

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

RECEIVED

Form C-101
August 1, 2011

Permit 155502

October 5 2012

NMOCD ARTESIA

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1 Operator Name and Address MURCHISON OIL & GAS INC 1100 Mira Vista Blvd Plano, TX 75093		2 OGRID Number 15363
		3 API Number 30-015-40793
4 Property Code 8132	5 Property Name ODGEN STATE	6 Well No 8HML

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
A	2	25S	26E	1	1175	N	350	E	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
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9. Pool Information

BLACK RIVER, DELAWARE, SOUTH	96451
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Additional Well Information

11. Work Type New Well	12 Well Type OIL	13 Cable/Rotary	14 Lease Type State	15 Ground Level Elevation 3362
16 Multiple N	17 Proposed Depth 2060	18 Formation Delaware	19 Contractor	20 Spud Date 10/20/2012
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9 625	36	350	300	0
Prod	8 75	7	26	1980	380	0

Casing/Cement Program: Additional Comments

Cement 100% excess and circulate to surface on all sections

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
DoubleRam	3000	3000	Shaffer
Annular	3000	3000	Shaffer

23 I hereby certify that the information given above is true and complete to the best of my knowledge and belief I further certify I have complied with 19.15.14.9 (A) NMAC [] and/or 19.15.14.9 (B) NMAC [], if applicable. Signature: <i>[Signature]</i>		OIL CONSERVATION DIVISION	
Printed Name: <i>STEVE MORRIS</i>		Approved By: <i>T. L. Shepard</i>	
Title: <i>DRILLING ENGINEER</i>		Title: <i>Geologist</i>	
Email Address:		Approved Date: <i>10/15/2012</i> Expiration Date: <i>10/15/2014</i>	
Date	Phone		

NSL Approval Required

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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

Form C-102
August 1, 2011

Permit 155502

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code 96451	3 Pool Name BLACK RIVER, DELAWARE, SOUTH
4 Property Code 8132	5 Property Name OGDEN STATE	6 Well No 8HML
7 OGRID No 15363	8 Operator Name MURCHISON OIL & GAS INC	9 Elevation 3362

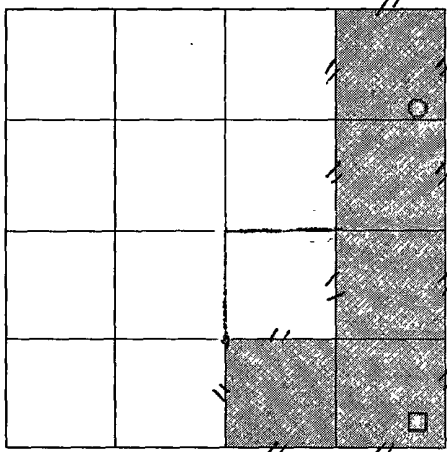
10. Surface Location

UL - Lot A	Section 2	Township 25S	Range 26E	Lot Idn I	Feet From 1175	N/S Line N	Feet From 350	E/W Line E	County EDDY
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11. Bottom Hole Location If Different From Surface

UL - Lot P	Section 2	Township 25S	Range 26E	Lot Idn P	Feet From 330	N/S Line S	Feet From 350	E/W Line E	County EDDY
12 Dedicated Acres 200.20	13 Joint or Infill	14 Consolidation Code	15 Order No NSL-						

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

**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(s) 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.

E-Signed By.

Title

Date:

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.

Surveyed By Filimon Jaramillo

Date of Survey 9/29/2012

Certificate Number 12797

RECEIVED

OCT 15 2012

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

NMOCD ARTESIA

Form O-102
August 2011
Appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAN

API Number	Pool Code	Pool Name
	96451	Black River; Delaware, South
Property Code	Property Name	Well Number
8132	OGDEN STATE	8141
OGRID No.	Operator Name	Elevation
15363	MURCHISON OIL & GAS, INC.	3361.0

Surface Location

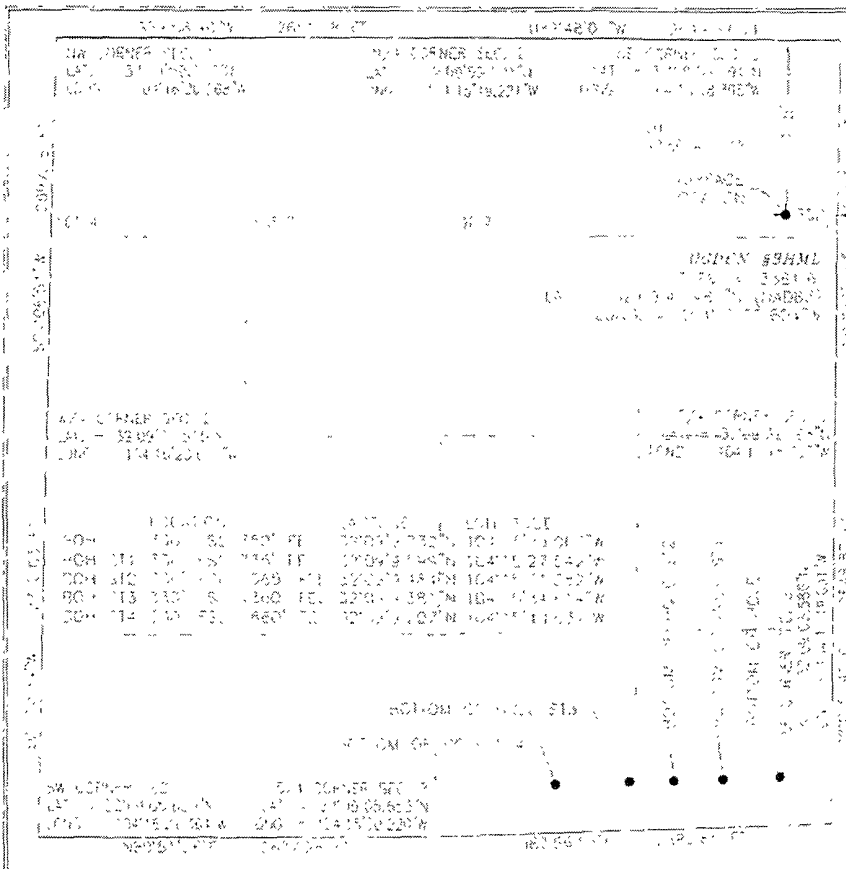
UT or Twp No.	Section	Township	Range	Eat Edn	Feet from the	North/South line	Feet from the	East/West line	County
A	2	25 S	26 E		1175	NORTH	350	FAST	EDDY

" Bottom Hole Location If Different From Surface

UT or Twp No.	Section	Township	Range	Eat Edn	Feet from the	North/South line	Feet from the	East/West line	County
P	2	25 S	26 E		330	SOUTH	350	FAST	EDDY

Dedicated Acres	Point or Infill	Consolidation Code	Order No.
240.20			

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.



OPERATOR CERTIFICATION
I, the undersigned, being duly sworn, depose and say that the well location, location of the well, and the acreage dedication shown on this plan are true and correct to the best of my knowledge and belief.
Signature: *Michael S. Daugherty*
Date: 10/15/12
Name: Michael S. Daugherty
Printed Name: Michael S. Daugherty
Email: mdaugherty@jdmii.com
Title: Principal Surveyor

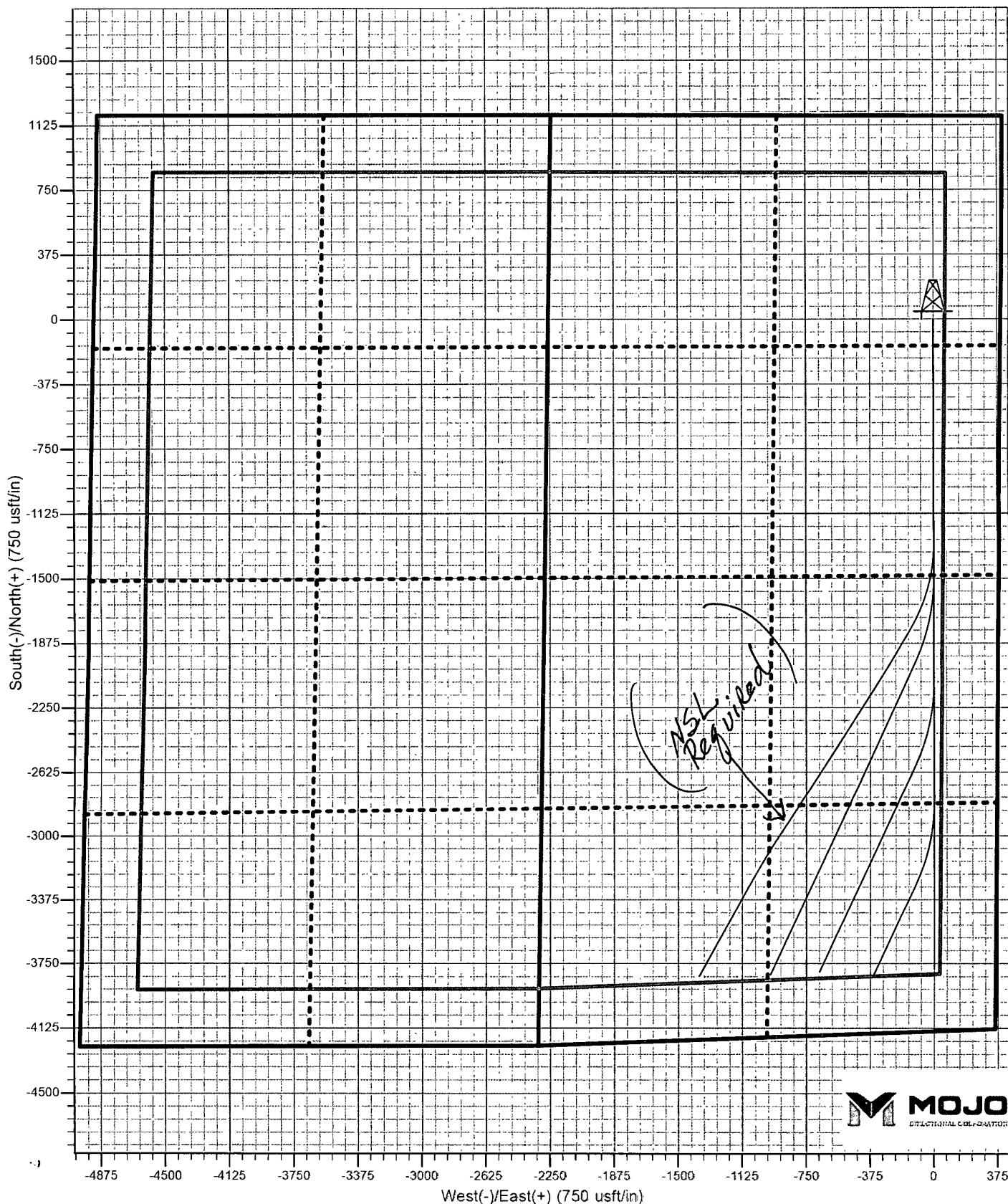
SURVEYOR CERTIFICATION
I, the undersigned, being duly sworn, depose and say that the well location, location of the well, and the acreage dedication shown on this plan are true and correct to the best of my knowledge and belief.
Signature: *Michael S. Daugherty*
Date of Survey: 10/15/12
Name: Michael S. Daugherty
Printed Name: Michael S. Daugherty
Title: Principal Surveyor

Project: Ogden North
Site: Ogden #8
Well: Ogden #8HML
Wellbore: Ogden #8HML
Design: 120925 Ogden #8HML

