

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 – 48001	⁵ Pool Name PARKWAY; BONE SPRING		⁶ Pool Code 49622
⁷ Property Code 330007	⁸ Property Name CRAZY HORSE 32 STATE FED COM		⁹ Well Number 131H

II. ¹⁰ Surface Location

UL or lot no. E	Section 32	Township 19S	Range 30E	Lot Idn	Feet from the 1864	North/South Line North	Feet from the 191	East/West line West	County Eddy
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¹¹ Bottom Hole Location

UL or lot no. A	Section 33	Township 19S	Range 30E	Lot Idn	Feet from the 348	North/South line North	Feet from the 63	East/West line East	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

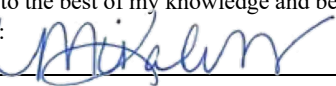
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
329097	LM TOUCHDOWN, LLC	O
329097	LM TOUCHDOWN, LLC	G

IV. Well Completion Data

²¹ Spud Date 10/21/2021	²² Ready Date 12/20/2021	²³ TD 19,811 MD 9,443 TVD	²⁴ PBSD 19,700 MD 9,553 TVD	²⁵ Perforations 9,802 – 19,576	²⁶ DHC, MC
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	³⁰ Sacks Cement
22.375		18.625		424	600 sx
17.5		13.375		1,593	585 sx Lead 265 sx Tail
12.25		9.625		3,404	900 sx Lead 230 sx Tail
8.75		5.5		19,793	960 sx Lead 1,830 sx Tail

V. Well Test Data

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

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Mikah Thomas		Approved by: Leonard R. Lowe	
Title: Operations Tech		Title: Engineer	
E-mail Address: mthomas@colgateenergy.com		Approval Date: 12/29/21	
Date: 12/19/2021	Phone: 432-695-4272	90 day RT expires on 03/29/2022	

DISTRICT I
1625 N French Dr., Hobbs, N.M. 66240
Phone: (575) 393-6161 Fu: (575) 393-0720

DISTRICT II
811 3rd St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fu: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 67410
Phone: (505) 334-6178 Fu: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3460 Fu: (505) 476-3462

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

API Number 30-015-48001		IPool Code 49622		IPool Name Parkway; Bone Spring	
Property Code 330007		Property Name Crazy Horse 32 State Fed Com			Well Number 131H
70GRID No. 371449		Operator Name Colgate Operating, LLC			Elevation 3319

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	Eat./West line	County
E	32	19 S	30 E		1864	North	191	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	Eat./West line	County
A	33	19 S	30 E		348	North	63	East	Eddy

11 Dedicated Acres	11 Inlet or Infill	Consolidation Code	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

16

wmlil:
• = Surface location
o = Bottom Hole location
t = First Take Point (FTP)
□ = Last Take Point (LTP)
- = Found 1916 USGLO Brass Cap
@ = Found Monument

NOTE:
DOWNHOLE INFORMATION TAKEN
FROM A REPORT FURNISHED
BY COLGATE ENERGY
DATED 11-15-21

BOTTOM HOLE LOCATION
NAD 83 NMSPC ZONE 3001
Y= 590628.78 N
X= 653626.76 E
LAT= 32.6231591" N
LONG= 103.9686087" W

17 OPERATOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual survey made by me, or by a duly licensed surveyor, in accordance with the laws of the State of New Mexico.

Signature: Mikah Thomas Date: 12/19/2021

Printed Name: Mikah Thomas

E-mail Address: mthomas@colgateenergy.com

18 SURVEYOR CERTIFICATION

I have surveyed the well location shown on this plat and plotted from field notes of actual survey made by me, or by a duly licensed surveyor, in accordance with the laws of the State of New Mexico.

Date of Survey: 9/03/20

Plat Revised: 11/17/21

Signature and Seal of Professional Surveyor: Marshall W. Andeen

17078

Certificate Number

SURFACE LOCATION
NAD 83 NMSPC ZONE 3001
Y= 589101.76 N
X= 643309.81 E
LAT= 32.6190547" N
LONG= 104.0021339" W

FIRST TAKE POINT
NAD 83 NMSPC ZONE 3001
362' FNL, 246' FWL
SEC. 32, T19S, R30E
Y= 590604.27 N
X= 643360.76 E
LAT= 32.6231841" N
LONG= 104.0019532" W

LAST TAKE POINT
NAD 83 NMSPC ZONE 3001
351' FNL, 101' FEL
SEC. 33, T19S, R30E
Y= 590626.54 N
X= 653588.86 E
LAT= 32.6231533" N
LONG= 103.9687318" W



Colgate Energy

Eddy County, NM (N83-NME)

Crazy Horse 32 State Fed Com

Crazy Horse 32 State Fed Com 131H

30-015-48001

131H

Design: DRL

Standard Survey Report

15 November, 2021



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

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

Site	Crazy Horse 32 State Fed Com		
Site Position:		Northing:	586,991.40 usft
From:	Map	Easting:	643,359.01 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.61325351
		Longitude:	-104.00199549

Well	Crazy Horse 32 State Fed Com 131H		
Well Position	+N/-S	0.00 usft	Northing: 589,101.76 usft
	+E/-W	0.00 usft	Easting: 643,309.81 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.18 °	Ground Level:	3,319.00 usft

Wellbore	131H		
Magnetics	Model Name	Sample Date	Declination (°)
	IFR	10/21/2021	7.00
			Dip Angle (°)
			60.31
			Field Strength (nT)
			47,820.10000000

Design	DRL		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			89.94

Survey Program	Date	11/15/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
14.42	19,753.00	Survey #01_Gordon (131H)	MWD+IFR1+SAG+FDIR (SQ OWSG MWD + IFR1 + Sag + FDIR Correction	
19,811.00	19,811.00	Survey #02_PTB (131H)	BLIND	BLIND

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14.42	0.06	337.10	14.42	0.01	0.00	0.00	0.42	0.42	0.00	
28.83	0.12	337.23	28.83	0.03	-0.01	-0.01	0.42	0.42	0.90	
43.25	0.18	337.35	43.25	0.06	-0.03	-0.03	0.42	0.42	0.83	
57.67	0.24	337.47	57.67	0.11	-0.05	-0.05	0.42	0.42	0.83	
72.08	0.29	337.59	72.08	0.17	-0.07	-0.07	0.35	0.35	0.83	
86.50	0.35	337.72	86.50	0.25	-0.10	-0.10	0.42	0.42	0.90	
100.92	0.41	337.84	100.92	0.34	-0.14	-0.14	0.42	0.42	0.83	
115.33	0.47	337.97	115.33	0.44	-0.18	-0.18	0.42	0.42	0.90	



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Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
129.75	0.53	338.09	129.75	0.56	-0.23	-0.23	0.42	0.42	0.83	
144.17	0.58	338.21	144.17	0.68	-0.28	-0.28	0.35	0.35	0.83	
158.58	0.64	338.34	158.58	0.83	-0.34	-0.34	0.42	0.42	0.90	
173.00	0.70	338.46	173.00	0.98	-0.40	-0.40	0.42	0.42	0.83	
187.00	0.76	335.17	186.99	1.15	-0.47	-0.47	0.52	0.43	-23.50	
201.00	0.82	332.38	200.99	1.32	-0.55	-0.55	0.51	0.43	-19.93	
215.00	0.88	329.98	214.99	1.50	-0.65	-0.65	0.50	0.43	-17.14	
229.00	0.94	327.92	228.99	1.69	-0.77	-0.77	0.49	0.43	-14.71	
243.00	1.01	326.13	242.99	1.89	-0.90	-0.90	0.55	0.50	-12.79	
257.00	1.07	324.56	256.99	2.10	-1.04	-1.04	0.47	0.43	-11.21	
271.00	1.14	323.18	270.98	2.32	-1.20	-1.20	0.53	0.50	-9.86	
285.00	1.20	321.96	284.98	2.55	-1.38	-1.37	0.46	0.43	-8.71	
299.00	1.27	320.88	298.98	2.78	-1.56	-1.56	0.53	0.50	-7.71	
312.50	1.31	320.65	312.47	3.02	-1.76	-1.75	0.30	0.30	-1.70	
326.00	1.35	320.42	325.97	3.26	-1.96	-1.95	0.30	0.30	-1.70	
339.50	1.39	320.45	339.47	3.51	-2.16	-2.16	0.30	0.30	0.22	
353.00	1.41	321.01	352.96	3.76	-2.37	-2.37	0.18	0.15	4.15	
366.29	1.40	322.56	366.25	4.02	-2.57	-2.57	0.30	-0.08	11.66	
379.57	1.38	324.80	379.52	4.28	-2.76	-2.76	0.44	-0.15	16.87	
392.86	1.34	327.56	392.81	4.54	-2.94	-2.93	0.58	-0.30	20.77	
406.14	1.31	330.73	406.09	4.81	-3.10	-3.09	0.60	-0.23	23.87	
419.43	1.28	334.16	419.37	5.07	-3.23	-3.23	0.63	-0.23	25.81	
432.71	1.25	337.67	432.65	5.34	-3.35	-3.35	0.63	-0.23	26.43	
446.00	1.24	340.99	445.94	5.61	-3.46	-3.45	0.55	-0.08	24.98	
460.92	1.20	343.71	460.85	5.91	-3.55	-3.55	0.47	-0.27	18.23	
475.83	1.18	346.14	475.76	6.21	-3.63	-3.63	0.36	-0.13	16.30	
490.75	1.17	348.40	490.68	6.51	-3.70	-3.69	0.32	-0.07	15.15	
505.67	1.16	350.55	505.59	6.81	-3.76	-3.75	0.30	-0.07	14.41	
520.58	1.15	352.64	520.50	7.10	-3.80	-3.79	0.29	-0.07	14.02	
535.50	1.15	354.69	535.42	7.40	-3.83	-3.83	0.28	0.00	13.74	
550.42	1.15	356.72	550.34	7.70	-3.86	-3.85	0.27	0.00	13.61	
565.33	1.16	358.74	565.24	8.00	-3.87	-3.86	0.28	0.07	13.55	
580.25	1.17	0.72	580.16	8.30	-3.87	-3.86	0.28	0.07	13.27	
595.17	1.18	2.68	595.08	8.61	-3.86	-3.85	0.28	0.07	13.14	
610.08	1.20	4.59	609.98	8.92	-3.84	-3.83	0.30	0.13	12.81	
625.00	1.23	6.44	624.90	9.23	-3.81	-3.80	0.33	0.20	12.40	
639.45	1.27	8.53	639.35	9.55	-3.77	-3.76	0.42	0.28	14.46	
653.91	1.32	10.56	653.80	9.87	-3.71	-3.70	0.47	0.35	14.04	
668.36	1.37	12.51	668.25	10.20	-3.65	-3.64	0.47	0.35	13.49	
682.82	1.42	14.33	682.70	10.54	-3.56	-3.55	0.46	0.35	12.59	
697.27	1.48	16.01	697.15	10.90	-3.47	-3.46	0.51	0.42	11.63	
711.73	1.55	17.56	711.60	11.26	-3.36	-3.35	0.56	0.48	10.72	
726.18	1.61	18.96	726.05	11.64	-3.23	-3.22	0.49	0.42	9.69	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
740.64	1.67	20.22	740.50	12.03	-3.09	-3.08	0.48	0.41	8.71	
755.09	1.74	21.33	754.95	12.43	-2.94	-2.93	0.54	0.48	7.68	
769.55	1.80	22.27	769.40	12.85	-2.78	-2.76	0.46	0.41	6.50	
784.00	1.86	23.01	783.84	13.27	-2.60	-2.58	0.45	0.42	5.12	
798.46	1.91	23.66	798.29	13.71	-2.41	-2.40	0.38	0.35	4.50	
812.92	1.96	24.14	812.75	14.16	-2.21	-2.20	0.36	0.35	3.32	
827.38	2.01	24.51	827.20	14.61	-2.01	-1.99	0.36	0.35	2.56	
841.85	2.05	24.82	841.66	15.08	-1.79	-1.78	0.29	0.28	2.14	
856.31	2.09	25.09	856.11	15.55	-1.57	-1.56	0.28	0.28	1.87	
870.77	2.14	25.34	870.56	16.03	-1.34	-1.33	0.35	0.35	1.73	
885.23	2.18	25.58	885.01	16.53	-1.11	-1.09	0.28	0.28	1.66	
899.69	2.22	25.83	899.46	17.03	-0.87	-0.85	0.28	0.28	1.73	
914.15	2.26	26.11	913.91	17.53	-0.62	-0.60	0.29	0.28	1.94	
928.62	2.30	26.42	928.37	18.05	-0.37	-0.35	0.29	0.28	2.14	
943.08	2.34	26.81	942.81	18.57	-0.10	-0.09	0.30	0.28	2.70	
957.54	2.38	27.29	957.26	19.10	0.17	0.19	0.31	0.28	3.32	
972.00	2.41	27.94	971.71	19.64	0.45	0.47	0.28	0.21	4.50	
986.54	2.44	28.81	986.24	20.18	0.74	0.76	0.33	0.21	5.98	
1,001.08	2.47	29.84	1,000.76	20.72	1.04	1.07	0.37	0.21	7.08	
1,015.62	2.50	30.94	1,015.29	21.27	1.36	1.38	0.39	0.21	7.57	
1,030.15	2.53	32.08	1,029.80	21.81	1.70	1.72	0.40	0.21	7.85	
1,044.69	2.56	33.23	1,044.33	22.35	2.04	2.07	0.41	0.21	7.91	
1,059.23	2.60	34.36	1,058.86	22.90	2.41	2.43	0.45	0.28	7.77	
1,073.77	2.63	35.45	1,073.38	23.44	2.79	2.81	0.40	0.21	7.50	
1,088.31	2.67	36.49	1,087.90	23.99	3.18	3.21	0.43	0.28	7.15	
1,102.85	2.71	37.44	1,102.43	24.53	3.59	3.62	0.41	0.28	6.53	
1,117.38	2.75	38.27	1,116.94	25.08	4.02	4.04	0.39	0.28	5.71	
1,131.92	2.80	38.95	1,131.47	25.63	4.46	4.48	0.41	0.34	4.68	
1,146.46	2.86	39.41	1,145.99	26.18	4.91	4.94	0.44	0.41	3.16	
1,161.00	2.93	39.57	1,160.51	26.75	5.38	5.41	0.48	0.48	1.10	
1,175.46	3.03	39.56	1,174.95	27.33	5.86	5.89	0.69	0.69	-0.07	
1,189.92	3.14	39.35	1,189.39	27.93	6.35	6.38	0.76	0.76	-1.45	
1,204.38	3.27	39.03	1,203.83	28.56	6.86	6.89	0.91	0.90	-2.21	
1,218.85	3.39	38.66	1,218.27	29.21	7.39	7.42	0.84	0.83	-2.56	
1,233.31	3.51	38.28	1,232.71	29.89	7.93	7.96	0.84	0.83	-2.63	
1,247.77	3.62	37.91	1,247.14	30.60	8.48	8.52	0.78	0.76	-2.56	
1,262.23	3.42	36.79	1,261.57	31.31	9.02	9.06	1.46	-1.38	-7.75	
1,276.69	2.86	35.07	1,276.01	31.95	9.49	9.52	3.93	-3.87	-11.89	
1,291.15	2.59	34.25	1,290.45	32.51	9.88	9.91	1.89	-1.87	-5.67	
1,305.62	2.69	33.66	1,304.91	33.07	10.25	10.29	0.72	0.69	-4.08	
1,320.08	2.77	33.06	1,319.35	33.64	10.63	10.67	0.59	0.55	-4.15	
1,334.54	2.85	32.46	1,333.79	34.24	11.01	11.05	0.59	0.55	-4.15	
1,349.00	2.91	31.85	1,348.23	34.85	11.40	11.44	0.47	0.41	-4.22	



Survey Report

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1,363.25	2.91	31.17	1,362.47	35.47	11.78	11.82	0.24	0.00	-4.77	
1,377.50	2.90	30.57	1,376.70	36.09	12.15	12.19	0.22	-0.07	-4.21	
1,391.75	2.86	30.00	1,390.93	36.71	12.51	12.55	0.35	-0.28	-4.00	
1,406.00	2.81	29.46	1,405.16	37.32	12.86	12.90	0.40	-0.35	-3.79	
1,420.25	2.75	28.94	1,419.40	37.92	13.20	13.24	0.46	-0.42	-3.65	
1,434.50	2.68	28.42	1,433.63	38.51	13.52	13.56	0.52	-0.49	-3.65	
1,448.75	2.61	27.90	1,447.86	39.09	13.83	13.87	0.52	-0.49	-3.65	
1,463.00	2.52	27.39	1,462.10	39.66	14.13	14.17	0.65	-0.63	-3.58	
1,477.25	2.42	26.89	1,476.34	40.21	14.41	14.45	0.72	-0.70	-3.51	
1,491.50	2.31	26.42	1,490.57	40.73	14.67	14.71	0.78	-0.77	-3.30	
1,505.75	2.18	25.98	1,504.81	41.23	14.92	14.96	0.92	-0.91	-3.09	
1,520.00	2.03	25.63	1,519.05	41.70	15.15	15.19	1.06	-1.05	-2.46	
1,534.25	1.83	25.96	1,533.30	42.14	15.36	15.40	1.41	-1.40	2.32	
1,548.50	1.62	26.64	1,547.54	42.52	15.55	15.59	1.48	-1.47	4.77	
1,562.75	1.39	27.73	1,561.78	42.85	15.72	15.76	1.63	-1.61	7.65	
1,577.00	1.17	29.33	1,576.03	43.13	15.87	15.91	1.56	-1.54	11.23	
1,591.25	0.96	31.63	1,590.28	43.36	16.00	16.05	1.50	-1.47	16.14	
1,605.50	0.83	33.08	1,604.53	43.55	16.12	16.17	0.93	-0.91	10.18	
1,619.75	1.62	22.93	1,618.77	43.82	16.26	16.30	5.73	5.54	-71.23	
1,634.00	2.06	20.61	1,633.02	44.25	16.42	16.47	3.13	3.09	-16.28	
1,648.46	1.93	20.87	1,647.47	44.72	16.60	16.65	0.90	-0.90	1.80	
1,662.92	2.28	19.55	1,661.92	45.22	16.79	16.83	2.44	2.42	-9.13	
1,677.38	2.16	19.75	1,676.37	45.74	16.97	17.02	0.83	-0.83	1.38	
1,691.85	2.05	19.97	1,690.83	46.24	17.15	17.20	0.76	-0.76	1.52	
1,706.31	1.95	20.20	1,705.28	46.72	17.33	17.38	0.69	-0.69	1.59	
1,720.77	2.31	19.00	1,719.73	47.22	17.51	17.56	2.51	2.49	-8.30	
1,735.23	2.22	19.17	1,734.18	47.76	17.69	17.74	0.62	-0.62	1.18	
1,749.69	2.33	18.82	1,748.63	48.31	17.88	17.93	0.77	0.76	-2.42	
1,764.15	2.58	18.21	1,763.07	48.89	18.08	18.13	1.74	1.73	-4.22	
1,778.62	2.50	18.31	1,777.53	49.50	18.28	18.33	0.55	-0.55	0.69	
1,793.08	2.43	18.37	1,791.97	50.09	18.47	18.53	0.48	-0.48	0.41	
1,807.54	2.37	18.38	1,806.42	50.67	18.66	18.72	0.41	-0.41	0.07	
1,822.00	2.33	18.29	1,820.87	51.23	18.85	18.91	0.28	-0.28	-0.62	
1,836.46	2.31	18.03	1,835.32	51.79	19.03	19.09	0.16	-0.14	-1.80	
1,850.92	2.43	17.46	1,849.77	52.36	19.22	19.27	0.85	0.83	-3.94	
1,865.38	2.44	17.06	1,864.21	52.94	19.40	19.45	0.14	0.07	-2.77	
1,879.85	2.45	16.62	1,878.67	53.53	19.58	19.63	0.15	0.07	-3.04	
1,894.31	2.47	16.16	1,893.12	54.13	19.75	19.81	0.19	0.14	-3.18	
1,908.77	2.50	15.69	1,907.56	54.73	19.92	19.98	0.25	0.21	-3.25	
1,923.23	2.53	15.22	1,922.01	55.34	20.09	20.15	0.25	0.21	-3.25	
1,937.69	2.57	14.75	1,936.45	55.97	20.26	20.32	0.31	0.28	-3.25	
1,952.15	2.61	14.28	1,950.90	56.60	20.42	20.48	0.31	0.28	-3.25	
1,966.62	2.65	13.82	1,965.35	57.24	20.58	20.64	0.31	0.28	-3.18	
1,981.08	2.70	13.36	1,979.80	57.90	20.74	20.80	0.38	0.35	-3.18	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,995.54	2.74	12.89	1,994.24	58.57	20.90	20.96	0.32	0.28	-3.25
2,010.00	3.21	11.63	2,008.68	59.30	21.06	21.12	3.28	3.25	-8.71
2,024.54	3.52	7.50	2,023.20	60.14	21.20	21.26	2.71	2.13	-28.40
2,039.08	3.56	6.95	2,037.71	61.03	21.31	21.37	0.36	0.28	-3.78
2,053.62	3.60	6.37	2,052.22	61.93	21.42	21.48	0.37	0.28	-3.99
2,068.15	3.64	5.79	2,066.72	62.85	21.51	21.58	0.37	0.28	-3.99
2,082.69	3.69	5.23	2,081.23	63.77	21.60	21.67	0.42	0.34	-3.85
2,097.23	3.74	4.70	2,095.74	64.71	21.68	21.75	0.42	0.34	-3.65
2,111.77	4.00	353.39	2,110.25	65.69	21.66	21.73	5.54	1.79	-77.79
2,126.31	4.06	352.99	2,124.75	66.70	21.54	21.61	0.46	0.41	-2.75
2,140.85	4.13	352.61	2,139.26	67.73	21.41	21.48	0.52	0.48	-2.61
2,155.38	4.20	352.27	2,153.75	68.78	21.27	21.35	0.51	0.48	-2.34
2,169.92	4.28	351.98	2,168.25	69.84	21.13	21.20	0.57	0.55	-1.99
2,184.46	4.36	351.76	2,182.75	70.93	20.97	21.05	0.56	0.55	-1.51
2,199.00	4.84	348.60	2,197.24	72.07	20.77	20.85	3.73	3.30	-21.73
2,213.46	4.94	348.40	2,211.65	73.28	20.53	20.60	0.70	0.69	-1.38
2,227.92	5.05	348.24	2,226.05	74.51	20.27	20.35	0.77	0.76	-1.11
2,242.38	5.18	348.12	2,240.45	75.78	20.01	20.09	0.90	0.90	-0.83
2,256.85	5.30	348.02	2,254.86	77.07	19.73	19.81	0.83	0.83	-0.69
2,271.31	5.43	347.95	2,269.26	78.39	19.45	19.53	0.90	0.90	-0.48
2,285.77	5.56	347.90	2,283.65	79.75	19.16	19.25	0.90	0.90	-0.35
2,300.23	6.11	347.26	2,298.04	81.18	18.85	18.93	3.83	3.80	-4.43
2,314.69	6.25	347.26	2,312.42	82.70	18.50	18.59	0.97	0.97	0.00
2,329.15	6.39	347.28	2,326.79	84.25	18.15	18.24	0.97	0.97	0.14
2,343.62	6.53	347.32	2,341.17	85.84	17.79	17.88	0.97	0.97	0.28
2,358.08	6.67	347.38	2,355.53	87.46	17.43	17.52	0.97	0.97	0.41
2,372.54	6.82	347.46	2,369.89	89.12	17.06	17.15	1.04	1.04	0.55
2,387.00	7.12	348.14	2,384.24	90.84	16.69	16.78	2.15	2.07	4.70
2,401.46	7.99	350.54	2,398.58	92.70	16.34	16.44	6.40	6.02	16.60
2,415.92	8.14	350.82	2,412.89	94.71	16.01	16.11	1.07	1.04	1.94
2,430.38	8.29	351.33	2,427.21	96.75	15.69	15.79	1.15	1.04	3.53
2,444.85	8.45	351.67	2,441.52	98.83	15.38	15.48	1.16	1.11	2.35
2,459.31	8.62	352.01	2,455.82	100.95	15.08	15.18	1.23	1.18	2.35
2,473.77	8.78	352.35	2,470.12	103.12	14.78	14.89	1.16	1.11	2.35
2,488.23	8.95	352.69	2,484.40	105.33	14.49	14.60	1.23	1.18	2.35
2,502.69	9.11	353.01	2,498.68	107.58	14.21	14.32	1.16	1.11	2.21
2,517.15	9.28	353.32	2,512.96	109.88	13.93	14.05	1.22	1.18	2.14
2,531.62	9.44	353.60	2,527.23	112.21	13.66	13.78	1.15	1.11	1.94
2,546.08	9.59	353.85	2,541.50	114.59	13.40	13.52	1.08	1.04	1.73
2,560.54	9.73	354.04	2,555.75	117.00	13.15	13.27	0.99	0.97	1.31
2,575.00	10.46	353.25	2,569.99	119.52	12.86	12.99	5.14	5.05	-5.46
2,589.46	11.39	354.55	2,584.18	122.25	12.57	12.70	6.65	6.43	8.99
2,603.92	11.78	355.34	2,598.35	125.14	12.32	12.45	2.91	2.70	5.46



