

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 – 48619	⁵ Pool Name SCANLON DRAW; BONE SPRING		⁶ Pool Code 55510
⁷ Property Code 330327	⁸ Property Name ATLAS 18 STATE FED COM		⁹ Well Number 121H

II. ¹⁰ Surface Location

UL or lot no. C	Section 18	Township 19S	Range 29E	Lot Idn	Feet from the 982	North/South Line North	Feet from the 2197	East/West line West	County Eddy
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¹¹ Bottom Hole Location

UL or lot no. D	Section 13	Township 19S	Range 28E	Lot Idn	Feet from the 708	North/South line North	Feet from the 15	East/West line West	County Eddy
¹² Lse Code F	¹³ Producing Method Code		¹⁴ Gas Connection Date 12/01/2021		¹⁵ C-129 Permit Number		¹⁶ C-129 Effective Date		¹⁷ C-129 Expiration Date

III. Oil and Gas Transporters

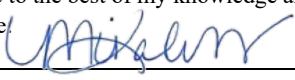
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
329097	LM TOUCHDOWN, LLC	O
329097	LM TOUCHDOWN, LLC	G

IV. Well Completion Data

²¹ Spud Date 08/17/2021	²² Ready Date 12/10/2021	²³ TD 15,008 MD 7,737 TVD	²⁴ PBSD 14,907 MD 7,519 TVD	²⁵ Perforations 8,094 – 14,789	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	
17.5		13.375		457	
12.25		9.625		3,072	
8.75		5.5		14,997	

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: <i>PATRICIA MARTINEZ</i>	
Title: Operations Tech		Title: <i>PETROLEUM SPECIALIST</i>	
E-mail Address: mthomas@colgateenergy.com		Approval Date: <i>12/21/2021</i>	
Date: 12/09/2021	Phone: 432-695-4272	<i>RT EXPIRES 3/10/2022</i>	

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

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3460 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

AS-DRILLED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-48619	² Pool Code 55510	³ Pool Name Scanlon Draw; Bone Spring
⁴ Property Code 330327	⁵ Property Name Atlas 18 State Fed Com	⁶ Well Number 121H
⁷ OGRID No. 371449	⁸ Operator Name Colgate Operating, LLC	⁹ Elevation 3382

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
C	18	19 S	29 E		982	North	2197	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	13	19 S	28 E		708	North	15	West	Eddy

¹² Dedicated Acres 232.7	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

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Legend:

- = Surface Location
- = Bottom Hole Location
- ⊕ = Found 1941 USGLO Brass Cap
- ⊙ = Found Monument

NOTE:
DOWNHOLE INFORMATION TAKEN
FROM A REPORT FURNISHED
BY COLGATE ENERGY

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 10.05.2021
Signature Date
Printed Name
mthomas@colgateenergy.com
E-mail Address

BOTTOM HOLE LOCATION
NAD 83 NMSPC ZONE 3001
Y= 606152.59 N
X= 601200.76 E
LAT.= 32.6662086° N
LONG.= 104.1387990° W

SURFACE LOCATION
NAD 83 NMSPC ZONE 3001
Y= 605912.35 N
X= 608590.28 E
LAT.= 32.6655087° N
LONG.= 104.1147875° W

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.

9/12/21
Date of Survey
Plat Revised: 9/14/21
Signature and Seal

17078
Certificate Number



Colgate Energy

Eddy County, NM (N83-NME)

Atlas 18 State Com

Atlas 18 State Fed Com 121H

30-015-48619

121H

Design: 121H

Standard Survey Report

30 August, 2021



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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	Atlas 18 State Com		
Site Position:		Northing:	605,867.37 usft
From:	Map	Easting:	608,589.94 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.66538511
		Longitude:	-104.11478887

Well	Atlas 18 State Fed Com 121H		
Well Position	+N/-S	0.00 usft	Northing: 605,912.35 usft
	+E/-W	0.00 usft	Easting: 608,590.28 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.12 °	Ground Level:	3,382.00 usft

Wellbore	121H		
Magnetics	Model Name	Sample Date	Declination (°)
	IFR	8/17/2021	7.17
			Dip Angle (°)
			60.44
			Field Strength (nT)
			47,776.00000000

Design	121H		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			269.75

Survey Program	Date	8/30/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
14.73	14,949.00	Survey #1 - Gordon (121H)	MWD+IFR1+SAG+FDIR (SQ OWSG MWD + IFR1 + Sag + FDIR Correction	
15,008.00	15,008.00	Survey #2-PTB (121H)	BLIND	BLIND

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14.73	0.03	222.56	14.73	0.00	0.00	0.00	0.20	0.20	0.00	
29.45	0.05	222.51	29.45	-0.01	-0.01	0.01	0.14	0.14	-0.34	
44.18	0.08	222.46	44.18	-0.02	-0.02	0.02	0.20	0.20	-0.34	
58.91	0.11	222.41	58.91	-0.04	-0.04	0.04	0.20	0.20	-0.34	
73.64	0.13	222.35	73.64	-0.06	-0.06	0.06	0.14	0.14	-0.41	
88.36	0.16	222.30	88.36	-0.09	-0.08	0.08	0.20	0.20	-0.34	
103.09	0.19	222.25	103.09	-0.12	-0.11	0.11	0.20	0.20	-0.34	
117.82	0.21	222.20	117.82	-0.16	-0.15	0.15	0.14	0.14	-0.34	



Survey Report

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Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
132.55	0.24	222.15	132.55	-0.21	-0.19	0.19	0.20	0.20	-0.34	
147.27	0.27	222.10	147.27	-0.25	-0.23	0.23	0.20	0.20	-0.34	
162.00	0.29	222.05	162.00	-0.31	-0.28	0.28	0.14	0.14	-0.34	
176.64	0.34	228.42	176.64	-0.36	-0.34	0.34	0.42	0.34	43.51	
191.27	0.39	233.17	191.27	-0.42	-0.41	0.41	0.40	0.34	32.47	
205.91	0.45	236.79	205.91	-0.48	-0.50	0.50	0.45	0.41	24.73	
220.55	0.50	239.62	220.55	-0.55	-0.60	0.60	0.38	0.34	19.33	
235.18	0.56	241.88	235.18	-0.61	-0.72	0.72	0.43	0.41	15.45	
249.82	0.61	243.73	249.82	-0.68	-0.85	0.85	0.37	0.34	12.64	
264.45	0.67	245.25	264.45	-0.75	-1.00	1.00	0.43	0.41	10.39	
279.09	0.73	246.53	279.08	-0.82	-1.16	1.17	0.42	0.41	8.74	
293.73	0.79	247.62	293.72	-0.90	-1.34	1.34	0.42	0.41	7.45	
308.36	0.84	248.56	308.35	-0.98	-1.53	1.54	0.35	0.34	6.43	
323.00	0.90	249.37	322.99	-1.06	-1.74	1.75	0.42	0.41	5.53	
336.80	0.90	247.24	336.79	-1.14	-1.94	1.95	0.24	0.00	-15.43	
350.60	0.90	245.11	350.59	-1.23	-2.14	2.15	0.24	0.00	-15.43	
364.40	0.90	242.98	364.38	-1.32	-2.34	2.34	0.24	0.00	-15.43	
378.20	0.91	240.86	378.18	-1.42	-2.53	2.53	0.25	0.07	-15.36	
392.00	0.91	238.75	391.98	-1.53	-2.72	2.72	0.24	0.00	-15.29	
406.58	0.97	230.24	406.56	-1.67	-2.91	2.92	1.04	0.41	-58.37	
421.17	1.04	222.77	421.15	-1.85	-3.10	3.10	1.02	0.48	-51.20	
435.75	1.13	216.36	435.72	-2.06	-3.27	3.28	1.04	0.62	-43.96	
450.33	1.22	210.93	450.30	-2.31	-3.44	3.45	0.98	0.62	-37.24	
464.92	1.33	206.36	464.89	-2.60	-3.59	3.60	1.03	0.75	-31.32	
479.50	1.45	202.49	479.46	-2.92	-3.74	3.75	1.04	0.82	-26.54	
494.08	1.57	199.21	494.04	-3.28	-3.87	3.89	1.01	0.82	-22.50	
508.67	1.70	196.40	508.62	-3.67	-4.00	4.02	1.05	0.89	-19.26	
523.25	1.83	193.99	523.20	-4.11	-4.12	4.14	1.03	0.89	-16.53	
537.83	1.96	191.90	537.77	-4.58	-4.23	4.24	1.01	0.89	-14.33	
552.42	2.10	190.08	552.35	-5.08	-4.32	4.35	1.06	0.96	-12.47	
567.00	2.23	188.48	566.92	-5.63	-4.41	4.44	0.98	0.89	-10.97	
582.00	2.21	186.18	581.91	-6.20	-4.49	4.51	0.61	-0.13	-15.33	
597.00	2.19	183.54	596.90	-6.78	-4.53	4.56	0.69	-0.13	-17.60	
612.00	2.17	180.73	611.89	-7.35	-4.56	4.59	0.72	-0.13	-18.73	
627.00	2.16	177.90	626.87	-7.91	-4.55	4.58	0.72	-0.07	-18.87	
642.00	2.15	175.21	641.86	-8.48	-4.52	4.55	0.68	-0.07	-17.93	
657.00	2.14	172.83	656.85	-9.03	-4.46	4.50	0.60	-0.07	-15.87	
670.78	2.11	171.32	670.62	-9.54	-4.39	4.43	0.46	-0.22	-10.96	
684.56	2.09	170.14	684.39	-10.04	-4.31	4.35	0.35	-0.15	-8.56	
698.33	2.06	169.19	698.16	-10.53	-4.22	4.26	0.33	-0.22	-6.90	
712.11	2.02	168.41	711.93	-11.01	-4.12	4.17	0.35	-0.29	-5.66	
725.89	1.99	167.75	725.70	-11.48	-4.02	4.07	0.27	-0.22	-4.79	
739.67	1.96	167.20	739.47	-11.95	-3.92	3.97	0.26	-0.22	-3.99	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)
753.44	1.92	166.76	753.23	-12.40	-3.81	3.87	0.31	-0.29	-3.20
767.22	1.88	166.45	767.00	-12.84	-3.71	3.76	0.30	-0.29	-2.25
781.00	1.84	166.32	780.78	-13.28	-3.60	3.66	0.29	-0.29	-0.94
794.57	1.80	166.41	794.34	-13.70	-3.50	3.56	0.30	-0.29	0.66
808.14	1.74	166.68	807.90	-14.11	-3.40	3.46	0.45	-0.44	1.99
821.71	1.69	167.05	821.47	-14.50	-3.31	3.37	0.38	-0.37	2.73
835.29	1.64	167.49	835.04	-14.89	-3.22	3.29	0.38	-0.37	3.24
848.86	1.59	167.93	848.61	-15.26	-3.14	3.21	0.38	-0.37	3.24
862.43	1.54	168.32	862.17	-15.62	-3.07	3.13	0.38	-0.37	2.87
876.00	1.50	168.55	875.74	-15.97	-2.99	3.06	0.30	-0.29	1.69
889.43	1.47	168.33	889.16	-16.32	-2.92	3.00	0.23	-0.22	-1.64
902.86	1.45	167.90	902.59	-16.65	-2.85	2.93	0.17	-0.15	-3.20
916.29	1.42	167.25	916.01	-16.98	-2.78	2.86	0.25	-0.22	-4.84
929.71	1.40	166.39	929.43	-17.30	-2.71	2.78	0.22	-0.15	-6.41
943.14	1.36	165.26	942.86	-17.61	-2.63	2.70	0.36	-0.30	-8.41
956.57	1.32	163.77	956.28	-17.92	-2.54	2.62	0.39	-0.30	-11.09
970.00	1.27	161.71	969.71	-18.21	-2.45	2.53	0.51	-0.37	-15.34
983.57	1.18	159.05	983.28	-18.48	-2.36	2.44	0.78	-0.66	-19.60
997.14	1.07	155.48	996.84	-18.73	-2.25	2.34	0.96	-0.81	-26.31
1,010.71	0.96	150.82	1,010.41	-18.94	-2.15	2.23	1.01	-0.81	-34.34
1,024.29	0.86	144.85	1,023.99	-19.12	-2.03	2.11	1.01	-0.74	-43.96
1,037.86	0.77	137.41	1,037.56	-19.27	-1.91	1.99	1.02	-0.66	-54.83
1,051.43	0.70	128.73	1,051.13	-19.39	-1.78	1.87	0.97	-0.52	-63.96
1,065.00	0.67	119.66	1,064.70	-19.48	-1.65	1.74	0.83	-0.22	-66.84
1,078.43	0.73	95.42	1,078.12	-19.53	-1.50	1.58	2.23	0.45	-180.49
1,091.86	1.31	59.99	1,091.55	-19.46	-1.28	1.36	6.19	4.32	-263.81
1,105.29	2.08	48.18	1,104.98	-19.22	-0.96	1.05	6.27	5.73	-87.94
1,118.71	2.30	46.01	1,118.39	-18.87	-0.59	0.67	1.75	1.64	-16.17
1,132.14	2.29	44.13	1,131.81	-18.49	-0.21	0.29	0.57	-0.07	-14.00
1,145.57	2.31	42.18	1,145.23	-18.10	0.16	-0.08	0.60	0.15	-14.52
1,159.00	2.35	40.27	1,158.64	-17.69	0.52	-0.44	0.65	0.30	-14.22
1,172.43	2.42	38.31	1,172.06	-17.26	0.87	-0.80	0.80	0.52	-14.59
1,185.86	2.51	36.47	1,185.48	-16.80	1.22	-1.15	0.89	0.67	-13.70
1,199.29	2.61	34.81	1,198.90	-16.31	1.57	-1.50	0.93	0.74	-12.36
1,212.71	2.72	33.34	1,212.30	-15.79	1.92	-1.85	0.96	0.82	-10.95
1,226.14	2.82	32.10	1,225.72	-15.25	2.27	-2.21	0.87	0.74	-9.23
1,239.57	2.92	31.09	1,239.13	-14.67	2.63	-2.56	0.83	0.74	-7.52
1,253.00	3.04	30.21	1,252.54	-14.07	2.98	-2.92	0.96	0.89	-6.55
1,266.57	3.88	28.10	1,266.09	-13.36	3.38	-3.32	6.26	6.19	-15.55
1,280.14	4.72	28.39	1,279.62	-12.46	3.86	-3.81	6.19	6.19	2.14
1,293.71	4.84	28.71	1,293.14	-11.47	4.40	-4.35	0.91	0.88	2.36
1,307.29	4.82	29.15	1,306.67	-10.47	4.95	-4.91	0.31	-0.15	3.24
1,320.86	4.79	29.69	1,320.20	-9.48	5.51	-5.47	0.40	-0.22	3.98



