,291.96	10.12	14.37	-14.45	0.41	-0.38	4.82	
3,306.71	1.81	282.35	3,305.23	10.20	13.96	-14.03	0.32	-0.30	3.61	
3,320.00	1.77	282.56	3,318.51	10.29	13.55	-13.63	0.30	-0.30	1.58	
3,333.29	1.74	282.46	3,331.80	10.38	13.16	-13.23	0.23	-0.23	-0.75	
3,346.57	1.72	282.04	3,345.07	10.47	12.76	-12.84	0.18	-0.15	-3.16	
3,359.86	1.70	281.39	3,358.35	10.55	12.38	-12.45	0.21	-0.15	-4.89	
3,373.14	1.68	280.54	3,371.63	10.62	11.99	-12.07	0.24	-0.15	-6.40	
3,386.43	1.68	279.55	3,384.91	10.69	11.61	-11.68	0.22	0.00	-7.45	
3,399.71	1.68	278.44	3,398.19	10.75	11.22	-11.30	0.25	0.00	-8.36	
3,413.00	1.69	277.26	3,411.47	10.80	10.84	-10.91	0.27	0.08	-8.88	
3,426.43	1.71	275.95	3,424.90	10.85	10.44	-10.52	0.33	0.15	-9.75	
3,439.86	1.73	274.61	3,438.32	10.89	10.04	-10.12	0.33	0.15	-9.98	
3,453.29	1.77	273.27	3,451.74	10.92	9.63	-9.71	0.43	0.30	-9.98	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
3,466.71	1.81	271.98	3,465.16	10.93	9.21	-9.29	0.42	0.30	-9.61
3,480.14	1.85	270.77	3,478.58	10.94	8.78	-8.86	0.41	0.30	-9.01
3,493.57	1.89	269.68	3,492.00	10.95	8.34	-8.42	0.40	0.30	-8.12
3,507.00	1.93	268.76	3,505.43	10.94	7.90	-7.97	0.38	0.30	-6.85
3,520.29	1.97	268.03	3,518.71	10.93	7.44	-7.52	0.35	0.30	-5.49
3,533.57	2.00	267.39	3,531.98	10.91	6.98	-7.06	0.28	0.23	-4.82
3,546.86	2.02	266.74	3,545.26	10.89	6.52	-6.60	0.23	0.15	-4.89
3,560.14	2.05	265.96	3,558.53	10.86	6.05	-6.13	0.31	0.23	-5.87
3,573.43	2.06	264.92	3,571.81	10.82	5.57	-5.65	0.29	0.08	-7.83
3,586.71	2.07	263.48	3,585.09	10.77	5.10	-5.17	0.40	0.08	-10.84
3,600.00	2.07	261.39	3,598.37	10.71	4.62	-4.70	0.57	0.00	-15.73
3,613.43	2.04	258.24	3,611.79	10.62	4.15	-4.22	0.87	-0.22	-23.45
3,626.86	2.01	254.33	3,625.21	10.51	3.69	-3.76	1.05	-0.22	-29.11
3,640.29	1.98	249.85	3,638.63	10.36	3.24	-3.32	1.18	-0.22	-33.36
3,653.71	1.97	245.01	3,652.04	10.19	2.82	-2.89	1.24	-0.07	-36.07
3,667.14	1.99	240.04	3,665.47	9.97	2.40	-2.48	1.29	0.15	-37.01
3,680.57	2.03	235.24	3,678.89	9.72	2.01	-2.08	1.29	0.30	-35.74
3,694.00	2.10	230.96	3,692.31	9.43	1.62	-1.69	1.26	0.52	-31.87
3,707.29	1.88	215.37	3,705.59	9.10	1.31	-1.37	4.38	-1.66	-117.31
3,720.57	2.13	194.49	3,718.86	8.68	1.12	-1.18	5.78	1.88	-157.23
3,733.86	2.79	179.80	3,732.14	8.12	1.06	-1.12	6.83	4.97	-110.53
3,747.14	3.20	173.02	3,745.40	7.43	1.10	-1.16	4.08	3.09	-51.05
3,760.43	3.50	172.14	3,758.67	6.66	1.20	-1.25	2.29	2.26	-6.62
3,773.71	3.81	171.42	3,771.92	5.82	1.32	-1.37	2.36	2.33	-5.42
3,787.00	4.08	170.75	3,785.18	4.92	1.47	-1.50	2.06	2.03	-5.04
3,800.43	4.23	168.92	3,798.58	3.96	1.64	-1.67	1.49	1.12	-13.63
3,813.86	4.33	167.45	3,811.97	2.98	1.84	-1.87	1.11	0.74	-10.95
3,815.90	4.34	167.27	3,814.00	2.83	1.88	-1.90	0.77	0.37	-9.02
Lower Brushy Canyon									
3,827.29	4.38	166.25	3,825.36	1.99	2.08	-2.09	0.77	0.37	-8.92
3,840.71	4.39	165.27	3,838.74	0.99	2.33	-2.34	0.56	0.07	-7.30
3,854.14	4.38	164.51	3,852.13	0.00	2.60	-2.60	0.44	-0.07	-5.66
3,867.57	4.33	163.99	3,865.52	-0.98	2.87	-2.87	0.47	-0.37	-3.87
3,881.00	4.24	163.80	3,878.92	-1.94	3.15	-3.14	0.68	-0.67	-1.41
3,894.29	4.09	164.10	3,892.17	-2.87	3.42	-3.40	1.14	-1.13	2.26
3,907.57	3.91	164.71	3,905.42	-3.76	3.67	-3.64	1.39	-1.36	4.59
3,920.86	3.70	165.53	3,918.68	-4.62	3.89	-3.86	1.63	-1.58	6.17
3,934.14	3.47	166.42	3,931.93	-5.42	4.10	-4.06	1.78	-1.73	6.70
3,947.43	3.21	167.23	3,945.20	-6.18	4.27	-4.23	1.99	-1.96	6.09
3,960.71	2.94	167.69	3,958.46	-6.87	4.43	-4.38	2.04	-2.03	3.46
3,974.00	2.63	167.33	3,971.74	-7.50	4.57	-4.51	2.34	-2.33	-2.71
3,989.00	2.09	166.77	3,986.72	-8.10	4.70	-4.65	3.60	-3.60	-3.73
4,004.00	1.23	175.55	4,001.72	-8.53	4.78	-4.72	5.96	-5.73	58.53



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
4,019.00	0.60	171.03	4,016.71	-8.77	4.80	-4.74	4.22	-4.20	-30.13
4,034.00	0.58	107.42	4,031.71	-8.87	4.89	-4.83	4.15	-0.13	-424.07
4,042.29	0.81	85.85	4,040.00	-8.88	4.99	-4.92	4.14	2.75	-260.28
Bone Spring Lime									
4,049.00	1.04	76.29	4,046.71	-8.86	5.09	-5.03	4.14	3.46	-142.42
4,064.00	1.56	66.59	4,061.71	-8.75	5.41	-5.35	3.75	3.47	-64.67
4,077.57	1.27	58.32	4,075.27	-8.59	5.71	-5.65	2.61	-2.14	-60.94
4,091.14	1.23	53.92	4,088.84	-8.43	5.96	-5.90	0.77	-0.29	-32.42
4,104.71	1.37	55.49	4,102.41	-8.25	6.21	-6.15	1.06	1.03	11.57
4,118.29	1.50	56.75	4,115.98	-8.06	6.49	-6.43	0.99	0.96	9.28
4,131.86	1.63	57.78	4,129.55	-7.86	6.80	-6.75	0.98	0.96	7.59
4,145.43	1.77	58.63	4,143.11	-7.65	7.14	-7.09	1.05	1.03	6.26
4,159.00	1.90	59.33	4,156.67	-7.43	7.52	-7.46	0.97	0.96	5.16
4,172.29	1.85	54.66	4,169.96	-7.19	7.88	-7.83	1.21	-0.38	-35.14
4,185.57	1.82	49.62	4,183.23	-6.93	8.22	-8.17	1.24	-0.23	-37.95
4,198.86	1.80	44.49	4,196.51	-6.64	8.52	-8.48	1.23	-0.15	-38.60
4,212.14	1.80	39.54	4,209.79	-6.33	8.80	-8.76	1.17	0.00	-37.27
4,225.43	1.82	35.00	4,223.07	-6.00	9.06	-9.01	1.09	0.15	-34.16
4,238.71	1.83	31.12	4,236.34	-5.65	9.29	-9.25	0.93	0.08	-29.22
4,252.00	1.83	28.13	4,249.63	-5.28	9.50	-9.46	0.72	0.00	-22.50
4,265.57	1.80	26.63	4,263.19	-4.90	9.69	-9.66	0.41	-0.22	-11.05
4,279.14	1.77	26.09	4,276.75	-4.52	9.88	-9.85	0.25	-0.22	-3.98
4,292.71	1.73	26.21	4,290.32	-4.14	10.07	-10.04	0.30	-0.29	0.88
4,306.29	1.69	26.73	4,303.89	-3.78	10.25	-10.22	0.32	-0.29	3.83
4,319.86	1.65	27.42	4,317.46	-3.43	10.43	-10.40	0.33	-0.29	5.08
4,333.43	1.62	28.02	4,331.02	-3.09	10.61	-10.58	0.25	-0.22	4.42
4,347.00	1.59	28.22	4,344.59	-2.75	10.78	-10.76	0.22	-0.22	1.47
4,360.29	1.56	27.09	4,357.87	-2.43	10.95	-10.94	0.32	-0.23	-8.50
4,373.57	1.55	25.43	4,371.15	-2.10	11.11	-11.10	0.35	-0.08	-12.50
4,386.86	1.54	23.47	4,384.43	-1.78	11.26	-11.25	0.40	-0.08	-14.75
4,400.14	1.54	21.37	4,397.71	-1.45	11.40	-11.39	0.42	0.00	-15.81
4,413.43	1.54	19.26	4,410.99	-1.11	11.52	-11.51	0.43	0.00	-15.88
4,426.71	1.54	17.26	4,424.27	-0.78	11.63	-11.63	0.40	0.00	-15.06
4,440.00	1.54	15.48	4,437.55	-0.43	11.73	-11.73	0.36	0.00	-13.39
4,453.29	1.53	14.10	4,450.84	-0.09	11.83	-11.82	0.29	-0.08	-10.38
4,466.57	1.53	12.98	4,464.11	0.26	11.91	-11.91	0.23	0.00	-8.43
4,479.86	1.52	12.04	4,477.40	0.60	11.99	-11.99	0.20	-0.08	-7.07
4,493.14	1.51	11.24	4,490.67	0.95	12.06	-12.06	0.18	-0.08	-6.02
4,506.43	1.50	10.53	4,503.96	1.29	12.12	-12.13	0.16	-0.08	-5.34
4,519.71	1.49	9.89	4,517.23	1.63	12.18	-12.19	0.15	-0.08	-4.82
4,533.00	1.49	9.26	4,530.52	1.97	12.24	-12.25	0.12	0.00	-4.74
4,546.29	1.48	8.56	4,543.80	2.31	12.29	-12.31	0.16	-0.08	-5.27
4,559.57	1.47	7.86	4,557.08	2.65	12.34	-12.36	0.16	-0.08	-5.27
4,572.86	1.47	7.17	4,570.37	2.99	12.39	-12.41	0.13	0.00	-5.19