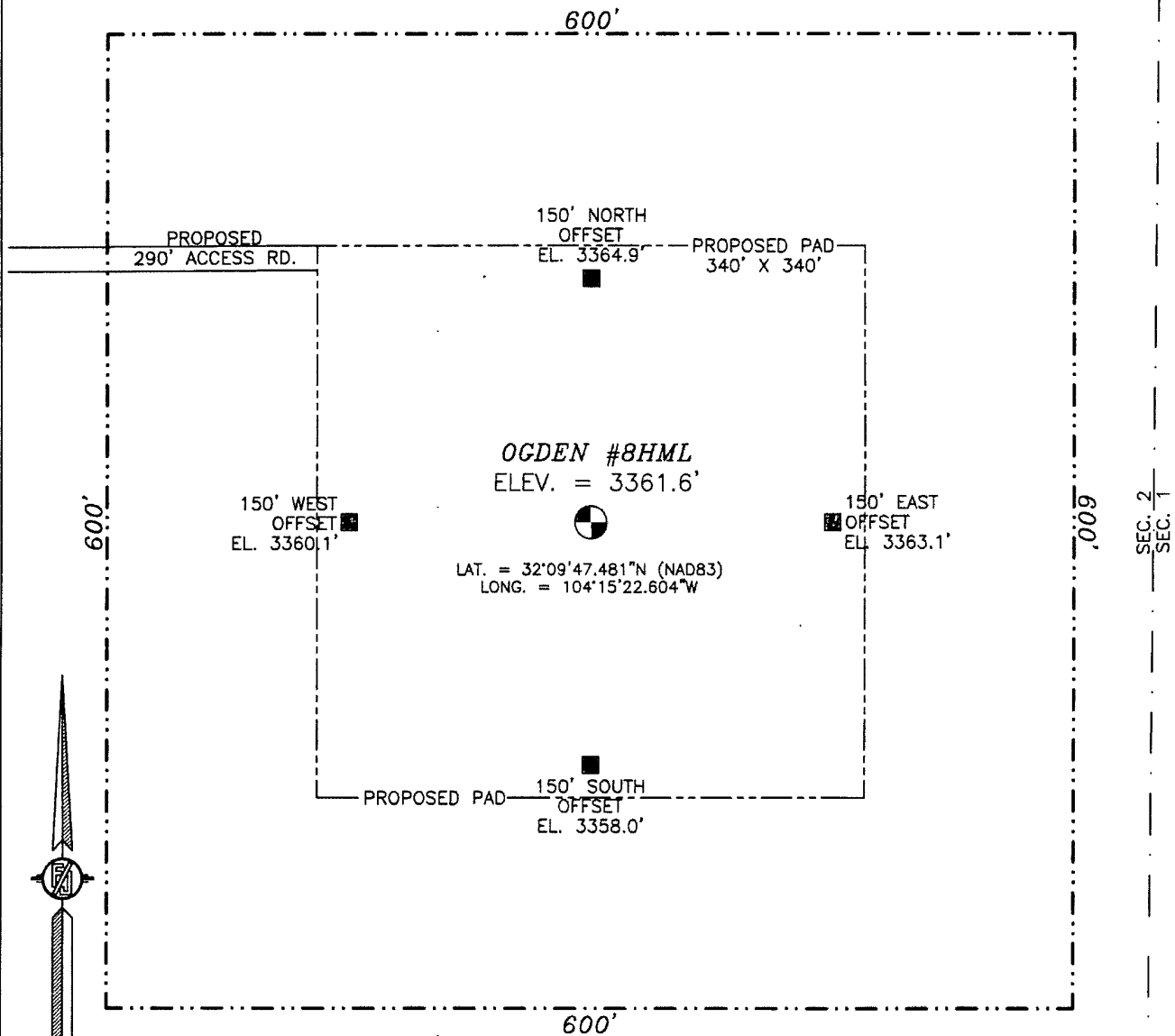


Azimuths to Grid North
True North: -0.04°
Magnetic North: 7.69°

Magnetic Field
Strength: 48419.2snT
Dip Angle: 60.01°
Date: 25/09/2012
Model: IGRF200510



SECTION 2, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM CR. 720 (BLACK RIVER VILLAGE ROAD) AND CR. #748 (OLD CAVERN HWY.) AND CR. #742 (JOHN D. FOREHAND RD.) GO SOUTH ON CR. 742 3.9 MILES, TURN RIGHT ON CALICHE ROAD AND GO WEST 2.5 MILES, TURN LEFT ON CALICHE ROAD AND GO SOUTH 840' TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS EAST 290' TO THE NW. CORNER OF PROPOSED PAD FOR THIS LOCATION.

MURCHISON OIL & GAS, INC
OGDEN #8HML

LOCATED 1175 FT. FROM THE NORTH LINE
AND 350 FT. FROM THE EAST LINE OF
SECTION 2, TOWNSHIP 25 SOUTH,
RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

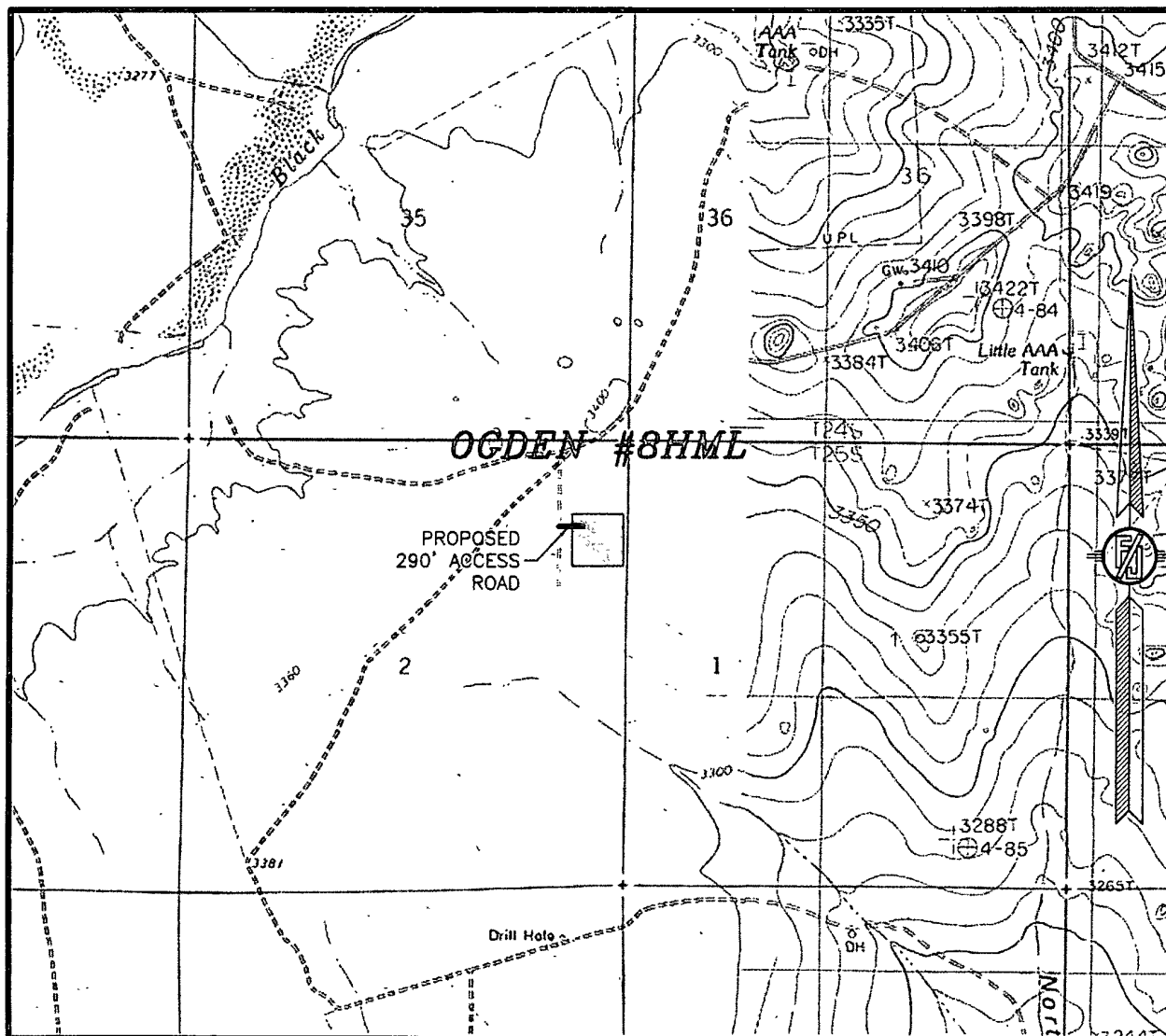
SEPTEMBER 29, 2012

SURVEY NO. 1299

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 2, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
BLACK RIVER VILLAGE

NOT TO SCALE

MURCHISON OIL & GAS, INC
OGDEN #8HML

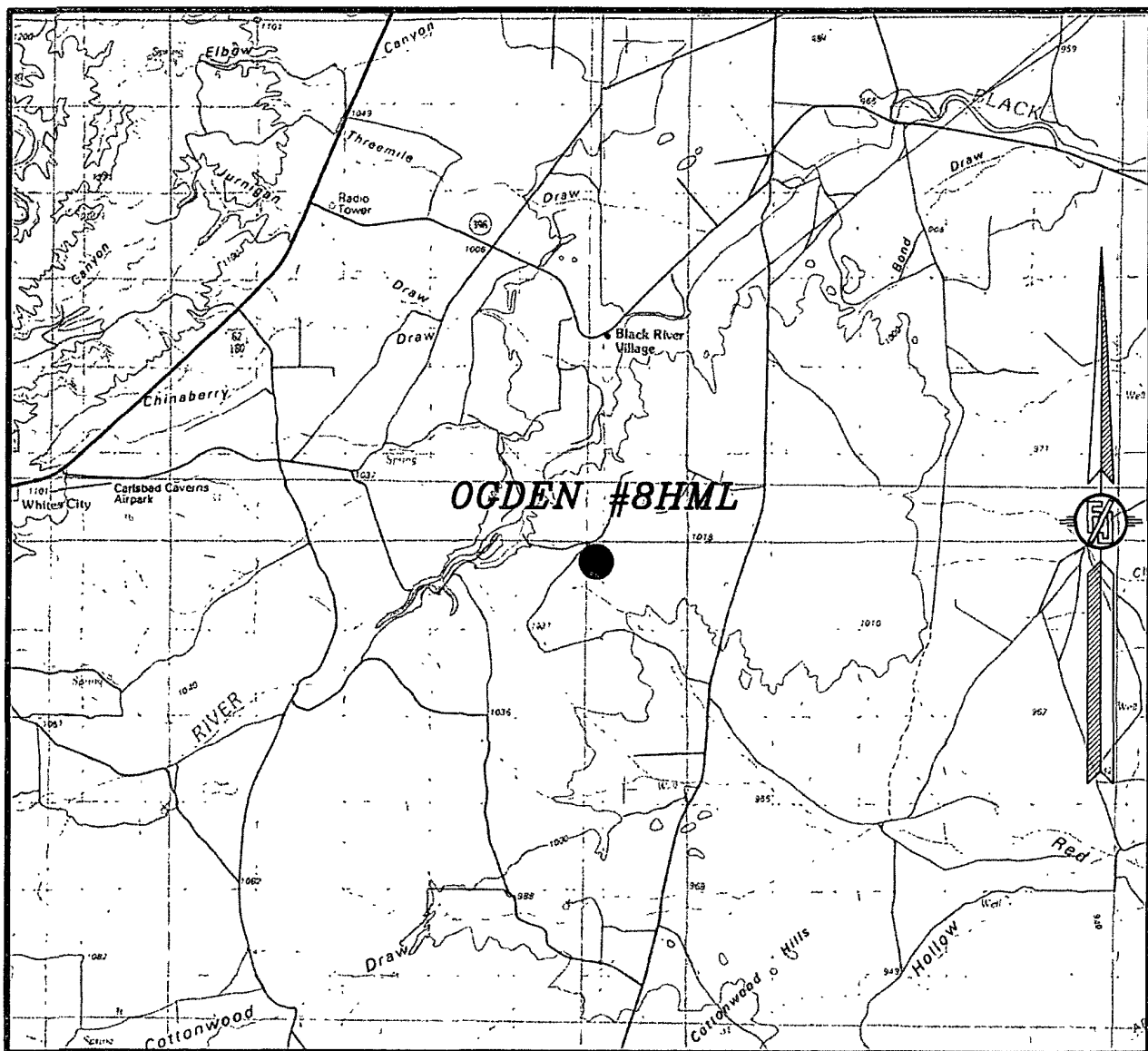
LOCATED 1175 FT. FROM THE NORTH LINE
AND 350 FT. FROM THE EAST LINE OF
SECTION 2, TOWNSHIP 25 SOUTH,
RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 29, 2012

