

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

**HOBBS OCD**  
**SEP 10 2012**  
**RECEIVED**

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**

<sup>1</sup> Operator Name and Address McELVAIN ENERGY, INC. 1050 17th STREET SUITE 2500 DENVER, COLORADO, 80265		<sup>2</sup> OGRID Number 22044
		<sup>3</sup> API Number 30025-40747
<sup>4</sup> Property Code 39435	<sup>5</sup> Property Name SOUTH IRONHOUSE "32" STATE	<sup>6</sup> Well No. 2H

**7 Surface Location**

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
E	32	18S	35E		1780'	NORTH	225'	WEST	LEA

**8 Pool Information**

SCHARB-BONE SPRING (55610)

**Additional Well Information**

<sup>9</sup> Work Type N	<sup>10</sup> Well Type O	<sup>11</sup> Cable/Rotary ROTARY	<sup>12</sup> Lease Type S	<sup>13</sup> Ground Level Elevation 3933'
<sup>14</sup> Multiple NO	<sup>15</sup> Proposed Depth TVD-10,421'	<sup>16</sup> Formation BONE SPRING	<sup>17</sup> Contractor UNKNOWN	<sup>18</sup> 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"	13 3/8"	54.5 & 48#	1875'	1400 Sx.	Surface
	12 1/2"	9 5/8"	40#	3800'	1000 Sx.	Surface
	8 3/4"	5 1/2"	17#	MD-14,815'	1900 Sx.	3500' FS

**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	Schaffert
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 <input checked="" type="checkbox"/> , a general permit <input type="checkbox"/> , or an (attached) alternative OCD-approved plan <input type="checkbox"/> .	<b>OIL CONSERVATION DIVISION</b>	
Signature: <i>Joe T Janica</i> Printed name: Joe T. Janica	Approved By: <i>[Signature]</i> Title: Petroleum Engineer	
Title: Permit Eng.	Approved Date:	Expiration Date:
E-mail Address: joejanica@valornet.com	<b>SEP 12 2012</b>	
Date: 09/10/12 Phone: 575-391-8503	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 14,815'. Run and set 14,815' of 5½" casing as follows: 5315' 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

Form C-102  
Revised July 16, 2010

Submit one copy to appropriate  
District Office

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number <b>30-025-40747</b>	Pool Code 55610	Pool Name SCHARB-BONE SPRING
Property Code <b>39435</b>	Property Name SOUTH IRONHOUSE 32 STATE	Well Number 2H
OGRID No. 22044	Operator Name McELVAIN ENERGY, INC.	Elevation 3933

Surface Location

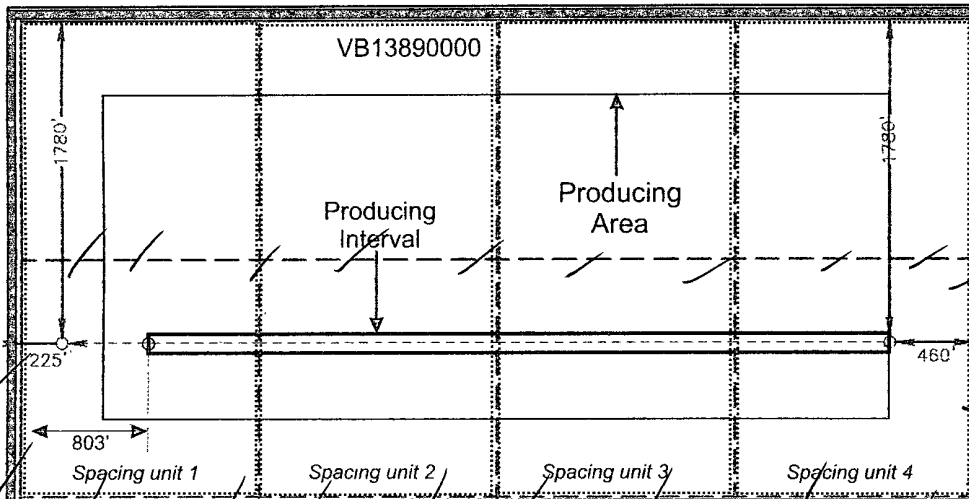
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	32	18 S	35 E		1780	NORTH	225	WEST	LEA

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
H	32	18 S	35 E		1780	NORTH	460	EAST	LEA

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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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



<p><b>SURFACE LOCATION</b></p> <p>Lat - N 32°42'23.61" Long - W 103°29'14.87" NMSPCS - N 621815.97           E 801520.19 (NAD-83)</p>	<p><b>PROPOSED BOTTOM HOLE LOCATION</b></p> <p>Lat - N 32°42'23.46" Long - W 103°28'20.96" NMSPCS - N 621836.565           E 806126.921 (NAD-83)</p>
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**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.

*Joe T. Janica*  
Signature Date  
Joe T. Janica 09/10/12  
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.

*Gary L. Jones*  
Date Surveyed  
Signature of Professional Surveyor  
7977

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 27225

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

SOUTH IRON,  
HOUSE 32  
STATE #1H



150' NORTH  
OFF SET  
3934.0'

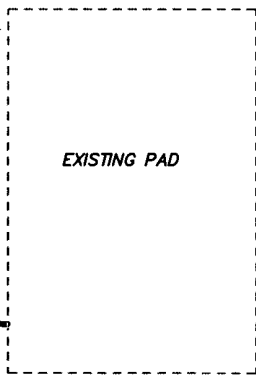
150' WEST  
OFF SET  
3934.2'

150' EAST  
OFF SET  
3933.1'

150' SOUTH  
OFF SET  
3933.1'

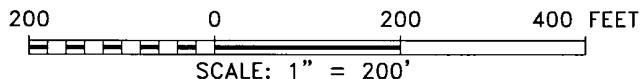
PROPOSED LEASE ROAD 132.6'

124.7'



*McELVAIN OIL & GAS PROPERTIES*  
*SOUTH IRONHOUSE 32 STATE #2H*  
*ELEV. - 3933'*

**SURFACE LOCATION**  
Lat - N 32°42'23.61"  
Long - W 103°29'14.87"  
NMSPCE - N 621815.97  
          E 801520.19  
(NAD-83)



Directions to Location:

