

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 Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised December 16, 2011

Permit

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

¹ Operator Name and Address McELVAIN ENERGY, INC. 1050 17th STREET SUITE 2500 DENVER, COLORADO, 80265		² OGRID Number 22044
		³ API Number 30-025-40746
⁴ Property Code 39435	⁵ Property Name SOUTH IRONHOUSE "32" STATE	⁶ Well No. 1H

⁷ Surface Location

UL - Lot D	Section 32	Township 18S	Range 35E	Lot Idn	Feet from 700'	N/S Line NORTH	Feet From 225'	E/W Line WEST	County LEA
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⁸ Pool Information

SCHARB-BONE SPRING	55610
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Additional Well Information

⁹ Work Type N	¹⁰ Well Type O	¹¹ Cable/Rotary ROTARY	¹² Lease Type S	¹³ Ground Level Elevation 3934'
¹⁴ Multiple NO	¹⁵ Proposed Depth TVD-10,422	¹⁶ Formation BONE SPRING	¹⁷ Contractor UNKNOWN	¹⁸ Spud Date WHEN APPROVED
Depth to Ground water 60'		Distance from nearest fresh water well 1/2 Mile		Distance to nearest surface water Unknown

¹⁹ Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
	26"	20"	CONDUCTOR	40'	Redi-mix	Surface
	17 1/2" 17 1/2"	13 3/8"	54.5 & 48#	1875'	1400 Sx.	Surface
	12 1/4"	9 5/8"	40#	3800'	1000 Sx.	Surface
	8 3/4"	5 1/2"	17#	MD-14,863'	1900 Sx.	3500' FS
				TVD- 10422'		

Casing/Cement Program: Additional Comments

Permit Expires 2 Years From Approval
Date Unless Drilling Underway

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
13 5/8" Annular	3000 PSI	1500 Hi- 250 Low	SHAFFER
11" Double Ram	5000 PSI	3000 Hi 250 Low	CAMERON

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that the drilling pit will be constructed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Signature: *Joe T. Janica*

Printed name: Joe T. Janica

Title: Permit Eng.

E-mail Address: joejanica@valornet.com

Date: 09/10/12 Phone: 575-391-8503

OIL CONSERVATION DIVISION

Approved By:

[Signature]

Title: Petroleum Engineer

Approved Date:

Expiration Date:

SEP 12 2012

Conditions of Approval Attached

SEP 12 2012

1. Drill 26" hole to 40'. Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
2. Drill 17½" hole to 1880'. Run and set 1880' of 13 3/8" casing as follows: 875' of 13 3/8" 54.5# J-55 ST&C, 1000' of 13 3/8" 48# H-40 ST&C casing. Cement with 1200 Sx. of Class "C" cement + 4% Bentonite, + 2% CaCl, + 0.25# LCM material, + defoamer, tail in with 200 Sx. of Class "C" cement + 2% CaCl + defoamer. Circulate cement to surface.
3. Drill 12¼" hole to 3800'. Run and set 3800' of 9 5/8" 40# J-55 ST&C casing. Cement with 800 Sx. of Class "C" 35/65 POZ cement + 6% Bentonite, + 5% Salt, + defoamer, tail in with 200 Sx. of Class "C" cement + defoamer. Circulate cement to surface.
4. Drill 8 3/4" hole to 14,863'. Run and set 14,863' of 5½" casing as follows: 5363' of 5½" 17# HCP-110 BT&C, 9500' of 17# HCP-110 LT&C casing. Cement in two stages with DV Tool at 9000'±. Cement 1st stage with 1000 Sx. of Class "H" cement + fluid loss additives, + Retarders, + Defoamers. Yield 1.68. Cement 2nd stage with 800 Sx. of Class "H" 50/50 POZ cement + 10% Bentonite, + retarder and defoamer, Yield 2.24, tail in with 100 Sx. of Class "H" cement + defoamer, Yield 1.18. Estimate top of cement 3500' from surface. All cement volumes will be calculated from open hole logs.

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DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised July 16, 2010
Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30025-40746	Pool Code 55610	Pool Name SCHARB-BONE SPRING
Property Code 39435	Property Name SOUTH IRONHOUSE 32 STATE	Well Number 1H
OGRID No. 22044	Operator Name McELVAIN ENERGY, INC.	Elevation 3934

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	32	18 S	35 E		700	NORTH	225	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	32	18 S	35 E		460	NORTH	460	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

VB13890000 SURFACE LOCATION Lat - N 32°42'34.30" Long - W 103°29'14.88" NMSPC - N 622895.68 E 801510.31 (NAD-83) PROPOSED BOTTOM HOLE LOCATION Lat - N 32°42'36.52" Long - W 103°28'20.98" NMSPC - N 623156.523 E 806114.670 (NAD-83) Spacing unit 1 Spacing unit 2 Spacing unit 3 Spacing unit 4 PROJECT AREA				OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <i>Joe T. Janica</i> Date: 09/10/12 Joe T. Janica Printed Name: joejanica@valornet.com Email Address:	
				SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date Surveyed: 09/10/12 Signature & Seal of Professional Surveyor: <i>[Signature]</i> Certificate No. Gary L. Jones 7977 BASIN SURVEYS 27200	

SECTION 32, TOWNSHIP 18 SOUTH, RANGE 35 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

B.P.L. // // // // 150' NORTH
OFF SET 3933.4'
□

150' WEST
OFF SET □
3934.1'

150' EAST
□ OFF SET
3933.8'

□
150' SOUTH
OFF SET
3934.3'

51.1'
PROPOSED LEASE ROAD 782.4'
60.0'

McELVAIN OIL & GAS PROPERTIES
SOUTH IRONHOUSE 32 STATE #1H
ELEV. - 3914'

SURFACE LOCATION
Lat - N 32°42'34.30"
Long - W 103°29'14.88"
NMSPC- N 622895.68
E 801510.31
(NAD-83)

S. IRON
HORSE
32 #2h

200 0 200 400 FEET
SCALE: 1" = 200'

Directions to Location:

0.6 MILE AFTER MILE MARKER 26 ON HIGHWAY 529
TURN NORTH ON EXISTING LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 27200 Drawn By: D. JONES

Date: 08-14-2012 Disk: DAJ 27200

McELVAIN ENERGY, INC

REF: SOUTH IRONHOUSE 32 STATE #1H / WELL PAD TOPO

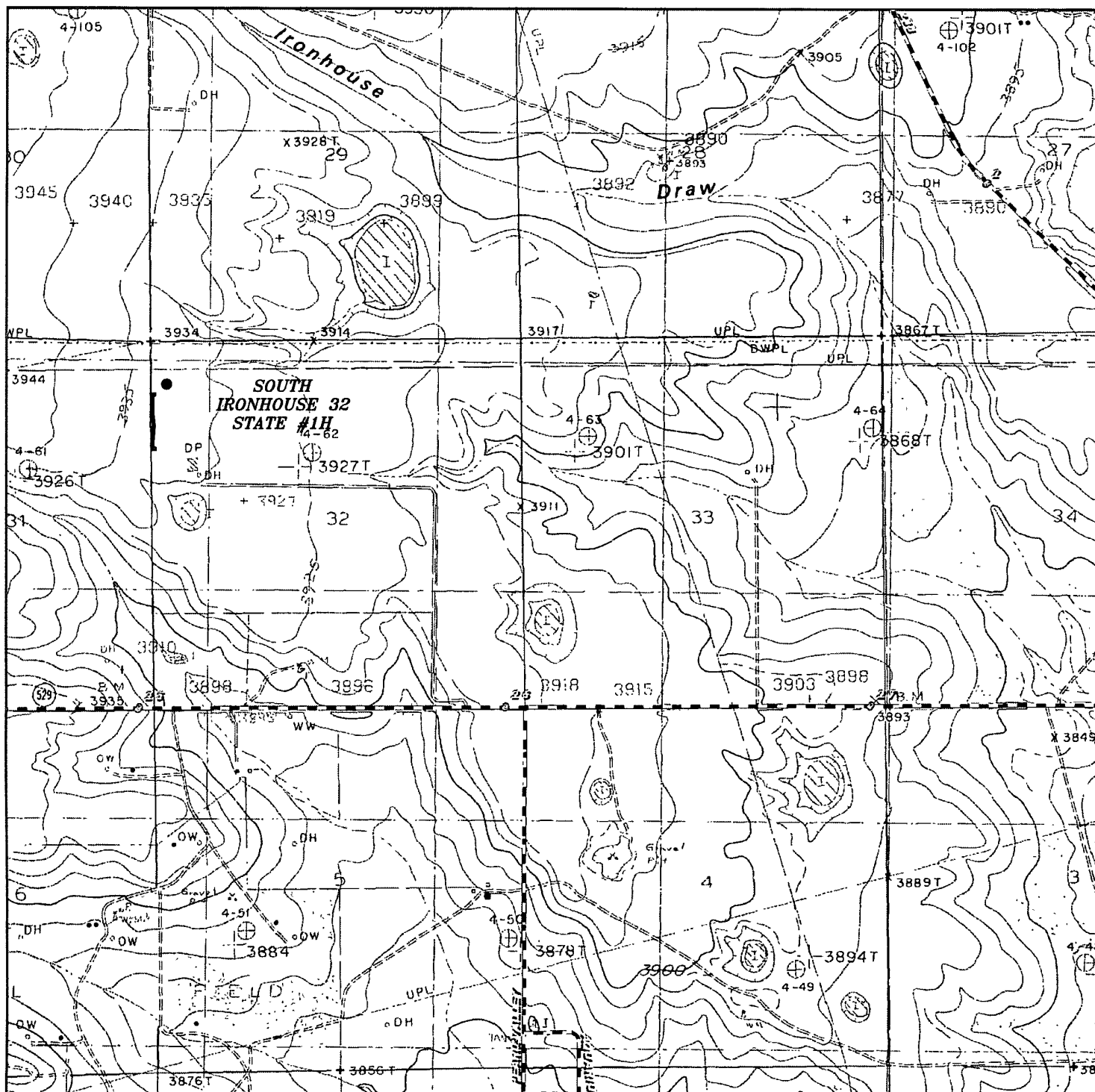
THE SOUTH IRONHOUSE 32 STATE #1H LOCATED 700'