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,618.38	11.88	355.35	2,612.50	128.09	12.08	12.21	0.69	0.69	0.07
2,632.85	11.97	355.34	2,626.66	131.07	11.84	11.97	0.62	0.62	-0.07
2,647.31	12.06	355.31	2,640.80	134.07	11.59	11.73	0.62	0.62	-0.21
2,661.77	12.15	355.28	2,654.94	137.10	11.34	11.49	0.62	0.62	-0.21
2,676.23	12.24	355.24	2,669.08	140.14	11.09	11.24	0.63	0.62	-0.28
2,690.69	12.33	355.20	2,683.20	143.21	10.83	10.98	0.63	0.62	-0.28
2,705.15	12.41	355.16	2,697.33	146.29	10.57	10.73	0.56	0.55	-0.28
2,719.62	12.50	355.12	2,711.46	149.40	10.31	10.46	0.62	0.62	-0.28
2,734.08	12.59	355.08	2,725.57	152.53	10.04	10.20	0.63	0.62	-0.28
2,748.54	12.68	355.04	2,739.68	155.68	9.77	9.93	0.63	0.62	-0.28
2,763.00	12.77	355.01	2,753.79	158.86	9.49	9.66	0.62	0.62	-0.21
2,777.38	12.87	354.98	2,767.81	162.04	9.21	9.38	0.70	0.70	-0.21
2,791.77	12.97	354.95	2,781.84	165.24	8.93	9.10	0.70	0.69	-0.21
2,806.15	13.07	354.92	2,795.85	168.47	8.64	8.82	0.70	0.70	-0.21
2,820.54	13.18	354.89	2,809.86	171.72	8.35	8.53	0.77	0.76	-0.21
2,834.92	13.28	354.87	2,823.86	175.00	8.06	8.24	0.70	0.70	-0.14
2,849.31	13.38	354.85	2,837.86	178.30	7.76	7.95	0.70	0.69	-0.14
2,863.69	13.49	354.84	2,851.85	181.63	7.46	7.65	0.77	0.76	-0.07
2,878.08	13.59	354.83	2,865.84	184.99	7.16	7.35	0.70	0.69	-0.07
2,892.46	13.69	354.82	2,879.81	188.36	6.85	7.05	0.70	0.70	-0.07
2,906.85	13.78	354.82	2,893.79	191.77	6.55	6.75	0.63	0.63	0.00
2,921.23	13.88	354.82	2,907.75	195.19	6.24	6.44	0.70	0.70	0.00
2,935.62	13.97	354.84	2,921.72	198.64	5.92	6.13	0.63	0.63	0.14
2,950.00	14.05	354.86	2,935.67	202.11	5.61	5.82	0.56	0.56	0.14
2,964.38	14.12	354.90	2,949.62	205.59	5.30	5.51	0.49	0.49	0.28
2,978.77	14.19	354.96	2,963.57	209.10	4.99	5.21	0.50	0.49	0.42
2,993.15	14.25	355.02	2,977.51	212.62	4.68	4.90	0.43	0.42	0.42
3,007.54	14.32	355.08	2,991.46	216.15	4.37	4.60	0.50	0.49	0.42
3,021.92	14.37	355.15	3,005.39	219.70	4.07	4.30	0.37	0.35	0.49
3,036.31	14.43	355.22	3,019.33	223.27	3.77	4.00	0.43	0.42	0.49
3,050.69	14.48	355.29	3,033.25	226.85	3.47	3.71	0.37	0.35	0.49
3,065.08	14.54	355.36	3,047.18	230.44	3.18	3.42	0.43	0.42	0.49
3,079.46	14.59	355.43	3,061.10	234.05	2.89	3.13	0.37	0.35	0.49
3,093.85	14.64	355.49	3,075.03	237.66	2.60	2.85	0.36	0.35	0.42
3,108.23	14.69	355.54	3,088.94	241.29	2.32	2.57	0.36	0.35	0.35
3,122.62	14.75	355.57	3,102.85	244.94	2.03	2.29	0.42	0.42	0.21
3,137.00	14.05	354.50	3,116.78	248.50	1.72	1.98	5.21	-4.87	-7.44
3,151.38	13.47	353.18	3,130.75	251.90	1.36	1.62	4.59	-4.03	-9.18
3,165.77	13.54	353.15	3,144.74	255.24	0.96	1.22	0.49	0.49	-0.21
3,180.15	13.62	353.11	3,158.72	258.59	0.55	0.82	0.56	0.56	-0.28
3,194.54	13.70	353.06	3,172.70	261.96	0.14	0.42	0.56	0.56	-0.35
3,208.92	13.78	353.01	3,186.67	265.36	-0.27	0.01	0.56	0.56	-0.35
3,223.31	13.86	352.95	3,200.64	268.77	-0.69	-0.41	0.56	0.56	-0.42



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,237.69	13.94	352.89	3,214.60	272.19	-1.12	-0.83	0.57	0.56	-0.42	
3,252.08	14.02	352.83	3,228.57	275.64	-1.55	-1.26	0.56	0.56	-0.42	
3,266.46	14.09	352.77	3,242.52	279.11	-1.99	-1.69	0.50	0.49	-0.42	
3,280.85	14.16	352.71	3,256.47	282.59	-2.43	-2.13	0.50	0.49	-0.42	
3,295.23	14.23	352.65	3,270.41	286.09	-2.88	-2.58	0.50	0.49	-0.42	
3,309.62	14.29	352.59	3,284.36	289.61	-3.33	-3.03	0.43	0.42	-0.42	
3,324.00	14.35	352.53	3,298.29	293.13	-3.79	-3.49	0.43	0.42	-0.42	
3,338.11	14.40	352.47	3,311.96	296.61	-4.25	-3.94	0.37	0.35	-0.43	
3,352.22	14.45	352.42	3,325.63	300.09	-4.71	-4.40	0.37	0.35	-0.35	
3,366.33	14.49	352.36	3,339.29	303.58	-5.18	-4.86	0.30	0.28	-0.43	
3,380.44	14.52	352.31	3,352.95	307.09	-5.65	-5.33	0.23	0.21	-0.35	
3,394.56	14.55	352.25	3,366.62	310.60	-6.13	-5.80	0.24	0.21	-0.42	
3,408.67	14.57	352.19	3,380.27	314.11	-6.61	-6.28	0.18	0.14	-0.43	
3,422.78	14.57	352.13	3,393.93	317.63	-7.09	-6.76	0.11	0.00	-0.43	
3,436.89	14.57	352.06	3,407.59	321.15	-7.58	-7.24	0.12	0.00	-0.50	
3,451.00	14.54	351.97	3,421.24	324.66	-8.07	-7.73	0.27	-0.21	-0.64	
3,465.46	14.49	351.86	3,435.24	328.24	-8.58	-8.24	0.39	-0.35	-0.76	
3,479.92	14.41	351.73	3,449.24	331.82	-9.10	-8.75	0.60	-0.55	-0.90	
3,494.38	14.32	351.60	3,463.25	335.37	-9.62	-9.27	0.66	-0.62	-0.90	
3,508.85	14.22	351.47	3,477.28	338.89	-10.14	-9.79	0.73	-0.69	-0.90	
3,523.31	14.12	351.33	3,491.30	342.39	-10.67	-10.31	0.73	-0.69	-0.97	
3,537.77	14.02	351.20	3,505.32	345.87	-11.21	-10.84	0.73	-0.69	-0.90	
3,552.23	13.88	350.89	3,519.36	349.31	-11.75	-11.38	1.10	-0.97	-2.14	
3,565.24	13.20	348.04	3,532.00	352.31	-12.30	-11.93	7.31	-5.20	-21.94	
Rustler										
3,566.69	13.13	347.70	3,533.42	352.63	-12.37	-12.00	7.31	-5.06	-23.16	
3,581.15	12.73	345.57	3,547.51	355.78	-13.12	-12.75	4.30	-2.77	-14.73	
3,595.62	12.62	345.43	3,561.63	358.85	-13.92	-13.54	0.79	-0.76	-0.97	
3,610.08	12.51	345.30	3,575.74	361.89	-14.71	-14.33	0.79	-0.76	-0.90	
3,624.54	12.40	345.20	3,589.86	364.91	-15.50	-15.12	0.78	-0.76	-0.69	
3,639.00	12.29	345.15	3,603.99	367.90	-16.30	-15.91	0.76	-0.76	-0.35	
3,653.38	12.18	345.22	3,618.04	370.84	-17.07	-16.69	0.77	-0.76	0.49	
3,667.77	12.07	345.35	3,632.11	373.77	-17.84	-17.45	0.79	-0.76	0.90	
3,682.15	11.97	345.51	3,646.17	376.67	-18.60	-18.20	0.73	-0.70	1.11	
3,696.54	11.87	345.69	3,660.25	379.55	-19.33	-18.94	0.74	-0.69	1.25	
3,710.92	11.78	345.88	3,674.33	382.40	-20.06	-19.66	0.68	-0.63	1.32	
3,725.31	11.68	346.07	3,688.42	385.24	-20.77	-20.36	0.74	-0.69	1.32	
3,739.69	10.99	346.20	3,702.52	387.98	-21.44	-21.04	4.80	-4.80	0.90	
3,754.08	10.18	345.63	3,716.66	390.55	-22.09	-21.68	5.68	-5.63	-3.96	
3,768.46	10.10	345.82	3,730.82	393.00	-22.71	-22.30	0.60	-0.56	1.32	
3,782.85	10.01	346.00	3,744.99	395.44	-23.32	-22.91	0.66	-0.63	1.25	
3,797.23	9.92	346.16	3,759.15	397.85	-23.92	-23.51	0.65	-0.63	1.11	
3,811.62	9.83	346.29	3,773.33	400.25	-24.51	-24.09	0.64	-0.63	0.90	
3,820.42	9.78	346.31	3,782.00	401.71	-24.86	-24.44	0.56	-0.56	0.28	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Top of Salt									
3,826.00	9.75	346.33	3,787.50	402.63	-25.09	-24.67	0.56	-0.56	0.28
3,840.46	9.68	346.23	3,801.75	405.00	-25.67	-25.24	0.50	-0.48	-0.69
3,854.92	9.62	346.04	3,816.00	407.35	-26.25	-25.82	0.47	-0.41	-1.31
3,869.38	9.56	345.80	3,830.26	409.69	-26.83	-26.40	0.50	-0.41	-1.66
3,883.85	9.50	345.52	3,844.53	412.01	-27.43	-27.00	0.52	-0.41	-1.94
3,898.31	9.45	345.22	3,858.79	414.31	-28.03	-27.59	0.49	-0.35	-2.07
3,912.77	9.40	344.90	3,873.06	416.60	-28.64	-28.20	0.50	-0.35	-2.21
3,927.23	9.36	344.58	3,887.33	418.87	-29.26	-28.82	0.45	-0.28	-2.21
3,941.69	9.31	344.24	3,901.59	421.13	-29.89	-29.45	0.51	-0.35	-2.35
3,956.15	9.27	343.91	3,915.87	423.38	-30.53	-30.09	0.46	-0.28	-2.28
3,970.62	9.24	343.59	3,930.15	425.61	-31.18	-30.74	0.41	-0.21	-2.21
3,985.08	9.20	343.28	3,944.42	427.83	-31.84	-31.39	0.44	-0.28	-2.14
3,999.54	9.17	342.99	3,958.69	430.04	-32.51	-32.06	0.38	-0.21	-2.01
4,014.00	9.15	342.74	3,972.97	432.24	-33.19	-32.74	0.31	-0.14	-1.73
4,028.38	9.13	342.56	3,987.17	434.42	-33.87	-33.42	0.24	-0.14	-1.25
4,042.77	9.11	342.42	4,001.38	436.60	-34.56	-34.10	0.21	-0.14	-0.97
4,057.15	9.11	342.31	4,015.57	438.77	-35.25	-34.79	0.12	0.00	-0.76
4,071.54	9.10	342.22	4,029.78	440.93	-35.94	-35.48	0.12	-0.07	-0.63
4,085.92	9.10	342.15	4,043.98	443.10	-36.64	-36.17	0.08	0.00	-0.49
4,100.31	9.10	342.10	4,058.19	445.27	-37.33	-36.87	0.05	0.00	-0.35
4,114.69	9.10	342.06	4,072.39	447.43	-38.03	-37.57	0.04	0.00	-0.28
4,129.08	9.10	342.05	4,086.60	449.59	-38.74	-38.26	0.01	0.00	-0.07
4,143.46	9.11	342.06	4,100.80	451.76	-39.44	-38.96	0.07	0.07	0.07
4,157.85	9.13	342.11	4,115.01	453.93	-40.14	-39.66	0.15	0.14	0.35
4,172.23	9.14	342.21	4,129.20	456.10	-40.84	-40.36	0.13	0.07	0.70
4,186.62	9.17	342.36	4,143.41	458.28	-41.53	-41.05	0.27	0.21	1.04
4,201.00	9.20	342.62	4,157.61	460.47	-42.23	-41.74	0.36	0.21	1.81
4,215.54	9.25	343.02	4,171.96	462.70	-42.91	-42.43	0.56	0.34	2.75
4,230.08	9.31	343.51	4,186.31	464.95	-43.59	-43.10	0.68	0.41	3.37
4,244.62	9.38	344.06	4,200.65	467.21	-44.25	-43.76	0.78	0.48	3.78
4,259.15	9.45	344.63	4,214.99	469.50	-44.89	-44.40	0.80	0.48	3.92
4,273.69	9.53	345.21	4,229.33	471.82	-45.51	-45.02	0.86	0.55	3.99
4,288.23	9.61	345.79	4,243.67	474.16	-46.12	-45.62	0.86	0.55	3.99
4,302.77	9.68	346.36	4,258.00	476.52	-46.70	-46.21	0.81	0.48	3.92
4,317.31	9.76	346.91	4,272.33	478.91	-47.27	-46.77	0.84	0.55	3.78
4,331.85	9.82	347.44	4,286.66	481.32	-47.82	-47.32	0.74	0.41	3.65
4,346.38	9.89	347.92	4,300.98	483.75	-48.35	-47.84	0.74	0.48	3.30
4,360.92	9.94	348.34	4,315.30	486.20	-48.87	-48.36	0.60	0.34	2.89
4,375.46	9.97	348.67	4,329.62	488.66	-49.37	-48.86	0.44	0.21	2.27
4,390.00	10.26	351.00	4,343.93	491.18	-49.82	-49.30	3.45	1.99	16.02
4,404.38	10.58	353.36	4,358.08	493.75	-50.17	-49.65	3.71	2.23	16.41
4,418.77	10.53	353.27	4,372.22	496.37	-50.48	-49.96	0.37	-0.35	-0.63



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,433.15	10.47	353.10	4,386.36	498.97	-50.79	-50.26	0.47	-0.42	-1.18
4,447.54	10.39	352.86	4,400.52	501.56	-51.11	-50.58	0.63	-0.56	-1.67
4,461.92	10.31	352.58	4,414.66	504.12	-51.43	-50.91	0.66	-0.56	-1.95
4,476.31	10.22	352.27	4,428.82	506.66	-51.77	-51.24	0.73	-0.63	-2.15
4,490.69	10.12	351.93	4,442.98	509.18	-52.12	-51.59	0.81	-0.70	-2.36
4,505.08	10.03	351.57	4,457.14	511.67	-52.48	-51.95	0.76	-0.63	-2.50
4,519.46	9.93	351.19	4,471.31	514.13	-52.85	-52.32	0.83	-0.70	-2.64
4,533.85	9.84	350.80	4,485.48	516.57	-53.24	-52.70	0.78	-0.63	-2.71
4,548.23	9.74	350.40	4,499.65	518.98	-53.64	-53.10	0.84	-0.70	-2.78
4,562.62	9.64	350.00	4,513.84	521.37	-54.05	-53.51	0.84	-0.69	-2.78
4,577.00	9.55	349.60	4,528.02	523.73	-54.48	-53.93	0.78	-0.63	-2.78
4,591.46	9.46	349.27	4,542.28	526.08	-54.92	-54.36	0.73	-0.62	-2.28
4,605.92	9.36	348.96	4,556.54	528.40	-55.36	-54.81	0.78	-0.69	-2.14
4,620.38	9.27	348.65	4,570.81	530.69	-55.82	-55.26	0.71	-0.62	-2.14
4,634.85	9.18	348.34	4,585.10	532.97	-56.28	-55.72	0.71	-0.62	-2.14
4,649.31	9.10	348.04	4,599.37	535.22	-56.75	-56.19	0.64	-0.55	-2.07
4,663.77	9.02	347.75	4,613.65	537.44	-57.23	-56.66	0.64	-0.55	-2.01
4,678.23	8.94	347.46	4,627.93	539.65	-57.71	-57.15	0.64	-0.55	-2.01
4,692.69	8.87	347.19	4,642.22	541.83	-58.20	-57.63	0.56	-0.48	-1.87
4,707.15	8.81	346.93	4,656.51	544.00	-58.70	-58.13	0.50	-0.41	-1.80
4,721.62	8.76	346.72	4,670.81	546.15	-59.20	-58.63	0.41	-0.35	-1.45
4,732.94	8.74	346.59	4,682.00	547.82	-59.60	-59.03	0.27	-0.21	-1.11
Base of Salt									
4,736.08	8.73	346.56	4,685.10	548.29	-59.71	-59.14	0.27	-0.21	-1.11
4,750.54	8.73	346.48	4,699.39	550.42	-60.22	-59.65	0.08	0.00	-0.55
4,765.00	9.27	350.08	4,713.67	552.64	-60.68	-60.10	5.39	3.73	24.90
4,779.54	9.36	350.27	4,728.02	554.95	-61.08	-60.50	0.65	0.62	1.31
4,794.08	9.49	350.53	4,742.37	557.30	-61.48	-60.89	0.94	0.89	1.79
4,808.62	9.63	350.84	4,756.70	559.69	-61.87	-61.28	1.03	0.96	2.13
4,823.15	9.78	351.15	4,771.03	562.10	-62.25	-61.66	1.09	1.03	2.13
4,837.69	9.93	351.45	4,785.35	564.56	-62.63	-62.04	1.09	1.03	2.06
4,852.23	10.06	351.70	4,799.67	567.06	-63.00	-62.40	0.94	0.89	1.72
4,866.77	10.50	355.53	4,813.98	569.64	-63.29	-62.69	5.59	3.03	26.34
4,881.31	11.47	358.73	4,828.25	572.40	-63.42	-62.82	7.88	6.67	22.01
4,885.14	11.59	358.88	4,832.00	573.17	-63.44	-62.84	3.25	3.16	3.82
Yates									
4,895.85	11.93	359.27	4,842.49	575.35	-63.47	-62.87	3.25	3.16	3.68
4,910.38	12.04	359.42	4,856.70	578.37	-63.51	-62.90	0.79	0.76	1.03
4,924.92	12.14	359.56	4,870.92	581.41	-63.53	-62.92	0.72	0.69	0.96
4,939.46	12.21	359.67	4,885.13	584.48	-63.55	-62.94	0.51	0.48	0.76
4,954.00	12.23	359.73	4,899.34	587.56	-63.57	-62.95	0.16	0.14	0.41
4,968.46	12.16	359.69	4,913.48	590.61	-63.59	-62.97	0.49	-0.48	-0.28
4,982.92	12.04	359.59	4,927.62	593.64	-63.60	-62.98	0.84	-0.83	-0.69
4,997.38	11.88	359.43	4,941.76	596.64	-63.63	-63.01	1.13	-1.11	-1.11



