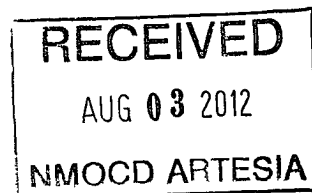


30-015-40130

MURCHISON OIL & GAS

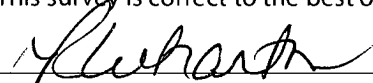
Empire
Eddy County, NM
Plar Bear State Com #4H
VH - Job #32K0612665



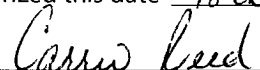
Survey: Gyro

SDI Standard Survey Report

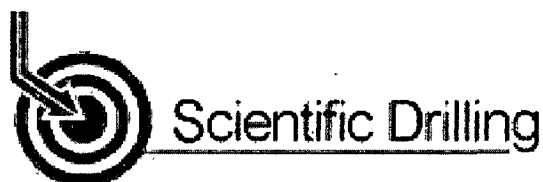
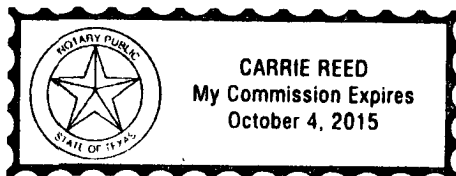
This survey is correct to the best of my knowledge and is supported by actual field data.



Notarized this date 18th of July, 2012.



Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	MURCHISON OIL & GAS	Local Co-ordinate Reference:	Well Plar Bear State Com #4H
Project:	Empire	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	Plar Bear State Com #4H	North Reference:	Grid
Wellbore:	VH - Job #32K0612665	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0612665	Database:	EDM-Regulatory

Project	Empire		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Eddy County, NM		
Site Position:		Northing:	689,077 06 usft
From:	Lat/Long	Easting:	528,173 96 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 53' 39 548 N
		Longitude:	104° 14' 29 566 W
		Grid Convergence:	0 05 °

Well	Plar Bear State Com #4H, Vertical		
Well Position	+N/-S	0 00 usft	Northing: 678,827 08 usft
	+E/-W	0 00 usft	Easting: 564,889 08 usft
Position Uncertainty	0 00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 57 600 N
		Longitude:	104° 7' 19 200 W
		Ground Level:	0 00 usft

Wellbore	VH - Job #32K0612665		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	06/04/12	7 76
			Dip Angle
			60 69
			Field Strength
			48,910

Design	VH - Job #32K0612665		
Audit Notes:			
Version:	1 0	Phase:	ACTUAL
		Tie On Depth:	0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0 00	0 00	0 00
			Direction
			(°)
			234 42

Survey Program	Date	07/19/12		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100 00	4,145 00	Gyro (VH - Job #32K0612665)	Keeper	Keeper Gyro

Survey								
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)	
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
100 00	0 41	47 06	100 00	0 24	0 26	47 06	0 36	
200 00	0 45	12 96	200 00	0 87	0 61	35 12	1 06	
300 00	0 44	18 53	299 99	1 62	0 82	26 95	1 81	
400 00	0 45	47 90	399 99	2 24	1 24	28 83	2 56	
500 00	0 35	92 91	499 99	2 49	1 83	36 32	3 09	
600 00	0 28	97 28	599 99	2 45	2 38	44 21	3 41	
700 00	0 51	175 89	699 98	1 97	2 65	53 40	3 31	
800 00	0 66	183 00	799 98	0 95	2 66	70 28	2 82	
900 00	0 58	166 40	899 97	-0 12	2 74	92 41	2 75	
1,000 00	0 45	184 61	999 97	-1 00	2 83	109 43	3 00	
1,100 00	0 42	186 24	1,099 97	-1 75	2 76	122 44	3 27	

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	MURCHISON OIL & GAS	Local Co-ordinate Reference:	Well Plar Bear State Com #4H
Project:	Empire	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	Plar Bear State Com #4H	North Reference:	Grid
Wellbore:	VH - Job #32K0612665	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0612665	Database:	EDM-Regulatory