SURVEY NO. 1299

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 2, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

MURCHISON OIL & GAS, INC
OGDEN #8HML

LOCATED 1175 FT. FROM THE NORTH LINE
AND 350 FT. FROM THE EAST LINE OF
SECTION 2, TOWNSHIP 25 SOUTH,
RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 29, 2012

SURVEY NO. 1299

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SECTION 2, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
JUNE 2011

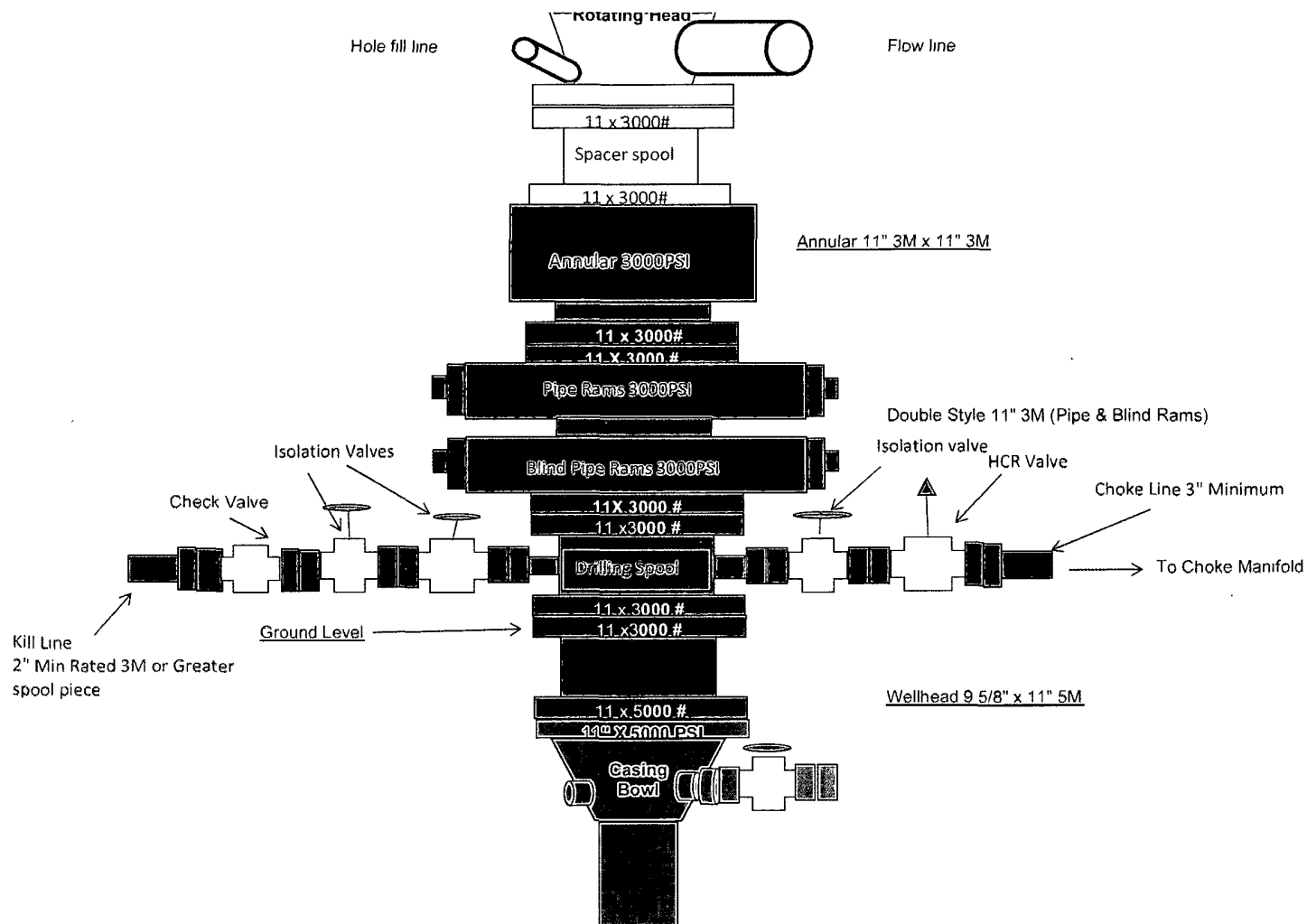
MURCHISON OIL & GAS, INC
OGDEN #8HML

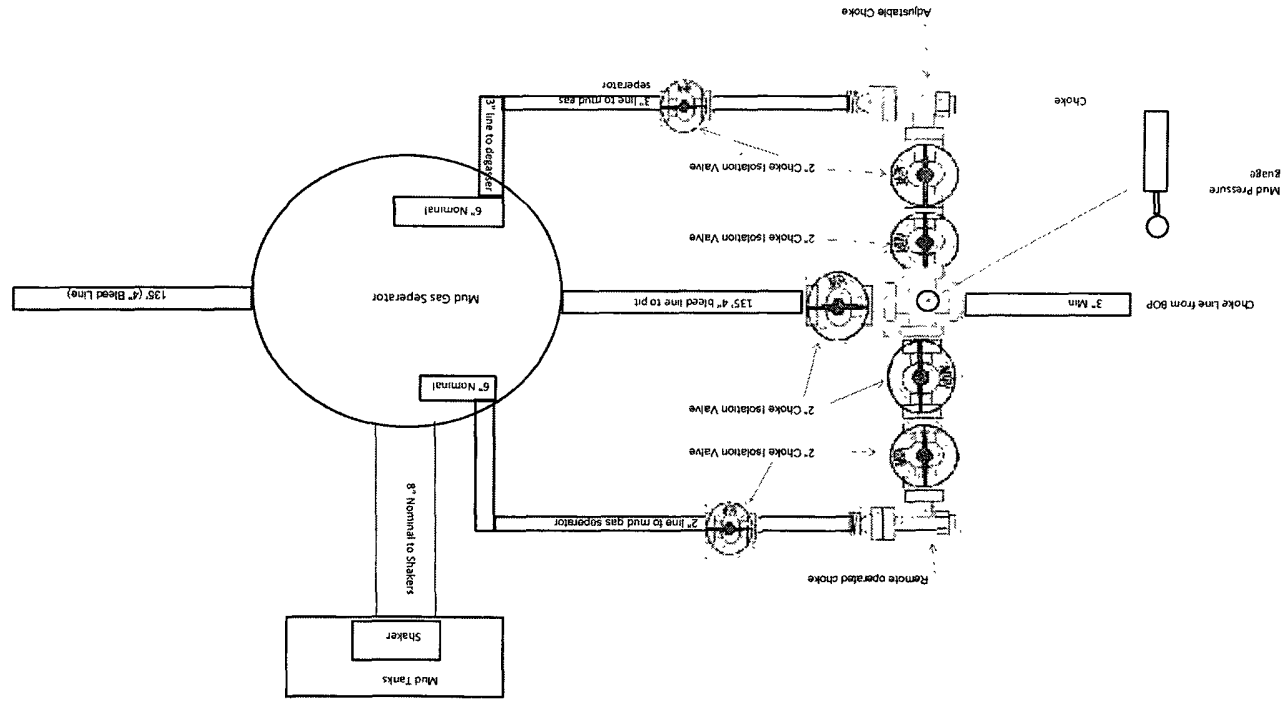
LOCATED 1175 FT. FROM THE NORTH LINE
AND 350 FT. FROM THE EAST LINE OF
SECTION 2, TOWNSHIP 25 SOUTH,
RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SEPTEMBER 29, 2012

SURVEY NO. 1299

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO





Murchison Oil and Gas

Ogden North

Ogden #8

Ogden #8HML

Ogden #8HML

Plan: 120925 Ogden #8HML

MOJO Standard Well Plan

04 October, 2012



MOJO
DIRECTIONAL CORPORATION

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden #8HML	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden #8HML	Database:	EDM 5000 1 Single User Db

Project	Ogden North, Pinnate Appraisal Well		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Ogden #8		
Site Position:		Northing:	422,609.00 usft
From:	Map	Easting:	565,133.00 usft
Position Uncertainty:	1.0 usft	Slot Radius:	15 "
		Latitude:	32° 9' 42.505 N
		Longitude:	104° 15' 23.167 W
		Grid Convergence:	0.04 °

Well	Ogden #8HML					
Well Position	+N/-S	0.0 usft	Northing:	423,109.00 usft	Latitude:	32° 9' 47.453 N
	+E/-W	0.0 usft	Easting:	565,133.00 usft	Longitude:	104° 15' 23.163 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,361.6 usft

Wellbore	Ogden #8HML				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	25/09/2012	7.73	60.01	48,419

Design	120925 Ogden #8HML			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	180.00

Survey Tool Program	Date	04/10/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	5,470.0	120925 Ogden #8HML (Ogden #8HML)	MWD	MWD - Standard

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grnd
Wellbore:	Ogden #8HML	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden #8HML	Database:	EDM 5000 1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,373.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
100.0	0.00	180.00	100.0	-3,273.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
115.0	0.00	180.00	115.0	-3,258.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
14" Conductor										
200.0	0.00	180.00	200.0	-3,173.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
300.0	0.00	180.00	300.0	-3,073.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
352.0	0.00	180.00	352.0	-3,021.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
9 5/8" Surface Casing										
363.6	0.00	180.00	363.6	-3,010.0	0.0	0.0	0.00	0.0	423,109.00	565,133.00
Salado										
400.0	0.00	180.00	400.0	-2,973.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
500.0	0.00	180.00	500.0	-2,873.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
600.0	0.00	180.00	600.0	-2,773.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
700.0	0.00	180.00	700.0	-2,673.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
800.0	0.00	180.00	800.0	-2,573.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
875.0	0.00	180.00	875.0	-2,498.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
Start Build 3.00										
900.0	0.75	180.00	900.0	-2,473.6	-0.2	0.0	3.00	0.2	423,108.84	565,133.00
975.0	3.00	180.00	975.0	-2,398.6	-2.6	0.0	3.00	2.6	423,106.38	565,133.00
1,000.0	3.75	180.00	999.9	-2,373.7	-4.1	0.0	3.00	4.1	423,104.91	565,133.00
1,100.0	6.75	180.00	1,099.5	-2,274.1	-13.2	0.0	3.00	13.2	423,095.76	565,133.00
1,200.0	9.75	180.00	1,198.4	-2,175.2	-27.6	0.0	3.00	27.6	423,081.41	565,133.00
1,300.0	12.75	180.00	1,296.5	-2,077.1	-47.1	0.0	3.00	47.1	423,061.91	565,133.00
1,400.0	15.75	180.00	1,393.4	-1,980.2	-71.7	0.0	3.00	71.7	423,037.29	565,133.00
1,475.0	18.00	180.00	1,465.2	-1,908.4	-93.5	0.0	3.00	93.5	423,015.52	565,133.00
1,500.0	18.75	180.00	1,488.9	-1,884.7	-101.4	0.0	3.00	101.4	423,007.64	565,133.00
1,600.0	21.75	180.00	1,582.7	-1,790.9	-136.0	0.0	3.00	136.0	422,973.04	565,133.00
1,700.0	24.75	180.00	1,674.6	-1,699.0	-175.4	0.0	3.00	175.4	422,933.57	565,133.00

