

Nevis Energy Services, Inc.

12 January 2004

State of New Mexico
Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

3003927462

Re: Mallon Oil Company
Jicarilla 29-02-16 #4
Rio Arriba Co., NM
Job #204-119
API No. 300-39-27462



To Whom it May Concern:

Enclosed please find the Directional Survey data and Lease Plat for the above referenced well to be filed with your group.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Jeff Arenas	#4	3,574	7,355	18 Feb 04	05 Mar 04	MWD

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Sincerely,

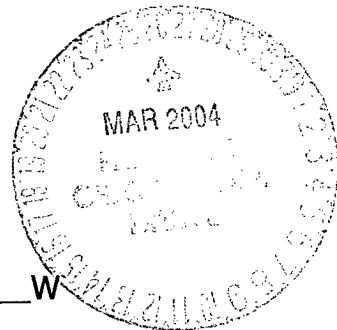
BHL 1747/N 1027/E

Edward J. Chiaramonte
MWD Manager



Nevis Energy Services, Inc.

DIRECTIONAL SURVEY CERTIFICATION



RE: Mallon Oil Company (Operator)

Jicarilla 29-02-16 #4 (Well Name & No.)

Section 16 Twp. 29 N Range 2 W

Well File No. 300-39-27462

I, Edward Chiaramonte, having personal knowledge of all the facts, hereby certify that the

attached directional surveys for the well run from measured depth of

3,574 feet to a measured depth of 7,355 feet,

respectively, are true and correct as determined from all available records.

Edward Chiaramonte

Signature

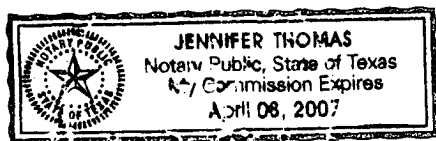
MWD Manager
Title

Nevis Energy Services, Inc
Company

State of Texas
County of Harris

On this 22 day of March, 2004, before me personally appeared

Edward Chiaramonte to me known as the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.



Jennifer Thomas
Notary Public

April 8, 2007
My Commission Expires

NEVIS ENERGY SERVICES INC. SURVEY DATA CERTIFICATION



NEVIS JOB NUMBER

204-119

OPERATOR

BLACK HILLS E & P

WELL NAME

JICARILLA 29-02-16 # 4

COUNTY & STATE

RIO ARRIBA, NEW MEXICO

API WELL NUMBER

29-02-16 # 4

VERT. SECT. DIRECTION

107.51

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
3,450 ft	3,449.41 ft	1.19	264.16	28.67	-41.86	GYRO DATA

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
18-Feb-04	3,574 ft	24.3	103.4

SURVEY INSTRUMENT TYPE
EM

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
5-Mar-04	7,312 ft	91.9	107.3

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
5-Mar-04	7,355 ft	91.9	107.3

JEFF ARENAS

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR GRID CONVERGENCE

TOTAL CORRECTION USED

10.29

3/5/2004

TODAY'S DATE

MWD SUPERVISOR 1

STEVE B.

DIRECTIONAL DRILLER 1

RETT HERBERT

MWD SUPERVISOR 2

JEFF ARENAS

DIRECTIONAL DRILLER 2

DEREK COLLINS

1724-B Townhurst Dr

Houston, Texas 77043

(713) 827-8302

DISTRICT I
P.O. Box 1880, Hobbs, N.M. 88241-1880

DISTRICT II
P.O. Drawer 80, Artesia, N.M. 88211-0718

DISTRICT III
1000 Rio Bravo Rd., Aztec, N.M. 87410

DISTRICT IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, NM 87504-2088

Form C-102

Revised February 21, 1994

Instructions on back

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-039-27462	Pool Code 72400	Pool Name East Blanco, Pictured Cliffs
Property Code 24245	Property Name JICARILLA 29-2-16	Well Number 4
OGHD No. 013925	Operator Name MALLON OIL COMPANY	Elevation 7248'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot 1/4	Feet from the	North/South line	Feet from the	East/West line	County
D	16	29-N	2-W		685'	NORTH	690'	WEST	RIO ARRIBA

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1/4	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 1.60		Joint op. info		Consolidation Code		Order No.			