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,011.85	11.69	359.24	4,955.93	599.60	-63.66	-63.04	1.34	-1.31	-1.31
5,026.31	11.50	359.02	4,970.09	602.50	-63.71	-63.08	1.35	-1.31	-1.52
5,040.77	11.29	358.77	4,984.27	605.36	-63.76	-63.13	1.49	-1.45	-1.73
5,055.23	11.08	358.49	4,998.45	608.16	-63.83	-63.19	1.50	-1.45	-1.94
5,069.69	10.87	358.19	5,012.65	610.91	-63.91	-63.27	1.51	-1.45	-2.07
5,084.15	10.66	357.86	5,026.85	613.61	-64.00	-63.36	1.51	-1.45	-2.28
5,098.62	10.47	357.51	5,041.08	616.26	-64.11	-63.46	1.39	-1.31	-2.42
5,113.08	10.29	357.14	5,055.30	618.87	-64.23	-63.58	1.33	-1.24	-2.56
5,127.54	10.14	356.73	5,069.53	621.43	-64.37	-63.72	1.15	-1.04	-2.84
5,142.00	10.04	356.29	5,083.77	623.96	-64.52	-63.87	0.87	-0.69	-3.04
5,156.38	10.00	355.84	5,097.93	626.45	-64.69	-64.04	0.61	-0.28	-3.13
5,170.77	10.00	355.36	5,112.10	628.94	-64.89	-64.23	0.58	0.00	-3.34
5,185.15	10.03	354.86	5,126.26	631.44	-65.10	-64.44	0.64	0.21	-3.48
5,199.54	10.07	354.35	5,140.43	633.94	-65.34	-64.67	0.68	0.28	-3.54
5,213.92	10.12	353.86	5,154.59	636.44	-65.59	-64.93	0.69	0.35	-3.41
5,228.31	10.18	353.40	5,168.75	638.96	-65.88	-65.21	0.70	0.42	-3.20
5,242.69	10.22	352.97	5,182.91	641.49	-66.18	-65.51	0.60	0.28	-2.99
5,257.03	11.07	353.40	5,197.00	644.12	-66.49	-65.82	5.93	5.91	2.99
Capitan									
5,257.08	11.07	353.40	5,197.05	644.13	-66.49	-65.82	5.93	5.91	2.76
5,271.46	12.19	354.01	5,211.13	647.01	-66.81	-66.13	7.84	7.79	4.24
5,285.85	13.20	355.10	5,225.17	650.16	-67.11	-66.43	7.21	7.02	7.57
5,300.23	13.22	354.84	5,239.17	653.43	-67.40	-66.71	0.44	0.14	-1.81
5,314.62	13.24	354.59	5,253.18	656.71	-67.70	-67.01	0.42	0.14	-1.74
5,329.00	13.23	354.38	5,267.18	659.99	-68.02	-67.33	0.34	-0.07	-1.46
5,343.46	13.19	354.24	5,281.25	663.28	-68.34	-67.65	0.35	-0.28	-0.97
5,357.92	13.13	354.14	5,295.33	666.55	-68.68	-67.98	0.44	-0.41	-0.69
5,372.38	13.04	354.08	5,309.42	669.81	-69.01	-68.31	0.63	-0.62	-0.41
5,386.85	12.95	354.03	5,323.52	673.05	-69.35	-68.65	0.63	-0.62	-0.35
5,401.31	12.85	354.00	5,337.61	676.26	-69.69	-68.98	0.69	-0.69	-0.21
5,415.77	12.75	353.98	5,351.71	679.44	-70.02	-69.31	0.69	-0.69	-0.14
5,430.23	12.64	353.97	5,365.82	682.60	-70.36	-69.64	0.76	-0.76	-0.07
5,444.69	12.53	353.96	5,379.93	685.74	-70.69	-69.97	0.76	-0.76	-0.07
5,459.15	12.42	353.95	5,394.05	688.84	-71.02	-70.30	0.76	-0.76	-0.07
5,473.62	12.31	353.94	5,408.19	691.92	-71.34	-70.62	0.76	-0.76	-0.07
5,488.08	12.20	353.91	5,422.32	694.98	-71.67	-70.94	0.76	-0.76	-0.21
5,502.54	12.10	353.86	5,436.45	698.00	-71.99	-71.26	0.70	-0.69	-0.35
5,517.00	12.00	353.77	5,450.59	701.00	-72.32	-71.58	0.70	-0.69	-0.62
5,531.38	11.92	353.62	5,464.66	703.96	-72.64	-71.91	0.60	-0.56	-1.04
5,545.77	11.85	353.43	5,478.74	706.91	-72.98	-72.24	0.56	-0.49	-1.32
5,560.15	11.79	353.21	5,492.82	709.83	-73.32	-72.58	0.52	-0.42	-1.53
5,574.54	11.72	352.97	5,506.91	712.75	-73.67	-72.93	0.59	-0.49	-1.67
5,588.92	11.66	352.73	5,520.99	715.64	-74.04	-73.29	0.54	-0.42	-1.67
5,603.31	11.60	352.49	5,535.08	718.51	-74.41	-73.66	0.54	-0.42	-1.67



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,617.69	11.54	352.24	5,549.17	721.37	-74.79	-74.04	0.54	-0.42	-1.74
5,632.08	11.47	352.00	5,563.27	724.21	-75.19	-74.43	0.59	-0.49	-1.67
5,646.46	11.41	351.76	5,577.37	727.04	-75.59	-74.83	0.53	-0.42	-1.67
5,660.85	11.34	351.53	5,591.47	729.85	-76.00	-75.24	0.58	-0.49	-1.60
5,675.23	11.26	351.32	5,605.57	732.63	-76.42	-75.65	0.63	-0.56	-1.46
5,689.62	11.17	351.13	5,619.69	735.40	-76.85	-76.08	0.68	-0.63	-1.32
5,704.00	11.08	350.97	5,633.80	738.14	-77.28	-76.51	0.66	-0.63	-1.11
5,718.46	10.96	350.90	5,647.99	740.87	-77.72	-76.94	0.84	-0.83	-0.48
5,732.92	10.82	350.88	5,662.19	743.57	-78.15	-77.37	0.97	-0.97	-0.14
5,747.38	10.68	350.88	5,676.40	746.23	-78.58	-77.79	0.97	-0.97	0.00
5,761.85	10.53	350.91	5,690.62	748.86	-79.00	-78.21	1.04	-1.04	0.21
5,776.31	10.38	350.95	5,704.84	751.45	-79.41	-78.62	1.04	-1.04	0.28
5,790.77	10.23	351.01	5,719.07	754.00	-79.82	-79.03	1.04	-1.04	0.41
5,805.23	10.07	351.08	5,733.30	756.52	-80.21	-79.42	1.11	-1.11	0.48
5,819.69	9.92	351.16	5,747.54	759.00	-80.60	-79.81	1.04	-1.04	0.55
5,834.15	9.77	351.25	5,761.79	761.44	-80.98	-80.18	1.04	-1.04	0.62
5,848.62	9.62	351.35	5,776.05	763.85	-81.35	-80.55	1.04	-1.04	0.69
5,863.08	9.48	351.45	5,790.31	766.23	-81.71	-80.90	0.97	-0.97	0.69
5,877.54	9.34	351.54	5,804.58	768.56	-82.06	-81.25	0.97	-0.97	0.62
5,892.00	9.72	353.84	5,818.84	770.94	-82.36	-81.55	3.72	2.63	15.91
5,906.46	10.59	355.61	5,833.07	773.48	-82.59	-81.78	6.39	6.02	12.24
5,920.92	11.35	358.08	5,847.27	776.22	-82.74	-81.93	6.18	5.26	17.08
5,935.38	11.25	358.14	5,861.45	779.05	-82.84	-82.02	0.70	-0.69	0.41
5,949.85	11.15	358.21	5,875.64	781.86	-82.92	-82.11	0.70	-0.69	0.48
5,964.31	11.06	358.29	5,889.83	784.65	-83.01	-82.19	0.63	-0.62	0.55
5,978.77	10.97	358.37	5,904.02	787.41	-83.09	-82.27	0.63	-0.62	0.55
5,993.23	10.88	358.46	5,918.22	790.15	-83.17	-82.34	0.63	-0.62	0.62
6,007.69	10.79	358.56	5,932.42	792.87	-83.24	-82.41	0.64	-0.62	0.69
6,022.15	10.70	358.65	5,946.63	795.56	-83.30	-82.47	0.63	-0.62	0.62
6,036.62	10.61	358.75	5,960.85	798.24	-83.36	-82.53	0.63	-0.62	0.69
6,051.08	10.52	358.85	5,975.07	800.89	-83.42	-82.58	0.64	-0.62	0.69
6,065.54	10.43	358.96	5,989.29	803.52	-83.47	-82.63	0.64	-0.62	0.76
6,080.00	10.35	359.06	6,003.51	806.12	-83.51	-82.67	0.57	-0.55	0.69
6,094.46	10.26	359.15	6,017.74	808.71	-83.55	-82.71	0.63	-0.62	0.62
6,108.92	10.17	359.25	6,031.97	811.27	-83.59	-82.74	0.63	-0.62	0.69
6,123.38	10.09	359.34	6,046.20	813.82	-83.62	-82.77	0.56	-0.55	0.62
6,137.85	10.00	359.43	6,060.45	816.34	-83.65	-82.79	0.63	-0.62	0.62
6,152.31	9.91	359.53	6,074.69	818.84	-83.67	-82.81	0.63	-0.62	0.69
6,166.77	9.82	359.62	6,088.94	821.32	-83.69	-82.83	0.63	-0.62	0.62
6,181.23	9.73	359.72	6,103.19	823.77	-83.70	-82.84	0.63	-0.62	0.69
6,195.69	9.64	359.81	6,117.44	826.20	-83.71	-82.85	0.63	-0.62	0.62
6,210.15	9.55	359.90	6,131.70	828.61	-83.72	-82.85	0.63	-0.62	0.62
6,224.62	9.46	359.99	6,145.97	831.00	-83.72	-82.85	0.63	-0.62	0.62



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,239.08	9.36	0.08	6,160.24	833.37	-83.72	-82.85	0.70	-0.69	0.62	
6,253.54	9.26	0.16	6,174.51	835.71	-83.72	-82.84	0.70	-0.69	0.55	
6,268.00	9.57	0.01	6,188.77	838.07	-83.71	-82.83	2.15	2.14	-1.04	
6,282.38	10.51	359.77	6,202.93	840.58	-83.72	-82.84	6.54	6.54	-1.67	
6,296.77	11.49	0.00	6,217.06	843.33	-83.72	-82.84	6.82	6.81	1.60	
6,311.15	11.75	0.18	6,231.14	846.22	-83.72	-82.83	1.83	1.81	1.25	
6,325.54	11.59	0.22	6,245.23	849.13	-83.71	-82.82	1.11	-1.11	0.28	
6,339.92	11.42	0.26	6,259.32	852.00	-83.70	-82.80	1.18	-1.18	0.28	
6,354.31	11.25	0.30	6,273.43	854.83	-83.68	-82.79	1.18	-1.18	0.28	
6,368.69	11.08	0.34	6,287.54	857.61	-83.67	-82.77	1.18	-1.18	0.28	
6,383.08	10.90	0.38	6,301.67	860.36	-83.65	-82.75	1.25	-1.25	0.28	
6,397.46	10.73	0.40	6,315.79	863.06	-83.63	-82.73	1.18	-1.18	0.14	
6,411.85	10.56	0.41	6,329.93	865.71	-83.61	-82.71	1.18	-1.18	0.07	
6,426.23	10.39	0.41	6,344.07	868.33	-83.59	-82.68	1.18	-1.18	0.00	
6,440.62	10.24	0.38	6,358.23	870.90	-83.58	-82.66	1.04	-1.04	-0.21	
6,455.00	10.11	0.30	6,372.39	873.44	-83.56	-82.65	0.91	-0.90	-0.56	
6,469.31	10.00	0.16	6,386.48	875.94	-83.55	-82.63	0.79	-0.77	-0.98	
6,483.62	9.92	359.97	6,400.57	878.42	-83.55	-82.63	0.60	-0.56	-1.33	
6,497.92	9.84	359.76	6,414.66	880.87	-83.55	-82.63	0.61	-0.56	-1.47	
6,512.23	9.77	359.54	6,428.76	883.31	-83.57	-82.64	0.55	-0.49	-1.54	
6,526.54	9.71	359.32	6,442.86	885.73	-83.59	-82.66	0.49	-0.42	-1.54	
6,540.85	10.19	359.85	6,456.96	888.20	-83.61	-82.68	3.41	3.35	3.70	
6,555.15	10.67	0.35	6,471.02	890.79	-83.61	-82.67	3.42	3.36	3.50	
6,569.46	10.68	0.04	6,485.08	893.44	-83.60	-82.66	0.41	0.07	-2.17	
6,583.77	10.63	359.85	6,499.15	896.09	-83.60	-82.66	0.43	-0.35	-1.33	
6,598.08	10.57	359.68	6,513.21	898.72	-83.61	-82.67	0.47	-0.42	-1.19	
6,612.38	10.52	359.53	6,527.27	901.34	-83.63	-82.68	0.40	-0.35	-1.05	
6,626.69	10.47	359.42	6,541.34	903.94	-83.65	-82.70	0.38	-0.35	-0.77	
6,641.00	10.42	359.39	6,555.42	906.54	-83.68	-82.73	0.35	-0.35	-0.21	
6,655.38	10.37	359.48	6,569.56	909.13	-83.70	-82.75	0.37	-0.35	0.63	
6,669.77	10.32	359.64	6,583.72	911.72	-83.72	-82.77	0.40	-0.35	1.11	
6,684.15	10.26	359.85	6,597.86	914.28	-83.74	-82.78	0.49	-0.42	1.46	
6,698.54	10.21	0.08	6,612.02	916.84	-83.74	-82.78	0.45	-0.35	1.60	
6,712.92	10.15	0.31	6,626.18	919.38	-83.73	-82.77	0.50	-0.42	1.60	
6,727.31	10.09	0.53	6,640.34	921.91	-83.71	-82.74	0.50	-0.42	1.53	
6,741.69	10.68	1.58	6,654.49	924.50	-83.66	-82.69	4.31	4.10	7.30	
6,756.08	11.52	1.89	6,668.61	927.27	-83.58	-82.61	5.85	5.84	2.15	
6,770.46	12.15	1.80	6,682.68	930.22	-83.48	-82.51	4.38	4.38	-0.63	
6,784.85	12.08	1.99	6,696.75	933.24	-83.38	-82.41	0.56	-0.49	1.32	
6,799.23	12.01	2.19	6,710.82	936.24	-83.27	-82.29	0.57	-0.49	1.39	
6,813.62	11.94	2.38	6,724.89	939.22	-83.15	-82.17	0.56	-0.49	1.32	
6,828.00	11.86	2.53	6,738.96	942.18	-83.03	-82.04	0.60	-0.56	1.04	
6,842.38	11.80	2.75	6,753.04	945.13	-82.89	-81.90	0.52	-0.42	1.53	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,856.77	12.28	5.10	6,767.11	948.12	-82.68	-81.69	4.77	3.34	16.33
6,871.15	12.17	5.08	6,781.17	951.15	-82.41	-81.42	0.77	-0.76	-0.14
6,885.54	12.05	5.02	6,795.24	954.16	-82.15	-81.15	0.84	-0.83	-0.42
6,892.46	11.99	4.98	6,802.00	955.60	-82.02	-81.02	0.91	-0.90	-0.55
DLWR Mnt. Group									
6,899.92	11.92	4.94	6,809.30	957.14	-81.89	-80.89	0.91	-0.90	-0.56
6,914.31	11.78	4.85	6,823.39	960.08	-81.64	-80.63	0.98	-0.97	-0.63
6,928.69	11.65	4.73	6,837.47	962.99	-81.39	-80.39	0.92	-0.90	-0.83
6,943.08	11.51	4.60	6,851.56	965.87	-81.16	-80.15	0.99	-0.97	-0.90
6,957.46	11.37	4.44	6,865.66	968.71	-80.93	-79.92	1.00	-0.97	-1.11
6,971.85	11.22	4.26	6,879.77	971.52	-80.72	-79.70	1.07	-1.04	-1.25
6,986.23	11.08	4.04	6,893.88	974.30	-80.52	-79.50	1.02	-0.97	-1.53
7,000.62	10.93	3.78	6,908.00	977.04	-80.33	-79.31	1.10	-1.04	-1.81
7,015.00	10.77	3.44	6,922.13	979.74	-80.16	-79.13	1.20	-1.11	-2.36
7,029.54	10.60	3.04	6,936.41	982.43	-80.01	-78.98	1.28	-1.17	-2.75
7,044.08	10.42	2.57	6,950.71	985.08	-79.88	-78.85	1.37	-1.24	-3.23
7,058.62	10.24	2.05	6,965.01	987.68	-79.77	-78.74	1.39	-1.24	-3.58
7,073.15	10.07	1.51	6,979.32	990.24	-79.69	-78.66	1.34	-1.17	-3.72
7,087.69	9.90	0.95	6,993.64	992.76	-79.64	-78.60	1.35	-1.17	-3.85
7,102.23	9.74	0.42	7,007.96	995.24	-79.61	-78.57	1.26	-1.10	-3.65
7,116.77	10.45	358.30	7,022.28	997.79	-79.64	-78.59	5.51	4.88	-14.58
7,131.31	11.31	357.82	7,036.56	1,000.54	-79.73	-78.69	5.95	5.91	-3.30
7,145.85	12.10	357.65	7,050.79	1,003.48	-79.85	-78.80	5.44	5.43	-1.17
7,160.38	11.97	357.25	7,065.01	1,006.51	-79.98	-78.93	1.06	-0.89	-2.75
7,174.92	11.85	356.83	7,079.23	1,009.51	-80.14	-79.08	1.02	-0.83	-2.89
7,189.46	11.75	356.41	7,093.46	1,012.47	-80.31	-79.25	0.91	-0.69	-2.89
7,204.00	11.69	356.03	7,107.70	1,015.42	-80.51	-79.45	0.67	-0.41	-2.61
7,218.54	11.67	355.73	7,121.94	1,018.36	-80.72	-79.65	0.44	-0.14	-2.06
7,233.08	11.69	355.48	7,136.18	1,021.29	-80.95	-79.88	0.37	0.14	-1.72
7,247.62	11.73	355.25	7,150.42	1,024.23	-81.19	-80.11	0.42	0.28	-1.58
7,262.15	11.78	355.06	7,164.64	1,027.18	-81.44	-80.36	0.44	0.34	-1.31
7,276.69	11.82	354.88	7,178.88	1,030.14	-81.70	-80.62	0.37	0.28	-1.24
7,291.23	11.85	354.73	7,193.11	1,033.11	-81.97	-80.88	0.30	0.21	-1.03
7,305.77	12.44	357.13	7,207.32	1,036.17	-82.18	-81.10	5.34	4.06	16.51
7,320.31	13.10	356.85	7,221.50	1,039.37	-82.35	-81.26	4.56	4.54	-1.93
7,334.85	13.60	357.04	7,235.65	1,042.73	-82.53	-81.44	3.45	3.44	1.31
7,349.38	13.61	356.95	7,249.77	1,046.14	-82.71	-81.61	0.16	0.07	-0.62
7,363.92	13.62	356.87	7,263.90	1,049.56	-82.89	-81.79	0.15	0.07	-0.55
7,378.46	13.61	356.81	7,278.03	1,052.98	-83.08	-81.98	0.12	-0.07	-0.41
7,393.00	13.57	356.76	7,292.17	1,056.39	-83.27	-82.17	0.29	-0.28	-0.34
7,407.54	13.47	356.73	7,306.30	1,059.78	-83.47	-82.36	0.69	-0.69	-0.21
7,422.08	13.33	356.73	7,320.45	1,063.14	-83.66	-82.54	0.96	-0.96	0.00
7,436.62	13.17	356.74	7,334.60	1,066.47	-83.85	-82.73	1.10	-1.10	0.07
7,451.15	12.99	356.76	7,348.75	1,069.75	-84.03	-82.91	1.24	-1.24	0.14



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,465.69	12.80	356.80	7,362.93	1,072.99	-84.22	-83.09	1.31	-1.31	0.28
7,480.23	12.83	356.83	7,377.10	1,076.21	-84.40	-83.27	0.21	0.21	0.21
7,494.77	13.68	356.84	7,391.26	1,079.54	-84.58	-83.45	5.85	5.85	0.07
7,509.31	13.71	357.06	7,405.38	1,082.98	-84.76	-83.63	0.41	0.21	1.51
7,523.85	13.50	357.15	7,419.52	1,086.40	-84.94	-83.80	1.45	-1.44	0.62
7,538.38	13.28	357.25	7,433.65	1,089.76	-85.10	-83.96	1.52	-1.51	0.69
7,552.92	13.06	357.37	7,447.81	1,093.07	-85.26	-84.11	1.52	-1.51	0.83
7,567.46	12.84	357.51	7,461.98	1,096.32	-85.40	-84.25	1.53	-1.51	0.96
7,582.00	12.63	357.67	7,476.16	1,099.52	-85.54	-84.38	1.46	-1.44	1.10
7,596.46	12.43	357.82	7,490.28	1,102.66	-85.66	-84.50	1.40	-1.38	1.04
7,610.92	12.24	357.98	7,504.40	1,105.75	-85.77	-84.61	1.34	-1.31	1.11
7,625.38	12.05	358.16	7,518.54	1,108.79	-85.88	-84.71	1.34	-1.31	1.24
7,639.85	11.86	358.35	7,532.69	1,111.78	-85.97	-84.80	1.34	-1.31	1.31
7,654.31	11.68	358.56	7,546.85	1,114.73	-86.05	-84.88	1.28	-1.24	1.45
7,668.77	11.49	358.78	7,561.02	1,117.63	-86.11	-84.94	1.35	-1.31	1.52
7,683.23	11.29	359.01	7,575.19	1,120.49	-86.17	-85.00	1.42	-1.38	1.59
7,697.69	11.09	359.26	7,589.38	1,123.29	-86.21	-85.03	1.42	-1.38	1.73
7,712.15	10.89	359.53	7,603.57	1,126.05	-86.24	-85.06	1.43	-1.38	1.87
7,726.62	10.67	359.83	7,617.79	1,128.76	-86.26	-85.07	1.57	-1.52	2.07
7,741.08	10.44	0.17	7,632.00	1,131.41	-86.26	-85.07	1.65	-1.59	2.35
7,755.54	10.19	0.56	7,646.23	1,134.00	-86.24	-85.05	1.80	-1.73	2.70
7,770.00	9.90	1.02	7,660.47	1,136.52	-86.20	-85.01	2.08	-2.01	3.18
7,784.54	9.55	1.50	7,674.80	1,138.97	-86.15	-84.96	2.47	-2.41	3.30
7,799.08	9.17	2.06	7,689.14	1,141.34	-86.08	-84.88	2.69	-2.61	3.85
7,813.62	8.78	2.68	7,703.51	1,143.60	-85.98	-84.79	2.76	-2.68	4.26
7,828.15	8.39	3.34	7,717.87	1,145.77	-85.87	-84.67	2.77	-2.68	4.54
7,842.69	8.02	4.02	7,732.26	1,147.84	-85.74	-84.54	2.63	-2.54	4.68
7,857.23	8.01	4.46	7,746.66	1,149.86	-85.59	-84.38	0.43	-0.07	3.03
7,871.77	8.92	4.13	7,761.04	1,152.00	-85.43	-84.22	6.27	6.26	-2.27
7,886.31	9.83	3.61	7,775.39	1,154.36	-85.27	-84.06	6.29	6.26	-3.58
7,900.85	10.40	3.69	7,789.70	1,156.91	-85.11	-83.89	3.92	3.92	0.55
7,915.38	10.07	4.14	7,804.00	1,159.48	-84.93	-83.72	2.34	-2.27	3.10
7,929.92	9.75	4.61	7,818.32	1,161.98	-84.74	-83.52	2.27	-2.20	3.23
7,944.46	9.45	5.04	7,832.66	1,164.39	-84.54	-83.32	2.12	-2.06	2.96
7,959.00	9.21	5.34	7,847.01	1,166.74	-84.32	-83.10	1.68	-1.65	2.06
7,973.46	9.06	5.31	7,861.28	1,169.03	-84.11	-82.88	1.04	-1.04	-0.21
7,987.92	8.96	5.13	7,875.57	1,171.28	-83.90	-82.68	0.72	-0.69	-1.24
8,002.38	8.90	4.87	7,889.85	1,173.52	-83.71	-82.48	0.50	-0.41	-1.80
8,016.85	8.86	4.55	7,904.15	1,175.74	-83.52	-82.29	0.44	-0.28	-2.21
8,031.31	8.82	4.22	7,918.44	1,177.96	-83.35	-82.12	0.45	-0.28	-2.28
8,045.77	9.15	3.73	7,932.72	1,180.21	-83.20	-81.96	2.34	2.28	-3.39
8,060.23	10.21	2.63	7,946.97	1,182.64	-83.06	-81.83	7.44	7.33	-7.61
8,074.69	11.24	1.37	7,961.18	1,185.33	-82.97	-81.73	7.30	7.12	-8.71