FROM THE NORTH LINE AND 225' FROM THE WEST LINE OF

SECTION 32, TOWNSHIP 18 SOUTH, RANGE 35 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: 08-10-2012 Sheet 1 of 1 Sheets



SOUTH IRONHOUSE 32 STATE #1H
 Located 700' FNL and 225' FWL
 Section 32, Township 18 South, Range 35 East,
 N.M.P.M., Lea County, New Mexico.

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surveys
 focused on excellence
 in the oilfield

P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
 basinsurveys.com

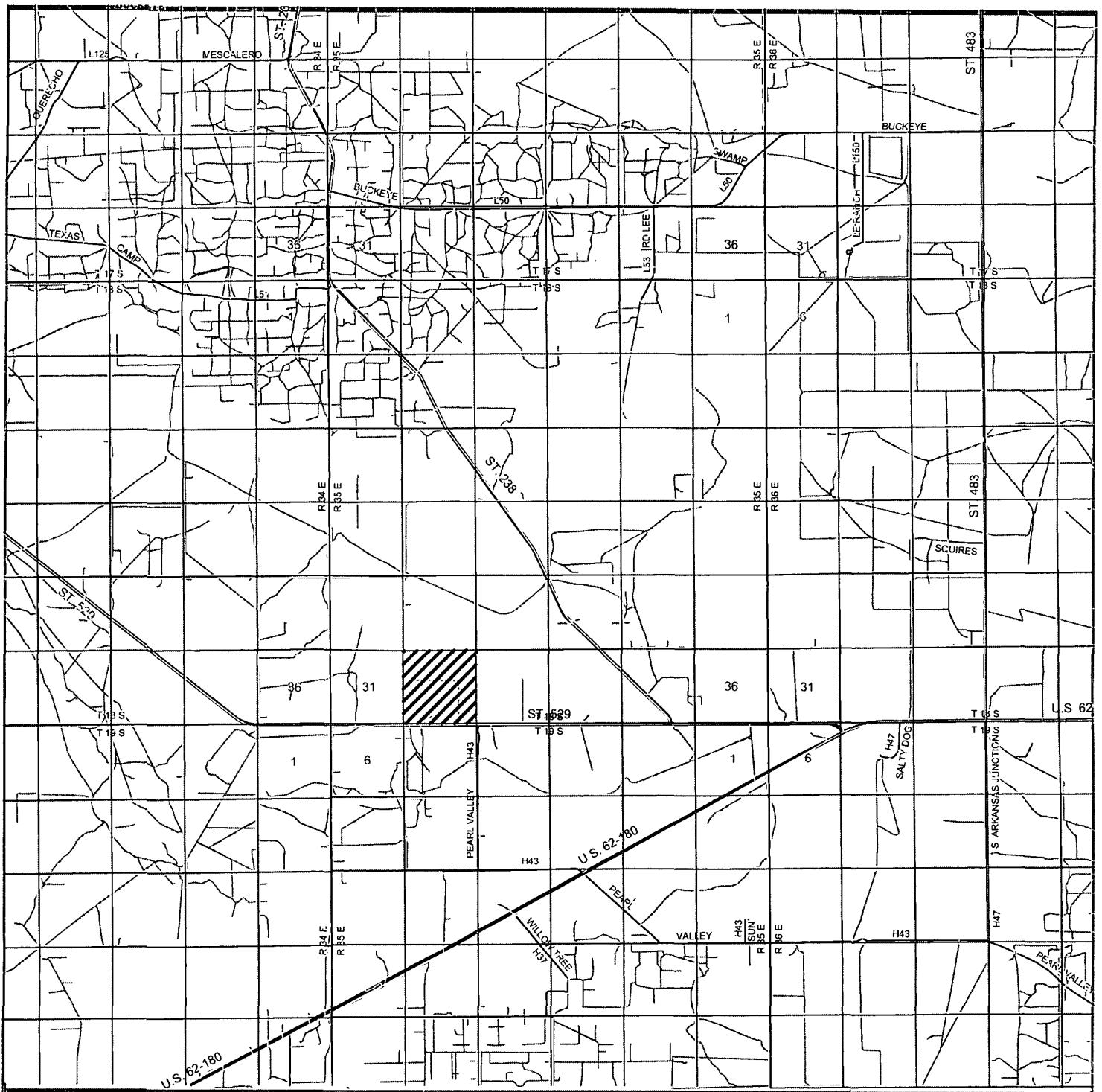
W.O. Number: DAJ 27200

Survey Date: 08-10-2012

Scale: 1" = 2000'