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
1,334.43	4.76	30.22	1,333.72	-8.50	6.08	-6.04	0.39	-0.22	3.91	
1,348.00	4.72	30.67	1,347.24	-7.53	6.64	-6.61	0.40	-0.29	3.32	
1,361.43	4.68	30.86	1,360.63	-6.59	7.21	-7.18	0.32	-0.30	1.41	
1,374.86	4.64	30.90	1,374.01	-5.65	7.77	-7.74	0.30	-0.30	0.30	
1,388.29	4.61	30.86	1,387.40	-4.72	8.32	-8.30	0.22	-0.22	-0.30	
1,401.71	4.57	30.75	1,400.78	-3.80	8.87	-8.86	0.31	-0.30	-0.82	
1,415.14	4.54	30.61	1,414.16	-2.88	9.42	-9.40	0.24	-0.22	-1.04	
1,428.57	4.51	30.44	1,427.55	-1.97	9.96	-9.95	0.24	-0.22	-1.27	
1,442.00	4.49	30.27	1,440.94	-1.06	10.49	-10.48	0.18	-0.15	-1.27	
1,455.57	4.48	30.11	1,454.47	-0.14	11.02	-11.02	0.12	-0.07	-1.18	
1,469.14	4.48	29.95	1,468.00	0.78	11.55	-11.56	0.09	0.00	-1.18	
1,482.71	4.48	29.78	1,481.53	1.70	12.08	-12.09	0.10	0.00	-1.25	
1,496.29	4.49	29.59	1,495.06	2.62	12.61	-12.62	0.13	0.07	-1.40	
1,509.86	4.49	29.37	1,508.59	3.54	13.13	-13.14	0.13	0.00	-1.62	
1,523.43	4.50	29.11	1,522.12	4.47	13.65	-13.67	0.17	0.07	-1.92	
1,537.00	4.49	28.78	1,535.65	5.40	14.16	-14.19	0.20	-0.07	-2.43	
1,550.43	4.48	28.33	1,549.04	6.32	14.66	-14.69	0.27	-0.07	-3.35	
1,563.86	4.46	27.82	1,562.43	7.25	15.16	-15.19	0.33	-0.15	-3.80	
1,577.29	4.43	27.27	1,575.82	8.17	15.64	-15.67	0.39	-0.22	-4.10	
1,590.71	4.41	26.72	1,589.20	9.09	16.11	-16.15	0.35	-0.15	-4.10	
1,604.14	4.39	26.18	1,602.59	10.01	16.57	-16.61	0.34	-0.15	-4.02	
1,617.57	4.37	25.68	1,615.98	10.94	17.02	-17.06	0.32	-0.15	-3.72	
1,631.00	4.36	25.26	1,629.37	11.86	17.46	-17.51	0.25	-0.07	-3.13	
1,644.43	4.35	24.99	1,642.76	12.78	17.89	-17.94	0.17	-0.07	-2.01	
1,657.86	4.35	24.81	1,656.15	13.71	18.32	-18.38	0.10	0.00	-1.34	
1,671.29	4.35	24.68	1,669.54	14.63	18.74	-18.81	0.07	0.00	-0.97	
1,684.71	4.35	24.59	1,682.92	15.56	19.17	-19.24	0.05	0.00	-0.67	
1,698.14	4.35	24.51	1,696.32	16.48	19.59	-19.66	0.05	0.00	-0.60	
1,711.57	4.34	24.44	1,709.71	17.41	20.01	-20.09	0.08	-0.07	-0.52	
1,725.00	4.32	24.36	1,723.10	18.33	20.43	-20.51	0.16	-0.15	-0.60	
1,738.57	4.28	24.23	1,736.63	19.26	20.85	-20.93	0.30	-0.29	-0.96	
1,752.14	4.23	24.07	1,750.16	20.18	21.26	-21.35	0.38	-0.37	-1.18	
1,765.71	4.18	23.88	1,763.70	21.09	21.67	-21.76	0.38	-0.37	-1.40	
1,779.29	4.12	23.68	1,777.24	21.99	22.06	-22.16	0.45	-0.44	-1.47	
1,792.86	4.07	23.44	1,790.78	22.88	22.45	-22.55	0.39	-0.37	-1.77	
1,806.43	4.02	23.15	1,804.31	23.75	22.83	-22.93	0.40	-0.37	-2.14	
1,820.00	3.98	22.81	1,817.85	24.63	23.20	-23.31	0.34	-0.29	-2.51	
1,833.43	3.96	22.37	1,831.25	25.48	23.56	-23.67	0.27	-0.15	-3.28	
1,846.86	3.96	21.90	1,844.64	26.34	23.90	-24.02	0.24	0.00	-3.50	
1,860.29	3.96	21.47	1,858.04	27.21	24.25	-24.37	0.22	0.00	-3.20	
1,873.71	3.97	21.12	1,871.43	28.07	24.58	-24.71	0.20	0.07	-2.61	
1,887.14	3.99	20.93	1,884.83	28.94	24.92	-25.04	0.18	0.15	-1.41	
1,900.57	4.01	20.99	1,898.23	29.82	25.25	-25.38	0.15	0.15	0.45	
1,914.00	4.03	21.43	1,911.62	30.69	25.59	-25.73	0.27	0.15	3.28	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
1,927.57	4.07	22.47	1,925.16	31.58	25.95	-26.09	0.62	0.29	7.66	
1,941.14	4.11	23.84	1,938.69	32.47	26.33	-26.47	0.78	0.29	10.10	
1,954.71	4.16	25.38	1,952.23	33.36	26.74	-26.89	0.90	0.37	11.35	
1,968.29	4.21	26.95	1,965.77	34.25	27.18	-27.33	0.92	0.37	11.56	
1,981.86	4.26	28.46	1,979.31	35.14	27.64	-27.80	0.90	0.37	11.13	
1,995.43	4.30	29.80	1,992.84	36.02	28.14	-28.29	0.79	0.29	9.87	
2,009.00	4.33	30.85	2,006.37	36.90	28.65	-28.81	0.62	0.22	7.74	
2,022.43	4.72	35.71	2,019.76	37.79	29.23	-29.40	4.07	2.90	36.19	
2,035.86	5.17	40.26	2,033.14	38.70	29.95	-30.12	4.44	3.35	33.88	
2,049.29	5.15	40.29	2,046.51	39.62	30.73	-30.90	0.15	-0.15	0.22	
2,062.71	5.12	40.18	2,059.88	40.54	31.51	-31.68	0.24	-0.22	-0.82	
2,076.14	5.09	39.97	2,073.26	41.45	32.27	-32.45	0.26	-0.22	-1.56	
2,089.57	5.05	39.71	2,086.63	42.36	33.03	-33.22	0.34	-0.30	-1.94	
2,103.00	5.01	39.42	2,100.01	43.27	33.78	-33.97	0.35	-0.30	-2.16	
2,116.57	4.97	39.18	2,113.53	44.18	34.53	-34.72	0.33	-0.29	-1.77	
2,130.14	4.93	38.94	2,127.05	45.09	35.27	-35.47	0.33	-0.29	-1.77	
2,143.71	4.88	38.70	2,140.57	46.00	36.00	-36.20	0.40	-0.37	-1.77	
2,157.29	4.84	38.47	2,154.10	46.90	36.72	-36.92	0.33	-0.29	-1.69	
2,170.86	4.81	38.26	2,167.62	47.79	37.42	-37.63	0.26	-0.22	-1.55	
2,184.43	4.78	38.07	2,181.15	48.68	38.12	-38.34	0.25	-0.22	-1.40	
2,198.00	4.76	37.91	2,194.67	49.57	38.82	-39.04	0.18	-0.15	-1.18	
2,211.43	4.76	37.83	2,208.05	50.45	39.50	-39.72	0.05	0.00	-0.60	
2,224.86	4.77	37.79	2,221.44	51.33	40.19	-40.41	0.08	0.07	-0.30	
2,238.29	4.79	37.77	2,234.82	52.22	40.87	-41.10	0.15	0.15	-0.15	
2,251.71	4.81	37.78	2,248.19	53.11	41.56	-41.79	0.15	0.15	0.07	
2,265.14	4.84	37.80	2,261.57	54.00	42.25	-42.49	0.22	0.22	0.15	
2,278.57	4.86	37.84	2,274.96	54.89	42.95	-43.19	0.15	0.15	0.30	
2,292.00	4.88	37.90	2,288.34	55.79	43.65	-43.89	0.15	0.15	0.45	
2,305.43	4.90	38.02	2,301.72	56.70	44.35	-44.60	0.17	0.15	0.89	
2,318.86	4.91	38.14	2,315.10	57.60	45.06	-45.31	0.11	0.07	0.89	
2,332.29	4.91	38.23	2,328.48	58.50	45.77	-46.03	0.06	0.00	0.67	
2,345.71	4.92	38.28	2,341.85	59.41	46.48	-46.74	0.08	0.07	0.37	
2,359.14	4.93	38.22	2,355.23	60.31	47.20	-47.46	0.08	0.07	-0.45	
2,372.57	4.93	38.02	2,368.61	61.22	47.91	-48.18	0.13	0.00	-1.49	
2,386.00	4.93	37.58	2,381.99	62.13	48.62	-48.89	0.28	0.00	-3.28	
2,399.57	4.93	36.77	2,395.51	63.06	49.32	-49.60	0.51	0.00	-5.97	
2,413.14	4.93	35.75	2,409.03	64.00	50.01	-50.29	0.65	0.00	-7.52	
2,426.71	4.93	34.59	2,422.55	64.96	50.68	-50.97	0.73	0.00	-8.55	
2,440.29	4.94	33.39	2,436.08	65.92	51.34	-51.62	0.76	0.07	-8.84	
2,453.86	4.94	32.20	2,449.60	66.91	51.97	-52.26	0.76	0.00	-8.77	
2,467.43	4.95	31.10	2,463.12	67.90	52.58	-52.88	0.70	0.07	-8.11	
2,481.00	4.96	30.16	2,476.64	68.91	53.18	-53.48	0.60	0.07	-6.93	
2,494.43	4.93	22.70	2,490.02	69.95	53.69	-54.00	4.79	-0.22	-55.55	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
2,507.86	4.94	22.24	2,503.40	71.01	54.14	-54.45	0.30	0.07	-3.43	
2,521.29	4.94	21.90	2,516.78	72.08	54.57	-54.89	0.22	0.00	-2.53	
2,534.71	4.95	21.67	2,530.15	73.16	55.00	-55.32	0.17	0.07	-1.71	
2,548.14	4.96	21.52	2,543.53	74.24	55.43	-55.75	0.12	0.07	-1.12	
2,561.57	4.96	21.45	2,556.91	75.32	55.85	-56.18	0.05	0.00	-0.52	
2,575.00	4.97	21.47	2,570.29	76.40	56.28	-56.61	0.08	0.07	0.15	
2,588.57	4.97	21.60	2,583.81	77.49	56.71	-57.05	0.08	0.00	0.96	
2,602.14	4.97	21.80	2,597.33	78.59	57.14	-57.49	0.13	0.00	1.47	
2,615.71	4.98	22.05	2,610.85	79.68	57.58	-57.93	0.18	0.07	1.84	
2,629.29	4.98	22.31	2,624.37	80.77	58.03	-58.38	0.17	0.00	1.91	
2,642.86	4.99	22.56	2,637.89	81.86	58.48	-58.84	0.18	0.07	1.84	
2,656.43	5.00	22.77	2,651.41	82.95	58.93	-59.30	0.15	0.07	1.55	
2,670.00	5.01	22.92	2,664.93	84.04	59.39	-59.76	0.12	0.07	1.11	
2,683.43	5.03	22.97	2,678.31	85.12	59.85	-60.22	0.15	0.15	0.37	
2,696.86	5.05	22.95	2,691.69	86.21	60.31	-60.69	0.15	0.15	-0.15	
2,710.29	5.08	22.89	2,705.06	87.30	60.77	-61.15	0.23	0.22	-0.45	
2,723.71	5.10	22.80	2,718.43	88.40	61.24	-61.62	0.16	0.15	-0.67	
2,737.14	5.12	22.70	2,731.81	89.50	61.70	-62.09	0.16	0.15	-0.74	
2,750.57	5.15	22.58	2,745.18	90.61	62.16	-62.56	0.24	0.22	-0.89	
2,764.00	5.16	22.47	2,758.56	91.72	62.62	-63.02	0.10	0.07	-0.82	
2,777.57	5.17	22.35	2,772.07	92.85	63.09	-63.49	0.11	0.07	-0.88	
2,791.14	5.17	22.23	2,785.59	93.99	63.55	-63.96	0.08	0.00	-0.88	
2,804.71	5.17	22.11	2,799.10	95.12	64.01	-64.43	0.08	0.00	-0.88	
2,818.29	5.16	22.00	2,812.63	96.25	64.47	-64.89	0.10	-0.07	-0.81	
2,831.86	5.16	21.88	2,826.14	97.38	64.93	-65.35	0.08	0.00	-0.88	
2,845.43	5.15	21.77	2,839.66	98.52	65.38	-65.81	0.10	-0.07	-0.81	
2,859.00	5.15	21.66	2,853.17	99.65	65.83	-66.27	0.07	0.00	-0.81	
2,872.43	5.15	21.55	2,866.55	100.77	66.28	-66.72	0.07	0.00	-0.82	
2,885.86	5.16	21.44	2,879.93	101.89	66.72	-67.16	0.10	0.07	-0.82	
2,899.29	5.17	21.34	2,893.30	103.02	67.16	-67.61	0.10	0.07	-0.74	
2,912.71	5.17	21.23	2,906.67	104.14	67.60	-68.05	0.07	0.00	-0.82	
2,926.14	5.18	21.12	2,920.04	105.27	68.04	-68.50	0.10	0.07	-0.82	
2,939.57	5.19	21.00	2,933.42	106.41	68.47	-68.94	0.11	0.07	-0.89	
2,953.00	5.19	20.87	2,946.79	107.54	68.91	-69.38	0.09	0.00	-0.97	
2,964.50	5.19	20.75	2,958.24	108.51	69.28	-69.75	0.09	0.00	-1.04	
2,976.00	5.20	20.63	2,969.70	109.49	69.64	-70.12	0.13	0.09	-1.04	
2,987.50	5.20	20.52	2,981.15	110.46	70.01	-70.49	0.09	0.00	-0.96	
2,999.00	5.20	20.43	2,992.60	111.44	70.38	-70.86	0.07	0.00	-0.78	
3,013.75	5.21	20.37	3,007.29	112.69	70.84	-71.33	0.08	0.07	-0.41	
3,028.50	5.22	20.33	3,021.98	113.95	71.31	-71.80	0.07	0.07	-0.27	
3,043.25	5.23	20.32	3,036.67	115.21	71.77	-72.28	0.07	0.07	-0.07	
3,058.00	5.24	20.31	3,051.36	116.47	72.24	-72.75	0.07	0.07	-0.07	
3,072.75	5.25	20.31	3,066.05	117.74	72.71	-73.22	0.07	0.07	0.00	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
3,087.50	5.26	20.30	3,080.73	119.00	73.18	-73.70	0.07	0.07	-0.07	
3,102.25	5.27	20.29	3,095.42	120.27	73.65	-74.17	0.07	0.07	-0.07	
3,117.00	5.28	20.25	3,110.11	121.54	74.12	-74.65	0.07	0.07	-0.27	
3,131.75	5.29	20.18	3,124.80	122.82	74.59	-75.12	0.08	0.07	-0.47	
3,146.50	5.30	20.07	3,139.48	124.10	75.06	-75.60	0.10	0.07	-0.75	
3,161.25	5.31	19.90	3,154.17	125.38	75.52	-76.07	0.13	0.07	-1.15	
3,176.00	5.31	19.62	3,168.86	126.66	75.98	-76.54	0.18	0.00	-1.90	
3,189.57	5.32	19.20	3,182.37	127.85	76.40	-76.96	0.30	0.07	-3.10	
3,203.14	5.32	18.70	3,195.88	129.04	76.81	-77.37	0.34	0.00	-3.68	
3,216.71	5.32	18.19	3,209.39	130.23	77.21	-77.78	0.35	0.00	-3.76	
3,230.29	5.31	17.71	3,222.91	131.43	77.60	-78.17	0.34	-0.07	-3.53	
3,243.86	5.30	17.32	3,236.43	132.63	77.97	-78.55	0.28	-0.07	-2.87	
3,257.43	5.27	17.08	3,249.94	133.82	78.34	-78.93	0.27	-0.22	-1.77	
3,271.00	5.23	17.11	3,263.45	135.01	78.71	-79.30	0.30	-0.29	0.22	
3,284.43	5.16	17.64	3,276.83	136.17	79.07	-79.66	0.63	-0.52	3.95	
3,297.86	5.08	18.45	3,290.20	137.31	79.44	-80.04	0.80	-0.60	6.03	
3,311.29	5.00	19.43	3,303.58	138.42	79.82	-80.43	0.88	-0.60	7.30	
3,324.71	4.91	20.49	3,316.95	139.51	80.22	-80.83	0.96	-0.67	7.90	
3,338.14	4.82	21.51	3,330.33	140.58	80.63	-81.24	0.93	-0.67	7.59	
3,351.57	4.74	22.38	3,343.72	141.61	81.05	-81.66	0.80	-0.60	6.48	
3,365.00	4.67	22.94	3,357.10	142.63	81.47	-82.09	0.62	-0.52	4.17	
3,379.54	4.41	26.41	3,371.59	143.68	81.95	-82.58	2.60	-1.79	23.87	
3,394.08	4.15	30.65	3,386.09	144.63	82.47	-83.10	2.82	-1.79	29.16	
3,408.62	4.11	29.60	3,400.60	145.54	82.99	-83.63	0.59	-0.28	-7.22	
3,423.15	4.08	28.24	3,415.09	146.44	83.49	-84.13	0.70	-0.21	-9.36	
3,437.69	4.06	26.67	3,429.59	147.36	83.97	-84.61	0.78	-0.14	-10.80	
3,452.23	4.04	24.95	3,444.10	148.28	84.42	-85.06	0.85	-0.14	-11.83	
3,466.77	4.03	23.11	3,458.60	149.22	84.83	-85.48	0.89	-0.07	-12.65	
3,481.31	4.03	21.17	3,473.10	150.16	85.22	-85.87	0.94	0.00	-13.34	
3,495.85	4.03	19.16	3,487.61	151.12	85.57	-86.23	0.97	0.00	-13.82	
3,510.38	4.04	17.06	3,502.10	152.09	85.89	-86.55	1.02	0.07	-14.45	
3,524.92	4.05	14.87	3,516.61	153.08	86.17	-86.84	1.06	0.07	-15.06	
3,539.46	4.08	12.56	3,531.11	154.08	86.42	-87.09	1.14	0.21	-15.89	
3,554.00	4.11	10.08	3,545.61	155.10	86.62	-87.29	1.24	0.21	-17.06	
3,567.43	4.06	7.48	3,559.01	156.04	86.76	-87.45	1.43	-0.37	-19.36	
3,580.86	4.03	4.72	3,572.40	156.99	86.87	-87.55	1.47	-0.22	-20.55	
3,594.29	4.00	1.91	3,585.80	157.92	86.92	-87.61	1.48	-0.22	-20.92	
3,607.71	3.98	359.19	3,599.19	158.86	86.93	-87.62	1.42	-0.15	-20.27	
3,621.14	3.97	356.73	3,612.59	159.79	86.90	-87.59	1.27	-0.07	-18.32	
3,634.57	3.97	354.71	3,625.98	160.72	86.83	-87.53	1.04	0.00	-15.04	
3,648.00	3.98	353.41	3,639.38	161.64	86.73	-87.43	0.68	0.07	-9.68	
3,661.57	3.99	353.19	3,652.92	162.58	86.62	-87.33	0.13	0.07	-1.62	
3,675.14	4.03	353.63	3,666.46	163.52	86.51	-87.22	0.37	0.29	3.24	
3,688.71	4.07	354.48	3,679.99	164.47	86.41	-87.13	0.53	0.29	6.26	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)
3,702.29	4.12	355.53	3,693.54	165.44	86.33	-87.05	0.66	0.37	7.73
3,715.86	4.17	356.63	3,707.07	166.42	86.26	-86.99	0.69	0.37	8.11
3,729.43	4.22	357.66	3,720.61	167.41	86.21	-86.94	0.67	0.37	7.59
3,743.00	4.31	30.8	3,734.14	168.42	86.22	-86.95	3.04	0.66	39.94
3,756.43	4.57	14.00	3,747.53	169.44	86.38	-87.11	6.57	1.94	81.31
3,769.86	4.86	21.48	3,760.91	170.49	86.71	-87.46	5.06	2.16	55.70
3,783.29	4.87	21.91	3,774.29	171.55	87.13	-87.88	0.28	0.07	3.20
3,796.71	4.87	22.29	3,787.67	172.60	87.56	-88.31	0.24	0.00	2.83
3,810.14	4.87	22.64	3,801.05	173.66	88.00	-88.75	0.22	0.00	2.61
3,823.57	4.87	22.91	3,814.43	174.71	88.44	-89.20	0.17	0.00	2.01
3,837.00	4.84	23.09	3,827.81	175.75	88.88	-89.65	0.25	-0.22	1.34
3,850.57	4.80	23.08	3,841.33	176.80	89.33	-90.10	0.29	-0.29	-0.07
3,864.14	4.75	22.97	3,854.86	177.84	89.77	-90.55	0.37	-0.37	-0.81
3,877.71	4.68	22.77	3,868.38	178.87	90.21	-90.99	0.53	-0.52	-1.47
3,891.29	4.61	22.50	3,881.92	179.89	90.63	-91.41	0.54	-0.52	-1.99
3,904.86	4.54	22.18	3,895.44	180.89	91.04	-91.83	0.55	-0.52	-2.36
3,918.43	4.45	21.80	3,908.97	181.87	91.44	-92.23	0.70	-0.66	-2.80
3,932.00	4.36	21.34	3,922.50	182.84	91.82	-92.62	0.71	-0.66	-3.39
3,945.43	4.26	20.80	3,935.89	183.78	92.19	-92.99	0.80	-0.74	-4.02
3,958.86	4.16	20.20	3,949.29	184.71	92.53	-93.34	0.81	-0.74	-4.47
3,972.29	4.06	19.62	3,962.68	185.61	92.86	-93.67	0.81	-0.74	-4.32
3,985.71	3.96	19.10	3,976.07	186.50	93.17	-93.98	0.79	-0.75	-3.87
3,999.14	3.87	18.75	3,989.47	187.37	93.47	-94.28	0.69	-0.67	-2.61
4,012.57	3.79	18.68	4,002.87	188.22	93.75	-94.58	0.60	-0.60	-0.52
4,026.00	3.74	19.08	4,016.27	189.05	94.04	-94.86	0.42	-0.37	2.98
4,039.57	3.72	20.26	4,029.81	189.88	94.34	-95.16	0.58	-0.15	8.70
4,053.14	3.73	21.87	4,043.35	190.70	94.65	-95.49	0.77	0.07	11.86
4,066.71	3.76	23.72	4,056.89	191.52	95.00	-95.83	0.92	0.22	13.63
4,080.29	3.80	25.64	4,070.44	192.33	95.37	-96.21	0.98	0.29	14.14
4,093.86	3.84	27.53	4,083.98	193.14	95.78	-96.62	0.97	0.29	13.93
4,107.43	3.89	29.29	4,097.52	193.95	96.21	-97.06	0.95	0.37	12.97
4,121.00	3.95	31.25	4,111.06	194.75	96.68	-97.53	1.08	0.44	14.44
4,134.57	4.52	37.85	4,124.59	195.57	97.25	-98.10	5.52	4.20	48.64
4,148.14	4.87	44.75	4,138.12	196.40	97.98	-98.84	4.89	2.58	50.85
4,161.71	4.84	45.46	4,151.64	197.21	98.80	-99.66	0.49	-0.22	5.23
4,175.29	4.79	46.10	4,165.17	198.01	99.61	-100.48	0.54	-0.37	4.71
4,188.86	4.74	46.67	4,178.69	198.78	100.43	-101.30	0.51	-0.37	4.20
4,202.43	4.69	47.15	4,192.22	199.55	101.24	-102.11	0.47	-0.37	3.54
4,216.00	4.64	47.50	4,205.74	200.29	102.06	-102.93	0.42	-0.37	2.58
4,229.43	4.60	47.66	4,219.13	201.02	102.85	-103.73	0.31	-0.30	1.19
4,242.86	4.56	47.70	4,232.52	201.75	103.65	-104.53	0.30	-0.30	0.30
4,256.29	4.53	47.66	4,245.90	202.46	104.43	-105.32	0.22	-0.22	-0.30
4,269.71	4.49	47.57	4,259.28	203.17	105.21	-106.10	0.30	-0.30	-0.67



