

NMOC

DISTRICT I1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720**DISTRICT II**811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720**DISTRICT III**1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170**DISTRICT IV**1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462State of New Mexico
Energy, Minerals & Natural Resources Department

DEC 06 2018

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

DISTRICT III

Submit one copy to appropriate
District Office☒ AS-DRILLED
☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31138	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 321502	⁵ Property Name PALLUCHE HZMC	⁶ Well Number 1H
⁷ OGRID No. 372171	⁸ Operator Name HILCORP ENERGY CORP	⁹ Elevation 6925'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	35	26N	7W		1042'	NORTH	2088'	EAST	RIO ARRIBA

¹¹ Bottom Hole Location If Different From Surface

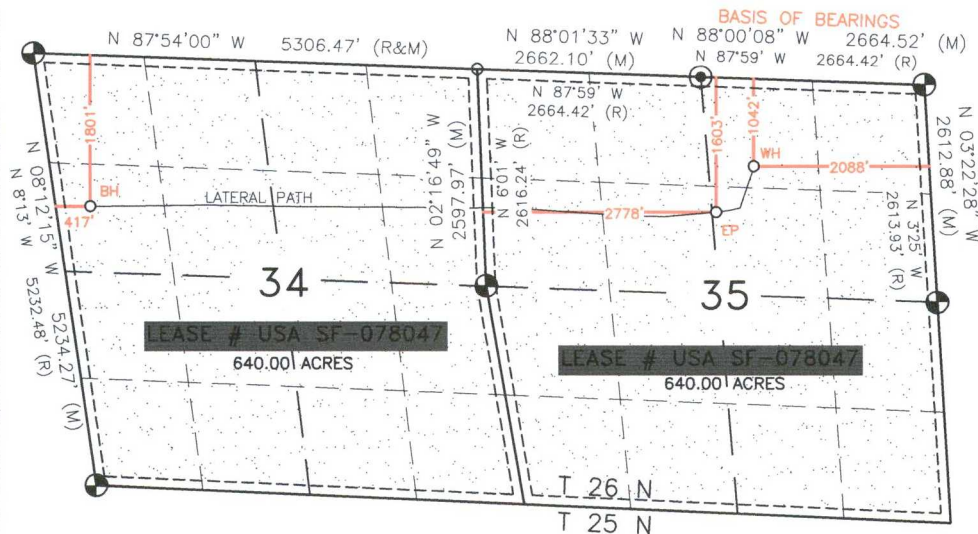
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	34	26N	7W		1801'	NORTH	417'	WEST	RIO ARRIBA

¹² Dedicated Acres NMSF 078047 640.00 ACRES SEC. 34 640.00 ACRES SEC. 35	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13499
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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

- ☒ FND 3.25" BC
GLO 1955
- ☒ FND 3.25" BC
GLO 1954
- ☐ CALC

CONFIDENTIAL**BOTTOM HOLE**LAT. 36.445941° N (NAD83)
LONG. 107.569876° W (NAD83)
LAT. 36.445930° N (NAD27)
LONG. 107.569269° W (NAD27)**ENTRY POINT**LAT. 36.445690° N (NAD83)
LONG. 107.544484° W (NAD83)
LAT. 36.445679° N (NAD27)
LONG. 107.543878° W (NAD27)**WELL HEAD**LAT. 36.447184° N (NAD83)
LONG. 107.542960° W (NAD83)
LAT. 36.447173° N (NAD27)
LONG. 107.542354° W (NAD27)

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Christine Brock 12/6/18
Signature DateChristine Brock
Printed Namecbrock@hilcorp.com
E-mail Address

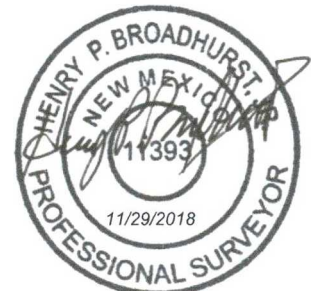
SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 13, 2018

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

11393

R

20

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☒ AS-DRILLED
☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31138	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 39559	⁵ Property Name PALLUCHE HZMC	⁶ Well Number 1H
⁷ OGRID No. 372171	⁸ Operator Name HILCORP ENERGY CORP	⁹ Elevation 6925'

¹⁰ Surface Location

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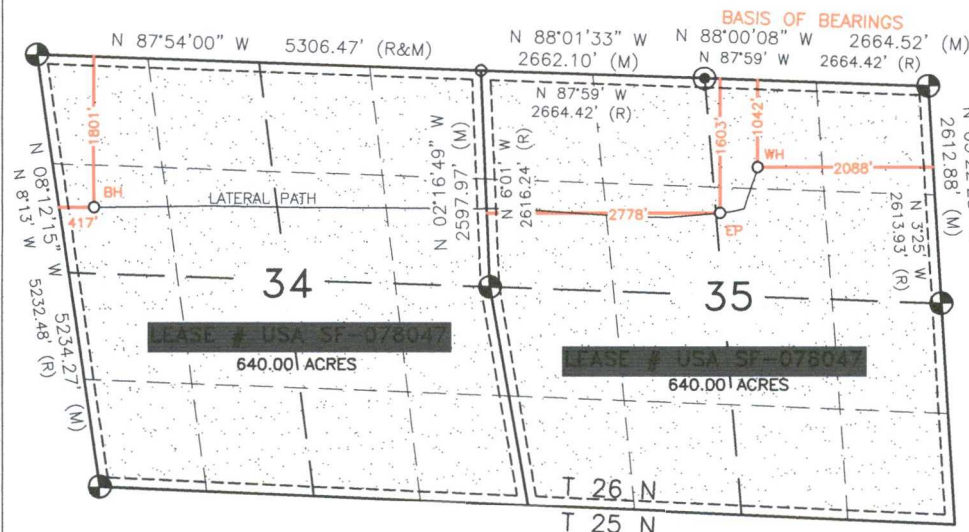
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E	34	26N	7W		1801'	NORTH	417'	WEST	RIO ARRIBA

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NMOC D

NOV 29 2018

DISTRICT III

18	17	OPERATOR CERTIFICATION
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Signature Date

Christine Brock

Printed Name _____

cbrock@hilcorp.com

E-mail Address

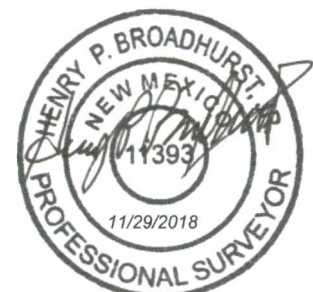
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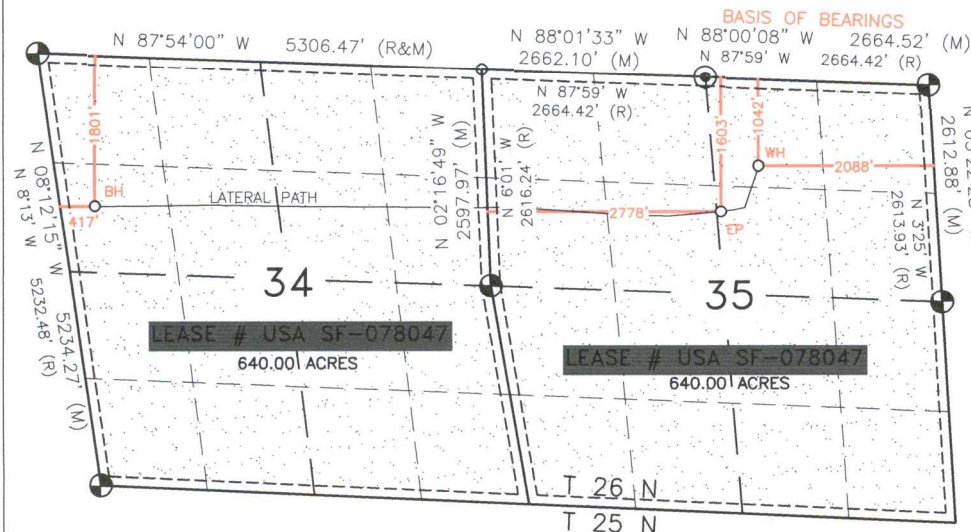
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Christine Brock 11/14/18
Signature Date

Christine Brock

Printed Name

cbrock@hilcorp.com

E-mail Address

SURVEYOR CERTIFICATION

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NOVEMBER 13, 2018

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

11393

File Amended C-102 w/ correct acreage dedication

Hilcorp Deviation Report with TVD

Well Name: PALLUCHE HZMC #1H

Operator HILCORP SAN JUAN, L.P.	Legal WellName PALLUCHE HZMC #1H	API / UWI 3003931138	County RIO ARRIBA	State/Province NEW MEXICO
Surface Legal Location 035-026N-007W-B	North/South Distance (ft) 1,042.0	N/S Ref FNL	East/West Distance (ft) 2,088.0	E/W Ref FEL
Date 10/30/2018	Description DIRECTIONAL SURVEY			