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
4,586.14	1.46	6.50	4,583.64	3.32	12.43	-12.45	0.15	-0.08	-5.05	
4,599.43	1.45	5.84	4,596.93	3.66	12.46	-12.49	0.15	-0.08	-4.97	
4,612.71	1.45	5.21	4,610.20	3.99	12.50	-12.52	0.12	0.00	-4.74	
4,626.00	1.44	4.59	4,623.49	4.33	12.53	-12.56	0.14	-0.08	-4.67	
4,639.29	1.43	3.97	4,636.77	4.66	12.55	-12.58	0.14	-0.08	-4.67	
4,652.57	1.42	3.39	4,650.05	4.99	12.57	-12.61	0.13	-0.08	-4.37	
4,665.86	1.41	2.91	4,663.34	5.32	12.59	-12.63	0.12	-0.08	-3.61	
4,679.14	1.40	2.56	4,676.61	5.64	12.60	-12.64	0.10	-0.08	-2.64	
4,692.43	1.39	2.43	4,689.90	5.97	12.62	-12.66	0.08	-0.08	-0.98	
4,705.71	1.39	2.61	4,703.17	6.29	12.63	-12.68	0.03	0.00	1.36	
4,719.00	1.39	3.23	4,716.46	6.61	12.65	-12.70	0.11	0.00	4.67	
4,732.29	1.40	4.54	4,729.75	6.93	12.67	-12.72	0.25	0.08	9.86	
4,745.57	1.41	6.25	4,743.02	7.26	12.70	-12.75	0.32	0.08	12.88	
4,758.86	1.42	8.15	4,756.31	7.58	12.74	-12.80	0.36	0.08	14.30	
4,772.14	1.44	10.10	4,769.58	7.91	12.80	-12.85	0.40	0.15	14.68	
4,785.43	1.46	11.96	4,782.87	8.24	12.86	-12.92	0.38	0.15	14.00	
4,798.71	1.48	13.60	4,796.15	8.57	12.94	-13.00	0.35	0.15	12.35	
4,812.00	1.50	14.91	4,809.43	8.91	13.02	-13.08	0.30	0.15	9.86	
4,825.43	1.50	15.75	4,822.86	9.24	13.11	-13.18	0.16	0.00	6.25	
4,838.86	1.50	16.23	4,836.28	9.58	13.21	-13.28	0.09	0.00	3.57	
4,852.29	1.50	16.43	4,849.71	9.92	13.31	-13.38	0.04	0.00	1.49	
4,865.71	1.50	16.45	4,863.12	10.26	13.41	-13.48	0.00	0.00	0.15	
4,879.14	1.51	16.32	4,876.55	10.60	13.51	-13.58	0.08	0.07	-0.97	
4,892.57	1.52	16.04	4,889.97	10.94	13.61	-13.69	0.09	0.07	-2.08	
4,906.00	1.53	15.63	4,903.40	11.28	13.70	-13.79	0.11	0.07	-3.05	
4,919.29	1.56	14.97	4,916.68	11.63	13.80	-13.88	0.26	0.23	-4.97	
4,932.57	1.59	14.25	4,929.96	11.98	13.89	-13.98	0.27	0.23	-5.42	
4,945.86	1.63	13.54	4,943.24	12.34	13.98	-14.07	0.34	0.30	-5.34	
4,959.14	1.67	12.94	4,956.52	12.71	14.07	-14.16	0.33	0.30	-4.52	
4,972.43	1.72	12.53	4,969.80	13.10	14.16	-14.25	0.39	0.38	-3.09	
4,985.71	1.77	12.39	4,983.08	13.49	14.24	-14.34	0.38	0.38	-1.05	
4,999.00	1.84	12.64	4,996.36	13.90	14.33	-14.43	0.53	0.53	1.88	
5,012.29	1.92	13.33	5,009.64	14.33	14.43	-14.53	0.63	0.60	5.19	
5,025.57	2.00	14.29	5,022.91	14.77	14.54	-14.64	0.65	0.60	7.23	
5,038.86	2.09	15.36	5,036.20	15.23	14.66	-14.77	0.74	0.68	8.05	
5,052.14	2.19	16.45	5,049.47	15.70	14.80	-14.91	0.81	0.75	8.21	
5,065.43	2.28	17.47	5,062.75	16.20	14.95	-15.06	0.74	0.68	7.67	
5,078.71	2.37	18.39	5,076.02	16.71	15.11	-15.23	0.73	0.68	6.93	
5,092.00	2.46	19.15	5,089.29	17.24	15.29	-15.42	0.72	0.68	5.72	
5,105.43	2.53	19.97	5,102.71	17.79	15.49	-15.62	0.59	0.52	6.11	
5,118.86	2.59	20.64	5,116.13	18.35	15.70	-15.83	0.50	0.45	4.99	
5,132.29	2.66	21.21	5,129.54	18.93	15.92	-16.05	0.56	0.52	4.24	
5,145.71	2.71	21.73	5,142.95	19.51	16.15	-16.29	0.41	0.37	3.87	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
5,159.14	2.77	22.22	5,156.36	20.11	16.39	-16.53	0.48	0.45	3.65	
5,172.57	2.82	22.69	5,169.78	20.71	16.64	-16.79	0.41	0.37	3.50	
5,186.00	2.87	23.17	5,183.19	21.33	16.90	-17.05	0.41	0.37	3.57	
5,199.29	2.92	23.70	5,196.46	21.94	17.17	-17.32	0.43	0.38	3.99	
5,212.57	2.97	24.24	5,209.73	22.57	17.44	-17.60	0.43	0.38	4.07	
5,225.86	3.00	24.77	5,223.00	23.20	17.73	-17.90	0.31	0.23	3.99	
5,239.14	3.02	25.29	5,236.26	23.83	18.02	-18.19	0.25	0.15	3.92	
5,252.43	3.01	25.79	5,249.53	24.46	18.33	-18.50	0.21	-0.08	3.76	
5,265.71	2.96	26.29	5,262.79	25.08	18.63	-18.81	0.42	-0.38	3.77	
5,279.00	2.85	26.77	5,276.07	25.68	18.93	-19.11	0.85	-0.83	3.61	
5,292.43	2.64	27.07	5,289.48	26.26	19.22	-19.41	1.57	-1.56	2.23	
5,305.86	2.22	32.07	5,302.90	26.75	19.50	-19.69	3.50	-3.13	37.23	
5,319.29	1.81	40.73	5,316.32	27.13	19.78	-19.97	3.79	-3.05	64.48	
5,332.71	1.45	43.94	5,329.74	27.42	20.03	-20.23	2.77	-2.68	23.92	
5,346.14	1.11	47.18	5,343.16	27.63	20.25	-20.44	2.59	-2.53	24.13	
5,359.57	0.77	53.21	5,356.59	27.77	20.41	-20.61	2.63	-2.53	44.90	
5,373.00	0.49	65.75	5,370.02	27.85	20.54	-20.74	2.31	-2.08	93.37	
5,386.29	0.54	67.08	5,383.31	27.90	20.65	-20.85	0.39	0.38	10.01	
5,399.57	0.59	68.09	5,396.59	27.95	20.77	-20.97	0.38	0.38	7.61	
5,412.86	0.64	68.87	5,409.88	28.00	20.90	-21.10	0.38	0.38	5.87	
5,426.14	0.69	69.46	5,423.16	28.05	21.05	-21.25	0.38	0.38	4.44	
5,439.43	0.74	69.91	5,436.45	28.11	21.20	-21.40	0.38	0.38	3.39	
5,452.71	0.80	70.24	5,449.72	28.17	21.37	-21.57	0.45	0.45	2.48	
5,466.00	0.82	73.97	5,463.01	28.23	21.55	-21.75	0.42	0.15	28.07	
5,479.14	1.29	108.04	5,476.15	28.21	21.78	-21.98	5.82	3.58	259.28	
5,492.29	2.01	126.78	5,489.30	28.02	22.10	-22.30	6.77	5.48	142.51	
5,505.43	2.11	130.05	5,502.43	27.73	22.47	-22.67	1.17	0.76	24.89	
5,518.57	1.90	129.74	5,515.56	27.44	22.83	-23.02	1.60	-1.60	-2.36	
5,531.71	1.67	129.26	5,528.69	27.18	23.14	-23.34	1.75	-1.75	-3.65	
5,544.86	1.46	128.65	5,541.84	26.95	23.42	-23.61	1.60	-1.60	-4.64	
5,558.00	1.27	128.07	5,554.97	26.76	23.67	-23.86	1.45	-1.45	-4.41	
5,571.43	1.17	130.46	5,568.40	26.57	23.89	-24.08	0.84	-0.74	17.80	
5,584.86	1.83	149.45	5,581.83	26.30	24.10	-24.29	6.09	4.91	141.40	
5,598.29	2.64	158.71	5,595.25	25.83	24.32	-24.51	6.58	6.03	68.95	
5,611.71	2.55	159.28	5,608.65	25.26	24.54	-24.72	0.70	-0.67	4.25	
5,625.14	2.47	159.99	5,622.07	24.71	24.75	-24.92	0.64	-0.60	5.29	
5,638.57	2.40	160.91	5,635.49	24.17	24.94	-25.11	0.60	-0.52	6.85	
5,652.00	2.33	162.18	5,648.91	23.65	25.11	-25.28	0.65	-0.52	9.46	
5,665.14	2.40	162.45	5,662.03	23.13	25.28	-25.44	0.54	0.53	2.05	
5,678.29	3.34	156.53	5,675.17	22.52	25.51	-25.67	7.49	7.15	-45.02	
5,691.43	4.25	154.05	5,688.28	21.73	25.88	-26.03	7.04	6.93	-18.87	
5,704.57	4.26	155.32	5,701.38	20.85	26.30	-26.44	0.72	0.08	9.67	
5,717.71	4.20	156.98	5,714.49	19.96	26.69	-26.83	1.04	-0.46	12.63	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
5,730.86	4.16	158.74	5,727.60	19.07	27.05	-27.18	1.02	-0.30	13.38	
5,744.00	4.14	160.48	5,740.71	18.18	27.38	-27.51	0.97	-0.15	13.24	
5,757.43	4.92	156.83	5,754.10	17.19	27.77	-27.89	6.19	5.81	-27.18	
5,770.86	5.89	153.97	5,767.47	16.05	28.30	-28.41	7.49	7.22	-21.30	
5,784.29	6.59	152.80	5,780.82	14.74	28.95	-29.06	5.30	5.21	-8.71	
5,797.71	6.71	154.05	5,794.15	13.35	29.65	-29.74	1.40	0.89	9.31	
5,811.14	6.85	155.31	5,807.48	11.92	30.32	-30.41	1.52	1.04	9.38	
5,824.57	6.98	156.52	5,820.81	10.44	30.98	-31.06	1.45	0.97	9.01	
5,838.00	7.16	156.92	5,834.14	8.92	31.64	-31.70	1.39	1.34	2.98	
5,851.29	7.84	152.79	5,847.32	7.35	32.38	-32.43	6.53	5.12	-31.08	
5,864.57	8.23	151.70	5,860.47	5.71	33.24	-33.28	3.15	2.94	-8.21	
5,877.86	8.10	152.53	5,873.62	4.04	34.12	-34.15	1.32	-0.98	6.25	
5,891.14	7.93	153.35	5,886.77	2.40	34.97	-34.98	1.54	-1.28	6.17	
5,904.43	7.71	154.09	5,899.94	0.77	35.77	-35.77	1.82	-1.66	5.57	
5,917.71	7.47	154.70	5,913.10	-0.81	36.53	-36.52	1.91	-1.81	4.59	
5,931.00	7.19	155.05	5,926.29	-2.34	37.25	-37.23	2.13	-2.11	2.63	
5,944.29	6.85	154.86	5,939.48	-3.81	37.93	-37.91	2.56	-2.56	-1.43	
5,957.57	6.49	154.28	5,952.67	-5.21	38.60	-38.56	2.76	-2.71	-4.37	
5,970.86	6.12	153.38	5,965.88	-6.52	39.24	-39.19	2.88	-2.78	-6.77	
5,984.14	5.75	152.17	5,979.08	-7.74	39.87	-39.81	2.94	-2.79	-9.11	
5,997.43	5.41	150.70	5,992.31	-8.87	40.48	-40.42	2.77	-2.56	-11.06	
6,010.71	5.10	149.00	6,005.54	-9.93	41.09	-41.02	2.61	-2.33	-12.80	
6,024.00	4.85	147.20	6,018.78	-10.90	41.70	-41.62	2.22	-1.88	-13.54	
6,037.43	4.68	145.89	6,032.16	-11.84	42.32	-42.23	1.50	-1.27	-9.75	
6,050.86	4.57	144.59	6,045.55	-12.72	42.94	-42.84	1.13	-0.82	-9.68	
6,064.29	4.50	143.29	6,058.93	-13.58	43.56	-43.46	0.93	-0.52	-9.68	
6,077.71	4.45	142.03	6,072.31	-14.42	44.20	-44.09	0.82	-0.37	-9.39	
6,091.14	4.42	140.85	6,085.70	-15.23	44.84	-44.73	0.72	-0.22	-8.79	
6,104.57	4.39	139.79	6,099.09	-16.02	45.50	-45.39	0.65	-0.22	-7.89	
6,118.00	4.36	138.92	6,112.48	-16.80	46.17	-46.05	0.54	-0.22	-6.48	
6,131.29	4.84	138.52	6,125.73	-17.60	46.87	-46.74	3.62	3.61	-3.01	
6,144.57	5.67	138.02	6,138.95	-18.51	47.68	-47.55	6.26	6.25	-3.77	
6,157.86	6.00	137.80	6,152.18	-19.51	48.59	-48.45	2.49	2.48	-1.66	
6,171.14	5.92	137.96	6,165.38	-20.53	49.51	-49.36	0.62	-0.60	1.20	
6,184.43	5.84	138.14	6,178.60	-21.55	50.42	-50.27	0.62	-0.60	1.35	
6,197.71	5.76	138.24	6,191.82	-22.55	51.32	-51.15	0.61	-0.60	0.75	
6,211.00	5.69	138.14	6,205.04	-23.53	52.20	-52.03	0.53	-0.53	-0.75	
6,224.29	5.62	137.63	6,218.26	-24.51	53.08	-52.90	0.65	-0.53	-3.84	
6,237.57	5.57	136.87	6,231.48	-25.46	53.96	-53.77	0.67	-0.38	-5.72	
6,250.86	5.52	135.97	6,244.71	-26.39	54.84	-54.65	0.75	-0.38	-6.77	
6,264.14	5.48	134.98	6,257.93	-27.29	55.74	-55.54	0.78	-0.30	-7.45	
6,277.43	5.44	133.99	6,271.16	-28.18	56.64	-56.43	0.77	-0.30	-7.45	
6,290.71	5.40	133.05	6,284.38	-29.04	57.55	-57.34	0.73	-0.30	-7.08	
6,304.00	5.36	132.25	6,297.61	-29.89	58.46	-58.25	0.64	-0.30	-6.02	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
6,317.43	5.79	133.03	6,310.98	-30.77	59.42	-59.20	3.25	3.20	5.81	
6,330.86	6.10	133.56	6,324.33	-31.73	60.44	-60.21	2.34	2.31	3.95	
6,344.29	6.04	133.49	6,337.69	-32.70	61.46	-61.23	0.45	-0.45	-0.52	
6,357.71	5.98	133.53	6,351.04	-33.67	62.48	-62.24	0.45	-0.45	0.30	
6,371.14	5.92	133.61	6,364.39	-34.63	63.49	-63.24	0.45	-0.45	0.60	
6,384.57	5.85	133.73	6,377.75	-35.58	64.49	-64.23	0.53	-0.52	0.89	
6,398.00	5.77	133.86	6,391.11	-36.52	65.47	-65.21	0.60	-0.60	0.97	
6,406.93	5.71	133.91	6,400.00	-37.14	66.11	-65.85	0.68	-0.68	0.60	
1st Bone Spring SD										
6,411.29	5.68	133.94	6,404.34	-37.44	66.43	-66.16	0.68	-0.68	0.61	
6,424.57	5.58	133.99	6,417.55	-38.35	67.36	-67.09	0.75	-0.75	0.38	
6,437.86	5.47	133.98	6,430.78	-39.23	68.28	-68.00	0.83	-0.83	-0.08	
6,451.14	5.37	133.89	6,444.00	-40.10	69.19	-68.90	0.76	-0.75	-0.68	
6,464.43	5.27	133.66	6,457.23	-40.96	70.08	-69.78	0.77	-0.75	-1.73	
6,477.71	5.18	133.23	6,470.46	-41.79	70.95	-70.65	0.74	-0.68	-3.24	
6,491.00	5.11	132.51	6,483.70	-42.60	71.83	-71.52	0.72	-0.53	-5.42	
6,504.43	5.31	136.66	6,497.07	-43.46	72.70	-72.38	3.18	1.49	30.90	
6,517.86	5.52	139.85	6,510.44	-44.40	73.54	-73.22	2.73	1.56	23.75	
6,531.29	5.53	137.99	6,523.81	-45.38	74.39	-74.06	1.34	0.07	-13.85	
6,544.71	5.55	135.98	6,537.17	-46.32	75.27	-74.94	1.45	0.15	-14.98	
6,558.14	5.57	134.03	6,550.53	-47.24	76.19	-75.85	1.41	0.15	-14.52	
6,571.57	5.58	132.32	6,563.90	-48.14	77.14	-76.80	1.24	0.07	-12.73	
6,585.00	5.55	131.04	6,577.27	-49.00	78.12	-77.76	0.95	-0.22	-9.53	
6,598.29	5.65	132.21	6,590.49	-49.86	79.09	-78.73	1.14	0.75	8.80	
6,607.85	5.91	135.26	6,600.00	-50.53	79.78	-79.42	4.18	2.68	31.94	
2nd Bone Spring LM										
6,611.57	6.01	136.38	6,603.70	-50.81	80.05	-79.68	4.18	2.79	30.02	
6,624.86	5.92	139.23	6,616.92	-51.83	80.98	-80.60	2.33	-0.68	21.44	
6,638.14	5.74	140.38	6,630.13	-52.86	81.85	-81.47	1.62	-1.36	8.66	
6,651.43	5.55	141.82	6,643.36	-53.88	82.67	-82.28	1.78	-1.43	10.84	
6,664.71	5.35	143.37	6,656.58	-54.88	83.43	-83.04	1.87	-1.51	11.67	
6,678.00	5.14	144.83	6,669.81	-55.86	84.15	-83.75	1.87	-1.58	10.99	
6,691.29	4.91	145.43	6,683.05	-56.82	84.81	-84.40	1.78	-1.73	4.51	
6,704.57	4.67	145.71	6,696.28	-57.73	85.44	-85.02	1.82	-1.81	2.11	
6,717.86	4.43	145.80	6,709.53	-58.60	86.03	-85.61	1.81	-1.81	0.68	
6,731.14	4.21	145.81	6,722.78	-59.43	86.60	-86.17	1.66	-1.66	0.08	
6,744.43	4.02	145.84	6,736.03	-60.22	87.13	-86.70	1.43	-1.43	0.23	
6,757.71	3.86	146.04	6,749.28	-60.98	87.64	-87.20	1.21	-1.20	1.51	
6,771.00	3.76	146.56	6,762.54	-61.71	88.13	-87.69	0.80	-0.75	3.91	
6,784.43	3.75	147.67	6,775.94	-62.45	88.61	-88.16	0.55	-0.07	8.27	
6,797.86	3.79	149.07	6,789.34	-63.20	89.07	-88.62	0.75	0.30	10.42	
6,811.29	3.88	150.60	6,802.74	-63.98	89.52	-89.06	1.01	0.67	11.39	
6,824.71	3.98	152.17	6,816.13	-64.78	89.96	-89.50	1.09	0.75	11.70	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
6,838.14	4.07	153.72	6,829.53	-65.62	90.39	-89.92	1.05	0.67	11.54
6,851.57	4.15	155.25	6,842.92	-66.49	90.81	-90.33	1.01	0.60	11.39
6,865.00	4.57	153.80	6,856.31	-67.41	91.25	-90.76	3.23	3.13	-10.80
6,878.14	5.23	151.53	6,869.41	-68.41	91.76	-91.27	5.23	5.02	-17.28
6,891.29	5.87	150.30	6,882.49	-69.52	92.38	-91.88	4.95	4.87	-9.35
6,904.43	5.72	151.74	6,895.57	-70.68	93.03	-92.52	1.59	-1.14	10.96
6,917.57	5.54	153.32	6,908.64	-71.82	93.62	-93.10	1.81	-1.37	12.02
6,930.71	5.35	154.92	6,921.72	-72.95	94.16	-93.64	1.85	-1.45	12.18
6,943.86	5.16	156.38	6,934.82	-74.04	94.66	-94.13	1.77	-1.44	11.10
6,957.00	4.98	157.44	6,947.91	-75.11	95.12	-94.58	1.54	-1.37	8.07
6,970.43	4.83	157.43	6,961.29	-76.17	95.56	-95.01	1.12	-1.12	-0.07
6,983.86	4.70	156.86	6,974.67	-77.20	95.99	-95.44	1.03	-0.97	-4.24
6,997.29	4.60	155.96	6,988.06	-78.20	96.43	-95.86	0.92	-0.74	-6.70
7,010.71	4.51	154.90	7,001.44	-79.17	96.87	-96.30	0.92	-0.67	-7.90
7,024.14	4.44	153.88	7,014.82	-80.11	97.32	-96.75	0.79	-0.52	-7.59
7,037.57	4.39	153.10	7,028.21	-81.04	97.78	-97.20	0.58	-0.37	-5.81
7,051.00	4.36	152.82	7,041.61	-81.95	98.25	-97.66	0.27	-0.22	-2.08
7,064.29	4.53	153.39	7,054.86	-82.87	98.72	-98.12	1.32	1.28	4.29
7,077.57	4.84	155.09	7,068.09	-83.85	99.19	-98.58	2.56	2.33	12.80
7,090.86	5.05	155.48	7,081.33	-84.89	99.67	-99.06	1.60	1.58	2.93
7,104.14	5.15	157.32	7,094.56	-85.97	100.14	-99.52	1.44	0.75	13.86
7,117.43	5.27	159.39	7,107.79	-87.09	100.58	-99.96	1.68	0.90	15.58
7,130.71	5.40	161.56	7,121.02	-88.25	100.99	-100.36	1.81	0.98	16.34
7,144.00	5.53	162.78	7,134.25	-89.46	101.38	-100.74	1.31	0.98	9.18
7,157.29	5.79	157.77	7,147.47	-90.69	101.83	-101.17	4.20	1.96	-37.70
7,170.57	5.75	160.30	7,160.68	-91.94	102.30	-101.64	1.94	-0.30	19.05
7,183.86	5.71	162.59	7,173.91	-93.19	102.73	-102.06	1.75	-0.30	17.23
7,197.14	5.63	165.47	7,187.12	-94.45	103.09	-102.41	2.23	-0.60	21.69
7,210.43	5.56	168.42	7,200.35	-95.72	103.38	-102.69	2.23	-0.53	22.20
7,223.71	5.51	171.32	7,213.57	-96.98	103.60	-102.91	2.14	-0.38	21.84
7,237.00	5.48	174.01	7,226.80	-98.24	103.77	-103.06	1.95	-0.23	20.24
7,251.77	5.41	176.43	7,241.50	-99.64	103.88	-103.17	1.63	-0.47	16.38
7,266.54	5.38	178.54	7,256.20	-101.02	103.94	-103.22	1.36	-0.20	14.29
7,281.31	5.35	180.44	7,270.91	-102.40	103.96	-103.22	1.22	-0.20	12.86
7,296.08	5.34	182.18	7,285.62	-103.78	103.93	-103.18	1.10	-0.07	11.78
7,300.48	5.34	182.65	7,290.00	-104.19	103.91	-103.16	1.00	-0.08	10.75
2nd Bone Spring SD									
7,310.85	5.33	183.77	7,300.32	-105.15	103.85	-103.10	1.00	-0.06	10.77
7,325.62	5.33	185.23	7,315.03	-106.52	103.75	-102.98	0.92	0.00	9.88
7,340.38	5.33	186.56	7,329.72	-107.88	103.61	-102.83	0.84	0.00	9.01
7,355.15	5.34	187.76	7,344.43	-109.24	103.43	-102.65	0.76	0.07	8.12
7,369.92	5.35	188.78	7,359.14	-110.61	103.24	-102.44	0.65	0.07	6.91
7,384.69	5.38	189.59	7,373.84	-111.97	103.02	-102.21	0.55	0.20	5.48
7,399.46	5.41	190.12	7,388.55	-113.34	102.78	-101.97	0.39	0.20	3.59