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

10 685' 690' 647' 632' 5258.90' (M) 5 00-16-12 E FD. 1" PLASTIC CAP STAMPED "LS8894" FD. 1" PLASTIC CAP STAMPED "LS8894"	S 89-38-24 E 5347.60' (M) FD. MARKED STONE PBHL S-1062.07 E 3563.02 16 LAT. 36°43'49"N LONG. 107°03'18"W JUN 2003 RECEIVED OIL CONG DIV EST. 3 14827	12 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature <i>Robert Blaylock</i> Printed Name Robert Blaylock Title Engineering Manager Date May 1, 2003 13 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date of Survey 12/12/02 Signature <i>David E. Johnson</i> Printed Name David E. Johnson Title Professional Surveyor Certificate Number 14827
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Job Number: 204-119
Company: Mallon Oil Company
Lease/Well: Jicarilla 29-02-16 # 4
Location: Rio Arriba
Rig Name: Key Drilling
RKB:
G.L. or M.S.L.: API No. 300-39-27462

State/Country: New Mexico
Declination:
Grid: 10.29° Total Correction
File name: N:\JOB\DAT~1\BLACKH~1\204-11~1\FINALS~1\JIC#4
Date/Time: 22-Mar-04 / 13:52
Curve Name: Final NM OCD Filing

Nevis Energy Services, Inc
1724-B Townhurst Dr. Houston, Texas 77043
(713) 827-8302
www.nevisenergy.com

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 107.51
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead



Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
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Tie-in to Gyrodata Survey

3450.00	1.19	264.20	3449.40	28.70	-41.90	-48.59	50.79	304.41	.00
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First Nevis MWD Survey

3574.00	24.30	103.40	3569.88	22.56	-17.97	-23.92	28.84	321.46	20.51
3600.00	41.00	114.10	3591.71	17.80	-4.88	-10.00	18.45	344.68	67.74
3610.00	47.00	116.40	3598.90	14.83	1.40	-3.13	14.89	5.40	62.08
3616.00	50.90	117.20	3602.84	12.79	5.44	1.34	13.90	23.04	65.77
3624.00	56.00	117.80	3607.60	9.82	11.14	7.67	14.85	48.60	64.03
3655.00	63.40	116.20	3623.23	-2.31	34.97	34.05	35.05	93.78	24.28
3666.00	65.20	115.60	3628.00	-6.64	43.89	43.85	44.39	98.60	17.09
3676.00	66.70	114.90	3632.08	-10.53	52.15	52.90	53.20	101.42	16.31
3687.00	68.50	114.40	3636.27	-14.77	61.39	62.99	63.14	103.53	16.89
3697.00	71.40	114.60	3639.70	-18.67	69.94	72.32	72.39	104.95	29.06
3702.00	73.90	114.90	3641.19	-20.67	74.27	77.05	77.09	105.55	50.33
3707.00	76.50	115.30	3642.47	-22.72	78.65	81.84	81.87	106.11	52.57
3718.00	83.20	116.90	3644.40	-27.48	88.37	92.54	92.54	107.28	62.57
3750.00	90.60	113.90	3646.13	-41.17	117.21	124.17	124.23	109.36	24.95
3781.00	90.50	108.20	3645.83	-52.30	146.13	155.09	155.21	109.69	18.39
3812.00	93.30	104.10	3644.81	-60.92	175.88	186.06	186.13	109.10	16.01
3844.00	98.30	102.00	3641.57	-68.11	206.88	217.79	217.80	108.22	16.93