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,089.15	11.88	1.15	7,975.35	1,188.23	-82.91	-81.66	4.44	4.43	-1.52	
8,103.62	11.84	0.93	7,989.51	1,191.20	-82.85	-81.61	0.42	-0.28	-1.52	
8,118.08	11.80	0.72	8,003.66	1,194.16	-82.81	-81.56	0.41	-0.28	-1.45	
8,132.54	11.97	0.44	8,017.81	1,197.14	-82.78	-81.53	1.24	1.18	-1.94	
8,147.00	13.00	359.31	8,031.93	1,200.27	-82.79	-81.53	7.32	7.12	-7.81	
8,161.38	13.39	357.41	8,045.93	1,203.55	-82.88	-81.62	4.06	2.71	-13.21	
8,175.77	13.24	357.44	8,059.93	1,206.86	-83.03	-81.77	1.04	-1.04	0.21	
8,190.15	13.07	357.49	8,073.93	1,210.13	-83.18	-81.91	1.18	-1.18	0.35	
8,204.54	12.89	357.56	8,087.96	1,213.36	-83.32	-82.05	1.26	-1.25	0.49	
8,218.92	12.71	357.65	8,101.98	1,216.54	-83.45	-82.18	1.26	-1.25	0.63	
8,233.31	12.53	357.73	8,116.02	1,219.68	-83.58	-82.30	1.26	-1.25	0.56	
8,247.69	12.34	357.81	8,130.06	1,222.77	-83.70	-82.42	1.33	-1.32	0.56	
8,262.08	12.15	357.89	8,144.13	1,225.82	-83.81	-82.53	1.33	-1.32	0.56	
8,276.46	11.96	357.94	8,158.19	1,228.83	-83.92	-82.63	1.32	-1.32	0.35	
8,290.85	11.78	357.97	8,172.27	1,231.78	-84.03	-82.74	1.25	-1.25	0.21	
8,305.23	11.61	357.96	8,186.35	1,234.70	-84.13	-82.84	1.18	-1.18	-0.07	
8,319.62	11.44	357.90	8,200.45	1,237.57	-84.23	-82.94	1.18	-1.18	-0.42	
8,334.00	12.26	357.39	8,214.53	1,240.52	-84.36	-83.06	5.75	5.70	-3.55	
8,348.54	13.26	358.06	8,228.71	1,243.73	-84.48	-83.18	6.95	6.88	4.61	
8,363.08	14.16	357.26	8,242.83	1,247.17	-84.62	-83.32	6.33	6.19	-5.50	
8,377.62	14.30	357.46	8,256.93	1,250.74	-84.79	-83.48	1.02	0.96	1.38	
8,392.15	14.21	357.06	8,271.01	1,254.32	-84.96	-83.65	0.92	-0.62	-2.75	
8,406.69	14.12	356.62	8,285.11	1,257.87	-85.16	-83.84	0.97	-0.62	-3.03	
8,421.23	14.53	356.13	8,299.20	1,261.46	-85.38	-84.06	2.94	2.82	-3.37	
8,435.77	15.16	356.33	8,313.25	1,265.18	-85.63	-84.30	4.35	4.33	1.38	
8,450.31	15.07	355.87	8,327.29	1,268.96	-85.89	-84.56	1.03	-0.62	-3.16	
8,464.85	14.98	355.37	8,341.33	1,272.72	-86.17	-84.84	1.09	-0.62	-3.44	
8,479.38	14.88	354.86	8,355.37	1,276.45	-86.49	-85.16	1.14	-0.69	-3.51	
8,493.92	14.77	354.33	8,369.43	1,280.15	-86.84	-85.50	1.20	-0.76	-3.65	
8,508.46	14.64	353.81	8,383.49	1,283.82	-87.22	-85.88	1.27	-0.89	-3.58	
8,523.00	14.46	353.31	8,397.56	1,287.45	-87.63	-86.29	1.51	-1.24	-3.44	
8,537.54	14.21	352.92	8,411.65	1,291.03	-88.07	-86.71	1.84	-1.72	-2.68	
8,552.08	13.93	352.55	8,425.75	1,294.53	-88.51	-87.16	2.02	-1.93	-2.54	
8,566.62	13.62	352.20	8,439.88	1,297.96	-88.97	-87.61	2.21	-2.13	-2.41	
8,581.15	13.30	351.85	8,454.01	1,301.31	-89.44	-88.08	2.27	-2.20	-2.41	
8,595.69	12.96	351.49	8,468.17	1,304.58	-89.92	-88.55	2.41	-2.34	-2.48	
8,610.23	12.62	351.11	8,482.35	1,307.76	-90.41	-89.04	2.41	-2.34	-2.61	
8,624.77	12.28	350.72	8,496.54	1,310.86	-90.90	-89.53	2.41	-2.34	-2.68	
8,639.31	11.95	350.29	8,510.76	1,313.87	-91.40	-90.03	2.35	-2.27	-2.96	
8,653.85	11.61	349.83	8,524.99	1,316.79	-91.92	-90.54	2.43	-2.34	-3.16	
8,668.38	11.29	349.33	8,539.24	1,319.63	-92.44	-91.06	2.31	-2.20	-3.44	
8,682.92	10.98	348.78	8,553.50	1,322.39	-92.97	-91.59	2.25	-2.13	-3.78	
8,697.46	10.69	348.17	8,567.78	1,325.06	-93.52	-92.13	2.14	-1.99	-4.20	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,712.00	10.44	347.47	8,582.08	1,327.67	-94.08	-92.69	1.93	-1.72	-4.81
8,725.92	10.84	346.25	8,595.76	1,330.17	-94.66	-93.27	3.30	2.87	-8.76
8,739.85	11.47	346.22	8,609.42	1,332.79	-95.30	-93.91	4.52	4.52	-0.22
8,753.77	12.15	346.73	8,623.05	1,335.56	-95.97	-94.57	4.94	4.89	3.66
8,767.69	12.27	346.10	8,636.65	1,338.42	-96.66	-95.26	1.29	0.86	-4.53
8,781.62	12.14	345.07	8,650.27	1,341.27	-97.40	-95.99	1.82	-0.93	-7.39
8,795.54	12.03	343.93	8,663.88	1,344.08	-98.17	-96.77	1.89	-0.79	-8.19
8,809.46	11.92	342.75	8,677.50	1,346.85	-99.00	-97.59	1.93	-0.79	-8.48
8,823.38	11.83	341.54	8,691.12	1,349.57	-99.88	-98.47	1.90	-0.65	-8.69
8,837.31	11.75	340.33	8,704.76	1,352.26	-100.81	-99.39	1.87	-0.57	-8.69
8,851.23	11.69	339.18	8,718.39	1,354.92	-101.79	-100.37	1.73	-0.43	-8.26
8,865.15	11.63	338.11	8,732.02	1,357.54	-102.81	-101.39	1.61	-0.43	-7.69
8,879.08	11.59	337.19	8,745.66	1,360.13	-103.88	-102.45	1.36	-0.29	-6.60
8,882.00	11.69	338.28	8,748.52	1,360.68	-104.10	-102.68	8.26	3.41	37.27
KOP: 8882.00' MD, -102.68' VS, 8748.52' TVD									
8,893.00	12.10	342.21	8,759.29	1,362.81	-104.87	-103.44	8.26	3.73	35.74
8,908.00	12.94	348.58	8,773.93	1,365.95	-105.68	-104.25	10.77	5.60	42.47
8,923.00	13.20	349.97	8,788.54	1,369.28	-106.31	-104.88	2.72	1.73	9.27
8,938.00	13.24	349.94	8,803.14	1,372.66	-106.91	-105.47	0.27	0.27	-0.20
8,953.00	13.28	349.97	8,817.74	1,376.05	-107.51	-106.07	0.27	0.27	0.20
8,968.00	13.31	350.00	8,832.34	1,379.45	-108.11	-106.66	0.21	0.20	0.20
8,983.00	13.96	353.78	8,846.92	1,382.95	-108.60	-107.16	7.35	4.33	25.20
8,997.86	14.87	358.59	8,861.31	1,386.63	-108.84	-107.39	10.12	6.12	32.37
9,012.71	15.90	2.84	8,875.63	1,390.57	-108.79	-107.33	10.28	6.94	28.62
9,027.57	16.79	6.56	8,889.89	1,394.74	-108.44	-106.98	9.24	5.99	25.03
9,042.43	17.96	9.26	8,904.07	1,399.13	-107.83	-106.37	9.56	7.87	18.17
9,057.29	18.46	11.69	8,918.19	1,403.70	-106.99	-105.52	6.12	3.36	16.35
9,072.14	19.45	13.32	8,932.23	1,408.40	-105.94	-104.46	7.56	6.67	10.98
9,087.00	20.88	13.67	8,946.18	1,413.38	-104.74	-103.26	9.66	9.62	2.36
9,100.43	22.10	15.09	8,958.68	1,418.15	-103.52	-102.04	9.87	9.08	10.57
9,113.86	23.36	16.61	8,971.07	1,423.14	-102.10	-100.61	10.35	9.38	11.32
9,127.29	24.82	17.62	8,983.33	1,428.38	-100.49	-98.99	11.30	10.87	7.52
9,140.71	26.26	19.81	8,995.43	1,433.86	-98.63	-97.13	12.83	10.73	16.32
9,154.14	26.78	23.38	9,007.45	1,439.43	-96.42	-94.91	12.48	3.87	26.58
9,165.26	26.85	26.67	9,017.38	1,443.97	-94.30	-92.79	13.35	0.60	29.58
100 FWL: 9165.26' MD, -92.79' VS, 9017.38' TVD									
9,167.57	26.87	27.35	9,019.44	1,444.90	-93.83	-92.31	13.35	1.01	29.47
9,181.00	27.04	31.43	9,031.41	1,450.20	-90.84	-89.32	13.83	1.27	30.38
9,194.43	27.35	35.56	9,043.36	1,455.32	-87.45	-85.93	14.24	2.31	30.75
9,207.86	27.56	39.51	9,055.27	1,460.23	-83.68	-82.15	13.65	1.56	29.41
9,221.29	27.70	43.59	9,067.17	1,464.88	-79.55	-78.02	14.13	1.04	30.38
9,234.71	27.80	47.50	9,079.05	1,469.26	-75.09	-73.56	13.58	0.75	29.14
9,248.14	28.31	51.40	9,090.90	1,473.36	-70.30	-68.75	14.17	3.80	29.04
9,261.57	29.19	53.92	9,102.68	1,477.28	-65.16	-63.61	11.15	6.55	18.76



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,275.00	29.67	56.23	9,114.38	1,481.05	-59.75	-58.20	9.18	3.57	17.20	
9,288.29	30.20	59.56	9,125.89	1,484.57	-54.13	-52.58	13.12	3.99	25.06	
9,301.57	30.52	62.93	9,137.35	1,487.80	-48.25	-46.69	13.05	2.41	25.38	
9,314.86	30.91	66.33	9,148.78	1,490.71	-42.12	-40.56	13.39	2.93	25.58	
9,328.14	31.45	69.46	9,160.14	1,493.29	-35.75	-34.19	12.86	4.07	23.57	
9,341.43	30.65	72.24	9,171.53	1,495.54	-29.28	-27.71	12.35	-6.02	20.92	
9,354.71	30.27	75.43	9,182.98	1,497.42	-22.81	-21.25	12.51	-2.86	24.02	
9,368.00	30.08	78.50	9,194.47	1,498.92	-16.31	-14.74	11.70	-1.43	23.10	
9,381.43	30.36	81.19	9,206.07	1,500.12	-9.66	-8.08	10.29	2.08	20.03	
9,394.86	30.54	83.89	9,217.65	1,501.00	-2.91	-1.34	10.28	1.34	20.10	
9,408.29	30.90	86.45	9,229.20	1,501.58	3.93	5.50	10.10	2.68	19.06	
9,421.71	32.05	88.14	9,240.64	1,501.90	10.93	12.50	10.80	8.57	12.59	
9,435.14	33.29	89.15	9,251.95	1,502.07	18.17	19.75	10.09	9.23	7.52	
9,448.57	34.85	88.92	9,263.07	1,502.20	25.69	27.27	11.66	11.62	-1.71	
9,459.54	36.11	89.34	9,272.00	1,502.30	32.06	33.63	11.68	11.47	3.82	
Lower Brushy Canyon										
9,462.00	36.39	89.43	9,273.99	1,502.31	33.52	35.09	11.68	11.47	3.68	
9,475.43	38.04	89.27	9,284.68	1,502.41	41.64	43.21	12.31	12.29	-1.19	
9,488.86	39.76	89.38	9,295.13	1,502.51	50.07	51.64	12.82	12.81	0.82	
9,490.23	39.93	89.42	9,296.19	1,502.51	50.95	52.52	12.81	12.65	3.15	
00-FTP(CH-131H)										
9,502.29	41.46	89.79	9,305.33	1,502.57	58.81	60.38	12.81	12.66	3.04	
9,515.71	42.97	90.39	9,315.27	1,502.55	67.83	69.40	11.65	11.25	4.47	
9,529.14	44.33	90.79	9,324.99	1,502.46	77.10	78.67	10.33	10.13	2.98	
9,542.57	46.15	90.60	9,334.44	1,502.34	86.63	88.20	13.59	13.55	-1.41	
9,556.00	47.97	90.42	9,343.59	1,502.25	96.46	98.04	13.59	13.55	-1.34	
9,569.43	50.03	91.15	9,352.40	1,502.11	106.60	108.17	15.88	15.34	5.44	
9,582.86	52.08	91.87	9,360.84	1,501.84	117.04	118.61	15.82	15.26	5.36	
9,596.29	54.16	92.24	9,368.90	1,501.45	127.77	129.34	15.64	15.49	2.76	
9,609.71	56.01	93.03	9,376.58	1,500.95	138.76	140.34	14.61	13.79	5.89	
9,623.14	57.73	94.02	9,383.92	1,500.25	149.99	151.56	14.22	12.81	7.37	
9,636.57	59.56	94.70	9,390.91	1,499.38	161.42	162.99	14.30	13.63	5.06	
9,650.00	61.56	95.46	9,397.51	1,498.34	173.07	174.64	15.69	14.89	5.66	
9,663.43	63.69	95.98	9,403.69	1,497.16	184.94	186.51	16.23	15.86	3.87	
9,676.86	65.87	96.39	9,409.41	1,495.85	197.02	198.58	16.47	16.23	3.05	
9,690.29	68.06	96.89	9,414.66	1,494.42	209.29	210.86	16.66	16.31	3.72	
9,703.71	70.01	97.89	9,419.46	1,492.80	221.72	223.28	16.11	14.53	7.45	
9,717.14	71.40	98.59	9,423.90	1,490.99	234.26	235.83	11.46	10.35	5.21	
9,730.57	73.03	99.05	9,428.00	1,489.03	246.90	248.46	12.57	12.14	3.43	
9,744.00	75.19	99.13	9,431.68	1,486.99	259.65	261.21	16.09	16.08	0.60	
9,757.33	77.37	98.59	9,434.84	1,484.99	272.45	274.00	16.82	16.35	-4.05	
9,770.67	79.61	98.11	9,437.50	1,483.09	285.38	286.93	17.16	16.79	-3.60	
9,784.00	81.76	97.14	9,439.66	1,481.35	298.42	299.97	17.66	16.13	-7.28	
9,797.33	84.08	96.77	9,441.30	1,479.75	311.55	313.10	17.62	17.40	-2.78	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,810.67	86.36	96.52	9,442.42	1,478.21	324.75	326.30	17.19	17.09	-1.87	
9,824.00	88.59	95.98	9,443.00	1,476.76	337.99	339.53	17.21	16.73	-4.05	
9,837.25	90.70	95.17	9,443.09	1,475.47	351.17	352.72	17.06	15.92	-6.11	
9,850.50	92.68	94.22	9,442.69	1,474.39	364.37	365.92	16.57	14.94	-7.17	
9,863.75	94.28	92.98	9,441.89	1,473.56	377.57	379.12	15.27	12.08	-9.36	
9,877.00	94.95	90.91	9,440.82	1,473.11	390.77	392.31	16.37	5.06	-15.62	
9,890.25	94.98	90.05	9,439.68	1,473.00	403.97	405.51	6.47	0.23	-6.49	
9,903.50	95.00	89.90	9,438.52	1,473.00	417.17	418.71	1.14	0.15	-1.13	
9,916.75	94.04	89.86	9,437.48	1,473.03	430.38	431.92	7.25	-7.25	-0.30	
9,922.32	93.20	89.79	9,437.13	1,473.05	435.94	437.48	15.07	-15.02	-1.21	
02-LP(CH-131H)										
9,930.00	92.05	89.70	9,436.78	1,473.08	443.61	445.15	15.07	-15.02	-1.21	
9,939.00	91.27	89.43	9,436.52	1,473.15	452.61	454.15	9.11	-8.62	-2.95	
EOC: 9939.00' MD, 454.15' VS,9436.52' TVD										
9,943.57	90.88	89.30	9,436.43	1,473.20	457.17	458.72	9.11	-8.62	-2.95	
9,957.14	91.32	89.25	9,436.17	1,473.37	470.74	472.28	3.26	3.24	-0.37	
9,970.71	91.82	89.20	9,435.80	1,473.56	484.30	485.85	3.70	3.68	-0.37	
9,984.29	92.34	89.17	9,435.30	1,473.75	497.87	499.42	3.84	3.83	-0.22	
9,997.86	92.83	89.13	9,434.69	1,473.95	511.43	512.97	3.62	3.61	-0.29	
10,011.43	91.46	89.34	9,434.18	1,474.13	524.99	526.53	10.21	-10.10	1.55	
10,025.00	89.61	89.37	9,434.06	1,474.28	538.56	540.10	13.63	-13.63	0.22	
10,038.29	87.80	89.11	9,434.36	1,474.46	551.84	553.38	13.76	-13.62	-1.96	
10,051.57	88.06	89.05	9,434.84	1,474.67	565.11	566.65	2.01	1.96	-0.45	
10,064.86	88.31	88.99	9,435.26	1,474.90	578.39	579.94	1.93	1.88	-0.45	
10,078.14	88.54	88.92	9,435.62	1,475.14	591.66	593.21	1.81	1.73	-0.53	
10,091.43	88.76	88.86	9,435.94	1,475.40	604.95	606.49	1.72	1.66	-0.45	
10,104.71	87.82	88.65	9,436.33	1,475.69	618.22	619.76	7.25	-7.08	-1.58	
10,118.00	87.88	88.58	9,436.83	1,476.01	631.50	633.04	0.69	0.45	-0.53	
10,131.29	88.05	88.54	9,437.30	1,476.34	644.77	646.32	1.31	1.28	-0.30	
10,144.57	88.21	88.51	9,437.74	1,476.69	658.04	659.59	1.23	1.20	-0.23	
10,157.86	88.36	88.48	9,438.14	1,477.03	671.32	672.87	1.15	1.13	-0.23	
10,171.14	88.51	88.44	9,438.50	1,477.39	684.59	686.14	1.17	1.13	-0.30	
10,184.43	88.67	88.40	9,438.82	1,477.76	697.87	699.42	1.24	1.20	-0.30	
10,197.71	88.83	88.34	9,439.11	1,478.14	711.14	712.69	1.29	1.20	-0.45	
10,211.00	89.00	88.26	9,439.37	1,478.53	724.43	725.97	1.41	1.28	-0.60	
10,224.43	89.20	88.15	9,439.58	1,478.95	737.85	739.40	1.70	1.49	-0.82	
10,237.86	89.42	88.02	9,439.74	1,479.40	751.27	752.82	1.90	1.64	-0.97	
10,251.29	89.63	87.88	9,439.85	1,479.88	764.69	766.24	1.88	1.56	-1.04	
10,264.71	89.85	87.75	9,439.91	1,480.39	778.10	779.65	1.90	1.64	-0.97	
10,278.14	90.04	87.63	9,439.92	1,480.93	791.52	793.07	1.67	1.41	-0.89	
10,291.57	88.86	88.16	9,440.05	1,481.43	804.94	806.49	9.63	-8.79	3.95	
10,305.00	87.76	88.38	9,440.45	1,481.83	818.36	819.91	8.35	-8.19	1.64	
10,318.43	87.89	88.33	9,440.96	1,482.22	831.77	833.32	1.04	0.97	-0.37	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,331.86	88.00	88.29	9,441.44	1,482.61	845.19	846.74	0.87	0.82	-0.30	
10,345.29	88.10	88.27	9,441.90	1,483.01	858.60	860.16	0.76	0.74	-0.15	
10,358.71	88.19	88.25	9,442.33	1,483.42	872.01	873.56	0.69	0.67	-0.15	
10,372.14	88.29	88.23	9,442.74	1,483.83	885.43	886.98	0.76	0.74	-0.15	
10,385.57	88.39	88.21	9,443.13	1,484.25	898.85	900.40	0.76	0.74	-0.15	
10,399.00	88.50	88.19	9,443.50	1,484.67	912.26	913.82	0.83	0.82	-0.15	
10,412.43	88.62	88.15	9,443.84	1,485.10	925.68	927.24	0.94	0.89	-0.30	
10,425.86	88.76	88.10	9,444.14	1,485.54	939.10	940.66	1.11	1.04	-0.37	
10,439.29	88.90	88.05	9,444.42	1,485.99	952.52	954.08	1.11	1.04	-0.37	
10,452.71	89.04	87.99	9,444.66	1,486.46	965.93	967.49	1.13	1.04	-0.45	
10,466.14	89.17	87.92	9,444.87	1,486.93	979.35	980.91	1.10	0.97	-0.52	
10,479.57	89.29	87.85	9,445.05	1,487.43	992.77	994.33	1.03	0.89	-0.52	
10,493.00	89.40	87.77	9,445.20	1,487.94	1,006.19	1,007.75	1.01	0.82	-0.60	
10,506.43	89.47	87.67	9,445.33	1,488.48	1,019.61	1,021.17	0.91	0.52	-0.74	
10,519.86	89.53	87.57	9,445.45	1,489.04	1,033.03	1,034.59	0.87	0.45	-0.74	
10,533.29	89.58	87.46	9,445.56	1,489.62	1,046.44	1,048.00	0.90	0.37	-0.82	
10,546.71	89.64	87.37	9,445.65	1,490.22	1,059.85	1,061.41	0.81	0.45	-0.67	
10,560.14	89.71	87.28	9,445.72	1,490.85	1,073.26	1,074.83	0.85	0.52	-0.67	
10,573.57	89.33	88.35	9,445.84	1,491.36	1,086.68	1,088.25	8.45	-2.83	7.97	
10,587.00	89.10	89.14	9,446.02	1,491.66	1,100.11	1,101.67	6.13	-1.71	5.88	
10,600.43	89.25	89.12	9,446.21	1,491.86	1,113.54	1,115.10	1.13	1.12	-0.15	
10,613.86	89.43	89.11	9,446.37	1,492.07	1,126.96	1,128.53	1.34	1.34	-0.07	
10,627.29	89.61	89.12	9,446.48	1,492.27	1,140.39	1,141.95	1.34	1.34	0.07	
10,640.71	89.80	89.12	9,446.55	1,492.48	1,153.81	1,155.37	1.42	1.42	0.00	
10,654.14	90.00	89.12	9,446.57	1,492.69	1,167.24	1,168.80	1.49	1.49	0.00	
10,667.57	90.19	89.10	9,446.55	1,492.90	1,180.67	1,182.23	1.42	1.41	-0.15	
10,681.00	90.38	89.05	9,446.48	1,493.11	1,194.10	1,195.66	1.46	1.41	-0.37	
10,694.43	90.55	88.97	9,446.37	1,493.34	1,207.52	1,209.09	1.40	1.27	-0.60	
10,707.86	90.72	88.86	9,446.23	1,493.60	1,220.95	1,222.51	1.51	1.27	-0.82	
10,721.29	90.88	88.74	9,446.04	1,493.88	1,234.38	1,235.94	1.49	1.19	-0.89	
10,734.71	91.03	88.62	9,445.81	1,494.19	1,247.79	1,249.35	1.43	1.12	-0.89	
10,748.14	91.17	88.51	9,445.56	1,494.53	1,261.21	1,262.78	1.33	1.04	-0.82	
10,761.57	90.03	88.82	9,445.42	1,494.84	1,274.64	1,276.20	8.80	-8.49	2.31	
10,775.00	89.19	89.26	9,445.51	1,495.06	1,288.07	1,289.63	7.06	-6.25	3.28	
10,788.43	89.29	89.20	9,445.69	1,495.24	1,301.49	1,303.06	0.87	0.74	-0.45	
10,801.86	89.39	89.16	9,445.84	1,495.44	1,314.92	1,316.49	0.80	0.74	-0.30	
10,815.29	89.49	89.12	9,445.97	1,495.64	1,328.35	1,329.91	0.80	0.74	-0.30	
10,828.71	89.59	89.08	9,446.08	1,495.85	1,341.77	1,343.33	0.80	0.75	-0.30	
10,842.14	89.70	89.04	9,446.16	1,496.07	1,355.20	1,356.76	0.87	0.82	-0.30	
10,855.57	89.82	88.99	9,446.22	1,496.30	1,368.62	1,370.19	0.97	0.89	-0.37	
10,869.00	89.97	88.92	9,446.24	1,496.54	1,382.05	1,383.62	1.23	1.12	-0.52	
10,882.43	90.16	88.82	9,446.23	1,496.81	1,395.48	1,397.04	1.60	1.41	-0.74	
10,895.86	90.37	88.70	9,446.17	1,497.10	1,408.90	1,410.47	1.80	1.56	-0.89	
10,909.29	90.60	88.57	9,446.05	1,497.42	1,422.33	1,423.90	1.97	1.71	-0.97	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,922.71	90.82	88.43	9,445.89	1,497.77	1,435.75	1,437.31	1.94	1.64	-1.04
10,936.14	91.04	88.31	9,445.67	1,498.15	1,449.17	1,450.74	1.87	1.64	-0.89
10,949.57	90.10	88.78	9,445.53	1,498.49	1,462.59	1,464.16	7.83	-7.00	3.50
10,963.00	88.89	89.48	9,445.65	1,498.70	1,476.02	1,477.59	10.41	-9.01	5.21
10,976.29	88.49	89.73	9,445.96	1,498.79	1,489.31	1,490.88	3.55	-3.01	1.88
10,989.57	88.67	89.62	9,446.29	1,498.86	1,502.58	1,504.15	1.59	1.36	-0.83
11,002.86	88.84	89.50	9,446.57	1,498.97	1,515.87	1,517.44	1.57	1.28	-0.90
11,016.14	89.02	89.39	9,446.82	1,499.10	1,529.15	1,530.71	1.59	1.36	-0.83
11,029.43	89.19	89.29	9,447.03	1,499.25	1,542.43	1,544.00	1.48	1.28	-0.75
11,042.71	88.75	90.15	9,447.27	1,499.31	1,555.71	1,557.28	7.27	-3.31	6.48
11,056.00	88.55	90.65	9,447.58	1,499.22	1,569.00	1,570.57	4.05	-1.50	3.76
11,069.57	88.73	90.60	9,447.90	1,499.07	1,582.56	1,584.13	1.38	1.33	-0.37
11,083.14	88.91	90.57	9,448.18	1,498.93	1,596.13	1,597.70	1.34	1.33	-0.22
11,096.71	89.09	90.55	9,448.42	1,498.80	1,609.70	1,611.26	1.33	1.33	-0.15
11,110.29	89.27	90.54	9,448.61	1,498.67	1,623.27	1,624.84	1.33	1.33	-0.07
11,123.86	89.46	90.52	9,448.76	1,498.55	1,636.84	1,638.41	1.41	1.40	-0.15
11,137.43	89.66	90.50	9,448.87	1,498.43	1,650.41	1,651.98	1.48	1.47	-0.15
11,151.00	89.88	90.47	9,448.92	1,498.31	1,663.98	1,665.55	1.64	1.62	-0.22
11,164.57	90.11	90.43	9,448.92	1,498.20	1,677.55	1,679.12	1.72	1.69	-0.29
11,178.14	90.36	90.38	9,448.87	1,498.11	1,691.12	1,692.69	1.88	1.84	-0.37
11,191.71	90.61	90.33	9,448.75	1,498.02	1,704.69	1,706.26	1.88	1.84	-0.37
11,205.29	90.86	90.28	9,448.58	1,497.95	1,718.27	1,719.84	1.88	1.84	-0.37
11,218.86	91.10	90.24	9,448.35	1,497.89	1,731.84	1,733.40	1.79	1.77	-0.29
11,232.43	89.96	90.35	9,448.22	1,497.82	1,745.40	1,746.97	8.44	-8.40	0.81
11,246.00	88.45	90.49	9,448.41	1,497.72	1,758.97	1,760.54	11.18	-11.13	1.03
11,259.57	88.39	90.52	9,448.78	1,497.60	1,772.54	1,774.10	0.49	-0.44	0.22
11,273.14	88.56	90.53	9,449.15	1,497.48	1,786.10	1,787.67	1.25	1.25	0.07
11,286.71	88.73	90.55	9,449.47	1,497.35	1,799.67	1,801.23	1.26	1.25	0.15
11,300.29	88.89	90.57	9,449.75	1,497.22	1,813.24	1,814.81	1.19	1.18	0.15
11,313.86	89.04	90.59	9,449.99	1,497.08	1,826.81	1,828.38	1.12	1.11	0.15
11,327.43	89.20	90.61	9,450.20	1,496.94	1,840.38	1,841.94	1.19	1.18	0.15
11,341.00	89.34	90.62	9,450.38	1,496.79	1,853.95	1,855.51	1.03	1.03	0.07
11,354.43	89.48	90.61	9,450.51	1,496.65	1,867.37	1,868.94	1.05	1.04	-0.07
11,367.86	89.51	90.58	9,450.63	1,496.51	1,880.80	1,882.37	0.32	0.22	-0.22
11,381.29	88.03	90.55	9,450.92	1,496.38	1,894.23	1,895.80	11.02	-11.02	-0.22
11,394.71	87.29	90.20	9,451.47	1,496.29	1,907.64	1,909.20	6.10	-5.51	-2.61
11,408.14	87.45	90.16	9,452.08	1,496.25	1,921.05	1,922.62	1.23	1.19	-0.30
11,421.57	87.62	90.13	9,452.66	1,496.21	1,934.47	1,936.04	1.29	1.27	-0.22
11,435.00	87.82	90.11	9,453.20	1,496.18	1,947.89	1,949.46	1.50	1.49	-0.15
11,448.57	88.06	90.10	9,453.68	1,496.16	1,961.45	1,963.02	1.77	1.77	-0.07
11,462.14	88.33	90.10	9,454.11	1,496.14	1,975.01	1,976.58	1.99	1.99	0.00
11,475.71	88.62	90.10	9,454.47	1,496.11	1,988.58	1,990.15	2.14	2.14	0.00
11,489.29	88.91	90.10	9,454.77	1,496.09	2,002.16	2,003.72	2.14	2.14	0.00