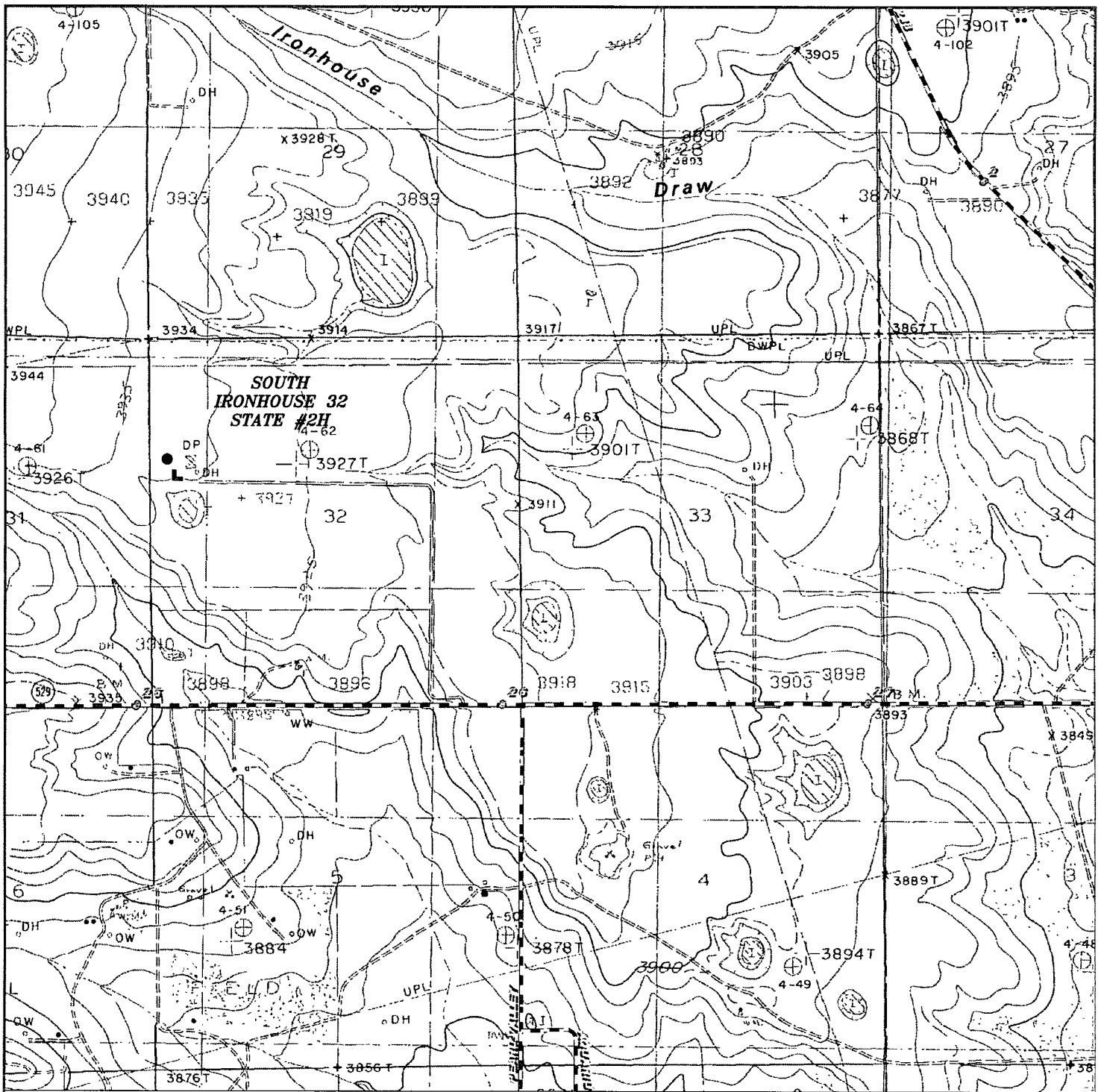
0.6 MILE AFTER MILE MARKER 26 ON HIGHWAY 529  
TURN NORTH ON EXISTING LEASE ROAD.

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

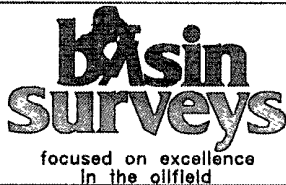
W.O. Number: 27225      Drawn By: **D. JONES**

Date: 08-14-2012      Disk: DAJ 27225

<b>McELVAIN ENERGY, INC</b>	
REF: SOUTH IRONHOUSE 32 STATE #2H / WELL PAD TOPO	
THE SOUTH IRONHOUSE 32 STATE #2H LOCATED 1780'	
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



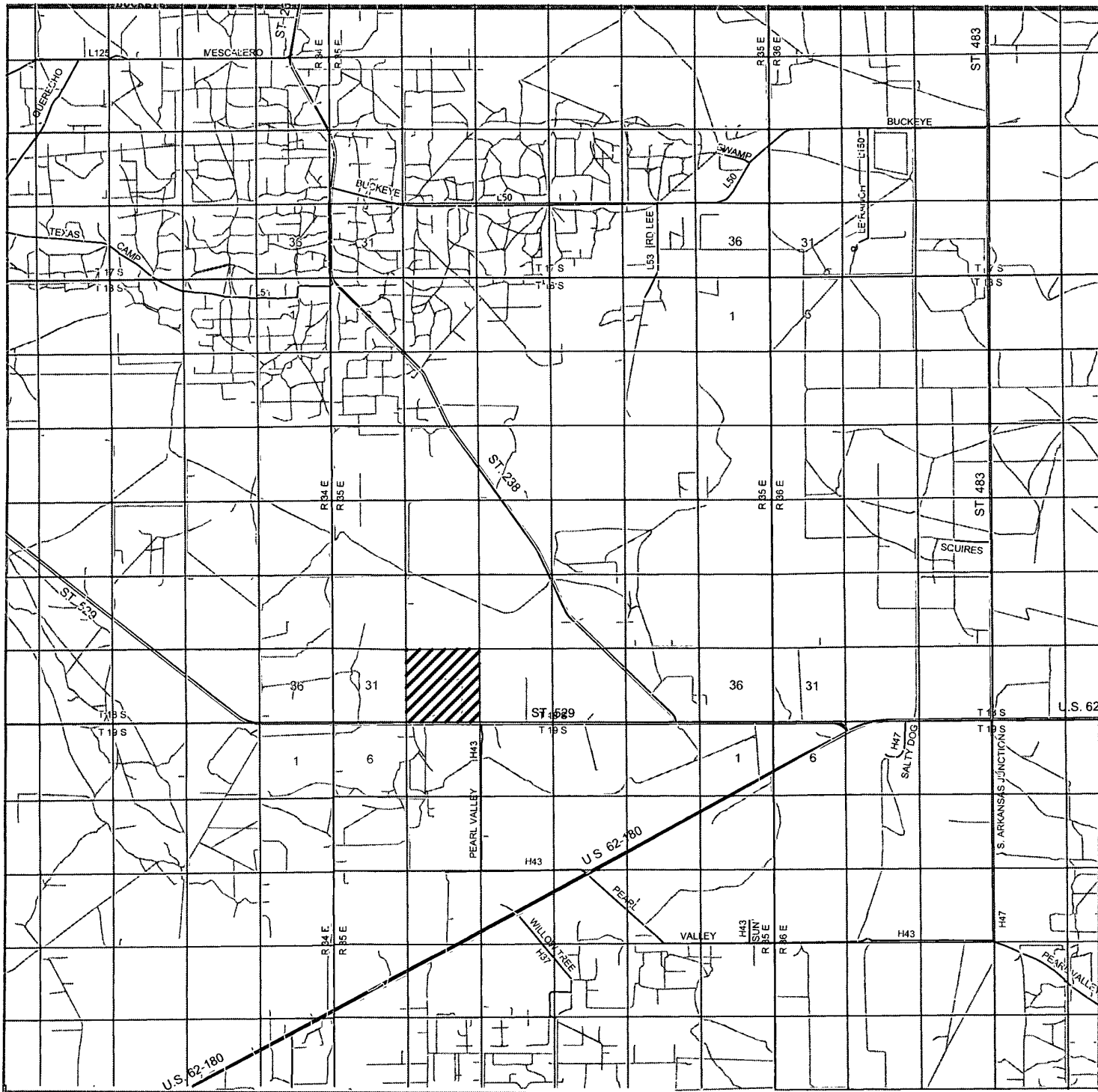
**SOUTH IRONHOUSE 32 STATE #2H**  
 Located 1780' FNL and 225' FWL  
 Section 32, Township 18 South, Range 35 East,  
 N.M.P.M., Lea County, New Mexico.