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E Distance FT	Direction Deg	Dogleg Severity Deg/100
3875.00	101.10	102.30	3636.35	-74.54	236.75	248.21	248.21	107.48	9.08
3906.00	101.10	101.90	3630.38	-80.91	266.49	278.49	278.51	106.89	1.27
3938.00	101.10	102.40	3624.22	-87.52	297.19	309.75	309.81	106.41	1.53
3970.00	100.80	101.80	3618.14	-94.11	327.91	341.03	341.15	106.01	2.07
4001.00	100.70	102.90	3612.36	-100.62	357.66	371.36	371.55	105.71	3.50
4033.00	100.70	101.80	3606.42	-107.35	388.38	402.68	402.94	105.45	3.38
4064.00	100.30	101.80	3600.77	-113.58	418.21	433.01	433.36	105.19	1.29
4095.00	100.40	101.60	3595.20	-119.77	448.07	463.35	463.80	104.96	.71
4127.00	100.50	101.60	3589.40	-126.09	478.90	494.65	495.22	104.75	.31
4159.00	100.70	102.20	3583.51	-132.58	509.68	525.95	526.64	104.58	1.95
4191.00	100.80	102.20	3577.54	-139.22	540.41	557.26	558.05	104.45	.31
4222.00	101.00	101.50	3571.68	-145.47	570.20	587.55	588.46	104.31	2.31
4253.00	101.30	101.70	3565.68	-151.59	599.99	617.80	618.85	104.18	1.16
4285.00	99.40	103.00	3559.94	-158.32	630.74	649.15	650.31	104.09	7.16
4316.00	97.60	103.90	3555.35	-165.45	660.56	679.73	680.96	104.06	6.48
4348.00	95.70	105.60	3551.65	-173.55	691.29	711.48	712.74	104.09	7.94
4379.00	92.80	107.20	3549.35	-182.27	720.95	742.38	743.63	104.19	10.68
4411.00	92.60	107.70	3547.84	-191.86	751.44	774.35	775.55	104.32	1.68
4442.00	92.60	107.40	3546.44	-201.20	780.97	805.31	806.47	104.45	.97
4472.00	90.10	107.70	3545.73	-210.24	809.56	835.30	836.41	104.56	8.39
4504.00	90.20	108.00	3545.65	-220.05	840.02	867.30	868.36	104.68	.99
4534.00	90.30	108.00	3545.52	-229.32	868.55	897.30	898.31	104.79	.33
4566.00	91.20	108.00	3545.10	-239.21	898.98	929.30	930.26	104.90	2.81
4597.00	90.90	108.00	3544.53	-248.79	928.46	960.29	961.21	105.00	.97
4629.00	91.10	108.40	3543.97	-258.78	958.85	992.28	993.16	105.10	1.40
4661.00	91.30	108.30	3543.30	-268.85	989.22	1024.27	1025.10	105.20	.70
4692.00	91.00	107.90	3542.68	-278.48	1018.68	1055.26	1056.06	105.29	1.61
4724.00	90.60	107.40	3542.23	-288.18	1049.17	1087.26	1088.03	105.36	2.00
4755.00	91.10	107.30	3541.77	-297.42	1078.76	1118.26	1119.01	105.41	1.64
4792.00	91.50	107.20	3540.93	-308.39	1114.08	1155.25	1155.98	105.47	1.11
4829.00	91.30	106.00	3540.03	-318.96	1149.53	1192.23	1192.96	105.51	3.29
4861.00	91.50	106.80	3539.25	-327.99	1180.22	1224.22	1224.95	105.53	2.58
4892.00	89.90	106.90	3538.87	-336.98	1209.88	1255.21	1255.93	105.56	5.17
4924.00	90.00	107.00	3538.89	-346.31	1240.49	1287.21	1287.93	105.60	.44
4955.00	90.00	106.10	3538.89	-355.14	1270.21	1318.20	1318.92	105.62	2.90
4986.00	89.70	106.20	3538.98	-363.76	1299.99	1349.20	1349.92	105.63	1.02
5017.00	89.70	105.80	3539.14	-372.31	1329.78	1380.18	1380.92	105.64	1.29
5048.00	90.00	105.90	3539.22	-380.77	1359.60	1411.17	1411.92	105.65	1.02
5080.00	90.90	106.40	3538.97	-389.67	1390.34	1443.16	1443.92	105.66	3.22
5111.00	91.10	106.50	3538.43	-398.45	1420.07	1474.15	1474.91	105.67	.72
5143.00	91.10	106.00	3537.81	-407.40	1450.78	1506.14	1506.90	105.69	1.56
5174.00	91.50	105.90	3537.11	-415.92	1480.58	1537.12	1537.89	105.69	1.33
5200.00	91.60	106.00	3536.41	-423.06	1505.57	1563.10	1563.88	105.70	.54
5231.00	91.80	106.40	3535.49	-431.71	1535.33	1594.08	1594.87	105.71	1.44