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden #8HML	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden #8HML	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
1,775.0	27.00	180.00	1,742.1	-1,631.5	-208.2	0.0	3.00	208.2	422,900.84	565,133.00
Start Build 8.80										
1,800.0	29.20	180.00	1,764.1	-1,609.5	-219.9	0.0	8.80	219.9	422,889.06	565,133.00
1,850.0	33.60	180.00	1,806.8	-1,566.8	-246.0	0.0	8.80	246.0	422,863.02	565,133.00
1,900.0	38.00	180.00	1,847.3	-1,526.3	-275.2	0.0	8.80	275.2	422,833.78	565,133.00
Start Build 11.00										
1,950.0	43.50	180.00	1,885.2	-1,488.4	-307.8	0.0	11.00	307.8	422,801.15	565,133.00
2,000.0	49.00	180.00	1,919.7	-1,453.9	-344.0	0.0	11.00	344.0	422,765.05	565,133.00
2,050.0	54.50	180.00	1,950.7	-1,422.9	-383.2	0.0	11.00	383.2	422,725.80	565,133.00
2,091.9	59.10	180.00	1,973.6	-1,400.0	-418.2	0.0	11.00	418.2	422,690.78	565,133.00
Base Delaware Anhydrite										
2,100.0	60.00	180.00	1,977.7	-1,395.9	-425.2	0.0	11.00	425.2	422,683.76	565,133.00
2,145.2	64.97	180.00	1,998.6	-1,375.0	-465.3	0.0	11.00	465.3	422,643.69	565,133.00
Lamar Lime										
2,150.0	65.50	180.00	2,000.6	-1,373.0	-469.7	0.0	11.00	469.7	422,639.33	565,133.00
2,168.5	67.54	180.00	2,008.0	-1,365.6	-486.7	0.0	11.00	486.7	422,622.32	565,133.00
7" Production Casing										
2,200.0	71.00	180.00	2,019.1	-1,354.5	-516.1	0.0	11.00	516.1	422,592.91	565,133.00
2,250.0	76.50	180.00	2,033.1	-1,340.5	-564.1	0.0	11.00	564.1	422,544.92	565,133.00
2,276.2	79.39	180.00	2,038.6	-1,335.0	-589.7	0.0	11.00	589.7	422,519.26	565,133.00
Ramsey Sand										
2,300.0	82.00	180.00	2,042.4	-1,331.2	-613.2	0.0	11.00	613.2	422,495.82	565,133.00
Start Build 8.84										
2,350.0	86.42	180.00	2,047.5	-1,326.1	-662.9	0.0	8.84	662.9	422,446.09	565,133.00
2,395.0	90.40	180.00	2,048.7	-1,324.9	-707.9	0.0	8.84	707.9	422,401.11	565,133.00
2,400.0	90.40	180.00	2,048.7	-1,324.9	-712.9	0.0	0.00	712.9	422,396.11	565,133.00
2,500.0	90.40	180.00	2,048.0	-1,325.6	-812.9	0.0	0.00	812.9	422,296.11	565,133.00
2,600.0	90.40	180.00	2,047.3	-1,326.3	-912.9	0.0	0.00	912.9	422,196.12	565,133.00

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden #8HML	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden #8HML	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
2,700.0	90.40	180.00	2,046.6	-1,327.0	-1,012.9	0.0	0.00	1,012.9	422,096.12	565,133.00
2,800.0	90.40	180.00	2,045.9	-1,327.7	-1,112.9	0.0	0.00	1,112.9	421,996.12	565,133.00
2,900.0	90.40	180.00	2,045.2	-1,328.4	-1,212.9	0.0	0.00	1,212.9	421,896.12	565,133.00
3,000.0	90.40	180.00	2,044.5	-1,329.1	-1,312.9	0.0	0.00	1,312.9	421,796.13	565,133.00
3,100.0	90.40	180.00	2,043.8	-1,329.8	-1,412.9	0.0	0.00	1,412.9	421,696.13	565,133.00
3,200.0	90.40	180.00	2,043.1	-1,330.5	-1,512.9	0.0	0.00	1,512.9	421,596.13	565,133.00
3,300.0	90.40	180.00	2,042.4	-1,331.2	-1,612.9	0.0	0.00	1,612.9	421,496.13	565,133.00
3,400.0	90.40	180.00	2,041.7	-1,331.9	-1,712.9	0.0	0.00	1,712.9	421,396.14	565,133.00
3,500.0	90.40	180.00	2,041.0	-1,332.6	-1,812.9	0.0	0.00	1,812.9	421,296.14	565,133.00
3,600.0	90.40	180.00	2,040.3	-1,333.3	-1,912.9	0.0	0.00	1,912.9	421,196.14	565,133.00
3,700.0	90.39	180.00	2,039.6	-1,334.0	-2,012.9	0.0	0.00	2,012.9	421,096.14	565,133.00
3,800.0	90.39	180.00	2,039.0	-1,334.6	-2,112.9	0.0	0.00	2,112.9	420,996.15	565,133.00
3,900.0	90.39	180.00	2,038.3	-1,335.3	-2,212.9	0.0	0.00	2,212.9	420,896.15	565,133.00
4,000.0	90.39	180.00	2,037.6	-1,336.0	-2,312.8	0.0	0.00	2,312.8	420,796.15	565,133.00
4,100.0	90.39	180.00	2,036.9	-1,336.7	-2,412.8	0.0	0.00	2,412.8	420,696.15	565,133.00
4,200.0	90.38	180.00	2,036.2	-1,337.4	-2,512.8	0.0	0.00	2,512.8	420,596.15	565,133.00
4,300.0	90.38	180.00	2,035.6	-1,338.0	-2,612.8	0.0	0.00	2,612.8	420,496.16	565,133.00
4,400.0	90.38	180.00	2,034.9	-1,338.7	-2,712.8	0.0	0.00	2,712.8	420,396.16	565,133.00
4,490.5	90.35	180.00	2,034.3	-1,339.3	-2,803.3	0.0	0.03	2,803.3	420,305.66	565,133.00
4,500.0	90.35	180.00	2,034.3	-1,339.3	-2,812.8	0.0	0.00	2,812.8	420,296.16	565,133.00
4,600.0	90.35	180.00	2,033.7	-1,339.9	-2,912.8	0.0	0.00	2,912.8	420,196.16	565,133.00
4,700.0	90.35	180.00	2,033.1	-1,340.5	-3,012.8	0.0	0.00	3,012.8	420,096.17	565,133.00
4,800.0	90.35	180.00	2,032.4	-1,341.2	-3,112.8	0.0	0.00	3,112.8	419,996.17	565,133.00
4,900.0	90.35	180.00	2,031.8	-1,341.8	-3,212.8	0.0	0.00	3,212.8	419,896.17	565,133.00
5,000.0	90.35	180.00	2,031.2	-1,342.4	-3,312.8	0.0	0.00	3,312.8	419,796.17	565,133.00
5,100.0	90.34	180.00	2,030.6	-1,343.0	-3,412.8	0.0	0.01	3,412.8	419,696.17	565,133.00
5,200.0	90.33	180.00	2,030.0	-1,343.6	-3,512.8	0.0	0.01	3,512.8	419,596.17	565,133.00

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373 6usft (4)
Well:	Ogden #8HML	North Reference:	Grd
Wellbore:	Ogden #8HML	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden #8HML	Database:	EDM 5000 1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
5,300.0	90.32	180.00	2,029.5	-1,344.1	-3,612.8	0.0	0.01	3,612.8	419,496.18	565,133.00	
5,400.0	90.31	180.00	2,028.9	-1,344.7	-3,712.8	0.0	0.01	3,712.8	419,396.18	565,133.00	
5,470.0	90.30	180.00	2,028.6	-1,345.0	-3,782.8	0.0	0.01	3,782.8	419,326.18	565,133.00	
TD at 5470.0											

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
115.0	115.0	14" Conductor	14	15	
352.0	352.0	9 5/8" Surface Casing	9-5/8	12-1/4	
2,168.5	2,008.0	7" Production Casing	7	7	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
363.6	363.6	Salado		0.00	
2,276.2	2,038.6	Ramsey Sand		0.00	
2,145.2	1,998.6	Lamar Lime		0.00	
2,091.9	1,973.6	Base Delaware Anhydrite		0.00	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden #8HML	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden #8HML	Database:	EDM 5000 1 Single User Db

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
+N/-S (usft)	+E/-W (usft)			
875.0	875.0	0.0	0.0	Start Build 3.00
1,775.0	1,742.1	-2.6	0.0	Start Build 8.80
1,900.0	1,847.3	-93.5	0.0	Start Build 11.00
2,300.0	2,042.4	-208.2	0.0	Start Build 8.84
5,470.0	2,028.6	-275.2	0.0	TD at 5470.0

Checked By: _____ Approved By: _____ Date: _____

Murchison Oil and Gas

Ogden North

Ogden #8

Ogden #8HML

Ogden 8HML ST 1

Plan: 120925 Ogden 8HML ST1

MOJO Standard Well Plan

04 October, 2012



MOJO
DIRECTIONAL CORPORATION

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 1	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST1	Database:	EDM 5000 1 Single User Db

Project	Ogden North, Pinnate Appraisal Well		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Ogden #8				
Site Position:	Northing:	422,609.00 usft	Latitude:	32° 9' 42.505 N	
From: Map	Easting:	565,133.00 usft	Longitude:	104° 15' 23.167 W	
Position Uncertainty:	1.0 usft	Slot Radius:	15 "	Grid Convergence:	0.04 °

Well	Ogden #8HML					
Well Position	+N/-S	0.0 usft	Northing:	423,109.00 usft	Latitude:	32° 9' 47.453 N
	+E/-W	0.0 usft	Easting:	565,133.00 usft	Longitude:	104° 15' 23.163 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,361.6 usft	

Wellbore	Ogden 8HML ST 1				
Magnetics:	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	25/09/2012	7.73	60.01	48,419

Design	120925 Ogden 8HML ST1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	4,500.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	184.77	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grd
Wellbore:	Ogden 8HML ST 1	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST1	Database:	EDM 5000 1 Single User Db

Survey Tool Program		Date 04/10/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	4,500.0	120925 Ogden #8HML (Ogden #8HML)	MWD	MWD - Standard
4,500.0	5,550.0	120925 Ogden 8HML ST1 (Ogden 8HML S		

