



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

October 24, 2011

30-015-39242

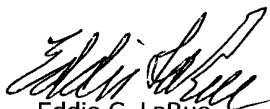
COG, LLC
Fasken Center, Tower II
550 West Texas Ave, Suite 1300
Midland, TX 79701

RE: McCoy State #16
465' FNL & 2365' FWL
Sec. 8, T17S, R29E
Eddy County, New Mexico

Dear Sir,

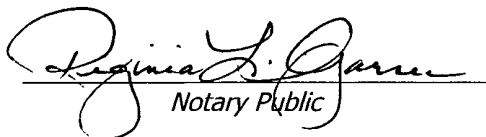
The attached is the Deviation Survey for the above captioned well.

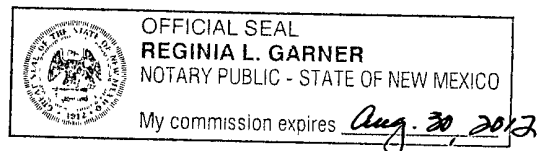
Very truly yours,


Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 24th day of October, 2011.


Regina L. Garner
Notary Public



McCoy State #16

Date	Depth	Dev/Inc	Dir/AZ
10/14/2011	192	0.90	
10/15/2011	373	0.80	
10/15/2011	526	1.10	
10/15/2011	680	1.10	
10/15/2011	838	0.80	
10/16/2011	972	1.25	20.80
10/16/2011	1100	3.14	322.10
10/16/2011	1354	2.99	291.80
10/16/2011	1545	2.96	302.22
10/16/2011	1641	2.76	306.44
10/16/2011	1736	2.71	304.10
10/17/2011	2214	3.28	305.00
10/17/2011	2501	2.88	302.30
10/17/2011	2788	2.63	307.10
10/17/2011	3074	3.00	290.40
10/17/2011	3169	2.36	301.69
10/17/2011	3266	2.46	297.90
10/17/2011	3361	2.43	292.79
10/18/2011	3644	1.00	
10/18/2011	3740	1.00	
10/18/2011	3835	0.30	
10/18/2011	4090	0.60	
10/19/2011	4472	1.20	
10/19/2011	4727	0.30	
10/19/2011	5012	0.60	
10/20/2011	5364	0.80	



COG OPERATING LLC

Eddy County, NM (NAN27 NME)

McCoy State #16

McCoy State #16

OH - Job #32D1011991

30-015-39242

Survey: MWD Survey

SDI Standard Survey Report

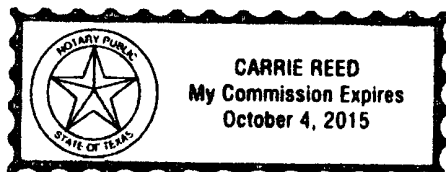
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 16th of November, 2011.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling
Directional Drilling Operations



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG OPERATING LLC	Local Co-ordinate Reference:	Site McCoy State #16
Project:	Eddy County, NM (NAN27 NME)	TVD Reference:	KB Elev (18') @ 3652 0usft (SO #4)
Site:	McCoy State #16	MD Reference:	KB Elev (18') @ 3652 0usft (SO #4)
Well:	McCoy State #16	North Reference:	Grid
Wellbore:	OH - Job #32D1011991	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Project	Eddy County, NM (NAN27 NME)		
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	McCoy State #16		
Site Position:		Northing:	674,822 30 usft
From:	Map	Easting:	572,448 50 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 51' 17 813 N
		Longitude:	104° 5' 50 674 W
		Grid Convergence:	0 13 °

Well	McCoy State #16		
Well Position	+N/-S	0 0 usft	Northing:
	+E/-W	0 0 usft	Easting:
Position Uncertainty	0 0 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 17 813 N
		Longitude:	104° 5' 50 674 W
		Ground Level:	3,634 0 usft

Wellbore	OH - Job #32D1011991				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/29/2011	7 85	60 67	48,915

Design	Actual			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 0	0 0	0 0	308 80

Survey Program	Date 11/16/2011				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100 0	781 0	Gyro Survey (OH - Job #32D1011991)	Keeper	Standard Wireline Keeper ver 1 0 2	
908 0	3,584 0	MWD Survey (OH - Job #32D1011991)	MWD	MWD - Standard	