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
4,283.14	4.46	47.46	4,272.67	203.88	105.99	-106.87	0.23	-0.22	-0.82	
4,296.57	4.43	47.35	4,286.06	204.59	106.75	-107.64	0.23	-0.22	-0.82	
4,310.00	4.41	47.27	4,299.45	205.29	107.51	-108.41	0.16	-0.15	-0.60	
4,323.43	4.39	47.30	4,312.84	205.99	108.27	-109.17	0.15	-0.15	0.22	
4,336.86	4.38	47.36	4,326.23	206.68	109.02	-109.93	0.08	-0.07	0.45	
4,350.29	4.37	47.44	4,339.62	207.38	109.78	-110.68	0.09	-0.07	0.60	
4,363.71	4.35	47.51	4,353.00	208.07	110.53	-111.44	0.15	-0.15	0.52	
4,377.14	4.33	47.56	4,366.40	208.75	111.28	-112.19	0.15	-0.15	0.37	
4,390.57	4.31	47.56	4,379.79	209.43	112.03	-112.94	0.15	-0.15	0.00	
4,404.00	4.27	47.48	4,393.18	210.11	112.77	-113.68	0.30	-0.30	-0.60	
4,417.57	4.22	47.28	4,406.71	210.79	113.51	-114.43	0.38	-0.37	-1.47	
4,431.14	4.15	47.01	4,420.25	211.47	114.23	-115.15	0.54	-0.52	-1.99	
4,444.71	4.08	46.67	4,433.78	212.13	114.94	-115.87	0.55	-0.52	-2.51	
4,458.29	4.01	46.28	4,447.33	212.79	115.64	-116.57	0.55	-0.52	-2.87	
4,471.86	3.94	45.88	4,460.87	213.44	116.32	-117.25	0.55	-0.52	-2.95	
4,485.43	3.87	45.48	4,474.40	214.09	116.98	-117.91	0.55	-0.52	-2.95	
4,499.00	3.82	45.11	4,487.94	214.73	117.62	-118.56	0.41	-0.37	-2.73	
4,512.43	3.78	44.86	4,501.34	215.36	118.25	-119.19	0.32	-0.30	-1.86	
4,525.86	3.75	44.65	4,514.74	215.99	118.87	-119.82	0.25	-0.22	-1.56	
4,539.29	3.74	44.46	4,528.15	216.61	119.49	-120.43	0.12	-0.07	-1.41	
4,552.71	3.72	44.30	4,541.54	217.24	120.10	-121.05	0.17	-0.15	-1.19	
4,566.14	3.71	44.14	4,554.94	217.86	120.71	-121.66	0.11	-0.07	-1.19	
4,579.57	3.69	43.98	4,568.34	218.48	121.31	-122.26	0.17	-0.15	-1.19	
4,593.00	3.67	43.83	4,581.74	219.10	121.91	-122.86	0.17	-0.15	-1.12	
4,606.43	3.64	43.70	4,595.15	219.72	122.50	-123.46	0.23	-0.22	-0.97	
4,619.86	3.61	43.56	4,608.55	220.34	123.09	-124.05	0.23	-0.22	-1.04	
4,633.29	3.57	43.43	4,621.95	220.95	123.66	-124.63	0.30	-0.30	-0.97	
4,646.71	3.53	43.31	4,635.35	221.55	124.23	-125.20	0.30	-0.30	-0.89	
4,660.14	3.50	43.20	4,648.75	222.15	124.80	-125.77	0.23	-0.22	-0.82	
4,673.57	3.47	43.11	4,662.16	222.74	125.36	-126.33	0.23	-0.22	-0.67	
4,687.00	3.44	43.06	4,675.56	223.34	125.91	-126.88	0.22	-0.22	-0.37	
4,700.57	3.42	43.07	4,689.11	223.93	126.46	-127.44	0.15	-0.15	0.07	
4,714.14	3.41	43.12	4,702.65	224.52	127.02	-128.00	0.08	-0.07	0.37	
4,727.71	3.40	43.17	4,716.20	225.11	127.57	-128.55	0.08	-0.07	0.37	
4,741.29	3.39	43.22	4,729.76	225.69	128.12	-129.10	0.08	-0.07	0.37	
4,754.86	3.39	43.23	4,743.30	226.28	128.67	-129.65	0.00	0.00	0.07	
4,768.43	3.38	43.18	4,756.85	226.86	129.22	-130.21	0.08	-0.07	-0.37	
4,782.00	3.38	43.05	4,770.40	227.45	129.76	-130.75	0.06	0.00	-0.96	
4,795.43	3.37	42.77	4,783.80	228.03	130.30	-131.30	0.14	-0.07	-2.08	
4,808.86	3.36	42.40	4,797.21	228.61	130.84	-131.83	0.18	-0.07	-2.76	
4,822.29	3.35	41.97	4,810.62	229.19	131.36	-132.36	0.20	-0.07	-3.20	
4,835.71	3.34	41.50	4,824.01	229.77	131.88	-132.89	0.22	-0.07	-3.50	
4,849.14	3.33	40.99	4,837.42	230.36	132.40	-133.40	0.23	-0.07	-3.80	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
4,862.57	3.31	40.45	4,850.83	230.95	132.91	-133.91	0.28	-0.15	-4.02	
4,876.00	3.29	39.90	4,864.24	231.54	133.41	-134.41	0.28	-0.15	-4.10	
4,889.43	3.26	39.35	4,877.64	232.13	133.89	-134.91	0.32	-0.22	-4.10	
4,902.86	3.22	38.80	4,891.05	232.72	134.37	-135.39	0.38	-0.30	-4.10	
4,916.29	3.19	38.24	4,904.46	233.31	134.84	-135.86	0.32	-0.22	-4.17	
4,929.71	3.15	37.70	4,917.86	233.89	135.30	-136.32	0.37	-0.30	-4.02	
4,943.14	3.11	37.18	4,931.27	234.48	135.74	-136.77	0.37	-0.30	-3.87	
4,956.57	3.07	36.70	4,944.68	235.05	136.18	-137.20	0.35	-0.30	-3.57	
4,970.00	3.04	36.30	4,958.09	235.63	136.60	-137.63	0.27	-0.22	-2.98	
4,983.57	3.00	36.06	4,971.64	236.21	137.03	-138.06	0.31	-0.29	-1.77	
4,997.14	2.97	35.91	4,985.20	236.78	137.44	-138.47	0.23	-0.22	-1.11	
5,010.71	2.95	35.81	4,998.75	237.35	137.85	-138.89	0.15	-0.15	-0.74	
5,024.29	2.93	35.74	5,012.31	237.91	138.26	-139.30	0.15	-0.15	-0.52	
5,037.86	2.91	35.68	5,025.86	238.47	138.66	-139.70	0.15	-0.15	-0.44	
5,051.43	2.89	35.62	5,039.41	239.03	139.06	-140.10	0.15	-0.15	-0.44	
5,065.00	2.88	35.52	5,052.97	239.59	139.46	-140.50	0.08	-0.07	-0.74	
5,078.43	2.87	35.38	5,066.38	240.13	139.85	-140.90	0.09	-0.07	-1.04	
5,091.86	2.87	35.20	5,079.79	240.68	140.24	-141.29	0.07	0.00	-1.34	
5,105.29	2.87	35.00	5,093.21	241.23	140.63	-141.68	0.07	0.00	-1.49	
5,118.71	2.87	34.79	5,106.61	241.78	141.01	-142.06	0.08	0.00	-1.56	
5,132.14	2.87	34.57	5,120.02	242.34	141.39	-142.45	0.08	0.00	-1.64	
5,145.57	2.86	34.35	5,133.44	242.89	141.77	-142.83	0.11	-0.07	-1.64	
5,159.00	2.85	34.13	5,146.85	243.44	142.15	-143.21	0.11	-0.07	-1.64	
5,172.57	2.83	33.92	5,160.40	244.00	142.53	-143.59	0.17	-0.15	-1.55	
5,186.14	2.81	33.72	5,173.96	244.56	142.90	-143.96	0.16	-0.15	-1.47	
5,199.71	2.78	33.51	5,187.51	245.11	143.26	-144.33	0.23	-0.22	-1.55	
5,213.29	2.75	33.29	5,201.07	245.65	143.62	-144.69	0.23	-0.22	-1.62	
5,226.86	2.73	33.05	5,214.63	246.20	143.98	-145.05	0.17	-0.15	-1.77	
5,240.43	2.70	32.79	5,228.18	246.74	144.33	-145.40	0.24	-0.22	-1.92	
5,254.00	2.69	32.49	5,241.74	247.27	144.67	-145.75	0.13	-0.07	-2.21	
5,267.43	2.69	32.14	5,255.15	247.81	145.01	-146.09	0.12	0.00	-2.61	
5,280.86	2.69	31.77	5,268.57	248.34	145.34	-146.42	0.13	0.00	-2.76	
5,294.29	2.69	31.40	5,281.98	248.88	145.67	-146.76	0.13	0.00	-2.76	
5,307.71	2.70	31.03	5,295.39	249.42	146.00	-147.09	0.15	0.07	-2.76	
5,321.14	2.70	30.68	5,308.80	249.96	146.32	-147.41	0.12	0.00	-2.61	
5,334.57	2.71	30.40	5,322.22	250.51	146.65	-147.74	0.12	0.07	-2.08	
5,348.00	2.70	30.19	5,335.63	251.05	146.97	-148.06	0.10	-0.07	-1.56	
5,361.43	2.67	30.15	5,349.05	251.60	147.28	-148.38	0.22	-0.22	-0.30	
5,374.86	2.64	30.18	5,362.47	252.14	147.59	-148.69	0.22	-0.22	0.22	
5,388.29	2.61	30.22	5,375.88	252.67	147.90	-149.01	0.22	-0.22	0.30	
5,401.71	2.57	30.20	5,389.29	253.19	148.21	-149.31	0.30	-0.30	-0.15	
5,415.14	2.53	30.05	5,402.70	253.71	148.51	-149.61	0.30	-0.30	-1.12	
5,428.57	2.50	29.67	5,416.12	254.22	148.80	-149.91	0.26	-0.22	-2.83	
5,442.00	2.47	28.93	5,429.54	254.73	149.09	-150.20	0.33	-0.22	-5.51	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
5,455.57	2.46	27.59	5,443.10	255.24	149.36	-150.48	0.43	-0.07	-9.87	
5,469.14	2.45	25.90	5,456.65	255.76	149.63	-150.74	0.54	-0.07	-12.45	
5,482.71	2.45	24.01	5,470.21	256.29	149.87	-150.99	0.60	0.00	-13.93	
5,496.29	2.45	22.05	5,483.78	256.82	150.10	-151.22	0.62	0.00	-14.43	
5,509.86	2.46	20.10	5,497.34	257.36	150.31	-151.43	0.62	0.07	-14.37	
5,523.43	2.46	18.28	5,510.89	257.91	150.50	-151.62	0.58	0.00	-13.41	
5,537.00	2.45	16.69	5,524.45	258.47	150.67	-151.80	0.51	-0.07	-11.72	
5,550.43	2.42	15.64	5,537.87	259.01	150.83	-151.96	0.40	-0.22	-7.82	
5,563.86	2.38	14.87	5,551.29	259.56	150.98	-152.11	0.38	-0.30	-5.73	
5,577.29	2.34	14.27	5,564.71	260.09	151.12	-152.25	0.35	-0.30	-4.47	
5,590.71	2.30	13.78	5,578.12	260.62	151.25	-152.39	0.33	-0.30	-3.65	
5,604.14	2.26	13.35	5,591.53	261.14	151.38	-152.51	0.32	-0.30	-3.20	
5,617.57	2.22	12.92	5,604.95	261.65	151.49	-152.63	0.32	-0.30	-3.20	
5,631.00	2.20	12.47	5,618.37	262.16	151.61	-152.75	0.20	-0.15	-3.35	
5,644.43	2.20	11.92	5,631.79	262.66	151.72	-152.86	0.16	0.00	-4.10	
5,657.86	2.20	11.33	5,645.21	263.16	151.82	-152.97	0.17	0.00	-4.39	
5,671.29	2.21	10.72	5,658.63	263.67	151.92	-153.07	0.19	0.07	-4.54	
5,684.71	2.23	10.07	5,672.04	264.18	152.01	-153.17	0.24	0.15	-4.84	
5,698.14	2.25	9.40	5,685.46	264.70	152.10	-153.26	0.25	0.15	-4.99	
5,711.57	2.26	8.69	5,698.88	265.22	152.19	-153.34	0.22	0.07	-5.29	
5,725.00	2.27	7.93	5,712.30	265.75	152.26	-153.42	0.24	0.07	-5.66	
5,738.43	2.26	7.07	5,725.72	266.27	152.33	-153.49	0.26	-0.07	-6.40	
5,751.86	2.25	6.15	5,739.14	266.80	152.39	-153.56	0.28	-0.07	-6.85	
5,765.29	2.23	5.17	5,752.56	267.32	152.44	-153.61	0.32	-0.15	-7.30	
5,778.71	2.21	4.13	5,765.97	267.84	152.49	-153.65	0.34	-0.15	-7.75	
5,792.14	2.19	3.03	5,779.39	268.35	152.52	-153.69	0.35	-0.15	-8.19	
5,805.57	2.17	1.87	5,792.81	268.86	152.54	-153.71	0.36	-0.15	-8.64	
5,819.00	2.14	0.62	5,806.23	269.37	152.55	-153.73	0.42	-0.22	-9.31	
5,832.57	2.11	359.30	5,819.79	269.87	152.55	-153.73	0.42	-0.22	-9.73	
5,846.14	2.09	357.91	5,833.35	270.37	152.54	-153.72	0.40	-0.15	-10.24	
5,859.71	2.06	356.48	5,846.92	270.86	152.52	-153.70	0.44	-0.22	-10.54	
5,873.29	2.04	355.06	5,860.49	271.34	152.48	-153.66	0.40	-0.15	-10.46	
5,886.86	2.02	353.70	5,874.05	271.82	152.43	-153.62	0.38	-0.15	-10.02	
5,900.43	2.01	352.47	5,887.61	272.30	152.37	-153.56	0.33	-0.07	-9.06	
5,914.00	2.00	351.47	5,901.17	272.77	152.31	-153.50	0.27	-0.07	-7.37	
5,927.43	2.01	350.85	5,914.59	273.23	152.24	-153.43	0.18	0.07	-4.62	
5,940.86	2.03	350.46	5,928.02	273.70	152.16	-153.35	0.18	0.15	-2.90	
5,954.29	2.05	350.20	5,941.44	274.17	152.08	-153.27	0.16	0.15	-1.94	
5,967.71	2.08	350.01	5,954.85	274.64	152.00	-153.19	0.23	0.22	-1.42	
5,981.14	2.10	349.86	5,968.27	275.13	151.91	-153.11	0.15	0.15	-1.12	
5,994.57	2.13	349.70	5,981.69	275.61	151.82	-153.02	0.23	0.22	-1.19	
6,008.00	2.16	349.49	5,995.11	276.11	151.73	-152.94	0.23	0.22	-1.56	
6,021.57	2.18	349.23	6,008.67	276.61	151.64	-152.84	0.16	0.15	-1.92	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
6,035.14	2.21	348.91	6,022.23	277.12	151.54	-152.75	0.24	0.22	-2.36	
6,048.71	2.23	348.51	6,035.79	277.64	151.44	-152.65	0.19	0.15	-2.95	
6,062.29	2.25	348.03	6,049.36	278.16	151.33	-152.54	0.20	0.15	-3.53	
6,075.86	2.26	347.45	6,062.92	278.68	151.21	-152.43	0.18	0.07	-4.27	
6,089.43	2.27	346.74	6,076.48	279.20	151.09	-152.31	0.22	0.07	-5.23	
6,103.00	2.27	345.82	6,090.04	279.73	150.97	-152.19	0.27	0.00	-6.78	
6,116.57	2.26	344.59	6,103.60	280.24	150.83	-152.05	0.37	-0.07	-9.06	
6,130.14	2.24	343.14	6,117.16	280.76	150.68	-151.91	0.44	-0.15	-10.69	
6,143.71	2.22	341.51	6,130.72	281.26	150.52	-151.75	0.49	-0.15	-12.01	
6,157.29	2.20	339.73	6,144.29	281.75	150.35	-151.58	0.53	-0.15	-13.11	
6,170.86	2.18	337.79	6,157.85	282.24	150.16	-151.39	0.57	-0.15	-14.30	
6,184.43	2.15	335.69	6,171.41	282.71	149.96	-151.19	0.62	-0.22	-15.48	
6,198.00	2.14	333.43	6,184.97	283.17	149.74	-150.97	0.63	-0.07	-16.65	
6,211.43	2.10	331.06	6,198.39	283.61	149.51	-150.74	0.72	-0.30	-17.65	
6,224.86	2.08	328.54	6,211.81	284.03	149.26	-150.50	0.70	-0.15	-18.76	
6,238.29	2.05	325.90	6,225.23	284.44	149.00	-150.24	0.74	-0.22	-19.66	
6,251.71	2.03	323.18	6,238.64	284.83	148.72	-149.96	0.74	-0.15	-20.27	
6,265.14	2.00	320.42	6,252.06	285.20	148.43	-149.67	0.76	-0.22	-20.55	
6,278.57	1.98	317.67	6,265.49	285.55	148.13	-149.37	0.73	-0.15	-20.48	
6,292.00	1.96	314.98	6,278.91	285.88	147.81	-149.05	0.70	-0.15	-20.03	
6,305.57	1.92	312.63	6,292.47	286.20	147.48	-148.72	0.66	-0.29	-17.32	
6,319.14	1.87	310.38	6,306.03	286.50	147.14	-148.39	0.66	-0.37	-16.58	
6,332.71	1.83	308.18	6,319.60	286.77	146.80	-148.05	0.60	-0.29	-16.21	
6,346.29	1.79	306.03	6,333.17	287.03	146.46	-147.71	0.58	-0.29	-15.83	
6,359.86	1.75	303.98	6,346.73	287.27	146.12	-147.37	0.55	-0.29	-15.11	
6,373.43	1.72	302.08	6,360.30	287.50	145.77	-147.02	0.48	-0.22	-14.00	
6,387.00	1.70	300.43	6,373.86	287.71	145.43	-146.68	0.39	-0.15	-12.16	
6,400.43	1.69	299.29	6,387.28	287.91	145.08	-146.34	0.26	-0.07	-8.49	
6,413.86	1.69	298.39	6,400.71	288.10	144.73	-145.99	0.20	0.00	-6.70	
6,427.29	1.69	297.62	6,414.13	288.28	144.38	-145.64	0.17	0.00	-5.73	
6,440.71	1.68	296.89	6,427.55	288.46	144.03	-145.29	0.18	-0.07	-5.44	
6,454.14	1.67	296.10	6,440.97	288.64	143.68	-144.94	0.19	-0.07	-5.88	
6,467.57	1.64	295.11	6,454.40	288.81	143.33	-144.59	0.31	-0.22	-7.37	
6,481.00	1.59	293.75	6,467.82	288.96	142.99	-144.25	0.47	-0.37	-10.13	
6,494.57	1.50	291.35	6,481.39	289.10	142.65	-143.91	0.82	-0.66	-17.69	
6,508.14	1.39	288.12	6,494.95	289.22	142.33	-143.59	1.01	-0.81	-23.80	
6,521.71	1.27	283.98	6,508.52	289.31	142.03	-143.29	1.13	-0.88	-30.51	
6,535.29	1.15	278.85	6,522.09	289.36	141.75	-143.01	1.19	-0.88	-37.78	
6,548.86	1.04	272.70	6,535.66	289.39	141.49	-142.75	1.19	-0.81	-45.32	
6,562.43	0.95	265.71	6,549.23	289.39	141.25	-142.51	1.11	-0.66	-51.51	
6,576.00	0.88	258.46	6,562.80	289.36	141.04	-142.30	1.00	-0.52	-53.43	
6,589.43	0.89	257.33	6,576.23	289.32	140.84	-142.10	0.15	0.07	-8.41	
6,602.86	0.89	256.22	6,589.65	289.27	140.63	-141.89	0.13	0.00	-8.27	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
6,616.29	0.89	255.10	6,603.08	289.22	140.43	-141.69	0.13	0.00	-8.34	
6,629.71	0.90	254.00	6,616.50	289.16	140.23	-141.49	0.15	0.07	-8.20	
6,643.14	0.90	252.91	6,629.93	289.10	140.03	-141.29	0.13	0.00	-8.12	
6,656.57	0.91	251.83	6,643.36	289.04	139.82	-141.08	0.15	0.07	-8.04	
6,670.00	0.91	250.75	6,656.79	288.97	139.62	-140.88	0.13	0.00	-8.04	
6,683.57	0.86	255.97	6,670.36	288.91	139.42	-140.68	0.70	-0.37	38.47	
6,697.14	0.81	261.88	6,683.92	288.87	139.23	-140.49	0.73	-0.37	43.55	
6,710.71	0.77	268.45	6,697.49	288.85	139.04	-140.30	0.73	-0.29	48.42	
6,724.29	0.74	275.63	6,711.07	288.86	138.86	-140.12	0.73	-0.22	52.87	
6,737.86	0.73	283.24	6,724.64	288.89	138.69	-139.95	0.72	-0.07	56.08	
6,751.43	0.72	291.04	6,738.21	288.94	138.53	-139.79	0.73	-0.07	57.48	
6,765.00	0.73	298.75	6,751.78	289.01	138.37	-139.63	0.72	0.07	56.82	
6,778.43	0.75	298.91	6,765.21	289.09	138.22	-139.48	0.15	0.15	1.19	
6,791.86	0.76	299.07	6,778.64	289.18	138.07	-139.33	0.08	0.07	1.19	
6,805.29	0.78	299.21	6,792.06	289.27	137.91	-139.17	0.15	0.15	1.04	
6,818.71	0.79	299.34	6,805.48	289.36	137.75	-139.01	0.08	0.07	0.97	
6,832.14	0.81	299.47	6,818.91	289.45	137.58	-138.85	0.15	0.15	0.97	
6,845.57	0.82	299.59	6,832.34	289.54	137.42	-138.68	0.08	0.07	0.89	
6,859.00	0.84	299.70	6,845.77	289.64	137.25	-138.51	0.15	0.15	0.82	
6,872.57	0.84	295.82	6,859.34	289.73	137.07	-138.34	0.42	0.00	-28.59	
6,886.14	0.85	291.99	6,872.91	289.81	136.89	-138.15	0.42	0.07	-28.22	
6,899.71	0.87	288.25	6,886.47	289.88	136.70	-137.96	0.44	0.15	-27.56	
6,913.29	0.88	284.63	6,900.05	289.94	136.50	-137.76	0.41	0.07	-26.66	
6,926.86	0.90	281.15	6,913.62	289.99	136.29	-137.56	0.42	0.15	-25.64	