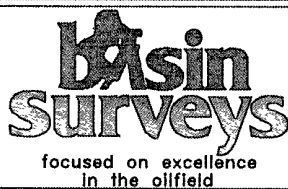
P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (575) 393-7316 - Office  
 (575) 392-2206 - Fax  
 basinsurveys.com

W.O. Number: DAJ 27225  
 Survey Date: 08-10-2012  
 Scale: 1" = 2000'  
 Date: 08-14-2012

**McELVAIN  
 ENERGY, INC**



**SOUTH IRONHOUSE 32 STATE #2H**  
 Located 1780' FNL and 225' FWL  
 Section 32, Township 18 South, Range 35 East,  
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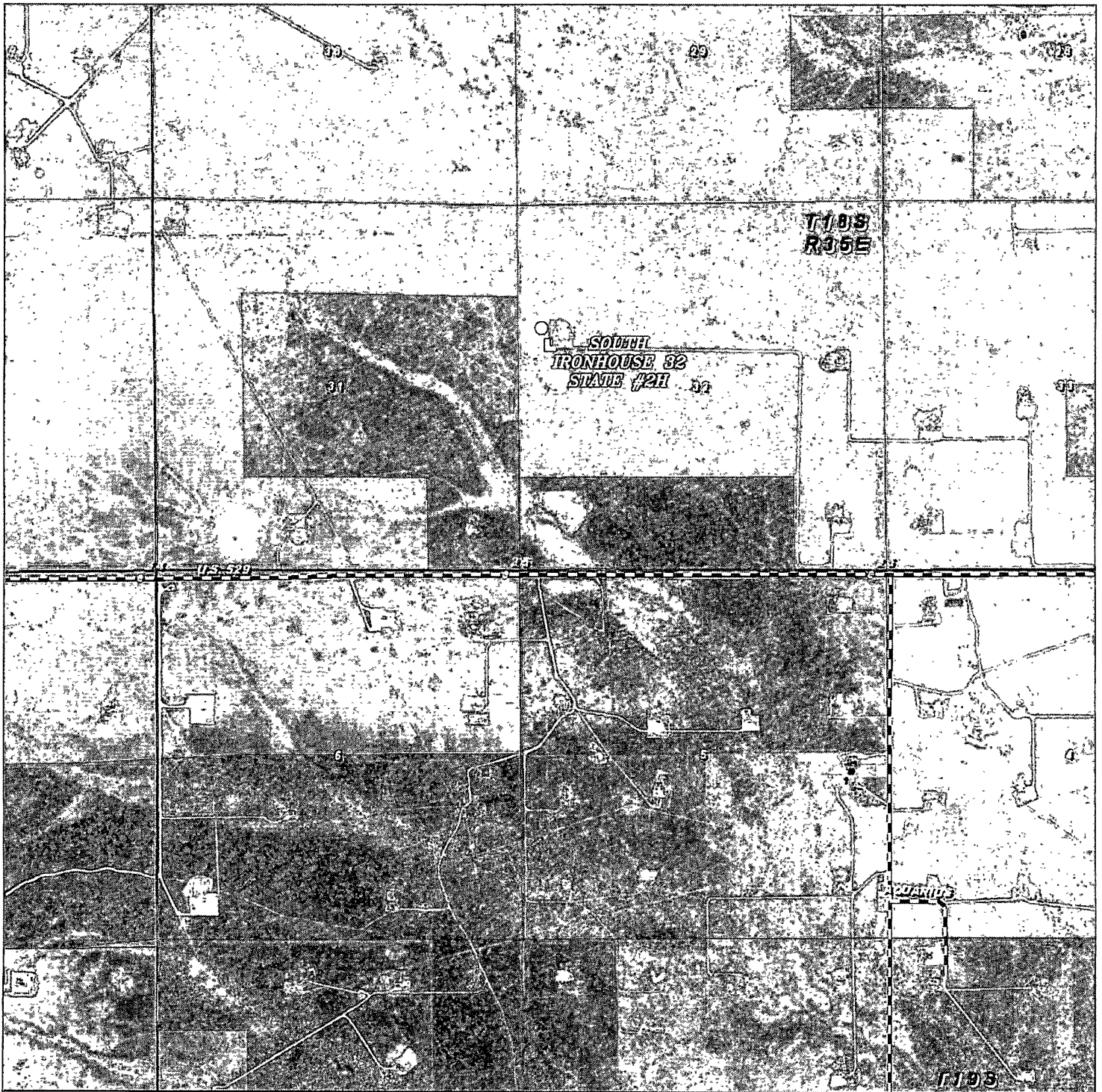
Survey Date: 08-10-2012

Scale: 1" = 2 Miles

Date: 08-14-2012



**McELVAIN  
 ENERGY, INC**



**SOUTH IRONHOUSE 32 STATE #2H**  
 Located 1780' FNL and 225' FWL  
 Section 32, Township 18 South, Range 35 East,  
 N.M.P.M., Lea County, New Mexico.