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0 0	0 00	0 00	0 0	0 0	0 0	0 00	0 0
100 0	0 82	331 87	100 0	0 6	-0 3	331 87	0 7
200 0	0 86	341 13	200 0	2 0	-0 9	335 05	2 2
300 0	0 78	323 16	300 0	3 2	-1 6	334 08	3 6
400 0	0 77	346 88	400 0	4 4	-2 1	334 31	4 9
500 0	1 32	31 25	500 0	6 1	-1 7	344 48	6 3
600 0	1 39	27 81	599 9	8 1	-0 5	356 33	8 1
700 0	1 04	49 97	699 9	9 8	0 7	4 33	9 8
781 0	1 20	54 79	780 9	10 7	2 0	10 53	10 9



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG OPERATING LLC	Local Co-ordinate Reference:	Site McCoy State #16
Project:	Eddy County, NM (NAN27 NME)	TVD Reference:	KB Elev (18') @ 3652 0usft (SO #4)
Site:	McCoy State #16	MD Reference:	KB Elev (18') @ 3652 0usft (SO #4)
Well:	McCoy State #16	North Reference:	Grid
Wellbore:	OH - Job #32D1011991	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Project	Eddy County, NM (NAN27 NME)		
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	McCoy State #16			
Site Position:		Northing:	674,822 30 usft	Latitude: 32° 51' 17 813 N
From:	Map	Easting:	572,448 50 usft	Longitude: 104° 5' 50 674 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"	Grid Convergence: 0 13 °

Well	McCoy State #16			
Well Position	+N/-S	0 0 usft	Northing:	674,822 30 usft
	+E/-W	0 0 usft	Easting:	572,448 50 usft
Position Uncertainty	0 0 usft		Wellhead Elevation:	usft
			Ground Level:	3,634 0 usft

Wellbore	OH - Job #32D1011991				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/29/2011	7 85	60 67	48,915

Design	Actual			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 0	0 0	0 0	308 80

Survey Program	Date	11/16/2011			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100 0	781 0	Gyro Survey (OH - Job #32D1011991)	Keeper	Standard Wireline Keeper ver 1 0 2	
908 0	3,584 0	MWD Survey (OH - Job #32D1011991)	MWD	MWD - Standard	

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
781 0	1 20	54 79	780 9	10 7	2 0	10 53	10 9	
Gyro Tie-in								
908 0	0 93	64 57	907 9	12 0	4 0	18 56	12 6	
972 0	1 24	20 80	971 9	12 8	4 7	20 24	13 7	
1,036 0	1 82	342 44	1,035 8	14 4	4 7	17 92	15 2	
1,100 0	3 14	322 10	1,099 8	16 8	3 3	11 07	17 1	
1,163 0	3 82	317 67	1,162 7	19 7	0 8	2 36	19 7	
1,227 0	3 79	314 02	1,226 5	22 7	-2 1	354 61	22 8	
1,291 0	3 80	306 23	1,290 4	25 5	-5 4	348 08	26 0	
1,354 0	2 99	291 83	1,353 3	27 3	-8 6	342 55	28 6	
1,450 0	2 77	283 45	1,449 1	28 8	-13 2	335 42	31 7	



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG OPERATING LLC	Local Co-ordinate Reference:	Site McCoy State #16
Project:	Eddy County, NM (NAN27 NME)	TVD Reference:	KB Elev (18') @ 3652 0usft (SO #4)
Site:	McCoy State #16	MD Reference:	KB Elev (18') @ 3652 0usft (SO #4)
Well:	McCoy State #16	North Reference:	Grid
Wellbore:	OH - Job #32D1011991	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,545 0	2 96	302 22	1,544 0	30 6	-17 5	330 29	35 3
1,641 0	2 76	306 44	1,639 9	33 3	-21 4	327 25	39 6
1,736 0	2 71	304 10	1,734 8	35 9	-25 1	325 04	43 9
1,832 0	2 47	304 10	1,830 7	38 4	-28 7	323 18	47 9
1,928 0	2 19	304 11	1,926 6	40 6	-32 0	321 77	51 6
2,023 0	3 22	302 02	2,021 5	43 0	-35 7	320 28	55 9
2,119 0	3 02	308 70	2,117 4	46 0	-40 0	319 01	60 9
2,214 0	3 25	305 49	2,212 2	49 1	-44 1	318 07	66 0
2,310 0	3 16	303 19	2,308 1	52 2	-48 6	317 05	71 3
2,405 0	2 61	299 36	2,403 0	54 7	-52 6	316 08	75 9
2,501 0	2 88	302 37	2,498 8	57 0	-56 6	315 22	80 3
2,597 0	2 79	303 79	2,594 7	59 6	-60 6	314 55	85 0
2,692 0	2 46	305 33	2,689 6	62 1	-64 1	314 06	89 3
2,787 0	2 63	307 14	2,784 5	64 6	-67 5	313 71	93 4
2,883 0	3 01	290 97	2,880 4	66 8	-71 6	312 99	98 0
2,979 0	3 00	293 06	2,976 3	68 7	-76 3	311 99	102 7
3,074 0	3 00	290 47	3,071 2	70 5	-80 9	311 07	107 3
3,169 0	2 36	301 69	3,166 1	72 4	-84 9	310 46	111 6
3,265 0	2 52	304 50	3,262 0	74 7	-88 3	310 20	115 7
3,361 0	2 43	292 79	3,357 9	76 6	-92 0	309 81	119 7
3,457 0	1 17	288 31	3,453 8	77 7	-94 8	309 36	122 6
3,521 0	0 55	275 58	3,517 8	78 0	-95 7	309 18	123 4
3,584 0	0 69	250 25	3,580.8	77 9	-96 3	308 95	123 9