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
5263.00	92.50	106.60	3534.29	-440.79	1565.99	1626.05	1626.84	105.72	2.27
5294.00	91.60	107.20	3533.18	-449.79	1595.63	1657.03	1657.81	105.74	3.49
5325.00	91.70	107.30	3532.28	-458.98	1625.22	1688.01	1688.79	105.77	.46
5357.00	90.70	108.10	3531.61	-468.71	1655.70	1720.01	1720.77	105.81	4.00
5388.00	91.00	107.80	3531.15	-478.26	1685.19	1751.00	1751.74	105.84	1.37
5419.00	89.80	107.60	3530.94	-487.69	1714.72	1782.00	1782.72	105.88	3.92
5451.00	89.70	107.10	3531.08	-497.23	1745.26	1814.00	1814.71	105.90	1.59
5482.00	89.60	107.20	3531.27	-506.37	1774.88	1845.00	1845.71	105.92	.46
5513.00	89.90	107.30	3531.40	-515.56	1804.49	1876.00	1876.70	105.95	1.02
5545.00	90.30	107.20	3531.35	-525.05	1835.05	1908.00	1908.69	105.97	1.29
5578.00	90.50	106.50	3531.12	-534.62	1866.63	1940.99	1941.68	105.98	2.21
5609.00	90.60	106.40	3530.82	-543.40	1896.36	1971.99	1972.68	105.99	.46
5641.00	90.50	106.50	3530.51	-552.46	1927.05	2003.98	2004.68	106.00	.44
5672.00	90.50	106.30	3530.24	-561.21	1956.79	2034.97	2035.68	106.00	.65
5704.00	90.40	106.40	3529.99	-570.22	1987.49	2066.96	2067.67	106.01	.44
5735.00	90.50	106.20	3529.75	-578.92	2017.25	2097.96	2098.67	106.01	.72
5767.00	90.50	106.10	3529.47	-587.82	2047.98	2129.95	2130.67	106.01	.31
5798.00	90.50	105.80	3529.20	-596.34	2077.79	2160.93	2161.67	106.01	.97
5830.00	90.30	106.00	3528.97	-605.10	2108.56	2192.92	2193.67	106.01	.88
5861.00	90.10	106.30	3528.86	-613.73	2138.34	2223.91	2224.67	106.01	1.16
5893.00	90.20	105.70	3528.78	-622.55	2169.10	2255.90	2256.67	106.01	1.90
5924.00	90.00	106.00	3528.73	-631.01	2198.92	2286.89	2287.67	106.01	1.16
5955.00	89.60	106.20	3528.83	-639.61	2228.70	2317.88	2318.67	106.01	1.44
5987.00	89.60	106.40	3529.06	-648.59	2259.42	2349.87	2350.67	106.02	.62
6019.00	90.20	106.40	3529.11	-657.63	2290.12	2381.86	2382.67	106.02	1.87
6050.00	90.40	106.30	3528.95	-666.35	2319.86	2412.86	2413.67	106.03	.72
6082.00	90.70	106.60	3528.64	-675.41	2350.55	2444.85	2445.66	106.03	1.33
6113.00	89.00	106.70	3528.73	-684.30	2380.25	2475.84	2476.66	106.04	5.49
6145.00	88.70	106.90	3529.37	-693.54	2410.88	2507.84	2508.65	106.05	1.13
6176.00	89.10	107.20	3529.96	-702.63	2440.51	2538.83	2539.64	106.06	1.61
6208.00	89.90	107.20	3530.24	-712.09	2471.08	2570.83	2571.63	106.08	2.50
6239.00	90.00	107.20	3530.27	-721.26	2500.69	2601.83	2602.63	106.09	.32
6271.00	90.00	107.70	3530.27	-730.86	2531.22	2633.83	2634.62	106.11	1.56
6302.00	90.10	107.80	3530.24	-740.31	2560.74	2664.83	2665.61	106.12	.46
6333.00	90.10	107.30	3530.19	-749.65	2590.30	2695.83	2696.60	106.14	1.61
6365.00	90.40	107.30	3530.05	-759.17	2620.85	2727.83	2728.59	106.15	.94
6396.00	90.00	107.60	3529.94	-768.47	2650.42	2758.83	2759.58	106.17	1.61
6428.00	90.20	107.50	3529.88	-778.11	2680.93	2790.83	2791.57	106.18	.70
6458.00	90.60	108.00	3529.67	-787.26	2709.51	2820.82	2821.56	106.20	2.13
6489.00	89.60	108.10	3529.62	-796.87	2738.98	2851.82	2852.54	106.22	3.24
6520.00	89.30	108.80	3529.92	-806.68	2768.38	2882.82	2883.52	106.25	2.46
6552.00	89.20	108.30	3530.34	-816.85	2798.72	2914.81	2915.49	106.27	1.59
6583.00	89.00	107.80	3530.82	-826.46	2828.19	2945.80	2946.47	106.29	1.74
6615.00	89.00	108.00	3531.38	-836.29	2858.64	2977.80	2978.45	106.31	.62