**basin surveys**  
 focused on excellence  
 in the oilfield

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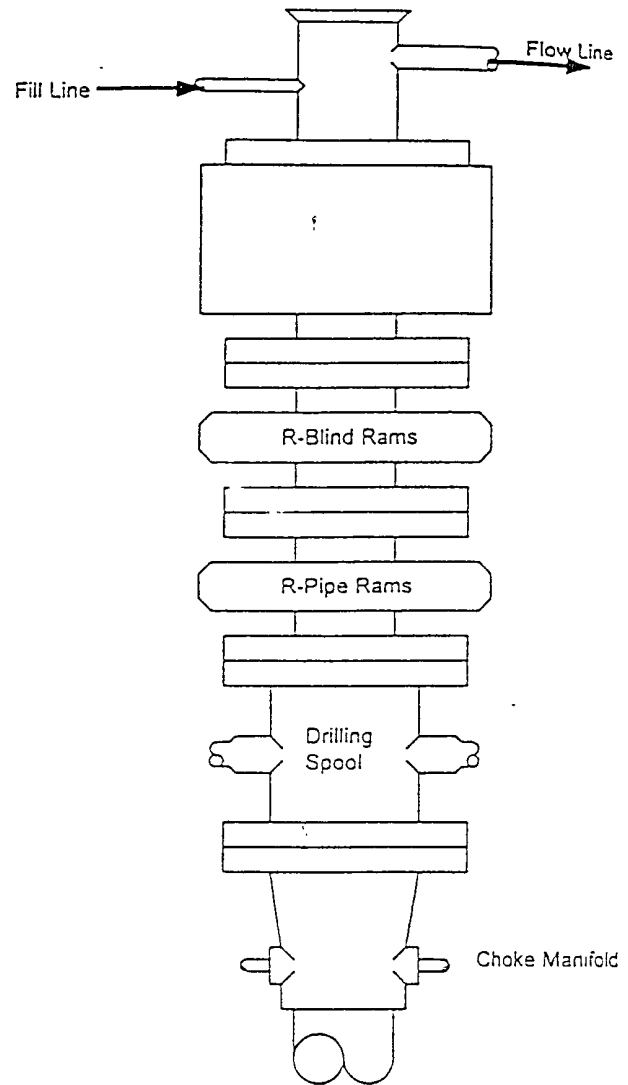
Scale: 1" = 2000'

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

**McELVAIN  
 ENERGY, INC**

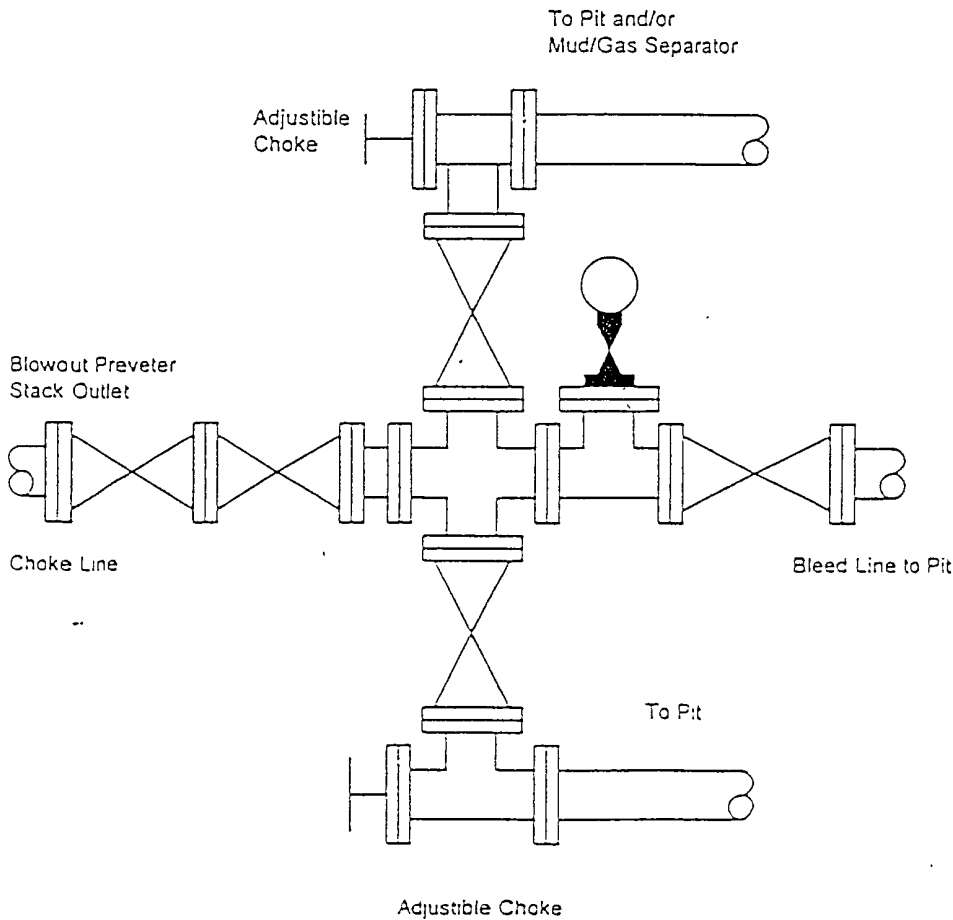
# BLOWOUT PREVENTER SYSTEM

3000 PSI WORKING PRESSURE



Type 900 Series  
3000 psi WP

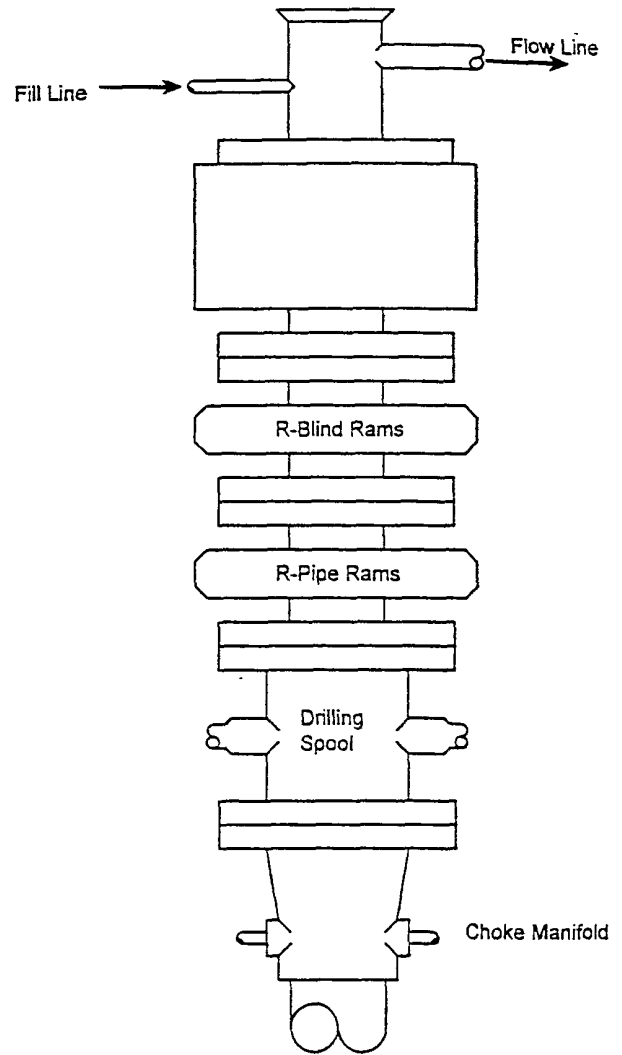
### Choke Manifold Assembly for 3M WP System