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
7,414.23	5.47	190.24	7,403.25	-114.71	102.53	-101.71	0.41	0.41	0.81
7,429.00	5.56	189.81	7,417.95	-116.11	102.28	-101.45	0.67	0.61	-2.91
7,442.29	5.70	188.65	7,431.18	-117.40	102.08	-101.23	1.36	1.05	-8.73
7,455.57	5.87	187.19	7,444.39	-118.73	101.89	-101.04	1.69	1.28	-10.99
7,468.86	6.05	185.68	7,457.61	-120.10	101.74	-100.87	1.80	1.35	-11.36
7,482.14	6.23	184.29	7,470.81	-121.51	101.61	-100.74	1.76	1.36	-10.47
7,495.43	6.38	183.17	7,484.02	-122.97	101.52	-100.64	1.46	1.13	-8.43
7,508.71	7.02	178.59	7,497.21	-124.52	101.50	-100.60	6.27	4.82	-34.49
7,522.00	7.28	177.02	7,510.40	-126.17	101.56	-100.66	2.45	1.96	-11.81
7,535.43	8.50	166.54	7,523.70	-127.98	101.84	-100.92	14.01	9.08	-78.03
7,548.86	8.64	165.67	7,536.98	-129.93	102.32	-101.39	1.42	1.04	-6.48
7,562.29	8.48	166.69	7,550.26	-131.87	102.80	-101.85	1.64	-1.19	7.59
7,575.71	8.31	167.91	7,563.54	-133.78	103.23	-102.27	1.83	-1.27	9.09
7,589.14	8.13	169.21	7,576.83	-135.66	103.61	-102.63	1.93	-1.34	9.68
7,602.57	7.95	170.45	7,590.13	-137.51	103.94	-102.95	1.86	-1.34	9.23
7,616.00	7.80	171.47	7,603.43	-139.33	104.23	-103.23	1.53	-1.12	7.59
7,629.43	7.69	171.88	7,616.74	-141.12	104.49	-103.48	0.92	-0.82	3.05
7,642.86	7.61	171.96	7,630.05	-142.89	104.74	-103.72	0.60	-0.60	0.60
7,652.90	7.56	171.84	7,640.00	-144.20	104.93	-103.89	0.54	-0.52	-1.19
3rd Bone Spring LM									
7,656.29	7.54	171.80	7,643.36	-144.64	104.99	-103.95	0.54	-0.52	-1.20
7,669.71	7.48	171.47	7,656.67	-146.38	105.25	-104.20	0.55	-0.45	-2.46
7,683.14	7.43	170.99	7,669.98	-148.10	105.51	-104.45	0.59	-0.37	-3.57
7,696.57	7.38	170.39	7,683.30	-149.81	105.79	-104.72	0.69	-0.37	-4.47
7,710.00	7.33	169.67	7,696.62	-151.50	106.09	-105.00	0.78	-0.37	-5.36
7,723.29	7.28	168.86	7,709.80	-153.16	106.41	-105.31	0.86	-0.38	-6.09
7,736.57	7.22	167.97	7,722.98	-154.80	106.74	-105.63	0.96	-0.45	-6.70
7,749.86	7.16	167.02	7,736.16	-156.42	107.10	-105.98	1.00	-0.45	-7.15
7,763.14	7.10	166.06	7,749.34	-158.03	107.49	-106.35	1.00	-0.45	-7.23
7,776.43	7.04	165.11	7,762.53	-159.61	107.89	-106.75	0.99	-0.45	-7.15
7,789.71	6.97	164.22	7,775.71	-161.17	108.32	-107.16	0.97	-0.53	-6.70
7,803.00	6.91	163.45	7,788.90	-162.72	108.77	-107.60	0.83	-0.45	-5.79
7,816.29	6.84	162.98	7,802.10	-164.24	109.23	-108.05	0.68	-0.53	-3.54
7,829.57	6.76	162.65	7,815.28	-165.74	109.69	-108.50	0.67	-0.60	-2.48
7,842.86	6.69	162.42	7,828.48	-167.23	110.16	-108.96	0.56	-0.53	-1.73
7,856.14	6.63	162.24	7,841.67	-168.69	110.63	-109.42	0.48	-0.45	-1.36
7,869.43	6.58	162.11	7,854.87	-170.15	111.09	-109.87	0.39	-0.38	-0.98
7,882.71	6.56	162.00	7,868.07	-171.59	111.56	-110.33	0.18	-0.15	-0.83
7,896.00	6.56	161.90	7,881.27	-173.04	112.03	-110.79	0.09	0.00	-0.75
7,909.57	6.63	161.83	7,894.75	-174.52	112.52	-111.27	0.52	0.52	-0.52
7,923.14	6.72	161.76	7,908.23	-176.02	113.01	-111.75	0.67	0.66	-0.52
7,936.71	6.83	161.67	7,921.70	-177.54	113.51	-112.24	0.81	0.81	-0.66
7,950.29	6.94	161.55	7,935.18	-179.08	114.03	-112.74	0.82	0.81	-0.88



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
7,963.86	7.02	161.38	7,948.65	-180.65	114.55	-113.26	0.61	0.59	-1.25	
7,977.43	7.08	161.13	7,962.12	-182.22	115.09	-113.78	0.50	0.44	-1.84	
7,986.00	7.48	163.10	7,970.62	-183.26	115.42	-114.10	5.45	4.62	22.94	
KOP: 7986.00' MD, -114.10' VS,7970.62' TVD										
7,991.00	7.71	164.15	7,975.58	-183.89	115.61	-114.29	5.45	4.69	21.08	
8,004.00	9.47	171.49	7,988.43	-185.79	116.00	-114.67	15.92	13.54	56.46	
8,017.00	11.43	176.96	8,001.22	-188.13	116.23	-114.88	16.88	15.08	42.08	
8,030.00	13.48	179.20	8,013.91	-190.93	116.32	-114.95	16.20	15.77	17.23	
8,043.00	13.85	187.02	8,026.54	-193.99	116.15	-114.76	14.48	2.85	60.15	
8,056.00	14.78	191.84	8,039.14	-197.16	115.62	-114.20	11.62	7.15	37.08	
8,069.00	15.24	198.40	8,051.70	-200.40	114.74	-113.30	13.53	3.54	50.46	
8,082.00	15.89	205.72	8,064.22	-203.63	113.43	-111.97	15.90	5.00	56.31	
8,095.14	16.75	209.40	8,076.83	-206.90	111.72	-110.23	10.23	6.54	28.01	
8,108.29	17.95	214.18	8,089.38	-210.23	109.65	-108.14	14.16	9.13	36.35	
8,121.43	19.55	218.95	8,101.83	-213.61	107.13	-105.60	16.86	12.18	36.30	
8,134.57	19.87	223.72	8,114.20	-216.94	104.20	-102.65	12.48	2.44	36.30	
8,147.71	20.72	228.04	8,126.52	-220.10	100.93	-99.35	13.11	6.47	32.88	
8,160.86	22.57	232.85	8,138.75	-223.18	97.19	-95.59	19.48	14.07	36.58	
8,174.00	23.95	236.62	8,150.82	-226.17	92.95	-91.33	15.44	10.50	28.69	
8,187.29	24.90	237.67	8,162.92	-229.15	88.33	-86.69	7.86	7.15	7.90	
8,200.57	25.83	238.35	8,174.92	-232.17	83.51	-81.85	7.34	7.00	5.12	
8,213.86	26.28	238.87	8,186.86	-235.21	78.53	-76.84	3.80	3.39	3.91	
8,227.14	25.42	237.64	8,198.81	-238.25	73.60	-71.89	7.63	-6.48	-9.26	
8,240.43	24.90	236.63	8,210.84	-241.32	68.86	-67.13	5.07	-3.91	-7.60	
8,253.71	26.33	237.70	8,222.81	-244.43	64.03	-62.28	11.32	10.77	8.06	
8,267.00	26.21	239.71	8,234.73	-247.49	59.01	-57.23	6.75	-0.90	15.12	
8,280.29	26.47	241.17	8,246.64	-250.40	53.88	-52.08	5.25	1.96	10.99	
8,293.57	25.96	242.61	8,258.55	-253.16	48.70	-46.89	6.14	-3.84	10.84	
8,306.86	26.46	246.37	8,270.48	-255.68	43.41	-41.58	13.05	3.76	28.29	
8,320.14	26.99	249.26	8,282.34	-257.94	37.88	-36.03	10.57	3.99	21.76	
8,333.43	27.45	251.04	8,294.16	-260.00	32.16	-30.30	7.04	3.46	13.39	
8,346.71	28.47	254.61	8,305.89	-261.84	26.21	-24.34	14.76	7.68	26.88	
8,360.00	29.31	259.06	8,317.53	-263.29	19.96	-18.08	17.36	6.32	33.48	
8,373.29	30.88	262.49	8,329.03	-264.36	13.39	-11.50	17.52	11.81	25.81	
8,386.57	32.88	264.62	8,340.30	-265.14	6.42	-4.52	17.28	15.06	16.04	
8,399.86	33.78	267.40	8,351.41	-265.65	-0.86	2.76	13.34	6.77	20.92	
8,413.14	34.84	271.04	8,362.38	-265.75	-8.34	10.25	17.39	7.98	27.41	
8,426.43	36.47	272.86	8,373.18	-265.48	-16.09	17.98	14.63	12.26	13.69	
8,439.71	38.61	274.20	8,383.71	-264.98	-24.16	26.06	17.25	16.11	10.09	
8,447.84	40.00	274.90	8,390.00	-264.57	-29.30	31.19	18.00	17.14	8.66	
3rd Bone Spring SD										
8,453.00	40.89	275.33	8,393.92	-264.27	-32.63	34.52	18.00	17.18	8.26	
8,466.29	42.19	275.77	8,403.87	-263.42	-41.40	43.28	10.03	9.78	3.31	
8,479.57	44.26	275.65	8,413.55	-262.51	-50.45	52.33	15.60	15.59	-0.90	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
8,492.86	46.38	276.07	8,422.89	-261.55	-59.85	61.72	16.11	15.95	3.16	
8,506.14	48.05	275.80	8,431.91	-260.54	-69.54	71.41	12.66	12.58	-2.03	
8,519.43	49.09	275.81	8,440.71	-259.53	-79.46	81.31	7.83	7.83	0.08	
8,532.71	50.33	277.04	8,449.29	-258.40	-89.52	91.37	11.71	9.34	9.26	
8,546.00	52.13	277.60	8,457.61	-257.08	-99.80	101.64	13.94	13.54	4.21	
8,559.43	54.37	277.75	8,465.65	-255.64	-110.46	112.29	16.70	16.68	1.12	
8,572.86	54.14	277.39	8,473.50	-254.20	-121.27	123.08	2.77	-1.71	-2.68	
8,586.29	53.43	276.79	8,481.43	-252.87	-132.02	133.83	6.40	-5.29	-4.47	
8,599.71	52.72	276.17	8,489.49	-251.66	-142.68	144.48	6.45	-5.29	-4.62	
8,613.14	53.76	274.74	8,497.53	-250.63	-153.39	155.18	11.52	7.74	-10.65	
8,626.57	55.48	273.28	8,505.31	-249.87	-164.31	166.10	15.57	12.81	-10.87	
8,640.00	57.01	271.66	8,512.77	-249.39	-175.47	177.25	15.18	11.39	-12.06	
8,653.29	57.48	270.37	8,519.96	-249.19	-186.64	188.42	8.90	3.54	-9.71	
8,666.57	56.84	269.73	8,527.16	-249.18	-197.80	199.58	6.29	-4.82	-4.82	
8,679.86	58.00	268.59	8,534.32	-249.35	-209.00	210.77	11.33	8.73	-8.58	
8,693.14	59.76	267.85	8,541.18	-249.70	-220.36	222.14	14.09	13.25	-5.57	
8,706.43	61.75	267.59	8,547.67	-250.16	-231.94	233.73	15.07	14.97	-1.96	
8,719.71	64.15	267.61	8,553.71	-250.66	-243.76	245.55	18.07	18.07	0.15	
8,733.00	66.52	267.90	8,559.26	-251.13	-255.83	257.62	17.94	17.83	2.18	
8,746.14	69.13	268.08	8,564.22	-251.56	-267.99	269.78	19.90	19.86	1.37	
8,759.29	71.75	268.19	8,568.62	-251.96	-280.37	282.17	19.94	19.92	0.84	
8,772.43	74.44	268.63	8,572.44	-252.31	-292.94	294.74	20.72	20.47	3.35	
8,785.57	77.06	269.51	8,575.67	-252.51	-305.67	307.47	20.97	19.94	6.70	
8,798.71	79.67	270.25	8,578.32	-252.54	-318.54	320.34	20.61	19.86	5.63	
8,811.86	82.33	270.64	8,580.38	-252.44	-331.53	333.32	20.44	20.23	2.97	
8,825.00	85.03	270.87	8,581.83	-252.27	-344.58	346.38	20.62	20.55	1.75	
8,838.29	87.70	271.10	8,582.67	-252.04	-357.84	359.64	20.16	20.09	1.73	
8,851.57	90.34	270.84	8,582.90	-251.82	-371.12	372.91	19.98	19.88	-1.96	
8,864.86	92.88	270.55	8,582.52	-251.65	-384.40	386.19	19.24	19.11	-2.18	
8,878.00	95.41	270.49	8,581.57	-251.54	-397.50	399.29	19.28	19.28	-0.45	
EOC: 8878.00' MD, 399.29' VS,8581.57' TVD										
8,878.14	95.44	270.49	8,581.56	-251.53	-397.64	399.43	19.28	19.28	-0.45	
8,891.43	95.78	270.42	8,580.26	-251.43	-410.87	412.66	2.61	2.56	-0.53	
8,904.71	93.01	270.22	8,579.24	-251.36	-424.11	425.90	20.91	-20.86	-1.51	
8,917.41	90.13	270.20	8,578.89	-251.31	-436.80	438.59	22.65	-22.65	-0.15	
01-FTP(S-131H)										
8,918.00	90.00	270.20	8,578.89	-251.31	-437.39	439.18	22.65	-22.65	-0.15	
8,918.11	90.00	270.20	8,578.89	-251.31	-437.50	439.29	0.00	0.00	0.00	
100'FEL: 8918.11' MD, 439.29' VS,8578.89' TVD										
8,932.83	89.18	270.41	8,579.00	-251.23	-452.22	454.01	5.75	-5.57	1.43	
8,947.67	88.98	270.82	8,579.24	-251.07	-467.06	468.84	3.07	-1.35	2.76	
8,962.50	88.94	271.24	8,579.51	-250.80	-481.88	483.67	2.84	-0.27	2.83	
8,977.33	88.91	271.63	8,579.79	-250.43	-496.71	498.49	2.64	-0.20	2.63	
8,992.17	89.31	272.88	8,580.02	-249.85	-511.53	513.31	8.84	2.70	8.42	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
9,007.00	89.45	273.59	8,580.18	-249.01	-526.34	528.11	4.88	0.94	4.79
9,020.29	89.48	273.70	8,580.30	-248.16	-539.60	541.36	0.86	0.23	0.83
9,033.57	89.52	273.75	8,580.42	-247.30	-552.85	554.61	0.48	0.30	0.38
9,046.86	89.59	273.75	8,580.52	-246.43	-566.11	567.86	0.53	0.53	0.00
9,060.14	89.68	273.71	8,580.60	-245.57	-579.37	581.11	0.74	0.68	-0.30
9,073.43	89.85	273.63	8,580.66	-244.72	-592.63	594.36	1.41	1.28	-0.60
9,086.71	90.21	273.58	8,580.65	-243.88	-605.88	607.61	2.74	2.71	-0.38
9,100.00	91.59	273.99	8,580.44	-243.01	-619.14	620.86	10.83	10.38	3.09
9,113.43	92.09	274.12	8,580.01	-242.06	-632.53	634.25	3.85	3.72	0.97
9,126.86	92.08	273.80	8,579.52	-241.13	-645.92	647.63	2.38	-0.07	-2.38
9,140.29	92.08	273.45	8,579.04	-240.28	-659.31	661.02	2.60	0.00	-2.61
9,153.71	92.06	273.09	8,578.55	-239.52	-672.70	674.40	2.68	-0.15	-2.68
9,167.14	91.99	272.76	8,578.08	-238.83	-686.11	687.80	2.51	-0.52	-2.46
9,180.57	91.90	272.15	8,577.62	-238.26	-699.52	701.20	4.59	-0.67	-4.54
9,194.00	91.84	270.70	8,577.18	-237.92	-712.94	714.62	10.80	-0.45	-10.80
9,207.29	91.94	269.31	8,576.74	-237.92	-726.22	727.90	10.48	0.75	-10.46
9,220.57	91.87	269.23	8,576.30	-238.09	-739.49	741.17	0.80	-0.53	-0.60
9,233.86	91.84	269.19	8,575.87	-238.27	-752.77	754.46	0.38	-0.23	-0.30
9,247.14	91.87	269.17	8,575.44	-238.46	-766.04	767.73	0.27	0.23	-0.15
9,260.43	91.93	269.16	8,575.00	-238.66	-779.32	781.01	0.46	0.45	-0.08
9,273.71	91.99	269.15	8,574.55	-238.85	-792.60	794.28	0.46	0.45	-0.08
9,287.00	92.68	268.36	8,574.01	-239.14	-805.87	807.56	7.89	5.19	-5.94
9,300.14	92.89	268.04	8,573.37	-239.55	-818.99	820.68	2.91	1.60	-2.44
9,313.29	92.92	268.00	8,572.70	-240.01	-832.11	833.81	0.38	0.23	-0.30
9,326.43	92.94	267.96	8,572.03	-240.47	-845.23	846.93	0.34	0.15	-0.30
9,339.57	92.98	267.91	8,571.35	-240.94	-858.34	860.05	0.49	0.30	-0.38
9,352.71	93.04	267.85	8,570.66	-241.43	-871.46	873.16	0.65	0.46	-0.46
9,365.86	93.10	267.78	8,569.96	-241.93	-884.58	886.29	0.70	0.46	-0.53
9,379.00	93.17	267.69	8,569.24	-242.45	-897.69	899.40	0.87	0.53	-0.68
9,392.43	93.24	267.57	8,568.49	-243.00	-911.08	912.80	1.03	0.52	-0.89
9,405.86	93.31	267.43	8,567.72	-243.59	-924.48	926.20	1.16	0.52	-1.04
9,419.29	93.38	267.30	8,566.94	-244.20	-937.87	939.60	1.10	0.52	-0.97
9,432.71	93.43	267.17	8,566.14	-244.85	-951.25	952.98	1.04	0.37	-0.97
9,446.14	93.48	267.06	8,565.33	-245.52	-964.64	966.37	0.90	0.37	-0.82
9,459.57	93.53	266.99	8,564.51	-246.22	-978.03	979.77	0.64	0.37	-0.52
9,473.00	93.59	266.97	8,563.68	-246.93	-991.41	993.16	0.47	0.45	-0.15
9,486.29	93.66	267.05	8,562.83	-247.62	-1,004.66	1,006.41	0.80	0.53	0.60
9,499.57	93.71	267.19	8,561.98	-248.28	-1,017.90	1,019.65	1.12	0.38	1.05
9,512.86	93.77	267.35	8,561.11	-248.92	-1,031.14	1,032.90	1.28	0.45	1.20
9,526.14	93.79	267.51	8,560.24	-249.51	-1,044.38	1,046.14	1.21	0.15	1.20
9,539.43	93.74	267.65	8,559.37	-250.07	-1,057.63	1,059.39	1.12	-0.38	1.05
9,552.71	93.54	267.92	8,558.52	-250.58	-1,070.87	1,072.64	2.53	-1.51	2.03
9,566.00	92.98	269.29	8,557.77	-250.90	-1,084.14	1,085.90	11.12	-4.21	10.31