Date: 08-14-2012

McELVAIN
ENERGY, INC



SOUTH IRONHOUSE 32 STATE #1H
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 Section 32, Township 18 South, Range 35 East,
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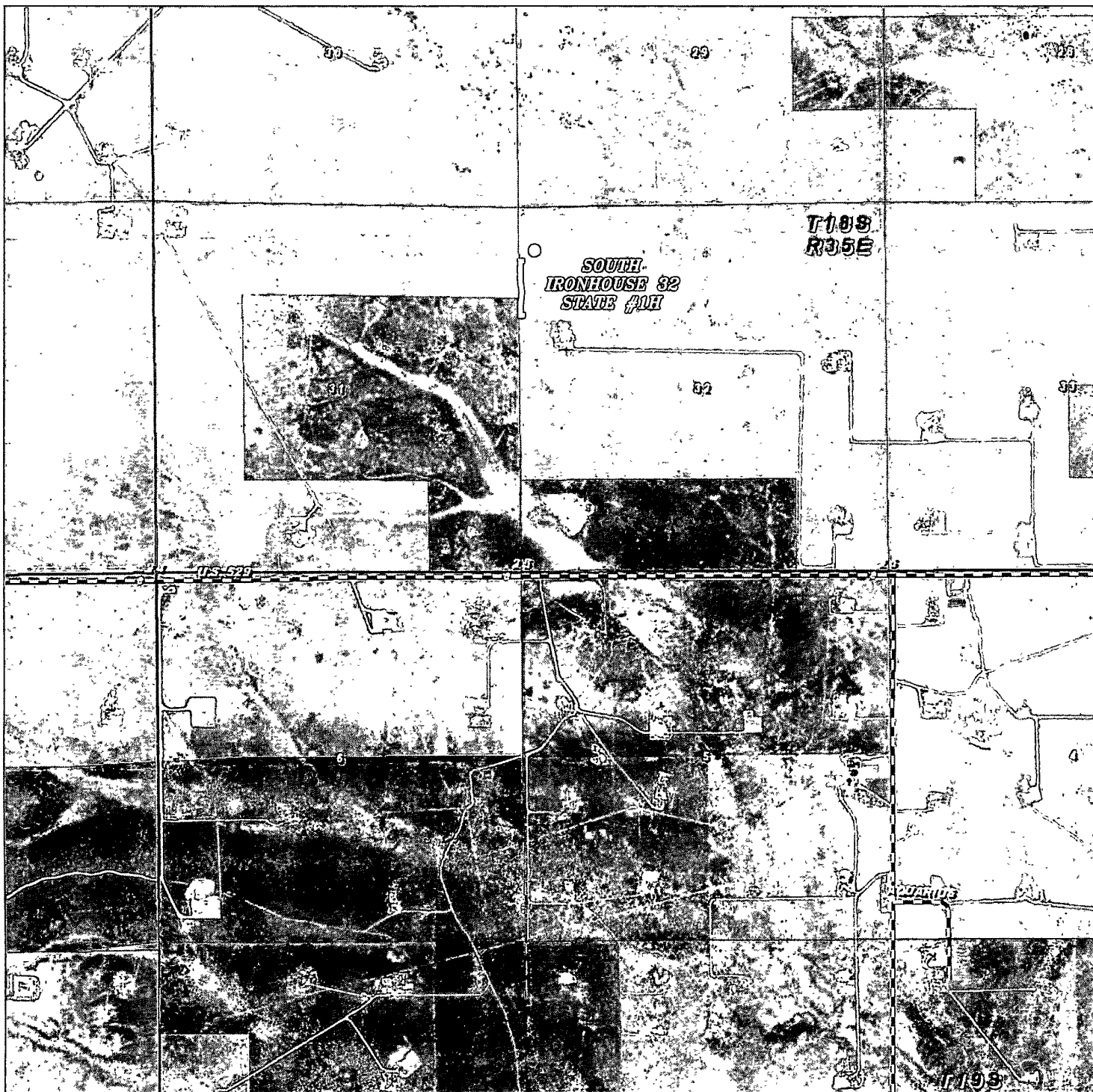
W.O. Number: DAJ 27200

Survey Date: 08-10-2012

Scale: 1" = 2 Miles

Date: 08-14-2012

McELVAIN
ENERGY, INC



SOUTH IRONHOUSE 32 STATE #1H
 Located 700' FNL and 225' FWL
 Section 32, Township 18 South, Range 35 East,
 N.M.P.M., Lea County, New Mexico.

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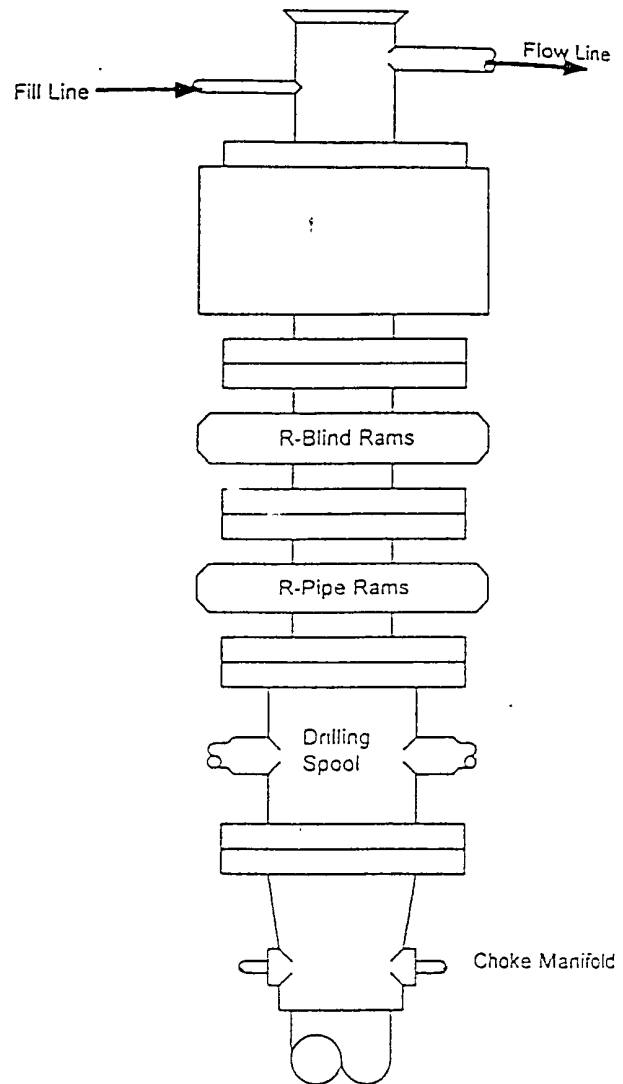
Scale: 1" = 2000'