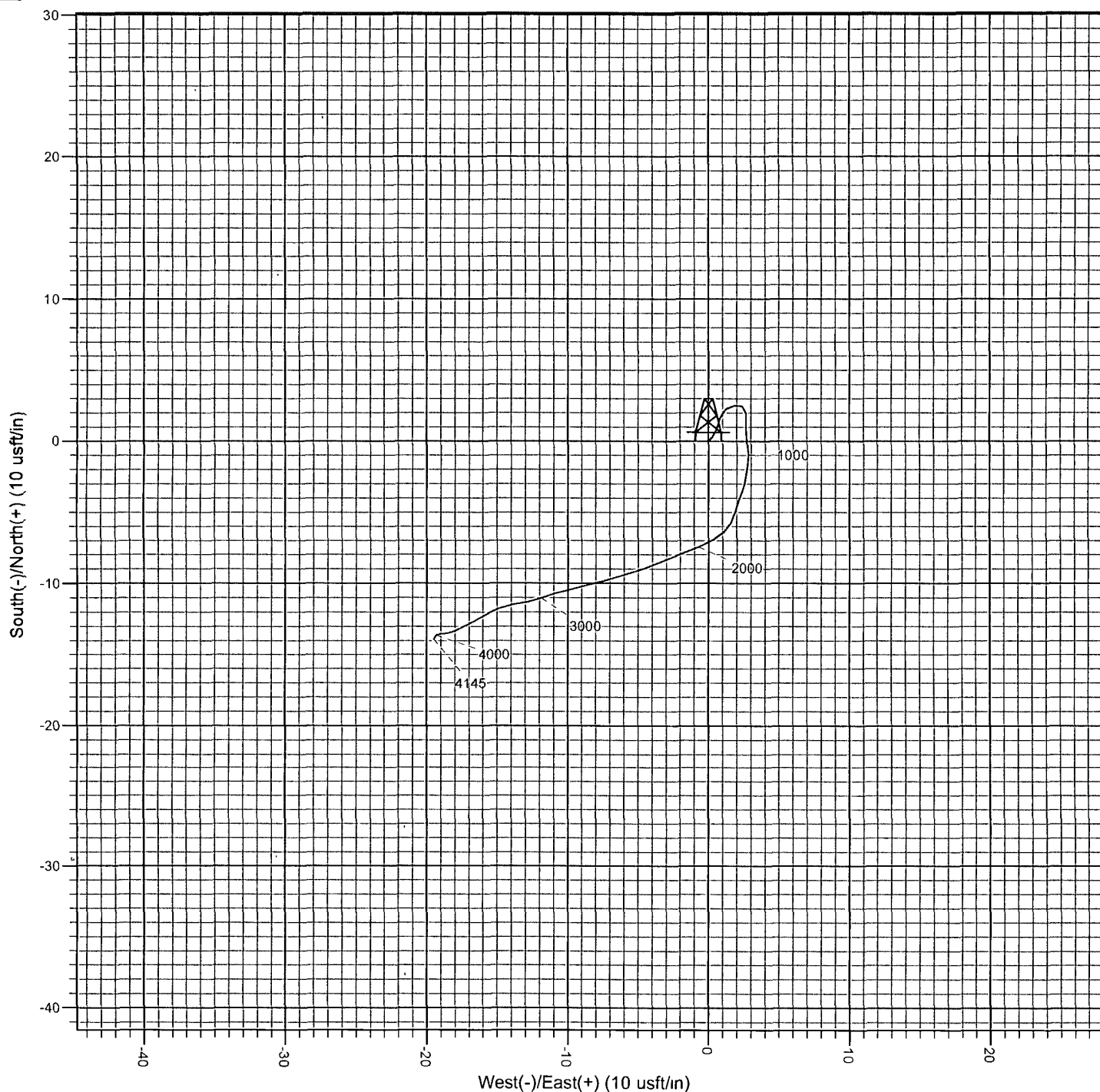
Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200 00	0 33	190 93	1,199 96	-2 40	2 67	132 02	3 59
1,300 00	0 36	192 57	1,299 96	-2 99	2 54	139 63	3 93
1,400 00	0 35	193 87	1,399 96	-3 59	2 40	146 25	4 32
1,500 00	0 43	208 90	1,499 96	-4 22	2 15	153 03	4 73
1,600 00	0 53	189 90	1,599 96	-5 00	1 89	159 35	5 35
1,700 00	0 45	210 96	1,699 95	-5 80	1 60	164 53	6 01
1,800 00	0 48	228 39	1,799 95	-6 41	1 09	170 36	6 50
1,900 00	0 49	235 13	1,899 95	-6 93	0 43	176 49	6 95
2,000 00	0 92	249 10	1,999 94	-7 46	-0 68	185 17	7 49
2,100 00	0 76	249 44	2,099 93	-7 98	-2 05	194 38	8 24
2,200 00	0 88	247 53	2,199 92	-8 51	-3 38	201 65	9 16
2,300 00	0 78	251 47	2,299 91	-9 02	-4 73	207 68	10 19
2,400 00	0 87	254 72	2,399 90	-9 44	-6 11	212 92	11 24
2,500 00	0 67	252 32	2,499 89	-9 81	-7 40	217 02	12 29
2,600 00	0 45	260 37	2,599 88	-10 06	-8 34	219 68	13 07
2,700 00	0 55	250 69	2,699 88	-10 28	-9 18	221 77	13 79
2,800 00	0 51	260 32	2,799 87	-10 51	-10 08	223 78	14 56
2,900 00	0 52	253 57	2,899 87	-10 72	-10 95	225 61	15 32
3,000 00	0 57	248 04	2,999 86	-11 03	-11 85	227 04	16 19
3,100 00	0 59	260 35	3,099 86	-11 30	-12 81	228 58	17 09
3,200 00	0 64	258 47	3,199 85	-11 50	-13 87	230 33	18 02
3,300 00	0 54	252 13	3,299 85	-11 76	-14 87	231 66	18 95
3,400 00	0 52	240 54	3,399 84	-12 13	-15 71	232 33	19 85
3,500 00	0 62	240 44	3,499 84	-12 62	-16 57	232 72	20 83
3,600 00	0 46	244 67	3,599 84	-13 06	-17 41	233 13	21 76
3,700 00	0 33	241 67	3,699 83	-13 36	-18 02	233 45	22 44
3,800 00	0 26	269 98	3,799 83	-13 50	-18 50	233 89	22 91
3,900 00	0 26	259 49	3,899 83	-13 54	-18 95	234 46	23 30
4,000 00	0 13	252 14	3,999 83	-13 62	-19 29	234 77	23 61
4,100 00	0 19	184 18	4,099 83	-13 82	-19 41	234 55	23 82
4,145 00	0 18	237 52	4,144 83	-13 93	-19 47	234 42	23 94



Project: Empire
Eddy County, NM
Well: Plar Bear State Com #4H
Wellbore: VH - Job #32K0612665
Design: VH - Job #32K0612665

WELL DETAILS: Plar Bear State Com #4H
WELL @ 0.00usft (Original Well Elev)
Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	678827.08	564889.08	32° 51' 57.600 N	104° 7' 19.200 W	



PROJECT DETAILS: Empire	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 53' 39.548 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 104° 14' 29.566 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.00
Zone: New Mexico East 3001	Convergence: 0.05
System Datum: Mean Sea Level	Local North: Grid