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
9,579.43	92.87	270.17	8,557.08	-250.97	-1,097.55	1,099.32	6.60	-0.82	6.55	
9,592.86	92.83	270.08	8,556.41	-250.94	-1,110.96	1,112.73	0.73	-0.30	-0.67	
9,606.29	92.82	269.95	8,555.75	-250.94	-1,124.38	1,126.14	0.97	-0.07	-0.97	
9,619.71	92.81	269.81	8,555.09	-250.96	-1,137.78	1,139.55	1.04	-0.07	-1.04	
9,633.14	92.80	269.66	8,554.44	-251.03	-1,151.19	1,152.96	1.12	-0.07	-1.12	
9,646.57	92.78	269.52	8,553.78	-251.12	-1,164.61	1,166.38	1.05	-0.15	-1.04	
9,660.00	92.78	269.39	8,553.13	-251.25	-1,178.02	1,179.79	0.97	0.00	-0.97	
9,673.57	92.81	269.29	8,552.47	-251.41	-1,191.57	1,193.34	0.77	0.22	-0.74	
9,687.14	92.86	269.21	8,551.80	-251.58	-1,205.13	1,206.90	0.69	0.37	-0.59	
9,700.71	92.92	269.16	8,551.11	-251.78	-1,218.68	1,220.45	0.58	0.44	-0.37	
9,714.29	92.98	269.11	8,550.42	-251.98	-1,232.24	1,234.01	0.57	0.44	-0.37	
9,727.86	93.04	269.08	8,549.70	-252.19	-1,245.79	1,247.56	0.49	0.44	-0.22	
9,741.43	93.09	269.06	8,548.98	-252.41	-1,259.34	1,261.11	0.40	0.37	-0.15	
9,755.00	93.16	269.07	8,548.24	-252.64	-1,272.88	1,274.66	0.52	0.52	0.07	
9,768.29	93.21	269.10	8,547.50	-252.85	-1,286.15	1,287.93	0.44	0.38	0.23	
9,781.57	93.26	269.14	8,546.75	-253.05	-1,299.41	1,301.19	0.48	0.38	0.30	
9,794.86	93.31	269.19	8,545.99	-253.24	-1,312.68	1,314.46	0.53	0.38	0.38	
9,808.14	93.37	269.25	8,545.21	-253.42	-1,325.93	1,327.71	0.64	0.45	0.45	
9,821.43	93.40	269.30	8,544.43	-253.59	-1,339.20	1,340.98	0.44	0.23	0.38	
9,834.71	93.41	269.34	8,543.64	-253.75	-1,352.45	1,354.24	0.31	0.08	0.30	
9,848.00	93.38	269.35	8,542.85	-253.90	-1,365.72	1,367.50	0.24	-0.23	0.08	
9,861.29	92.89	270.28	8,542.13	-253.94	-1,378.99	1,380.77	7.90	-3.69	7.00	
9,874.57	92.73	270.47	8,541.48	-253.86	-1,392.25	1,394.03	1.87	-1.20	1.43	
9,887.86	92.79	270.40	8,540.84	-253.76	-1,405.53	1,407.31	0.69	0.45	-0.53	
9,901.14	92.85	270.32	8,540.18	-253.67	-1,418.79	1,420.57	0.75	0.45	-0.60	
9,914.43	92.92	270.23	8,539.51	-253.61	-1,432.06	1,433.84	0.86	0.53	-0.68	
9,927.71	92.99	270.14	8,538.83	-253.57	-1,445.33	1,447.10	0.86	0.53	-0.68	
9,941.00	93.05	270.08	8,538.13	-253.54	-1,458.60	1,460.38	0.64	0.45	-0.45	
9,954.29	93.02	270.04	8,537.43	-253.53	-1,471.87	1,473.65	0.38	-0.23	-0.30	
9,967.57	92.96	270.02	8,536.73	-253.52	-1,485.13	1,486.91	0.48	-0.45	-0.15	
9,980.86	92.92	270.00	8,536.05	-253.52	-1,498.40	1,500.18	0.34	-0.30	-0.15	
9,994.14	92.94	269.99	8,535.37	-253.52	-1,511.67	1,513.44	0.17	0.15	-0.08	
10,007.43	92.98	269.97	8,534.69	-253.52	-1,524.94	1,526.71	0.34	0.30	-0.15	
10,020.71	92.96	270.24	8,534.00	-253.50	-1,538.20	1,539.98	2.04	-0.15	2.03	
10,034.00	92.73	271.62	8,533.34	-253.28	-1,551.47	1,553.25	10.51	-1.73	10.38	
10,047.43	92.66	271.86	8,532.71	-252.88	-1,564.88	1,566.65	1.86	-0.52	1.79	
10,060.86	92.70	271.74	8,532.08	-252.46	-1,578.29	1,580.06	0.94	0.30	-0.89	
10,074.29	92.73	271.62	8,531.44	-252.06	-1,591.70	1,593.46	0.92	0.22	-0.89	
10,087.71	92.74	271.49	8,530.80	-251.70	-1,605.10	1,606.86	0.97	0.07	-0.97	
10,101.14	92.78	271.36	8,530.16	-251.36	-1,618.51	1,620.27	1.01	0.30	-0.97	
10,114.57	92.83	271.25	8,529.50	-251.06	-1,631.92	1,633.67	0.90	0.37	-0.82	
10,128.00	92.89	271.16	8,528.83	-250.78	-1,645.33	1,647.08	0.80	0.45	-0.67	
10,141.29	92.95	271.11	8,528.15	-250.51	-1,658.60	1,660.35	0.59	0.45	-0.38	
10,154.57	93.01	271.09	8,527.46	-250.26	-1,671.86	1,673.61	0.48	0.45	-0.15	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
10,167.86	93.04	271.09	8,526.76	-250.01	-1,685.13	1,686.87	0.23	0.23	0.00
10,181.14	93.06	271.09	8,526.05	-249.76	-1,698.39	1,700.13	0.15	0.15	0.00
10,194.43	93.05	271.09	8,525.34	-249.50	-1,711.66	1,713.40	0.08	-0.08	0.00
10,207.71	93.05	271.10	8,524.64	-249.25	-1,724.92	1,726.65	0.08	0.00	0.08
10,221.00	93.06	271.09	8,523.93	-249.00	-1,738.18	1,739.92	0.11	0.08	-0.08
10,234.29	93.12	271.07	8,523.21	-248.75	-1,751.45	1,753.19	0.48	0.45	-0.15
10,247.57	93.19	271.04	8,522.48	-248.50	-1,764.71	1,766.44	0.57	0.53	-0.23
10,260.86	93.29	271.00	8,521.73	-248.27	-1,777.98	1,779.71	0.81	0.75	-0.30
10,274.14	93.40	270.96	8,520.96	-248.04	-1,791.23	1,792.96	0.88	0.83	-0.30
10,287.43	93.51	270.91	8,520.16	-247.82	-1,804.50	1,806.22	0.91	0.83	-0.38
10,300.71	93.62	270.87	8,519.33	-247.62	-1,817.75	1,819.47	0.88	0.83	-0.30
10,314.00	93.72	270.82	8,518.48	-247.42	-1,831.01	1,832.73	0.84	0.75	-0.38
10,327.43	93.79	270.77	8,517.60	-247.23	-1,844.41	1,846.13	0.64	0.52	-0.37
10,340.86	93.86	270.71	8,516.70	-247.06	-1,857.81	1,859.53	0.69	0.52	-0.45
10,354.29	93.92	270.66	8,515.79	-246.90	-1,871.21	1,872.93	0.58	0.45	-0.37
10,367.71	93.99	270.61	8,514.87	-246.75	-1,884.59	1,886.31	0.64	0.52	-0.37
10,381.14	94.08	270.56	8,513.92	-246.62	-1,897.99	1,899.71	0.77	0.67	-0.37
10,394.57	94.19	270.52	8,512.95	-246.49	-1,911.38	1,913.10	0.87	0.82	-0.30
10,408.00	94.31	270.48	8,511.96	-246.37	-1,924.78	1,926.49	0.94	0.89	-0.30
10,421.29	94.42	270.44	8,510.95	-246.27	-1,938.03	1,939.74	0.88	0.83	-0.30
10,434.57	94.52	270.41	8,509.91	-246.17	-1,951.27	1,952.98	0.79	0.75	-0.23
10,447.86	94.59	270.39	8,508.86	-246.08	-1,964.52	1,966.23	0.55	0.53	-0.15
10,461.14	94.64	270.36	8,507.79	-245.99	-1,977.75	1,979.46	0.44	0.38	-0.23
10,474.43	94.68	270.34	8,506.71	-245.91	-1,991.00	1,992.71	0.34	0.30	-0.15
10,487.71	94.71	270.32	8,505.62	-245.83	-2,004.23	2,005.94	0.27	0.23	-0.15
10,501.00	94.74	270.29	8,504.53	-245.76	-2,017.48	2,019.18	0.32	0.23	-0.23
10,514.29	94.78	270.27	8,503.42	-245.70	-2,030.72	2,032.43	0.34	0.30	-0.15
10,527.57	94.84	270.24	8,502.31	-245.64	-2,043.95	2,045.66	0.50	0.45	-0.23
10,540.86	94.90	270.21	8,501.18	-245.59	-2,057.20	2,058.90	0.50	0.45	-0.23
10,554.14	94.96	270.18	8,500.04	-245.54	-2,070.43	2,072.13	0.50	0.45	-0.23
10,567.43	95.02	270.16	8,498.88	-245.50	-2,083.67	2,085.37	0.48	0.45	-0.15
10,580.71	95.09	270.14	8,497.71	-245.47	-2,096.90	2,098.60	0.55	0.53	-0.15
10,594.00	95.14	270.13	8,496.53	-245.44	-2,110.13	2,111.83	0.38	0.38	-0.08
10,607.43	95.16	270.14	8,495.32	-245.40	-2,123.51	2,125.21	0.17	0.15	0.07
10,620.86	95.21	270.14	8,494.11	-245.37	-2,136.88	2,138.58	0.37	0.37	0.00
10,634.29	95.26	270.16	8,492.88	-245.34	-2,150.26	2,151.96	0.40	0.37	0.15
10,647.71	95.31	270.17	8,491.65	-245.30	-2,163.62	2,165.32	0.38	0.37	0.07
10,661.14	95.36	270.18	8,490.40	-245.26	-2,176.99	2,178.69	0.38	0.37	0.07
10,674.57	95.41	270.19	8,489.14	-245.21	-2,190.36	2,192.06	0.38	0.37	0.07
10,688.00	95.43	270.18	8,487.87	-245.17	-2,203.73	2,205.43	0.17	0.15	-0.07
10,701.43	95.32	270.16	8,486.61	-245.13	-2,217.10	2,218.80	0.83	-0.82	-0.15
10,714.86	95.24	270.13	8,485.38	-245.10	-2,230.48	2,232.17	0.64	-0.60	-0.22
10,728.29	95.07	270.10	8,484.17	-245.07	-2,243.85	2,245.55	1.29	-1.27	-0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
10,741.71	94.81	270.06	8,483.01	-245.05	-2,257.22	2,258.92	1.96	-1.94	-0.30
10,755.14	94.35	270.02	8,481.94	-245.04	-2,270.61	2,272.30	3.44	-3.43	-0.30
10,768.57	92.73	269.88	8,481.11	-245.05	-2,284.01	2,285.71	12.11	-12.06	-1.04
10,782.00	90.99	269.72	8,480.68	-245.10	-2,297.44	2,299.13	13.01	-12.96	-1.19
10,795.29	89.75	269.63	8,480.59	-245.18	-2,310.72	2,312.42	9.35	-9.33	-0.68
10,808.57	89.72	269.62	8,480.65	-245.26	-2,324.00	2,325.70	0.24	-0.23	-0.08
10,821.86	89.72	269.62	8,480.72	-245.35	-2,337.29	2,338.99	0.00	0.00	0.00
10,835.14	89.71	269.61	8,480.78	-245.44	-2,350.57	2,352.27	0.11	-0.08	-0.08
10,848.43	89.67	269.60	8,480.86	-245.53	-2,363.86	2,365.56	0.31	-0.30	-0.08
10,861.71	89.59	269.58	8,480.94	-245.63	-2,377.14	2,378.84	0.62	-0.60	-0.15
10,875.00	89.41	269.54	8,481.06	-245.73	-2,390.43	2,392.13	1.39	-1.35	-0.30
10,888.43	88.27	269.44	8,481.33	-245.85	-2,403.86	2,405.56	8.52	-8.49	-0.74
10,901.86	87.63	269.38	8,481.81	-245.99	-2,417.28	2,418.98	4.79	-4.77	-0.45
10,915.29	87.72	269.28	8,482.35	-246.14	-2,430.70	2,432.40	1.00	0.67	-0.74
10,928.71	87.85	269.16	8,482.87	-246.33	-2,444.10	2,445.80	1.32	0.97	-0.89
10,942.14	87.97	269.04	8,483.36	-246.54	-2,457.52	2,459.23	1.26	0.89	-0.89
10,955.57	88.08	268.94	8,483.83	-246.77	-2,470.94	2,472.65	1.11	0.82	-0.74
10,969.00	88.16	268.87	8,484.27	-247.03	-2,484.36	2,486.07	0.79	0.60	-0.52
10,982.43	88.09	268.84	8,484.71	-247.30	-2,497.78	2,499.49	0.57	-0.52	-0.22
10,983.05	88.09	268.84	8,484.73	-247.31	-2,498.40	2,500.11	0.00	0.00	0.00
02-v2500(S-131H)									
10,995.86	87.98	268.85	8,485.17	-247.57	-2,511.20	2,512.91	0.86	-0.86	0.08
11,009.29	87.90	268.87	8,485.65	-247.84	-2,524.62	2,526.33	0.61	-0.60	0.15
11,022.71	87.85	268.90	8,486.15	-248.10	-2,538.03	2,539.74	0.43	-0.37	0.22
11,036.14	87.86	268.94	8,486.65	-248.35	-2,551.45	2,553.16	0.31	0.07	0.30
11,049.57	87.89	268.98	8,487.15	-248.59	-2,564.87	2,566.58	0.37	0.22	0.30
11,063.00	87.94	269.00	8,487.64	-248.83	-2,578.29	2,580.00	0.40	0.37	0.15
11,076.43	87.95	269.02	8,488.12	-249.06	-2,591.71	2,593.42	0.17	0.07	0.15
11,089.86	87.97	269.02	8,488.60	-249.29	-2,605.13	2,606.84	0.15	0.15	0.00
11,103.29	87.97	269.01	8,489.07	-249.52	-2,618.55	2,620.26	0.07	0.00	-0.07
11,116.71	87.98	269.01	8,489.55	-249.75	-2,631.95	2,633.67	0.07	0.07	0.00
11,130.14	87.99	269.00	8,490.02	-249.99	-2,645.37	2,647.10	0.11	0.07	-0.07
11,143.57	88.01	268.99	8,490.49	-250.22	-2,658.79	2,660.52	0.17	0.15	-0.07
11,157.00	88.03	268.98	8,490.95	-250.46	-2,672.21	2,673.94	0.17	0.15	-0.07
11,170.29	88.02	268.97	8,491.41	-250.70	-2,685.49	2,687.22	0.11	-0.08	-0.08
11,183.57	88.02	268.97	8,491.87	-250.94	-2,698.76	2,700.49	0.00	0.00	0.00
11,196.86	88.01	268.96	8,492.33	-251.18	-2,712.04	2,713.77	0.11	-0.08	-0.08
11,210.14	88.00	268.95	8,492.79	-251.42	-2,725.31	2,727.04	0.11	-0.08	-0.08
11,223.43	88.00	268.95	8,493.25	-251.66	-2,738.59	2,740.32	0.00	0.00	0.00
11,236.71	88.03	268.94	8,493.71	-251.91	-2,751.86	2,753.60	0.24	0.23	-0.08
11,250.00	88.08	268.93	8,494.16	-252.15	-2,765.14	2,766.88	0.38	0.38	-0.08
11,263.29	88.16	268.91	8,494.60	-252.40	-2,778.42	2,780.16	0.62	0.60	-0.15
11,276.57	88.25	268.89	8,495.02	-252.66	-2,791.69	2,793.43	0.69	0.68	-0.15



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
11,289.86	88.33	268.87	8,495.41	-252.92	-2,804.98	2,806.71	0.62	0.60	-0.15
11,303.14	88.38	268.84	8,495.79	-253.18	-2,818.25	2,819.99	0.44	0.38	-0.23
11,316.43	88.39	268.80	8,496.17	-253.46	-2,831.53	2,833.27	0.31	0.08	-0.30
11,329.71	88.39	268.76	8,496.54	-253.74	-2,844.80	2,846.54	0.30	0.00	-0.30
11,343.00	88.39	268.70	8,496.92	-254.03	-2,858.08	2,859.83	0.45	0.00	-0.45
11,356.43	88.37	268.62	8,497.30	-254.35	-2,871.50	2,873.25	0.61	-0.15	-0.60
11,369.86	88.37	268.52	8,497.68	-254.68	-2,884.92	2,886.67	0.74	0.00	-0.74
11,383.29	88.39	268.43	8,498.06	-255.04	-2,898.34	2,900.10	0.69	0.15	-0.67
11,396.71	88.46	268.34	8,498.43	-255.42	-2,911.75	2,913.51	0.85	0.52	-0.67
11,410.14	88.60	268.27	8,498.77	-255.82	-2,925.17	2,926.93	1.17	1.04	-0.52
11,423.57	89.00	268.26	8,499.05	-256.22	-2,938.59	2,940.35	2.98	2.98	-0.07
11,437.00	90.00	268.41	8,499.17	-256.61	-2,952.02	2,953.78	7.53	7.45	1.12
11,450.14	90.00	268.45	8,499.17	-256.97	-2,965.15	2,966.92	0.30	0.00	0.30
11,463.29	89.96	268.52	8,499.17	-257.32	-2,978.30	2,980.06	0.61	-0.30	0.53
11,476.43	89.92	268.60	8,499.19	-257.65	-2,991.43	2,993.20	0.68	-0.30	0.61
11,489.57	89.91	268.69	8,499.21	-257.96	-3,004.57	3,006.34	0.69	-0.08	0.68
11,502.71	89.92	268.77	8,499.23	-258.25	-3,017.71	3,019.48	0.61	0.08	0.61
11,515.86	89.99	268.83	8,499.24	-258.53	-3,030.85	3,032.63	0.70	0.53	0.46
11,529.00	90.21	269.05	8,499.21	-258.77	-3,043.99	3,045.77	2.37	1.67	1.67
11,542.29	90.68	269.62	8,499.11	-258.92	-3,057.28	3,059.06	5.56	3.54	4.29
11,555.57	90.64	269.57	8,498.96	-259.02	-3,070.56	3,072.33	0.48	-0.30	-0.38
11,568.86	90.61	269.50	8,498.81	-259.13	-3,083.85	3,085.62	0.57	-0.23	-0.53
11,582.14	90.58	269.42	8,498.67	-259.25	-3,097.13	3,098.90	0.64	-0.23	-0.60
11,595.43	90.56	269.33	8,498.54	-259.40	-3,110.42	3,112.19	0.69	-0.15	-0.68
11,608.71	90.55	269.24	8,498.41	-259.56	-3,123.69	3,125.47	0.68	-0.08	-0.68
11,622.00	90.54	269.17	8,498.29	-259.75	-3,136.98	3,138.76	0.53	-0.08	-0.53
11,635.43	90.60	269.11	8,498.15	-259.95	-3,150.41	3,152.19	0.63	0.45	-0.45
11,648.86	90.66	269.06	8,498.01	-260.16	-3,163.84	3,165.62	0.58	0.45	-0.37
11,662.29	90.73	269.02	8,497.84	-260.39	-3,177.26	3,179.05	0.60	0.52	-0.30
11,675.71	90.79	268.98	8,497.67	-260.62	-3,190.68	3,192.46	0.54	0.45	-0.30
11,689.14	90.83	268.93	8,497.48	-260.87	-3,204.11	3,205.89	0.48	0.30	-0.37
11,702.57	90.86	268.88	8,497.28	-261.12	-3,217.53	3,219.32	0.43	0.22	-0.37
11,716.00	90.89	268.82	8,497.07	-261.39	-3,230.96	3,232.75	0.50	0.22	-0.45
11,729.29	90.93	268.73	8,496.86	-261.68	-3,244.25	3,246.03	0.74	0.30	-0.68
11,742.57	90.97	268.63	8,496.64	-261.98	-3,257.52	3,259.31	0.81	0.30	-0.75
11,755.86	91.01	268.53	8,496.41	-262.31	-3,270.80	3,272.60	0.81	0.30	-0.75
11,769.14	91.05	268.42	8,496.17	-262.67	-3,284.08	3,285.87	0.88	0.30	-0.83
11,782.43	91.10	268.31	8,495.92	-263.04	-3,297.36	3,299.16	0.91	0.38	-0.83
11,795.71	91.15	268.21	8,495.66	-263.45	-3,310.63	3,312.43	0.84	0.38	-0.75
11,809.00	91.21	268.13	8,495.39	-263.87	-3,323.91	3,325.71	0.75	0.45	-0.60
11,822.29	91.24	268.06	8,495.10	-264.31	-3,337.19	3,339.00	0.57	0.23	-0.53
11,835.57	91.27	268.01	8,494.81	-264.77	-3,350.46	3,352.27	0.44	0.23	-0.38
11,848.86	91.27	267.97	8,494.52	-265.24	-3,363.74	3,365.55	0.30	0.00	-0.30
11,862.14	91.23	267.92	8,494.23	-265.71	-3,377.01	3,378.82	0.48	-0.30	-0.38