YELLOW TINT - USA LAND
 BLUE TINT - STATE LAND
 NATURAL COLOR - FEE LAND

McELVAIN
ENERGY, INC

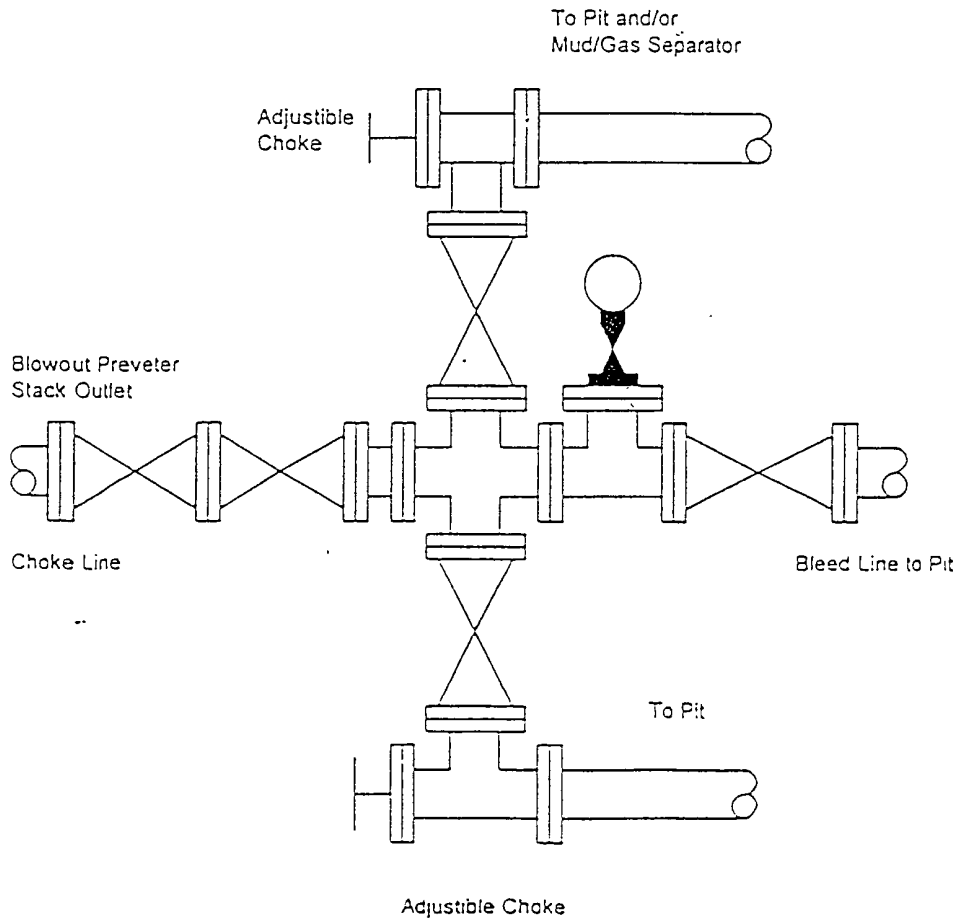
BLOWOUT PREVENTER SYSTEM

3000 PSI WORKING PRESSURE



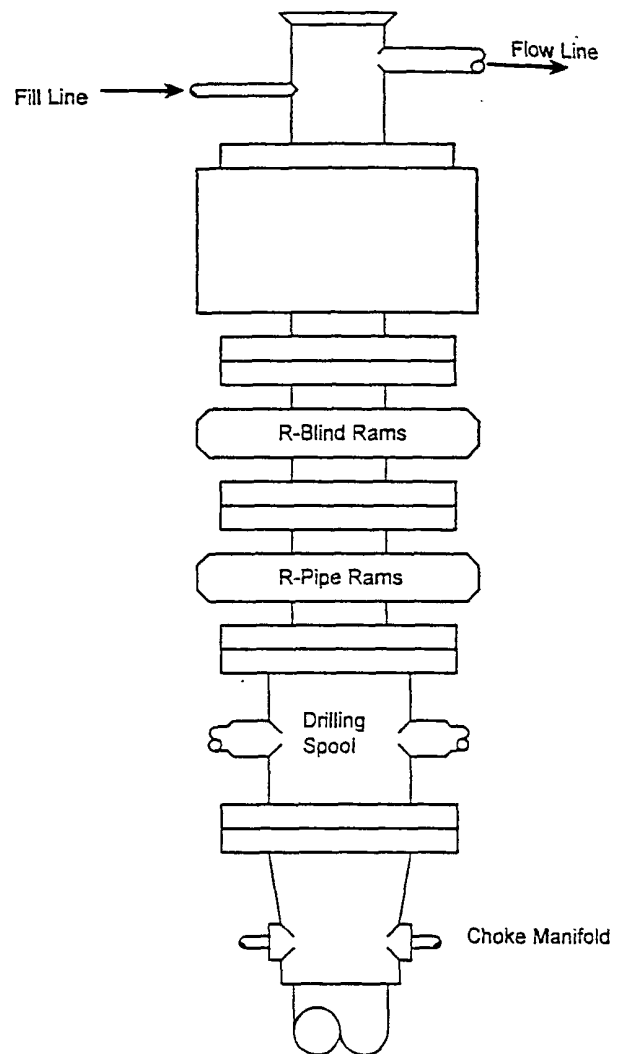
Type 900 Series
3000 psi WP

Choke Manifold Assembly for 3M WP System



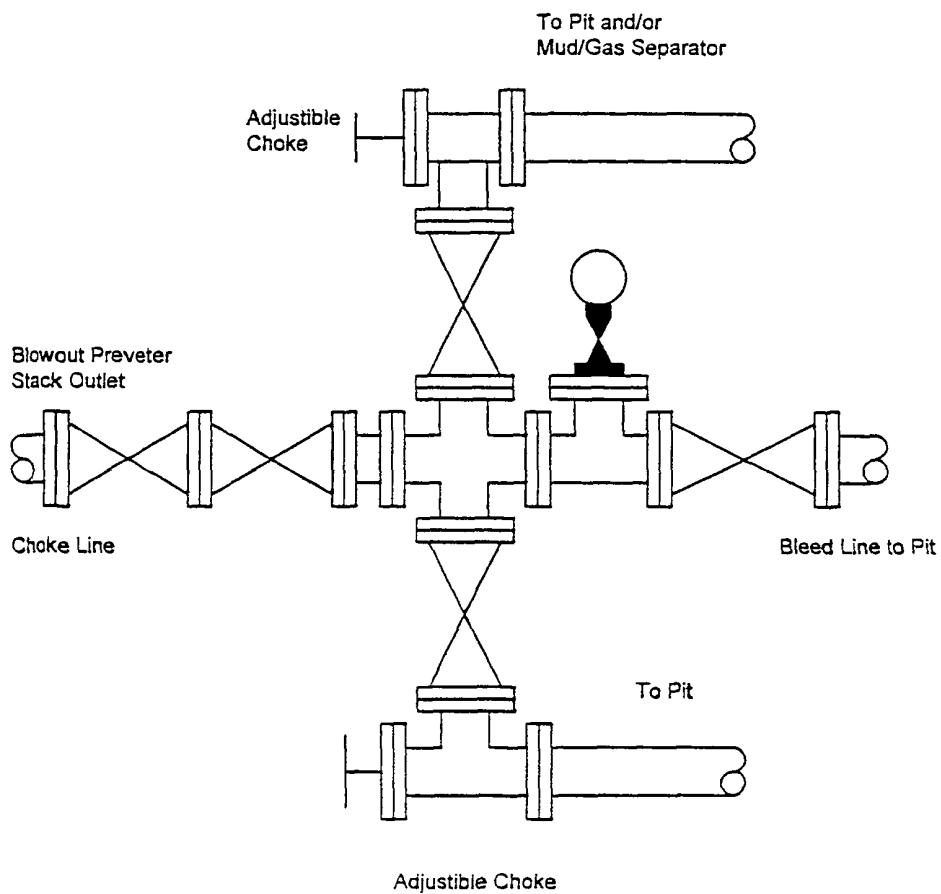
BLOWOUT PREVENTER SYSTEM

5000 PSI



Type 1500 SERIES
5000 psi WP

Choke Manifold Assembly for 5M WP System



PATHFINDER
A Schlumberger Company



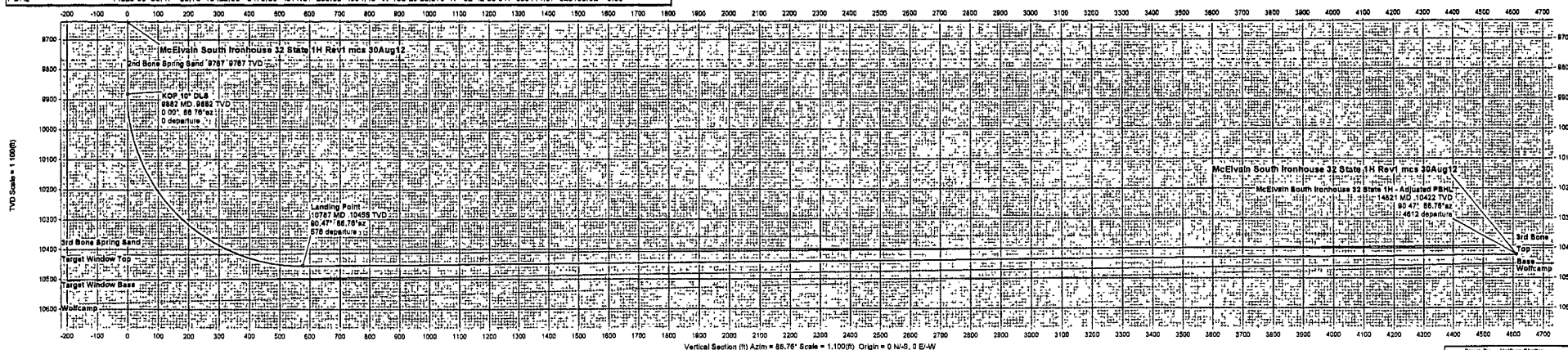
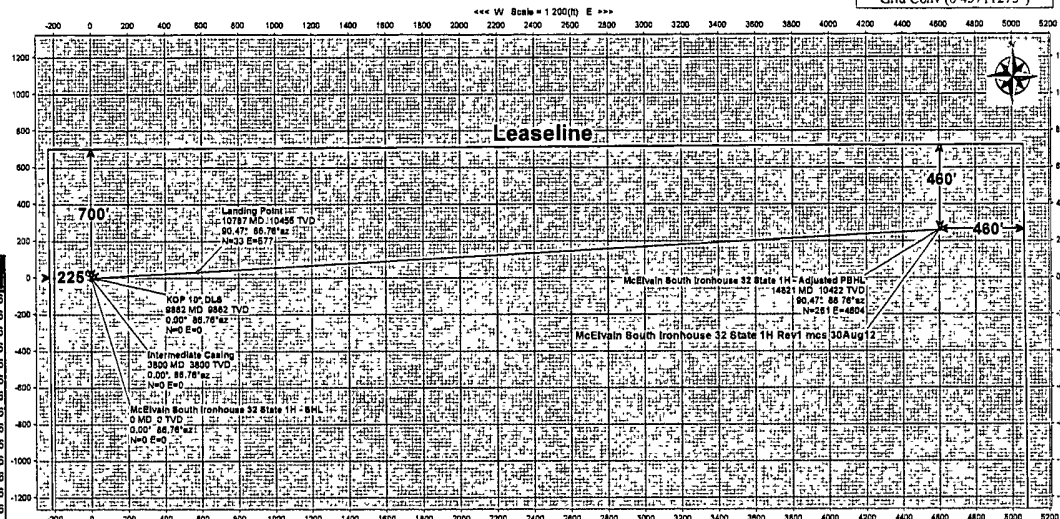
Grid North
Tot Corr (M->G 7 0663°)
Mag Dec (7 523°)
Grid Conv (0 457|1273°)