Survey Data

Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	1.00	1.00	0.00	0.00	IncAzi-MWD	Scientific Drilling
10/20/2018	420.49	420.50	0.81	162.86	IncAzi-MWD	Scientific Drilling
10/20/2018	481.48	481.50	0.88	164.93	IncAzi-MWD	Scientific Drilling
10/20/2018	542.47	542.50	0.84	178.90	IncAzi-MWD	Scientific Drilling
10/20/2018	605.46	605.50	1.31	188.50	IncAzi-MWD	Scientific Drilling
10/20/2018	668.44	668.50	1.32	181.89	IncAzi-MWD	Scientific Drilling
10/20/2018	731.43	731.50	1.54	180.85	IncAzi-MWD	Scientific Drilling
10/20/2018	794.40	794.50	1.84	189.04	IncAzi-MWD	Scientific Drilling
10/20/2018	856.36	856.50	2.16	179.87	IncAzi-MWD	Scientific Drilling
10/20/2018	919.31	919.50	2.60	186.49	IncAzi-MWD	Scientific Drilling
10/20/2018	982.24	982.50	2.71	181.81	IncAzi-MWD	Scientific Drilling
10/20/2018	1,045.16	1,045.50	3.06	185.83	IncAzi-MWD	Scientific Drilling
10/20/2018	1,108.06	1,108.50	3.33	185.90	IncAzi-MWD	Scientific Drilling
10/20/2018	1,170.93	1,171.50	4.08	189.74	IncAzi-MWD	Scientific Drilling
10/20/2018	1,232.76	1,233.50	4.33	191.72	IncAzi-MWD	Scientific Drilling
10/20/2018	1,295.55	1,296.50	5.09	198.15	IncAzi-MWD	Scientific Drilling
10/20/2018	1,358.28	1,359.50	5.58	205.58	IncAzi-MWD	Scientific Drilling
10/20/2018	1,420.96	1,422.50	5.88	205.27	IncAzi-MWD	Scientific Drilling
10/20/2018	1,483.62	1,485.50	6.13	206.51	IncAzi-MWD	Scientific Drilling
10/20/2018	1,546.23	1,548.50	6.51	204.79	IncAzi-MWD	Scientific Drilling
10/20/2018	1,607.82	1,610.50	6.76	205.36	IncAzi-MWD	Scientific Drilling
10/20/2018	1,670.34	1,673.50	7.30	204.00	IncAzi-MWD	Scientific Drilling
10/20/2018	1,732.82	1,736.50	7.50	201.39	IncAzi-MWD	Scientific Drilling
10/20/2018	1,795.29	1,799.50	7.33	199.65	IncAzi-MWD	Scientific Drilling
10/20/2018	1,857.84	1,862.50	6.45	199.13	IncAzi-MWD	Scientific Drilling
10/20/2018	1,919.48	1,924.50	5.87	195.19	IncAzi-MWD	Scientific Drilling
10/20/2018	1,982.14	1,987.50	6.08	195.29	IncAzi-MWD	Scientific Drilling
10/20/2018	2,044.76	2,050.50	6.50	195.49	IncAzi-MWD	Scientific Drilling
10/20/2018	2,106.38	2,112.50	6.17	195.24	IncAzi-MWD	Scientific Drilling
10/20/2018	2,169.03	2,175.50	5.92	196.71	IncAzi-MWD	Scientific Drilling
10/20/2018	2,231.70	2,238.50	5.83	195.10	IncAzi-MWD	Scientific Drilling
10/20/2018	2,294.34	2,301.50	6.33	195.05	IncAzi-MWD	Scientific Drilling
10/20/2018	2,356.96	2,364.50	6.27	199.16	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

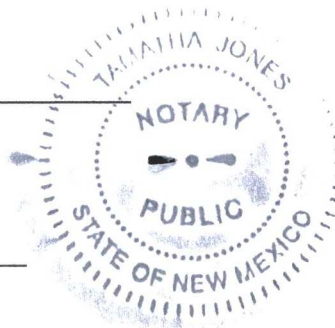
Tyler Chavez

Subscribed and sworn to me this 11/13/2018

Tamatha Jones

Notary Public in and for San Juan County, New Mexico

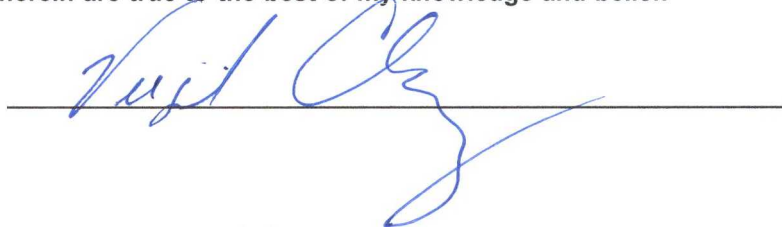
My Commission expires 3/12/2022



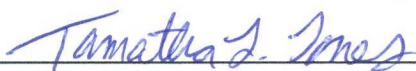
Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	2,419.57	2,427.50	6.45	202.86	IncAzi-MWD	Scientific Drilling
10/20/2018	2,481.15	2,489.50	6.90	202.33	IncAzi-MWD	Scientific Drilling
10/20/2018	2,543.67	2,552.50	7.28	201.94	IncAzi-MWD	Scientific Drilling
10/20/2018	2,606.19	2,615.50	6.89	200.29	IncAzi-MWD	Scientific Drilling
10/20/2018	2,668.74	2,678.50	6.79	201.07	IncAzi-MWD	Scientific Drilling
10/20/2018	2,731.33	2,741.50	6.36	198.30	IncAzi-MWD	Scientific Drilling
10/20/2018	2,793.95	2,804.50	6.20	197.56	IncAzi-MWD	Scientific Drilling
10/20/2018	2,855.58	2,866.50	6.29	198.13	IncAzi-MWD	Scientific Drilling
10/20/2018	2,918.19	2,929.50	6.52	199.47	IncAzi-MWD	Scientific Drilling
10/20/2018	2,980.77	2,992.50	6.73	198.96	IncAzi-MWD	Scientific Drilling
10/20/2018	3,043.33	3,055.50	6.86	198.81	IncAzi-MWD	Scientific Drilling
10/20/2018	3,105.88	3,118.50	6.75	196.54	IncAzi-MWD	Scientific Drilling
10/20/2018	3,168.45	3,181.50	6.75	196.89	IncAzi-MWD	Scientific Drilling
10/20/2018	3,230.02	3,243.50	6.64	197.62	IncAzi-MWD	Scientific Drilling
10/20/2018	3,292.62	3,306.50	6.40	198.91	IncAzi-MWD	Scientific Drilling
10/20/2018	3,355.24	3,369.50	6.11	199.22	IncAzi-MWD	Scientific Drilling
10/20/2018	3,417.90	3,432.50	5.86	198.88	IncAzi-MWD	Scientific Drilling
10/20/2018	3,480.57	3,495.50	5.76	198.94	IncAzi-MWD	Scientific Drilling
10/20/2018	3,543.25	3,558.50	5.77	198.64	IncAzi-MWD	Scientific Drilling
10/20/2018	3,605.94	3,621.50	5.78	200.08	IncAzi-MWD	Scientific Drilling
10/20/2018	3,667.62	3,683.50	5.79	198.22	IncAzi-MWD	Scientific Drilling
10/20/2018	3,730.29	3,746.50	5.87	197.98	IncAzi-MWD	Scientific Drilling
10/20/2018	3,792.95	3,809.50	6.10	198.21	IncAzi-MWD	Scientific Drilling
10/20/2018	3,855.59	3,872.50	6.16	196.97	IncAzi-MWD	Scientific Drilling
10/20/2018	3,917.21	3,934.50	6.49	195.58	IncAzi-MWD	Scientific Drilling
10/20/2018	3,979.79	3,997.50	6.76	195.50	IncAzi-MWD	Scientific Drilling
10/20/2018	4,042.36	4,060.50	6.64	197.45	IncAzi-MWD	Scientific Drilling
10/20/2018	4,104.93	4,123.50	6.77	198.54	IncAzi-MWD	Scientific Drilling
10/20/2018	4,167.48	4,186.50	7.00	199.92	IncAzi-MWD	Scientific Drilling
10/20/2018	4,229.02	4,248.50	6.86	199.48	IncAzi-MWD	Scientific Drilling
10/20/2018	4,291.57	4,311.50	6.90	198.97	IncAzi-MWD	Scientific Drilling
10/20/2018	4,355.09	4,375.50	7.18	199.65	IncAzi-MWD	Scientific Drilling
10/20/2018	4,417.61	4,438.50	6.86	200.30	IncAzi-MWD	Scientific Drilling
10/20/2018	4,478.22	4,499.50	6.15	199.77	IncAzi-MWD	Scientific Drilling
10/20/2018	4,540.85	4,562.50	6.23	198.90	IncAzi-MWD	Scientific Drilling
10/20/2018	4,603.47	4,625.50	6.42	198.76	IncAzi-MWD	Scientific Drilling
10/20/2018	4,666.07	4,688.50	6.52	198.82	IncAzi-MWD	Scientific Drilling
10/20/2018	4,727.66	4,750.50	6.68	196.72	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