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,502.86	89.19	90.08	9,454.99	1,496.07	2,015.73	2,017.29	2.07	2.06	-0.15	
11,516.43	89.46	90.05	9,455.15	1,496.05	2,029.29	2,030.86	2.00	1.99	-0.22	
11,530.00	89.70	89.99	9,455.25	1,496.05	2,042.86	2,044.43	1.82	1.77	-0.44	
11,543.57	89.89	89.87	9,455.30	1,496.06	2,056.43	2,058.00	1.66	1.40	-0.88	
11,557.14	90.05	89.73	9,455.31	1,496.11	2,070.00	2,071.57	1.57	1.18	-1.03	
11,570.71	90.20	89.58	9,455.28	1,496.19	2,083.57	2,085.14	1.56	1.11	-1.11	
11,584.29	90.34	89.43	9,455.21	1,496.31	2,097.15	2,098.72	1.51	1.03	-1.10	
11,597.86	90.49	89.30	9,455.11	1,496.46	2,110.72	2,112.29	1.46	1.11	-0.96	
11,611.43	89.28	89.70	9,455.14	1,496.58	2,124.29	2,125.86	9.39	-8.92	2.95	
11,625.00	87.77	90.00	9,455.49	1,496.61	2,137.86	2,139.42	11.34	-11.13	2.21	
11,638.29	87.11	90.02	9,456.08	1,496.61	2,151.13	2,152.70	4.97	-4.97	0.15	
11,651.57	87.30	89.98	9,456.73	1,496.61	2,164.40	2,165.96	1.46	1.43	-0.30	
11,664.86	87.51	89.95	9,457.33	1,496.62	2,177.67	2,179.24	1.60	1.58	-0.23	
11,678.14	87.72	89.93	9,457.89	1,496.63	2,190.94	2,192.51	1.59	1.58	-0.15	
11,691.43	87.94	89.91	9,458.39	1,496.65	2,204.22	2,205.79	1.66	1.66	-0.15	
11,704.71	88.16	89.90	9,458.84	1,496.67	2,217.49	2,219.06	1.66	1.66	-0.08	
11,718.00	88.38	89.88	9,459.24	1,496.70	2,230.78	2,232.34	1.66	1.66	-0.15	
11,731.57	88.61	89.86	9,459.60	1,496.73	2,244.34	2,245.91	1.70	1.69	-0.15	
11,745.14	88.84	89.83	9,459.90	1,496.77	2,257.91	2,259.48	1.71	1.69	-0.22	
11,758.71	89.05	89.81	9,460.15	1,496.81	2,271.48	2,273.04	1.55	1.55	-0.15	
11,772.29	89.25	89.77	9,460.35	1,496.86	2,285.06	2,286.62	1.50	1.47	-0.29	
11,785.86	89.43	89.72	9,460.51	1,496.92	2,298.62	2,300.19	1.38	1.33	-0.37	
11,799.43	89.58	89.65	9,460.62	1,496.99	2,312.19	2,313.76	1.22	1.11	-0.52	
11,813.00	89.67	89.55	9,460.71	1,497.09	2,325.76	2,327.33	0.99	0.66	-0.74	
11,826.29	89.68	89.40	9,460.79	1,497.21	2,339.05	2,340.62	1.13	0.08	-1.13	
11,839.57	89.64	89.23	9,460.87	1,497.37	2,352.33	2,353.90	1.32	-0.30	-1.28	
11,852.86	89.59	89.05	9,460.96	1,497.57	2,365.62	2,367.19	1.41	-0.38	-1.35	
11,866.14	89.54	88.87	9,461.06	1,497.81	2,378.90	2,380.46	1.41	-0.38	-1.36	
11,879.43	89.51	88.70	9,461.17	1,498.09	2,392.18	2,393.75	1.30	-0.23	-1.28	
11,892.71	88.27	88.57	9,461.43	1,498.41	2,405.46	2,407.02	9.39	-9.34	-0.98	
11,906.00	86.90	88.87	9,461.99	1,498.71	2,418.73	2,420.30	10.55	-10.31	2.26	
11,919.57	85.75	89.08	9,462.86	1,498.95	2,432.27	2,433.84	8.61	-8.47	1.55	
11,933.14	85.88	88.95	9,463.85	1,499.18	2,445.80	2,447.37	1.35	0.96	-0.96	
11,946.71	86.04	88.83	9,464.80	1,499.44	2,459.34	2,460.91	1.47	1.18	-0.88	
11,960.29	86.21	88.71	9,465.72	1,499.73	2,472.88	2,474.45	1.53	1.25	-0.88	
11,973.86	86.39	88.60	9,466.60	1,500.05	2,486.42	2,487.99	1.55	1.33	-0.81	
11,985.67	86.56	88.51	9,467.32	1,500.35	2,498.21	2,499.78	1.65	1.47	-0.74	
03-2500VS(CH-131H)										
11,987.43	86.59	88.50	9,467.43	1,500.39	2,499.96	2,501.53	1.65	1.47	-0.74	
12,001.00	86.81	88.42	9,468.21	1,500.76	2,513.50	2,515.07	1.72	1.62	-0.59	
12,014.29	87.05	88.38	9,468.92	1,501.13	2,526.77	2,528.34	1.83	1.81	-0.30	
12,027.57	87.30	88.35	9,469.57	1,501.51	2,540.03	2,541.60	1.90	1.88	-0.23	
12,040.86	87.55	88.34	9,470.17	1,501.89	2,553.30	2,554.87	1.88	1.88	-0.08	
12,054.14	87.81	88.33	9,470.71	1,502.28	2,566.56	2,568.13	1.96	1.96	-0.08	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,067.43	88.06	88.32	9,471.19	1,502.66	2,579.84	2,581.41	1.88	1.88	-0.08
12,080.71	88.30	88.30	9,471.61	1,503.06	2,593.11	2,594.68	1.81	1.81	-0.15
12,094.00	88.51	88.28	9,471.98	1,503.45	2,606.38	2,607.96	1.59	1.58	-0.15
12,107.43	88.70	88.24	9,472.31	1,503.86	2,619.80	2,621.38	1.45	1.41	-0.30
12,120.86	88.85	88.19	9,472.59	1,504.28	2,633.22	2,634.80	1.18	1.12	-0.37
12,134.29	89.00	88.12	9,472.84	1,504.71	2,646.65	2,648.22	1.23	1.12	-0.52
12,147.71	89.13	88.06	9,473.06	1,505.16	2,660.06	2,661.63	1.07	0.97	-0.45
12,161.14	89.26	87.98	9,473.25	1,505.62	2,673.48	2,675.05	1.14	0.97	-0.60
12,174.57	89.39	87.90	9,473.41	1,506.10	2,686.90	2,688.47	1.14	0.97	-0.60
12,188.00	89.52	87.82	9,473.54	1,506.61	2,700.32	2,701.89	1.14	0.97	-0.60
12,201.43	89.65	87.72	9,473.64	1,507.13	2,713.74	2,715.31	1.22	0.97	-0.74
12,214.86	89.79	87.62	9,473.70	1,507.67	2,727.16	2,728.73	1.28	1.04	-0.74
12,228.29	89.93	87.51	9,473.73	1,508.24	2,740.57	2,742.15	1.33	1.04	-0.82
12,241.71	90.08	87.40	9,473.73	1,508.84	2,753.98	2,755.56	1.39	1.12	-0.82
12,255.14	90.23	87.27	9,473.70	1,509.46	2,767.40	2,768.97	1.48	1.12	-0.97
12,268.57	89.55	87.96	9,473.72	1,510.02	2,780.81	2,782.39	7.21	-5.06	5.14
12,282.00	88.91	89.04	9,473.90	1,510.38	2,794.24	2,795.82	9.35	-4.77	8.04
12,295.57	88.47	89.85	9,474.21	1,510.51	2,807.80	2,809.38	6.79	-3.24	5.97
12,309.14	88.65	89.61	9,474.55	1,510.57	2,821.37	2,822.95	2.21	1.33	-1.77
12,322.71	88.83	89.35	9,474.85	1,510.69	2,834.93	2,836.52	2.33	1.33	-1.92
12,336.29	89.01	89.09	9,475.11	1,510.88	2,848.51	2,850.09	2.33	1.33	-1.91
12,349.86	89.18	88.85	9,475.32	1,511.12	2,862.08	2,863.66	2.17	1.25	-1.77
12,363.43	88.81	89.62	9,475.56	1,511.30	2,875.64	2,877.22	6.29	-2.73	5.67
12,377.00	88.06	90.52	9,475.93	1,511.29	2,889.21	2,890.79	8.63	-5.53	6.63
12,390.43	87.80	90.83	9,476.42	1,511.13	2,902.63	2,904.21	3.01	-1.94	2.31
12,403.86	87.96	90.75	9,476.91	1,510.94	2,916.05	2,917.63	1.33	1.19	-0.60
12,417.29	88.13	90.69	9,477.37	1,510.78	2,929.47	2,931.05	1.34	1.27	-0.45
12,430.71	88.30	90.64	9,477.79	1,510.62	2,942.88	2,944.46	1.32	1.27	-0.37
12,444.14	88.47	90.60	9,478.17	1,510.47	2,956.31	2,957.89	1.30	1.27	-0.30
12,457.57	88.64	90.56	9,478.51	1,510.34	2,969.73	2,971.31	1.30	1.27	-0.30
12,471.00	88.82	90.54	9,478.80	1,510.21	2,983.16	2,984.74	1.35	1.34	-0.15
12,484.29	89.01	90.52	9,479.06	1,510.09	2,996.44	2,998.02	1.44	1.43	-0.15
12,497.57	89.20	90.50	9,479.26	1,509.97	3,009.72	3,011.30	1.44	1.43	-0.15
12,510.86	89.40	90.48	9,479.43	1,509.85	3,023.01	3,024.59	1.51	1.50	-0.15
12,524.14	89.60	90.46	9,479.54	1,509.75	3,036.29	3,037.87	1.51	1.51	-0.15
12,537.43	89.82	90.42	9,479.61	1,509.64	3,049.58	3,051.16	1.68	1.66	-0.30
12,550.71	90.04	90.36	9,479.63	1,509.55	3,062.86	3,064.44	1.72	1.66	-0.45
12,564.00	90.28	90.27	9,479.59	1,509.48	3,076.15	3,077.73	1.93	1.81	-0.68
12,577.57	90.55	90.12	9,479.49	1,509.43	3,089.72	3,091.30	2.28	1.99	-1.11
12,591.14	90.83	89.94	9,479.33	1,509.43	3,103.29	3,104.87	2.45	2.06	-1.33
12,604.71	91.12	89.76	9,479.10	1,509.46	3,116.85	3,118.43	2.52	2.14	-1.33
12,618.29	91.41	89.58	9,478.80	1,509.54	3,130.43	3,132.01	2.51	2.14	-1.33
12,631.86	91.36	89.53	9,478.47	1,509.65	3,144.00	3,145.58	0.52	-0.37	-0.37