6,940.43	0.92	277.82	6,927.19	290.02	136.08	-137.35	0.42	0.15	-24.54	
6,954.00	0.95	274.65	6,940.76	290.05	135.86	-137.13	0.44	0.22	-23.36	
6,967.57	0.91	274.63	6,954.33	290.07	135.64	-136.91	0.29	-0.29	-0.15	
6,981.14	0.87	274.60	6,967.89	290.08	135.43	-136.70	0.29	-0.29	-0.22	
6,994.71	0.84	274.57	6,981.46	290.10	135.23	-136.50	0.22	-0.22	-0.22	
7,008.29	0.80	274.53	6,995.04	290.11	135.04	-136.30	0.29	-0.29	-0.29	
7,021.86	0.76	274.48	7,008.61	290.13	134.85	-136.12	0.29	-0.29	-0.37	
7,035.43	0.72	274.43	7,022.18	290.14	134.68	-135.94	0.29	-0.29	-0.37	
7,049.00	0.69	274.36	7,035.75	290.16	134.51	-135.78	0.22	-0.22	-0.52	
7,063.29	0.76	271.97	7,050.04	290.17	134.33	-135.60	0.53	0.49	-16.72	
7,077.57	0.84	270.02	7,064.32	290.17	134.13	-135.40	0.59	0.56	-13.66	
7,091.86	0.92	268.40	7,078.60	290.17	133.91	-135.18	0.59	0.56	-11.34	
7,106.14	1.00	267.04	7,092.88	290.16	133.67	-134.94	0.58	0.56	-9.52	
7,120.43	1.08	265.88	7,107.17	290.14	133.41	-134.68	0.58	0.56	-8.12	
7,134.71	1.16	264.87	7,121.45	290.12	133.14	-134.40	0.58	0.56	-7.07	
7,149.00	1.24	263.99	7,135.73	290.09	132.84	-134.10	0.57	0.56	-6.16	
7,150.00	1.30	264.41	7,136.73	290.09	132.82	-134.08	6.22	6.15	41.54	
KOP: 7150.00' MD, -134.08' VS, 7136.73' TVD										
7,162.43	2.07	267.50	7,149.16	290.06	132.45	-133.72	6.22	6.18	24.90	
7,175.86	3.50	271.61	7,162.57	290.06	131.80	-133.06	10.74	10.65	30.60	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
7,189.29	5.03	273.23	7,175.96	290.11	130.80	-132.07	11.43	11.39	12.06	
7,202.71	6.51	272.53	7,189.32	290.17	129.45	-130.72	11.04	11.03	-5.22	
7,216.14	8.00	273.51	7,202.64	290.27	127.76	-129.03	11.13	11.09	7.30	
7,229.57	9.49	274.97	7,215.91	290.42	125.73	-126.99	11.22	11.09	10.87	
7,243.00	10.98	275.85	7,229.13	290.65	123.35	-124.62	11.16	11.09	6.55	
7,256.57	12.46	277.11	7,242.41	290.96	120.61	-121.88	11.07	10.91	9.29	
7,270.14	13.86	279.37	7,255.63	291.40	117.55	-118.83	10.99	10.32	16.65	
7,283.71	15.23	281.10	7,268.76	292.01	114.20	-115.47	10.59	10.10	12.75	
7,297.29	16.65	281.16	7,281.82	292.73	110.54	-111.82	10.46	10.46	0.44	
7,310.86	17.64	278.22	7,294.79	293.40	106.60	-107.88	9.69	7.30	-21.67	
7,324.43	18.71	275.67	7,307.68	293.91	102.40	-103.68	9.82	7.89	-18.79	
7,327.60	19.04	275.42	7,310.68	294.01	101.38	-102.66	10.61	10.30	-7.92	
100; FEL: 7327.60' MD, -102.66' VS, 7310.68' TVD										
7,338.00	20.11	274.65	7,320.48	294.32	97.91	-99.19	10.61	10.32	-7.39	
7,351.43	21.47	273.31	7,333.03	294.64	93.15	-94.44	10.73	10.13	-9.98	
7,364.86	22.91	273.09	7,345.47	294.93	88.09	-89.37	10.74	10.72	-1.64	
7,378.29	24.34	273.36	7,357.77	295.23	82.72	-84.00	10.68	10.65	2.01	
7,391.71	25.63	272.33	7,369.94	295.51	77.05	-78.34	10.14	9.61	-7.68	
7,405.14	26.87	271.38	7,381.98	295.70	71.12	-72.41	9.75	9.23	-7.07	
7,418.57	28.22	271.02	7,393.89	295.83	64.91	-66.20	10.13	10.05	-2.68	
7,432.00	29.63	270.65	7,405.64	295.93	58.41	-59.70	10.58	10.50	-2.76	
7,445.57	31.07	269.80	7,417.35	295.95	51.56	-52.85	11.07	10.61	-6.26	
7,459.14	32.55	268.98	7,428.88	295.87	44.41	-45.70	11.36	10.91	-6.04	
7,472.71	34.07	268.48	7,440.23	295.71	36.96	-38.25	11.38	11.20	-3.68	
7,486.29	35.58	268.01	7,451.37	295.47	29.20	-30.49	11.29	11.12	-3.46	
7,499.86	37.05	268.23	7,462.31	295.21	21.17	-22.46	10.88	10.83	1.62	
7,513.43	38.51	268.24	7,473.03	294.95	12.86	-14.15	10.76	10.76	0.07	
7,527.00	39.94	268.26	7,483.54	294.69	4.29	-5.57	10.54	10.54	0.15	
7,529.69	40.21	268.27	7,485.60	294.64	2.56	-3.84	9.91	9.90	0.46	
02-0VS(A-121H)										
7,540.43	41.27	268.32	7,493.74	294.43	-4.45	3.17	9.91	9.90	0.44	
7,553.86	42.44	268.21	7,503.74	294.16	-13.41	12.12	8.73	8.71	-0.82	
7,567.29	43.41	267.67	7,513.58	293.83	-22.55	21.27	7.72	7.22	-4.02	
7,580.71	44.59	267.77	7,523.23	293.46	-31.86	30.58	8.81	8.79	0.75	
7,594.14	45.32	268.02	7,532.73	293.11	-41.35	40.07	5.59	5.44	1.86	
7,607.57	46.15	269.04	7,542.11	292.86	-50.96	49.68	8.23	6.18	7.59	
7,621.00	47.24	269.03	7,551.32	292.70	-60.73	59.45	8.12	8.12	-0.07	
7,634.43	48.43	268.86	7,560.33	292.51	-70.68	69.41	8.91	8.86	-1.27	
01-FTP(A-121H)										
7,647.86	49.56	269.00	7,569.15	292.32	-80.82	79.54	8.45	8.41	1.04	
7,661.29	50.74	269.42	7,577.75	292.18	-91.13	89.85	9.11	8.79	3.13	
7,674.71	52.01	269.76	7,586.13	292.11	-101.61	100.33	9.67	9.46	2.53	
7,688.14	53.25	269.62	7,594.28	292.05	-112.28	111.01	9.27	9.23	-1.04	
7,701.57	54.54	269.59	7,602.19	291.98	-123.13	121.86	9.61	9.61	-0.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
7,715.00	55.93	269.70	7,609.85	291.91	-134.16	132.89	10.37	10.35	0.82	
7,728.57	57.27	269.55	7,617.32	291.83	-145.49	144.22	9.92	9.87	-1.11	
7,742.14	58.58	268.91	7,624.53	291.68	-156.99	155.72	10.45	9.65	-4.72	
7,755.71	60.12	268.63	7,631.44	291.43	-168.66	167.39	11.49	11.35	-2.06	
7,769.29	61.04	268.30	7,638.11	291.11	-180.49	179.21	7.10	6.77	-2.43	
7,782.86	61.73	267.88	7,644.61	290.71	-192.39	191.12	5.77	5.08	-3.10	
7,796.43	61.89	267.95	7,651.02	290.28	-204.34	203.08	1.26	1.18	0.52	
7,810.00	63.38	267.95	7,657.26	289.85	-216.39	215.12	10.98	10.98	0.00	
7,823.43	64.99	267.83	7,663.11	289.40	-228.47	227.20	12.02	11.99	-0.89	
7,836.86	66.28	267.59	7,668.65	288.91	-240.69	239.43	9.74	9.61	-1.79	
7,850.29	67.73	267.65	7,673.90	288.40	-253.04	251.78	10.80	10.80	0.45	
7,863.71	68.96	267.55	7,678.85	287.88	-265.51	264.25	9.19	9.17	-0.75	
7,877.14	69.86	267.57	7,683.57	287.34	-278.07	276.81	6.70	6.70	0.15	
7,890.57	69.94	267.82	7,688.19	286.83	-290.67	289.41	1.85	0.60	1.86	
7,904.00	70.01	268.07	7,692.79	286.38	-303.28	302.03	1.82	0.52	1.86	
7,917.57	70.83	268.19	7,697.33	285.96	-316.06	314.81	6.10	6.04	0.88	
7,931.14	72.49	268.11	7,701.60	285.55	-328.93	327.68	12.25	12.23	-0.59	
7,944.71	74.25	267.95	7,705.49	285.10	-341.92	340.68	13.02	12.97	-1.18	
7,958.29	75.28	267.95	7,709.05	284.63	-355.02	353.77	7.58	7.58	0.00	
7,971.86	75.80	268.03	7,712.44	284.17	-368.15	366.91	3.87	3.83	0.59	
7,985.43	75.84	268.31	7,715.77	283.75	-381.30	380.06	2.02	0.29	2.06	
7,999.00	75.97	268.65	7,719.07	283.40	-394.46	393.22	2.61	0.96	2.51	
8,012.43	76.27	269.08	7,722.29	283.14	-407.49	406.25	3.83	2.23	3.20	
8,025.86	78.08	268.63	7,725.28	282.88	-420.58	419.35	13.87	13.48	-3.35	
8,039.29	79.77	268.94	7,727.85	282.60	-433.76	432.52	12.79	12.58	2.31	
8,052.71	80.72	269.20	7,730.13	282.39	-446.99	445.75	7.33	7.08	1.94	
8,066.14	81.34	269.67	7,732.22	282.26	-460.25	459.01	5.77	4.62	3.50	
8,079.57	82.67	269.62	7,734.09	282.18	-473.55	472.31	9.91	9.90	-0.37	
8,093.00	84.63	269.31	7,735.58	282.05	-486.90	485.66	14.77	14.59	-2.31	
8,106.57	86.64	268.97	7,736.61	281.85	-500.42	499.19	15.02	14.81	-2.51	
8,120.14	86.59	269.15	7,737.41	281.63	-513.97	512.73	1.37	-0.37	1.33	
8,133.71	86.48	269.29	7,738.23	281.44	-527.51	526.28	1.31	-0.81	1.03	
8,147.29	86.33	269.41	7,739.08	281.29	-541.06	539.83	1.41	-1.10	0.88	
8,160.86	87.58	269.54	7,739.80	281.16	-554.61	553.38	9.26	9.21	0.96	
8,164.00	87.74	269.57	7,739.93	281.14	-557.75	556.52	5.15	5.08	0.81	
EOC: 8164.00' MD, 556.52' VS, 7739.93' TVD										
8,174.43	88.27	269.65	7,740.29	281.07	-568.18	566.94	5.15	5.08	0.81	
8,188.00	88.12	269.70	7,740.72	280.99	-581.74	580.51	1.17	-1.11	0.37	
8,201.43	87.99	269.74	7,741.18	280.93	-595.16	593.93	1.01	-0.97	0.30	
8,214.86	87.89	269.75	7,741.66	280.87	-608.58	607.35	0.75	-0.74	0.07	
8,228.29	87.79	269.75	7,742.17	280.81	-622.00	620.77	0.74	-0.74	0.00	
8,241.71	87.70	269.73	7,742.69	280.75	-635.41	634.18	0.69	-0.67	-0.15	
8,255.14	87.61	269.70	7,743.24	280.68	-648.83	647.60	0.71	-0.67	-0.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
8,268.57	87.52	269.64	7,743.81	280.60	-662.25	661.02	0.81	-0.67	-0.45	
8,282.00	87.41	269.57	7,744.41	280.51	-675.66	674.43	0.97	-0.82	-0.52	
8,295.57	87.30	269.45	7,745.03	280.39	-689.22	687.99	1.20	-0.81	-0.88	
8,309.14	87.17	269.32	7,745.69	280.25	-702.77	701.54	1.35	-0.96	-0.96	
8,322.71	87.04	269.18	7,746.37	280.07	-716.32	715.10	1.41	-0.96	-1.03	
8,336.29	86.90	269.06	7,747.09	279.86	-729.88	728.66	1.36	-1.03	-0.88	
8,349.86	86.75	268.96	7,747.84	279.63	-743.43	742.20	1.33	-1.11	-0.74	
8,363.43	86.60	268.91	7,748.63	279.38	-756.98	755.75	1.16	-1.11	-0.37	
8,377.00	86.43	268.94	7,749.46	279.12	-770.52	769.29	1.27	-1.25	0.22	
8,390.43	86.24	269.10	7,750.31	278.89	-783.92	782.69	1.85	-1.41	1.19	
8,403.86	86.06	269.31	7,751.22	278.71	-797.32	796.09	2.06	-1.34	1.56	
8,417.29	87.14	269.37	7,752.01	278.55	-810.72	809.50	8.05	8.04	0.45	
8,430.71	88.82	269.63	7,752.49	278.44	-824.13	822.91	12.67	12.52	1.94	
8,444.14	90.37	270.24	7,752.58	278.42	-837.56	836.34	12.40	11.54	4.54	
8,457.57	90.50	270.59	7,752.48	278.52	-850.99	849.77	2.78	0.97	2.61	
8,471.00	90.47	270.83	7,752.36	278.68	-864.42	863.20	1.80	-0.22	1.79	
8,484.57	90.54	271.01	7,752.24	278.90	-877.99	876.76	1.42	0.52	1.33	
8,498.14	90.67	271.16	7,752.10	279.16	-891.55	890.33	1.46	0.96	1.11	
8,511.71	90.84	271.27	7,751.92	279.45	-905.12	903.89	1.49	1.25	0.81	
8,525.29	91.01	271.37	7,751.70	279.76	-918.69	917.47	1.45	1.25	0.74	
8,538.86	91.17	271.46	7,751.45	280.09	-932.26	931.03	1.35	1.18	0.66	
8,552.43	92.85	270.78	7,750.97	280.36	-945.82	944.58	13.35	12.38	-5.01	
8,566.00	93.77	270.51	7,750.19	280.51	-959.36	958.13	7.06	6.78	-1.99	
8,579.43	93.83	270.59	7,749.30	280.64	-972.76	971.53	0.74	0.45	0.60	
8,592.86	93.86	270.66	7,748.40	280.79	-986.16	984.93	0.57	0.22	0.52	
8,606.29	93.88	270.72	7,747.49	280.95	-999.56	998.32	0.47	0.15	0.45	
8,619.71	93.89	270.77	7,746.58	281.12	-1,012.95	1,011.71	0.38	0.07	0.37	
8,633.14	93.88	270.79	7,745.67	281.30	-1,026.35	1,025.11	0.17	-0.07	0.15	
8,646.57	93.87	270.79	7,744.76	281.49	-1,039.74	1,038.51	0.07	-0.07	0.00	
8,660.00	93.84	270.74	7,743.86	281.67	-1,053.14	1,051.90	0.43	-0.22	-0.37	
8,673.57	93.79	270.62	7,742.96	281.83	-1,066.68	1,065.44	0.96	-0.37	-0.88	
8,687.14	93.73	270.46	7,742.07	281.96	-1,080.22	1,078.98	1.26	-0.44	-1.18	
8,700.71	93.67	270.27	7,741.19	282.04	-1,093.76	1,092.52	1.47	-0.44	-1.40	
8,714.29	93.62	270.09	7,740.33	282.09	-1,107.32	1,106.07	1.37	-0.37	-1.33	
8,727.86	93.58	269.91	7,739.48	282.09	-1,120.86	1,119.62	1.36	-0.29	-1.33	
8,741.43	92.63	269.47	7,738.74	282.01	-1,134.41	1,133.17	7.71	-7.00	-3.24	
8,755.00	91.93	269.14	7,738.20	281.85	-1,147.97	1,146.73	5.70	-5.16	-2.43	
8,768.43	91.97	269.06	7,737.74	281.64	-1,161.39	1,160.15	0.67	0.30	-0.60	
8,781.86	92.03	269.02	7,737.27	281.41	-1,174.81	1,173.57	0.54	0.45	-0.30	
8,795.29	92.10	268.99	7,736.79	281.18	-1,188.23	1,186.99	0.57	0.52	-0.22	
8,808.71	92.19	268.97	7,736.29	280.94	-1,201.63	1,200.40	0.69	0.67	-0.15	
8,822.14	92.28	268.97	7,735.76	280.70	-1,215.05	1,213.82	0.67	0.67	0.00	
8,835.57	92.38	268.99	7,735.22	280.46	-1,228.47	1,227.23	0.76	0.74	0.15	
8,849.00	92.49	269.02	7,734.65	280.23	-1,241.89	1,240.65	0.85	0.82	0.22	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)
8,862.57	92.61	269.07	7,734.04	280.00	-1,255.44	1,254.21	0.96	0.88	0.37
8,876.14	92.72	269.14	7,733.41	279.79	-1,268.99	1,267.76	0.96	0.81	0.52
8,889.71	92.84	269.21	7,732.76	279.59	-1,282.55	1,281.31	1.02	0.88	0.52
8,903.29	92.96	269.27	7,732.07	279.41	-1,296.11	1,294.88	0.99	0.88	0.44
8,916.86	93.08	269.32	7,731.35	279.25	-1,309.66	1,308.43	0.96	0.88	0.37
8,930.43	93.19	269.35	7,730.61	279.09	-1,323.21	1,321.98	0.84	0.81	0.22
8,944.00	93.29	269.34	7,729.84	278.94	-1,336.75	1,335.52	0.74	0.74	-0.07
8,957.43	93.38	269.27	7,729.06	278.77	-1,350.16	1,348.93	0.85	0.67	-0.52
8,970.86	93.46	269.17	7,728.26	278.59	-1,363.56	1,362.34	0.95	0.60	-0.74
8,984.29	93.53	269.04	7,727.44	278.38	-1,376.97	1,375.74	1.10	0.52	-0.97
8,997.71	93.60	268.91	7,726.61	278.14	-1,390.36	1,389.13	1.10	0.52	-0.97
9,011.14	93.65	268.78	7,725.76	277.87	-1,403.76	1,402.53	1.04	0.37	-0.97
9,024.57	93.70	268.67	7,724.90	277.57	-1,417.16	1,415.93	0.90	0.37	-0.82
9,038.00	92.22	268.12	7,724.21	277.20	-1,430.57	1,429.34	11.75	-11.02	-4.10
9,051.57	92.23	268.06	7,723.68	276.75	-1,444.12	1,442.90	0.45	0.07	-0.44
9,065.14	92.23	268.02	7,723.15	276.28	-1,457.67	1,456.45	0.29	0.00	-0.29
9,078.71	92.23	267.99	7,722.62	275.81	-1,471.22	1,470.00	0.22	0.00	-0.22
9,092.29	92.22	267.97	7,722.10	275.33	-1,484.78	1,483.57	0.16	-0.07	-0.15
9,105.86	92.22	267.96	7,721.57	274.85	-1,498.33	1,497.12	0.07	0.00	-0.07
9,119.43	92.22	267.97	7,721.04	274.37	-1,511.89	1,510.67	0.07	0.00	0.07
9,133.00	92.24	268.00	7,720.52	273.89	-1,525.44	1,524.23	0.27	0.15	0.22
9,146.43	92.27	268.07	7,719.99	273.43	-1,538.85	1,537.64	0.57	0.22	0.52
9,159.86	92.32	268.15	7,719.45	272.99	-1,552.26	1,551.05	0.70	0.37	0.60
9,173.29	92.37	268.24	7,718.90	272.57	-1,565.67	1,564.47	0.77	0.37	0.67
9,186.71	92.44	268.34	7,718.34	272.17	-1,579.07	1,577.87	0.91	0.52	0.75
9,200.14	92.52	268.44	7,717.76	271.79	-1,592.49	1,591.29	0.95	0.60	0.74
9,213.57	92.61	268.53	7,717.15	271.43	-1,605.90	1,604.70	0.95	0.67	0.67
9,227.00	92.72	268.63	7,716.53	271.10	-1,619.31	1,618.11	1.11	0.82	0.74
9,240.57	92.86	268.70	7,715.87	270.79	-1,632.86	1,631.66	1.15	1.03	0.52
9,254.14	93.01	268.77	7,715.17	270.49	-1,646.41	1,645.21	1.22	1.11	0.52
9,267.71	93.18	268.83	7,714.44	270.20	-1,659.96	1,658.76	1.33	1.25	0.44
9,281.29	93.34	268.88	7,713.67	269.93	-1,673.51	1,672.32	1.23	1.18	0.37
9,294.86	93.49	268.92	7,712.86	269.67	-1,687.06	1,685.86	1.14	1.11	0.29
9,308.43	93.62	268.94	7,712.02	269.42	-1,700.60	1,699.40	0.97	0.96	0.15
9,322.00	93.71	268.93	7,711.15	269.17	-1,714.14	1,712.95	0.67	0.66	-0.07
9,335.43	93.75	268.90	7,710.28	268.91	-1,727.54	1,726.35	0.37	0.30	-0.22
9,348.86	93.75	268.84	7,709.40	268.65	-1,740.93	1,739.75	0.45	0.00	-0.45
9,362.29	93.73	268.76	7,708.52	268.37	-1,754.33	1,753.15	0.61	-0.15	-0.60
9,375.71	93.70	268.68	7,707.66	268.07	-1,767.72	1,766.53	0.64	-0.22	-0.60
9,389.14	93.67	268.60	7,706.79	267.75	-1,781.12	1,779.93	0.64	-0.22	-0.60
9,402.57	93.53	268.53	7,705.95	267.42	-1,794.52	1,793.34	1.17	-1.04	-0.52
9,416.00	92.18	268.52	7,705.28	267.07	-1,807.93	1,806.74	10.05	-10.05	-0.07
9,429.43	92.17	268.46	7,704.77	266.72	-1,821.34	1,820.16	0.45	-0.07	-0.45