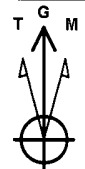
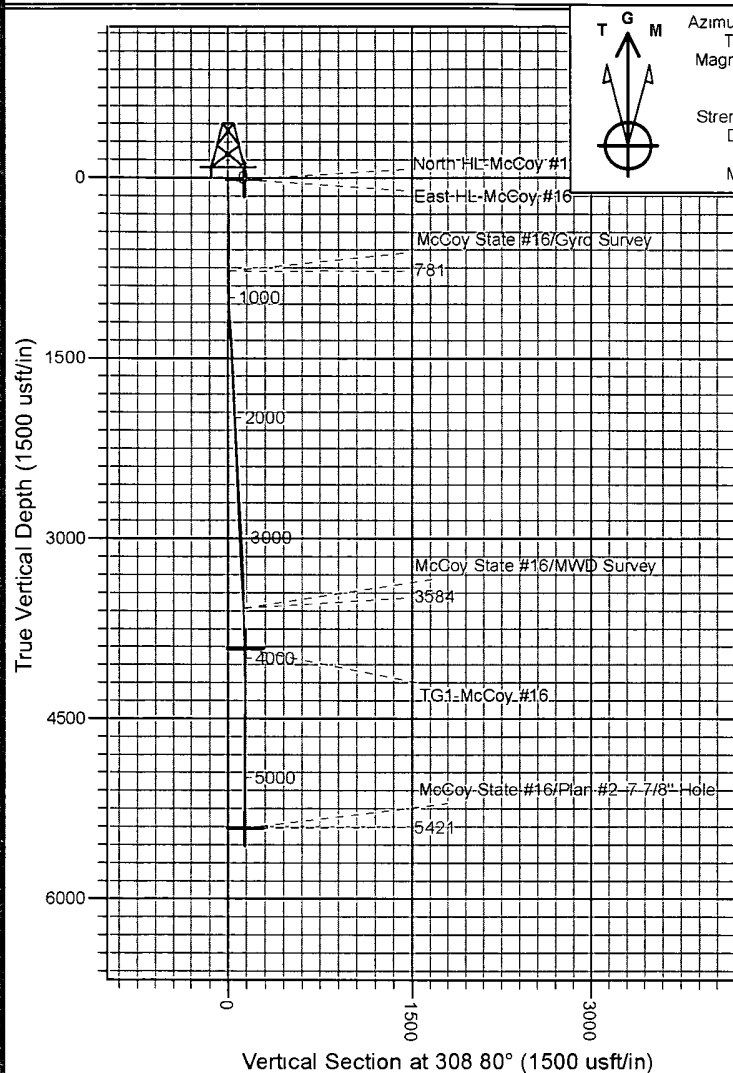
Last MWD Survey

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
781 0	780 9	10 7	2 0	Gyro Tie-in
3,584 0	3,580 8	77 9	-96 3	Last MWD Survey