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
11,875.43	91.13	267.87	8,493.96	-266.20	-3,390.28	3,392.10	0.84	-0.75	-0.38
11,888.71	90.94	267.81	8,493.72	-266.70	-3,403.55	3,405.37	1.50	-1.43	-0.45
11,902.00	90.22	268.84	8,493.58	-267.09	-3,416.84	3,418.66	9.46	-5.42	7.75
11,915.43	89.75	269.52	8,493.59	-267.28	-3,430.26	3,432.09	6.16	-3.50	5.06
11,928.86	89.80	269.38	8,493.64	-267.41	-3,443.69	3,445.52	1.11	0.37	-1.04
11,942.29	89.90	269.22	8,493.67	-267.57	-3,457.12	3,458.95	1.40	0.74	-1.19
11,955.71	89.99	269.06	8,493.69	-267.77	-3,470.54	3,472.37	1.37	0.67	-1.19
11,969.14	90.09	268.92	8,493.68	-268.01	-3,483.97	3,485.80	1.28	0.74	-1.04
11,982.57	90.18	268.81	8,493.64	-268.28	-3,497.40	3,499.23	1.06	0.67	-0.82
11,983.38	90.19	268.81	8,493.64	-268.29	-3,498.21	3,500.04	1.07	0.97	-0.45
03-v3500(S-131H)									
11,996.00	90.31	268.75	8,493.59	-268.56	-3,510.82	3,512.66	1.07	0.97	-0.45
12,009.29	90.44	268.76	8,493.50	-268.85	-3,524.11	3,525.94	0.98	0.98	0.08
12,022.57	90.58	268.83	8,493.38	-269.13	-3,537.39	3,539.22	1.18	1.05	0.53
12,035.86	90.75	268.92	8,493.23	-269.39	-3,550.67	3,552.51	1.45	1.28	0.68
12,049.14	90.95	269.01	8,493.03	-269.63	-3,563.95	3,565.79	1.65	1.51	0.68
12,062.43	91.17	269.09	8,492.79	-269.85	-3,577.24	3,579.07	1.76	1.66	0.60
12,075.71	91.44	269.29	8,492.48	-270.04	-3,590.51	3,592.35	2.53	2.03	1.51
12,089.00	92.06	270.55	8,492.08	-270.06	-3,603.79	3,605.63	10.56	4.67	9.48
12,102.43	92.43	271.15	8,491.55	-269.86	-3,617.21	3,619.05	5.25	2.76	4.47
12,115.86	92.45	271.05	8,490.98	-269.60	-3,630.63	3,632.46	0.76	0.15	-0.74
12,129.29	92.48	270.92	8,490.40	-269.37	-3,644.04	3,645.88	0.99	0.22	-0.97
12,142.71	92.48	270.78	8,489.82	-269.17	-3,657.45	3,659.28	1.04	0.00	-1.04
12,156.14	92.47	270.63	8,489.24	-269.01	-3,670.87	3,672.70	1.12	-0.07	-1.12
12,169.57	92.44	270.48	8,488.67	-268.88	-3,684.28	3,686.11	1.14	-0.22	-1.12
12,183.00	92.42	270.35	8,488.10	-268.78	-3,697.70	3,699.53	0.98	-0.15	-0.97
12,196.14	92.46	270.24	8,487.54	-268.71	-3,710.83	3,712.66	0.89	0.30	-0.84
12,209.29	92.53	270.15	8,486.96	-268.67	-3,723.97	3,725.79	0.87	0.53	-0.68
12,222.43	92.62	270.07	8,486.37	-268.64	-3,737.09	3,738.92	0.92	0.68	-0.61
12,235.57	92.71	269.99	8,485.76	-268.64	-3,750.22	3,752.04	0.92	0.68	-0.61
12,248.71	92.78	269.92	8,485.13	-268.65	-3,763.34	3,765.17	0.75	0.53	-0.53
12,261.86	92.84	269.86	8,484.49	-268.67	-3,776.48	3,778.30	0.64	0.46	-0.46
12,275.00	92.91	269.80	8,483.83	-268.71	-3,789.60	3,791.43	0.70	0.53	-0.46
12,288.57	93.00	269.75	8,483.13	-268.76	-3,803.15	3,804.98	0.76	0.66	-0.37
12,302.14	93.09	269.70	8,482.41	-268.83	-3,816.70	3,818.53	0.76	0.66	-0.37
12,315.71	93.18	269.65	8,481.67	-268.91	-3,830.25	3,832.08	0.76	0.66	-0.37
12,329.29	93.23	269.60	8,480.91	-268.99	-3,843.81	3,845.64	0.52	0.37	-0.37
12,342.86	93.24	269.55	8,480.14	-269.09	-3,857.36	3,859.19	0.38	0.07	-0.37
12,356.43	92.77	269.54	8,479.43	-269.20	-3,870.91	3,872.74	3.46	-3.46	-0.07
12,370.00	91.72	269.59	8,478.90	-269.31	-3,884.47	3,886.30	7.75	-7.74	0.37
12,383.29	91.71	269.53	8,478.50	-269.41	-3,897.75	3,899.58	0.46	-0.08	-0.45
12,396.57	91.70	269.46	8,478.11	-269.52	-3,911.03	3,912.85	0.53	-0.08	-0.53
12,409.86	91.70	269.39	8,477.71	-269.66	-3,924.31	3,926.14	0.53	0.00	-0.53



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
12,423.14	91.71	269.32	8,477.32	-269.81	-3,937.58	3,939.41	0.53	0.08	-0.53
12,436.43	91.72	269.24	8,476.92	-269.97	-3,950.87	3,952.70	0.61	0.08	-0.60
12,449.71	91.74	269.15	8,476.52	-270.16	-3,964.14	3,965.97	0.69	0.15	-0.68
12,463.00	91.78	269.06	8,476.11	-270.37	-3,977.42	3,979.25	0.74	0.30	-0.68
12,476.29	91.85	268.96	8,475.69	-270.60	-3,990.70	3,992.54	0.92	0.53	-0.75
12,489.57	91.93	268.85	8,475.25	-270.85	-4,003.97	4,005.81	1.02	0.60	-0.83
12,502.86	92.03	268.74	8,474.79	-271.13	-4,017.25	4,019.09	1.12	0.75	-0.83
12,516.14	92.13	268.62	8,474.31	-271.44	-4,030.52	4,032.36	1.18	0.75	-0.90
12,529.43	92.23	268.51	8,473.80	-271.77	-4,043.80	4,045.64	1.12	0.75	-0.83
12,542.71	92.33	268.41	8,473.28	-272.13	-4,057.06	4,058.90	1.06	0.75	-0.75
12,556.00	92.44	268.32	8,472.72	-272.50	-4,070.33	4,072.18	1.07	0.83	-0.68
12,569.14	92.53	268.24	8,472.15	-272.90	-4,083.45	4,085.30	0.92	0.68	-0.61
12,582.29	92.64	268.18	8,471.56	-273.31	-4,096.59	4,098.44	0.95	0.84	-0.46
12,595.43	92.74	268.12	8,470.94	-273.73	-4,109.70	4,111.56	0.89	0.76	-0.46
12,608.57	92.83	268.06	8,470.31	-274.17	-4,122.82	4,124.68	0.82	0.68	-0.46
12,621.71	92.91	268.00	8,469.65	-274.62	-4,135.94	4,137.80	0.76	0.61	-0.46
12,634.86	92.98	267.95	8,468.97	-275.08	-4,149.06	4,150.92	0.65	0.53	-0.38
12,648.00	93.04	267.88	8,468.28	-275.56	-4,162.17	4,164.04	0.70	0.46	-0.53
12,661.43	93.08	267.80	8,467.56	-276.07	-4,175.58	4,177.44	0.67	0.30	-0.60
12,674.86	93.09	267.72	8,466.84	-276.59	-4,188.98	4,190.85	0.60	0.07	-0.60
12,688.29	93.09	267.63	8,466.12	-277.14	-4,202.38	4,204.25	0.67	0.00	-0.67
12,701.71	93.01	267.55	8,465.40	-277.70	-4,215.76	4,217.64	0.84	-0.60	-0.60
12,715.14	92.39	267.77	8,464.77	-278.25	-4,229.17	4,231.05	4.90	-4.62	1.64
12,728.57	91.21	268.52	8,464.35	-278.68	-4,242.58	4,244.47	10.41	-8.79	5.58
12,742.00	90.52	269.03	8,464.15	-278.97	-4,256.01	4,257.90	6.39	-5.14	3.80
12,755.29	90.50	268.94	8,464.03	-279.20	-4,269.30	4,271.19	0.69	-0.15	-0.68
12,768.57	90.50	268.86	8,463.91	-279.46	-4,282.57	4,284.46	0.60	0.00	-0.60
12,781.86	90.52	268.77	8,463.79	-279.73	-4,295.86	4,297.75	0.69	0.15	-0.68
12,795.14	90.54	268.69	8,463.67	-280.03	-4,309.14	4,311.03	0.62	0.15	-0.60
12,808.43	90.56	268.61	8,463.54	-280.34	-4,322.42	4,324.32	0.62	0.15	-0.60
12,821.71	90.57	268.54	8,463.41	-280.67	-4,335.70	4,337.60	0.53	0.08	-0.53
12,835.00	90.60	268.47	8,463.28	-281.02	-4,348.98	4,350.88	0.57	0.23	-0.53
12,848.29	90.67	268.42	8,463.13	-281.38	-4,362.27	4,364.17	0.65	0.53	-0.38
12,861.57	90.76	268.37	8,462.96	-281.75	-4,375.54	4,377.44	0.78	0.68	-0.38
12,874.86	90.87	268.33	8,462.78	-282.13	-4,388.82	4,390.73	0.88	0.83	-0.30
12,888.14	90.98	268.29	8,462.56	-282.53	-4,402.10	4,404.01	0.88	0.83	-0.30
12,901.43	91.12	268.26	8,462.32	-282.93	-4,415.38	4,417.29	1.08	1.05	-0.23
12,914.71	91.24	268.23	8,462.04	-283.33	-4,428.65	4,430.56	0.93	0.90	-0.23
12,928.00	91.34	268.21	8,461.74	-283.74	-4,441.93	4,443.85	0.77	0.75	-0.15
12,941.43	91.38	268.20	8,461.43	-284.17	-4,455.35	4,457.27	0.31	0.30	-0.07
12,954.86	91.39	268.19	8,461.10	-284.59	-4,468.77	4,470.69	0.11	0.07	-0.07
12,968.29	91.38	268.18	8,460.78	-285.01	-4,482.19	4,484.11	0.11	-0.07	-0.07
12,981.71	91.34	268.17	8,460.46	-285.44	-4,495.60	4,497.52	0.31	-0.30	-0.07
12,995.14	91.28	268.13	8,460.15	-285.87	-4,509.02	4,510.95	0.54	-0.45	-0.30



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
13,008.57	91.04	269.15	8,459.88	-286.19	-4,522.44	4,524.37	7.80	-1.79	7.59
13,022.00	90.58	270.68	8,459.69	-286.21	-4,535.87	4,537.80	11.90	-3.43	11.39
13,035.29	90.45	271.02	8,459.57	-286.02	-4,549.16	4,551.09	2.74	-0.98	2.56
13,048.57	90.50	270.87	8,459.46	-285.80	-4,562.43	4,564.36	1.19	0.38	-1.13
13,061.86	90.56	270.71	8,459.34	-285.61	-4,575.72	4,577.65	1.29	0.45	-1.20
13,075.14	90.61	270.54	8,459.20	-285.47	-4,589.00	4,590.93	1.33	0.38	-1.28
13,088.43	90.65	270.39	8,459.06	-285.36	-4,602.29	4,604.21	1.17	0.30	-1.13
13,101.71	90.69	270.26	8,458.90	-285.29	-4,615.57	4,617.49	1.02	0.30	-0.98
13,115.00	90.75	270.16	8,458.73	-285.24	-4,628.86	4,630.78	0.88	0.45	-0.75
13,128.43	90.81	270.13	8,458.55	-285.20	-4,642.29	4,644.21	0.50	0.45	-0.22
13,141.86	90.86	270.13	8,458.35	-285.17	-4,655.71	4,657.64	0.37	0.37	0.00
13,155.29	90.89	270.15	8,458.15	-285.14	-4,669.14	4,671.06	0.27	0.22	0.15
13,168.71	90.89	270.17	8,457.94	-285.10	-4,682.56	4,684.48	0.15	0.00	0.15
13,182.14	90.84	270.17	8,457.74	-285.06	-4,695.99	4,697.91	0.37	-0.37	0.00
13,195.57	90.64	270.62	8,457.56	-284.97	-4,709.42	4,711.34	3.67	-1.49	3.35
13,209.00	90.33	272.00	8,457.45	-284.66	-4,722.84	4,724.76	10.53	-2.31	10.28
13,222.29	90.35	272.75	8,457.37	-284.11	-4,736.12	4,738.03	5.65	0.15	5.64
13,235.57	90.38	272.57	8,457.29	-283.50	-4,749.39	4,751.29	1.37	0.23	-1.36
13,248.86	90.42	272.36	8,457.19	-282.92	-4,762.66	4,764.57	1.61	0.30	-1.58
13,262.14	90.46	272.14	8,457.09	-282.40	-4,775.93	4,777.83	1.68	0.30	-1.66
13,275.43	90.49	271.92	8,456.98	-281.93	-4,789.21	4,791.11	1.67	0.23	-1.66
13,288.71	90.52	271.72	8,456.87	-281.51	-4,802.49	4,804.38	1.52	0.23	-1.51
13,302.00	90.57	271.54	8,456.74	-281.13	-4,815.77	4,817.66	1.41	0.38	-1.35
13,315.43	90.66	271.42	8,456.59	-280.78	-4,829.20	4,831.08	1.12	0.67	-0.89
13,328.86	90.77	271.33	8,456.43	-280.46	-4,842.62	4,844.50	1.06	0.82	-0.67
13,342.29	90.91	271.26	8,456.23	-280.16	-4,856.05	4,857.93	1.17	1.04	-0.52
13,355.71	91.06	271.21	8,456.00	-279.87	-4,869.46	4,871.34	1.18	1.12	-0.37
13,369.14	91.22	271.17	8,455.73	-279.59	-4,882.89	4,884.76	1.23	1.19	-0.30
13,382.57	91.38	271.14	8,455.43	-279.32	-4,896.31	4,898.18	1.21	1.19	-0.22
13,396.00	91.53	271.11	8,455.09	-279.06	-4,909.73	4,911.60	1.14	1.12	-0.22
13,409.29	91.62	271.09	8,454.72	-278.80	-4,923.02	4,924.88	0.69	0.68	-0.15
13,422.57	91.68	271.07	8,454.34	-278.55	-4,936.29	4,938.15	0.48	0.45	-0.15
13,435.86	91.72	271.06	8,453.94	-278.30	-4,949.57	4,951.43	0.31	0.30	-0.08
13,449.14	91.75	271.04	8,453.54	-278.06	-4,962.84	4,964.70	0.27	0.23	-0.15
13,462.43	91.73	271.02	8,453.14	-277.82	-4,976.12	4,977.98	0.21	-0.15	-0.15
13,475.71	91.43	270.92	8,452.77	-277.60	-4,989.40	4,991.25	2.38	-2.26	-0.75
13,484.70	90.74	270.68	8,452.60	-277.47	-4,998.39	5,000.24	8.11	-7.67	-2.63
04-v5000(S-131H)									
13,489.00	90.41	270.57	8,452.56	-277.43	-5,002.68	5,004.54	8.11	-7.68	-2.63
13,502.29	90.07	270.65	8,452.50	-277.28	-5,015.97	5,017.83	2.63	-2.56	0.60
13,515.57	90.11	270.61	8,452.48	-277.14	-5,029.25	5,031.11	0.43	0.30	-0.30
13,528.86	90.15	270.57	8,452.45	-277.00	-5,042.54	5,044.39	0.43	0.30	-0.30
13,542.14	90.24	270.53	8,452.41	-276.87	-5,055.82	5,057.67	0.74	0.68	-0.30