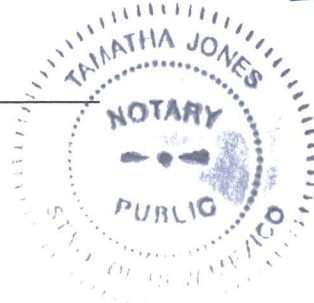


Subscribed and sworn to me this 11/13/2018



Notary Public in and for San Juan County, New Mexico

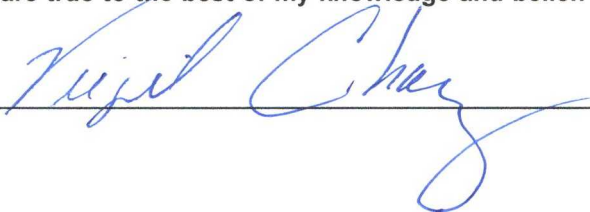
My Commission expires 3/12/2022



Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	4,790.24	4,813.50	6.61	199.74	IncAzi-MWD	Scientific Drilling
10/20/2018	4,852.84	4,876.50	6.19	201.32	IncAzi-MWD	Scientific Drilling
10/20/2018	4,915.48	4,939.50	6.17	199.49	IncAzi-MWD	Scientific Drilling
10/20/2018	4,978.11	5,002.50	6.28	198.23	IncAzi-MWD	Scientific Drilling
10/20/2018	5,040.73	5,065.50	6.26	196.94	IncAzi-MWD	Scientific Drilling
10/20/2018	5,103.34	5,128.50	6.55	197.50	IncAzi-MWD	Scientific Drilling
10/20/2018	5,165.93	5,191.50	6.52	198.96	IncAzi-MWD	Scientific Drilling
10/20/2018	5,227.56	5,253.50	5.91	198.77	IncAzi-MWD	Scientific Drilling
10/20/2018	5,290.26	5,316.50	5.28	200.01	IncAzi-MWD	Scientific Drilling
10/20/2018	5,353.02	5,379.50	4.73	198.70	IncAzi-MWD	Scientific Drilling
10/20/2018	5,415.83	5,442.50	4.25	198.96	IncAzi-MWD	Scientific Drilling
10/20/2018	5,478.66	5,505.50	4.15	201.00	IncAzi-MWD	Scientific Drilling
10/20/2018	5,541.48	5,568.50	4.36	206.22	IncAzi-MWD	Scientific Drilling
10/20/2018	5,604.31	5,631.50	4.24	206.26	IncAzi-MWD	Scientific Drilling
10/20/2018	5,666.17	5,693.50	3.43	203.43	IncAzi-MWD	Scientific Drilling
10/20/2018	5,729.09	5,756.50	2.26	180.13	IncAzi-MWD	Scientific Drilling
10/20/2018	5,792.06	5,819.50	1.59	157.45	IncAzi-MWD	Scientific Drilling
10/20/2018	5,855.05	5,882.50	0.26	169.15	IncAzi-MWD	Scientific Drilling
10/20/2018	5,889.55	5,917.00	0.22	321.37	IncAzi-MWD	Scientific Drilling
10/20/2018	5,946.51	5,974.00	3.43	254.71	IncAzi-MWD	Scientific Drilling
10/20/2018	5,991.37	6,019.00	5.63	255.15	IncAzi-MWD	Scientific Drilling
10/20/2018	6,034.99	6,063.00	9.33	258.13	IncAzi-MWD	Scientific Drilling
10/20/2018	6,064.49	6,093.00	11.60	252.72	IncAzi-MWD	Scientific Drilling
10/20/2018	6,108.26	6,138.00	15.18	252.91	IncAzi-MWD	Scientific Drilling
10/20/2018	6,151.39	6,183.00	17.94	258.16	IncAzi-MWD	Scientific Drilling
10/20/2018	6,193.75	6,228.00	21.47	259.87	IncAzi-MWD	Scientific Drilling
10/20/2018	6,234.35	6,272.00	23.85	260.76	IncAzi-MWD	Scientific Drilling
10/20/2018	6,274.99	6,317.00	26.94	259.91	IncAzi-MWD	Scientific Drilling
10/20/2018	6,313.76	6,361.00	29.53	256.70	IncAzi-MWD	Scientific Drilling
10/20/2018	6,352.07	6,406.00	33.68	255.89	IncAzi-MWD	Scientific Drilling
10/20/2018	6,387.90	6,450.00	37.31	260.92	IncAzi-MWD	Scientific Drilling
10/20/2018	6,423.69	6,495.00	37.31	261.87	IncAzi-MWD	Scientific Drilling
10/20/2018	6,458.07	6,541.00	45.83	262.89	IncAzi-MWD	Scientific Drilling
10/20/2018	6,486.40	6,585.00	53.93	263.33	IncAzi-MWD	Scientific Drilling
10/20/2018	6,510.30	6,630.00	61.86	264.07	IncAzi-MWD	Scientific Drilling
10/20/2018	6,530.06	6,675.00	66.04	263.99	IncAzi-MWD	Scientific Drilling
10/20/2018	6,546.46	6,719.00	70.17	263.18	IncAzi-MWD	Scientific Drilling
10/20/2018	6,560.40	6,764.00	73.74	263.43	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

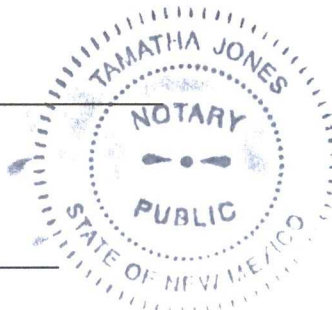


Subscribed and sworn to me this 11/13/2022



Notary Public in and for San Juan County, New Mexico

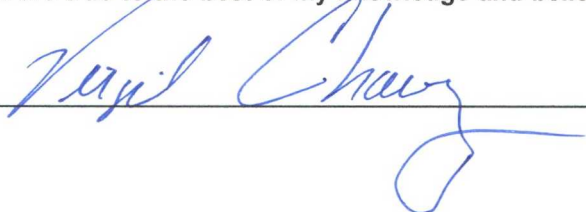
My Commission expires 3/12/2022



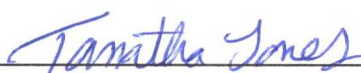
Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	6,572.14	6,809.00	76.02	263.75	IncAzi-MWD	Scientific Drilling
10/20/2018	6,581.54	6,854.00	79.87	264.39	IncAzi-MWD	Scientific Drilling
10/20/2018	6,586.84	6,898.00	86.28	264.30	IncAzi-MWD	Scientific Drilling
10/20/2018	6,588.38	6,943.00	89.80	264.22	IncAzi-MWD	Scientific Drilling
10/20/2018	6,588.39	6,988.00	90.17	264.19	IncAzi-MWD	Scientific Drilling
10/20/2018	6,587.81	7,033.00	91.31	264.79	IncAzi-MWD	Scientific Drilling
10/20/2018	6,586.69	7,077.00	91.61	265.07	IncAzi-MWD	Scientific Drilling
10/20/2018	6,585.16	7,126.00	91.95	264.18	IncAzi-MWD	Scientific Drilling
10/20/2018	6,584.24	7,171.00	90.40	267.68	IncAzi-MWD	Scientific Drilling
10/20/2018	6,583.95	7,215.00	90.37	268.94	IncAzi-MWD	Scientific Drilling
10/20/2018	6,583.50	7,260.00	90.77	270.36	IncAzi-MWD	Scientific Drilling
10/20/2018	6,582.98	7,305.00	90.54	270.40	IncAzi-MWD	Scientific Drilling
10/20/2018	6,582.62	7,349.00	90.40	270.83	IncAzi-MWD	Scientific Drilling
10/20/2018	6,582.27	7,394.00	90.50	270.20	IncAzi-MWD	Scientific Drilling
10/20/2018	6,581.82	7,438.00	90.67	270.15	IncAzi-MWD	Scientific Drilling
10/20/2018	6,581.27	7,483.00	90.74	271.06	IncAzi-MWD	Scientific Drilling
10/20/2018	6,580.76	7,528.00	90.54	271.52	IncAzi-MWD	Scientific Drilling
10/20/2018	6,580.22	7,572.00	90.87	272.10	IncAzi-MWD	Scientific Drilling
10/20/2018	6,579.55	7,617.00	90.84	272.26	IncAzi-MWD	Scientific Drilling
10/20/2018	6,578.77	7,662.00	91.14	272.61	IncAzi-MWD	Scientific Drilling
10/20/2018	6,578.02	7,706.00	90.81	273.10	IncAzi-MWD	Scientific Drilling
10/20/2018	6,577.29	7,751.00	91.07	273.28	IncAzi-MWD	Scientific Drilling
10/20/2018	6,576.47	7,796.00	91.01	273.62	IncAzi-MWD	Scientific Drilling
10/20/2018	6,575.81	7,841.00	90.67	273.36	IncAzi-MWD	Scientific Drilling
10/20/2018	6,575.18	7,885.00	90.97	273.86	IncAzi-MWD	Scientific Drilling
10/20/2018	6,574.50	7,930.00	90.77	274.13	IncAzi-MWD	Scientific Drilling
10/20/2018	6,573.88	7,974.00	90.84	274.40	IncAzi-MWD	Scientific Drilling
10/20/2018	6,573.23	8,019.00	90.81	274.12	IncAzi-MWD	Scientific Drilling
10/20/2018	6,572.70	8,064.00	90.54	274.19	IncAzi-MWD	Scientific Drilling
10/20/2018	6,572.22	8,108.00	90.70	274.68	IncAzi-MWD	Scientific Drilling
10/20/2018	6,571.76	8,153.00	90.47	273.95	IncAzi-MWD	Scientific Drilling
10/20/2018	6,571.36	8,198.00	90.57	274.32	IncAzi-MWD	Scientific Drilling
10/20/2018	6,570.97	8,242.00	90.44	274.11	IncAzi-MWD	Scientific Drilling
10/20/2018	6,570.71	8,287.00	90.23	273.78	IncAzi-MWD	Scientific Drilling
10/20/2018	6,570.52	8,332.00	90.23	274.36	IncAzi-MWD	Scientific Drilling
10/20/2018	6,570.40	8,376.00	90.10	273.84	IncAzi-MWD	Scientific Drilling
10/20/2018	6,570.27	8,421.00	90.23	274.02	IncAzi-MWD	Scientific Drilling
10/20/2018	6,570.10	8,466.00	90.20	273.93	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