WELL				FIELD				#STRUCTURE			
McElvain South Ironhorse 32 State 1H				Lea County, NM (NAD 83)				RIG TBD			
Magnetic Parameters Model: 800M 2011 Dg: 60.981 Dk: 0.000 Date: August 22, 2012				Rebar Location Ld: N 32.45 S 30.5 Nothing Rebar: 0.000 NAD83 New Mexico Base Plane Rebar: Zone 118 Feet 62849' 00" 80.0 Grid Corner: 0.437110737 East: 0.000000000				Miscellaneous Sst: 0.000 Reels: Ironhorse 32 State 1H T-D Rpt: RKB(3142 above JMR) Rev: 2012			

142-2548	South	Northside	22	W44	174	W44	1449
142-2549	South	Northside	22	W44	174	1st Street Spring Road	
142-2550	South	Northside	22	W44	174	Thermal Wellhead Site	
142-2551	South	Northside	22	W44	174	1st Street	
142-2552	South	Northside	22	W44	174	1st Street	
142-2553	South	Northside	22	W44	174	1st Street	
142-2554	South	Northside	22	W44	174	1st Street	
142-2555	South	Northside	22	W44	174	1st Street	
142-2556	South	Northside	22	W44	174	1st Street	
142-2557	South	Northside	22	W44	174	1st Street	
142-2558	South	Northside	22	W44	174	1st Street	
142-2559	South	Northside	22	W44	174	1st Street	
142-2560	South	Northside	22	W44	174	1st Street	
142-2561	South	Northside	22	W44	174	1st Street	
142-2562	South	Northside	22	W44	174	1st Street	
142-2563	South	Northside	22	W44	174	1st Street	
142-2564	South	Northside	22	W44	174	1st Street	
142-2565	South	Northside	22	W44	174	1st Street	
142-2566	South	Northside	22	W44	174	1st Street	
142-2567	South	Northside	22	W44	174	1st Street	
142-2568	South	Northside	22	W44	174	1st Street	
142-2569	South	Northside	22	W44	174	1st Street	
142-2570	South	Northside	22	W44	174	1st Street	
142-2571	South	Northside	22	W44	174	1st Street	
142-2572	South	Northside	22	W44	174	1st Street	
142-2573	South	Northside	22	W44	174	1st Street	
142-2574	South	Northside	22	W44	174	1st Street	
142-2575	South	Northside	22	W44	174	1st Street	
142-2576	South	Northside	22	W44	174	1st Street	
142-2577	South	Northside	22	W44	174	1st Street	
142-2578	South	Northside	22	W44	174	1st Street	
142-2579	South	Northside	22	W44	174	1st Street	
142-2580	South	Northside	22	W44	174	1st Street	
142-2581	South	Northside	22	W44	174	1st Street	
142-2582	South	Northside	22	W44	174	1st Street	
142-2583	South	Northside	22	W44	174	1st Street	
142-2584	South	Northside	22	W44	174	1st Street	
142-2585	South	Northside	22	W44	174	1st Street	
142-2586	South	Northside	22	W44	174	1st Street	
142-2587	South	Northside	22	W44	174	1st Street	
142-2588	South	Northside	22	W44	174	1st Street	
142-2589	South	Northside	22	W44	174	1st Street	
142-2590	South	Northside	22	W44	174	1st Street	
142-2591	South	Northside	22	W44	174	1st Street	
142-2592	South	Northside	22	W44	174	1st Street	
142-2593	South	Northside	22	W44	174	1st Street	
142-2594	South	Northside	22	W44	174	1st Street	
142-2595	South	Northside	22	W44	174	1st Street	
142-2596	South	Northside	22	W44	174	1st Street	
142-2597	South	Northside	22	W44	174	1st Street	
142-2598	South	Northside	22	W44	174	1st Street	
142-2599	South	Northside	22	W44	174	1st Street	
142-2600	South	Northside	22	W44	174	1st Street	

Targets										
Name	Latitude	Longitude	Northing	Easting	NS	EW	IVD	SSTDV	Shape	Dip
3rd Bone Spring Sand	N 32 42 34.303 W	103 29 14.885	622895.68	801510.31	0.00	0.00	13682.00	6410.00	FORMATION_PLANE	0.12
Target Window Top	N 32 42 34.303 W	103 29 14.885	622895.68	801510.31	0.00	0.00	10417.00	8465.00	FORMATION_PLANE	0.31
Target Window Base	N 32 42 34.303 W	103 29 14.885	622895.68	801510.31	0.00	0.00	15002.00	6555.00	FORMATION_PLANE	0.62
Wolfcamp	N 32 42 34.303 W	103 29 14.885	622895.68	801510.31	0.00	0.00	10577.00	8625.00	FORMATION_PLANE	1.49
PBH1	N 32 46.517 W	103 28 20.975	623156.52	806114.67	280.85	4604.43	10422.00	6470.00	POINT	0.00

Comments	Survey	MD	Inc	Azim	Critical Points										
					TVD	GSVD	VS	NS	EW	Longitude	Latitude	Easting	Northing	DLS	Total Fssg
B/H	0.00	0.00	0.00	86.76	0.00	-3892.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	86.76
Rustler	1852.00	0.00	0.00	86.76	1852.00	-2100.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Sand	3032.00	0.00	0.00	86.76	3032.00	920.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Yates	3352.00	0.00	0.00	86.76	3352.00	600.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Intermediate Casing	3800.00	0.00	0.00	86.76	3800.00	-152.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Seven Rivers	4267.00	0.00	0.00	86.76	4267.00	315.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Queen	4827.00	0.00	0.00	86.76	4827.00	675.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Pennock	4887.00	0.00	0.00	86.76	4887.00	935.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
San Andres	5427.00	0.00	0.00	86.76	5427.00	1475.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Delaware	5802.00	0.00	0.00	86.76	5802.00	1650.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
1st Delaware Sand	5642.00	0.00	0.00	86.76	5642.00	1680.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
2nd Delaware Sand	5737.00	0.00	0.00	86.76	5737.00	1795.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Bone Spring	7602.00	0.00	0.00	86.76	7602.00	3650.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
1st Bone Spring Sand	9257.00	0.00	0.00	86.76	9257.00	5305.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
2nd Bone Spring Sand	9787.00	0.00	0.00	86.76	9787.00	5815.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
KOP 10' DLS	6882.00	0.00	0.00	86.76	6882.00	5930.00	0.00	0.00	0.00	0.00	W 103 28 14.885 N	32 42 34.303	80150.131	122895.68	0.00
Landring	1086.66	90.47	86.76	10454.94	6502.94	577.62	32.67	578.69	0.00	0.00	W 103 28 8.133 N	32 42 34.580	80208.66	122828.35	10.00
P/H	14820.99	90.47	86.76	10422.60	6470.00	4611.81	280.85	4604.43	0.00	0.00	W 103 28 20.975 N	32 42 36.517	806114.67	123216.52	15.00



Drawn By	Matthew Shaffer
Date Created	August 31 2012 02:47:45 PM
Checked By	
Checked Date	
Approved By	
Approved Date	

McElvain South Ironhouse 32 State 1H Rev1 mcs 30Aug12 Proposal Report

(Def Plan)