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,645.43	90.10	89.87	9,478.29	1,509.72	3,157.57	3,159.14	9.62	-9.29	2.51
12,659.00	89.07	90.71	9,478.39	1,509.65	3,171.13	3,172.71	9.79	-7.59	6.19
12,672.43	89.13	90.77	9,478.60	1,509.48	3,184.56	3,186.14	0.63	0.45	0.45
12,685.86	89.48	90.81	9,478.77	1,509.29	3,197.99	3,199.57	2.62	2.61	0.30
12,699.29	89.82	90.87	9,478.85	1,509.09	3,211.42	3,213.00	2.57	2.53	0.45
12,712.71	90.15	90.92	9,478.85	1,508.88	3,224.84	3,226.41	2.49	2.46	0.37
12,726.14	90.14	91.03	9,478.82	1,508.65	3,238.26	3,239.84	0.82	-0.07	0.82
12,739.57	88.97	91.45	9,478.92	1,508.36	3,251.69	3,253.27	9.26	-8.71	3.13
12,753.00	89.08	91.35	9,479.15	1,508.04	3,265.11	3,266.69	1.11	0.82	-0.74
12,766.43	89.18	91.13	9,479.36	1,507.75	3,278.54	3,280.12	1.80	0.74	-1.64
12,779.86	89.24	90.86	9,479.54	1,507.51	3,291.97	3,293.54	2.06	0.45	-2.01
12,793.29	89.25	90.55	9,479.72	1,507.35	3,305.39	3,306.97	2.31	0.07	-2.31
12,806.71	89.24	90.22	9,479.89	1,507.26	3,318.81	3,320.39	2.46	-0.07	-2.46
12,820.14	89.22	89.90	9,480.07	1,507.24	3,332.24	3,333.82	2.39	-0.15	-2.38
12,833.57	89.18	89.61	9,480.26	1,507.30	3,345.67	3,347.25	2.18	-0.30	-2.16
12,847.00	89.14	89.36	9,480.46	1,507.42	3,359.10	3,360.67	1.88	-0.30	-1.86
12,860.43	89.11	89.19	9,480.66	1,507.59	3,372.53	3,374.10	1.29	-0.22	-1.27
12,873.86	89.07	89.07	9,480.88	1,507.79	3,385.95	3,387.53	0.94	-0.30	-0.89
12,887.29	89.04	88.98	9,481.10	1,508.02	3,399.38	3,400.96	0.71	-0.22	-0.67
12,900.71	89.01	88.91	9,481.33	1,508.27	3,412.79	3,414.37	0.57	-0.22	-0.52
12,914.14	88.99	88.85	9,481.56	1,508.53	3,426.22	3,427.80	0.47	-0.15	-0.45
12,927.57	87.88	89.06	9,481.93	1,508.78	3,439.64	3,441.22	8.41	-8.27	1.56
12,941.00	86.75	89.30	9,482.56	1,508.97	3,453.06	3,454.63	8.60	-8.41	1.79
12,954.43	86.72	89.25	9,483.32	1,509.14	3,466.46	3,468.04	0.43	-0.22	-0.37
12,967.86	86.69	89.19	9,484.09	1,509.32	3,479.87	3,481.45	0.50	-0.22	-0.45
12,981.29	86.67	89.15	9,484.87	1,509.52	3,493.28	3,494.85	0.33	-0.15	-0.30
12,994.71	86.68	89.10	9,485.65	1,509.72	3,506.67	3,508.25	0.38	0.07	-0.37
13,008.14	86.75	89.06	9,486.42	1,509.94	3,520.08	3,521.66	0.60	0.52	-0.30
13,021.57	87.27	89.69	9,487.12	1,510.08	3,533.49	3,535.07	6.08	3.87	4.69
13,035.00	88.06	89.98	9,487.67	1,510.12	3,546.91	3,548.49	6.27	5.88	2.16
13,048.43	88.44	89.97	9,488.08	1,510.13	3,560.33	3,561.91	2.83	2.83	-0.07
13,061.86	88.90	89.97	9,488.39	1,510.13	3,573.76	3,575.34	3.43	3.43	0.00
13,075.29	89.38	89.96	9,488.59	1,510.14	3,587.19	3,588.76	3.57	3.57	-0.07
13,088.71	89.87	89.94	9,488.68	1,510.15	3,600.60	3,602.18	3.65	3.65	-0.15
13,102.14	90.32	89.89	9,488.66	1,510.17	3,614.03	3,615.61	3.37	3.35	-0.37
13,115.57	90.68	89.78	9,488.54	1,510.21	3,627.46	3,629.04	2.80	2.68	-0.82
13,129.00	90.91	89.61	9,488.35	1,510.28	3,640.89	3,642.47	2.13	1.71	-1.27
13,142.57	90.91	89.31	9,488.14	1,510.41	3,654.46	3,656.04	2.21	0.00	-2.21
13,156.14	90.78	88.95	9,487.94	1,510.62	3,668.03	3,669.61	2.82	-0.96	-2.65
13,169.71	90.59	88.57	9,487.78	1,510.91	3,681.59	3,683.17	3.13	-1.40	-2.80
13,183.29	90.38	88.20	9,487.66	1,511.29	3,695.17	3,696.75	3.13	-1.55	-2.72
13,196.86	89.45	88.30	9,487.68	1,511.71	3,708.73	3,710.31	6.89	-6.85	0.74
13,210.43	87.92	88.72	9,487.99	1,512.06	3,722.29	3,723.87	11.69	-11.27	3.10



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,224.00	87.22	88.76	9,488.57	1,512.36	3,735.85	3,737.43	5.17	-5.16	0.29
13,237.43	87.22	88.60	9,489.22	1,512.67	3,749.26	3,750.84	1.19	0.00	-1.19
13,250.86	87.25	88.48	9,489.87	1,513.01	3,762.67	3,764.25	0.92	0.22	-0.89
13,264.29	87.30	88.38	9,490.50	1,513.38	3,776.08	3,777.66	0.83	0.37	-0.74
13,277.71	87.36	88.30	9,491.13	1,513.77	3,789.48	3,791.06	0.74	0.45	-0.60
13,291.14	87.42	88.23	9,491.74	1,514.17	3,802.89	3,804.47	0.69	0.45	-0.52
13,304.57	87.46	88.17	9,492.34	1,514.59	3,816.30	3,817.88	0.54	0.30	-0.45
13,318.00	87.46	88.12	9,492.94	1,515.03	3,829.71	3,831.29	0.37	0.00	-0.37
13,331.57	87.40	88.06	9,493.55	1,515.48	3,843.26	3,844.84	0.62	-0.44	-0.44
13,345.14	87.30	88.00	9,494.17	1,515.95	3,856.80	3,858.39	0.86	-0.74	-0.44
13,358.71	87.20	87.94	9,494.82	1,516.43	3,870.35	3,871.93	0.86	-0.74	-0.44
13,372.29	87.09	87.89	9,495.50	1,516.92	3,883.90	3,885.49	0.89	-0.81	-0.37
13,385.86	87.00	87.85	9,496.20	1,517.42	3,897.45	3,899.03	0.73	-0.66	-0.29
13,399.43	86.79	89.20	9,496.93	1,517.77	3,910.99	3,912.58	10.05	-1.55	9.95
13,413.00	86.71	89.52	9,497.70	1,517.92	3,924.54	3,926.13	2.43	-0.59	2.36
13,427.83	86.71	89.57	9,498.56	1,518.04	3,939.34	3,940.93	0.34	0.00	0.34
13,442.67	86.78	89.59	9,499.40	1,518.15	3,954.16	3,955.75	0.49	0.47	0.13
13,457.50	86.86	89.61	9,500.22	1,518.25	3,968.97	3,970.55	0.56	0.54	0.13
13,472.33	86.95	89.62	9,501.02	1,518.35	3,983.77	3,985.36	0.61	0.61	0.07
13,487.17	87.09	90.36	9,501.79	1,518.35	3,998.59	4,000.18	5.07	0.94	4.99
13,502.00	87.30	92.05	9,502.52	1,518.04	4,013.40	4,014.99	11.47	1.42	11.40
13,516.29	87.34	92.01	9,503.19	1,517.54	4,027.67	4,029.25	0.40	0.28	-0.28
13,530.57	87.36	91.95	9,503.85	1,517.04	4,041.92	4,043.51	0.44	0.14	-0.42
13,544.86	87.39	91.88	9,504.50	1,516.57	4,056.19	4,057.78	0.53	0.21	-0.49
13,559.14	87.42	91.80	9,505.15	1,516.11	4,070.45	4,072.03	0.60	0.21	-0.56
13,573.43	87.48	91.70	9,505.78	1,515.67	4,084.72	4,086.30	0.82	0.42	-0.70
13,587.71	87.58	91.59	9,506.40	1,515.26	4,098.98	4,100.56	1.04	0.70	-0.77
13,602.00	87.73	91.44	9,506.98	1,514.89	4,113.25	4,114.84	1.48	1.05	-1.05
13,615.29	87.97	91.26	9,507.48	1,514.57	4,126.53	4,128.11	2.26	1.81	-1.35
13,628.57	88.25	91.06	9,507.92	1,514.31	4,139.80	4,141.38	2.59	2.11	-1.51
13,641.86	88.57	90.84	9,508.29	1,514.08	4,153.08	4,154.66	2.92	2.41	-1.66
13,655.14	88.88	90.62	9,508.58	1,513.92	4,166.36	4,167.94	2.86	2.33	-1.66
13,668.43	89.19	90.40	9,508.81	1,513.80	4,179.64	4,181.23	2.86	2.33	-1.66
13,681.71	89.46	90.20	9,508.96	1,513.73	4,192.92	4,194.51	2.53	2.03	-1.51
13,695.00	89.67	90.03	9,509.07	1,513.70	4,206.21	4,207.80	2.03	1.58	-1.28
13,708.57	89.78	89.91	9,509.13	1,513.71	4,219.78	4,221.37	1.20	0.81	-0.88
13,722.14	89.83	89.82	9,509.18	1,513.74	4,233.35	4,234.94	0.76	0.37	-0.66
13,735.71	89.84	89.75	9,509.22	1,513.79	4,246.92	4,248.51	0.52	0.07	-0.52
13,749.29	89.86	89.69	9,509.25	1,513.86	4,260.50	4,262.09	0.47	0.15	-0.44
13,762.86	89.89	89.64	9,509.28	1,513.94	4,274.07	4,275.66	0.43	0.22	-0.37
13,776.43	88.58	90.32	9,509.46	1,513.94	4,287.64	4,289.22	10.88	-9.65	5.01
13,790.00	88.60	90.34	9,509.80	1,513.86	4,301.21	4,302.79	0.21	0.15	0.15
13,803.57	88.82	90.32	9,510.10	1,513.79	4,314.77	4,316.36	1.63	1.62	-0.15
13,817.14	89.10	90.31	9,510.35	1,513.71	4,328.34	4,329.92	2.06	2.06	-0.07



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,830.71	89.41	90.29	9,510.52	1,513.64	4,341.91	4,343.49	2.29	2.28	-0.15
13,844.29	89.73	90.28	9,510.63	1,513.57	4,355.49	4,357.07	2.36	2.36	-0.07
13,857.86	90.05	90.26	9,510.65	1,513.51	4,369.06	4,370.64	2.36	2.36	-0.15
13,871.43	90.36	90.23	9,510.60	1,513.45	4,382.63	4,384.21	2.30	2.28	-0.22
13,885.00	90.64	90.19	9,510.49	1,513.40	4,396.20	4,397.78	2.08	2.06	-0.29
13,898.29	90.85	90.12	9,510.31	1,513.36	4,409.49	4,411.07	1.67	1.58	-0.53
13,911.57	91.03	90.03	9,510.09	1,513.35	4,422.76	4,424.35	1.52	1.36	-0.68
13,924.86	91.19	89.94	9,509.84	1,513.35	4,436.05	4,437.63	1.38	1.20	-0.68
13,938.14	91.33	89.84	9,509.55	1,513.38	4,449.33	4,450.91	1.30	1.05	-0.75
13,951.43	91.47	89.74	9,509.22	1,513.42	4,462.61	4,464.20	1.29	1.05	-0.75
13,964.71	91.62	89.64	9,508.86	1,513.50	4,475.89	4,477.47	1.36	1.13	-0.75
13,978.00	91.78	89.54	9,508.47	1,513.59	4,489.17	4,490.76	1.42	1.20	-0.75
13,991.57	91.97	89.45	9,508.02	1,513.71	4,502.74	4,504.32	1.55	1.40	-0.66
14,005.14	92.17	89.36	9,507.53	1,513.85	4,516.30	4,517.88	1.62	1.47	-0.66
14,018.71	92.38	89.28	9,507.00	1,514.01	4,529.85	4,531.44	1.66	1.55	-0.59
14,032.29	92.59	89.20	9,506.41	1,514.19	4,543.42	4,545.00	1.65	1.55	-0.59
14,045.86	92.79	89.12	9,505.77	1,514.39	4,556.97	4,558.56	1.59	1.47	-0.59
14,059.43	92.97	89.04	9,505.09	1,514.61	4,570.52	4,572.11	1.45	1.33	-0.59
14,073.00	93.13	88.95	9,504.37	1,514.85	4,584.07	4,585.66	1.35	1.18	-0.66
14,086.43	93.25	88.87	9,503.62	1,515.10	4,597.48	4,599.06	1.07	0.89	-0.60
14,099.86	93.33	88.78	9,502.85	1,515.38	4,610.89	4,612.47	0.90	0.60	-0.67
14,113.29	93.41	88.69	9,502.06	1,515.67	4,624.29	4,625.87	0.90	0.60	-0.67
14,126.71	93.47	88.60	9,501.25	1,515.99	4,637.68	4,639.27	0.81	0.45	-0.67
14,140.14	93.52	88.52	9,500.43	1,516.33	4,651.08	4,652.67	0.70	0.37	-0.60
14,153.57	92.61	88.87	9,499.72	1,516.63	4,664.49	4,666.07	7.26	-6.78	2.61
14,167.00	92.25	89.04	9,499.15	1,516.88	4,677.90	4,679.49	2.96	-2.68	1.27
14,180.43	92.29	88.96	9,498.62	1,517.11	4,691.32	4,692.91	0.67	0.30	-0.60
14,193.86	92.32	88.89	9,498.07	1,517.36	4,704.74	4,706.33	0.57	0.22	-0.52
14,207.29	92.35	88.81	9,497.53	1,517.63	4,718.15	4,719.74	0.64	0.22	-0.60
14,220.71	92.37	88.74	9,496.98	1,517.92	4,731.56	4,733.15	0.54	0.15	-0.52
14,234.14	92.38	88.66	9,496.42	1,518.22	4,744.98	4,746.56	0.60	0.07	-0.60
14,247.57	91.58	89.28	9,495.95	1,518.46	4,758.40	4,759.98	7.53	-5.96	4.62
14,261.00	90.98	89.68	9,495.65	1,518.59	4,771.82	4,773.41	5.37	-4.47	2.98
14,274.43	90.90	89.57	9,495.43	1,518.67	4,785.25	4,786.84	1.01	-0.60	-0.82
14,287.86	90.81	89.44	9,495.23	1,518.79	4,798.68	4,800.26	1.18	-0.67	-0.97
14,301.29	90.71	89.32	9,495.06	1,518.94	4,812.11	4,813.69	1.16	-0.74	-0.89
14,314.71	90.62	89.20	9,494.90	1,519.11	4,825.52	4,827.11	1.12	-0.67	-0.89
14,328.14	90.55	89.08	9,494.76	1,519.31	4,838.95	4,840.54	1.03	-0.52	-0.89
14,341.57	89.67	89.67	9,494.74	1,519.46	4,852.38	4,853.97	7.89	-6.55	4.39
14,355.00	89.33	89.64	9,494.85	1,519.54	4,865.81	4,867.40	2.54	-2.53	-0.22
14,368.43	89.38	89.56	9,495.01	1,519.63	4,879.24	4,880.83	0.70	0.37	-0.60
14,381.86	89.47	89.48	9,495.14	1,519.74	4,892.67	4,894.26	0.90	0.67	-0.60
14,395.29	89.59	89.41	9,495.25	1,519.87	4,906.10	4,907.68	1.03	0.89	-0.52



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,408.71	89.72	89.34	9,495.33	1,520.02	4,919.51	4,921.10	1.10	0.97	-0.52
14,422.14	89.86	89.26	9,495.38	1,520.18	4,932.94	4,934.53	1.20	1.04	-0.60
14,435.57	90.02	89.18	9,495.39	1,520.37	4,946.37	4,947.96	1.33	1.19	-0.60
14,449.00	90.20	89.09	9,495.37	1,520.57	4,959.80	4,961.39	1.50	1.34	-0.67
14,462.14	90.38	88.99	9,495.30	1,520.79	4,972.94	4,974.53	1.57	1.37	-0.76
14,475.29	90.58	88.88	9,495.19	1,521.03	4,986.09	4,987.68	1.74	1.52	-0.84
14,487.32	90.76	88.78	9,495.05	1,521.28	4,998.12	4,999.71	1.74	1.52	-0.84
04-5000VS(CH-131H)									
14,488.43	90.78	88.77	9,495.04	1,521.30	4,999.22	5,000.81	1.74	1.52	-0.84
14,501.57	90.98	88.65	9,494.83	1,521.60	5,012.36	5,013.95	1.77	1.52	-0.91
14,514.71	91.17	88.54	9,494.59	1,521.92	5,025.49	5,027.08	1.67	1.45	-0.84
14,527.86	91.33	88.43	9,494.30	1,522.27	5,038.63	5,040.22	1.48	1.22	-0.84
14,541.00	91.46	88.33	9,493.98	1,522.64	5,051.76	5,053.36	1.25	0.99	-0.76
14,554.57	91.55	88.24	9,493.62	1,523.05	5,065.32	5,066.92	0.94	0.66	-0.66
14,568.14	91.60	88.16	9,493.25	1,523.47	5,078.88	5,080.47	0.70	0.37	-0.59
14,581.71	91.62	88.09	9,492.87	1,523.92	5,092.44	5,094.03	0.54	0.15	-0.52
14,595.29	91.62	88.03	9,492.49	1,524.38	5,106.01	5,107.60	0.44	0.00	-0.44
14,608.86	91.60	87.97	9,492.11	1,524.85	5,119.56	5,121.16	0.47	-0.15	-0.44
14,622.43	90.68	88.19	9,491.84	1,525.30	5,133.12	5,134.72	6.97	-6.78	1.62
14,636.00	90.20	88.66	9,491.73	1,525.68	5,146.69	5,148.28	4.95	-3.54	3.46
14,649.43	90.09	88.64	9,491.70	1,525.99	5,160.11	5,161.71	0.83	-0.82	-0.15
14,662.86	89.95	88.62	9,491.69	1,526.31	5,173.54	5,175.13	1.05	-1.04	-0.15
14,676.29	89.81	88.60	9,491.72	1,526.64	5,186.96	5,188.56	1.05	-1.04	-0.15
14,689.71	89.68	88.59	9,491.78	1,526.97	5,200.38	5,201.98	0.97	-0.97	-0.07
14,703.14	89.56	88.58	9,491.87	1,527.30	5,213.81	5,215.40	0.90	-0.89	-0.07
14,716.57	88.81	89.07	9,492.06	1,527.58	5,227.23	5,228.83	6.67	-5.58	3.65
14,730.00	88.77	89.05	9,492.34	1,527.80	5,240.66	5,242.25	0.33	-0.30	-0.15
14,743.57	88.81	89.03	9,492.63	1,528.02	5,254.22	5,255.82	0.33	0.29	-0.15
14,757.14	88.88	89.01	9,492.90	1,528.26	5,267.79	5,269.38	0.54	0.52	-0.15
14,770.71	88.99	88.99	9,493.16	1,528.49	5,281.35	5,282.95	0.82	0.81	-0.15
14,784.29	89.10	88.95	9,493.38	1,528.74	5,294.93	5,296.53	0.86	0.81	-0.29
14,797.86	89.22	88.90	9,493.58	1,528.99	5,308.49	5,310.09	0.96	0.88	-0.37
14,811.43	89.33	88.83	9,493.75	1,529.26	5,322.06	5,323.66	0.96	0.81	-0.52
14,825.00	89.43	88.73	9,493.90	1,529.55	5,335.63	5,337.23	1.04	0.74	-0.74
14,838.57	89.49	88.57	9,494.03	1,529.87	5,349.19	5,350.79	1.26	0.44	-1.18
14,852.14	89.53	88.39	9,494.14	1,530.23	5,362.76	5,364.36	1.36	0.29	-1.33
14,865.71	89.55	88.19	9,494.25	1,530.63	5,376.32	5,377.92	1.48	0.15	-1.47
14,879.29	89.54	87.99	9,494.36	1,531.09	5,389.89	5,391.49	1.47	-0.07	-1.47
14,892.86	89.51	87.78	9,494.47	1,531.59	5,403.45	5,405.05	1.56	-0.22	-1.55
14,906.43	89.44	87.57	9,494.60	1,532.14	5,417.01	5,418.61	1.63	-0.52	-1.55
14,920.00	89.32	87.38	9,494.74	1,532.74	5,430.57	5,432.17	1.66	-0.88	-1.40
14,933.43	89.12	87.23	9,494.93	1,533.37	5,443.98	5,445.58	1.86	-1.49	-1.12
14,946.86	88.89	87.09	9,495.16	1,534.03	5,457.39	5,459.00	2.00	-1.71	-1.04



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,960.29	88.63	86.96	9,495.45	1,534.73	5,470.80	5,472.41	2.16	-1.94	-0.97
14,973.71	88.38	86.84	9,495.80	1,535.45	5,484.20	5,485.80	2.07	-1.86	-0.89
14,987.14	88.23	87.23	9,496.20	1,536.15	5,497.60	5,499.21	3.11	-1.12	2.90
15,000.57	88.19	88.27	9,496.62	1,536.68	5,511.02	5,512.62	7.75	-0.30	7.74
15,014.00	88.23	89.29	9,497.04	1,536.96	5,524.44	5,526.04	7.60	0.30	7.59
15,027.57	88.40	89.71	9,497.44	1,537.08	5,538.00	5,539.61	3.34	1.25	3.10
15,041.14	88.19	89.61	9,497.84	1,537.16	5,551.56	5,553.17	1.71	-1.55	-0.74
15,054.71	87.98	89.52	9,498.29	1,537.26	5,565.13	5,566.73	1.68	-1.55	-0.66
15,068.29	87.78	89.44	9,498.80	1,537.39	5,578.70	5,580.30	1.59	-1.47	-0.59
15,081.86	87.68	89.61	9,499.33	1,537.50	5,592.26	5,593.86	1.45	-0.74	1.25
15,095.43	87.90	90.63	9,499.86	1,537.47	5,605.81	5,607.42	7.68	1.62	7.52
15,109.00	88.05	91.68	9,500.34	1,537.20	5,619.37	5,620.98	7.81	1.11	7.74
15,122.43	88.22	92.21	9,500.77	1,536.74	5,632.79	5,634.39	4.14	1.27	3.95
15,135.86	88.09	92.26	9,501.21	1,536.22	5,646.20	5,647.81	1.04	-0.97	0.37
15,149.29	87.96	92.33	9,501.67	1,535.68	5,659.61	5,661.22	1.10	-0.97	0.52
15,162.71	87.84	92.40	9,502.16	1,535.13	5,673.01	5,674.62	1.04	-0.89	0.52
15,176.14	87.74	92.46	9,502.68	1,534.56	5,686.42	5,688.02	0.87	-0.74	0.45
15,189.57	87.67	92.49	9,503.22	1,533.98	5,699.83	5,701.43	0.57	-0.52	0.22
15,203.00	87.63	92.46	9,503.77	1,533.40	5,713.23	5,714.84	0.37	-0.30	-0.22
15,216.43	87.65	92.36	9,504.32	1,532.84	5,726.64	5,728.24	0.76	0.15	-0.74
15,229.86	87.71	92.20	9,504.86	1,532.30	5,740.05	5,741.65	1.27	0.45	-1.19
15,243.29	87.79	92.02	9,505.39	1,531.81	5,753.46	5,755.06	1.47	0.60	-1.34
15,256.71	87.87	91.83	9,505.90	1,531.36	5,766.86	5,768.46	1.54	0.60	-1.42
15,270.14	88.21	91.86	9,506.36	1,530.92	5,780.28	5,781.88	2.54	2.53	0.22
15,283.57	88.99	92.24	9,506.69	1,530.44	5,793.69	5,795.29	6.46	5.81	2.83
15,297.00	89.79	92.76	9,506.83	1,529.86	5,807.11	5,808.71	7.10	5.96	3.87
15,310.29	89.83	92.62	9,506.87	1,529.23	5,820.39	5,821.98	1.10	0.30	-1.05
15,323.57	89.86	92.47	9,506.91	1,528.65	5,833.65	5,835.25	1.15	0.23	-1.13
15,336.86	89.90	92.33	9,506.94	1,528.09	5,846.93	5,848.53	1.10	0.30	-1.05
15,350.14	89.93	92.18	9,506.96	1,527.57	5,860.20	5,861.80	1.15	0.23	-1.13
15,363.43	89.97	92.02	9,506.97	1,527.08	5,873.48	5,875.08	1.24	0.30	-1.20
15,376.71	90.01	91.86	9,506.97	1,526.63	5,886.75	5,888.35	1.24	0.30	-1.20
15,390.00	90.06	91.68	9,506.96	1,526.22	5,900.04	5,901.63	1.41	0.38	-1.35
15,403.43	90.11	91.47	9,506.94	1,525.85	5,913.46	5,915.06	1.61	0.37	-1.56
15,416.86	90.16	91.25	9,506.91	1,525.53	5,926.89	5,928.48	1.68	0.37	-1.64
15,430.29	90.20	91.02	9,506.87	1,525.27	5,940.32	5,941.91	1.74	0.30	-1.71
15,443.71	90.22	90.77	9,506.82	1,525.06	5,953.73	5,955.33	1.87	0.15	-1.86
15,457.14	90.22	90.52	9,506.77	1,524.90	5,967.16	5,968.76	1.86	0.00	-1.86
15,470.57	90.18	90.26	9,506.72	1,524.81	5,980.59	5,982.19	1.96	-0.30	-1.94
15,484.00	90.08	89.99	9,506.69	1,524.78	5,994.02	5,995.62	2.14	-0.74	-2.01
15,497.43	89.89	89.71	9,506.69	1,524.82	6,007.45	6,009.05	2.52	-1.41	-2.08
15,510.86	89.65	89.42	9,506.75	1,524.92	6,020.88	6,022.48	2.80	-1.79	-2.16
15,524.29	89.37	89.13	9,506.86	1,525.09	6,034.31	6,035.90	3.00	-2.08	-2.16
15,537.71	89.08	88.87	9,507.04	1,525.32	6,047.73	6,049.32	2.90	-2.16	-1.94