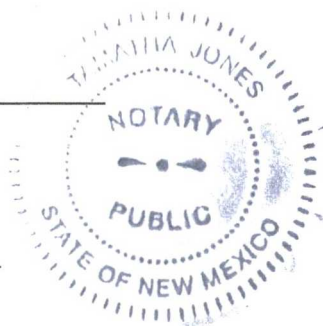


Subscribed and sworn to me this 11/13/2022



Notary Public in and for San Juan County, New Mexico

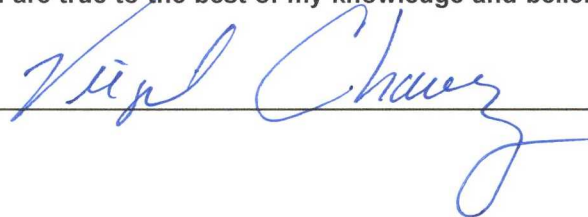
My Commission expires 3/12/2022



Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	6,569.94	8,511.00	90.20	274.08	IncAzi-MWD	Scientific Drilling
10/20/2018	6,569.75	8,555.00	90.30	274.58	IncAzi-MWD	Scientific Drilling
10/20/2018	6,569.53	8,600.00	90.27	274.53	IncAzi-MWD	Scientific Drilling
10/20/2018	6,569.36	8,644.00	90.17	274.59	IncAzi-MWD	Scientific Drilling
10/20/2018	6,569.21	8,689.00	90.20	273.97	IncAzi-MWD	Scientific Drilling
10/20/2018	6,569.02	8,734.00	90.30	274.59	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.77	8,778.00	90.33	277.39	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.55	8,823.00	90.23	276.02	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.48	8,867.00	89.97	275.10	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.45	8,912.00	90.10	273.92	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.34	8,957.00	90.17	272.98	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.23	9,001.00	90.13	273.15	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.14	9,046.00	90.10	272.83	IncAzi-MWD	Scientific Drilling
10/20/2018	6,568.05	9,091.00	90.13	271.84	IncAzi-MWD	Scientific Drilling
10/20/2018	6,567.96	9,135.00	90.10	271.41	IncAzi-MWD	Scientific Drilling
10/20/2018	6,567.84	9,180.00	90.20	270.40	IncAzi-MWD	Scientific Drilling
10/20/2018	6,567.68	9,225.00	90.20	269.02	IncAzi-MWD	Scientific Drilling
10/20/2018	6,567.45	9,269.00	90.40	269.74	IncAzi-MWD	Scientific Drilling
10/20/2018	6,567.29	9,314.00	90.03	268.56	IncAzi-MWD	Scientific Drilling
10/20/2018	6,567.13	9,359.00	90.37	268.57	IncAzi-MWD	Scientific Drilling
10/20/2018	6,566.83	9,404.00	90.40	268.75	IncAzi-MWD	Scientific Drilling
10/20/2018	6,566.44	9,448.00	90.60	269.21	IncAzi-MWD	Scientific Drilling
10/20/2018	6,565.90	9,493.00	90.77	269.59	IncAzi-MWD	Scientific Drilling
10/20/2018	6,565.35	9,537.00	90.67	269.45	IncAzi-MWD	Scientific Drilling
10/20/2018	6,564.77	9,582.00	90.81	270.26	IncAzi-MWD	Scientific Drilling
10/20/2018	6,564.17	9,627.00	90.71	270.11	IncAzi-MWD	Scientific Drilling
10/20/2018	6,563.64	9,672.00	90.64	270.12	IncAzi-MWD	Scientific Drilling
10/20/2018	6,563.10	9,716.00	90.77	270.15	IncAzi-MWD	Scientific Drilling
10/20/2018	6,562.43	9,761.00	90.94	270.10	IncAzi-MWD	Scientific Drilling
10/20/2018	6,561.80	9,805.00	90.70	270.15	IncAzi-MWD	Scientific Drilling
10/20/2018	6,561.20	9,850.00	90.84	270.07	IncAzi-MWD	Scientific Drilling
10/20/2018	6,560.55	9,895.00	90.81	270.07	IncAzi-MWD	Scientific Drilling
10/20/2018	6,559.90	9,939.00	90.87	270.05	IncAzi-MWD	Scientific Drilling
10/20/2018	6,559.30	9,984.00	90.67	269.78	IncAzi-MWD	Scientific Drilling
10/20/2018	6,558.77	10,029.00	90.67	270.99	IncAzi-MWD	Scientific Drilling
10/20/2018	6,558.23	10,073.00	90.74	270.79	IncAzi-MWD	Scientific Drilling
10/20/2018	6,557.60	10,118.00	90.87	270.83	IncAzi-MWD	Scientific Drilling
10/20/2018	6,557.00	10,162.00	90.70	270.56	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

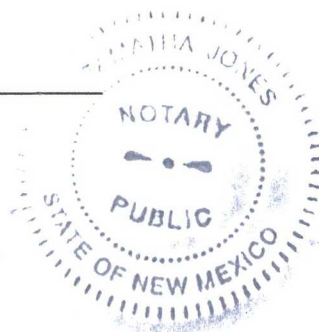


Subscribed and sworn to me this 11/13/2018



Notary Public in and for San Juan County, New Mexico

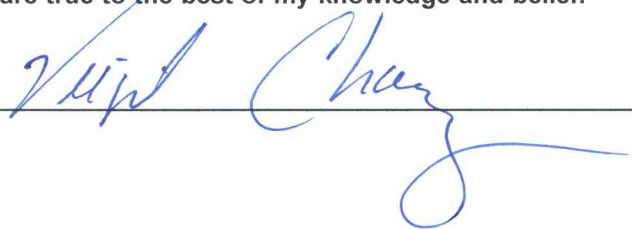
My Commission expires 3/12/2022



Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	6,556.43	10,207.00	90.74	270.87	IncAzi-MWD	Scientific Drilling
10/20/2018	6,555.81	10,252.00	90.84	271.09	IncAzi-MWD	Scientific Drilling
10/20/2018	6,555.22	10,296.00	90.70	270.78	IncAzi-MWD	Scientific Drilling
10/20/2018	6,554.62	10,341.00	90.81	271.09	IncAzi-MWD	Scientific Drilling
10/20/2018	6,554.00	10,385.00	90.81	271.27	IncAzi-MWD	Scientific Drilling
10/20/2018	6,553.34	10,430.00	90.87	270.99	IncAzi-MWD	Scientific Drilling
10/20/2018	6,552.69	10,475.00	90.80	271.44	IncAzi-MWD	Scientific Drilling
10/20/2018	6,552.12	10,519.00	90.67	271.08	IncAzi-MWD	Scientific Drilling
10/20/2018	6,551.56	10,564.00	90.77	270.17	IncAzi-MWD	Scientific Drilling
10/20/2018	6,550.98	10,609.00	90.70	270.82	IncAzi-MWD	Scientific Drilling
10/20/2018	6,550.38	10,653.00	90.87	270.37	IncAzi-MWD	Scientific Drilling
10/20/2018	6,549.68	10,698.00	90.91	270.35	IncAzi-MWD	Scientific Drilling
10/20/2018	6,548.94	10,743.00	90.97	270.25	IncAzi-MWD	Scientific Drilling
10/20/2018	6,548.21	10,787.00	90.94	270.37	IncAzi-MWD	Scientific Drilling
10/20/2018	6,547.44	10,832.00	91.01	270.46	IncAzi-MWD	Scientific Drilling
10/20/2018	6,546.73	10,877.00	90.81	270.46	IncAzi-MWD	Scientific Drilling
10/20/2018	6,546.11	10,921.00	90.80	270.23	IncAzi-MWD	Scientific Drilling
10/20/2018	6,545.56	10,966.00	90.60	269.96	IncAzi-MWD	Scientific Drilling
10/20/2018	6,545.02	11,010.00	90.80	270.35	IncAzi-MWD	Scientific Drilling
10/20/2018	6,544.43	11,055.00	90.70	270.30	IncAzi-MWD	Scientific Drilling
10/20/2018	6,543.83	11,100.00	90.84	270.39	IncAzi-MWD	Scientific Drilling
10/20/2018	6,543.24	11,144.00	90.70	270.33	IncAzi-MWD	Scientific Drilling
10/20/2018	6,542.66	11,189.00	90.77	270.37	IncAzi-MWD	Scientific Drilling
10/20/2018	6,542.06	11,233.00	90.80	270.49	IncAzi-MWD	Scientific Drilling
10/20/2018	6,541.45	11,278.00	90.74	270.45	IncAzi-MWD	Scientific Drilling
10/20/2018	6,540.80	11,323.00	90.91	269.27	IncAzi-MWD	Scientific Drilling
10/20/2018	6,540.05	11,367.00	91.04	269.80	IncAzi-MWD	Scientific Drilling
10/20/2018	6,539.27	11,412.00	90.97	269.44	IncAzi-MWD	Scientific Drilling
10/20/2018	6,538.59	11,457.00	90.74	269.64	IncAzi-MWD	Scientific Drilling
10/20/2018	6,537.96	11,501.00	90.90	269.08	IncAzi-MWD	Scientific Drilling
10/20/2018	6,537.40	11,546.00	90.54	268.89	IncAzi-MWD	Scientific Drilling
10/20/2018	6,536.95	11,591.00	90.60	269.18	IncAzi-MWD	Scientific Drilling
10/20/2018	6,536.45	11,636.00	90.67	269.27	IncAzi-MWD	Scientific Drilling
10/20/2018	6,535.94	11,680.00	90.67	269.31	IncAzi-MWD	Scientific Drilling
10/20/2018	6,535.46	11,725.00	90.54	268.97	IncAzi-MWD	Scientific Drilling
10/20/2018	6,535.01	11,770.00	90.60	269.60	IncAzi-MWD	Scientific Drilling
10/20/2018	6,534.63	11,815.00	90.37	270.30	IncAzi-MWD	Scientific Drilling
10/20/2018	6,534.40	11,859.00	90.23	270.47	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