Report Date:	August 31, 2012 - 02:44 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	McElvain Energy, Inc	Vertical Section Azimuth:	86.758 ° (Grid North)
Field:	NM Lea County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	McElvain South Ironhouse 32 State 1H / McElvain South Ironhouse 32 State 1H	TVD Reference Datum:	RKB
Well:	McElvain South Ironhouse 32 State 1H	TVD Reference Elevation:	3952.000 ft above MSL
Borehole:	Original Borehole	Seabed / Ground Elevation:	3934.000 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	7.523 °
Survey Name:	McElvain South Ironhouse 32 State 1H Rev1 mcs 30Aug12	Total Field Strength:	48794.692 nT
Survey Date:	August 22, 2012	Magnetic Dip Angle:	60.581 °
Tort / AHD / DDI / ERD Ratio:	90.470 ° / 4611.814 ft / 5.772 / 0.441	Declination Date:	August 22, 2012
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Declination Model:	BGGM 2011
Location Lat / Long:	N 32° 42' 34.30251", W 103° 29' 14.88509"	North Reference:	Grid North
Location Grid N/E Y/X:	N 622895.680 ftUS, E 801510.310 ftUS	Grid Convergence Used:	0.457 °
CRS Grid Convergence Angle:	0.45711273 °	Total Corr Mag North->Grid North:	7.066 °
Grid Scale Factor:	0.99998661	Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Closure Azimuth (°)	Closure (ft)	DLS (°/100ft)	TF (°)
McElvain South Ironhouse 32 State 1H - SHL	0.00	0.00	86.76	0.00	-3952.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	N/A	86.76M
Rustler	1852.00	0.00	86.76	1852.00	-2100.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Salt	3032.00	0.00	86.76	3032.00	-920.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Yates	3352.00	0.00	86.76	3352.00	-600.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Intermediate Casing	3800.00	0.00	86.76	3800.00	-152.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Seven Rivers	4267.00	0.00	86.76	4267.00	315.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Queen	4627.00	0.00	86.76	4627.00	675.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Penrose	4887.00	0.00	86.76	4887.00	935.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
San Andres	5427.00	0.00	86.76	5427.00	1475.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Delaware	5602.00	0.00	86.76	5602.00	1650.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
1st Delaware Sand	5642.00	0.00	86.76	5642.00	1690.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
2nd Delaware Sand	5737.00	0.00	86.76	5737.00	1785.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
Bone Spring	7602.00	0.00	86.76	7602.00	3650.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
1st Bone Spring Sand	9257.00	0.00	86.76	9257.00	5305.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Closure Azimuth (°)	Closure (ft)	DLS (°/100ft)	TF (°)
2nd Bone Spring Sand	9767.00	0.00	86.76	9767.00	5815.00	0.00	0.00	0.00	622895.68	801510.31	0.00	0.00	0.00	86.76M
KOP 10" DLS	9882.00	0.00	86.76	9882.00	5930.00	0.00	0.00	0.00	622885.68	801510.31	0.00	0.00	0.00	86.76M
Landing Point	10786.66	90.47	86.76	10454.94	6502.94	577.62	32.67	576.69	622928.35	802086.99	86.76	577.62	10.00	13.31L
McElvain South Ironhouse 32 State 1H - Adjusted PBHL	14820.99	90.47	86.76	10422.00	6470.00	4611.81	260.85	4604.43	623156.52	806114.67	86.76	4611.81	0.00	

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Survey Tool Type	Borehole / Survey
	0.000	18.000	1/100.000	SLB_MWVD-STD-Depth Only	Original Borehole / McElvain South Ironhouse 32 State 1H Rev1 mcs 30Aug12
	18.000	14820.990	1/100.000	SLB_MWVD-STD	Original Borehole / McElvain South Ironhouse 32 State 1H Rev1 mcs 30Aug12

McElvain South Ironhouse 32 State 1H Rev0 mcs 22Aug12 Proposal Report



(Def Plan)

Report Date:	August 23, 2012 - 02:03 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	McElvain Energy, Inc.	Vertical Section Azimuth:	86.758 ° (Grd North)
Field:	NM Lea County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	McElvain South Ironhouse 32 State 1H / McElvain South Ironhouse 32 State 1H	TVD Reference Datum:	RKB
Well:	McElvain South Ironhouse 32 State 1H	TVD Reference Elevation:	3952.000 ft above MSL
Borehole:	Original Borehole	Seabed / Ground Elevation:	3934.000 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	7.523 °
Survey Name:	McElvain South Ironhouse 32 State 1H Rev0 mcs 22Aug12	Total Field Strength:	48764.692 nT
Survey Date:	August 22, 2012	Magnetic Dip Angle:	60.581 °
Tort / AHD / DDI / ERD Ratio:	90.489 ° / 4811.814 ft / 5.773 / 0.441	Declination Date:	August 22, 2012
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Declination Model:	BGGM 2011
Location Lat / Long:	N 32° 42' 34.30251", W 103° 29' 14.86509"	North Reference:	Grid North
Location Grid N/E Y/X:	N 822895.860 ftUS, E 801510.310 ftUS	Grid Convergence Used:	0.457 °
CRS Grid Convergence Angle:	0.45711273 °	Total Corr Mag North→Grid North:	7.086 °
Grid Scale Factor:	0.99998861	Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure Azimuth (°)	Closure (ft)	DeltaMD (ft)
McElvain South Ironhouse 32 State 1H - SHL	0.00	0.00	86.76	0.00	-3952.00	0.00	0.00	0.00	N/A	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	N/A
	100.00	0.00	86.76	100.00	-3852.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	100.00
	200.00	0.00	86.76	200.00	-3752.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	200.00
	300.00	0.00	86.76	300.00	-3652.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	300.00
	400.00	0.00	86.76	400.00	-3552.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	400.00
	500.00	0.00	86.76	500.00	-3452.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	500.00
	600.00	0.00	86.76	600.00	-3352.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	600.00
	700.00	0.00	86.76	700.00	-3252.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	700.00
	800.00	0.00	86.76	800.00	-3152.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	800.00
	900.00	0.00	86.76	900.00	-3052.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	900.00
	1000.00	0.00	86.76	1000.00	-2952.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1000.00
	1100.00	0.00	86.76	1100.00	-2852.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1100.00
	1200.00	0.00	86.76	1200.00	-2752.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1200.00
	1300.00	0.00	86.76	1300.00	-2652.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1300.00
	1400.00	0.00	86.76	1400.00	-2552.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1400.00
	1500.00	0.00	86.76	1500.00	-2452.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1500.00
	1600.00	0.00	86.76	1600.00	-2352.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1600.00
	1700.00	0.00	86.76	1700.00	-2252.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1700.00
	1800.00	0.00	86.76	1800.00	-2152.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1800.00
Rustler	1852.00	0.00	86.76	1852.00	-2100.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1852.00
	1900.00	0.00	86.76	1900.00	-2052.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	1900.00
	2000.00	0.00	86.76	2000.00	-1952.00	0.00	0.00	0.00	0.00	822895.68	801510.31	N 32 42 34.30	W 103 29 14.89	0.00	0.00	2000.00

Comments	MD	Incl	Azim Gld	TVP	TVDBS	VSEC	NS	EW	DLS	Northng	Easting	Latitude	Longitude	Azimuth	Closure	DehMD
	2100.00	0.00	86.76	-1852.00	-1852.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2100.00
	2200.00	0.00	86.76	-1752.00	-1752.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2200.00
	2300.00	0.00	86.76	-1652.00	-1652.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2300.00
	2400.00	0.00	86.76	-1552.00	-1552.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2400.00
	2500.00	0.00	86.76	-1452.00	-1452.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2500.00
	2600.00	0.00	86.76	-1352.00	-1352.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2600.00
	2700.00	0.00	86.76	-1252.00	-1252.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2700.00
	2800.00	0.00	86.76	-1152.00	-1152.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2800.00
	2900.00	0.00	86.76	-1052.00	-1052.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	2900.00
	3000.00	0.00	86.76	-952.00	-952.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3000.00
	3032.00	0.00	86.76	-920.00	-920.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3032.00
	3100.00	0.00	86.76	-852.00	-852.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3100.00
	3200.00	0.00	86.76	-752.00	-752.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3200.00
	3300.00	0.00	86.76	-652.00	-652.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3300.00
	3352.00	0.00	86.76	-600.00	-600.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3352.00
	3400.00	0.00	86.76	-552.00	-552.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3400.00
	3500.00	0.00	86.76	-452.00	-452.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3500.00
	3600.00	0.00	86.76	-352.00	-352.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3600.00
	3700.00	0.00	86.76	-252.00	-252.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3700.00
	3800.00	0.00	86.76	-152.00	-152.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3800.00
	3900.00	0.00	86.76	-52.00	-52.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	3900.00
	4000.00	0.00	86.76	48.00	48.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4000.00
	4100.00	0.00	86.76	148.00	148.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4100.00
	4200.00	0.00	86.76	248.00	248.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4200.00
	4267.00	0.00	86.76	315.00	315.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4267.00
	4300.00	0.00	86.76	348.00	348.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4300.00
	4400.00	0.00	86.76	448.00	448.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4400.00
	4500.00	0.00	86.76	548.00	548.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4500.00
	4600.00	0.00	86.76	648.00	648.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4600.00
	4627.00	0.00	86.76	675.00	675.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4627.00
	4700.00	0.00	86.76	748.00	748.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4700.00
	4800.00	0.00	86.76	848.00	848.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4800.00
	4887.00	0.00	86.76	935.00	935.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4887.00
	4900.00	0.00	86.76	948.00	948.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	4900.00
	5000.00	0.00	86.76	1048.00	1048.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5000.00
	5100.00	0.00	86.76	1148.00	1148.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5100.00
	5200.00	0.00	86.76	1248.00	1248.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5200.00
	5300.00	0.00	86.76	1348.00	1348.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5300.00
	5400.00	0.00	86.76	1448.00	1448.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5400.00
	5427.00	0.00	86.76	1475.00	1475.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5427.00
	5500.00	0.00	86.76	1548.00	1548.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5500.00
	5600.00	0.00	86.76	1648.00	1648.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5600.00
	5602.00	0.00	86.76	1650.00	1650.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5602.00
	5642.00	0.00	86.76	1680.00	1680.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5642.00
	5700.00	0.00	86.76	1748.00	1748.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5700.00
	5737.00	0.00	86.76	1785.00	1785.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5737.00
	5800.00	0.00	86.76	1848.00	1848.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5800.00
	5802.00	0.00	86.76	1850.00	1850.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5802.00
	5900.00	0.00	86.76	1948.00	1948.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5900.00
	5942.00	0.00	86.76	1980.00	1980.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	5942.00
	6000.00	0.00	86.76	2048.00	2048.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6000.00
	6100.00	0.00	86.76	2148.00	2148.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6100.00
	6200.00	0.00	86.76	2248.00	2248.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6200.00
	6300.00	0.00	86.76	2348.00	2348.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6300.00
	6400.00	0.00	86.76	2448.00	2448.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6400.00
	6500.00	0.00	86.76	2548.00	2548.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6500.00
	6600.00	0.00	86.76	2648.00	2648.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6600.00
	6700.00	0.00	86.76	2748.00	2748.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6700.00
	6800.00	0.00	86.76	2848.00	2848.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6800.00
	6900.00	0.00	86.76	2948.00	2948.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	6900.00
	7000.00	0.00	86.76	3048.00	3048.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	7000.00
	7100.00	0.00	86.76	3148.00	3148.00	0.00	0.00	0.00	0.00	822885.68	801510.31	N 32 42 34.30	W 103 28 14.88	0.00	0.00	7100.00
	7200.00	0.00	86.76	3248.												