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,373.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
100.0	0.00	180.00	100.0	-3,273.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
115.0	0.00	180.00	115.0	-3,258.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
14" Conductor										
200.0	0.00	180.00	200.0	-3,173.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
300.0	0.00	180.00	300.0	-3,073.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
352.0	0.00	180.00	352.0	-3,021.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
9 5/8" Surface Casing										
400.0	0.00	180.00	400.0	-2,973.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
500.0	0.00	180.00	500.0	-2,873.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
600.0	0.00	180.00	600.0	-2,773.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
700.0	0.00	180.00	700.0	-2,673.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
800.0	0.00	180.00	800.0	-2,573.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
875.0	0.00	180.00	875.0	-2,498.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
900.0	0.75	180.00	900.0	-2,473.6	-0.2	0.0	3.00	0.2	423,108.84	565,133.00
975.0	3.00	180.00	975.0	-2,398.6	-2.6	0.0	3.00	2.6	423,106.38	565,133.00
1,000.0	3.75	180.00	999.9	-2,373.7	-4.1	0.0	3.00	4.1	423,104.91	565,133.00
1,100.0	6.75	180.00	1,099.5	-2,274.1	-13.2	0.0	3.00	13.2	423,095.76	565,133.00
1,200.0	9.75	180.00	1,198.4	-2,175.2	-27.6	0.0	3.00	27.5	423,081.41	565,133.00
1,300.0	12.75	180.00	1,296.5	-2,077.1	-47.1	0.0	3.00	46.9	423,061.91	565,133.00
1,400.0	15.75	180.00	1,393.4	-1,980.2	-71.7	0.0	3.00	71.5	423,037.29	565,133.00
1,475.0	18.00	180.00	1,465.2	-1,908.4	-93.5	0.0	3.00	93.2	423,015.52	565,133.00

Company: Murchison Oil and Gas
 Project: Ogden North
 Site: Ogden #8
 Well: Ogden #8HML
 Wellbore: Ogden 8HML ST 1
 Design: 120925 Ogden 8HML ST1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well Ogden #8HML
 well @ 3373.6usft (4)
 well @ 3373.6usft (4)
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V-Sec (usft)	Northing (usft)	Easting (usft)
1,500.0	18.75	180.00	1,488.9	-1,884.7	-101.4	0.0	3.00	101.0	423,007.64	565,133.00
1,600.0	21.75	180.00	1,582.7	-1,790.9	-136.0	0.0	3.00	135.5	422,973.04	565,133.00
1,700.0	24.75	180.00	1,674.6	-1,699.0	-175.4	0.0	3.00	174.8	422,933.57	565,133.00
1,775.0	27.00	180.00	1,742.1	-1,631.5	-208.2	0.0	3.00	207.4	422,900.84	565,133.00
1,800.0	29.20	180.00	1,764.1	-1,609.5	-219.9	0.0	8.80	219.2	422,889.06	565,133.00
1,850.0	33.60	180.00	1,806.8	-1,566.8	-246.0	0.0	8.80	245.1	422,863.02	565,133.00
1,900.0	38.00	180.00	1,847.3	-1,526.3	-275.2	0.0	8.80	274.3	422,833.78	565,133.00
1,950.0	43.50	180.00	1,885.2	-1,488.4	-307.8	0.0	11.00	306.8	422,801.15	565,133.00
2,000.0	49.00	180.00	1,919.7	-1,453.9	-344.0	0.0	11.00	342.8	422,765.05	565,133.00
2,050.0	54.50	180.00	1,950.7	-1,422.9	-383.2	0.0	11.00	381.9	422,725.80	565,133.00
2,100.0	60.00	180.00	1,977.7	-1,395.9	-425.2	0.0	11.00	423.8	422,683.76	565,133.00
2,150.0	65.50	180.00	2,000.6	-1,373.0	-469.7	0.0	11.00	468.0	422,639.33	565,133.00
2,168.5	67.54	180.00	2,008.0	-1,365.6	-486.7	0.0	11.00	485.0	422,622.32	565,133.00
7" Production Casing										
2,200.0	71.00	180.00	2,019.1	-1,354.5	-516.1	0.0	11.00	514.3	422,592.91	565,133.00
2,250.0	76.50	180.00	2,033.1	-1,340.5	-564.1	0.0	11.00	562.1	422,544.92	565,133.00
2,300.0	82.00	180.00	2,042.4	-1,331.2	-613.2	0.0	11.00	611.1	422,495.82	565,133.00
2,350.0	86.42	180.00	2,047.5	-1,326.1	-662.9	0.0	8.84	660.6	422,446.09	565,133.00
2,395.0	90.40	180.00	2,048.7	-1,324.9	-707.9	0.0	8.84	705.4	422,401.11	565,133.00
2,400.0	90.40	180.00	2,048.7	-1,324.9	-712.9	0.0	0.00	710.4	422,396.11	565,133.00
2,500.0	90.40	180.00	2,048.0	-1,325.6	-812.9	0.0	0.00	810.1	422,296.11	565,133.00
2,600.0	90.40	180.00	2,047.3	-1,326.3	-912.9	0.0	0.00	909.7	422,196.12	565,133.00
2,700.0	90.40	180.00	2,046.6	-1,327.0	-1,012.9	0.0	0.00	1,009.4	422,096.12	565,133.00
2,800.0	90.40	180.00	2,045.9	-1,327.7	-1,112.9	0.0	0.00	1,109.0	421,996.12	565,133.00
2,900.0	90.40	180.00	2,045.2	-1,328.4	-1,212.9	0.0	0.00	1,208.7	421,896.12	565,133.00
3,000.0	90.40	180.00	2,044.5	-1,329.1	-1,312.9	0.0	0.00	1,308.3	421,796.13	565,133.00
3,100.0	90.40	180.00	2,043.8	-1,329.8	-1,412.9	0.0	0.00	1,408.0	421,696.13	565,133.00

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grd
Wellbore:	Ogden 8HML ST 1	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
3,200.0	90.40	180.00	2,043.1	-1,330.5	-1,512.9	0.0	0.00	1,507.6	421,596.13	565,133.00	
3,300.0	90.40	180.00	2,042.4	-1,331.2	-1,612.9	0.0	0.00	1,607.3	421,496.13	565,133.00	
3,400.0	90.40	180.00	2,041.7	-1,331.9	-1,712.9	0.0	0.00	1,706.9	421,396.14	565,133.00	
3,500.0	90.40	180.00	2,041.0	-1,332.6	-1,812.9	0.0	0.00	1,806.6	421,296.14	565,133.00	
3,600.0	90.40	180.00	2,040.3	-1,333.3	-1,912.9	0.0	0.00	1,906.2	421,196.14	565,133.00	
3,700.0	90.39	180.00	2,039.6	-1,334.0	-2,012.9	0.0	0.00	2,005.9	421,096.14	565,133.00	
3,800.0	90.39	180.00	2,039.0	-1,334.6	-2,112.9	0.0	0.00	2,105.5	420,996.15	565,133.00	
3,900.0	90.39	180.00	2,038.3	-1,335.3	-2,212.9	0.0	0.00	2,205.2	420,896.15	565,133.00	
4,000.0	90.39	180.00	2,037.6	-1,336.0	-2,312.8	0.0	0.00	2,304.8	420,796.15	565,133.00	
4,100.0	90.39	180.00	2,036.9	-1,336.7	-2,412.8	0.0	0.00	2,404.5	420,696.15	565,133.00	
4,200.0	90.38	180.00	2,036.2	-1,337.4	-2,512.8	0.0	0.00	2,504.1	420,596.15	565,133.00	
4,300.0	90.38	180.00	2,035.6	-1,338.0	-2,612.8	0.0	0.00	2,603.8	420,496.16	565,133.00	
4,400.0	90.38	180.00	2,034.9	-1,338.7	-2,712.8	0.0	0.00	2,703.4	420,396.16	565,133.00	
4,490.5	90.35	180.00	2,034.3	-1,339.3	-2,803.3	0.0	0.03	2,793.6	420,305.66	565,133.00	
4,500.0	90.35	180.00	2,034.3	-1,339.3	-2,812.8	0.0	0.00	2,803.1	420,296.16	565,133.00	
Start DLS 5.00 TFO 90.56											
4,600.0	90.30	185.00	2,033.7	-1,339.9	-2,912.7	-4.4	5.00	2,903.0	420,196.29	565,128.64	
Start Turn 5.00											
4,700.0	90.30	190.00	2,033.2	-1,340.4	-3,011.8	-17.4	5.00	3,002.8	420,097.18	565,115.59	
4,800.0	90.30	195.00	2,032.7	-1,340.9	-3,109.4	-39.0	5.00	3,101.9	419,999.58	565,093.95	
4,900.0	90.30	200.00	2,032.1	-1,341.5	-3,204.8	-69.1	5.00	3,199.4	419,904.24	565,063.89	
Start Turn 0.74											
5,000.0	90.30	200.77	2,031.6	-1,342.0	-3,298.5	-103.9	0.77	3,295.7	419,810.51	565,029.06	
5,100.0	90.30	201.54	2,031.1	-1,342.5	-3,391.8	-140.0	0.77	3,391.6	419,717.25	564,992.98	
5,200.0	90.30	202.31	2,030.6	-1,343.0	-3,484.5	-177.4	0.77	3,487.2	419,624.48	564,955.64	
5,300.0	90.30	203.08	2,030.0	-1,343.6	-3,576.8	-215.9	0.77	3,582.3	419,532.22	564,917.06	
5,400.0	90.30	203.85	2,029.5	-1,344.1	-3,668.5	-255.7	0.77	3,677.1	419,440.49	564,877.25	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373 6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373 6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 1	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
5,500.0	90.30	204.62	2,029.0	-1,344.6	-3,759.7	-296.8	0.77	3,771.4	419,349.30	564,836.21	
5,550.0	90.30	205.00	2,028.7	-1,344.9	-3,805.1	-317.8	0.77	3,818.3	419,303.92	564,815.23	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
115.0	115.0	14" Conductor	14	15	
352.0	352.0	9 5/8" Surface Casing	9-5/8	12-1/4	
2,168.5	2,008.0	7" Production Casing	7	7	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
4,500.0	2,034.3	-2,812.8	0.0	Start DLS 5.00 TFO 90.56	
4,600.0	2,033.7	-2,912.7	-4.4	Start Turn 5.00	
4,900.0	2,032.1	-3,011.8	-17.4	Start Turn 0.74	
5,580.0	2,028.6	-3,109.4	-39.0	TD at 5580.0	

Checked By: _____	Approved By: _____	Date: _____
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Murchison Oil and Gas

Ogden North

Ogden #8

Ogden #8HML

Ogden 8HML ST 2

Plan: 120925 Ogden 8HML ST 2

MOJO Standard Well Plan

04 October, 2012



MOJO
DIRECTIONAL CORPORATION

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373 6usft (4)
Well:	Ogden #8HML	North Reference:	Gnd
Wellbore:	Ogden 8HML ST 2	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 2	Database:	EDM 5000 1 Single User Db

Project	Ogden North, Pinnate Appraisal Well		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Ogden #8		
Site Position:		Northing:	422,609.00 usft
From:	Map	Easting:	565,133.00 usft
Position Uncertainty:	1.0 usft	Slot Radius:	15 "
		Latitude:	32° 9' 42.505 N
		Longitude:	104° 15' 23.167 W
		Grid Convergence:	0.04 °

Well	Ogden #8HML					
Well Position	+N/-S	0.0 usft	Northing:	423,109.00 usft	Latitude:	32° 9' 47.453 N
	+E/-W	0.0 usft	Easting:	565,133.00 usft	Longitude:	104° 15' 23.163 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,361.6 usft

Wellbore	Ogden 8HML ST 2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	25/09/2012	7.73	60.01	48,419

Design:	120925 Ogden 8HML ST 2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	3,800.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	190.02	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 2	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 2	Database:	EDM 5000 1 Single User Db

Survey Tool Program		Date 04/10/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	3,800.0	120925 Ogden #8HML (Ogden #8HML)	MWD	MWD - Standard
3,800.0	5,640.0	120925 Ogden 8HML ST 2 (Ogden 8HML)		