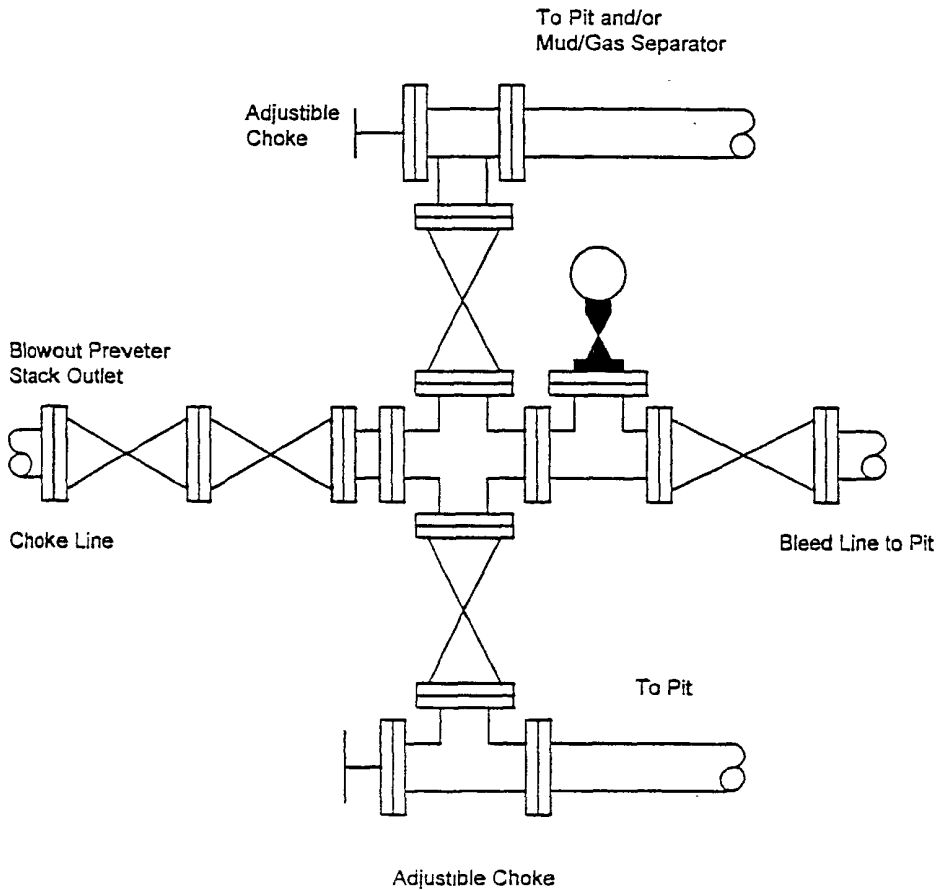
# BLOWOUT PREVENTER SYSTEM

5000 PSI



Type 1500 SERIES  
5000 psi WP

## Choke Manifold Assembly for 5M WP System



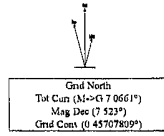
# Rig TBD

McElvain Energy, Inc.

# REV 1



WELL	McElvain South Ironhouse 32 State 2H	FIELD	NM Lea County (NAD 83)	STRUCTURE	McElvain South Ironhouse 32 State 2H	
Algebraic Parameters	Model: ROOM 3111	Dip: 66.47° Mag Dec: 7.523°	DHR: August 21, 2012 FR: 44792.16CT	Shallow Location LR: N 33 42 23.819 Lon: W 103 28 14.870	WADORS Survey Reference Name: Phase: Station Elev: US Feet E11813 87 8219 E11813 11 8219 Grid Cont: 0.41707894 Scale Fact: 0.41707894	Manufacture Snr: McElvain South Ironhouse 32 State 2H Pos: McElvain South Ironhouse 32 State 2H TYD Ref: KKK119118 above MRL August 21, 2012



### Legend

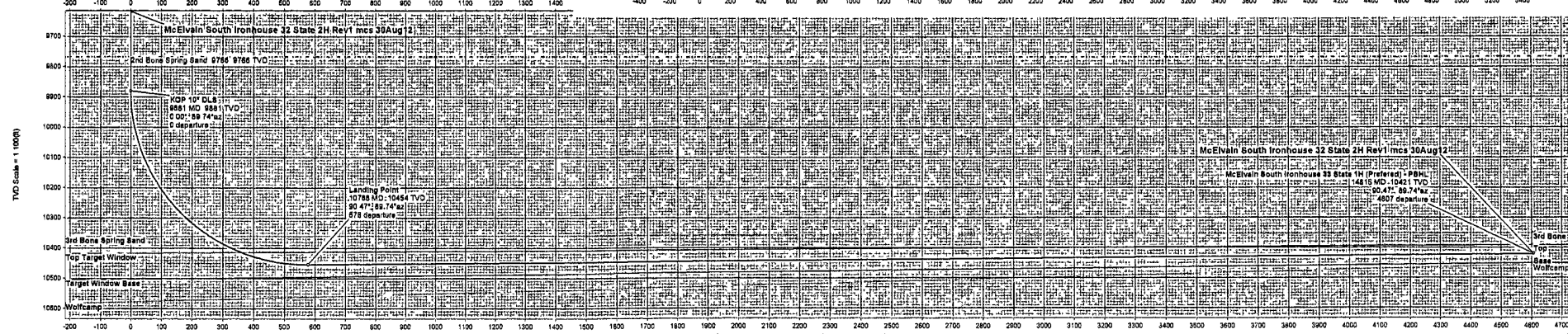
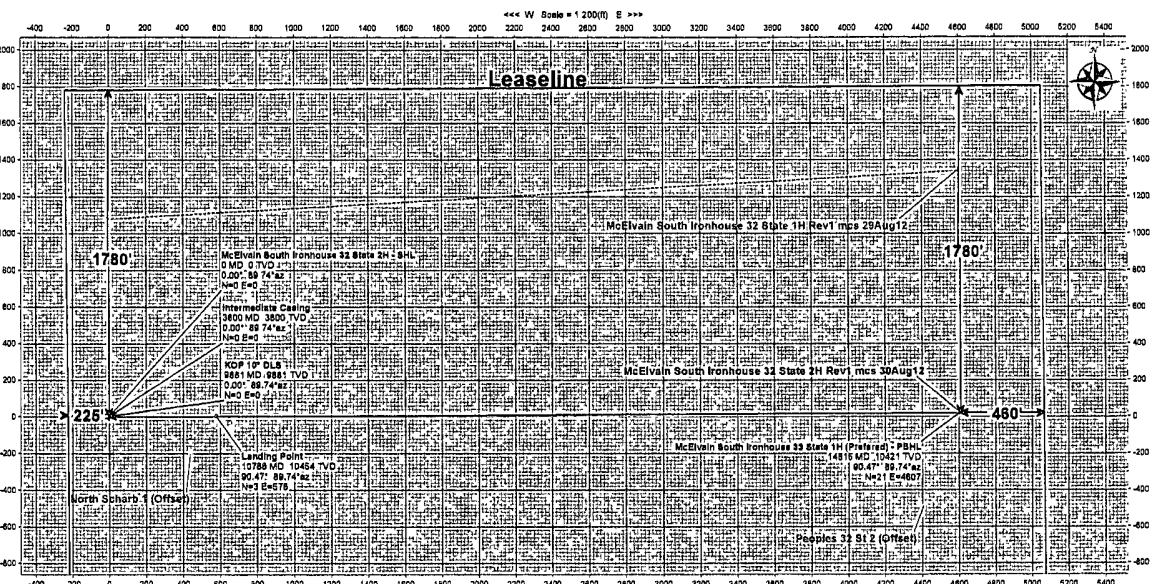
- McElvain South Ironhouse 32 State 2H Top Target Window
- McElvain South Ironhouse 32 State 2H 1st Bone Spring Sand
- McElvain South Ironhouse 32 State 2H 2nd Bone Spring Sand
- McElvain South Ironhouse 32 State 2H Target Window Base
- McElvain South Ironhouse 32 State 2H Wolfcamp
- McElvain South Ironhouse 32 State 2H PBHL
- McElvain South Ironhouse 32 State 2H KOP 10" DLS
- McElvain South Ironhouse 32 State 2H Landing Point
- McElvain South Ironhouse 32 State 2H Intermediate Casing
- McElvain South Ironhouse 32 State 2H SHL
- McElvain South Ironhouse 32 State 2H North Sphero 1 (Offset)
- McElvain South Ironhouse 32 State 2H Peoples 32 St 2 (Offset)