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,551.14	88.80	88.62	9,507.29	1,525.62	6,061.15	6,062.75	2.79	-2.08	-1.86	
15,564.57	88.66	89.56	9,507.59	1,525.83	6,074.58	6,076.17	7.07	-1.04	7.00	
15,578.00	88.30	89.90	9,507.95	1,525.90	6,088.00	6,089.60	3.69	-2.68	2.53	
15,591.43	88.03	89.79	9,508.38	1,525.93	6,101.42	6,103.02	2.17	-2.01	-0.82	
15,604.86	87.77	89.70	9,508.87	1,525.99	6,114.85	6,116.44	2.05	-1.94	-0.67	
15,618.29	87.51	89.63	9,509.42	1,526.07	6,128.26	6,129.86	2.00	-1.94	-0.52	
15,631.71	87.28	89.57	9,510.03	1,526.16	6,141.67	6,143.26	1.77	-1.71	-0.45	
15,645.14	87.08	89.51	9,510.69	1,526.27	6,155.08	6,156.68	1.55	-1.49	-0.45	
15,658.57	87.34	90.42	9,511.35	1,526.28	6,168.50	6,170.09	7.04	1.94	6.78	
15,672.00	88.09	91.10	9,511.88	1,526.10	6,181.91	6,183.51	7.54	5.58	5.06	
15,685.43	88.36	91.26	9,512.30	1,525.83	6,195.34	6,196.93	2.34	2.01	1.19	
15,698.86	88.33	91.19	9,512.69	1,525.54	6,208.76	6,210.35	0.57	-0.22	-0.52	
15,712.29	88.31	91.13	9,513.08	1,525.27	6,222.18	6,223.77	0.47	-0.15	-0.45	
15,725.71	88.31	91.05	9,513.48	1,525.01	6,235.59	6,237.18	0.60	0.00	-0.60	
15,739.14	88.31	90.97	9,513.87	1,524.77	6,249.01	6,250.61	0.60	0.00	-0.60	
15,752.57	89.29	90.91	9,514.15	1,524.55	6,262.44	6,264.03	7.31	7.30	-0.45	
15,766.00	89.81	90.88	9,514.26	1,524.34	6,275.87	6,277.46	3.88	3.87	-0.22	
15,779.57	89.83	90.72	9,514.30	1,524.15	6,289.43	6,291.03	1.19	0.15	-1.18	
15,793.14	89.87	90.53	9,514.34	1,524.01	6,303.00	6,304.60	1.43	0.29	-1.40	
15,806.71	89.90	90.34	9,514.36	1,523.90	6,316.57	6,318.16	1.42	0.22	-1.40	
15,820.29	89.93	90.14	9,514.38	1,523.85	6,330.15	6,331.74	1.49	0.22	-1.47	
15,833.86	89.94	89.95	9,514.40	1,523.84	6,343.72	6,345.31	1.40	0.07	-1.40	
15,847.43	89.93	89.77	9,514.41	1,523.87	6,357.29	6,358.88	1.33	-0.07	-1.33	
15,861.00	89.88	89.62	9,514.44	1,523.94	6,370.86	6,372.45	1.17	-0.37	-1.11	
15,874.29	89.77	89.50	9,514.48	1,524.04	6,384.15	6,385.74	1.22	-0.83	-0.90	
15,887.57	89.63	89.41	9,514.55	1,524.17	6,397.43	6,399.02	1.25	-1.05	-0.68	
15,900.86	89.47	89.34	9,514.65	1,524.32	6,410.72	6,412.31	1.31	-1.20	-0.53	
15,914.14	89.30	89.27	9,514.79	1,524.48	6,424.00	6,425.59	1.38	-1.28	-0.53	
15,927.43	89.13	89.20	9,514.98	1,524.65	6,437.29	6,438.88	1.38	-1.28	-0.53	
15,940.71	89.36	90.01	9,515.15	1,524.75	6,450.56	6,452.16	6.34	1.73	6.10	
15,954.00	89.70	90.97	9,515.26	1,524.63	6,463.85	6,465.45	7.66	2.56	7.22	
15,967.43	89.77	91.34	9,515.32	1,524.36	6,477.28	6,478.87	2.80	0.52	2.76	
15,980.86	89.63	91.25	9,515.39	1,524.06	6,490.71	6,492.30	1.24	-1.04	-0.67	
15,994.29	89.48	91.16	9,515.50	1,523.77	6,504.13	6,505.72	1.30	-1.12	-0.67	
16,007.71	89.33	91.06	9,515.64	1,523.51	6,517.55	6,519.14	1.34	-1.12	-0.75	
16,021.14	89.17	90.95	9,515.81	1,523.28	6,530.98	6,532.57	1.45	-1.19	-0.82	
16,034.57	89.41	91.82	9,515.98	1,522.95	6,544.40	6,545.99	6.72	1.79	6.48	
16,048.00	89.50	92.23	9,516.11	1,522.48	6,557.82	6,559.41	3.13	0.67	3.05	
16,061.43	89.29	92.06	9,516.25	1,521.98	6,571.24	6,572.83	2.01	-1.56	-1.27	
16,074.86	89.06	91.88	9,516.44	1,521.52	6,584.66	6,586.25	2.17	-1.71	-1.34	
16,088.29	88.83	91.69	9,516.69	1,521.10	6,598.08	6,599.67	2.22	-1.71	-1.41	
16,101.71	88.59	91.51	9,516.99	1,520.72	6,611.50	6,613.08	2.24	-1.79	-1.34	
16,115.14	88.35	91.34	9,517.35	1,520.39	6,624.92	6,626.50	2.19	-1.79	-1.27	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
16,128.57	88.13	91.20	9,517.76	1,520.09	6,638.34	6,639.92	1.94	-1.64	-1.04	
16,142.00	87.91	91.11	9,518.23	1,519.82	6,651.76	6,653.34	1.77	-1.64	-0.67	
16,155.29	87.72	91.09	9,518.73	1,519.57	6,665.03	6,666.62	1.44	-1.43	-0.15	
16,168.57	87.55	91.11	9,519.28	1,519.31	6,678.30	6,679.89	1.29	-1.28	0.15	
16,181.86	87.40	91.16	9,519.87	1,519.05	6,691.57	6,693.16	1.19	-1.13	0.38	
16,195.14	87.28	91.21	9,520.48	1,518.77	6,704.84	6,706.42	0.98	-0.90	0.38	
16,208.43	87.63	91.64	9,521.07	1,518.44	6,718.11	6,719.70	4.17	2.63	3.24	
16,221.71	88.45	92.05	9,521.53	1,518.02	6,731.38	6,732.96	6.90	6.17	3.09	
16,235.00	89.39	92.43	9,521.78	1,517.50	6,744.65	6,746.24	7.63	7.07	2.86	
16,248.29	89.85	92.73	9,521.87	1,516.90	6,757.93	6,759.51	4.13	3.46	2.26	
16,261.57	89.93	92.78	9,521.89	1,516.26	6,771.19	6,772.78	0.71	0.60	0.38	
16,274.86	90.04	92.84	9,521.89	1,515.61	6,784.47	6,786.05	0.94	0.83	0.45	
16,288.14	90.16	92.90	9,521.87	1,514.94	6,797.73	6,799.31	1.01	0.90	0.45	
16,301.43	90.34	92.93	9,521.81	1,514.27	6,811.00	6,812.59	1.37	1.35	0.23	
16,314.71	91.25	92.73	9,521.63	1,513.61	6,824.27	6,825.85	7.02	6.85	-1.51	
16,328.00	92.08	92.48	9,521.24	1,513.01	6,837.54	6,839.12	6.52	6.25	-1.88	
16,341.57	92.22	92.51	9,520.73	1,512.42	6,851.08	6,852.66	1.06	1.03	0.22	
16,355.14	92.38	92.53	9,520.19	1,511.82	6,864.63	6,866.21	1.19	1.18	0.15	
16,368.71	92.55	92.54	9,519.61	1,511.22	6,878.17	6,879.75	1.25	1.25	0.07	
16,382.29	92.72	92.56	9,518.98	1,510.62	6,891.73	6,893.30	1.26	1.25	0.15	
16,395.86	92.89	92.56	9,518.32	1,510.01	6,905.27	6,906.84	1.25	1.25	0.00	
16,409.43	93.07	92.56	9,517.61	1,509.41	6,918.80	6,920.38	1.33	1.33	0.00	
16,423.00	93.24	92.55	9,516.86	1,508.80	6,932.34	6,933.92	1.25	1.25	-0.07	
16,436.29	93.39	92.52	9,516.10	1,508.22	6,945.60	6,947.17	1.15	1.13	-0.23	
16,449.57	93.53	92.48	9,515.29	1,507.64	6,958.84	6,960.41	1.10	1.05	-0.30	
16,462.86	93.67	92.43	9,514.46	1,507.07	6,972.09	6,973.66	1.12	1.05	-0.38	
16,476.14	93.80	92.36	9,513.60	1,506.52	6,985.33	6,986.90	1.11	0.98	-0.53	
16,489.43	93.76	92.22	9,512.72	1,505.99	6,998.58	7,000.15	1.09	-0.30	-1.05	
16,502.71	93.15	91.85	9,511.92	1,505.52	7,011.83	7,013.40	5.37	-4.59	-2.79	
16,516.00	93.27	91.74	9,511.17	1,505.10	7,025.09	7,026.66	1.22	0.90	-0.83	
16,529.57	93.38	91.58	9,510.39	1,504.71	7,038.63	7,040.20	1.43	0.81	-1.18	
16,543.14	93.49	91.41	9,509.57	1,504.36	7,052.17	7,053.74	1.49	0.81	-1.25	
16,556.71	93.59	91.24	9,508.74	1,504.04	7,065.71	7,067.28	1.45	0.74	-1.25	
16,570.29	93.69	91.08	9,507.87	1,503.77	7,079.26	7,080.83	1.39	0.74	-1.18	
16,583.86	93.80	90.94	9,506.99	1,503.53	7,092.80	7,094.37	1.31	0.81	-1.03	
16,597.43	93.02	91.09	9,506.18	1,503.29	7,106.35	7,107.92	5.85	-5.75	1.11	
16,611.00	92.11	91.23	9,505.57	1,503.02	7,119.90	7,121.47	6.78	-6.71	1.03	
16,624.29	92.23	91.23	9,505.07	1,502.73	7,133.18	7,134.75	0.90	0.90	0.00	
16,637.57	92.35	91.25	9,504.54	1,502.44	7,146.44	7,148.01	0.92	0.90	0.15	
16,650.86	92.48	91.29	9,503.98	1,502.15	7,159.72	7,161.29	1.02	0.98	0.30	
16,664.14	92.63	91.33	9,503.39	1,501.85	7,172.98	7,174.55	1.17	1.13	0.30	
16,677.43	92.78	91.36	9,502.76	1,501.53	7,186.25	7,187.82	1.15	1.13	0.23	
16,690.71	92.68	91.40	9,502.13	1,501.21	7,199.51	7,201.08	0.81	-0.75	0.30	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
16,704.00	92.88	91.38	9,501.48	1,500.89	7,212.78	7,214.35	1.51	1.50	-0.15	
16,717.29	93.12	91.31	9,500.79	1,500.58	7,226.05	7,227.62	1.88	1.81	-0.53	
16,730.57	93.38	91.20	9,500.03	1,500.29	7,239.31	7,240.88	2.13	1.96	-0.83	
16,743.86	93.63	91.08	9,499.22	1,500.03	7,252.57	7,254.14	2.09	1.88	-0.90	
16,757.14	93.86	90.95	9,498.36	1,499.79	7,265.82	7,267.39	1.99	1.73	-0.98	
16,770.43	94.05	90.81	9,497.44	1,499.59	7,279.08	7,280.64	1.77	1.43	-1.05	
16,783.71	93.26	90.59	9,496.59	1,499.43	7,292.33	7,293.90	6.17	-5.95	-1.66	
16,797.00	92.52	90.37	9,495.92	1,499.31	7,305.60	7,307.17	5.81	-5.57	-1.66	
16,810.43	92.53	90.21	9,495.33	1,499.25	7,319.02	7,320.58	1.19	0.07	-1.19	
16,823.86	92.49	90.05	9,494.74	1,499.22	7,332.44	7,334.00	1.23	-0.30	-1.19	
16,837.29	92.43	89.89	9,494.17	1,499.22	7,345.85	7,347.42	1.27	-0.45	-1.19	
16,850.71	92.35	89.74	9,493.61	1,499.27	7,359.26	7,360.83	1.27	-0.60	-1.12	
16,864.14	92.25	89.61	9,493.07	1,499.34	7,372.68	7,374.25	1.22	-0.74	-0.97	
16,877.57	91.15	89.58	9,492.67	1,499.44	7,386.10	7,387.67	8.19	-8.19	-0.22	
16,891.00	90.05	89.54	9,492.53	1,499.54	7,399.53	7,401.10	8.20	-8.19	-0.30	
16,904.29	89.22	89.52	9,492.61	1,499.65	7,412.82	7,414.39	6.25	-6.25	-0.15	
16,917.57	88.99	89.51	9,492.82	1,499.76	7,426.10	7,427.67	1.73	-1.73	-0.08	
16,930.86	88.73	89.51	9,493.08	1,499.88	7,439.39	7,440.95	1.96	-1.96	0.00	
16,944.14	88.47	89.52	9,493.41	1,499.99	7,452.66	7,454.23	1.96	-1.96	0.08	
16,957.43	88.21	89.53	9,493.79	1,500.10	7,465.95	7,467.51	1.96	-1.96	0.08	
16,970.71	87.49	89.95	9,494.29	1,500.16	7,479.22	7,480.78	6.28	-5.42	3.16	
16,984.00	87.19	90.03	9,494.91	1,500.16	7,492.49	7,494.06	2.34	-2.26	0.60	
16,992.24	87.09	90.02	9,495.32	1,500.16	7,500.72	7,502.29	1.19	-1.19	-0.07	
05-7500VS(CH-131H)										
16,997.43	87.03	90.02	9,495.59	1,500.16	7,505.90	7,507.47	1.19	-1.19	-0.07	
17,010.86	86.90	90.00	9,496.30	1,500.15	7,519.32	7,520.88	0.98	-0.97	-0.15	
17,024.29	86.79	89.99	9,497.04	1,500.15	7,532.73	7,534.29	0.82	-0.82	-0.07	
17,037.71	86.68	89.97	9,497.80	1,500.16	7,546.12	7,547.69	0.83	-0.82	-0.15	
17,051.14	86.58	89.97	9,498.59	1,500.17	7,559.53	7,561.10	0.74	-0.74	0.00	
17,064.57	86.48	89.98	9,499.40	1,500.17	7,572.94	7,574.50	0.75	-0.74	0.07	
17,078.00	86.38	90.01	9,500.24	1,500.17	7,586.34	7,587.91	0.78	-0.74	0.22	
17,091.43	86.25	90.07	9,501.10	1,500.16	7,599.74	7,601.31	1.07	-0.97	0.45	
17,104.86	86.13	90.15	9,501.99	1,500.14	7,613.14	7,614.71	1.07	-0.89	0.60	
17,118.29	86.01	90.24	9,502.92	1,500.09	7,626.54	7,628.11	1.12	-0.89	0.67	
17,131.71	85.91	90.33	9,503.86	1,500.03	7,639.93	7,641.49	1.00	-0.75	0.67	
17,145.14	85.84	90.41	9,504.83	1,499.94	7,653.32	7,654.89	0.79	-0.52	0.60	
17,158.57	86.60	90.38	9,505.71	1,499.85	7,666.72	7,668.29	5.66	5.66	-0.22	
17,172.00	87.57	90.33	9,506.39	1,499.76	7,680.13	7,681.70	7.23	7.22	-0.37	
17,185.57	87.66	90.40	9,506.96	1,499.68	7,693.69	7,695.26	0.84	0.66	0.52	
17,199.14	87.78	90.46	9,507.50	1,499.58	7,707.25	7,708.82	0.99	0.88	0.44	
17,212.71	87.92	90.52	9,508.01	1,499.46	7,720.81	7,722.38	1.12	1.03	0.44	
17,226.29	88.07	90.58	9,508.48	1,499.33	7,734.38	7,735.95	1.19	1.10	0.44	
17,239.86	88.21	90.64	9,508.92	1,499.18	7,747.94	7,749.51	1.12	1.03	0.44	
17,253.43	88.73	90.52	9,509.29	1,499.05	7,761.51	7,763.07	3.93	3.83	-0.88	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
17,267.00	89.02	90.48	9,509.55	1,498.93	7,775.08	7,776.64	2.16	2.14	-0.29	
17,280.43	89.07	90.51	9,509.78	1,498.81	7,788.50	7,790.07	0.43	0.37	0.22	
17,293.86	89.10	90.53	9,509.99	1,498.69	7,801.93	7,803.50	0.27	0.22	0.15	
17,307.29	89.12	90.54	9,510.20	1,498.57	7,815.36	7,816.92	0.17	0.15	0.07	
17,320.71	89.12	90.54	9,510.41	1,498.44	7,828.78	7,830.34	0.00	0.00	0.00	
17,334.14	89.12	90.53	9,510.61	1,498.31	7,842.20	7,843.77	0.07	0.00	-0.07	
17,347.57	89.10	90.51	9,510.82	1,498.19	7,855.63	7,857.20	0.21	-0.15	-0.15	
17,361.00	89.09	90.48	9,511.03	1,498.08	7,869.06	7,870.62	0.24	-0.07	-0.22	
17,374.29	89.06	90.42	9,511.25	1,497.97	7,882.35	7,883.91	0.50	-0.23	-0.45	
17,387.57	89.04	90.34	9,511.47	1,497.88	7,895.63	7,897.19	0.62	-0.15	-0.60	
17,400.86	89.01	90.25	9,511.69	1,497.82	7,908.91	7,910.48	0.71	-0.23	-0.68	
17,414.14	88.98	90.16	9,511.93	1,497.77	7,922.19	7,923.76	0.71	-0.23	-0.68	
17,427.43	88.95	90.07	9,512.17	1,497.74	7,935.48	7,937.04	0.71	-0.23	-0.68	
17,440.71	88.92	89.98	9,512.41	1,497.74	7,948.76	7,950.32	0.71	-0.23	-0.68	
17,454.00	88.89	89.89	9,512.67	1,497.75	7,962.04	7,963.61	0.71	-0.23	-0.68	
17,467.57	88.87	89.81	9,512.93	1,497.79	7,975.61	7,977.18	0.61	-0.15	-0.59	
17,481.14	88.85	89.74	9,513.20	1,497.84	7,989.18	7,990.74	0.54	-0.15	-0.52	
17,494.71	88.84	89.67	9,513.48	1,497.91	8,002.75	8,004.31	0.52	-0.07	-0.52	
17,508.29	88.83	89.61	9,513.75	1,497.99	8,016.32	8,017.89	0.45	-0.07	-0.44	
17,521.86	88.81	89.54	9,514.03	1,498.09	8,029.89	8,031.45	0.54	-0.15	-0.52	
17,535.43	88.80	89.48	9,514.31	1,498.21	8,043.46	8,045.02	0.45	-0.07	-0.44	
17,549.00	88.79	89.41	9,514.60	1,498.34	8,057.02	8,058.59	0.52	-0.07	-0.52	
17,562.57	88.78	89.35	9,514.89	1,498.49	8,070.59	8,072.15	0.45	-0.07	-0.44	
17,576.14	88.77	89.28	9,515.18	1,498.65	8,084.16	8,085.72	0.52	-0.07	-0.52	
17,589.71	88.76	89.22	9,515.47	1,498.83	8,097.72	8,099.29	0.45	-0.07	-0.44	
17,603.29	88.76	89.15	9,515.76	1,499.02	8,111.30	8,112.86	0.52	0.00	-0.52	
17,616.86	88.76	89.10	9,516.06	1,499.23	8,124.86	8,126.43	0.37	0.00	-0.37	
17,630.43	88.77	89.05	9,516.35	1,499.45	8,138.43	8,139.99	0.38	0.07	-0.37	
17,644.00	88.79	89.01	9,516.64	1,499.68	8,151.99	8,153.56	0.33	0.15	-0.29	
17,657.43	88.84	89.00	9,516.92	1,499.91	8,165.42	8,166.98	0.38	0.37	-0.07	
17,670.86	88.89	89.00	9,517.18	1,500.15	8,178.84	8,180.41	0.37	0.37	0.00	
17,684.29	88.95	89.00	9,517.44	1,500.38	8,192.27	8,193.83	0.45	0.45	0.00	
17,697.71	89.01	89.01	9,517.68	1,500.61	8,205.68	8,207.25	0.45	0.45	0.07	
17,711.14	89.05	89.03	9,517.90	1,500.84	8,219.11	8,220.68	0.33	0.30	0.15	
17,724.57	89.07	89.05	9,518.12	1,501.07	8,232.54	8,234.10	0.21	0.15	0.15	
17,738.00	89.05	89.06	9,518.34	1,501.29	8,245.96	8,247.53	0.17	-0.15	0.07	
17,751.43	88.98	89.07	9,518.57	1,501.51	8,259.39	8,260.96	0.53	-0.52	0.07	
17,764.86	88.87	89.09	9,518.83	1,501.72	8,272.81	8,274.38	0.83	-0.82	0.15	
17,778.29	88.74	89.10	9,519.11	1,501.94	8,286.24	8,287.81	0.97	-0.97	0.07	
17,791.71	88.62	89.11	9,519.42	1,502.15	8,299.65	8,301.22	0.90	-0.89	0.07	
17,805.14	88.51	89.13	9,519.75	1,502.35	8,313.08	8,314.65	0.83	-0.82	0.15	
17,818.57	88.08	89.58	9,520.15	1,502.50	8,326.50	8,328.07	4.63	-3.20	3.35	
17,832.00	87.94	89.71	9,520.62	1,502.59	8,339.92	8,341.49	1.42	-1.04	0.97	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,845.57	87.96	89.76	9,521.10	1,502.65	8,353.48	8,355.05	0.40	0.15	0.37
17,859.14	88.01	89.82	9,521.58	1,502.70	8,367.05	8,368.62	0.58	0.37	0.44
17,872.71	88.09	89.88	9,522.04	1,502.73	8,380.61	8,382.18	0.74	0.59	0.44
17,886.29	88.18	89.94	9,522.48	1,502.75	8,394.18	8,395.75	0.80	0.66	0.44
17,899.86	88.28	90.00	9,522.90	1,502.76	8,407.74	8,409.31	0.86	0.74	0.44
17,913.43	88.37	90.05	9,523.30	1,502.76	8,421.31	8,422.88	0.76	0.66	0.37
17,927.00	88.45	90.08	9,523.68	1,502.74	8,434.87	8,436.44	0.63	0.59	0.22
17,940.29	88.50	90.08	9,524.03	1,502.72	8,448.16	8,449.73	0.38	0.38	0.00
17,953.57	88.55	90.07	9,524.37	1,502.70	8,461.43	8,463.00	0.38	0.38	-0.08
17,966.86	88.58	90.05	9,524.70	1,502.69	8,474.72	8,476.29	0.27	0.23	-0.15
17,980.14	88.62	90.02	9,525.03	1,502.68	8,488.00	8,489.57	0.38	0.30	-0.23
17,993.43	88.66	89.99	9,525.34	1,502.68	8,501.28	8,502.85	0.38	0.30	-0.23
18,006.71	88.71	89.95	9,525.65	1,502.69	8,514.56	8,516.13	0.48	0.38	-0.30
18,020.00	88.77	89.91	9,525.94	1,502.70	8,527.85	8,529.41	0.54	0.45	-0.30
18,033.29	88.85	89.86	9,526.22	1,502.73	8,541.13	8,542.70	0.71	0.60	-0.38
18,046.57	88.95	89.82	9,526.47	1,502.77	8,554.41	8,555.98	0.81	0.75	-0.30
18,059.86	89.06	89.77	9,526.70	1,502.82	8,567.70	8,569.27	0.91	0.83	-0.38
18,073.14	89.17	89.73	9,526.91	1,502.87	8,580.98	8,582.55	0.88	0.83	-0.30
18,086.43	89.29	89.68	9,527.09	1,502.94	8,594.27	8,595.83	0.98	0.90	-0.38
18,099.71	89.41	89.63	9,527.24	1,503.02	8,607.54	8,609.11	0.98	0.90	-0.38
18,113.00	89.53	89.58	9,527.36	1,503.11	8,620.83	8,622.40	0.98	0.90	-0.38
18,126.57	89.65	89.53	9,527.46	1,503.22	8,634.40	8,635.97	0.96	0.88	-0.37
18,140.14	89.77	89.48	9,527.53	1,503.34	8,647.97	8,649.54	0.96	0.88	-0.37
18,153.71	89.89	89.44	9,527.57	1,503.46	8,661.54	8,663.11	0.93	0.88	-0.29
18,167.29	89.99	89.39	9,527.58	1,503.60	8,675.12	8,676.69	0.82	0.74	-0.37
18,180.86	90.09	89.36	9,527.57	1,503.75	8,688.69	8,690.26	0.77	0.74	-0.22
18,194.43	90.16	89.33	9,527.54	1,503.91	8,702.26	8,703.83	0.56	0.52	-0.22
18,208.00	90.20	89.32	9,527.50	1,504.07	8,715.83	8,717.40	0.30	0.29	-0.07
18,221.43	90.55	89.48	9,527.41	1,504.21	8,729.26	8,730.83	2.87	2.61	1.19
18,234.86	90.67	89.57	9,527.27	1,504.32	8,742.69	8,744.26	1.12	0.89	0.67
18,248.29	90.60	89.61	9,527.12	1,504.41	8,756.11	8,757.68	0.60	-0.52	0.30
18,261.71	90.52	89.66	9,526.99	1,504.50	8,769.53	8,771.10	0.70	-0.60	0.37
18,275.14	90.43	89.71	9,526.88	1,504.57	8,782.96	8,784.53	0.77	-0.67	0.37
18,288.57	90.35	89.76	9,526.79	1,504.64	8,796.39	8,797.96	0.70	-0.60	0.37
18,302.00	90.39	89.88	9,526.70	1,504.68	8,809.82	8,811.39	0.94	0.30	0.89
18,315.43	91.18	90.44	9,526.51	1,504.64	8,823.25	8,824.82	7.21	5.88	4.17
18,328.86	91.55	90.36	9,526.19	1,504.55	8,836.68	8,838.25	2.82	2.76	-0.60
18,342.29	91.50	90.38	9,525.84	1,504.46	8,850.10	8,851.67	0.40	-0.37	0.15
18,355.71	91.44	90.40	9,525.49	1,504.37	8,863.52	8,865.09	0.47	-0.45	0.15
18,369.14	91.40	90.41	9,525.16	1,504.27	8,876.94	8,878.51	0.31	-0.30	0.07
18,382.57	91.38	90.41	9,524.83	1,504.18	8,890.37	8,891.94	0.15	-0.15	0.00
18,396.00	91.38	90.39	9,524.51	1,504.08	8,903.79	8,905.36	0.15	0.00	-0.15
18,409.43	91.43	90.34	9,524.18	1,504.00	8,917.22	8,918.79	0.53	0.37	-0.37
18,422.86	91.51	90.28	9,523.84	1,503.93	8,930.64	8,932.21	0.74	0.60	-0.45