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,373.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
100.0	0.00	180.00	100.0	-3,273.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
115.0	0.00	180.00	115.0	-3,258.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
14" Conductor											
200.0	0.00	180.00	200.0	-3,173.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
300.0	0.00	180.00	300.0	-3,073.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
352.0	0.00	180.00	352.0	-3,021.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
9 5/8" Surface Casing											
400.0	0.00	180.00	400.0	-2,973.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
500.0	0.00	180.00	500.0	-2,873.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
600.0	0.00	180.00	600.0	-2,773.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
700.0	0.00	180.00	700.0	-2,673.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
800.0	0.00	180.00	800.0	-2,573.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
875.0	0.00	180.00	875.0	-2,498.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
900.0	0.75	180.00	900.0	-2,473.6	-0.2	0.0	3.00	0.2	423,108.84	565,133.00	
975.0	3.00	180.00	975.0	-2,398.6	-2.6	0.0	3.00	2.6	423,106.38	565,133.00	
1,000.0	3.75	180.00	999.9	-2,373.7	-4.1	0.0	3.00	4.0	423,104.91	565,133.00	
1,100.0	6.75	180.00	1,099.5	-2,274.1	-13.2	0.0	3.00	13.0	423,095.76	565,133.00	
1,200.0	9.75	180.00	1,198.4	-2,175.2	-27.6	0.0	3.00	27.2	423,081.41	565,133.00	
1,300.0	12.75	180.00	1,296.5	-2,077.1	-47.1	0.0	3.00	46.4	423,061.91	565,133.00	
1,400.0	15.75	180.00	1,393.4	-1,980.2	-71.7	0.0	3.00	70.6	423,037.29	565,133.00	
1,475.0	18.00	180.00	1,465.2	-1,908.4	-93.5	0.0	3.00	92.0	423,015.52	565,133.00	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 2	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 2	Database:	EDM 5000 1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
1,500.0	18.75	180.00	1,488.9	-1,884.7	-101.4	0.0	3.00	99.8	423,007.64	565,133.00	
1,600.0	21.75	180.00	1,582.7	-1,790.9	-136.0	0.0	3.00	133.9	422,973.04	565,133.00	
1,700.0	24.75	180.00	1,674.6	-1,699.0	-175.4	0.0	3.00	172.8	422,933.57	565,133.00	
1,775.0	27.00	180.00	1,742.1	-1,631.5	-208.2	0.0	3.00	205.0	422,900.84	565,133.00	
1,800.0	29.20	180.00	1,764.1	-1,609.5	-219.9	0.0	8.80	216.6	422,889.06	565,133.00	
1,850.0	33.60	180.00	1,806.8	-1,566.8	-246.0	0.0	8.80	242.2	422,863.02	565,133.00	
1,900.0	38.00	180.00	1,847.3	-1,526.3	-275.2	0.0	8.80	271.0	422,833.78	565,133.00	
1,950.0	43.50	180.00	1,885.2	-1,488.4	-307.8	0.0	11.00	303.1	422,801.15	565,133.00	
2,000.0	49.00	180.00	1,919.7	-1,453.9	-344.0	0.0	11.00	338.7	422,765.05	565,133.00	
2,050.0	54.50	180.00	1,950.7	-1,422.9	-383.2	0.0	11.00	377.4	422,725.80	565,133.00	
2,100.0	60.00	180.00	1,977.7	-1,395.9	-425.2	0.0	11.00	418.7	422,683.76	565,133.00	
2,150.0	65.50	180.00	2,000.6	-1,373.0	-469.7	0.0	11.00	462.5	422,639.33	565,133.00	
2,168.5	67.54	180.00	2,008.0	-1,365.6	-486.7	0.0	11.00	479.3	422,622.32	565,133.00	
7" Production Casing											
2,200.0	71.00	180.00	2,019.1	-1,354.5	-516.1	0.0	11.00	508.2	422,592.91	565,133.00	
2,250.0	76.50	180.00	2,033.1	-1,340.5	-564.1	0.0	11.00	555.5	422,544.92	565,133.00	
2,300.0	82.00	180.00	2,042.4	-1,331.2	-613.2	0.0	11.00	603.8	422,495.82	565,133.00	
2,350.0	86.42	180.00	2,047.5	-1,326.1	-662.9	0.0	8.84	652.8	422,446.09	565,133.00	
2,395.0	90.40	180.00	2,048.7	-1,324.9	-707.9	0.0	8.84	697.1	422,401.11	565,133.00	
2,400.0	90.40	180.00	2,048.7	-1,324.9	-712.9	0.0	0.00	702.0	422,396.11	565,133.00	
2,500.0	90.40	180.00	2,048.0	-1,325.6	-812.9	0.0	0.00	800.5	422,296.11	565,133.00	
2,600.0	90.40	180.00	2,047.3	-1,326.3	-912.9	0.0	0.00	899.0	422,196.12	565,133.00	
2,700.0	90.40	180.00	2,046.6	-1,327.0	-1,012.9	0.0	0.00	997.4	422,096.12	565,133.00	
2,800.0	90.40	180.00	2,045.9	-1,327.7	-1,112.9	0.0	0.00	1,095.9	421,996.12	565,133.00	
2,900.0	90.40	180.00	2,045.2	-1,328.4	-1,212.9	0.0	0.00	1,194.4	421,896.12	565,133.00	
3,000.0	90.40	180.00	2,044.5	-1,329.1	-1,312.9	0.0	0.00	1,292.8	421,796.13	565,133.00	
3,100.0	90.40	180.00	2,043.8	-1,329.8	-1,412.9	0.0	0.00	1,391.3	421,696.13	565,133.00	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373 6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373 6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 2	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 2	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
3,200.0	90.40	180.00	2,043.1	-1,330.5	-1,512.9	0.0	0.00	1,489.8	421,596.13	565,133.00	
3,300.0	90.40	180.00	2,042.4	-1,331.2	-1,612.9	0.0	0.00	1,588.3	421,496.13	565,133.00	
3,400.0	90.40	180.00	2,041.7	-1,331.9	-1,712.9	0.0	0.00	1,686.7	421,396.14	565,133.00	
3,500.0	90.40	180.00	2,041.0	-1,332.6	-1,812.9	0.0	0.00	1,785.2	421,296.14	565,133.00	
3,600.0	90.40	180.00	2,040.3	-1,333.3	-1,912.9	0.0	0.00	1,883.7	421,196.14	565,133.00	
3,700.0	90.39	180.00	2,039.6	-1,334.0	-2,012.9	0.0	0.00	1,982.1	421,096.14	565,133.00	
3,800.0	90.39	180.00	2,039.0	-1,334.6	-2,112.9	0.0	0.00	2,080.6	420,996.15	565,133.00	
3,900.0	90.39	185.00	2,038.3	-1,335.3	-2,212.7	-4.4	5.00	2,179.7	420,896.27	565,128.64	
4,000.0	90.38	190.00	2,037.6	-1,336.0	-2,311.8	-17.4	5.00	2,279.6	420,797.16	565,115.59	
4,100.0	90.36	195.00	2,037.0	-1,336.6	-2,409.4	-39.0	5.00	2,379.5	420,699.57	565,093.95	
4,200.0	90.35	200.00	2,036.3	-1,337.3	-2,504.8	-69.1	5.00	2,478.6	420,604.23	565,063.89	
4,300.0	90.32	205.00	2,035.7	-1,337.9	-2,597.1	-107.4	5.00	2,576.2	420,511.87	565,025.64	
4,400.0	90.32	205.00	2,035.2	-1,338.4	-2,687.8	-149.6	0.00	2,672.8	420,421.24	564,983.38	
4,500.0	90.31	205.00	2,034.6	-1,339.0	-2,778.4	-191.9	0.00	2,769.4	420,330.61	564,941.12	
4,600.0	90.31	205.00	2,034.1	-1,339.5	-2,869.0	-234.1	0.00	2,866.0	420,239.98	564,898.86	
4,700.0	90.31	205.00	2,033.6	-1,340.0	-2,959.6	-276.4	0.00	2,962.6	420,149.35	564,856.59	
4,800.0	90.31	205.00	2,033.0	-1,340.6	-3,050.3	-318.7	0.00	3,059.2	420,058.72	564,814.33	
4,900.0	90.30	205.00	2,032.5	-1,341.1	-3,140.9	-360.9	0.00	3,155.8	419,968.09	564,772.07	
5,000.0	90.30	205.00	2,032.0	-1,341.6	-3,231.5	-403.2	0.00	3,252.4	419,877.46	564,729.81	
5,100.0	90.30	205.00	2,031.4	-1,342.2	-3,322.2	-445.5	0.00	3,349.0	419,786.84	564,687.55	
5,200.0	90.30	205.00	2,030.9	-1,342.7	-3,412.8	-487.7	0.00	3,445.6	419,696.21	564,645.29	
5,300.0	90.30	205.00	2,030.4	-1,343.2	-3,503.4	-530.0	0.00	3,542.2	419,605.58	564,603.03	
5,400.0	90.30	205.00	2,029.9	-1,343.7	-3,594.1	-572.2	0.00	3,638.8	419,514.95	564,560.77	
5,500.0	90.30	205.00	2,029.3	-1,344.3	-3,684.7	-614.5	0.00	3,735.4	419,424.32	564,518.50	
5,600.0	90.30	205.00	2,028.8	-1,344.8	-3,775.3	-656.8	0.00	3,832.0	419,333.69	564,476.24	
5,640.0	90.30	205.00	2,028.6	-1,345.0	-3,811.6	-673.7	0.00	3,870.6	419,297.44	564,459.34	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Gnd
Wellbore:	Ogden 8HML ST 2	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 2	Database:	EDM 5000.1 Single User Db

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
352.0	352.0	9 5/8" Surface Casing	9-5/8	12-1/4	
115.0	115.0	14" Conductor	14	15	
2,168.5	2,008.0	7" Production Casing	7	7	

Checked By: _____	Approved By: _____	Date: _____
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Murchison Oil and Gas

Ogden North

Ogden #8

Ogden #8HML

Ogden 8HML ST 3

Plan: 120925 Ogden 8HML ST 3

MOJO Standard Well Plan

04 October, 2012



MOJO
DIRECTIONAL CORPORATION

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Gnd
Wellbore:	Ogden 8HML ST 3	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 3	Database:	EDM 5000 1 Single User Db

Project	Ogden North, Pinnate Appraisal Well		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Ogden #8		
Site Position:		Northing:	422,609.00 usft
From:	Map	Easting:	565,133.00 usft
Position Uncertainty:	1.0 usft	Slot Radius:	15 "
		Latitude:	32° 9' 42.505 N
		Longitude:	104° 15' 23.167 W
		Grid Convergence:	0.04 °

Well	Ogden #8HML		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Ogden 8HML ST 3				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	25/09/2012	7.73	60.01	48,419

Design	120925 Ogden 8HML ST 3				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	3,200.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	194.09	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grnd
Wellbore:	Ogden 8HML ST 3	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 3	Database:	EDM 5000.1 Single User Db

Survey Tool Program		Date 04/10/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0 0	3,200.0	120925 Ogden #8HML (Ogden #8HML)	MWD	MWD - Standard
3,200.0	5,720.0	120925 Ogden 8HML ST 3 (Ogden 8HML		