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
13,555.43	90.35	270.48	8,452.34	-276.76	-5,069.11	5,070.96	0.91	0.83	-0.38
13,568.71	90.44	270.44	8,452.25	-276.65	-5,082.39	5,084.24	0.74	0.68	-0.30
13,582.00	90.52	270.40	8,452.14	-276.55	-5,095.68	5,097.53	0.67	0.60	-0.30
13,595.29	90.59	270.35	8,452.01	-276.47	-5,108.97	5,110.81	0.65	0.53	-0.38
13,608.57	90.68	270.31	8,451.86	-276.39	-5,122.25	5,124.09	0.74	0.68	-0.30
13,621.86	90.75	270.27	8,451.69	-276.32	-5,135.53	5,137.38	0.61	0.53	-0.30
13,635.14	90.84	270.23	8,451.51	-276.26	-5,148.81	5,150.66	0.74	0.68	-0.30
13,648.43	90.93	270.19	8,451.31	-276.21	-5,162.10	5,163.95	0.74	0.68	-0.30
13,661.71	91.05	270.16	8,451.08	-276.17	-5,175.38	5,177.22	0.93	0.90	-0.23
13,675.00	91.17	270.14	8,450.82	-276.14	-5,188.67	5,190.51	0.92	0.90	-0.15
13,688.29	91.22	270.14	8,450.54	-276.11	-5,201.95	5,203.80	0.38	0.38	0.00
13,701.57	91.25	270.15	8,450.25	-276.07	-5,215.23	5,217.07	0.24	0.23	0.08
13,714.86	91.26	270.17	8,449.96	-276.04	-5,228.52	5,230.36	0.17	0.08	0.15
13,728.14	91.21	270.18	8,449.68	-276.00	-5,241.79	5,243.63	0.38	-0.38	0.08
13,741.43	91.06	270.18	8,449.41	-275.95	-5,255.08	5,256.92	1.13	-1.13	0.00
13,754.71	90.68	270.20	8,449.21	-275.91	-5,268.36	5,270.20	2.87	-2.86	0.15
13,768.00	89.43	270.39	8,449.20	-275.84	-5,281.65	5,283.49	9.51	-9.41	1.43
13,781.43	88.96	270.54	8,449.39	-275.73	-5,295.08	5,296.92	3.67	-3.50	1.12
13,794.86	89.01	270.49	8,449.63	-275.61	-5,308.50	5,310.34	0.53	0.37	-0.37
13,808.29	89.10	270.43	8,449.85	-275.50	-5,321.93	5,323.77	0.81	0.67	-0.45
13,821.71	89.20	270.37	8,450.05	-275.41	-5,335.35	5,337.19	0.87	0.75	-0.45
13,835.14	89.31	270.29	8,450.22	-275.33	-5,348.78	5,350.61	1.01	0.82	-0.60
13,848.57	89.42	270.22	8,450.37	-275.27	-5,362.21	5,364.04	0.97	0.82	-0.52
13,862.00	89.52	270.13	8,450.49	-275.23	-5,375.64	5,377.47	1.00	0.74	-0.67
13,875.29	89.62	270.03	8,450.59	-275.21	-5,388.93	5,390.76	1.06	0.75	-0.75
13,888.57	89.70	269.92	8,450.67	-275.22	-5,402.21	5,404.04	1.02	0.60	-0.83
13,901.86	89.78	269.81	8,450.73	-275.25	-5,415.50	5,417.33	1.02	0.60	-0.83
13,915.14	89.84	269.69	8,450.78	-275.31	-5,428.78	5,430.61	1.01	0.45	-0.90
13,928.43	89.90	269.57	8,450.81	-275.39	-5,442.07	5,443.90	1.01	0.45	-0.90
13,941.71	89.94	269.44	8,450.83	-275.51	-5,455.35	5,457.18	1.02	0.30	-0.98
13,955.00	89.99	269.32	8,450.83	-275.65	-5,468.64	5,470.47	0.98	0.38	-0.90
13,968.29	90.04	269.19	8,450.83	-275.83	-5,481.92	5,483.76	1.05	0.38	-0.98
13,981.57	90.09	269.06	8,450.82	-276.03	-5,495.20	5,497.04	1.05	0.38	-0.98
13,994.86	90.14	268.94	8,450.79	-276.26	-5,508.49	5,510.33	0.98	0.38	-0.90
14,008.14	90.18	268.83	8,450.75	-276.52	-5,521.77	5,523.61	0.88	0.30	-0.83
14,021.43	90.24	268.73	8,450.70	-276.80	-5,535.05	5,536.89	0.88	0.45	-0.75
14,034.71	90.33	268.67	8,450.64	-277.10	-5,548.33	5,550.17	0.81	0.68	-0.45
14,048.00	90.44	268.65	8,450.55	-277.41	-5,561.62	5,563.46	0.84	0.83	-0.15
14,061.43	90.50	268.69	8,450.44	-277.73	-5,575.04	5,576.89	0.54	0.45	0.30
14,074.86	90.54	268.77	8,450.32	-278.02	-5,588.47	5,590.32	0.67	0.30	0.60
14,088.29	90.52	268.87	8,450.19	-278.30	-5,601.90	5,603.74	0.76	-0.15	0.74
14,101.71	90.43	268.97	8,450.08	-278.55	-5,615.31	5,617.16	1.00	-0.67	0.75
14,115.14	90.27	269.06	8,450.00	-278.78	-5,628.74	5,630.59	1.37	-1.19	0.67



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
14,128.57	89.86	269.24	8,449.98	-278.98	-5,642.17	5,644.02	3.33	-3.05	1.34
14,142.00	88.85	270.07	8,450.13	-279.06	-5,655.60	5,657.45	9.73	-7.52	6.18
14,155.29	88.46	270.83	8,450.45	-278.96	-5,668.88	5,670.73	6.43	-2.93	5.72
14,168.57	88.58	270.72	8,450.79	-278.78	-5,682.16	5,684.01	1.23	0.90	-0.83
14,181.86	88.73	270.58	8,451.10	-278.63	-5,695.44	5,697.29	1.54	1.13	-1.05
14,195.14	88.87	270.42	8,451.38	-278.51	-5,708.72	5,710.57	1.60	1.05	-1.20
14,208.43	88.97	270.26	8,451.63	-278.43	-5,722.01	5,723.85	1.42	0.75	-1.20
14,221.71	89.06	270.11	8,451.86	-278.39	-5,735.29	5,737.13	1.32	0.68	-1.13
14,235.00	89.12	269.98	8,452.07	-278.38	-5,748.57	5,750.42	1.08	0.45	-0.98
14,248.43	89.15	269.89	8,452.27	-278.40	-5,762.00	5,763.85	0.71	0.22	-0.67
14,261.86	89.19	269.82	8,452.47	-278.43	-5,775.43	5,777.28	0.60	0.30	-0.52
14,275.29	89.26	269.76	8,452.65	-278.48	-5,788.86	5,790.70	0.69	0.52	-0.45
14,288.71	89.33	269.72	8,452.81	-278.54	-5,802.28	5,804.12	0.60	0.52	-0.30
14,302.14	89.39	269.68	8,452.96	-278.61	-5,815.71	5,817.55	0.54	0.45	-0.30
14,315.57	89.44	269.65	8,453.10	-278.69	-5,829.14	5,830.98	0.43	0.37	-0.22
14,329.00	89.49	269.62	8,453.23	-278.77	-5,842.57	5,844.41	0.43	0.37	-0.22
14,342.29	89.54	269.59	8,453.34	-278.87	-5,855.85	5,857.70	0.44	0.38	-0.23
14,355.57	89.59	269.57	8,453.44	-278.96	-5,869.13	5,870.98	0.41	0.38	-0.15
14,368.86	89.63	269.54	8,453.53	-279.07	-5,882.42	5,884.27	0.38	0.30	-0.23
14,382.14	89.67	269.52	8,453.61	-279.18	-5,895.70	5,897.55	0.34	0.30	-0.15
14,395.43	89.71	269.49	8,453.68	-279.29	-5,908.99	5,910.84	0.38	0.30	-0.23
14,408.71	89.75	269.47	8,453.75	-279.41	-5,922.27	5,924.12	0.34	0.30	-0.15
14,422.00	89.80	269.46	8,453.80	-279.54	-5,935.56	5,937.41	0.38	0.38	-0.08
14,435.29	89.83	269.44	8,453.84	-279.66	-5,948.85	5,950.70	0.27	0.23	-0.15
14,448.57	89.86	269.43	8,453.88	-279.79	-5,962.13	5,963.98	0.24	0.23	-0.08
14,461.86	89.89	269.42	8,453.91	-279.93	-5,975.42	5,977.27	0.24	0.23	-0.08
14,475.14	89.91	269.40	8,453.93	-280.06	-5,988.70	5,990.55	0.21	0.15	-0.15
14,488.43	89.93	269.37	8,453.95	-280.21	-6,001.99	6,003.84	0.27	0.15	-0.23
14,501.71	89.94	269.34	8,453.96	-280.36	-6,015.27	6,017.12	0.24	0.08	-0.23
14,515.00	89.94	269.29	8,453.98	-280.52	-6,028.56	6,030.41	0.38	0.00	-0.38
14,528.43	89.95	269.21	8,453.99	-280.69	-6,041.98	6,043.84	0.60	0.07	-0.60
14,541.86	89.97	269.12	8,454.00	-280.89	-6,055.41	6,057.27	0.69	0.15	-0.67
14,555.29	90.00	269.02	8,454.00	-281.10	-6,068.84	6,070.70	0.78	0.22	-0.74
14,568.71	90.02	268.91	8,454.00	-281.35	-6,082.26	6,084.12	0.83	0.15	-0.82
14,582.14	90.05	268.81	8,453.99	-281.61	-6,095.69	6,097.55	0.78	0.22	-0.74
14,595.57	90.09	268.71	8,453.98	-281.90	-6,109.11	6,110.97	0.80	0.30	-0.74
14,609.00	90.17	268.62	8,453.94	-282.22	-6,122.54	6,124.40	0.90	0.60	-0.67
14,622.43	90.25	268.56	8,453.90	-282.55	-6,135.97	6,137.83	0.74	0.60	-0.45
14,635.86	90.33	268.51	8,453.83	-282.89	-6,149.39	6,151.26	0.70	0.60	-0.37
14,649.29	90.41	268.46	8,453.74	-283.25	-6,162.82	6,164.68	0.70	0.60	-0.37
14,662.71	90.46	268.43	8,453.64	-283.61	-6,176.23	6,178.10	0.43	0.37	-0.22
14,676.14	90.51	268.39	8,453.53	-283.98	-6,189.65	6,191.53	0.48	0.37	-0.30
14,689.57	90.56	268.36	8,453.40	-284.36	-6,203.08	6,204.95	0.43	0.37	-0.22
14,703.00	90.61	268.33	8,453.26	-284.75	-6,216.50	6,218.38	0.43	0.37	-0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
14,716.14	90.64	268.29	8,453.12	-285.14	-6,229.64	6,231.52	0.38	0.23	-0.30
14,729.29	90.67	268.25	8,452.97	-285.54	-6,242.78	6,244.66	0.38	0.23	-0.30
14,742.43	90.71	268.23	8,452.81	-285.94	-6,255.91	6,257.80	0.34	0.30	-0.15
14,755.57	90.76	268.21	8,452.64	-286.35	-6,269.04	6,270.93	0.41	0.38	-0.15
14,768.71	90.82	268.22	8,452.46	-286.76	-6,282.18	6,284.07	0.46	0.46	0.08
14,781.86	90.88	268.27	8,452.27	-287.16	-6,295.32	6,297.21	0.59	0.46	0.38
14,795.00	90.92	268.37	8,452.06	-287.55	-6,308.45	6,310.35	0.82	0.30	0.76
14,808.29	90.93	268.55	8,451.84	-287.90	-6,321.74	6,323.63	1.36	0.08	1.35
14,821.57	90.94	268.79	8,451.63	-288.21	-6,335.01	6,336.91	1.81	0.08	1.81
14,834.86	90.94	269.04	8,451.41	-288.46	-6,348.30	6,350.20	1.88	0.00	1.88
14,848.14	90.93	269.29	8,451.19	-288.66	-6,361.57	6,363.48	1.88	-0.08	1.88
14,861.43	90.88	269.50	8,450.98	-288.80	-6,374.86	6,376.76	1.62	-0.38	1.58
14,874.71	90.79	269.66	8,450.79	-288.89	-6,388.14	6,390.04	1.38	-0.68	1.20
14,888.00	90.77	270.61	8,450.61	-288.86	-6,401.43	6,403.33	7.15	-0.15	7.15
14,901.29	90.47	271.81	8,450.47	-288.58	-6,414.71	6,416.61	9.31	-2.26	9.03
14,914.57	90.37	271.95	8,450.37	-288.15	-6,427.99	6,429.88	1.30	-0.75	1.05
14,927.86	90.41	271.71	8,450.28	-287.72	-6,441.27	6,443.16	1.83	0.30	-1.81
14,941.14	90.45	271.43	8,450.18	-287.36	-6,454.54	6,456.43	2.13	0.30	-2.11
14,954.43	90.51	271.13	8,450.07	-287.06	-6,467.83	6,469.72	2.30	0.45	-2.26
14,967.71	90.56	270.84	8,449.94	-286.83	-6,481.11	6,482.99	2.22	0.38	-2.18
14,981.00	90.59	270.60	8,449.81	-286.67	-6,494.39	6,496.28	1.82	0.23	-1.81
14,994.29	90.59	270.43	8,449.67	-286.55	-6,507.68	6,509.57	1.28	0.00	-1.28
15,007.57	90.58	270.31	8,449.54	-286.46	-6,520.96	6,522.85	0.91	-0.08	-0.90
15,020.86	90.59	270.22	8,449.40	-286.40	-6,534.25	6,536.13	0.68	0.08	-0.68
15,034.14	90.60	270.16	8,449.26	-286.35	-6,547.53	6,549.41	0.46	0.08	-0.45
15,047.43	90.61	270.11	8,449.12	-286.32	-6,560.82	6,562.70	0.38	0.08	-0.38
15,060.71	90.63	270.07	8,448.98	-286.30	-6,574.10	6,575.98	0.34	0.15	-0.30
15,074.00	90.66	270.04	8,448.83	-286.29	-6,587.39	6,589.27	0.32	0.23	-0.23
15,087.43	90.72	270.02	8,448.67	-286.28	-6,600.82	6,602.70	0.47	0.45	-0.15
15,100.86	90.85	269.99	8,448.48	-286.28	-6,614.25	6,616.13	0.99	0.97	-0.22
15,114.29	90.99	269.97	8,448.27	-286.29	-6,627.67	6,629.55	1.05	1.04	-0.15
15,127.71	91.10	269.95	8,448.02	-286.30	-6,641.09	6,642.97	0.83	0.82	-0.15
15,141.14	91.20	269.94	8,447.75	-286.31	-6,654.52	6,656.40	0.75	0.74	-0.07
15,154.57	91.29	269.92	8,447.46	-286.33	-6,667.95	6,669.82	0.69	0.67	-0.15
15,168.00	91.39	269.90	8,447.15	-286.35	-6,681.37	6,683.25	0.76	0.74	-0.15
15,181.29	91.51	269.88	8,446.81	-286.37	-6,694.66	6,696.54	0.92	0.90	-0.15
15,194.57	91.63	269.86	8,446.45	-286.40	-6,707.93	6,709.81	0.92	0.90	-0.15
15,207.86	91.75	269.85	8,446.06	-286.44	-6,721.22	6,723.10	0.91	0.90	-0.08
15,221.14	91.86	269.83	8,445.64	-286.47	-6,734.49	6,736.37	0.84	0.83	-0.15
15,234.43	91.97	269.81	8,445.19	-286.51	-6,747.77	6,749.65	0.84	0.83	-0.15
15,247.71	92.06	269.79	8,444.73	-286.56	-6,761.05	6,762.92	0.69	0.68	-0.15
15,261.00	92.14	269.77	8,444.24	-286.61	-6,774.33	6,776.20	0.62	0.60	-0.15
15,274.29	92.22	269.76	8,443.73	-286.67	-6,787.61	6,789.48	0.61	0.60	-0.08