### Targets

Name	Latitude	Longitude	Northing	Easting	NS	EW	TVD	SSTVD	Slaps	Dip
3rd Bone Spring Sand	N 32 42 23.819	W 103 28 14.870	821815.87	801520.19	0.00	0.00	10361.00	8410.00	FORMATION_PLANE	0.12
Top Target Window	N 32 42 23.819	W 103 28 14.870	821815.87	801520.19	0.00	0.00	10418.00	8465.00	FORMATION_PLANE	0.31
Target Window Base	N 32 42 23.819	W 103 28 14.870	821815.87	801520.19	0.00	0.00	10501.00	8550.00	FORMATION_PLANE	0.82
Wolfcamp	N 32 42 23.819	W 103 28 14.870	821815.87	801520.19	0.00	0.00	10578.00	8625.00	FORMATION_PLANE	1.46
PBHL	N 32 42 23.488	W 103 28 20.857	821838.57	808128.82	20.80	4608.80	10421.00	8470.00	POINT	0.00

### Critical Points

Comments	Survey	Mag Azim	Mag Azim	TVD	SSTVD	NS	EW	Latitude	Longitude	Northing	Easting	DLS	Tool	East
SHL	0.00	0.00	89.74	0.00	-3651.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	69.74	
Rueller	1851.00	0.00	89.74	1851.00	-2100.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Gulf	3031.00	0.00	89.74	3031.00	-920.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Yates	3351.00	0.00	89.74	3351.00	-600.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Intermediate Casing	3800.00	0.00	89.74	3800.00	-151.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Seven Rivers	4286.00	0.00	89.74	4286.00	315.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Queen	4628.00	0.00	89.74	4628.00	875.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Panacea	4886.00	0.00	89.74	4886.00	935.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
San Andrea	5426.00	0.00	89.74	5426.00	1475.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Delavera	5601.00	0.00	89.74	5601.00	1850.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
1st Delaware Sand	5841.00	0.00	89.74	5841.00	1890.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
2nd Delaware Sand	5738.00	0.00	89.74	5738.00	1785.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Bone Spring	7801.00	0.00	89.74	7801.00	3650.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
1st Bone Spring Sand	8258.00	0.00	89.74	8258.00	5305.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
2nd Bone Spring Sand	9788.00	0.00	89.74	9788.00	5815.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
KOP 10" DLS	9881.00	0.00	89.74	9881.00	5930.00	0.00	0.00	0.00	W 103 28 14.870	N 32 42 23.819	801520.19	821815.87	0.00	89.74
Landing Point	10785.86	90.47	89.74	10453.94	6802.94	577.82	2.58	577.82	W 103 28 8.110	N 32 42 23.589	802097.80	821816.55	10.00	-4.98
PBHL	14816.02	90.47	89.74	10421.00	8470.00	4608.85	20.50	4608.80	W 103 28 20.857	N 32 42 23.488	808128.82	821836.57	0.00	



Drawn By: Matthew S. Kifer  
Date Created: September 21, 2012 05:27:57 PM  
Checked By: [Blank]  
Approved By: [Blank]

## McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12 Proposal Report

(Def Plan)