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
9,442.86	92.16	268.40	7,704.26	266.35	-1,834.76	1,833.58	0.45	-0.07	-0.45	
9,456.29	92.16	268.35	7,703.76	265.97	-1,848.17	1,847.00	0.37	0.00	-0.37	
9,469.71	92.17	268.29	7,703.25	265.58	-1,861.58	1,860.40	0.45	0.07	-0.45	
9,483.14	92.20	268.24	7,702.74	265.17	-1,874.99	1,873.82	0.43	0.22	-0.37	
9,496.57	92.26	268.20	7,702.22	264.75	-1,888.41	1,887.23	0.54	0.45	-0.30	
9,510.00	92.35	268.15	7,701.67	264.33	-1,901.82	1,900.65	0.77	0.67	-0.37	
9,523.57	92.51	268.11	7,701.10	263.88	-1,915.37	1,914.20	1.22	1.18	-0.29	
9,537.14	92.70	268.08	7,700.48	263.43	-1,928.92	1,927.75	1.42	1.40	-0.22	
9,550.71	92.91	268.04	7,699.82	262.97	-1,942.46	1,941.30	1.58	1.55	-0.29	
9,564.29	93.12	268.01	7,699.10	262.51	-1,956.02	1,954.85	1.56	1.55	-0.22	
9,577.86	93.33	267.98	7,698.34	262.03	-1,969.56	1,968.39	1.56	1.55	-0.22	
9,591.43	93.50	267.94	7,697.53	261.55	-1,983.09	1,981.93	1.29	1.25	-0.29	
9,605.00	93.63	267.91	7,696.69	261.06	-1,996.63	1,995.47	0.98	0.96	-0.22	
9,618.57	93.68	267.87	7,695.82	260.56	-2,010.16	2,009.01	0.47	0.37	-0.29	
9,632.14	93.69	267.82	7,694.95	260.05	-2,023.69	2,022.54	0.38	0.07	-0.37	
9,645.71	93.67	267.78	7,694.08	259.53	-2,037.23	2,036.07	0.33	-0.15	-0.29	
9,659.29	93.65	267.74	7,693.21	259.00	-2,050.77	2,049.62	0.33	-0.15	-0.29	
9,672.86	93.63	267.72	7,692.35	258.47	-2,064.30	2,063.15	0.21	-0.15	-0.15	
9,686.43	92.87	268.66	7,691.58	258.04	-2,077.84	2,076.70	8.90	-5.60	6.93	
9,700.00	91.70	269.77	7,691.04	257.85	-2,091.40	2,090.25	11.88	-8.62	8.18	
9,713.43	91.31	270.16	7,690.69	257.84	-2,104.82	2,103.68	4.11	-2.90	2.90	
9,726.86	91.41	270.18	7,690.37	257.88	-2,118.25	2,117.10	0.76	0.74	0.15	
9,740.29	91.54	270.21	7,690.02	257.93	-2,131.68	2,130.53	0.99	0.97	0.22	
9,753.71	91.67	270.24	7,689.65	257.98	-2,145.09	2,143.94	0.99	0.97	0.22	
9,767.14	91.81	270.28	7,689.24	258.04	-2,158.51	2,157.37	1.08	1.04	0.30	
9,780.57	91.95	270.33	7,688.80	258.11	-2,171.94	2,170.79	1.11	1.04	0.37	
9,794.00	92.08	270.39	7,688.33	258.20	-2,185.36	2,184.21	1.07	0.97	0.45	
9,807.57	92.21	270.47	7,687.82	258.30	-2,198.92	2,197.77	1.12	0.96	0.59	
9,821.14	92.34	270.56	7,687.28	258.42	-2,212.48	2,211.33	1.16	0.96	0.66	
9,834.71	92.45	270.65	7,686.71	258.57	-2,226.03	2,224.88	1.05	0.81	0.66	
9,848.29	92.55	270.74	7,686.12	258.73	-2,239.60	2,238.45	0.99	0.74	0.66	
9,861.86	92.62	270.82	7,685.51	258.91	-2,253.16	2,252.00	0.78	0.52	0.59	
9,875.43	92.67	270.91	7,684.88	259.12	-2,266.71	2,265.56	0.76	0.37	0.66	
9,889.00	92.67	270.98	7,684.25	259.34	-2,280.26	2,279.11	0.52	0.00	0.52	
9,902.43	92.61	271.03	7,683.63	259.58	-2,293.68	2,292.52	0.58	-0.45	0.37	
9,915.86	92.50	271.07	7,683.03	259.82	-2,307.09	2,305.94	0.87	-0.82	0.30	
9,929.29	92.37	271.09	7,682.46	260.08	-2,320.51	2,319.35	0.98	-0.97	0.15	
9,942.71	92.21	271.11	7,681.93	260.33	-2,333.91	2,332.75	1.20	-1.19	0.15	
9,956.14	92.05	271.13	7,681.43	260.60	-2,347.33	2,346.17	1.20	-1.19	0.15	
9,969.57	91.88	271.13	7,680.97	260.86	-2,360.75	2,359.59	1.27	-1.27	0.00	
9,983.00	91.44	271.29	7,680.58	261.14	-2,374.17	2,373.01	3.49	-3.28	1.19	
9,996.57	90.61	271.76	7,680.34	261.51	-2,387.73	2,386.57	7.03	-6.12	3.46	
10,010.14	90.36	271.68	7,680.22	261.91	-2,401.30	2,400.13	1.93	-1.84	-0.59	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
10,023.71	90.13	271.62	7,680.16	262.30	-2,414.86	2,413.70	1.75	-1.69	-0.44	
10,037.29	89.92	271.57	7,680.16	262.68	-2,428.44	2,427.27	1.59	-1.55	-0.37	
10,050.86	89.72	271.52	7,680.20	263.05	-2,442.00	2,440.83	1.52	-1.47	-0.37	
10,064.43	89.54	271.48	7,680.29	263.40	-2,455.57	2,454.39	1.36	-1.33	-0.29	
10,078.00	89.38	271.43	7,680.42	263.75	-2,469.13	2,467.96	1.24	-1.18	-0.37	
10,091.43	89.25	271.37	7,680.58	264.08	-2,482.56	2,481.38	1.07	-0.97	-0.45	
10,104.86	89.13	271.32	7,680.77	264.39	-2,495.98	2,494.80	0.97	-0.89	-0.37	
10,110.37	89.09	271.29	7,680.85	264.52	-2,501.49	2,500.31	0.91	-0.74	-0.52	
03-2500VS(A-121H)										
10,118.29	89.03	271.25	7,680.98	264.69	-2,509.41	2,508.23	0.91	-0.74	-0.52	
10,131.71	88.94	271.19	7,681.22	264.98	-2,522.82	2,521.64	0.81	-0.67	-0.45	
10,145.14	88.86	271.12	7,681.48	265.25	-2,536.25	2,535.07	0.79	-0.60	-0.52	
10,158.57	88.81	271.04	7,681.75	265.50	-2,549.67	2,548.49	0.70	-0.37	-0.60	
10,172.00	88.77	270.96	7,682.03	265.74	-2,563.10	2,561.91	0.67	-0.30	-0.60	
10,185.43	88.78	270.87	7,682.32	265.95	-2,576.52	2,575.34	0.67	0.07	-0.67	
10,198.86	88.81	270.77	7,682.60	266.14	-2,589.95	2,588.76	0.78	0.22	-0.74	
10,212.29	88.85	270.68	7,682.88	266.31	-2,603.37	2,602.19	0.73	0.30	-0.67	
10,225.71	88.90	270.58	7,683.14	266.46	-2,616.79	2,615.60	0.83	0.37	-0.75	
10,239.14	88.95	270.48	7,683.39	266.58	-2,630.22	2,629.03	0.83	0.37	-0.74	
10,252.57	88.98	270.39	7,683.64	266.69	-2,643.64	2,642.46	0.71	0.22	-0.67	
10,266.00	89.00	270.31	7,683.87	266.77	-2,657.07	2,655.88	0.61	0.15	-0.60	
10,279.57	88.99	270.25	7,684.11	266.83	-2,670.64	2,669.45	0.45	-0.07	-0.44	
10,293.14	88.96	270.20	7,684.35	266.89	-2,684.21	2,683.02	0.43	-0.22	-0.37	
10,306.71	88.91	270.15	7,684.61	266.93	-2,697.78	2,696.59	0.52	-0.37	-0.37	
10,320.29	88.85	270.10	7,684.87	266.96	-2,711.35	2,710.16	0.58	-0.44	-0.37	
10,333.86	88.79	270.05	7,685.15	266.98	-2,724.92	2,723.73	0.58	-0.44	-0.37	
10,347.43	88.73	269.98	7,685.44	266.98	-2,738.49	2,737.30	0.68	-0.44	-0.52	
10,361.00	88.66	269.90	7,685.75	266.97	-2,752.05	2,750.86	0.78	-0.52	-0.59	
10,374.43	88.59	269.79	7,686.08	266.93	-2,765.48	2,764.29	0.97	-0.52	-0.82	
10,387.86	88.53	269.67	7,686.41	266.87	-2,778.90	2,777.71	1.00	-0.45	-0.89	
10,401.29	88.46	269.54	7,686.77	266.77	-2,792.33	2,791.14	1.10	-0.52	-0.97	
10,414.71	88.38	269.41	7,687.14	266.65	-2,805.74	2,804.55	1.14	-0.60	-0.97	
10,428.14	88.30	269.30	7,687.52	266.50	-2,819.17	2,817.98	1.01	-0.60	-0.82	
10,441.57	88.21	269.21	7,687.93	266.32	-2,832.59	2,831.40	0.95	-0.67	-0.67	
10,455.00	88.11	269.16	7,688.36	266.13	-2,846.01	2,844.82	0.83	-0.74	-0.37	
10,468.57	87.98	269.18	7,688.83	265.94	-2,859.57	2,858.39	0.97	-0.96	0.15	
10,482.14	87.85	269.24	7,689.32	265.75	-2,873.13	2,871.95	1.05	-0.96	0.44	
10,495.71	87.71	269.32	7,689.85	265.58	-2,886.69	2,885.50	1.19	-1.03	0.59	
10,509.29	87.57	269.39	7,690.41	265.43	-2,900.26	2,899.07	1.15	-1.03	0.52	
10,522.86	87.43	269.44	7,691.00	265.29	-2,913.82	2,912.63	1.10	-1.03	0.37	
10,536.43	87.37	269.53	7,691.61	265.17	-2,927.37	2,926.19	0.80	-0.44	0.66	
10,550.00	88.19	270.56	7,692.14	265.18	-2,940.93	2,939.75	9.70	6.04	7.59	
10,563.43	88.97	271.68	7,692.47	265.44	-2,954.35	2,953.17	10.16	5.81	8.34	
10,576.86	89.08	271.77	7,692.70	265.84	-2,967.78	2,966.59	1.06	0.82	0.67	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)
10,590.29	89.02	271.51	7,692.92	266.23	-2,981.20	2,980.01	1.99	-0.45	-1.94
10,603.71	88.96	271.22	7,693.16	266.55	-2,994.61	2,993.42	2.21	-0.45	-2.16
10,617.14	88.89	270.91	7,693.41	266.80	-3,008.04	3,006.84	2.37	-0.52	-2.31
10,630.57	88.80	270.61	7,693.68	266.98	-3,021.46	3,020.27	2.33	-0.67	-2.23
10,644.00	88.68	270.34	7,693.98	267.09	-3,034.89	3,033.70	2.20	-0.89	-2.01
10,657.57	88.49	270.10	7,694.31	267.14	-3,048.46	3,047.26	2.26	-1.40	-1.77
10,671.14	88.28	269.90	7,694.70	267.14	-3,062.02	3,060.83	2.14	-1.55	-1.47
10,684.71	88.06	269.72	7,695.13	267.09	-3,075.58	3,074.39	2.09	-1.62	-1.33
10,698.29	87.84	269.57	7,695.61	267.01	-3,089.15	3,087.96	1.96	-1.62	-1.10
10,711.86	87.64	269.44	7,696.15	266.89	-3,102.71	3,101.52	1.76	-1.47	-0.96
10,725.43	87.73	270.24	7,696.70	266.86	-3,116.27	3,115.08	5.93	0.66	5.90
10,739.00	87.95	271.24	7,697.21	267.03	-3,129.83	3,128.64	7.54	1.62	7.37
10,752.43	87.89	271.22	7,697.70	267.32	-3,143.25	3,142.05	0.47	-0.45	-0.15
10,765.86	87.87	271.22	7,698.19	267.60	-3,156.67	3,155.47	0.15	-0.15	0.00
10,779.29	87.86	271.24	7,698.69	267.89	-3,170.08	3,168.89	0.17	-0.07	0.15
10,792.71	87.87	271.26	7,699.19	268.19	-3,183.49	3,182.29	0.17	0.07	0.15
10,806.14	87.87	271.29	7,699.69	268.48	-3,196.91	3,195.71	0.22	0.00	0.22
10,819.57	87.86	271.30	7,700.19	268.79	-3,210.33	3,209.12	0.11	-0.07	0.07
10,833.00	88.43	271.52	7,700.63	269.12	-3,223.75	3,222.54	4.55	4.24	1.64
10,846.57	89.66	271.90	7,700.85	269.52	-3,237.31	3,236.10	9.49	9.06	2.80
10,860.14	90.99	272.07	7,700.78	269.99	-3,250.87	3,249.66	9.88	9.80	1.25
10,873.71	91.20	272.01	7,700.52	270.48	-3,264.43	3,263.22	1.61	1.55	-0.44
10,887.29	91.10	271.96	7,700.25	270.95	-3,278.00	3,276.78	0.82	-0.74	-0.37
10,900.86	90.97	271.90	7,700.00	271.40	-3,291.56	3,290.34	1.06	-0.96	-0.44
10,914.43	90.83	271.80	7,699.79	271.84	-3,305.12	3,303.90	1.27	-1.03	-0.74
10,928.00	90.65	271.66	7,699.61	272.25	-3,318.68	3,317.46	1.68	-1.33	-1.03
10,941.43	90.42	271.44	7,699.49	272.61	-3,332.10	3,330.88	2.37	-1.71	-1.64
10,954.86	90.17	271.18	7,699.42	272.92	-3,345.53	3,344.31	2.69	-1.86	-1.94
10,968.29	89.89	270.89	7,699.41	273.16	-3,358.96	3,357.73	3.00	-2.08	-2.16
10,981.71	89.61	270.61	7,699.47	273.34	-3,372.38	3,371.15	2.95	-2.09	-2.09
10,995.14	89.32	270.34	7,699.59	273.45	-3,385.81	3,384.58	2.95	-2.16	-2.01
11,008.57	89.04	270.10	7,699.79	273.50	-3,399.23	3,398.01	2.75	-2.08	-1.79
11,022.00	88.78	269.92	7,700.04	273.50	-3,412.66	3,411.44	2.35	-1.94	-1.34
11,035.43	88.53	269.85	7,700.36	273.48	-3,426.09	3,424.86	1.93	-1.86	-0.52
11,048.86	89.43	270.14	7,700.60	273.48	-3,439.52	3,438.29	7.04	6.70	2.16
11,062.29	90.64	270.27	7,700.59	273.52	-3,452.95	3,451.72	9.06	9.01	0.97
11,075.71	91.25	270.49	7,700.37	273.61	-3,466.36	3,465.14	4.83	4.55	1.64
11,089.14	91.06	270.58	7,700.10	273.74	-3,479.79	3,478.56	1.57	-1.41	0.67
11,102.57	90.87	270.69	7,699.87	273.89	-3,493.22	3,491.99	1.63	-1.41	0.82
11,116.00	90.73	270.80	7,699.68	274.06	-3,506.65	3,505.42	1.33	-1.04	0.82
11,129.57	90.65	270.86	7,699.52	274.26	-3,520.21	3,518.98	0.74	-0.59	0.44
11,143.14	90.61	270.91	7,699.37	274.47	-3,533.78	3,532.55	0.47	-0.29	0.37
11,156.71	90.60	270.94	7,699.23	274.69	-3,547.35	3,546.12	0.23	-0.07	0.22