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
0 0	0.00	0.00	0.0	-3,373.6	0 0	0.0	0.00	0.0	423,109.00	565,133.00
100.0	0 00	180.00	100.0	-3,273.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
115 0	0.00	180.00	115 0	-3,258.6	0.0	0.0	0.00	0 0	423,109.00	565,133.00
14" Conductor										
200.0	0.00	180.00	200.0	-3,173.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
300 0	0.00	180.00	300.0	-3,073.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
352.0	0.00	180.00	352.0	-3,021.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
9 5/8" Surface Casing										
400 0	0 00	180.00	400.0	-2,973.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
500.0	0.00	180.00	500.0	-2,873.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
600 0	0.00	180.00	600.0	-2,773.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
700 0	0.00	180.00	700.0	-2,673.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
800.0	0.00	180.00	800.0	-2,573.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
875 0	0.00	180.00	875.0	-2,498.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00
900 0	0.75	180.00	900.0	-2,473.6	-0.2	0.0	3.00	0.2	423,108.84	565,133.00
975.0	3.00	180.00	975.0	-2,398.6	-2.6	0.0	3.00	2.5	423,106.38	565,133.00
1,000.0	3.75	180.00	999.9	-2,373.7	-4.1	0.0	3.00	4.0	423,104.91	565,133.00
1,100 0	6.75	180.00	1,099.5	-2,274.1	-13.2	0.0	3.00	12.8	423,095.76	565,133.00
1,200.0	9.75	180.00	1,198.4	-2,175.2	-27.6	0.0	3.00	26.8	423,081.41	565,133.00
1,300.0	12.75	180.00	1,296.5	-2,077.1	-47.1	0.0	3.00	45.7	423,061.91	565,133.00
1,400 0	15.75	180.00	1,393.4	-1,980.2	-71.7	0.0	3.00	69.5	423,037.29	565,133.00
1,475 0	18.00	180.00	1,465.2	-1,908.4	-93.5	0.0	3.00	90.7	423,015.52	565,133.00

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 3	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 3	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
1,500.0	18.75	180.00	1,488.9	-1,884.7	-101.4	0.0	3.00	98.3	423,007.64	565,133.00	
1,600.0	21.75	180.00	1,582.7	-1,790.9	-136.0	0.0	3.00	131.9	422,973.04	565,133.00	
1,700.0	24.75	180.00	1,674.6	-1,699.0	-175.4	0.0	3.00	170.2	422,933.57	565,133.00	
1,775.0	27.00	180.00	1,742.1	-1,631.5	-208.2	0.0	3.00	201.9	422,900.84	565,133.00	
1,800.0	29.20	180.00	1,764.1	-1,609.5	-219.9	0.0	8.80	213.3	422,889.06	565,133.00	
1,850.0	33.60	180.00	1,806.8	-1,566.8	-246.0	0.0	8.80	238.6	422,863.02	565,133.00	
1,900.0	38.00	180.00	1,847.3	-1,526.3	-275.2	0.0	8.80	266.9	422,833.78	565,133.00	
1,950.0	43.50	180.00	1,885.2	-1,488.4	-307.8	0.0	11.00	298.6	422,801.15	565,133.00	
2,000.0	49.00	180.00	1,919.7	-1,453.9	-344.0	0.0	11.00	333.6	422,765.05	565,133.00	
2,050.0	54.50	180.00	1,950.7	-1,422.9	-383.2	0.0	11.00	371.7	422,725.80	565,133.00	
2,100.0	60.00	180.00	1,977.7	-1,395.9	-425.2	0.0	11.00	412.4	422,683.76	565,133.00	
2,150.0	65.50	180.00	2,000.6	-1,373.0	-469.7	0.0	11.00	455.5	422,639.33	565,133.00	
2,168.5	67.54	180.00	2,008.0	-1,365.6	-486.7	0.0	11.00	472.0	422,622.32	565,133.00	
7" Production Casing											
2,200.0	71.00	180.00	2,019.1	-1,354.5	-516.1	0.0	11.00	500.6	422,592.91	565,133.00	
2,250.0	76.50	180.00	2,033.1	-1,340.5	-564.1	0.0	11.00	547.1	422,544.92	565,133.00	
2,300.0	82.00	180.00	2,042.4	-1,331.2	-613.2	0.0	11.00	594.7	422,495.82	565,133.00	
2,350.0	86.42	180.00	2,047.5	-1,326.1	-662.9	0.0	8.84	643.0	422,446.09	565,133.00	
2,395.0	90.40	180.00	2,048.7	-1,324.9	-707.9	0.0	8.84	686.6	422,401.11	565,133.00	
2,400.0	90.40	180.00	2,048.7	-1,324.9	-712.9	0.0	0.00	691.4	422,396.11	565,133.00	
2,500.0	90.40	180.00	2,048.0	-1,325.6	-812.9	0.0	0.00	788.4	422,296.11	565,133.00	
2,600.0	90.40	180.00	2,047.3	-1,326.3	-912.9	0.0	0.00	885.4	422,196.12	565,133.00	
2,700.0	90.40	180.00	2,046.6	-1,327.0	-1,012.9	0.0	0.00	982.4	422,096.12	565,133.00	
2,800.0	90.40	180.00	2,045.9	-1,327.7	-1,112.9	0.0	0.00	1,079.4	421,996.12	565,133.00	
2,900.0	90.40	180.00	2,045.2	-1,328.4	-1,212.9	0.0	0.00	1,176.4	421,896.12	565,133.00	
3,000.0	90.40	180.00	2,044.5	-1,329.1	-1,312.9	0.0	0.00	1,273.4	421,796.13	565,133.00	
3,100.0	90.40	180.00	2,043.8	-1,329.8	-1,412.9	0.0	0.00	1,370.3	421,696.13	565,133.00	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373 6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373 6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 3	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 3	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
3,200.0	90.40	180.00	2,043.1	-1,330.5	-1,512.9	0.0	0.00	1,467.3	421,596.13	565,133.00	
3,300.0	90.40	185.00	2,042.4	-1,331.2	-1,612.7	-4.4	5.00	1,565.3	421,496.26	565,128.64	
3,400.0	90.39	190.00	2,041.7	-1,331.9	-1,711.9	-17.4	5.00	1,664.6	421,397.15	565,115.59	
3,500.0	90.38	195.00	2,041.1	-1,332.5	-1,809.4	-39.0	5.00	1,764.5	421,299.55	565,093.95	
3,600.0	90.37	200.00	2,040.4	-1,333.2	-1,904.8	-69.1	5.00	1,864.3	421,204.21	565,063.89	
3,700.0	90.35	205.00	2,039.8	-1,333.8	-1,997.1	-107.4	5.00	1,963.2	421,111.86	565,025.64	
3,800.0	90.35	205.00	2,039.2	-1,334.4	-2,087.8	-149.6	0.00	2,061.4	421,021.23	564,983.38	
3,900.0	90.34	205.00	2,038.6	-1,335.0	-2,178.4	-191.9	0.00	2,159.6	420,930.60	564,941.12	
4,000.0	90.34	205.00	2,038.0	-1,335.6	-2,269.0	-234.1	0.00	2,257.7	420,839.97	564,898.86	
4,100.0	90.33	205.00	2,037.4	-1,336.2	-2,359.7	-276.4	0.00	2,355.9	420,749.34	564,856.59	
4,200.0	90.33	205.00	2,036.8	-1,336.8	-2,450.3	-318.7	0.00	2,454.1	420,658.71	564,814.33	
4,300.0	90.33	205.00	2,036.2	-1,337.4	-2,540.9	-360.9	0.00	2,552.3	420,568.08	564,772.07	
4,400.0	90.32	205.00	2,035.7	-1,337.9	-2,631.5	-403.2	0.00	2,650.5	420,477.45	564,729.81	
4,500.0	90.32	205.00	2,035.1	-1,338.5	-2,722.2	-445.4	0.00	2,748.7	420,386.82	564,687.55	
4,600.0	90.32	205.00	2,034.5	-1,339.1	-2,812.8	-487.7	0.00	2,846.9	420,296.19	564,645.29	
4,700.0	90.31	205.00	2,034.0	-1,339.6	-2,903.4	-530.0	0.00	2,945.1	420,205.56	564,603.03	
4,800.0	90.31	205.00	2,033.5	-1,340.1	-2,994.1	-572.2	0.00	3,043.3	420,114.94	564,560.77	
4,900.0	90.30	205.00	2,032.9	-1,340.7	-3,084.7	-614.5	0.00	3,141.5	420,024.31	564,518.51	
5,000.0	90.30	205.00	2,032.4	-1,341.2	-3,175.3	-656.8	0.00	3,239.7	419,933.68	564,476.24	
5,100.0	90.30	205.00	2,031.9	-1,341.7	-3,266.0	-699.0	0.00	3,337.9	419,843.05	564,433.98	
5,200.0	90.30	205.00	2,031.3	-1,342.3	-3,356.6	-741.3	0.00	3,436.1	419,752.42	564,391.72	
5,300.0	90.30	205.00	2,030.8	-1,342.8	-3,447.2	-783.5	0.00	3,534.2	419,661.79	564,349.46	
5,400.0	90.30	205.00	2,030.3	-1,343.3	-3,537.8	-825.8	0.00	3,632.4	419,571.16	564,307.20	
5,500.0	90.30	205.00	2,029.8	-1,343.8	-3,628.5	-868.1	0.00	3,730.6	419,480.53	564,264.94	
5,600.0	90.30	205.00	2,029.3	-1,344.3	-3,719.1	-910.3	0.00	3,828.8	419,389.90	564,222.68	
5,700.0	90.30	205.00	2,028.7	-1,344.9	-3,809.7	-952.6	0.00	3,927.0	419,299.27	564,180.42	
5,720.0	90.30	205.00	2,028.6	-1,345.0	-3,827.9	-961.0	0.00	3,946.7	419,281.14	564,171.96	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Gnd
Wellbore:	Ogden 8HML ST 3	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 3	Database:	EDM 5000 1 Single User Db

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
352.0	352.0	9 5/8" Surface Casing	9-5/8	12-1/4	
115.0	115.0	14" Conductor	14	15	
2,168.5	2,008.0	7" Production Casing	7	7	

Checked By: _____	Approved By: _____	Date: _____
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Murchison Oil and Gas

Ogden North

Ogden #8

Ogden #8HML

Ogden 8HML ST 4

Plan: 120925 Ogden 8HML ST 4

MOJO Standard Well Plan

04 October, 2012



MOJO
DIRECTIONAL CORPORATION

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 4	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 4	Database:	EDM 5000.1 Single User Db

Project	Ogden North, Pinnate Appraisal Well		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Ogden #8				
Site Position:	Northing:	422,609.00 usft	Latitude:	32° 9' 42.505 N	
From: Map	Easting:	565,133.00 usft	Longitude:	104° 15' 23.167 W	
Position Uncertainty:	1.0 usft	Slot Radius:	15 "	Grid Convergence:	0.04 °

Well	Ogden #8HML					
Well Position	+N/-S	0.0 usft	Northing:	423,109.00 usft	Latitude:	32° 9' 47.453 N
	+E/-W	0.0 usft	Easting:	565,133.00 usft	Longitude:	104° 15' 23.163 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,361.6 usft	

Wellbore	Ogden 8HML ST 4				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	25/09/2012	7.73	60.01	48,419

Design	120925 Ogden 8HML ST 4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	3,000.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	199.77

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373 6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 4	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 4	Database:	EDM 5000 1 Single User Db

Survey Tool Program	Date 04/10/2012			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	3,000.0	120925 Ogden #8HML (Ogden #8HML)	MWD	MWD - Standard
3,000.0	5,900.0	120925 Ogden 8HML ST 4 (Ogden 8HML)		