<b>Report Date:</b>	August 31, 2012 - 04:41 PM	<b>Survey / DLS Computation:</b>	Minimum Curvature / Lubinski
<b>Client:</b>	McElvain Energy, Inc.	<b>Vertical Section Azimuth:</b>	89 744 ° (Grnd North)
<b>Field:</b>	NM Lea County (NAD 83)	<b>Vertical Section Origin:</b>	0.000 ft, 0.000 ft
<b>Structure / Slot:</b>	McElvain South Ironhouse 32 State 2H / McElvain South Ironhouse 32 State 2H	<b>TVD Reference Datum:</b>	RKB
<b>Well:</b>	McElvain South Ironhouse 32 State 2H	<b>TVD Reference Elevation:</b>	3951.000 ft above MSL
<b>Borehole:</b>	Original Borehole	<b>Seabed / Ground Elevation:</b>	3933.000 ft above MSL
<b>UWI / API#:</b>	Unknown / Unknown	<b>Magnetic Declination:</b>	7.523 °
<b>Survey Name:</b>	McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12	<b>Total Field Strength:</b>	48792.907 nT
<b>Survey Date:</b>	August 22, 2012	<b>Magnetic Dip Angle:</b>	60.578 °
<b>Tort / AHD / DDI / ERD Ratio:</b>	90.470 ° / 4606.848 ft / 5.771 / 0.441	<b>Declination Date:</b>	August 22, 2012
<b>Coordinate Reference System:</b>	NAD83 New Mexico State Plane, Eastern Zone, US Feet	<b>Magnetic Declination Model:</b>	BGGM 2011
<b>Location Lat / Long:</b>	N 32° 42' 23.81884", W 103° 29' 14.87027"	<b>North Reference:</b>	Grid North
<b>Location Grid N/E Y/X:</b>	N 621815.970 ftUS, E 801520.190 ftUS	<b>Grid Convergence Used:</b>	0.457 °
<b>CRS Grid Convergence Angle:</b>	0.45707809 °	<b>Total Corr Mag North-&gt;Grid North:</b>	7.066 °
<b>Grid Scale Factor:</b>	0.99988661	<b>Local Coord Referenced To:</b>	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azlm 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 2H - SHL	0.00	0.00	89.74	0.00	-3951.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	N/A	89.74M
Rustler	1851.00	0.00	89.74	1851.00	-2100.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Salt	3031.00	0.00	89.74	3031.00	-920.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Yates	3351.00	0.00	89.74	3351.00	-600.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Intermediate Casing	3800.00	0.00	89.74	3800.00	-151.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Seven Rivers	4266.00	0.00	89.74	4266.00	315.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Queen	4626.00	0.00	89.74	4626.00	675.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Penrose	4886.00	0.00	89.74	4886.00	935.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
San Andres	5426.00	0.00	89.74	5426.00	1475.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Delaware	5601.00	0.00	89.74	5601.00	1650.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
1st Delaware Sand	5641.00	0.00	89.74	5641.00	1690.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
2nd Delaware Sand	5736.00	0.00	89.74	5736.00	1785.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Bone Spring	7601.00	0.00	89.74	7601.00	3650.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
1st Bone Spring Sand	9256.00	0.00	89.74	9256.00	5305.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M

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	9766.00	0.00	89.74	9766.00	5815.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
KOP 10° DLS	8881.00	0.00	89.74	8881.00	5930.00	0.00	0.00	0.00	621815.97	801520.19	0.00	0.00	0.00	89.74M
Landing Point	10785.66	90.47	89.74	10453.94	6502.94	577.62	2.58	577.62	621818.55	802097.80	89.74	577.62	10.00	4.96L
McElvain South Ironhouse 33 State 1H (Preferred) - PBHL	14815.02	90.47	89.74	10421.00	6470.00	4606.85	20.60	4606.80	621836.57	806126.92	89.74	4606.85	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_MWD-STD-Depth Only	Original Borehole / McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12
	18.000	14815.025	1/100 000	SLB_MWD-STD	Original Borehole / McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12



## McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12 Proposal Report

(Def Plan)

<b>Report Date:</b>	August 31, 2012 - 04:44 PM	<b>Survey / DLS Computation:</b>	Minimum Curvature / Lubinski
<b>Client:</b>	McElvain Energy, Inc.	<b>Vertical Section Azimuth:</b>	89.744 ° (Grid North)
<b>Field:</b>	NM Lea County (NAD 83)	<b>Vertical Section Origin:</b>	0.000 ft, 0.000 ft
<b>Structure / Slot:</b>	McElvain South Ironhouse 32 State 2H / McElvain South Ironhouse 32 State 2H	<b>TVD Reference Datum:</b>	RKB
<b>Well:</b>	McElvain South Ironhouse 32 State 2H	<b>TVD Reference Elevation:</b>	3951.000 ft above MSL
<b>Borehole:</b>	Original Borehole	<b>Seabed / Ground Elevation:</b>	3933.000 ft above MSL
<b>UWI / AP#:</b>	Unknown / Unknown	<b>Magnetic Declination:</b>	7.523 °
<b>Survey Name:</b>	McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12	<b>Total Field Strength:</b>	48792.907 nT
<b>Survey Date:</b>	August 22, 2012	<b>Magnetic Dip Angle:</b>	60.578 °
<b>Tort / AHD / DDI / ERD Ratio:</b>	90.470 ° / 4608.848 ft / 5.771 / 0.441	<b>Declination Date:</b>	August 22, 2012
<b>Coordinate Reference System:</b>	NAD83 New Mexico State Plane, Eastern Zone, US Feet	<b>Magnetic Declination Model:</b>	BGGM 2011
<b>Location Lat / Long:</b>	N 32° 42' 23.61884", W 103° 28' 14.87027"	<b>North Reference:</b>	Grid North
<b>Location Grid N/E Y/X:</b>	N 821815.970 ftUS, E 801520.180 ftUS	<b>Grid Convergence Used:</b>	0.457 °
<b>CRS Grid Convergence Angle:</b>	0.45707809 °	<b>Total Corr Mag North→Grid North:</b>	7.088 °
<b>Grid Scale Factor:</b>	0.99998881	<b>Local Coord Referenced To:</b>	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 2H - SHL	0.00	0.00	89.74	0.00	-3951.00	0.00	0.00	0.00	N/A	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	N/A
	100.00	0.00	89.74	100.00	-3851.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	100.00
	200.00	0.00	89.74	200.00	-3751.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	200.00
	300.00	0.00	89.74	300.00	-3651.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	300.00
	400.00	0.00	89.74	400.00	-3551.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	400.00
	500.00	0.00	89.74	500.00	-3451.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	500.00
	600.00	0.00	89.74	600.00	-3351.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	600.00
	700.00	0.00	89.74	700.00	-3251.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	700.00
	800.00	0.00	89.74	800.00	-3151.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	800.00
	900.00	0.00	89.74	900.00	-3051.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	900.00
	1000.00	0.00	89.74	1000.00	-2951.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1000.00
	1100.00	0.00	89.74	1100.00	-2851.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1100.00
	1200.00	0.00	89.74	1200.00	-2751.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1200.00
	1300.00	0.00	89.74	1300.00	-2651.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1300.00
	1400.00	0.00	89.74	1400.00	-2551.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1400.00
	1500.00	0.00	89.74	1500.00	-2451.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1500.00
	1600.00	0.00	89.74	1600.00	-2351.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1600.00
	1700.00	0.00	89.74	1700.00	-2251.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1700.00
	1800.00	0.00	89.74	1800.00	-2151.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1800.00
Rustler	1851.00	0.00	89.74	1851.00	-2100.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1851.00
	1900.00	0.00	89.74	1900.00	-2051.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	1900.00
	2000.00	0.00	89.74	2000.00	-1951.00	0.00	0.00	0.00	0.00	821815.97	801520.19	N 32 42 23.62	W 103 28 14.87	0.00	0.00	2000.00