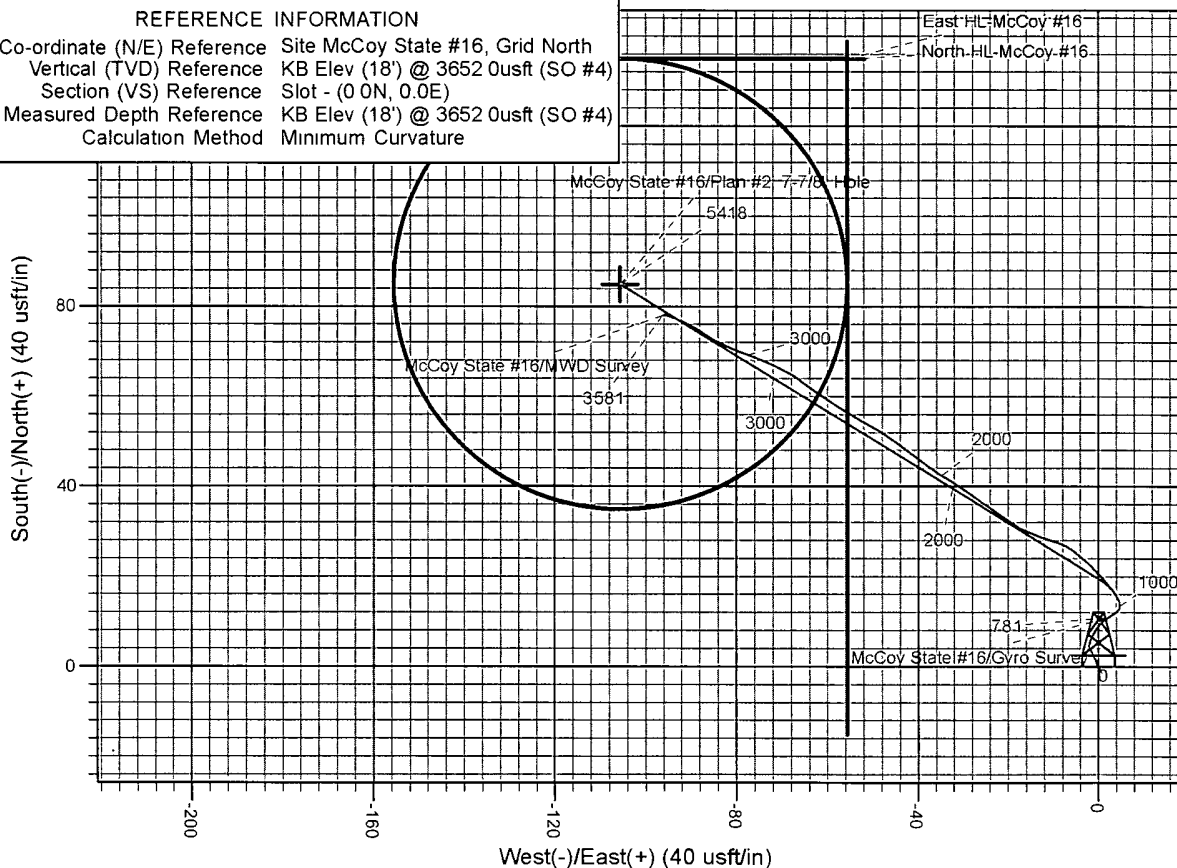
Project: Eddy County, NM (NAN27 NME)
 Site: McCoy State #16
 Well: McCoy State #16
 Wellbore: OH - Job #32D1011991
 Design: Plan #2 7-7/8" Hole



Azimuths to Grid North
 True North -0 13°
 Magnetic North 7 72°
 Magnetic Field
 Strength 48915 5snT
 Dip Angle 60 67°
 Date 8/29/2011
 Model IGRF2010

WELL DETAILS: McCoy State #16		KB Elev (18') @ 3652.0usft (SO #4)		Ground Level: 3634.0		Latitude		Longitude		Slot
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude					
0.0	0.0	674822.30	572448.50	32° 51' 17.813 N	104° 5' 50.674 W					

REFERENCE INFORMATION
 Co-ordinate (N/E) Reference Site McCoy State #16, Grid North
 Vertical (TVD) Reference KB Elev (18') @ 3652.0usft (SO #4)
 Section (VS) Reference Slot - (0.0N, 0.0E)
 Measured Depth Reference KB Elev (18') @ 3652.0usft (SO #4)
 Calculation Method Minimum Curvature



COMPANY DETAILS COG OPERATING LLC
 223032

Calculation Method Minimum Curvature
 Error System ISCWSA
 Scan Method Closest Approach 3D
 Error Surface Elliptical Conic
 Warning Method Error Ratio

PROJECT DETAILS: Eddy County, NM (NAN27 NME)
 Geodetic System NAD State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum Mean Sea Level