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)
11,170.29	90.60	270.96	7,699.08	274.91	-3,560.93	3,559.69	0.15	0.00	0.15
11,183.86	90.61	270.99	7,698.94	275.14	-3,574.49	3,573.26	0.23	0.07	0.22
11,197.43	90.62	271.01	7,698.80	275.38	-3,588.06	3,586.82	0.16	0.07	0.15
11,211.00	91.06	271.16	7,698.60	275.64	-3,601.63	3,600.39	3.43	3.24	1.11
11,224.43	92.27	271.57	7,698.21	275.96	-3,615.05	3,613.81	9.51	9.01	3.05
11,237.86	93.49	272.00	7,697.53	276.37	-3,628.45	3,627.21	9.63	9.08	3.20
11,251.29	94.79	272.21	7,696.56	276.87	-3,641.84	3,640.60	9.80	9.68	1.56
11,264.71	95.97	272.39	7,695.30	277.40	-3,655.19	3,653.94	8.89	8.79	1.34
11,278.14	96.31	272.90	7,693.87	278.02	-3,668.53	3,667.28	4.55	2.53	3.80
11,291.57	96.22	273.16	7,692.40	278.72	-3,681.86	3,680.61	2.04	-0.67	1.94
11,305.00	96.16	273.40	7,690.95	279.49	-3,695.19	3,693.93	1.83	-0.45	1.79
11,318.57	96.19	273.54	7,689.49	280.30	-3,708.65	3,707.40	1.05	0.22	1.03
11,332.14	96.28	273.61	7,688.02	281.15	-3,722.12	3,720.86	0.84	0.66	0.52
11,345.71	96.39	273.64	7,686.52	282.00	-3,735.58	3,734.31	0.84	0.81	0.22
11,359.29	96.52	273.62	7,685.00	282.85	-3,749.04	3,747.77	0.97	0.96	-0.15
11,372.86	96.64	273.58	7,683.44	283.70	-3,762.50	3,761.22	0.93	0.88	-0.29
11,386.43	96.73	273.51	7,681.86	284.53	-3,775.95	3,774.67	0.84	0.66	-0.52
11,400.00	96.76	273.40	7,680.27	285.34	-3,789.40	3,788.12	0.83	0.22	-0.81
11,413.43	96.69	273.24	7,678.69	286.12	-3,802.72	3,801.43	1.29	-0.52	-1.19
11,426.86	96.56	273.07	7,677.15	286.85	-3,816.04	3,814.75	1.59	-0.97	-1.27
11,440.29	96.42	272.88	7,675.63	287.54	-3,829.36	3,828.07	1.75	-1.04	-1.41
11,453.71	96.27	272.69	7,674.14	288.19	-3,842.69	3,841.39	1.80	-1.12	-1.42
11,467.14	96.07	272.51	7,672.70	288.80	-3,856.02	3,854.73	2.00	-1.49	-1.34
11,480.57	94.73	272.34	7,671.44	289.36	-3,869.38	3,868.08	10.06	-9.98	-1.27
11,494.00	93.35	272.20	7,670.49	289.89	-3,882.77	3,881.47	10.33	-10.28	-1.04
11,507.57	92.62	272.10	7,669.78	290.40	-3,896.31	3,895.01	5.43	-5.38	-0.74
11,521.14	92.67	271.98	7,669.16	290.88	-3,909.86	3,908.55	0.96	0.37	-0.88
11,534.71	92.75	271.85	7,668.52	291.34	-3,923.40	3,922.10	1.12	0.59	-0.96
11,548.29	92.83	271.73	7,667.86	291.76	-3,936.96	3,935.65	1.06	0.59	-0.88
11,561.86	92.93	271.60	7,667.17	292.16	-3,950.51	3,949.20	1.21	0.74	-0.96
11,575.43	93.02	271.49	7,666.47	292.52	-3,964.06	3,962.74	1.05	0.66	-0.81
11,589.00	93.11	271.39	7,665.74	292.86	-3,977.60	3,976.29	0.99	0.66	-0.74
11,602.57	93.20	271.30	7,665.00	293.18	-3,991.15	3,989.83	0.94	0.66	-0.66
11,616.14	93.28	271.23	7,664.23	293.48	-4,004.69	4,003.37	0.78	0.59	-0.52
11,629.71	93.36	271.17	7,663.44	293.76	-4,018.24	4,016.92	0.74	0.59	-0.44
11,643.29	93.45	271.11	7,662.64	294.03	-4,031.79	4,030.47	0.80	0.66	-0.44
11,656.86	93.54	271.06	7,661.81	294.29	-4,045.33	4,044.01	0.76	0.66	-0.37
11,670.43	93.65	271.02	7,660.96	294.53	-4,058.87	4,057.55	0.86	0.81	-0.29
11,684.00	93.78	270.99	7,660.08	294.77	-4,072.41	4,071.09	0.98	0.96	-0.22
11,697.43	93.95	270.97	7,659.17	295.00	-4,085.81	4,084.48	1.27	1.27	-0.15
11,710.86	94.14	270.97	7,658.23	295.23	-4,099.20	4,097.88	1.41	1.41	0.00
11,724.29	94.34	270.96	7,657.23	295.45	-4,112.60	4,111.27	1.49	1.49	-0.07
11,737.71	94.54	270.96	7,656.20	295.68	-4,125.97	4,124.64	1.49	1.49	0.00