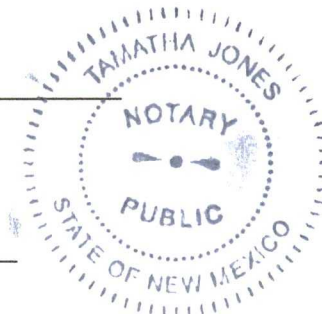


Subscribed and sworn to me this 11/13/2018



Notary Public in and for San Juan County, New Mexico

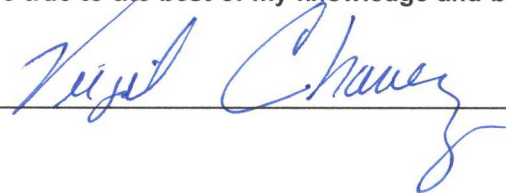
My Commission expires 3/12/2022



Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	6,534.21	11,904.00	90.27	270.03	IncAzi-MWD	Scientific Drilling
10/20/2018	6,533.87	11,949.00	90.60	270.33	IncAzi-MWD	Scientific Drilling
10/20/2018	6,533.38	11,994.00	90.64	270.56	IncAzi-MWD	Scientific Drilling
10/20/2018	6,532.91	12,038.00	90.57	270.53	IncAzi-MWD	Scientific Drilling
10/20/2018	6,532.54	12,083.00	90.37	270.54	IncAzi-MWD	Scientific Drilling
10/20/2018	6,532.24	12,128.00	90.40	270.94	IncAzi-MWD	Scientific Drilling
10/20/2018	6,531.86	12,173.00	90.57	270.31	IncAzi-MWD	Scientific Drilling
10/20/2018	6,531.47	12,217.00	90.44	270.40	IncAzi-MWD	Scientific Drilling
10/20/2018	6,530.62	12,333.00	90.40	272.04	IncAzi-MWD	Scientific Drilling
10/20/2018	6,530.20	12,378.00	90.67	272.05	IncAzi-MWD	Scientific Drilling
10/20/2018	6,529.37	12,423.00	91.44	272.52	IncAzi-MWD	Scientific Drilling
10/20/2018	6,528.05	12,467.00	92.02	273.02	IncAzi-MWD	Scientific Drilling
10/20/2018	6,527.01	12,494.00	92.38	273.09	IncAzi-MWD	Scientific Drilling
10/20/2018	6,525.35	12,538.00	91.95	272.85	IncAzi-MWD	Scientific Drilling
10/20/2018	6,524.21	12,583.00	90.94	272.80	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.92	12,628.00	89.80	273.03	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.89	12,673.00	90.27	272.80	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.69	12,717.00	90.27	272.29	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.51	12,762.00	90.17	272.11	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.37	12,807.00	90.20	271.09	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.24	12,852.00	90.13	271.00	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.29	12,896.00	89.73	270.63	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.54	12,941.00	89.63	270.17	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.84	12,986.00	89.63	268.75	IncAzi-MWD	Scientific Drilling
10/20/2018	6,524.06	13,031.00	89.80	268.84	IncAzi-MWD	Scientific Drilling
10/20/2018	6,524.21	13,075.00	89.80	268.40	IncAzi-MWD	Scientific Drilling
10/20/2018	6,524.17	13,120.00	90.30	268.42	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.97	13,165.00	90.23	268.61	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.82	13,210.00	90.13	268.51	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.63	13,254.00	90.37	268.88	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.44	13,299.00	90.13	268.81	IncAzi-MWD	Scientific Drilling
10/20/2018	6,523.20	13,344.00	90.47	267.49	IncAzi-MWD	Scientific Drilling
10/20/2018	6,522.85	13,388.00	90.44	268.33	IncAzi-MWD	Scientific Drilling
10/20/2018	6,522.61	13,433.00	90.17	267.80	IncAzi-MWD	Scientific Drilling
10/20/2018	6,522.45	13,478.00	90.23	267.62	IncAzi-MWD	Scientific Drilling
10/20/2018	6,522.26	13,522.00	90.27	268.85	IncAzi-MWD	Scientific Drilling
10/20/2018	6,522.04	13,567.00	90.30	268.76	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.81	13,612.00	90.27	269.26	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations Manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

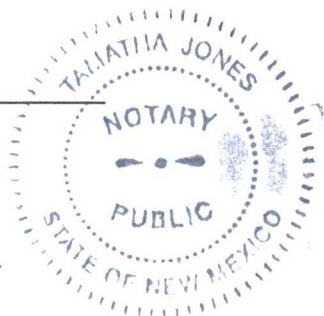


Subscribed and sworn to me this 11/13/2018



Notary Public in and for San Juan County, New Mexico

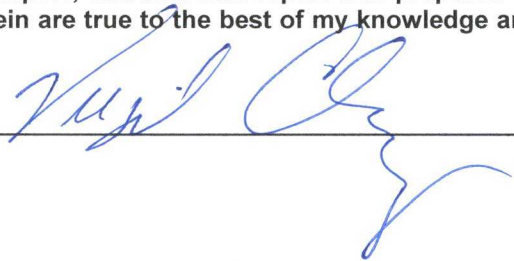
My Commission expires 3/12/2022



Well Name: PALLUCHE HZMC #1H

Survey Data						
Date	TVD (ftKB)	MD (ftKB)	Incl (°)	Azm (°)	Method	Survey Company
10/20/2018	6,521.72	13,657.00	89.97	269.02	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.78	13,701.00	89.87	269.33	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.78	13,746.00	90.13	269.63	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.73	13,791.00	90.00	269.53	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.68	13,835.00	90.13	268.99	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.52	13,880.00	90.27	269.44	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.34	13,925.00	90.20	269.88	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.27	13,970.00	89.97	269.85	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.30	14,014.00	89.97	270.67	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.35	14,059.00	89.90	270.97	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.37	14,104.00	90.03	270.22	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.33	14,135.00	90.13	270.22	IncAzi-MWD	Scientific Drilling
10/20/2018	6,521.01	14,275.00	90.13	270.22	IncAzi-MWD	Scientific Drilling

I, the undersigned, certify that I acting in my capacity as Operations manager for Hilcorp Energy Company, am authorized by said Company to make this report; and that said report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

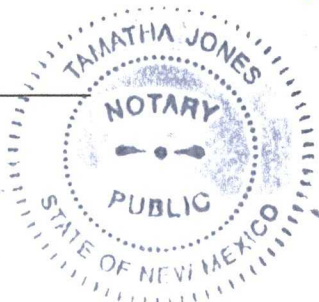


Subscribed and sworn to me this 11/13/2018

Tamatha Jones

Notary Public in and for San Juan County, New Mexico

My Commission expires 3/12/2022





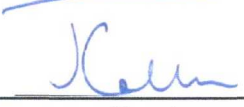
Scientific Drilling

Directional Survey Certification

2948 I-70 Business Loop
Grand Junction, CO 81504
(970)-245-9447 Fax (970)-245-9454

Operator	Hilcorp Energy
Well Name & No.	Palluche HZMC 1H
County & State	Rio Arriba, NM
SDI Job No.	OP.013612
Rig	PD 829

I, Janie Collins, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 5,973 feet to a measured depth of 14,274 feet is true and correct as determined from all available records.


Signature

30-Oct-18
Date

Janie Collins

Colorado District Well Planner
Scientific Drilling International



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

Project	Rio Arriba, NM NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	Palluche			
Site Position:		Northing:	1,982,141.22 usft	Latitude: 36.4471601
From:	Lat/Long	Easting:	585,582.88 usft	Longitude: -107.5423499
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: 0.17 °

Well	Palluche HZMC 1H			
Well Position	+N/-S	0.00 usft	Northing:	1,982,141.22 usft
	+E/-W	0.00 usft	Easting:	585,582.88 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft
			Ground Level:	6,925.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/2/2018	8.82	63.02	49,636

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 5,916.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	266.597

Survey Program	Date	10/30/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
419.50	5,916.00	Survey #1 - MWD Survey (Pilot)	MWD+HDGM	OWSG MWD + HDGM
5,973.00	6,942.00	Survey #1 - Curve MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM
6,987.00	14,274.00	Survey #2 - Lateral MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM

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	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
419.50	0.81	162.860	419.49	-2.83	0.87	-0.70	0.19	0.19	0.00
480.50	0.88	164.930	480.48	-3.70	1.12	-0.90	0.13	0.11	3.39
541.50	0.84	178.900	541.47	-4.60	1.25	-0.98	0.35	-0.07	22.90
604.50	1.31	188.500	604.46	-5.77	1.16	-0.81	0.80	0.75	15.24
667.50	1.32	181.890	667.44	-7.21	1.03	-0.60	0.24	0.02	-10.49
730.50	1.54	180.850	730.43	-8.78	0.99	-0.47	0.35	0.35	-1.65
793.50	1.84	189.040	793.40	-10.63	0.82	-0.19	0.61	0.48	13.00
855.50	2.16	179.870	855.36	-12.78	0.66	0.10	0.73	0.52	-14.79



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)
918.50	2.60	186.490	918.31	-15.38	0.50	0.41	0.82	0.70	10.51
981.50	2.71	181.810	981.24	-18.29	0.30	0.79	0.39	0.17	-7.43
1,044.50	3.06	185.830	1,044.16	-21.45	0.08	1.20	0.64	0.56	6.38
1,107.50	3.33	185.900	1,107.06	-24.95	-0.28	1.76	0.43	0.43	0.11
1,170.50	4.08	189.740	1,169.93	-28.98	-0.85	2.57	1.25	1.19	6.10
1,232.50	4.33	191.720	1,231.76	-33.44	-1.70	3.68	0.47	0.40	3.19
1,295.50	5.09	198.150	1,294.55	-38.43	-3.05	5.33	1.47	1.21	10.21
1,358.50	5.58	205.580	1,357.28	-43.84	-5.24	7.84	1.34	0.78	11.79
1,421.50	5.88	205.270	1,419.96	-49.53	-7.94	10.87	0.48	0.48	-0.49
1,484.50	6.13	206.510	1,482.62	-55.45	-10.82	14.09	0.45	0.40	1.97
1,547.50	6.51	204.790	1,545.23	-61.71	-13.82	17.46	0.67	0.60	-2.73
1,609.50	6.76	205.360	1,606.82	-68.19	-16.86	20.88	0.42	0.40	0.92
1,672.50	7.30	204.000	1,669.34	-75.20	-20.07	24.50	0.90	0.86	-2.16
1,735.50	7.50	201.390	1,731.82	-82.69	-23.20	28.07	0.62	0.32	-4.14
1,798.50	7.33	199.650	1,794.29	-90.30	-26.05	31.37	0.45	-0.27	-2.76
1,861.50	6.45	199.130	1,856.84	-97.43	-28.56	34.30	1.40	-1.40	-0.83
1,923.50	5.87	195.190	1,918.48	-103.78	-30.54	36.64	1.16	-0.94	-6.35
1,986.50	6.08	195.290	1,981.14	-110.10	-32.26	38.74	0.33	0.33	0.16
2,049.50	6.50	195.490	2,043.76	-116.76	-34.09	40.96	0.67	0.67	0.32
2,111.50	6.17	195.240	2,105.38	-123.36	-35.90	43.16	0.53	-0.53	-0.40
2,174.50	5.92	196.710	2,168.03	-129.73	-37.73	45.36	0.47	-0.40	2.33
2,237.50	5.83	195.100	2,230.70	-135.94	-39.50	47.50	0.30	-0.14	-2.56
2,300.50	6.33	195.050	2,293.34	-142.38	-41.23	49.61	0.79	0.79	-0.08
2,363.50	6.27	199.160	2,355.96	-148.98	-43.26	52.03	0.72	-0.10	6.52
2,426.50	6.45	202.860	2,418.58	-155.49	-45.77	54.92	0.71	0.29	5.87
2,488.50	6.90	202.330	2,480.15	-162.15	-48.53	58.07	0.73	0.73	-0.85
2,551.50	7.28	201.940	2,542.67	-169.35	-51.46	61.43	0.61	0.60	-0.62
2,614.50	6.89	200.290	2,605.19	-176.60	-54.27	64.65	0.70	-0.62	-2.62
2,677.50	6.79	201.070	2,667.74	-183.62	-56.91	67.71	0.22	-0.16	1.24
2,740.50	6.36	198.300	2,730.33	-190.40	-59.35	70.55	0.85	-0.68	-4.40
2,803.50	6.20	197.560	2,792.95	-196.96	-61.47	73.05	0.28	-0.25	-1.17
2,865.50	6.29	198.130	2,854.58	-203.38	-63.54	75.50	0.18	0.15	0.92
2,928.50	6.52	199.470	2,917.19	-210.03	-65.80	78.16	0.44	0.37	2.13
2,991.50	6.73	198.960	2,979.77	-216.90	-68.20	80.95	0.35	0.33	-0.81
3,054.50	6.86	198.810	3,042.33	-223.95	-70.61	83.78	0.21	0.21	-0.24
3,117.50	6.75	196.540	3,104.88	-231.06	-72.88	86.46	0.46	-0.17	-3.60
3,180.50	6.75	196.890	3,167.45	-238.15	-75.01	89.01	0.07	0.00	0.56
3,242.50	6.64	197.620	3,229.02	-245.05	-77.15	91.56	0.22	-0.18	1.18
3,305.50	6.40	198.910	3,291.62	-251.85	-79.39	94.20	0.45	-0.38	2.05
3,368.50	6.11	199.220	3,354.24	-258.34	-81.63	96.82	0.46	-0.46	0.49
3,431.50	5.86	198.880	3,416.90	-264.54	-83.78	99.33	0.40	-0.40	-0.54
3,494.50	5.76	198.940	3,479.57	-270.58	-85.84	101.75	0.16	-0.16	0.10
3,557.50	5.77	198.640	3,542.25	-276.57	-87.88	104.14	0.05	0.02	-0.48