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E Distance FT	Direction Deg	Dogleg Severity Deg/100
6646.00	88.90	108.10	3531.95	-845.90	2888.11	3008.79	3009.43	106.32	.46
6678.00	88.70	107.10	3532.62	-855.57	2918.60	3040.78	3041.42	106.34	3.19
6710.00	88.60	107.50	3533.37	-865.08	2949.14	3072.77	3073.41	106.35	1.29
6741.00	88.70	107.70	3534.11	-874.45	2978.69	3103.77	3104.39	106.36	.72
6777.00	89.30	107.30	3534.73	-885.28	3013.01	3139.76	3140.38	106.37	2.00
6808.00	89.40	107.80	3535.09	-894.62	3042.57	3170.76	3171.37	106.39	1.64
6839.00	90.00	108.20	3535.25	-904.20	3072.05	3201.76	3202.36	106.40	2.33
6871.00	90.20	108.20	3535.19	-914.20	3102.45	3233.75	3234.34	106.42	.62
6902.00	90.40	108.10	3535.03	-923.86	3131.91	3264.75	3265.33	106.44	.72
6934.00	91.40	108.80	3534.53	-933.98	3162.26	3296.74	3297.30	106.45	3.81
6965.00	91.80	108.90	3533.66	-943.99	3191.58	3327.72	3328.26	106.48	1.33
6997.00	91.90	109.00	3532.63	-954.38	3221.83	3359.69	3360.22	106.50	.44
7028.00	92.00	108.00	3531.57	-964.21	3251.21	3390.67	3391.18	106.52	3.24
7059.00	91.80	108.40	3530.55	-973.89	3280.65	3421.65	3422.15	106.53	1.44
7091.00	91.80	108.40	3529.54	-983.98	3311.00	3453.63	3454.12	106.55	.00
7123.00	91.40	108.40	3528.65	-994.08	3341.35	3485.62	3486.09	106.57	1.25
7154.00	91.60	107.10	3527.84	-1003.53	3370.86	3516.60	3517.07	106.58	4.24
7185.00	92.00	107.00	3526.86	-1012.61	3400.48	3547.59	3548.05	106.58	1.33
7217.00	92.10	106.40	3525.72	-1021.80	3431.12	3579.56	3580.03	106.58	1.90
7248.00	92.10	106.30	3524.58	-1030.52	3460.84	3610.54	3611.01	106.58	.32
7279.00	91.90	107.30	3523.50	-1039.48	3490.50	3641.52	3641.99	106.58	3.29
Last Nevis MWD Survey									
7312.00	91.90	107.30	3522.40	-1049.28	3521.99	3674.50	3674.97	106.59	.00
Projection to bit									
7355.00	91.90	107.30	3520.98	-1062.07	3563.02	3717.47	3717.94	106.60	.00

Surface 685/N 690/W