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
11,751.14	94.73	270.95	7,655.11	295.90	-4,139.36	4,138.03	1.42	1.41	-0.07	
11,764.57	94.91	270.94	7,653.98	296.12	-4,152.74	4,151.41	1.34	1.34	-0.07	
11,778.00	95.06	270.92	7,652.81	296.34	-4,166.12	4,164.78	1.13	1.12	-0.15	
11,791.57	95.17	270.87	7,651.61	296.55	-4,179.63	4,178.30	0.89	0.81	-0.37	
11,805.14	95.24	270.82	7,650.37	296.75	-4,193.14	4,191.81	0.63	0.52	-0.37	
11,818.71	95.29	270.75	7,649.13	296.93	-4,206.65	4,205.32	0.63	0.37	-0.52	
11,832.29	95.32	270.68	7,647.87	297.10	-4,220.18	4,218.84	0.56	0.22	-0.52	
11,845.86	95.33	270.59	7,646.61	297.25	-4,233.69	4,232.35	0.66	0.07	-0.66	
11,859.43	94.05	270.89	7,645.50	297.43	-4,247.21	4,245.87	9.69	-9.43	2.21	
11,873.00	94.02	270.76	7,644.55	297.62	-4,260.74	4,259.40	0.98	-0.22	-0.96	
11,886.43	93.95	270.60	7,643.62	297.78	-4,274.14	4,272.80	1.30	-0.52	-1.19	
11,899.86	93.87	270.43	7,642.70	297.90	-4,287.54	4,286.20	1.40	-0.60	-1.27	
11,913.29	93.78	270.24	7,641.80	297.98	-4,300.94	4,299.60	1.56	-0.67	-1.41	
11,926.71	93.69	270.06	7,640.93	298.01	-4,314.33	4,312.99	1.50	-0.67	-1.34	
11,940.14	93.63	269.89	7,640.07	298.01	-4,327.73	4,326.39	1.34	-0.45	-1.27	
11,953.57	93.18	269.87	7,639.28	297.98	-4,341.14	4,339.80	3.35	-3.35	-0.15	
11,967.00	91.70	270.17	7,638.70	297.99	-4,354.56	4,353.21	11.24	-11.02	2.23	
11,980.57	90.49	270.19	7,638.44	298.03	-4,368.12	4,366.78	8.92	-8.92	0.15	
11,994.14	90.61	270.11	7,638.31	298.06	-4,381.69	4,380.35	1.06	0.88	-0.59	
12,007.71	90.75	270.04	7,638.15	298.08	-4,395.26	4,393.92	1.15	1.03	-0.52	
12,021.29	90.90	269.97	7,637.96	298.08	-4,408.84	4,407.50	1.22	1.10	-0.52	
12,034.86	91.05	269.90	7,637.73	298.07	-4,422.41	4,421.07	1.22	1.11	-0.52	
12,048.43	91.19	269.83	7,637.46	298.04	-4,435.98	4,434.63	1.15	1.03	-0.52	
12,062.00	91.30	269.74	7,637.17	297.98	-4,449.54	4,448.20	1.05	0.81	-0.66	
12,075.43	91.36	269.63	7,636.85	297.91	-4,462.97	4,461.63	0.93	0.45	-0.82	
12,088.86	91.38	269.51	7,636.53	297.81	-4,476.39	4,475.05	0.91	0.15	-0.89	
12,102.29	91.39	269.38	7,636.21	297.68	-4,489.82	4,488.48	0.97	0.07	-0.97	
12,115.71	91.40	269.24	7,635.88	297.52	-4,503.23	4,501.89	1.05	0.07	-1.04	
12,129.14	91.40	269.10	7,635.55	297.32	-4,516.66	4,515.32	1.04	0.00	-1.04	
12,142.57	91.41	268.96	7,635.22	297.10	-4,530.08	4,528.74	1.04	0.07	-1.04	
12,156.00	91.45	268.81	7,634.89	296.84	-4,543.51	4,542.17	1.16	0.30	-1.12	
12,169.57	91.51	268.65	7,634.54	296.53	-4,557.07	4,555.73	1.26	0.44	-1.18	
12,183.14	91.60	268.49	7,634.17	296.20	-4,570.63	4,569.29	1.35	0.66	-1.18	
12,196.71	91.70	268.33	7,633.78	295.82	-4,584.19	4,582.85	1.39	0.74	-1.18	
12,210.29	91.81	268.18	7,633.36	295.41	-4,597.76	4,596.42	1.37	0.81	-1.10	
12,223.86	91.93	268.04	7,632.92	294.96	-4,611.31	4,609.98	1.36	0.88	-1.03	
12,237.43	92.05	267.91	7,632.45	294.48	-4,624.86	4,623.54	1.30	0.88	-0.96	
12,251.00	92.17	267.79	7,631.95	293.97	-4,638.42	4,637.09	1.25	0.88	-0.88	
12,264.43	92.28	267.72	7,631.43	293.45	-4,651.83	4,650.50	0.97	0.82	-0.52	
12,277.86	92.40	267.66	7,630.88	292.90	-4,665.23	4,663.91	1.00	0.89	-0.45	
12,291.29	92.51	267.61	7,630.31	292.35	-4,678.64	4,677.32	0.90	0.82	-0.37	
12,304.71	92.61	267.57	7,629.71	291.79	-4,692.03	4,690.72	0.80	0.75	-0.30	
12,318.14	92.71	267.53	7,629.08	291.21	-4,705.44	4,704.12	0.80	0.74	-0.30	
12,331.57	92.78	267.49	7,628.44	290.63	-4,718.84	4,717.53	0.60	0.52	-0.30	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
12,345.00	92.84	267.44	7,627.78	290.04	-4,732.24	4,730.93	0.58	0.45	-0.37	
12,358.57	92.85	267.37	7,627.11	289.42	-4,745.78	4,744.47	0.52	0.07	-0.52	
12,372.14	92.84	267.28	7,626.43	288.79	-4,759.32	4,758.01	0.67	-0.07	-0.66	
12,385.71	92.83	267.20	7,625.76	288.14	-4,772.86	4,771.55	0.59	-0.07	-0.59	
12,399.29	92.81	267.10	7,625.09	287.46	-4,786.40	4,785.10	0.75	-0.15	-0.74	
12,412.86	92.79	267.00	7,624.43	286.77	-4,799.94	4,798.64	0.75	-0.15	-0.74	
12,426.43	92.65	267.58	7,623.79	286.13	-4,813.48	4,812.18	4.39	-1.03	4.27	
12,440.00	92.13	268.97	7,623.22	285.72	-4,827.03	4,825.74	10.93	-3.83	10.24	
12,453.43	92.18	268.86	7,622.72	285.46	-4,840.45	4,839.16	0.90	0.37	-0.82	
12,466.86	92.25	268.75	7,622.20	285.18	-4,853.86	4,852.57	0.97	0.52	-0.82	
12,480.29	92.33	268.63	7,621.66	284.88	-4,867.28	4,865.99	1.07	0.60	-0.89	
12,493.71	92.42	268.52	7,621.11	284.54	-4,880.69	4,879.40	1.06	0.67	-0.82	
12,507.14	92.52	268.41	7,620.53	284.18	-4,894.10	4,892.81	1.11	0.74	-0.82	
12,520.57	92.65	268.30	7,619.92	283.80	-4,907.51	4,906.22	1.27	0.97	-0.82	
12,534.00	92.80	268.22	7,619.28	283.39	-4,920.92	4,919.63	1.27	1.12	-0.60	
12,547.57	92.99	268.15	7,618.60	282.96	-4,934.46	4,933.18	1.49	1.40	-0.52	
12,561.14	93.21	268.10	7,617.86	282.52	-4,948.01	4,946.73	1.66	1.62	-0.37	
12,574.71	93.42	268.05	7,617.08	282.06	-4,961.55	4,960.27	1.59	1.55	-0.37	
12,588.29	93.63	268.00	7,616.24	281.60	-4,975.09	4,973.82	1.59	1.55	-0.37	
12,601.86	93.81	267.93	7,615.36	281.12	-4,988.62	4,987.35	1.42	1.33	-0.52	
12,615.43	93.93	267.85	7,614.45	280.62	-5,002.15	5,000.88	1.06	0.88	-0.59	
12,616.85	93.94	267.84	7,614.35	280.56	-5,003.57	5,002.30	0.89	0.37	-0.81	
04-5000VS(A-121H)										
12,629.00	93.98	267.74	7,613.51	280.10	-5,015.68	5,014.41	0.89	0.37	-0.81	
12,642.43	93.89	267.58	7,612.59	279.55	-5,029.07	5,027.80	1.36	-0.67	-1.19	
12,655.86	93.74	267.38	7,611.70	278.96	-5,042.46	5,041.19	1.86	-1.12	-1.49	
12,669.29	93.54	267.18	7,610.84	278.32	-5,055.84	5,054.58	2.10	-1.49	-1.49	
12,682.71	93.35	266.97	7,610.04	277.64	-5,069.22	5,067.96	2.11	-1.42	-1.56	
12,696.14	93.18	266.76	7,609.27	276.91	-5,082.61	5,081.35	2.01	-1.27	-1.56	
12,709.57	92.85	267.83	7,608.57	276.27	-5,096.01	5,094.75	8.33	-2.46	7.97	
12,723.00	92.58	269.26	7,607.93	275.93	-5,109.42	5,108.16	10.82	-2.01	10.65	
12,736.57	92.49	269.91	7,607.33	275.84	-5,122.97	5,121.72	4.83	-0.66	4.79	
12,750.14	92.53	269.73	7,606.74	275.79	-5,136.53	5,135.28	1.36	0.29	-1.33	
12,763.71	92.60	269.55	7,606.13	275.71	-5,150.09	5,148.83	1.42	0.52	-1.33	
12,777.29	92.67	269.37	7,605.50	275.58	-5,163.65	5,162.40	1.42	0.52	-1.33	
12,790.86	92.75	269.19	7,604.86	275.41	-5,177.21	5,175.95	1.45	0.59	-1.33	
12,804.43	92.83	269.02	7,604.20	275.20	-5,190.76	5,189.51	1.38	0.59	-1.25	
12,818.00	92.88	268.87	7,603.53	274.95	-5,204.31	5,203.06	1.16	0.37	-1.11	
12,831.43	92.90	268.74	7,602.85	274.67	-5,217.72	5,216.47	0.98	0.15	-0.97	
12,844.86	92.91	268.63	7,602.17	274.36	-5,231.13	5,229.88	0.82	0.07	-0.82	
12,858.29	92.90	268.53	7,601.49	274.03	-5,244.54	5,243.29	0.75	-0.07	-0.74	
12,871.71	92.88	268.44	7,600.81	273.67	-5,257.93	5,256.69	0.69	-0.15	-0.67	
12,885.14	92.85	268.36	7,600.14	273.30	-5,271.34	5,270.10	0.64	-0.22	-0.60	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
12,898.57	92.82	268.28	7,599.47	272.91	-5,284.75	5,283.51	0.64	-0.22	-0.60	
12,912.00	92.79	268.21	7,598.82	272.50	-5,298.16	5,296.92	0.57	-0.22	-0.52	
12,925.57	92.74	268.16	7,598.16	272.07	-5,311.71	5,310.47	0.52	-0.37	-0.37	
12,939.14	92.70	268.10	7,597.52	271.62	-5,325.25	5,324.02	0.53	-0.29	-0.44	
12,952.71	92.67	268.05	7,596.88	271.17	-5,338.80	5,337.57	0.43	-0.22	-0.37	
12,966.29	92.64	268.01	7,596.25	270.70	-5,352.36	5,351.13	0.37	-0.22	-0.29	
12,979.86	92.62	267.96	7,595.63	270.23	-5,365.91	5,364.67	0.40	-0.15	-0.37	
12,993.43	92.16	268.51	7,595.07	269.81	-5,379.46	5,378.23	5.28	-3.39	4.05	
13,007.00	91.27	269.73	7,594.66	269.60	-5,393.02	5,391.79	11.13	-6.56	8.99	
13,020.43	90.73	270.63	7,594.43	269.64	-5,406.45	5,405.22	7.81	-4.02	6.70	
13,033.86	90.84	270.57	7,594.24	269.78	-5,419.87	5,418.65	0.93	0.82	-0.45	
13,047.29	90.97	270.51	7,594.03	269.91	-5,433.30	5,432.07	1.07	0.97	-0.45	
13,060.71	91.12	270.45	7,593.78	270.02	-5,446.72	5,445.49	1.20	1.12	-0.45	
13,074.14	91.26	270.38	7,593.51	270.12	-5,460.15	5,458.92	1.17	1.04	-0.52	
13,087.57	91.41	270.32	7,593.19	270.20	-5,473.57	5,472.34	1.20	1.12	-0.45	
13,101.00	91.55	270.26	7,592.85	270.27	-5,487.00	5,485.77	1.13	1.04	-0.45	
13,114.57	91.67	270.19	7,592.46	270.32	-5,500.56	5,499.33	1.02	0.88	-0.52	
13,128.14	91.78	270.12	7,592.06	270.36	-5,514.13	5,512.89	0.96	0.81	-0.52	
13,141.71	91.88	270.04	7,591.62	270.38	-5,527.69	5,526.46	0.94	0.74	-0.59	
13,155.29	91.96	269.96	7,591.17	270.38	-5,541.26	5,540.03	0.83	0.59	-0.59	
13,168.86	92.03	269.87	7,590.70	270.36	-5,554.82	5,553.59	0.84	0.52	-0.66	
13,182.43	92.06	269.77	7,590.21	270.32	-5,568.38	5,567.15	0.77	0.22	-0.74	
13,196.00	92.07	269.65	7,589.72	270.25	-5,581.95	5,580.71	0.89	0.07	-0.88	
13,209.43	92.01	269.49	7,589.24	270.15	-5,595.37	5,594.13	1.27	-0.45	-1.19	
13,222.86	91.92	269.31	7,588.78	270.01	-5,608.79	5,607.56	1.50	-0.67	-1.34	
13,236.29	91.81	269.13	7,588.35	269.82	-5,622.21	5,620.98	1.57	-0.82	-1.34	
13,249.71	91.70	268.96	7,587.94	269.60	-5,635.62	5,634.39	1.51	-0.82	-1.27	
13,263.14	91.60	268.81	7,587.55	269.34	-5,649.04	5,647.81	1.34	-0.74	-1.12	
13,276.57	90.33	269.15	7,587.32	269.10	-5,662.47	5,661.24	9.79	-9.46	2.53	
13,290.00	90.06	269.13	7,587.28	268.90	-5,675.90	5,674.67	2.02	-2.01	-0.15	
13,303.57	90.02	269.09	7,587.27	268.69	-5,689.47	5,688.24	0.42	-0.29	-0.29	
13,317.14	90.00	269.09	7,587.26	268.47	-5,703.03	5,701.81	0.15	-0.15	0.00	
13,330.71	89.98	269.12	7,587.27	268.26	-5,716.60	5,715.38	0.27	-0.15	0.22	
13,344.29	89.97	269.15	7,587.27	268.05	-5,730.18	5,728.96	0.23	-0.07	0.22	
13,357.86	89.97	269.20	7,587.28	267.86	-5,743.75	5,742.53	0.37	0.00	0.37	
13,371.43	89.97	269.26	7,587.29	267.68	-5,757.32	5,756.10	0.44	0.00	0.44	
13,385.00	89.96	269.32	7,587.30	267.51	-5,770.89	5,769.66	0.45	-0.07	0.44	
13,398.43	89.95	269.38	7,587.31	267.36	-5,784.32	5,783.09	0.45	-0.07	0.45	
13,411.86	89.94	269.44	7,587.32	267.22	-5,797.75	5,796.52	0.45	-0.07	0.45	
13,425.29	89.93	269.51	7,587.33	267.09	-5,811.17	5,809.95	0.53	-0.07	0.52	
13,438.71	89.92	269.57	7,587.35	266.99	-5,824.59	5,823.37	0.45	-0.07	0.45	
13,452.14	89.92	269.64	7,587.37	266.89	-5,838.02	5,836.80	0.52	0.00	0.52	
13,465.57	90.55	269.89	7,587.32	266.84	-5,851.45	5,850.23	5.05	4.69	1.86	
13,479.00	90.77	270.03	7,587.16	266.83	-5,864.88	5,863.66	1.94	1.64	1.04	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)
13,492.43	90.80	270.10	7,586.98	266.84	-5,878.31	5,877.09	0.57	0.22	0.52
13,505.86	90.83	270.18	7,586.79	266.88	-5,891.74	5,890.52	0.64	0.22	0.60
13,519.29	90.87	270.26	7,586.59	266.93	-5,905.17	5,903.95	0.67	0.30	0.60
13,532.71	90.91	270.35	7,586.38	267.00	-5,918.59	5,917.37	0.73	0.30	0.67
13,546.14	90.95	270.42	7,586.16	267.09	-5,932.01	5,930.79	0.60	0.30	0.52
13,559.57	90.98	270.50	7,585.93	267.20	-5,945.44	5,944.22	0.64	0.22	0.60
13,573.00	91.01	270.57	7,585.70	267.32	-5,958.87	5,957.65	0.57	0.22	0.52
13,586.57	91.03	270.63	7,585.46	267.47	-5,972.44	5,971.21	0.47	0.15	0.44
13,600.14	91.03	270.68	7,585.22	267.62	-5,986.00	5,984.78	0.37	0.00	0.37
13,613.71	91.04	270.73	7,584.97	267.79	-5,999.57	5,998.35	0.38	0.07	0.37
13,627.29	91.05	270.77	7,584.72	267.97	-6,013.15	6,011.92	0.30	0.07	0.29
13,640.86	91.07	270.82	7,584.47	268.15	-6,026.71	6,025.49	0.40	0.15	0.37
13,654.43	91.10	270.87	7,584.21	268.35	-6,040.28	6,039.05	0.43	0.22	0.37
13,668.00	91.15	270.93	7,583.95	268.57	-6,053.85	6,052.62	0.58	0.37	0.44
13,681.43	91.24	271.00	7,583.67	268.79	-6,067.27	6,066.04	0.85	0.67	0.52
13,694.86	91.35	271.08	7,583.36	269.04	-6,080.69	6,079.46	1.01	0.82	0.60
13,708.29	91.47	271.15	7,583.03	269.30	-6,094.12	6,092.89	1.03	0.89	0.52
13,721.71	91.60	271.23	7,582.67	269.58	-6,107.53	6,106.30	1.14	0.97	0.60
13,735.14	91.73	271.31	7,582.28	269.87	-6,120.95	6,119.72	1.14	0.97	0.60
13,748.57	91.85	271.39	7,581.86	270.19	-6,134.37	6,133.13	1.07	0.89	0.60
13,762.00	92.48	271.14	7,581.36	270.49	-6,147.79	6,146.55	5.05	4.69	-1.86
13,775.57	92.58	271.20	7,580.76	270.76	-6,161.34	6,160.10	0.86	0.74	0.44
13,789.14	92.67	271.26	7,580.14	271.05	-6,174.90	6,173.65	0.80	0.66	0.44
13,802.71	92.76	271.31	7,579.49	271.36	-6,188.45	6,187.20	0.76	0.66	0.37
13,816.29	92.85	271.37	7,578.83	271.68	-6,202.01	6,200.76	0.80	0.66	0.44
13,829.86	92.95	271.43	7,578.14	272.01	-6,215.55	6,214.31	0.86	0.74	0.44
13,843.43	93.05	271.49	7,577.43	272.35	-6,229.10	6,227.85	0.86	0.74	0.44
13,857.00	93.16	271.57	7,576.70	272.71	-6,242.65	6,241.40	1.00	0.81	0.59
13,870.43	93.29	271.66	7,575.94	273.09	-6,256.05	6,254.80	1.18	0.97	0.67
13,883.86	93.44	271.76	7,575.15	273.49	-6,269.45	6,268.20	1.34	1.12	0.74
13,897.29	93.59	271.86	7,574.33	273.92	-6,282.85	6,281.59	1.34	1.12	0.74
13,910.71	93.75	271.95	7,573.47	274.36	-6,296.23	6,294.98	1.37	1.19	0.67
13,924.14	93.92	272.03	7,572.57	274.83	-6,309.63	6,308.37	1.40	1.27	0.60
13,937.57	94.09	272.09	7,571.64	275.31	-6,323.01	6,321.75	1.34	1.27	0.45
13,951.00	94.26	272.10	7,570.66	275.80	-6,336.40	6,335.14	1.27	1.27	0.07
13,964.57	94.44	272.06	7,569.63	276.29	-6,349.92	6,348.66	1.36	1.33	-0.29
13,978.14	94.63	271.98	7,568.56	276.77	-6,363.44	6,362.17	1.52	1.40	-0.59
13,991.71	94.81	271.88	7,567.44	277.22	-6,376.96	6,375.69	1.52	1.33	-0.74
14,005.29	94.98	271.77	7,566.28	277.65	-6,390.48	6,389.21	1.49	1.25	-0.81
14,018.86	95.13	271.65	7,565.08	278.05	-6,403.99	6,402.72	1.41	1.11	-0.88
14,032.43	94.50	270.78	7,563.95	278.34	-6,417.51	6,416.24	7.90	-4.64	-6.41
14,046.00	93.50	269.66	7,563.00	278.39	-6,431.05	6,429.77	11.05	-7.37	-8.25
14,059.43	93.12	269.12	7,562.22	278.25	-6,444.45	6,443.18	4.91	-2.83	-4.02