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,373.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
100.0	0.00	180.00	100.0	-3,273.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
115.0	0.00	180.00	115.0	-3,258.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
14" Conductor											
200.0	0.00	180.00	200.0	-3,173.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
300.0	0.00	180.00	300.0	-3,073.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
352.0	0.00	180.00	352.0	-3,021.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
9 5/8" Surface Casing											
400.0	0.00	180.00	400.0	-2,973.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
500.0	0.00	180.00	500.0	-2,873.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
600.0	0.00	180.00	600.0	-2,773.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
700.0	0.00	180.00	700.0	-2,673.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
800.0	0.00	180.00	800.0	-2,573.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
875.0	0.00	180.00	875.0	-2,498.6	0.0	0.0	0.00	0.0	423,109.00	565,133.00	
900.0	0.75	180.00	900.0	-2,473.6	-0.2	0.0	3.00	0.2	423,108.84	565,133.00	
975.0	3.00	180.00	975.0	-2,398.6	-2.6	0.0	3.00	2.5	423,106.38	565,133.00	
1,000.0	3.75	180.00	999.9	-2,373.7	-4.1	0.0	3.00	3.8	423,104.91	565,133.00	
1,100.0	6.75	180.00	1,099.5	-2,274.1	-13.2	0.0	3.00	12.5	423,095.76	565,133.00	
1,200.0	9.75	180.00	1,198.4	-2,175.2	-27.6	0.0	3.00	26.0	423,081.41	565,133.00	
1,300.0	12.75	180.00	1,296.5	-2,077.1	-47.1	0.0	3.00	44.3	423,061.91	565,133.00	
1,400.0	15.75	180.00	1,393.4	-1,980.2	-71.7	0.0	3.00	67.5	423,037.29	565,133.00	
1,475.0	18.00	180.00	1,465.2	-1,908.4	-93.5	0.0	3.00	88.0	423,015.52	565,133.00	

Company: Murchison Oil and Gas		Local Co-ordinate Reference:				Well Ogden #8HML				
Project: Ogden North		TVD Reference:				well @ 3373.6usft (4)				
Site: Ogden #8		MD Reference:				well @ 3373.6usft (4)				
Well: Ogden #8HML		North Reference:				Grid				
Wellbore: Ogden 8HML ST 4		Survey Calculation Method:				Minimum Curvature				
Design: 120925 Ogden 8HML ST 4		Database:				EDM 5000.1 Single User Db				
Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
1,500.0	18.75	180.00	1,488.9	-1,884.7	-101.4	0.0	3.00	95.4	423,007.64	565,133.00
1,600.0	21.75	180.00	1,582.7	-1,790.9	-136.0	0.0	3.00	128.0	422,973.04	565,133.00
1,700.0	24.75	180.00	1,674.6	-1,699.0	-175.4	0.0	3.00	165.1	422,933.57	565,133.00
1,775.0	27.00	180.00	1,742.1	-1,631.5	-208.2	0.0	3.00	195.9	422,900.84	565,133.00
1,800.0	29.20	180.00	1,764.1	-1,609.5	-219.9	0.0	8.80	207.0	422,889.06	565,133.00
1,850.0	33.60	180.00	1,806.8	-1,566.8	-246.0	0.0	8.80	231.5	422,863.02	565,133.00
1,900.0	38.00	180.00	1,847.3	-1,526.3	-275.2	0.0	8.80	259.0	422,833.78	565,133.00
1,950.0	43.50	180.00	1,885.2	-1,488.4	-307.8	0.0	11.00	289.7	422,801.15	565,133.00
2,000.0	49.00	180.00	1,919.7	-1,453.9	-344.0	0.0	11.00	323.7	422,765.05	565,133.00
2,050.0	54.50	180.00	1,950.7	-1,422.9	-383.2	0.0	11.00	360.6	422,725.80	565,133.00
2,100.0	60.00	180.00	1,977.7	-1,395.9	-425.2	0.0	11.00	400.2	422,683.76	565,133.00
2,150.0	65.50	180.00	2,000.6	-1,373.0	-469.7	0.0	11.00	442.0	422,639.33	565,133.00
2,168.5	67.54	180.00	2,008.0	-1,365.6	-486.7	0.0	11.00	458.0	422,622.32	565,133.00
7" Production Casing										
2,200.0	71.00	180.00	2,019.1	-1,354.5	-516.1	0.0	11.00	485.7	422,592.91	565,133.00
2,250.0	76.50	180.00	2,033.1	-1,340.5	-564.1	0.0	11.00	530.8	422,544.92	565,133.00
2,300.0	82.00	180.00	2,042.4	-1,331.2	-613.2	0.0	11.00	577.0	422,495.82	565,133.00
2,350.0	86.42	180.00	2,047.5	-1,326.1	-662.9	0.0	8.84	623.8	422,446.09	565,133.00
2,395.0	90.40	180.00	2,048.7	-1,324.9	-707.9	0.0	8.84	666.2	422,401.11	565,133.00
2,400.0	90.40	180.00	2,048.7	-1,324.9	-712.9	0.0	0.00	670.9	422,396.11	565,133.00
2,500.0	90.40	180.00	2,048.0	-1,325.6	-812.9	0.0	0.00	765.0	422,296.11	565,133.00
2,600.0	90.40	180.00	2,047.3	-1,326.3	-912.9	0.0	0.00	859.1	422,196.12	565,133.00
2,700.0	90.40	180.00	2,046.6	-1,327.0	-1,012.9	0.0	0.00	953.2	422,096.12	565,133.00
2,800.0	90.40	180.00	2,045.9	-1,327.7	-1,112.9	0.0	0.00	1,047.3	421,996.12	565,133.00
2,900.0	90.40	180.00	2,045.2	-1,328.4	-1,212.9	0.0	0.00	1,141.4	421,896.12	565,133.00
3,000.0	90.40	180.00	2,044.5	-1,329.1	-1,312.9	0.0	0.00	1,235.5	421,796.13	565,133.00
3,050.0	90.40	183.00	2,044.2	-1,329.4	-1,362.8	-1.3	6.00	1,283.0	421,746.15	565,131.69

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Gnd
Wellbore:	Ogden 8HML ST 4	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 4	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
3,100.0	90.39	186.00	2,043.8	-1,329.8	-1,412.7	-5.2	6.00	1,331.2	421,696.31	565,127.77	
3,150.0	90.39	189.00	2,043.5	-1,330.1	-1,462.3	-11.8	6.00	1,380.0	421,646.75	565,121.24	
3,200.0	90.38	192.00	2,043.1	-1,330.5	-1,511.4	-20.9	6.00	1,429.4	421,597.59	565,112.13	
3,250.0	90.38	195.00	2,042.8	-1,330.8	-1,560.0	-32.5	6.00	1,479.1	421,548.98	565,100.46	
3,300.0	90.37	198.00	2,042.5	-1,331.1	-1,608.0	-46.7	6.00	1,529.0	421,501.04	565,086.26	
3,350.0	90.36	201.00	2,042.2	-1,331.4	-1,655.1	-63.4	6.00	1,579.0	421,453.92	565,069.58	
3,400.0	90.35	204.00	2,041.8	-1,331.8	-1,701.3	-82.6	6.00	1,628.9	421,407.73	565,050.44	
3,450.0	90.34	207.00	2,041.5	-1,332.1	-1,746.4	-104.1	6.00	1,678.7	421,362.61	565,028.92	
3,500.0	90.33	210.00	2,041.2	-1,332.4	-1,790.3	-127.9	6.00	1,728.1	421,318.67	565,005.07	
3,600.0	90.32	210.67	2,040.7	-1,332.9	-1,876.6	-178.4	0.67	1,826.4	421,232.36	564,954.56	
3,700.0	90.31	211.33	2,040.1	-1,333.5	-1,962.4	-229.9	0.67	1,924.5	421,146.65	564,903.06	
3,800.0	90.30	212.00	2,039.6	-1,334.0	-2,047.5	-282.4	0.67	2,022.3	421,061.54	564,850.56	
3,900.0	90.30	212.50	2,039.1	-1,334.5	-2,132.0	-335.8	0.50	2,120.0	420,976.97	564,797.20	
4,000.0	90.30	213.00	2,038.6	-1,335.0	-2,216.1	-389.9	0.50	2,217.4	420,892.86	564,743.11	
4,100.0	90.30	213.00	2,038.0	-1,335.6	-2,300.0	-444.4	0.00	2,314.7	420,809.00	564,688.64	
4,200.0	90.30	213.00	2,037.5	-1,336.1	-2,383.9	-498.8	0.00	2,412.1	420,725.13	564,634.18	
4,300.0	90.30	213.00	2,037.0	-1,336.6	-2,467.7	-553.3	0.00	2,509.4	420,641.27	564,579.72	
4,400.0	90.30	213.00	2,036.5	-1,337.1	-2,551.6	-607.7	0.00	2,606.8	420,557.40	564,525.25	
4,500.0	90.30	213.00	2,035.9	-1,337.7	-2,635.5	-662.2	0.00	2,704.1	420,473.54	564,470.79	
4,600.0	90.30	213.00	2,035.4	-1,338.2	-2,719.3	-716.7	0.00	2,801.5	420,389.67	564,416.33	
4,700.0	90.30	213.00	2,034.9	-1,338.7	-2,803.2	-771.1	0.00	2,898.8	420,305.80	564,361.87	
4,800.0	90.30	213.00	2,034.4	-1,339.2	-2,887.1	-825.6	0.00	2,996.1	420,221.94	564,307.40	
4,900.0	90.30	213.00	2,033.8	-1,339.8	-2,970.9	-880.1	0.00	3,093.5	420,138.07	564,252.94	
5,000.0	90.30	213.00	2,033.3	-1,340.3	-3,054.8	-934.5	0.00	3,190.8	420,054.21	564,198.48	
5,100.0	90.30	211.50	2,032.8	-1,340.8	-3,139.4	-987.9	1.50	3,288.5	419,969.64	564,145.12	
5,200.0	90.30	210.00	2,032.3	-1,341.3	-3,225.3	-1,039.0	1.50	3,386.6	419,883.70	564,093.99	
5,300.0	90.30	209.00	2,031.7	-1,341.9	-3,312.3	-1,088.3	1.00	3,485.2	419,796.67	564,044.75	

Company:	Murchison Oil and Gas	Local Co-ordinate Reference:	Well Ogden #8HML
Project:	Ogden North	TVD Reference:	well @ 3373.6usft (4)
Site:	Ogden #8	MD Reference:	well @ 3373.6usft (4)
Well:	Ogden #8HML	North Reference:	Grid
Wellbore:	Ogden 8HML ST 4	Survey Calculation Method:	Minimum Curvature
Design:	120925 Ogden 8HML ST 4	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
5,400.0	90.30	209.00	2,031.2	-1,342.4	-3,399.8	-1,136.7	0.00	3,583.9	419,709.21	563,996.27	
5,500.0	90.30	209.00	2,030.7	-1,342.9	-3,487.3	-1,185.2	0.00	3,682.6	419,621.74	563,947.79	
5,600.0	90.30	209.00	2,030.2	-1,343.4	-3,574.7	-1,233.7	0.00	3,781.3	419,534.28	563,899.31	
5,700.0	90.30	209.00	2,029.7	-1,343.9	-3,662.2	-1,282.2	0.00	3,880.0	419,446.82	563,850.83	
5,800.0	90.30	209.00	2,029.1	-1,344.5	-3,749.6	-1,330.7	0.00	3,978.7	419,359.36	563,802.35	
5,900.0	90.30	209.00	2,028.6	-1,345.0	-3,837.1	-1,379.1	0.00	4,077.4	419,271.90	563,753.87	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
115.0	115.0	14" Conductor	14	15	
352.0	352.0	9 5/8" Surface Casing	9-5/8	12-1/4	
2,168.5	2,008.0	7" Production Casing	7	7	

Checked By: _____	Approved By: _____	Date: _____
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