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,436.29	91.61	90.21	9,523.47	1,503.87	8,944.07	8,945.64	0.91	0.74	-0.52
18,449.71	91.72	90.14	9,523.08	1,503.83	8,957.48	8,959.05	0.97	0.82	-0.52
18,463.14	91.83	90.06	9,522.67	1,503.80	8,970.91	8,972.48	1.01	0.82	-0.60
18,476.57	91.93	89.99	9,522.23	1,503.80	8,984.33	8,985.90	0.91	0.74	-0.52
18,490.00	92.03	89.92	9,521.76	1,503.81	8,997.75	8,999.32	0.91	0.74	-0.52
18,503.43	92.10	89.87	9,521.28	1,503.83	9,011.17	9,012.74	0.64	0.52	-0.37
18,516.86	92.15	89.83	9,520.78	1,503.87	9,024.59	9,026.16	0.48	0.37	-0.30
18,530.29	92.19	89.80	9,520.27	1,503.91	9,038.01	9,039.58	0.37	0.30	-0.22
18,543.71	92.22	89.76	9,519.75	1,503.96	9,051.42	9,052.99	0.37	0.22	-0.30
18,557.14	92.22	89.72	9,519.23	1,504.02	9,064.84	9,066.41	0.30	0.00	-0.30
18,570.57	92.20	89.68	9,518.72	1,504.09	9,078.26	9,079.83	0.33	-0.15	-0.30
18,584.00	92.14	89.63	9,518.21	1,504.18	9,091.68	9,093.25	0.58	-0.45	-0.37
18,597.43	92.02	89.55	9,517.72	1,504.27	9,105.10	9,106.68	1.07	-0.89	-0.60
18,610.86	91.88	89.47	9,517.26	1,504.39	9,118.53	9,120.10	1.20	-1.04	-0.60
18,624.29	91.73	89.39	9,516.84	1,504.52	9,131.95	9,133.52	1.27	-1.12	-0.60
18,637.71	91.59	89.30	9,516.45	1,504.67	9,145.36	9,146.93	1.24	-1.04	-0.67
18,651.14	91.48	89.22	9,516.09	1,504.85	9,158.79	9,160.36	1.01	-0.82	-0.60
18,664.57	90.51	89.28	9,515.86	1,505.02	9,172.21	9,173.78	7.24	-7.22	0.45
18,678.00	89.32	89.44	9,515.88	1,505.17	9,185.64	9,187.21	8.94	-8.86	1.19
18,691.57	88.42	89.63	9,516.15	1,505.28	9,199.21	9,200.78	6.78	-6.63	1.40
18,705.14	88.54	89.55	9,516.51	1,505.38	9,212.77	9,214.35	1.06	0.88	-0.59
18,718.71	88.69	89.48	9,516.83	1,505.49	9,226.34	9,227.91	1.22	1.11	-0.52
18,732.29	88.85	89.41	9,517.13	1,505.63	9,239.92	9,241.49	1.29	1.18	-0.52
18,745.86	89.01	89.34	9,517.38	1,505.77	9,253.48	9,255.05	1.29	1.18	-0.52
18,759.43	89.14	89.29	9,517.60	1,505.94	9,267.05	9,268.62	1.03	0.96	-0.37
18,773.00	89.23	89.26	9,517.79	1,506.11	9,280.62	9,282.19	0.70	0.66	-0.22
18,786.29	89.24	89.25	9,517.97	1,506.28	9,293.91	9,295.48	0.11	0.08	-0.08
18,799.57	89.21	89.27	9,518.15	1,506.45	9,307.18	9,308.76	0.27	-0.23	0.15
18,812.86	89.17	89.30	9,518.34	1,506.62	9,320.47	9,322.04	0.38	-0.30	0.23
18,826.14	89.13	89.34	9,518.53	1,506.78	9,333.75	9,335.32	0.43	-0.30	0.30
18,839.43	89.11	89.39	9,518.74	1,506.92	9,347.04	9,348.61	0.41	-0.15	0.38
18,852.71	88.50	89.62	9,519.01	1,507.04	9,360.31	9,361.89	4.91	-4.59	1.73
18,866.00	88.33	89.74	9,519.38	1,507.11	9,373.60	9,375.17	1.57	-1.28	0.90
18,879.57	88.51	89.85	9,519.76	1,507.16	9,387.16	9,388.73	1.55	1.33	0.81
18,893.14	88.75	89.96	9,520.08	1,507.18	9,400.73	9,402.30	1.95	1.77	0.81
18,906.71	89.01	90.09	9,520.35	1,507.18	9,414.30	9,415.87	2.14	1.92	0.96
18,920.29	89.29	90.20	9,520.55	1,507.14	9,427.87	9,429.45	2.22	2.06	0.81
18,933.86	89.56	90.31	9,520.68	1,507.08	9,441.44	9,443.02	2.15	1.99	0.81
18,947.43	89.80	90.40	9,520.76	1,507.00	9,455.01	9,456.59	1.89	1.77	0.66
18,961.00	90.00	90.45	9,520.78	1,506.90	9,468.58	9,470.15	1.52	1.47	0.37
18,974.43	90.11	90.45	9,520.77	1,506.79	9,482.01	9,483.58	0.82	0.82	0.00
18,987.86	89.35	90.40	9,520.83	1,506.69	9,495.44	9,497.01	5.67	-5.66	-0.37
19,001.29	88.21	90.46	9,521.12	1,506.59	9,508.87	9,510.44	8.50	-8.49	0.45



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
19,014.71	87.11	90.76	9,521.67	1,506.45	9,522.28	9,523.85	8.50	-8.20	2.24	
19,028.14	87.08	90.67	9,522.35	1,506.28	9,535.69	9,537.26	0.71	-0.22	-0.67	
19,041.57	87.02	90.58	9,523.04	1,506.13	9,549.10	9,550.67	0.80	-0.45	-0.67	
19,055.00	86.94	90.49	9,523.75	1,506.01	9,562.51	9,564.08	0.90	-0.60	-0.67	
19,068.43	86.84	90.42	9,524.47	1,505.90	9,575.92	9,577.49	0.91	-0.74	-0.52	
19,081.86	86.75	90.37	9,525.23	1,505.81	9,589.33	9,590.90	0.77	-0.67	-0.37	
19,095.29	86.66	90.32	9,526.00	1,505.73	9,602.73	9,604.31	0.77	-0.67	-0.37	
19,108.71	86.59	90.29	9,526.79	1,505.66	9,616.13	9,617.70	0.57	-0.52	-0.22	
19,122.14	86.55	90.26	9,527.59	1,505.59	9,629.54	9,631.11	0.37	-0.30	-0.22	
19,135.57	86.56	90.24	9,528.40	1,505.54	9,642.94	9,644.51	0.17	0.07	-0.15	
19,149.00	86.65	90.23	9,529.19	1,505.48	9,656.35	9,657.92	0.67	0.67	-0.07	
19,162.57	86.87	90.23	9,529.96	1,505.43	9,669.90	9,671.47	1.62	1.62	0.00	
19,176.14	87.17	90.24	9,530.67	1,505.37	9,683.45	9,685.02	2.21	2.21	0.07	
19,189.71	87.52	90.24	9,531.29	1,505.31	9,697.00	9,698.58	2.58	2.58	0.00	
19,203.29	87.90	90.25	9,531.84	1,505.26	9,710.57	9,712.14	2.80	2.80	0.07	
19,207.88	88.03	90.25	9,532.00	1,505.24	9,715.16	9,716.74	2.87	2.87	-0.07	
Bone Spring Lime										
19,216.86	88.29	90.24	9,532.29	1,505.20	9,724.14	9,725.71	2.87	2.87	-0.07	
19,230.43	88.69	90.22	9,532.65	1,505.14	9,737.70	9,739.27	2.95	2.95	-0.15	
19,244.00	89.07	90.17	9,532.91	1,505.10	9,751.27	9,752.84	2.82	2.80	-0.37	
19,257.43	89.41	90.08	9,533.09	1,505.07	9,764.70	9,766.27	2.62	2.53	-0.67	
19,270.86	89.57	89.95	9,533.21	1,505.06	9,778.13	9,779.70	1.54	1.19	-0.97	
19,284.29	88.78	89.78	9,533.40	1,505.10	9,791.55	9,793.13	6.02	-5.88	-1.27	
19,297.71	87.87	89.60	9,533.79	1,505.17	9,804.97	9,806.54	6.91	-6.78	-1.34	
19,311.14	88.00	89.40	9,534.28	1,505.29	9,818.39	9,819.96	1.78	0.97	-1.49	
19,324.57	88.27	89.21	9,534.72	1,505.45	9,831.81	9,833.38	2.46	2.01	-1.41	
19,338.00	88.54	89.02	9,535.09	1,505.66	9,845.23	9,846.81	2.46	2.01	-1.41	
19,351.43	88.77	88.81	9,535.40	1,505.91	9,858.66	9,860.23	2.32	1.71	-1.56	
19,364.86	88.97	88.60	9,535.67	1,506.21	9,872.08	9,873.65	2.16	1.49	-1.56	
19,378.29	89.16	88.40	9,535.89	1,506.57	9,885.51	9,887.08	2.05	1.41	-1.49	
19,391.71	89.31	88.22	9,536.07	1,506.96	9,898.92	9,900.49	1.75	1.12	-1.34	
19,405.14	88.70	88.31	9,536.30	1,507.37	9,912.34	9,913.91	4.59	-4.54	0.67	
19,418.57	87.85	88.37	9,536.71	1,507.76	9,925.76	9,927.33	6.34	-6.33	0.45	
19,432.00	87.04	88.39	9,537.30	1,508.14	9,939.17	9,940.74	6.03	-6.03	0.15	
19,445.43	86.74	88.32	9,538.03	1,508.52	9,952.57	9,954.15	2.29	-2.23	-0.52	
19,458.86	86.78	88.19	9,538.79	1,508.93	9,965.98	9,967.55	1.01	0.30	-0.97	
19,472.29	86.80	88.05	9,539.54	1,509.37	9,979.38	9,980.95	1.05	0.15	-1.04	
19,485.71	86.81	87.92	9,540.29	1,509.84	9,992.77	9,994.35	0.97	0.07	-0.97	
19,492.14	86.81	87.85	9,540.65	1,510.08	9,999.19	10,000.77	1.04	-0.07	-1.04	
07-10000VS(CH-131H)										
19,499.14	86.80	87.78	9,541.04	1,510.34	10,006.17	10,007.75	1.04	-0.07	-1.04	
19,512.57	86.80	87.65	9,541.79	1,510.88	10,019.57	10,021.14	0.97	0.00	-0.97	
19,526.00	86.78	87.53	9,542.54	1,511.44	10,032.96	10,034.54	0.90	-0.15	-0.89	
19,539.43	86.76	87.42	9,543.30	1,512.03	10,046.36	10,047.94	0.83	-0.15	-0.82	



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,552.86	86.73	87.31	9,544.06	1,512.65	10,059.75	10,061.33	0.85	-0.22	-0.82
19,566.29	86.69	87.22	9,544.83	1,513.29	10,073.15	10,074.73	0.73	-0.30	-0.67
19,579.71	86.66	87.13	9,545.61	1,513.95	10,086.53	10,088.11	0.71	-0.22	-0.67
19,593.14	86.61	87.04	9,546.40	1,514.63	10,099.92	10,101.50	0.77	-0.37	-0.67
19,606.57	86.56	86.97	9,547.20	1,515.33	10,113.31	10,114.89	0.64	-0.37	-0.52
19,620.00	86.50	86.90	9,548.01	1,516.05	10,126.69	10,128.27	0.69	-0.45	-0.52
19,633.43	86.43	86.85	9,548.84	1,516.78	10,140.08	10,141.66	0.64	-0.52	-0.37
19,646.86	86.35	86.81	9,549.68	1,517.52	10,153.46	10,155.04	0.67	-0.60	-0.30
19,660.29	86.28	86.78	9,550.55	1,518.27	10,166.84	10,168.42	0.57	-0.52	-0.22
19,673.71	86.20	86.76	9,551.43	1,519.02	10,180.21	10,181.80	0.61	-0.60	-0.15
19,687.14	86.14	86.73	9,552.33	1,519.78	10,193.59	10,195.17	0.50	-0.45	-0.22
19,700.57	86.08	86.71	9,553.24	1,520.55	10,206.97	10,208.55	0.47	-0.45	-0.15
19,714.00	86.06	86.69	9,554.16	1,521.32	10,220.34	10,221.93	0.21	-0.15	-0.15
19,727.00	86.06	86.66	9,555.05	1,522.07	10,233.29	10,234.88	0.23	0.00	-0.23
19,740.00	86.09	86.63	9,555.94	1,522.83	10,246.24	10,247.83	0.33	0.23	-0.23
19,753.00	86.12	86.61	9,556.82	1,523.60	10,259.18	10,260.77	0.28	0.23	-0.15
Final MWD Survey: 19753.00' MD, 86.12°INC, 86.61°AZ									
19,772.95	86.12	86.61	9,558.17	1,524.78	10,279.05	10,280.64	0.00	0.00	0.00
08-LTP(CH-131H)									
19,773.98	86.12	86.61	9,558.24	1,524.84	10,280.08	10,281.67	0.00	0.00	0.00
100 FEL: 19773.98' MD, 10281.67' VS, 9558.24' TVD									
19,811.00	86.12	86.61	9,560.75	1,527.02	10,316.95	10,318.54	0.00	0.00	0.00
PTB: 19811.00' MD, 10318.54' VS, 9560.75' TVD - 09-PBHL(CH-131H)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,565.24	3,532.00	Rustler				
3,820.42	3,782.00	Top of Salt				
4,732.94	4,682.00	Base of Salt				
4,885.14	4,832.00	Yates				
5,257.03	5,197.00	Capitan				
6,892.46	6,802.00	DLWR Mnt. Group				
9,459.54	9,272.00	Lower Brushy Canyon				
19,207.88	9,532.00	Bone Spring Lime				



Survey Report

Company:	Colgate Energy	Local Co-ordinate Reference:	Well Crazy Horse 32 State Fed Com 131H
Project:	Eddy County, NM (N83-NME)	TVD Reference:	3319+22 @ 3341.00usft
Site:	Crazy Horse 32 State Fed Com	MD Reference:	3319+22 @ 3341.00usft
Well:	Crazy Horse 32 State Fed Com 131H	North Reference:	Grid
Wellbore:	131H	Survey Calculation Method:	Minimum Curvature
Design:	DRL	Database:	EDM 5000.14 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,882.00	8,748.52	1,360.68	-104.10	KOP: 8882.00' MD, -102.68' VS, 8748.52' TVD
9,165.26	9,017.38	1,443.97	-94.30	100 FWL: 9165.26' MD, -92.79' VS, 9017.38' TVD
9,939.00	9,436.52	1,473.15	452.61	EOC: 9939.00' MD, 454.15' VS, 9436.52' TVD
19,753.00	9,556.82	1,523.60	10,259.18	Final MWD Survey: 19753.00' MD, 86.12°INC, 86.61°AZ
19,773.98	9,558.24	1,524.84	10,280.08	100 FEL: 19773.98' MD, 10281.67' VS, 9558.24' TVD
19,811.00	9,560.75	1,527.02	10,316.95	PTB: 19811.00' MD, 10318.54' VS, 9560.75' TVD

Checked By: _____ Approved By: _____ Date: _____

District I

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

District II

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

District III

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

District IV

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

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

ACKNOWLEDGMENTS

Action 67893

ACKNOWLEDGMENTS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 67893
	Action Type: [C-104] Completion Packet (C-104C)

ACKNOWLEDGMENTS

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

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

CONDITIONS

Action 67893

CONDITIONS

Operator: COLGATE OPERATING, LLC 300 North Marienfeld Street Midland, TX 79701	OGRID: 371449
	Action Number: 67893
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
llowe	RT Expires on 03/29/2022	12/29/2021