Scientific Drilling, Intl

Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)	
3,620.50	5.78	200.080	3,604.94	-282.55	-89.98	106.60	0.23	0.02	2.29	
3,682.50	5.79	198.220	3,666.62	-288.45	-92.03	108.99	0.30	0.02	-3.00	
3,745.50	5.87	197.980	3,729.29	-294.53	-94.02	111.34	0.13	0.13	-0.38	
3,808.50	6.10	198.210	3,791.95	-300.78	-96.06	113.74	0.37	0.37	0.37	
3,871.50	6.16	196.970	3,854.59	-307.19	-98.09	116.15	0.23	0.10	-1.97	
3,933.50	6.49	195.580	3,916.21	-313.75	-100.01	118.45	0.59	0.53	-2.24	
3,996.50	6.76	195.500	3,978.79	-320.75	-101.95	120.81	0.43	0.43	-0.13	
4,059.50	6.64	197.450	4,041.36	-327.80	-104.04	123.31	0.41	-0.19	3.10	
4,122.50	6.77	198.540	4,103.93	-334.79	-106.31	125.99	0.29	0.21	1.73	
4,185.50	7.00	199.920	4,166.48	-341.92	-108.80	128.90	0.45	0.37	2.19	
4,247.50	6.86	199.480	4,228.02	-348.97	-111.32	131.84	0.24	-0.23	-0.71	
4,310.50	6.90	198.970	4,290.57	-356.09	-113.80	134.74	0.12	0.06	-0.81	
4,374.50	7.18	199.650	4,354.09	-363.49	-116.40	137.77	0.46	0.44	1.06	
4,437.50	6.86	200.300	4,416.62	-370.73	-119.03	140.82	0.52	-0.51	1.03	
4,498.50	6.15	199.770	4,477.22	-377.22	-121.40	143.57	1.17	-1.16	-0.87	
4,561.50	6.23	198.900	4,539.85	-383.63	-123.65	146.20	0.20	0.13	-1.38	
4,624.50	6.42	198.760	4,602.47	-390.20	-125.89	148.83	0.30	0.30	-0.22	
4,687.50	6.52	198.820	4,665.07	-396.92	-128.17	151.51	0.16	0.16	0.10	
4,749.50	6.68	196.720	4,726.66	-403.71	-130.35	154.08	0.47	0.26	-3.39	
4,812.50	6.61	199.740	4,789.24	-410.63	-132.62	156.76	0.57	-0.11	4.79	
4,875.50	6.19	201.320	4,851.84	-417.21	-135.08	159.61	0.72	-0.67	2.51	
4,938.50	6.17	199.490	4,914.48	-423.56	-137.45	162.35	0.31	-0.03	-2.90	
5,001.50	6.28	198.230	4,977.11	-430.03	-139.66	164.94	0.28	0.17	-2.00	
5,064.50	6.26	196.940	5,039.73	-436.59	-141.73	167.40	0.23	-0.03	-2.05	
5,127.50	6.55	197.500	5,102.34	-443.30	-143.82	169.88	0.47	0.46	0.89	
5,190.50	6.52	198.960	5,164.93	-450.11	-146.06	172.52	0.27	-0.05	2.32	
5,252.50	5.91	198.770	5,226.56	-456.46	-148.23	175.06	0.98	-0.98	-0.31	
5,315.50	5.28	200.010	5,289.26	-462.25	-150.26	177.44	1.02	-1.00	1.97	
5,378.50	4.73	198.700	5,352.02	-467.44	-152.09	179.57	0.89	-0.87	-2.08	
5,441.50	4.25	198.960	5,414.83	-472.11	-153.68	181.43	0.76	-0.76	0.41	
5,504.50	4.15	201.000	5,477.66	-476.44	-155.26	183.26	0.29	-0.16	3.24	
5,567.50	4.36	206.220	5,540.48	-480.72	-157.13	185.39	0.70	0.33	8.29	
5,630.50	4.24	206.260	5,603.31	-484.96	-159.22	187.73	0.19	-0.19	0.06	
5,692.50	3.43	203.430	5,665.17	-488.71	-160.97	189.70	1.34	-1.31	-4.56	
5,755.50	2.26	180.130	5,728.09	-491.68	-161.72	190.62	2.58	-1.86	-36.98	
5,818.50	1.59	157.450	5,791.06	-493.73	-161.39	190.41	1.59	-1.06	-36.00	
5,881.50	0.26	169.150	5,854.05	-494.68	-161.03	190.11	2.12	-2.11	18.57	
5,916.00	0.22	321.366	5,888.55	-494.71	-161.06	190.14	1.36	-0.11	441.21	
5,973.00	3.43	254.710	5,945.51	-495.07	-162.77	191.87	5.87	5.63	-116.94	
6,018.00	5.63	255.150	5,990.37	-495.99	-166.20	195.35	4.89	4.89	0.98	
6,062.00	9.33	258.130	6,033.99	-497.28	-171.78	201.00	8.45	8.41	6.77	
6,092.00	11.60	252.720	6,063.48	-498.67	-177.04	206.33	8.24	7.57	-18.03	
6,137.00	15.18	252.910	6,107.25	-501.75	-187.00	216.45	7.96	7.96	0.42	



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)	
6,182.00	17.94	258.160	6,150.39	-504.90	-199.41	229.03	6.97	6.13	11.67	
6,227.00	21.47	259.870	6,192.74	-507.78	-214.31	244.07	7.95	7.84	3.80	
6,271.00	23.85	260.760	6,233.34	-510.62	-231.02	260.92	5.46	5.41	2.02	
6,316.00	26.94	259.910	6,273.99	-513.87	-250.04	280.10	6.91	6.87	-1.89	
6,360.00	29.53	256.700	6,312.75	-518.11	-270.41	300.69	6.82	5.89	-7.30	
6,405.00	33.68	255.890	6,351.07	-523.71	-293.31	323.88	9.27	9.22	-1.80	
6,449.00	37.31	260.920	6,386.90	-528.79	-318.33	349.15	10.58	8.25	11.43	
6,494.00	37.31	261.870	6,422.69	-532.87	-345.30	376.32	1.28	0.00	2.11	
6,540.00	45.83	262.890	6,457.07	-536.89	-375.52	406.73	18.58	18.52	2.22	
6,584.00	53.93	263.330	6,485.40	-540.91	-408.90	440.28	18.42	18.41	1.00	
6,629.00	61.86	264.070	6,509.30	-545.08	-446.76	478.32	17.68	17.62	1.64	
6,674.00	66.04	263.990	6,529.06	-549.29	-486.96	518.70	9.29	9.29	-0.18	
6,718.00	70.17	263.180	6,545.46	-553.85	-527.52	559.46	9.54	9.39	-1.84	
6,763.00	73.74	263.430	6,559.40	-558.84	-570.00	602.17	7.95	7.93	0.56	
6,808.00	76.02	263.750	6,571.14	-563.69	-613.17	645.55	5.11	5.07	0.71	
6,853.00	79.87	264.390	6,580.53	-568.23	-656.94	689.51	8.67	8.56	1.42	
6,897.00	86.28	264.300	6,585.83	-572.53	-700.38	733.13	14.57	14.57	-0.20	
6,942.00	89.80	264.220	6,587.37	-577.03	-745.12	778.06	7.82	7.82	-0.18	
6,987.00	90.17	264.190	6,587.39	-581.57	-789.89	823.02	0.82	0.82	-0.07	
7,032.00	91.31	264.790	6,586.80	-585.90	-834.68	867.99	2.86	2.53	1.33	
7,076.00	91.61	265.070	6,585.68	-589.78	-878.50	911.96	0.93	0.68	0.64	
7,125.00	91.95	264.180	6,584.16	-594.37	-927.26	960.90	1.94	0.69	-1.82	
7,170.00	90.40	267.680	6,583.24	-597.56	-972.12	1,005.88	8.50	-3.44	7.78	
7,214.00	90.37	268.940	6,582.94	-598.86	-1,016.10	1,049.86	2.86	-0.07	2.86	
7,259.00	90.77	270.360	6,582.49	-599.13	-1,061.10	1,094.79	3.28	0.89	3.16	
7,304.00	90.54	270.400	6,581.98	-598.84	-1,106.10	1,139.69	0.52	-0.51	0.09	
7,348.00	90.40	270.830	6,581.62	-598.36	-1,150.09	1,183.58	1.03	-0.32	0.98	
7,393.00	90.50	270.200	6,581.27	-597.96	-1,195.09	1,228.47	1.42	0.22	-1.40	
7,437.00	90.67	270.150	6,580.82	-597.83	-1,239.09	1,272.39	0.40	0.39	-0.11	
7,482.00	90.74	271.060	6,580.26	-597.35	-1,284.08	1,317.27	2.03	0.16	2.02	
7,527.00	90.54	271.520	6,579.76	-596.34	-1,329.06	1,362.12	1.11	-0.44	1.02	
7,571.00	90.87	272.100	6,579.22	-594.95	-1,373.04	1,405.93	1.52	0.75	1.32	
7,616.00	90.84	272.260	6,578.55	-593.24	-1,418.00	1,450.71	0.36	-0.07	0.36	
7,661.00	91.14	272.610	6,577.77	-591.32	-1,462.95	1,495.47	1.02	0.67	0.78	
7,705.00	90.81	273.100	6,577.02	-589.13	-1,506.89	1,539.21	1.34	-0.75	1.11	
7,750.00	91.07	273.280	6,576.28	-586.63	-1,551.82	1,583.90	0.70	0.58	0.40	
7,795.00	91.01	273.620	6,575.47	-583.92	-1,596.73	1,628.57	0.77	-0.13	0.76	
7,840.00	90.67	273.360	6,574.81	-581.18	-1,641.64	1,673.24	0.95	-0.76	-0.58	
7,884.00	90.97	273.860	6,574.18	-578.41	-1,685.55	1,716.91	1.33	0.68	1.14	
7,929.00	90.77	274.130	6,573.49	-575.28	-1,730.43	1,761.53	0.75	-0.44	0.60	
7,973.00	90.84	274.400	6,572.88	-572.01	-1,774.31	1,805.13	0.63	0.16	0.61	
8,018.00	90.81	274.120	6,572.23	-568.66	-1,819.18	1,849.73	0.63	-0.07	-0.62	
8,063.00	90.54	274.190	6,571.70	-565.40	-1,864.06	1,894.33	0.62	-0.60	0.16	
8,107.00	90.70	274.680	6,571.22	-562.00	-1,907.92	1,937.92	1.17	0.36	1.11	