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
14,072.86	93.22	268.98	7,561.48	278.03	-6,457.86	6,456.59	1.28	0.74	-1.04	
14,086.29	93.31	268.84	7,560.72	277.77	-6,471.27	6,469.99	1.24	0.67	-1.04	
14,099.71	93.40	268.69	7,559.93	277.48	-6,484.66	6,483.39	1.30	0.67	-1.12	
14,113.14	93.48	268.55	7,559.12	277.16	-6,498.06	6,496.79	1.20	0.60	-1.04	
14,126.57	92.34	268.82	7,558.44	276.85	-6,511.47	6,510.20	8.72	-8.49	2.01	
14,140.00	92.20	268.78	7,557.91	276.57	-6,524.89	6,523.62	1.08	-1.04	-0.30	
14,153.43	92.30	268.69	7,557.38	276.28	-6,538.31	6,537.04	1.00	0.74	-0.67	
14,166.86	92.39	268.62	7,556.83	275.96	-6,551.72	6,550.45	0.85	0.67	-0.52	
14,180.29	92.49	268.55	7,556.26	275.63	-6,565.13	6,563.87	0.91	0.74	-0.52	
14,193.71	92.57	268.50	7,555.67	275.29	-6,578.54	6,577.27	0.70	0.60	-0.37	
14,207.14	92.64	268.47	7,555.06	274.93	-6,591.95	6,590.69	0.57	0.52	-0.22	
14,220.57	92.68	268.45	7,554.44	274.57	-6,605.36	6,604.10	0.33	0.30	-0.15	
14,234.00	92.69	268.46	7,553.81	274.21	-6,618.77	6,617.51	0.11	0.07	0.07	
14,247.57	92.64	268.50	7,553.18	273.85	-6,632.32	6,631.06	0.47	-0.37	0.29	
14,261.14	92.55	268.57	7,552.56	273.50	-6,645.87	6,644.61	0.84	-0.66	0.52	
14,274.71	92.45	268.65	7,551.97	273.17	-6,659.42	6,658.17	0.94	-0.74	0.59	
14,288.29	92.35	268.71	7,551.40	272.86	-6,672.99	6,671.74	0.86	-0.74	0.44	
14,301.86	92.24	268.76	7,550.86	272.56	-6,686.54	6,685.29	0.89	-0.81	0.37	
14,315.43	91.84	268.67	7,550.37	272.26	-6,700.10	6,698.85	3.02	-2.95	-0.66	
14,329.00	91.19	268.47	7,550.02	271.92	-6,713.66	6,712.41	5.01	-4.79	-1.47	
14,342.57	91.15	268.37	7,549.74	271.54	-6,727.23	6,725.98	0.79	-0.29	-0.74	
14,356.14	91.13	268.25	7,549.47	271.14	-6,740.79	6,739.54	0.90	-0.15	-0.88	
14,369.71	91.11	268.10	7,549.20	270.71	-6,754.35	6,753.10	1.11	-0.15	-1.11	
14,383.29	91.09	267.93	7,548.94	270.24	-6,767.92	6,766.67	1.26	-0.15	-1.25	
14,396.86	91.06	267.75	7,548.69	269.73	-6,781.48	6,780.23	1.34	-0.22	-1.33	
14,410.43	91.00	267.57	7,548.44	269.18	-6,795.03	6,793.79	1.40	-0.44	-1.33	
14,424.00	90.92	267.38	7,548.22	268.58	-6,808.59	6,807.35	1.52	-0.59	-1.40	
14,437.43	90.78	267.19	7,548.02	267.94	-6,822.00	6,820.77	1.76	-1.04	-1.41	
14,450.86	90.62	267.00	7,547.85	267.26	-6,835.41	6,834.18	1.85	-1.19	-1.41	
14,464.29	90.44	266.82	7,547.73	266.54	-6,848.82	6,847.59	1.90	-1.34	-1.34	
14,477.71	90.27	266.65	7,547.65	265.77	-6,862.22	6,860.99	1.79	-1.27	-1.27	
14,491.14	90.11	266.52	7,547.60	264.97	-6,875.63	6,874.40	1.54	-1.19	-0.97	
14,504.57	90.35	266.99	7,547.55	264.21	-6,889.03	6,887.82	3.93	1.79	3.50	
14,518.00	90.85	268.18	7,547.41	263.65	-6,902.45	6,901.23	9.61	3.72	8.86	
14,531.57	90.80	268.20	7,547.21	263.22	-6,916.01	6,914.80	0.40	-0.37	0.15	
14,545.14	90.77	268.26	7,547.03	262.80	-6,929.58	6,928.36	0.49	-0.22	0.44	
14,558.71	90.75	268.33	7,546.85	262.40	-6,943.14	6,941.93	0.54	-0.15	0.52	
14,572.29	90.74	268.42	7,546.67	262.01	-6,956.71	6,955.50	0.67	-0.07	0.66	
14,585.86	90.73	268.49	7,546.50	261.65	-6,970.28	6,969.07	0.52	-0.07	0.52	
14,599.43	91.14	268.69	7,546.27	261.31	-6,983.84	6,982.63	3.36	3.02	1.47	
14,613.00	92.57	269.25	7,545.83	261.07	-6,997.40	6,996.19	11.32	10.54	4.13	
14,626.43	92.86	269.18	7,545.20	260.88	-7,010.81	7,009.61	2.22	2.16	-0.52	
14,639.86	92.95	269.04	7,544.52	260.68	-7,024.22	7,023.02	1.24	0.67	-1.04	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Atlas 18 State Fed Com 121H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3382+30 @ 3412.00usft
Site:	Atlas 18 State Com	MD Reference:	3382+30 @ 3412.00usft
Well:	Atlas 18 State Fed Com 121H	North Reference:	Grid
Wellbore:	121H	Survey Calculation Method:	Minimum Curvature
Design:	121H	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)	
14,653.29	93.03	268.90	7,543.82	260.43	-7,037.63	7,036.43	1.20	0.60	-1.04	
14,666.71	93.12	268.74	7,543.10	260.16	-7,051.03	7,049.83	1.37	0.67	-1.19	
14,680.14	93.20	268.60	7,542.36	259.85	-7,064.44	7,063.24	1.20	0.60	-1.04	
14,693.57	94.52	268.89	7,541.45	259.55	-7,077.83	7,076.63	10.06	9.83	2.16	
14,707.00	95.03	269.02	7,540.34	259.31	-7,091.21	7,090.02	3.92	3.80	0.97	
14,720.57	95.18	268.70	7,539.13	259.04	-7,104.73	7,103.53	2.60	1.11	-2.36	
14,734.14	95.31	268.46	7,537.89	258.71	-7,118.24	7,117.04	2.00	0.96	-1.77	
14,747.71	95.43	268.20	7,536.62	258.31	-7,131.74	7,130.55	2.10	0.88	-1.92	
14,761.29	95.56	267.95	7,535.32	257.86	-7,145.25	7,144.06	2.07	0.96	-1.84	
14,774.86	95.68	267.70	7,533.99	257.35	-7,158.75	7,157.56	2.04	0.88	-1.84	
14,788.43	95.80	267.47	7,532.63	256.78	-7,172.24	7,171.05	1.90	0.88	-1.69	
14,802.00	95.90	267.26	7,531.25	256.16	-7,185.72	7,184.54	1.71	0.74	-1.55	
14,815.43	96.08	266.97	7,529.85	255.48	-7,199.06	7,197.88	2.53	1.34	-2.16	
14,828.86	96.23	266.74	7,528.41	254.75	-7,212.39	7,211.21	2.04	1.12	-1.71	
14,842.29	96.39	266.51	7,526.93	253.97	-7,225.72	7,224.54	2.08	1.19	-1.71	
14,855.71	96.55	266.29	7,525.42	253.13	-7,239.03	7,237.85	2.02	1.19	-1.64	
14,869.14	96.70	266.08	7,523.87	252.24	-7,252.34	7,251.17	1.91	1.12	-1.56	
14,882.57	96.85	265.88	7,522.28	251.31	-7,265.64	7,264.48	1.85	1.12	-1.49	
14,896.00	96.97	265.70	7,520.67	250.33	-7,278.94	7,277.78	1.60	0.89	-1.34	
14,909.25	97.14	265.39	7,519.04	249.31	-7,292.05	7,290.89	2.65	1.28	-2.34	
14,916.83	97.21	265.25	7,518.09	248.69	-7,299.54	7,298.39	2.05	0.98	-1.81	
100' FWL: 14916.83' MD, 7298.39' VS, 7518.09' TVD										
14,922.50	97.27	265.15	7,517.38	248.22	-7,305.15	7,304.00	2.05	0.98	-1.81	
14,935.75	97.40	264.92	7,515.69	247.08	-7,318.24	7,317.09	1.98	0.98	-1.74	
14,949.00	97.51	264.70	7,513.97	245.90	-7,331.33	7,330.18	1.84	0.83	-1.66	
Last MWD Survey: 14949.00' MD, 97.51°INC, 264.70°AZ										
15,008.00	97.87	264.19	7,506.07	240.24	-7,389.52	7,388.40	1.05	0.61	-0.86	
PTB: 15008.00' MD, 7388.40' VS, 7506.07' TVD - 05-7500VS(A-121H) - 06-PBHL(A-121H)										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,150.00	7,136.73	290.09	132.82	KOP: 7150.00' MD, -134.08' VS, 7136.73' TVD	
7,327.60	7,310.68	294.01	101.38	100; FEL: 7327.60' MD, -102.66' VS, 7310.68' TVD	
8,164.00	7,739.93	281.14	-557.75	EOC: 8164.00' MD, 556.52' VS, 7739.93' TVD	
14,916.83	7,518.09	248.69	-7,299.54	100' FWL: 14916.83' MD, 7298.39' VS, 7518.09' TVD	
14,949.00	7,513.97	245.90	-7,331.33	Last MWD Survey: 14949.00' MD, 97.51°INC, 264.70°AZ	
15,008.00	7,506.07	240.24	-7,389.52	PTB: 15008.00' MD, 7388.40' VS, 7506.07' TVD	

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 66280

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 66280
	Action Type: [C-104] Completion Packet (C-104C)

ACKNOWLEDGMENTS

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

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CONDITIONS

Action 66280

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 66280
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	RT C-104 EXPIRES 3/10/2022.	12/21/2021