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
15,287.57	92.29	269.74	8,443.21	-286.72	-6,800.88	6,802.75	0.55	0.53	-0.15	
15,300.86	92.34	269.72	8,442.67	-286.79	-6,814.16	6,816.03	0.41	0.38	-0.15	
15,314.14	92.40	269.70	8,442.13	-286.85	-6,827.42	6,829.30	0.48	0.45	-0.15	
15,327.43	92.46	269.67	8,441.56	-286.93	-6,840.70	6,842.58	0.50	0.45	-0.23	
15,340.71	92.52	269.64	8,440.98	-287.01	-6,853.97	6,855.85	0.51	0.45	-0.23	
15,354.00	92.59	269.60	8,440.39	-287.09	-6,867.25	6,869.12	0.61	0.53	-0.30	
15,367.29	92.58	269.53	8,439.79	-287.20	-6,880.52	6,882.40	0.53	-0.08	-0.53	
15,380.57	92.52	269.46	8,439.20	-287.31	-6,893.79	6,895.67	0.69	-0.45	-0.53	
15,393.86	92.42	269.38	8,438.63	-287.45	-6,907.06	6,908.94	0.96	-0.75	-0.60	
15,407.14	92.25	269.30	8,438.09	-287.60	-6,920.33	6,922.21	1.41	-1.28	-0.60	
15,420.43	92.01	269.23	8,437.59	-287.77	-6,933.61	6,935.49	1.88	-1.81	-0.53	
15,433.71	91.57	269.22	8,437.18	-287.95	-6,946.88	6,948.77	3.31	-3.31	-0.08	
15,447.00	90.21	269.56	8,436.97	-288.09	-6,960.17	6,962.06	10.55	-10.23	2.56	
15,460.43	89.54	269.55	8,437.00	-288.20	-6,973.60	6,975.49	4.99	-4.99	-0.07	
15,473.86	89.55	269.54	8,437.11	-288.30	-6,987.03	6,988.91	0.11	0.07	-0.07	
15,487.29	89.65	269.53	8,437.20	-288.41	-7,000.46	7,002.34	0.75	0.74	-0.07	
15,500.71	89.79	269.54	8,437.27	-288.52	-7,013.88	7,015.76	1.05	1.04	0.07	
15,514.14	89.90	269.54	8,437.30	-288.63	-7,027.31	7,029.19	0.82	0.82	0.00	
15,527.57	90.03	269.53	8,437.31	-288.74	-7,040.74	7,042.62	0.97	0.97	-0.07	
15,541.00	90.15	269.52	8,437.29	-288.85	-7,054.17	7,056.05	0.90	0.89	-0.07	
15,554.43	90.24	269.50	8,437.25	-288.96	-7,067.60	7,069.48	0.69	0.67	-0.15	
15,567.86	90.32	269.46	8,437.18	-289.08	-7,081.03	7,082.91	0.67	0.60	-0.30	
15,581.29	90.41	269.42	8,437.10	-289.22	-7,094.46	7,096.34	0.73	0.67	-0.30	
15,594.71	90.51	269.37	8,436.99	-289.36	-7,107.87	7,109.76	0.83	0.75	-0.37	
15,608.14	90.63	269.33	8,436.85	-289.51	-7,121.30	7,123.19	0.94	0.89	-0.30	
15,621.57	90.73	269.28	8,436.69	-289.67	-7,134.73	7,136.62	0.83	0.74	-0.37	
15,635.00	90.82	269.24	8,436.51	-289.85	-7,148.16	7,150.05	0.73	0.67	-0.30	
15,648.43	90.90	269.20	8,436.31	-290.03	-7,161.59	7,163.48	0.67	0.60	-0.30	
15,661.86	90.93	269.16	8,436.10	-290.22	-7,175.01	7,176.91	0.37	0.22	-0.30	
15,675.29	90.94	269.13	8,435.88	-290.42	-7,188.44	7,190.33	0.24	0.07	-0.22	
15,688.71	90.94	269.10	8,435.66	-290.63	-7,201.86	7,203.75	0.22	0.00	-0.22	
15,702.14	90.95	269.07	8,435.44	-290.84	-7,215.28	7,217.18	0.24	0.07	-0.22	
15,715.57	90.97	269.04	8,435.21	-291.06	-7,228.71	7,230.61	0.27	0.15	-0.22	
15,729.00	90.99	269.02	8,434.98	-291.29	-7,242.13	7,244.03	0.21	0.15	-0.15	
15,742.43	91.01	269.01	8,434.75	-291.52	-7,255.56	7,257.46	0.17	0.15	-0.07	
15,755.86	91.05	268.99	8,434.51	-291.76	-7,268.99	7,270.89	0.33	0.30	-0.15	
15,769.29	91.11	268.99	8,434.25	-291.99	-7,282.41	7,284.32	0.45	0.45	0.00	
15,782.71	91.18	268.98	8,433.98	-292.23	-7,295.83	7,297.73	0.53	0.52	-0.07	
15,796.14	91.27	268.99	8,433.70	-292.47	-7,309.25	7,311.16	0.67	0.67	0.07	
15,809.57	91.40	268.99	8,433.38	-292.71	-7,322.68	7,324.58	0.97	0.97	0.00	
15,823.00	91.56	269.01	8,433.04	-292.94	-7,336.10	7,338.01	1.20	1.19	0.15	
15,836.43	91.73	269.04	8,432.65	-293.17	-7,349.52	7,351.43	1.29	1.27	0.22	
15,849.86	91.92	269.08	8,432.22	-293.39	-7,362.94	7,364.85	1.45	1.41	0.30	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
15,863.29	92.11	269.13	8,431.75	-293.60	-7,376.36	7,378.28	1.46	1.41	0.37	
15,876.71	92.28	269.17	8,431.24	-293.80	-7,389.77	7,391.69	1.30	1.27	0.30	
15,890.14	92.44	269.21	8,430.68	-293.99	-7,403.19	7,405.10	1.23	1.19	0.30	
15,903.57	92.56	269.23	8,430.10	-294.17	-7,416.61	7,418.52	0.91	0.89	0.15	
15,917.00	92.62	269.25	8,429.49	-294.35	-7,430.02	7,431.94	0.47	0.45	0.15	
15,930.29	92.56	269.23	8,428.89	-294.52	-7,443.30	7,445.21	0.48	-0.45	-0.15	
15,943.57	92.47	269.21	8,428.31	-294.70	-7,456.56	7,458.48	0.69	-0.68	-0.15	
15,956.86	92.34	269.17	8,427.75	-294.89	-7,469.84	7,471.76	1.02	-0.98	-0.30	
15,970.14	92.19	269.12	8,427.23	-295.09	-7,483.11	7,485.03	1.19	-1.13	-0.38	
15,983.43	92.02	269.07	8,426.74	-295.30	-7,496.39	7,498.31	1.33	-1.28	-0.38	
15,984.56	91.99	269.08	8,426.70	-295.32	-7,497.52	7,499.44	2.76	-2.71	0.53	
05-v7500(S-131H)										
15,996.71	91.66	269.14	8,426.31	-295.51	-7,509.66	7,511.58	2.76	-2.71	0.53	
16,010.00	90.78	269.62	8,426.03	-295.65	-7,522.94	7,524.87	7.54	-6.62	3.61	
16,023.43	89.80	269.79	8,425.96	-295.72	-7,536.37	7,538.30	7.41	-7.30	1.27	
16,036.86	89.88	269.72	8,426.00	-295.78	-7,549.80	7,551.73	0.79	0.60	-0.52	
16,050.29	89.97	269.65	8,426.02	-295.85	-7,563.23	7,565.16	0.85	0.67	-0.52	
16,063.71	90.05	269.57	8,426.01	-295.94	-7,576.65	7,578.58	0.84	0.60	-0.60	
16,077.14	90.11	269.49	8,425.99	-296.05	-7,590.08	7,592.01	0.74	0.45	-0.60	
16,090.57	90.13	269.41	8,425.97	-296.18	-7,603.51	7,605.44	0.61	0.15	-0.60	
16,104.00	90.12	269.32	8,425.94	-296.33	-7,616.94	7,618.87	0.67	-0.07	-0.67	
16,117.29	90.08	269.22	8,425.91	-296.50	-7,630.23	7,632.16	0.81	-0.30	-0.75	
16,130.57	90.07	269.13	8,425.90	-296.69	-7,643.51	7,645.44	0.68	-0.08	-0.68	
16,143.86	90.11	269.03	8,425.88	-296.90	-7,656.80	7,658.73	0.81	0.30	-0.75	
16,157.14	90.18	268.94	8,425.84	-297.14	-7,670.07	7,672.00	0.86	0.53	-0.68	
16,170.43	90.24	268.84	8,425.79	-297.40	-7,683.36	7,685.29	0.88	0.45	-0.75	
16,183.71	90.28	268.76	8,425.73	-297.68	-7,696.64	7,698.57	0.67	0.30	-0.60	
16,197.00	90.33	268.69	8,425.66	-297.97	-7,709.93	7,711.86	0.65	0.38	-0.53	
16,210.29	90.40	268.63	8,425.58	-298.28	-7,723.21	7,725.15	0.69	0.53	-0.45	
16,223.57	90.49	268.59	8,425.47	-298.60	-7,736.49	7,738.43	0.74	0.68	-0.30	
16,236.86	90.57	268.55	8,425.35	-298.94	-7,749.77	7,751.71	0.67	0.60	-0.30	
16,250.14	90.66	268.52	8,425.21	-299.28	-7,763.05	7,764.99	0.71	0.68	-0.23	
16,263.43	90.75	268.50	8,425.05	-299.62	-7,776.33	7,778.28	0.69	0.68	-0.15	
16,276.71	90.85	268.49	8,424.86	-299.97	-7,789.61	7,791.55	0.76	0.75	-0.08	
16,290.00	90.97	268.49	8,424.65	-300.32	-7,802.89	7,804.84	0.90	0.90	0.00	
16,303.43	91.11	268.51	8,424.41	-300.67	-7,816.31	7,818.26	1.05	1.04	0.15	
16,316.86	91.21	268.53	8,424.13	-301.02	-7,829.74	7,831.69	0.76	0.74	0.15	
16,330.29	91.28	268.56	8,423.84	-301.36	-7,843.16	7,845.11	0.57	0.52	0.22	
16,343.71	91.29	268.60	8,423.54	-301.69	-7,856.57	7,858.53	0.31	0.07	0.30	
16,357.14	91.23	268.63	8,423.25	-302.02	-7,869.99	7,871.95	0.50	-0.45	0.22	
16,370.57	90.99	269.19	8,422.99	-302.27	-7,883.42	7,885.38	4.54	-1.79	4.17	
16,384.00	90.76	269.68	8,422.78	-302.40	-7,896.85	7,898.81	4.03	-1.71	3.65	
16,397.29	90.73	269.70	8,422.61	-302.48	-7,910.14	7,912.10	0.27	-0.23	0.15	
16,410.57	90.72	269.71	8,422.44	-302.54	-7,923.41	7,925.38	0.11	-0.08	0.08	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
16,423.86	90.70	269.73	8,422.27	-302.61	-7,936.70	7,938.66	0.21	-0.15	0.15
16,437.14	90.64	269.73	8,422.12	-302.67	-7,949.98	7,951.94	0.45	-0.45	0.00
16,450.43	90.55	269.74	8,421.98	-302.73	-7,963.27	7,965.23	0.68	-0.68	0.08
16,463.71	90.27	270.35	8,421.89	-302.72	-7,976.55	7,978.51	5.05	-2.11	4.59
16,477.00	89.66	271.61	8,421.89	-302.50	-7,989.84	7,991.80	10.53	-4.59	9.48
16,490.14	89.51	271.72	8,421.99	-302.11	-8,002.97	8,004.93	1.42	-1.14	0.84
16,503.29	89.55	271.69	8,422.10	-301.72	-8,016.12	8,018.07	0.38	0.30	-0.23
16,516.43	89.62	271.65	8,422.19	-301.34	-8,029.25	8,031.20	0.61	0.53	-0.30
16,529.57	89.68	271.61	8,422.27	-300.97	-8,042.38	8,044.33	0.55	0.46	-0.30
16,542.71	89.72	271.57	8,422.34	-300.60	-8,055.52	8,057.46	0.43	0.30	-0.30
16,555.86	89.77	271.53	8,422.40	-300.25	-8,068.66	8,070.61	0.49	0.38	-0.30
16,569.00	89.83	271.49	8,422.45	-299.90	-8,081.80	8,083.74	0.55	0.46	-0.30
16,582.29	89.89	271.46	8,422.48	-299.56	-8,095.09	8,097.02	0.50	0.45	-0.23
16,595.57	89.93	271.44	8,422.50	-299.22	-8,108.36	8,110.29	0.34	0.30	-0.15
16,608.86	89.97	271.41	8,422.51	-298.89	-8,121.65	8,123.58	0.38	0.30	-0.23
16,622.14	90.02	271.39	8,422.51	-298.57	-8,134.92	8,136.85	0.41	0.38	-0.15
16,635.43	90.07	271.37	8,422.50	-298.25	-8,148.21	8,150.13	0.41	0.38	-0.15
16,648.71	90.16	271.34	8,422.48	-297.93	-8,161.49	8,163.41	0.71	0.68	-0.23
16,662.00	90.23	271.31	8,422.43	-297.62	-8,174.77	8,176.69	0.57	0.53	-0.23
16,675.29	90.28	271.27	8,422.37	-297.33	-8,188.06	8,189.98	0.48	0.38	-0.30
16,688.57	90.32	271.23	8,422.30	-297.04	-8,201.33	8,203.25	0.43	0.30	-0.30
16,701.86	90.36	271.19	8,422.22	-296.76	-8,214.62	8,216.53	0.43	0.30	-0.30
16,715.14	90.38	271.14	8,422.14	-296.49	-8,227.90	8,229.81	0.41	0.15	-0.38
16,728.43	90.39	271.09	8,422.05	-296.23	-8,241.19	8,243.09	0.38	0.08	-0.38
16,741.71	90.41	271.04	8,421.95	-295.98	-8,254.46	8,256.37	0.41	0.15	-0.38
16,755.00	90.45	271.00	8,421.85	-295.74	-8,267.75	8,269.66	0.43	0.30	-0.30
16,768.43	90.49	270.95	8,421.74	-295.51	-8,281.18	8,283.08	0.48	0.30	-0.37
16,781.86	90.52	270.91	8,421.63	-295.30	-8,294.61	8,296.51	0.37	0.22	-0.30
16,795.29	90.58	270.87	8,421.50	-295.09	-8,308.03	8,309.93	0.54	0.45	-0.30
16,808.71	90.65	270.82	8,421.35	-294.89	-8,321.45	8,323.35	0.64	0.52	-0.37
16,822.14	90.74	270.78	8,421.19	-294.70	-8,334.88	8,336.77	0.73	0.67	-0.30
16,835.57	90.83	270.73	8,421.01	-294.53	-8,348.31	8,350.20	0.77	0.67	-0.37
16,849.00	90.92	270.68	8,420.80	-294.36	-8,361.73	8,363.63	0.77	0.67	-0.37
16,862.29	91.02	270.63	8,420.58	-294.21	-8,375.02	8,376.91	0.84	0.75	-0.38
16,875.57	91.11	270.57	8,420.33	-294.07	-8,388.30	8,390.19	0.81	0.68	-0.45
16,888.86	91.21	270.52	8,420.06	-293.94	-8,401.58	8,403.47	0.84	0.75	-0.38
16,902.14	91.30	270.46	8,419.77	-293.83	-8,414.86	8,416.75	0.81	0.68	-0.45
16,915.43	91.36	270.40	8,419.46	-293.73	-8,428.15	8,430.03	0.64	0.45	-0.45
16,928.71	91.38	270.35	8,419.14	-293.64	-8,441.42	8,443.31	0.41	0.15	-0.38
16,942.00	91.40	270.30	8,418.82	-293.57	-8,454.71	8,456.59	0.41	0.15	-0.38
16,955.14	91.44	270.25	8,418.50	-293.50	-8,467.84	8,469.73	0.49	0.30	-0.38
16,968.29	91.52	270.21	8,418.16	-293.45	-8,480.99	8,482.87	0.68	0.61	-0.30
16,981.43	91.60	270.17	8,417.80	-293.41	-8,494.13	8,496.01	0.68	0.61	-0.30