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)	
8,152.00	90.47	273.950	6,570.76	-558.62	-1,952.79	1,982.51	1.70	-0.51	-1.62	
8,197.00	90.57	274.320	6,570.35	-555.37	-1,997.67	2,027.12	0.85	0.22	0.82	
8,241.00	90.44	274.110	6,569.97	-552.14	-2,041.55	2,070.73	0.56	-0.30	-0.48	
8,286.00	90.23	273.780	6,569.70	-549.04	-2,086.44	2,115.36	0.87	-0.47	-0.73	
8,331.00	90.23	274.360	6,569.52	-545.85	-2,131.33	2,159.97	1.29	0.00	1.29	
8,375.00	90.10	273.840	6,569.39	-542.70	-2,175.22	2,203.60	1.22	-0.30	-1.18	
8,420.00	90.23	274.020	6,569.27	-539.62	-2,220.11	2,248.23	0.49	0.29	0.40	
8,465.00	90.20	273.930	6,569.10	-536.50	-2,265.00	2,292.85	0.21	-0.07	-0.20	
8,510.00	90.20	274.080	6,568.94	-533.35	-2,309.89	2,337.48	0.33	0.00	0.33	
8,554.00	90.30	274.580	6,568.75	-530.03	-2,353.77	2,381.08	1.16	0.23	1.14	
8,599.00	90.27	274.530	6,568.52	-526.46	-2,398.62	2,425.64	0.13	-0.07	-0.11	
8,643.00	90.17	274.590	6,568.35	-522.96	-2,442.48	2,469.22	0.27	-0.23	0.14	
8,688.00	90.20	273.970	6,568.21	-519.60	-2,487.36	2,513.82	1.38	0.07	-1.38	
8,733.00	90.30	274.590	6,568.01	-516.24	-2,532.23	2,558.41	1.40	0.22	1.38	
8,777.00	90.33	277.390	6,567.77	-511.65	-2,575.99	2,601.82	6.36	0.07	6.36	
8,822.00	90.23	276.020	6,567.55	-506.40	-2,620.68	2,646.12	3.05	-0.22	-3.04	
8,866.00	89.97	275.100	6,567.47	-502.14	-2,664.47	2,689.58	2.17	-0.59	-2.09	
8,911.00	90.10	273.920	6,567.45	-498.60	-2,709.33	2,734.15	2.64	0.29	-2.62	
8,956.00	90.17	272.980	6,567.34	-495.89	-2,754.25	2,778.83	2.09	0.16	-2.09	
9,000.00	90.13	273.150	6,567.23	-493.54	-2,798.18	2,822.55	0.40	-0.09	0.39	
9,045.00	90.10	272.830	6,567.14	-491.19	-2,843.12	2,867.27	0.71	-0.07	-0.71	
9,090.00	90.13	271.840	6,567.04	-489.36	-2,888.09	2,912.04	2.20	0.07	-2.20	
9,134.00	90.10	271.410	6,566.96	-488.11	-2,932.07	2,955.87	0.98	-0.07	-0.98	
9,179.00	90.20	270.400	6,566.84	-487.40	-2,977.06	3,000.74	2.26	0.22	-2.24	
9,224.00	90.20	269.020	6,566.68	-487.63	-3,022.06	3,045.68	3.07	0.00	-3.07	
9,268.00	90.40	269.740	6,566.45	-488.10	-3,066.06	3,089.62	1.70	0.45	1.64	
9,313.00	90.03	268.560	6,566.28	-488.77	-3,111.05	3,134.58	2.75	-0.82	-2.62	
9,358.00	90.37	268.570	6,566.13	-489.90	-3,156.03	3,179.55	0.76	0.76	0.02	
9,403.00	90.40	268.750	6,565.82	-490.95	-3,201.02	3,224.52	0.41	0.07	0.40	
9,447.00	90.60	269.210	6,565.44	-491.73	-3,245.01	3,268.48	1.14	0.45	1.05	
9,492.00	90.77	269.590	6,564.90	-492.20	-3,290.01	3,313.42	0.93	0.38	0.84	
9,536.00	90.67	269.450	6,564.35	-492.57	-3,334.00	3,357.36	0.39	-0.23	-0.32	
9,581.00	90.81	270.260	6,563.77	-492.69	-3,379.00	3,402.28	1.83	0.31	1.80	
9,626.00	90.71	270.110	6,563.17	-492.54	-3,423.99	3,447.19	0.40	-0.22	-0.33	
9,671.00	90.64	270.120	6,562.64	-492.45	-3,468.99	3,492.10	0.16	-0.16	0.02	
9,715.00	90.77	270.150	6,562.10	-492.35	-3,512.99	3,536.02	0.30	0.30	0.07	
9,760.00	90.94	270.100	6,561.43	-492.25	-3,557.98	3,580.93	0.39	0.38	-0.11	
9,804.00	90.70	270.150	6,560.80	-492.15	-3,601.98	3,624.84	0.56	-0.55	0.11	
9,849.00	90.84	270.070	6,560.19	-492.07	-3,646.97	3,669.75	0.36	0.31	-0.18	
9,894.00	90.81	270.070	6,559.54	-492.01	-3,691.97	3,714.66	0.07	-0.07	0.00	
9,938.00	90.87	270.050	6,558.90	-491.96	-3,735.96	3,758.58	0.14	0.14	-0.05	
9,983.00	90.67	269.780	6,558.29	-492.03	-3,780.96	3,803.50	0.75	-0.44	-0.60	
10,028.00	90.67	270.990	6,557.77	-491.73	-3,825.95	3,848.40	2.69	0.00	2.69	