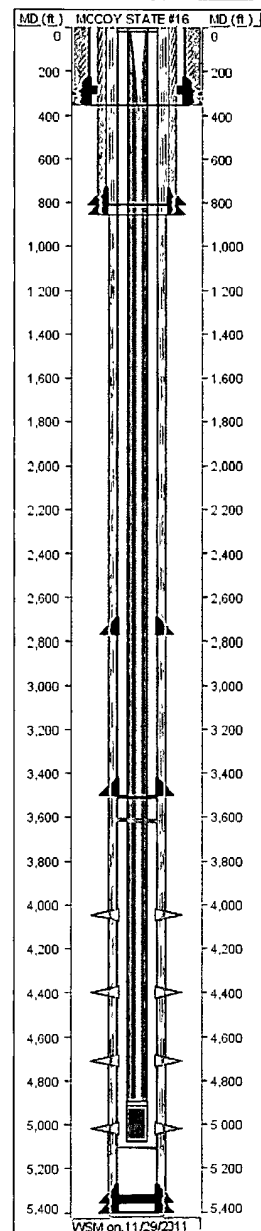
SITE DETAILS: McCoy State #16
 Site Centre Latitude 32° 51' 17.813 N
 Longitude: 104° 5' 50.674 W
 Positional Uncertainty 0.0
 Convergence: 0.13
 Local North: Grid

Well ID: 30-015-39242

Well Name: MCCOY STATE #16

Event#: 3.00

Report Dates: 11/29/2011



PIPE SPECIFICATION

STRING NAME	SECTION NAME	JOINT COUNT	START DEPTH	END DEPTH	LENGTH	OD SIZE	ID SIZE	WT GRDNT	GRD	CONN
SURFACE	GUIDE SHOE		349.90	351.00	1.10	14.38				8RD.
SURFACE	CASING	1	305.74	349.90	44.16	13.38	12.71	48.0	H-40	8RD.
SURFACE	INTERNAL FLOAT		305.74	305.74	0.00	14.38				8RD.
SURFACE	CASING	7	-3.16	305.74	308.90	13.38	12.71	48.0	H-40	8RD.
PRODUCTION	FLOAT SHOE		5399.94	5401.41	1.47	6.05				8RD.
PRODUCTION	CASING	1	5355.49	5399.94	44.45	5.50	4.89	17.0	K-55	8RD.
PRODUCTION	FLOAT COLLAR		5354.19	5355.49	1.30	6.05				8RD.
PRODUCTION	CASING	43	3516.29	5354.19	1837.90	5.50	4.89	17.0	K-55	8RD.
PRODUCTION	MARKER JOINT	1	3501.70	3516.29	14.59	5.50	4.89	17.0	J-55	8RD.
PRODUCTION	CASING	17	2771.77	3501.70	729.93	5.50	4.89	17.0	K-55	8RD.
PRODUCTION	CASING	67	17.00	2771.77	2754.77	5.50	4.89	17.0	J-55	8RD.
PRODUCTION	LANDING JOINT		-4.17	17.00	21.17	5.50	4.89	17.0	J-55	8RD.
TUBING	BULL PLUG		5078.38	5079.13	0.75	2.88	2.44	6.5	J-55	
TUBING	MUD ANCHOR	1	4915.64	5078.38	162.74	2.88	2.44	6.5	J-55	
TUBING	DESANDER		4896.34	4915.64	19.30	2.88	2.44	6.5	J-55	
TUBING	SEAT NIPPLE		4895.54	4896.34	0.80	2.88	2.44	6.5	J-55	
TUBING	TUBING	1	0.00	4895.54	4895.54	2.88	2.44	6.5	J-55	
INTERMEDIATE	GUIDE SHOE		855.90	857.00	1.10	9.63				8RD.
INTERMEDIATE	CASING	1	810.72	855.90	45.18	8.63	8.10	24.0	J-55	8RD.
INTERMEDIATE	FLOAT COLLAR		809.32	810.72	1.40	9.63				8RD.
INTERMEDIATE	CASING	18	-3.83	809.32	813.15	8.63	8.10	24.0	J-55	8RD.

CEMENTING

STRING NAME	STAGE #	LEAD TOP (est) (ft)	LEAD TOP (ver) (ft)	TAIL TOP (est) (ft)	TAIL TOP (ver) (ft)
SURFACE	1				
SURFACE	2				
PRODUCTION	1	0.0	0.0		
INTERMEDIATE	1	0.0	0.0	625.0	

BHA STRING

DRILL EQUIP CODE	DESCRIPTION	LENGTH	OD SIZE	ID SIZE
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PERFORATION

ZONE	JOB REPORT DATE	ZONE NAME	TOP DEPTH	BOTTOM DEPTH	HOLE SIZE	PEN SIZE	SQUEEZED
1	11/10/2011	LOWER BLINEBRY	4920.00	5120.00	0.21	12.00	N
2	11/11/2011	MIDDLE BLINEBRY	4570.00	4850.00	0.21	12.00	N
3	11/11/2011	UPPER BLINEBRY	4300.00	4500.00	0.21	12.00	N
4	11/11/2011	PADDOCK	3920.00	4170.00	0.21	12.00	N