Comments	MD	Incl	TVD	TVDSS	VBEC	NS	EW	DLS	Northng	Easting	Latitide	Longitide	Azimuth	Closure	Depth
	(m)	(°)	(m)	(m)	(m)	(m)	(m)	(°/100m)	(m)	(m)	(N/S + °)	(E/W + °)	(°)	(m)	(m)
KOP 12" DLS	9000.00	0.00	86.76	5815.00	5815.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	8767.00
	8900.00	0.00	86.76	5848.00	5848.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	8800.00
	8800.00	0.00	86.76	5878.25	6026.25	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	8978.25
	8700.00	0.00	86.76	5948.00	5948.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	8980.00
	8600.00	0.00	86.76	5980.00	5980.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9000.00
	8500.00	0.00	86.76	6026.25	6026.25	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9078.25
	8400.00	0.00	86.76	6071.59	6071.59	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9100.00
	8300.00	0.00	86.76	6115.00	6115.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9150.00
	8200.00	0.00	86.76	6158.00	6158.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9200.00
	8100.00	0.00	86.76	6202.00	6202.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9257.00
2nd Bone Spring Sand	8000.00	0.00	86.76	6246.00	6246.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9300.00
	7900.00	0.00	86.76	6289.58	6289.58	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9350.00
	7800.00	0.00	86.76	6333.00	6333.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9400.00
	7700.00	0.00	86.76	6376.00	6376.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9450.00
	7600.00	0.00	86.76	6419.00	6419.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9500.00
	7500.00	0.00	86.76	6462.00	6462.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9550.00
	7400.00	0.00	86.76	6505.00	6505.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9600.00
	7300.00	0.00	86.76	6548.00	6548.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9650.00
	7200.00	0.00	86.76	6591.00	6591.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9700.00
	7100.00	0.00	86.76	6634.00	6634.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9750.00
1st Bone Spring Sand	7000.00	0.00	86.76	6677.00	6677.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9800.00
	6900.00	0.00	86.76	6720.00	6720.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9850.00
	6800.00	0.00	86.76	6763.00	6763.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9900.00
	6700.00	0.00	86.76	6806.00	6806.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	9950.00
	6600.00	0.00	86.76	6849.00	6849.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10000.00
	6500.00	0.00	86.76	6892.00	6892.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10050.00
	6400.00	0.00	86.76	6935.00	6935.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10100.00
	6300.00	0.00	86.76	6978.00	6978.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10150.00
	6200.00	0.00	86.76	7021.00	7021.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10200.00
	6100.00	0.00	86.76	7064.00	7064.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10250.00
Bone Spring	6000.00	0.00	86.76	7107.00	7107.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10300.00
	5900.00	0.00	86.76	7150.00	7150.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10350.00
	5800.00	0.00	86.76	7193.00	7193.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10400.00
	5700.00	0.00	86.76	7236.00	7236.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10450.00
	5600.00	0.00	86.76	7279.00	7279.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10500.00
	5500.00	0.00	86.76	7322.00	7322.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10550.00
	5400.00	0.00	86.76	7365.00	7365.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10600.00
	5300.00	0.00	86.76	7408.00	7408.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10650.00
	5200.00	0.00	86.76	7451.00	7451.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10700.00
	5100.00	0.00	86.76	7494.00	7494.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10750.00
KOP 12" DLS	5000.00	0.00	86.76	7537.00	7537.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10800.00
	4900.00	0.00	86.76	7580.00	7580.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10850.00
	4800.00	0.00	86.76	7623.00	7623.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10900.00
	4700.00	0.00	86.76	7666.00	7666.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	10950.00
	4600.00	0.00	86.76	7709.00	7709.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	11000.00
	4500.00	0.00	86.76	7752.00	7752.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	11050.00
	4400.00	0.00	86.76	7795.00	7795.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	11100.00
	4300.00	0.00	86.76	7838.00	7838.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	11150.00
	4200.00	0.00	86.76	7881.00	7881.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	11200.00
	4100.00	0.00	86.76	7924.00	7924.00	0.00	0.00	0.00	0.00	622865.66	801510.31	N 32 42 34.30	W 103 28 14.89	0.00	11250.00