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)	
10,072.00	90.74	270.790	6,557.23	-491.05	-3,869.95	3,892.27	0.48	0.16	-0.45	
10,117.00	90.87	270.830	6,556.59	-490.41	-3,914.94	3,937.14	0.30	0.29	0.09	
10,161.00	90.70	270.560	6,555.99	-489.88	-3,958.93	3,981.03	0.73	-0.39	-0.61	
10,206.00	90.74	270.870	6,555.43	-489.31	-4,003.92	4,025.91	0.69	0.09	0.69	
10,251.00	90.84	271.090	6,554.81	-488.55	-4,048.91	4,070.77	0.54	0.22	0.49	
10,295.00	90.70	270.780	6,554.21	-487.83	-4,092.90	4,114.64	0.77	-0.32	-0.70	
10,340.00	90.81	271.090	6,553.62	-487.09	-4,137.89	4,159.51	0.73	0.24	0.69	
10,384.00	90.81	271.270	6,553.00	-486.19	-4,181.88	4,203.36	0.41	0.00	0.41	
10,429.00	90.87	270.990	6,552.34	-485.30	-4,226.86	4,248.22	0.64	0.13	-0.62	
10,474.00	90.80	271.440	6,551.68	-484.35	-4,271.85	4,293.07	1.01	-0.16	1.00	
10,518.00	90.67	271.080	6,551.12	-483.38	-4,315.83	4,336.92	0.87	-0.30	-0.82	
10,563.00	90.77	270.170	6,550.55	-482.89	-4,360.83	4,381.80	2.03	0.22	-2.02	
10,608.00	90.70	270.820	6,549.98	-482.50	-4,405.82	4,426.69	1.45	-0.16	1.44	
10,652.00	90.87	270.370	6,549.37	-482.04	-4,449.82	4,470.58	1.09	0.39	-1.02	
10,697.00	90.91	270.350	6,548.68	-481.76	-4,494.81	4,515.48	0.10	0.09	-0.04	
10,742.00	90.97	270.250	6,547.94	-481.52	-4,539.80	4,560.38	0.26	0.13	-0.22	
10,786.00	90.94	270.370	6,547.20	-481.29	-4,583.80	4,604.28	0.28	-0.07	0.27	
10,831.00	91.01	270.460	6,546.44	-480.96	-4,628.79	4,649.18	0.25	0.16	0.20	
10,876.00	90.81	270.460	6,545.72	-480.60	-4,673.78	4,694.07	0.44	-0.44	0.00	
10,920.00	90.80	270.230	6,545.11	-480.33	-4,717.78	4,737.97	0.52	-0.02	-0.52	
10,965.00	90.60	269.960	6,544.56	-480.26	-4,762.77	4,782.88	0.75	-0.44	-0.60	
11,009.00	90.80	270.350	6,544.02	-480.14	-4,806.77	4,826.79	1.00	0.45	0.89	
11,054.00	90.70	270.300	6,543.43	-479.88	-4,851.76	4,871.69	0.25	-0.22	-0.11	
11,099.00	90.84	270.390	6,542.82	-479.61	-4,896.76	4,916.59	0.37	0.31	0.20	
11,143.00	90.70	270.330	6,542.23	-479.34	-4,940.75	4,960.50	0.35	-0.32	-0.14	
11,188.00	90.77	270.370	6,541.66	-479.06	-4,985.75	5,005.40	0.18	0.16	0.09	
11,232.00	90.80	270.490	6,541.05	-478.73	-5,029.74	5,049.29	0.28	0.07	0.27	
11,277.00	90.74	270.450	6,540.45	-478.36	-5,074.74	5,094.19	0.16	-0.13	-0.09	
11,322.00	90.91	269.270	6,539.80	-478.47	-5,119.73	5,139.11	2.65	0.38	-2.62	
11,366.00	91.04	269.800	6,539.05	-478.83	-5,163.73	5,183.04	1.24	0.30	1.20	
11,411.00	90.97	269.440	6,538.26	-479.13	-5,208.72	5,227.97	0.81	-0.16	-0.80	
11,456.00	90.74	269.640	6,537.59	-479.49	-5,253.71	5,272.91	0.68	-0.51	0.44	
11,500.00	90.90	269.080	6,536.96	-479.98	-5,297.70	5,316.85	1.32	0.36	-1.27	
11,545.00	90.54	268.890	6,536.40	-480.78	-5,342.69	5,361.81	0.90	-0.80	-0.42	
11,590.00	90.60	269.180	6,535.95	-481.54	-5,387.68	5,406.77	0.66	0.13	0.64	
11,635.00	90.67	269.270	6,535.45	-482.14	-5,432.68	5,451.72	0.25	0.16	0.20	
11,679.00	90.67	269.310	6,534.93	-482.69	-5,476.67	5,495.67	0.09	0.00	0.09	
11,724.00	90.54	268.970	6,534.46	-483.36	-5,521.66	5,540.62	0.81	-0.29	-0.76	
11,769.00	90.60	269.600	6,534.01	-483.93	-5,566.66	5,585.57	1.41	0.13	1.40	
11,814.00	90.37	270.300	6,533.63	-483.97	-5,611.66	5,630.49	1.64	-0.51	1.56	
11,858.00	90.23	270.470	6,533.40	-483.67	-5,655.65	5,674.39	0.50	-0.32	0.39	
11,903.00	90.27	270.030	6,533.20	-483.47	-5,700.65	5,719.30	0.98	0.09	-0.98	
11,948.00	90.60	270.330	6,532.86	-483.33	-5,745.65	5,764.21	0.99	0.73	0.67	



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)	
11,993.00	90.64	270.560	6,532.38	-482.98	-5,790.65	5,809.11	0.52	0.09	0.51	
12,037.00	90.57	270.530	6,531.91	-482.56	-5,834.64	5,853.00	0.17	-0.16	-0.07	
12,082.00	90.37	270.540	6,531.54	-482.14	-5,879.64	5,897.89	0.44	-0.44	0.02	
12,127.00	90.40	270.940	6,531.24	-481.56	-5,924.63	5,942.77	0.89	0.07	0.89	
12,172.00	90.57	270.310	6,530.86	-481.07	-5,969.63	5,987.66	1.45	0.38	-1.40	
12,216.00	90.44	270.400	6,530.47	-480.80	-6,013.63	6,031.56	0.36	-0.30	0.20	
12,332.00	90.40	272.040	6,529.62	-478.33	-6,129.59	6,147.18	1.41	-0.03	1.41	
12,377.00	90.67	272.050	6,529.20	-476.72	-6,174.56	6,191.97	0.60	0.60	0.02	
12,422.00	91.44	272.520	6,528.37	-474.93	-6,219.52	6,236.74	2.00	1.71	1.04	
12,466.00	92.02	273.020	6,527.04	-472.80	-6,263.45	6,280.47	1.74	1.32	1.14	
12,493.00	92.38	273.090	6,526.01	-471.37	-6,290.39	6,307.28	1.36	1.33	0.26	
12,537.00	91.95	272.850	6,524.34	-469.09	-6,334.30	6,350.97	1.12	-0.98	-0.55	
12,582.00	90.94	272.800	6,523.21	-466.87	-6,379.23	6,395.69	2.25	-2.24	-0.11	
12,627.00	89.80	273.030	6,522.92	-464.58	-6,424.17	6,440.42	2.58	-2.53	0.51	
12,672.00	90.27	272.800	6,522.89	-462.30	-6,469.11	6,485.15	1.16	1.04	-0.51	
12,716.00	90.27	272.290	6,522.68	-460.34	-6,513.07	6,528.91	1.16	0.00	-1.16	
12,761.00	90.17	272.110	6,522.51	-458.61	-6,558.03	6,573.69	0.46	-0.22	-0.40	
12,806.00	90.20	271.090	6,522.37	-457.36	-6,603.01	6,618.52	2.27	0.07	-2.27	
12,851.00	90.13	271.000	6,522.24	-456.54	-6,648.01	6,663.38	0.25	-0.16	-0.20	
12,895.00	89.73	270.630	6,522.29	-455.91	-6,692.00	6,707.26	1.24	-0.91	-0.84	
12,940.00	89.63	270.170	6,522.54	-455.60	-6,737.00	6,752.16	1.05	-0.22	-1.02	
12,985.00	89.63	268.750	6,522.83	-456.02	-6,782.00	6,797.11	3.16	0.00	-3.16	
13,030.00	89.80	268.840	6,523.06	-456.97	-6,826.99	6,842.07	0.43	0.38	0.20	
13,074.00	89.80	268.400	6,523.21	-458.03	-6,870.97	6,886.05	1.00	0.00	-1.00	
13,119.00	90.30	268.420	6,523.17	-459.28	-6,915.96	6,931.02	1.11	1.11	0.04	
13,164.00	90.23	268.610	6,522.96	-460.44	-6,960.94	6,976.00	0.45	-0.16	0.42	
13,209.00	90.13	268.510	6,522.82	-461.57	-7,005.93	7,020.97	0.31	-0.22	-0.22	
13,253.00	90.37	268.880	6,522.63	-462.57	-7,049.91	7,064.94	1.00	0.55	0.84	
13,298.00	90.13	268.810	6,522.43	-463.48	-7,094.90	7,109.91	0.56	-0.53	-0.16	
13,343.00	90.47	267.490	6,522.20	-464.93	-7,139.88	7,154.89	3.03	0.76	-2.93	
13,387.00	90.44	268.330	6,521.85	-466.54	-7,183.85	7,198.87	1.91	-0.07	1.91	
13,432.00	90.17	267.800	6,521.61	-468.06	-7,228.82	7,243.86	1.32	-0.60	-1.18	
13,477.00	90.23	267.620	6,521.45	-469.86	-7,273.78	7,288.85	0.42	0.13	-0.40	
13,521.00	90.27	268.850	6,521.26	-471.21	-7,317.76	7,332.83	2.80	0.09	2.80	
13,566.00	90.30	268.760	6,521.04	-472.15	-7,362.75	7,377.80	0.21	0.07	-0.20	
13,611.00	90.27	269.260	6,520.81	-472.93	-7,407.74	7,422.76	1.11	-0.07	1.11	
13,656.00	89.97	269.020	6,520.72	-473.60	-7,452.74	7,467.71	0.85	-0.67	-0.53	
13,700.00	89.87	269.330	6,520.78	-474.24	-7,496.74	7,511.67	0.74	-0.23	0.70	
13,745.00	90.13	269.630	6,520.78	-474.64	-7,541.73	7,556.61	0.88	0.58	0.67	
13,790.00	90.00	269.530	6,520.73	-474.97	-7,586.73	7,601.55	0.36	-0.29	-0.22	
13,834.00	90.13	268.990	6,520.68	-475.54	-7,630.73	7,645.50	1.26	0.30	-1.23	
13,879.00	90.27	269.440	6,520.52	-476.16	-7,675.72	7,690.45	1.05	0.31	1.00	
13,924.00	90.20	269.880	6,520.34	-476.43	-7,720.72	7,735.39	0.99	-0.16	0.98	
13,969.00	89.97	269.850	6,520.27	-476.53	-7,765.72	7,780.32	0.52	-0.51	-0.07	



Scientific Drilling, Intl
Survey Report



Company:	Hilcorp Energy Corp.	Local Co-ordinate Reference:	Well Palluche HZMC 1H
Project:	Rio Arriba, NM NAD27	TVD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Site:	Palluche	MD Reference:	GL 6925' & RKB 16.5' @ 6941.50usft (PD 829)
Well:	Palluche HZMC 1H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)
14,013.00	89.97	270.670	6,520.29	-476.33	-7,809.72	7,824.22	1.86	0.00	1.86
14,058.00	89.90	270.970	6,520.34	-475.69	-7,854.72	7,869.10	0.68	-0.16	0.67
14,103.00	90.03	270.220	6,520.37	-475.22	-7,899.71	7,913.99	1.69	0.29	-1.67
14,134.00	90.13	270.220	6,520.33	-475.10	-7,930.71	7,944.93	0.32	0.32	0.00
14,274.00	90.13	270.220	6,520.01	-474.56	-8,070.71	8,084.65	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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