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)	
16,994.57	91.69	270.14	8,417.42	-293.37	-8,507.26	8,509.14	0.72	0.68	-0.23	
17,007.71	91.78	270.11	8,417.02	-293.34	-8,520.39	8,522.27	0.72	0.68	-0.23	
17,020.86	91.86	270.09	8,416.61	-293.32	-8,533.54	8,535.42	0.63	0.61	-0.15	
17,034.00	91.93	270.07	8,416.17	-293.30	-8,546.67	8,548.55	0.55	0.53	-0.15	
17,047.29	91.97	270.08	8,415.72	-293.29	-8,559.95	8,561.83	0.31	0.30	0.08	
17,060.57	91.98	270.09	8,415.26	-293.27	-8,573.22	8,575.10	0.11	0.08	0.08	
17,073.86	91.97	270.10	8,414.80	-293.24	-8,586.51	8,588.39	0.11	-0.08	0.08	
17,087.14	91.92	270.11	8,414.35	-293.22	-8,599.78	8,601.66	0.38	-0.38	0.08	
17,100.43	91.76	270.12	8,413.93	-293.19	-8,613.06	8,614.94	1.21	-1.20	0.08	
17,113.71	91.32	270.15	8,413.57	-293.16	-8,626.34	8,628.21	3.32	-3.31	0.23	
17,127.00	90.18	270.50	8,413.39	-293.09	-8,639.63	8,641.50	8.97	-8.58	2.63	
17,140.29	89.69	270.70	8,413.41	-292.95	-8,652.91	8,654.79	3.98	-3.69	1.50	
17,153.57	89.77	270.64	8,413.47	-292.79	-8,666.19	8,668.07	0.75	0.60	-0.45	
17,166.86	89.88	270.57	8,413.51	-292.65	-8,679.48	8,681.35	0.98	0.83	-0.53	
17,180.14	89.95	270.50	8,413.53	-292.53	-8,692.76	8,694.63	0.75	0.53	-0.53	
17,193.43	90.00	270.43	8,413.54	-292.42	-8,706.05	8,707.92	0.65	0.38	-0.53	
17,206.71	90.03	270.36	8,413.54	-292.33	-8,719.33	8,721.20	0.57	0.23	-0.53	
17,220.00	90.07	270.30	8,413.52	-292.25	-8,732.62	8,734.49	0.54	0.30	-0.45	
17,233.14	90.10	270.25	8,413.50	-292.19	-8,745.76	8,747.63	0.44	0.23	-0.38	
17,246.29	90.14	270.22	8,413.48	-292.13	-8,758.91	8,760.78	0.38	0.30	-0.23	
17,259.43	90.20	270.19	8,413.44	-292.09	-8,772.05	8,773.92	0.51	0.46	-0.23	
17,272.57	90.25	270.17	8,413.39	-292.05	-8,785.19	8,787.06	0.41	0.38	-0.15	
17,285.71	90.28	270.14	8,413.33	-292.01	-8,798.33	8,800.19	0.32	0.23	-0.23	
17,298.86	90.29	270.11	8,413.26	-291.98	-8,811.48	8,813.34	0.24	0.08	-0.23	
17,312.00	90.30	270.07	8,413.19	-291.96	-8,824.62	8,826.48	0.31	0.08	-0.30	
17,325.29	90.30	270.01	8,413.12	-291.95	-8,837.91	8,839.77	0.45	0.00	-0.45	
17,338.57	90.32	269.95	8,413.05	-291.96	-8,851.19	8,853.05	0.48	0.15	-0.45	
17,351.86	90.36	269.88	8,412.97	-291.98	-8,864.48	8,866.34	0.61	0.30	-0.53	
17,365.14	90.40	269.81	8,412.88	-292.01	-8,877.76	8,879.62	0.61	0.30	-0.53	
17,378.43	90.44	269.74	8,412.79	-292.06	-8,891.05	8,892.91	0.61	0.30	-0.53	
17,391.71	90.48	269.68	8,412.68	-292.13	-8,904.33	8,906.19	0.54	0.30	-0.45	
17,405.00	90.52	269.62	8,412.56	-292.21	-8,917.62	8,919.48	0.54	0.30	-0.45	
17,418.43	90.54	269.58	8,412.44	-292.31	-8,931.05	8,932.91	0.33	0.15	-0.30	
17,431.86	90.55	269.54	8,412.31	-292.41	-8,944.48	8,946.34	0.31	0.07	-0.30	
17,445.29	90.54	269.51	8,412.18	-292.52	-8,957.90	8,959.77	0.24	-0.07	-0.22	
17,458.71	90.57	269.48	8,412.05	-292.64	-8,971.32	8,973.19	0.32	0.22	-0.22	
17,472.14	90.58	269.46	8,411.92	-292.76	-8,984.75	8,986.62	0.17	0.07	-0.15	
17,485.57	90.56	269.43	8,411.79	-292.89	-8,998.18	9,000.05	0.27	-0.15	-0.22	
17,499.00	90.55	269.40	8,411.66	-293.03	-9,011.61	9,013.48	0.24	-0.07	-0.22	
17,512.43	90.55	269.36	8,411.53	-293.18	-9,025.04	9,026.90	0.30	0.00	-0.30	
17,525.86	90.56	269.32	8,411.40	-293.33	-9,038.47	9,040.33	0.31	0.07	-0.30	
17,539.29	90.57	269.27	8,411.26	-293.50	-9,051.89	9,053.76	0.38	0.07	-0.37	
17,552.71	90.59	269.23	8,411.13	-293.67	-9,065.31	9,067.18	0.33	0.15	-0.30	
17,566.14	90.60	269.18	8,410.99	-293.86	-9,078.74	9,080.61	0.38	0.07	-0.37	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
17,579.57	90.60	269.14	8,410.85	-294.05	-9,092.17	9,094.04	0.30	0.00	-0.30
17,593.00	90.60	269.11	8,410.71	-294.26	-9,105.60	9,107.47	0.22	0.00	-0.22
17,606.29	90.66	269.08	8,410.56	-294.47	-9,118.88	9,120.76	0.50	0.45	-0.23
17,619.57	90.75	269.05	8,410.40	-294.69	-9,132.16	9,134.04	0.71	0.68	-0.23
17,632.86	90.83	269.03	8,410.21	-294.91	-9,145.45	9,147.32	0.62	0.60	-0.15
17,646.14	90.92	269.01	8,410.01	-295.14	-9,158.72	9,160.60	0.69	0.68	-0.15
17,659.43	91.02	268.99	8,409.79	-295.37	-9,172.01	9,173.89	0.77	0.75	-0.15
17,672.71	91.15	269.16	8,409.54	-295.58	-9,185.29	9,187.17	1.61	0.98	1.28
17,686.00	91.21	269.13	8,409.26	-295.78	-9,198.57	9,200.45	0.50	0.45	-0.23
17,699.29	91.21	269.10	8,408.98	-295.99	-9,211.86	9,213.74	0.23	0.00	-0.23
17,712.57	91.19	269.07	8,408.70	-296.20	-9,225.13	9,227.02	0.27	-0.15	-0.23
17,725.86	91.19	269.03	8,408.43	-296.42	-9,238.42	9,240.30	0.30	0.00	-0.30
17,739.14	91.22	268.99	8,408.15	-296.65	-9,251.69	9,253.58	0.38	0.23	-0.30
17,752.43	91.27	268.96	8,407.86	-296.89	-9,264.98	9,266.87	0.44	0.38	-0.23
17,765.71	91.33	268.93	8,407.56	-297.13	-9,278.25	9,280.14	0.51	0.45	-0.23
17,779.00	91.42	268.90	8,407.24	-297.38	-9,291.54	9,293.43	0.71	0.68	-0.23
17,792.29	91.51	268.88	8,406.90	-297.64	-9,304.82	9,306.71	0.69	0.68	-0.15
17,805.57	91.60	268.86	8,406.54	-297.90	-9,318.09	9,319.99	0.69	0.68	-0.15
17,818.86	91.70	268.85	8,406.16	-298.17	-9,331.37	9,333.27	0.76	0.75	-0.08
17,832.14	91.75	268.85	8,405.76	-298.43	-9,344.65	9,346.54	0.38	0.38	0.00
17,845.43	91.79	268.85	8,405.35	-298.70	-9,357.93	9,359.82	0.30	0.30	0.00
17,858.71	91.81	268.86	8,404.93	-298.96	-9,371.20	9,373.10	0.17	0.15	0.08
17,872.00	91.87	268.88	8,404.50	-299.23	-9,384.48	9,386.38	0.48	0.45	0.15
17,885.43	91.87	268.91	8,404.06	-299.49	-9,397.90	9,399.80	0.22	0.00	0.22
17,898.86	91.89	268.96	8,403.62	-299.73	-9,411.32	9,413.22	0.40	0.15	0.37
17,912.29	91.85	269.00	8,403.18	-299.97	-9,424.74	9,426.64	0.42	-0.30	0.30
17,925.71	91.72	269.05	8,402.77	-300.20	-9,438.15	9,440.06	1.04	-0.97	0.37
17,939.14	91.47	269.09	8,402.39	-300.42	-9,451.57	9,453.48	1.89	-1.86	0.30
17,952.57	91.06	269.13	8,402.10	-300.63	-9,465.00	9,466.91	3.07	-3.05	0.30
17,966.00	89.86	269.54	8,401.99	-300.78	-9,478.43	9,480.34	9.44	-8.94	3.05
17,979.43	89.18	269.53	8,402.10	-300.89	-9,491.86	9,493.77	5.06	-5.06	-0.07
17,992.86	89.18	269.52	8,402.29	-301.00	-9,505.28	9,507.19	0.07	0.00	-0.07
18,006.29	89.22	269.50	8,402.48	-301.12	-9,518.71	9,520.62	0.33	0.30	-0.15
18,019.71	89.30	269.48	8,402.65	-301.24	-9,532.13	9,534.04	0.61	0.60	-0.15
18,033.14	89.39	269.45	8,402.81	-301.36	-9,545.56	9,547.47	0.71	0.67	-0.22
18,046.57	89.45	269.41	8,402.94	-301.50	-9,558.99	9,560.90	0.54	0.45	-0.30
18,060.00	89.50	269.36	8,403.07	-301.64	-9,572.42	9,574.33	0.53	0.37	-0.37
18,073.29	89.51	269.30	8,403.18	-301.80	-9,585.71	9,587.62	0.46	0.08	-0.45
18,086.57	89.52	269.23	8,403.29	-301.97	-9,598.98	9,600.90	0.53	0.08	-0.53
18,099.86	89.55	269.15	8,403.40	-302.16	-9,612.27	9,614.19	0.64	0.23	-0.60
18,113.14	89.58	269.08	8,403.50	-302.36	-9,625.55	9,627.47	0.57	0.23	-0.53
18,126.43	89.61	269.01	8,403.60	-302.58	-9,638.84	9,640.76	0.57	0.23	-0.53
18,139.71	89.64	268.94	8,403.68	-302.82	-9,652.12	9,654.04	0.57	0.23	-0.53



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,153.00	89.68	268.90	8,403.76	-303.07	-9,665.40	9,667.32	0.43	0.30	-0.30
18,166.43	89.72	268.87	8,403.83	-303.33	-9,678.83	9,680.75	0.37	0.30	-0.22
18,179.86	89.77	268.86	8,403.89	-303.60	-9,692.26	9,694.18	0.38	0.37	-0.07
18,193.29	89.85	268.85	8,403.94	-303.87	-9,705.68	9,707.61	0.60	0.60	-0.07
18,206.71	89.92	268.86	8,403.96	-304.13	-9,719.10	9,721.03	0.53	0.52	0.07
18,220.14	89.99	268.86	8,403.97	-304.40	-9,732.53	9,734.46	0.52	0.52	0.00
18,233.57	90.04	268.86	8,403.97	-304.67	-9,745.96	9,747.89	0.37	0.37	0.00
18,247.00	90.08	268.86	8,403.96	-304.94	-9,759.38	9,761.32	0.30	0.30	0.00
18,260.43	90.09	268.85	8,403.94	-305.20	-9,772.81	9,774.74	0.11	0.07	-0.07
18,273.86	90.10	268.84	8,403.91	-305.47	-9,786.24	9,788.17	0.11	0.07	-0.07
18,287.29	90.10	268.82	8,403.89	-305.75	-9,799.67	9,801.60	0.15	0.00	-0.15
18,300.71	90.11	268.80	8,403.87	-306.03	-9,813.08	9,815.02	0.17	0.07	-0.15
18,314.14	90.11	268.77	8,403.84	-306.31	-9,826.51	9,828.45	0.22	0.00	-0.22
18,327.57	90.12	268.75	8,403.81	-306.60	-9,839.94	9,841.88	0.17	0.07	-0.15
18,341.00	90.13	268.72	8,403.78	-306.90	-9,853.36	9,855.31	0.24	0.07	-0.22
18,354.29	90.16	268.70	8,403.75	-307.20	-9,866.65	9,868.60	0.27	0.23	-0.15
18,367.57	90.19	268.68	8,403.71	-307.50	-9,879.93	9,881.87	0.27	0.23	-0.15
18,380.86	90.21	268.66	8,403.66	-307.81	-9,893.21	9,895.16	0.21	0.15	-0.15
18,394.14	90.23	268.63	8,403.61	-308.12	-9,906.49	9,908.44	0.27	0.15	-0.23
18,407.43	90.23	268.61	8,403.56	-308.44	-9,919.77	9,921.73	0.15	0.00	-0.15
18,420.71	90.18	268.59	8,403.51	-308.77	-9,933.05	9,935.01	0.41	-0.38	-0.15
18,434.00	90.12	268.56	8,403.48	-309.10	-9,946.34	9,948.29	0.50	-0.45	-0.23
18,447.43	90.06	268.53	8,403.46	-309.44	-9,959.76	9,961.72	0.50	-0.45	-0.22
18,460.86	90.00	268.51	8,403.45	-309.79	-9,973.19	9,975.15	0.47	-0.45	-0.15
18,474.29	89.96	268.48	8,403.45	-310.14	-9,986.61	9,988.58	0.37	-0.30	-0.22
18,485.60	89.94	268.46	8,403.46	-310.44	-9,997.92	9,999.89	0.21	-0.15	-0.15
06-v10000(S-131H)									
18,487.71	89.94	268.46	8,403.47	-310.50	-10,000.03	10,001.99	0.21	-0.15	-0.15
18,501.14	89.92	268.45	8,403.48	-310.86	-10,013.45	10,015.42	0.17	-0.15	-0.07
18,514.57	89.92	268.44	8,403.50	-311.23	-10,026.88	10,028.85	0.07	0.00	-0.07
18,528.00	89.93	268.45	8,403.52	-311.59	-10,040.30	10,042.28	0.11	0.07	0.07
18,541.29	89.97	268.48	8,403.53	-311.95	-10,053.59	10,055.56	0.38	0.30	0.23
18,554.57	90.02	268.53	8,403.53	-312.29	-10,066.86	10,068.84	0.53	0.38	0.38
18,567.86	90.09	268.57	8,403.52	-312.63	-10,080.15	10,082.13	0.61	0.53	0.30
18,581.14	90.17	268.62	8,403.49	-312.95	-10,093.43	10,095.41	0.71	0.60	0.38
18,594.43	90.27	268.67	8,403.44	-313.27	-10,106.71	10,108.69	0.84	0.75	0.38
18,607.71	90.35	268.83	8,403.37	-313.56	-10,119.99	10,121.97	1.35	0.60	1.20
18,621.00	90.22	269.82	8,403.30	-313.71	-10,133.28	10,135.26	7.51	-0.98	7.45
18,634.43	90.12	270.32	8,403.26	-313.70	-10,146.71	10,148.69	3.80	-0.74	3.72
18,647.86	90.26	270.31	8,403.21	-313.62	-10,160.14	10,162.12	1.05	1.04	-0.07
18,661.29	90.38	270.29	8,403.14	-313.55	-10,173.57	10,175.55	0.91	0.89	-0.15
18,674.71	90.46	270.26	8,403.04	-313.49	-10,186.99	10,188.97	0.64	0.60	-0.22
18,688.14	90.53	270.23	8,402.93	-313.43	-10,200.42	10,202.40	0.57	0.52	-0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,701.57	90.62	270.21	8,402.79	-313.38	-10,213.84	10,215.83	0.69	0.67	-0.15
18,715.00	90.73	270.18	8,402.63	-313.33	-10,227.27	10,229.25	0.85	0.82	-0.22
18,728.29	90.80	270.16	8,402.46	-313.30	-10,240.56	10,242.54	0.55	0.53	-0.15
18,741.57	90.86	270.14	8,402.26	-313.26	-10,253.84	10,255.82	0.48	0.45	-0.15
18,754.86	90.88	270.13	8,402.06	-313.23	-10,267.13	10,269.11	0.17	0.15	-0.08
18,768.14	90.90	270.11	8,401.85	-313.20	-10,280.41	10,282.39	0.21	0.15	-0.15
18,781.43	90.91	270.10	8,401.64	-313.18	-10,293.70	10,295.67	0.11	0.08	-0.08
18,794.71	90.93	270.10	8,401.43	-313.15	-10,306.97	10,308.95	0.15	0.15	0.00
18,808.00	90.98	270.10	8,401.21	-313.13	-10,320.26	10,322.24	0.38	0.38	0.00
18,821.43	91.03	270.10	8,400.97	-313.11	-10,333.69	10,335.67	0.37	0.37	0.00
18,834.86	91.06	270.11	8,400.73	-313.08	-10,347.12	10,349.09	0.24	0.22	0.07
18,848.29	91.09	270.13	8,400.48	-313.05	-10,360.55	10,362.52	0.27	0.22	0.15
18,861.71	91.11	270.14	8,400.22	-313.02	-10,373.96	10,375.94	0.17	0.15	0.07
18,875.14	91.13	270.16	8,399.96	-312.99	-10,387.39	10,389.36	0.21	0.15	0.15
18,888.57	91.15	270.17	8,399.69	-312.95	-10,400.82	10,402.79	0.17	0.15	0.07
18,902.00	91.19	270.18	8,399.42	-312.91	-10,414.25	10,416.22	0.31	0.30	0.07
18,915.29	91.24	270.18	8,399.13	-312.87	-10,427.53	10,429.50	0.38	0.38	0.00
18,928.57	91.30	270.18	8,398.84	-312.82	-10,440.81	10,442.78	0.45	0.45	0.00
18,941.86	91.36	270.17	8,398.53	-312.78	-10,454.10	10,456.07	0.46	0.45	-0.08
18,955.14	91.43	270.16	8,398.21	-312.75	-10,467.37	10,469.34	0.53	0.53	-0.08
18,968.43	91.48	270.14	8,397.87	-312.71	-10,480.66	10,482.63	0.41	0.38	-0.15
18,981.71	91.48	270.12	8,397.53	-312.68	-10,493.93	10,495.90	0.15	0.00	-0.15
18,995.00	91.44	270.10	8,397.19	-312.66	-10,507.22	10,509.19	0.34	-0.30	-0.15
19,008.29	91.36	270.06	8,396.86	-312.64	-10,520.50	10,522.47	0.67	-0.60	-0.30
19,021.57	91.27	270.02	8,396.56	-312.63	-10,533.78	10,535.75	0.74	-0.68	-0.30
19,034.86	91.20	269.97	8,396.27	-312.63	-10,547.07	10,549.03	0.65	-0.53	-0.38
19,048.14	91.16	269.93	8,396.00	-312.64	-10,560.34	10,562.31	0.43	-0.30	-0.30
19,061.43	91.15	269.88	8,395.73	-312.66	-10,573.63	10,575.60	0.38	-0.08	-0.38
19,074.71	91.15	269.84	8,395.47	-312.70	-10,586.91	10,588.88	0.30	0.00	-0.30
19,088.00	91.16	269.80	8,395.20	-312.74	-10,600.20	10,602.16	0.31	0.08	-0.30
19,101.43	91.16	269.77	8,394.93	-312.79	-10,613.62	10,615.59	0.22	0.00	-0.22
19,114.86	91.15	269.74	8,394.65	-312.84	-10,627.05	10,629.02	0.24	-0.07	-0.22
19,128.29	91.14	269.73	8,394.39	-312.91	-10,640.48	10,642.44	0.11	-0.07	-0.07
19,141.71	91.15	269.71	8,394.12	-312.97	-10,653.89	10,655.86	0.17	0.07	-0.15
19,155.14	91.17	269.70	8,393.85	-313.04	-10,667.32	10,669.29	0.17	0.15	-0.07
19,168.57	91.21	269.70	8,393.57	-313.11	-10,680.75	10,682.72	0.30	0.30	0.00
19,182.00	91.25	269.70	8,393.28	-313.18	-10,694.18	10,696.14	0.30	0.30	0.00
19,194.33	91.28	269.72	8,393.01	-313.24	-10,706.50	10,708.47	0.29	0.24	0.16
19,198.50	91.28	269.73	8,392.91	-313.26	-10,710.67	10,712.64	0.18	0.08	0.16
07-LTP(S-131H)									
19,198.94	91.28	269.73	8,392.90	-313.27	-10,711.11	10,713.08	0.18	0.08	0.16
100'FWL: 19198.94' MD, 10713.08' VS, 8392.90' TVD									
19,206.67	91.29	269.74	8,392.73	-313.30	-10,718.84	10,720.81	0.18	0.08	0.16
19,219.00	91.30	269.76	8,392.45	-313.36	-10,731.17	10,733.13	0.18	0.08	0.16



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Shamrock 34 Fed State Com 131H
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 131H	North Reference:	Grid
Wellbore:	131H	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)
Final MWD Survey: 19219.00' MD, 91.30°INC, 269.76°AZ									
19,280.00	91.30	269.76	8,391.07	-313.61	-10,792.15	10,794.12	0.00	0.00	0.00
PTB: 19280.00' MD, 91.30°INC, 269.76°AZ - 08-PBHL(S-131H)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
97.00	97.00	Rustler				
349.03	349.00	Top of Salt				
683.31	683.00	Base of Salt				
910.63	910.00	Yates				
2,549.13	2,548.00	Capitan				
3,065.33	3,064.00	DLWR Mnt. Group				
3,815.90	3,814.00	Lower Brushy Canyon				
4,042.29	4,040.00	Bone Spring Lime				
6,406.93	6,400.00	1st Bone Spring SD				
6,607.85	6,600.00	2nd Bone Spring LM				
7,300.48	7,290.00	2nd Bone Spring SD				
7,652.90	7,640.00	3rd Bone Spring LM				
8,447.84	8,390.00	3rd Bone Spring SD				

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,986.00	7,970.62	-183.26	115.42	KOP: 7986.00' MD, -114.10' VS, 7970.62' TVD	
8,878.00	8,581.57	-251.54	-397.50	EOC: 8878.00' MD, 399.29' VS, 8581.57' TVD	
8,918.11	8,578.89	-251.31	-437.50	100'FEL: 8918.11' MD, 439.29' VS, 8578.89' TVD	
19,198.94	8,392.90	-313.27	-10,711.11	100'FWL: 19198.94' MD, 10713.08' VS, 8392.90' TVD	
19,219.00	8,392.45	-313.36	-10,731.17	Final MWD Survey: 19219.00' MD, 91.30°INC, 269.76°AZ	
19,280.00	8,391.07	-313.61	-10,792.15	PTB: 19280.00' MD, 91.30°INC, 269.76°AZ	

Checked By: _____	Approved By: _____	Date: _____
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District I

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

District II

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

District III

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

District IV

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

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

ACKNOWLEDGMENTS

Action 107620

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 107620
	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
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Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 107620

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 107620
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	RT EXPIRES 8/1/2022.	5/17/2022