Comments	MD	Incl	Azim Grid	TVD	TVD8	VSEC	NS	EW	DLS	North	East	Latitude	Longitude	Azimuth	DeltaD
	10100.00	14.81	88.76	10088.68	6148.68	15.44	50.57	0.87	12.00	622888.55	801552.72	N 32 42 34.31	W 103 28 14.70	88.76	121.75
	10200.00	26.81	88.76	10182.11	6240.11	2.86	50.48	12.00	12.00	622888.54	801560.80	N 32 42 34.33	W 103 28 14.28	88.76	22.75
	10300.00	38.81	88.76	10278.20	6324.20	104.37	5.90	174.47	12.00	622801.58	801614.51	N 32 42 34.35	W 103 28 13.87	88.76	421.75
	10400.00	50.81	88.76	10347.26	6385.26	174.47	8.87	174.18	12.00	622808.55	801684.50	N 32 42 34.38	W 103 28 12.65	88.76	174.75
	10500.00	62.81	88.76	10402.19	6450.19	257.81	14.58	257.40	12.00	622810.26	801787.70	N 32 42 34.43	W 103 28 11.87	88.76	257.81
	10600.00	74.81	88.76	10468.58	6488.58	350.75	18.84	350.18	12.00	622815.52	801860.48	N 32 42 34.47	W 103 28 10.78	88.76	350.75
	10700.00	86.81	88.76	10454.88	6502.88	448.23	25.41	448.51	12.00	622821.08	801858.82	N 32 42 34.52	W 103 28 9.83	88.76	721.75
	107732.13	90.47	88.76	10455.70	6503.70	481.35	27.22	481.58	12.00	622822.80	801890.88	N 32 42 34.53	W 103 28 9.28	88.76	753.88
	10800.00	90.47	88.76	10455.15	6503.15	548.21	31.08	548.33	0.00	622826.74	802058.64	N 32 42 34.57	W 103 28 8.47	88.76	548.21
	10900.00	90.47	88.76	10454.33	6502.33	649.21	38.72	648.17	0.00	622832.38	802158.47	N 32 42 34.61	W 103 28 7.30	88.76	649.21
	11000.00	90.47	88.76	10453.52	6501.52	749.21	42.37	748.01	0.00	622838.05	802258.31	N 32 42 34.68	W 103 28 6.13	88.76	749.21
	11100.00	90.47	88.76	10452.71	6500.71	848.20	48.03	847.84	0.00	622843.70	802358.14	N 32 42 34.71	W 103 28 4.86	88.76	848.20
	11200.00	90.47	88.76	10451.88	6499.88	948.20	53.88	947.88	0.00	622848.38	802457.88	N 32 42 34.76	W 103 28 3.79	88.76	948.20
	11300.00	90.47	88.76	10451.08	6498.08	1048.20	58.34	1047.52	0.00	622855.02	802557.81	N 32 42 34.81	W 103 28 2.82	88.76	1048.20
	11400.00	90.47	88.76	10450.27	6498.27	1148.18	64.88	1147.35	0.00	622860.87	802657.85	N 32 42 34.85	W 103 28 1.45	88.76	1148.18
	11500.00	90.47	88.76	10449.45	6497.45	1248.18	70.55	1247.18	0.00	622868.33	802757.48	N 32 42 34.88	W 103 28 0.28	88.76	1248.18
	11600.00	90.47	88.76	10448.84	6496.84	1348.18	76.30	1347.03	0.00	622871.88	802857.32	N 32 42 34.85	W 103 28 59.11	88.76	1348.18
	11700.00	90.47	88.76	10447.82	6495.82	1448.18	81.88	1446.88	0.00	622877.84	802957.15	N 32 42 35.00	W 103 28 57.84	88.76	1448.18
	11800.00	90.47	88.76	10447.01	6495.01	1548.18	87.81	1546.70	0.00	622883.28	803056.88	N 32 42 35.05	W 103 28 56.78	88.76	1548.18
	11900.00	90.47	88.76	10446.20	6494.20	1648.18	93.27	1646.54	0.00	622888.85	803156.82	N 32 42 35.08	W 103 28 55.81	88.76	1648.18
	12000.00	90.47	88.76	10445.38	6493.38	1748.17	98.82	1746.37	0.00	622894.80	803256.86	N 32 42 35.14	W 103 28 54.44	88.76	1748.17
	12100.00	90.47	88.76	10444.57	6492.57	1848.17	104.58	1846.21	0.00	623000.28	803356.48	N 32 42 35.18	W 103 28 53.27	88.76	1848.17
	12200.00	90.47	88.76	10443.75	6491.75	1948.17	110.24	1946.05	0.00	623005.81	803456.33	N 32 42 35.24	W 103 28 52.10	88.76	1948.17
	12300.00	90.47	88.76	10442.84	6490.84	2048.16	115.88	2045.88	0.00	623011.57	803556.18	N 32 42 35.28	W 103 28 50.83	88.76	2048.16
	12400.00	90.47	88.76	10441.91	6489.91	2148.16	121.55	2146.72	0.00	623017.23	803656.00	N 32 42 35.34	W 103 28 49.76	88.76	2148.16
	12500.00	90.47	88.76	10441.01	6489.01	2248.16	127.20	2245.58	0.00	623022.88	803755.83	N 32 42 35.38	W 103 28 48.59	88.76	2248.16
	12600.00	90.47	88.76	10440.48	6488.48	2348.15	132.88	2345.38	0.00	623028.54	803855.87	N 32 42 35.43	W 103 28 47.42	88.76	2348.15
	12700.00	90.47	88.76	10439.87	6487.87	2448.15	138.52	2445.23	0.00	623034.18	803955.80	N 32 42 35.48	W 103 28 46.28	88.76	2448.15
	12800.00	90.47	88.76	10439.86	6487.86	2548.15	144.17	2545.07	0.00	623039.85	804055.34	N 32 42 35.53	W 103 28 45.09	88.76	2548.15
	12900.00	90.47	88.76	10439.86	6487.86	2648.14	149.83	2644.80	0.00	623045.50	804155.17	N 32 42 35.58	W 103 28 43.92	88.76	2648.14
	13000.00	90.47	88.76	10439.86	6487.86	2748.14	155.48	2744.74	0.00	623051.16	804255.01	N 32 42 35.62	W 103 28 42.75	88.76	2748.14
	131200.00	90.47	88.76	10438.41	6486.41	2848.14	161.14	2844.58	0.00	623058.82	804354.84	N 32 42 35.67	W 103 28 41.58	88.76	2848.14
	13200.00	90.47	88.76	10438.58	6486.58	2948.13	166.80	2944.41	0.00	623062.47	804454.68	N 32 42 35.72	W 103 28 40.41	88.76	2948.13
	13300.00	90.47	88.76	10434.78	6482.78	3048.13	172.45	3044.25	0.00	623068.13	804554.51	N 32 42 35.77	W 103 28 39.24	88.76	3048.13
	13400.00	90.47	88.76	10433.86	6481.86	3148.13	178.11	3144.08	0.00	623073.78	804654.35	N 32 42 35.82	W 103 28 38.07	88.76	3148.13
	13500.00	90.47	88.76	10432.33	6480.33	3248.12	183.78	3243.82	0.00	623079.44	804754.18	N 32 42 35.88	W 103 28 36.80	88.76	3248.12
	13600.00	90.47	88.76	10432.33	6480.33	3348.12	189.42	3343.76	0.00	623085.10	804854.02	N 32 42 35.91	W 103 28 35.74	88.76	3348.12
	13700.00	90.47	88.76	10431.51	6479.51	3448.12	195.08	3443.80	0.00	623090.75	804953.85	N 32 42 35.88	W 103 28 34.57	88.76	3448.12
	13800.00	90.47	88.76	10430.88	6478.88	3548.11	200.73	3543.43	0.00	623096.41	805053.68	N 32 42 36.01	W 103 28 33.40	88.76	3548.11
	13900.00	90.47	88.76	10429.88	6477.88	3648.11	206.38	3643.27	0.00	623102.07	805153.52	N 32 42 36.05	W 103 28 32.23	88.76	3648.11
	14000.00	90.47	88.76	10428.06	6477.08	3748.11	212.05	3743.10	0.00	623107.72	805253.38	N 32 42 36.10	W 103 28 31.08	88.76	3748.11
	14100.00	90.47	88.76	10428.24	6476.24	217.70	217.70	3842.84	0.00	623113.38	805353.18	N 32 42 36.15	W 103 28 29.88	88.76	3842.84
	14200.00	90.47	88.76	10427.42	6475.42	223.38	223.38	3842.78	0.00	623118.04	805453.03	N 32 42 36.20	W 103 28 28.72	88.76	3842.78
	14300.00	90.47	88.76	10426.60	6474.60	228.01	228.01	4042.81	0.00	623124.68	805552.86	N 32 42 36.25	W 103 28 27.55	88.76	4042.81
	14400.00	90.47	88.76	10425.78	6473.78	234.87	234.87	4142.45	0.00	623130.35	805652.70	N 32 42 36.28	W 103 28 26.38	88.76	4142.45
	14500.00	90.47	88.76	10424.87	6472.87	240.33	240.33	4242.28	0.00	623136.00	805752.53	N 32 42 36.34	W 103 28 25.22	88.76	4242.28
	14600.00	90.47	88.76	10424.15	6472.15	245.88	245.88	4342.12	0.00	623141.66	805852.37	N 32 42 36.38	W 103 28 24.05	88.76	4342.12
	14700.00	90.47	88.76	10423.33	6471.33	251.84	251.84	4441.88	0.00	623147.32	805952.20	N 32 42 36.44	W 103 28 22.88	88.76	4441.88
	14800.00	90.47	88.76	10422.51	6470.51	257.30	257.30	4541.80	0.00	623152.97	806052.04	N 32 42 36.48	W 103 28 21.71	88.76	4541.80

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure Azimuth (°)	Closure (ft)	DeltaMD (ft)
McElvain South Ironhouse 32 State 1H - Adjusted PBHL	14862.74	90.47	86.76	10422.00	6470.00	4811.81	280.85	4804.43	0.00	823156.52	806114.67	N 32 42 36.52	W 103 28 20.98	86.76	4811.81	4130.80

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7655 sigma

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Survey Tool Type	Borehole / Survey
	0.000	18.000	1/100.000	SLB_MWD-STD-Depth Only	Original Borehole / McElvain South Ironhouse 32 State 1H Rev0 mcs 22Aug12
	18.000	14862.736	1/100.000	SLB_MWD-STD	Original Borehole / McElvain South Ironhouse 32 State 1H Rev0 mcs 22Aug12