Comments	MD (m)	Incl (°)	Azim Ori (°)	TVD (m)	TVDS (m)	NS (m)	EW (m)	DLS (°/100m)	Northng (m/s)	Eastng (m/s)	Latitnde (N/S...)	Longitnde (E/W...)	Azimuth (°)	Closure (m)	DeltaMD (m)
	2100.00	0.00	88.74	2100.00	-1851.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2100.00
	2200.00	0.00	88.74	2200.00	-1751.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2200.00
	2300.00	0.00	88.74	2300.00	-1651.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2300.00
	2400.00	0.00	88.74	2400.00	-1551.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2400.00
	2500.00	0.00	88.74	2500.00	-1451.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2500.00
	2600.00	0.00	88.74	2600.00	-1351.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2600.00
	2700.00	0.00	88.74	2700.00	-1251.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2700.00
	2800.00	0.00	88.74	2800.00	-1151.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2800.00
	2900.00	0.00	88.74	2900.00	-1051.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	2900.00
	3000.00	0.00	88.74	3000.00	-951.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3000.00
	3037.00	0.00	88.74	3037.00	-920.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3037.00
Salt	3100.00	0.00	88.74	3100.00	-851.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3100.00
	3200.00	0.00	88.74	3200.00	-751.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3200.00
	3300.00	0.00	88.74	3300.00	-651.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3300.00
Yates	3351.00	0.00	88.74	3351.00	-600.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3351.00
	3400.00	0.00	88.74	3400.00	-551.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3400.00
	3500.00	0.00	88.74	3500.00	-451.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3500.00
	3600.00	0.00	88.74	3600.00	-351.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3600.00
	3700.00	0.00	88.74	3700.00	-251.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3700.00
Intermediate Casing	3800.00	0.00	88.74	3800.00	-151.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3800.00
	3900.00	0.00	88.74	3900.00	-51.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	3900.00
	4000.00	0.00	88.74	4000.00	49.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4000.00
	4100.00	0.00	88.74	4100.00	149.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4100.00
Seven Rivers	4200.00	0.00	88.74	4200.00	249.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4200.00
	4266.00	0.00	88.74	4266.00	315.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4266.00
	4300.00	0.00	88.74	4300.00	349.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4300.00
	4400.00	0.00	88.74	4400.00	449.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4400.00
	4500.00	0.00	88.74	4500.00	549.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4500.00
Queen	4600.00	0.00	88.74	4600.00	649.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4600.00
	4626.00	0.00	88.74	4626.00	675.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4626.00
	4700.00	0.00	88.74	4700.00	749.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4700.00
	4800.00	0.00	88.74	4800.00	849.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4800.00
Fenose	4886.00	0.00	88.74	4886.00	935.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4886.00
	4900.00	0.00	88.74	4900.00	1049.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	4900.00
	5000.00	0.00	88.74	5000.00	1149.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5000.00
	5100.00	0.00	88.74	5100.00	1249.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5100.00
	5200.00	0.00	88.74	5200.00	1349.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5200.00
	5300.00	0.00	88.74	5300.00	1449.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5300.00
San Andres	5426.00	0.00	88.74	5426.00	1549.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5426.00
	5500.00	0.00	88.74	5500.00	1649.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5500.00
Delaware	5601.00	0.00	88.74	5601.00	1650.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5601.00
	5641.00	0.00	88.74	5641.00	1660.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5641.00
1st Delaware Sand	5700.00	0.00	88.74	5700.00	1749.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5700.00
	5736.00	0.00	88.74	5736.00	1756.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5736.00
2nd Delaware Sand	5800.00	0.00	88.74	5800.00	1849.00	0.00	0.00	0.00	0.00	0.00	801520.18 N	32 42 23.62	W 103 28 14.87	0.00	5800.00

Comments	MD	Incl	Azimuth	TVD	TDSS	VSEC	NS	EW	DLS	Northng	Easting	Latitude	Longitude	Closure	Admth	Closure	DeltaMD
	(m)	(°)	(°)	(m)	(m)	(m)	(m)	(m)	(/100m)	(mS)	(mS)	(NS...)	(EW...)	(m)	(m)	(m)	(m)
	5900.00	0.00	89.74	5900.00	1849.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	5900.00	
	8000.00	0.00	89.74	8000.00	2049.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8000.00	
	6100.00	0.00	89.74	6100.00	2149.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	6100.00	
	8200.00	0.00	89.74	8200.00	2249.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8200.00	
	8300.00	0.00	89.74	8300.00	2249.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8300.00	
	8100.00	0.00	89.74	8100.00	2149.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8100.00	
	8000.00	0.00	89.74	8000.00	2049.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8000.00	
	7800.00	0.00	89.74	7800.00	1949.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	7800.00	
	7900.00	0.00	89.74	7900.00	1949.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	7900.00	
	8000.00	0.00	89.74	8000.00	2049.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8000.00	
	8100.00	0.00	89.74	8100.00	2149.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8100.00	
	8200.00	0.00	89.74	8200.00	2249.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8200.00	
	8300.00	0.00	89.74	8300.00	2249.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8300.00	
	8400.00	0.00	89.74	8400.00	2349.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8400.00	
	8500.00	0.00	89.74	8500.00	2349.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8500.00	
	8600.00	0.00	89.74	8600.00	2449.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8600.00	
	8700.00	0.00	89.74	8700.00	2449.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8700.00	
	8800.00	0.00	89.74	8800.00	2549.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8800.00	
	8900.00	0.00	89.74	8900.00	2549.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	8900.00	
	9000.00	0.00	89.74	9000.00	2649.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9000.00	
	9100.00	0.00	89.74	9100.00	2649.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9100.00	
	9200.00	0.00	89.74	9200.00	2749.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9200.00	
	9300.00	0.00	89.74	9300.00	2749.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9300.00	
	9400.00	0.00	89.74	9400.00	2849.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9400.00	
	9500.00	0.00	89.74	9500.00	2849.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9500.00	
	9600.00	0.00	89.74	9600.00	2949.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9600.00	
	9700.00	0.00	89.74	9700.00	2949.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9700.00	
	9800.00	0.00	89.74	9800.00	3049.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9800.00	
	9900.00	0.00	89.74	9900.00	3049.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	9900.00	
	10000.00	0.00	89.74	10000.00	3149.00	0.00	0.00	0.00	0.00	0.00	801520.19 N	32 42 23.62 W	103 28 14.87	0.00	0.00	10000.00	

KOP 10' DLS  
2nd Bone Sprng Sand

1st Bone Sprng Sand

Bone Sprng

Comments	MD	Incl	Azim Grid	TVD	TVDSS	VBEC	NS	EW	DLS	Northng	Northng	Eastng	Latitude	Longitude	Closure Azimuth	Closure	DahMAD
	(m)	(°)	(°)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
	10100.00	21.90	88.74	10094.71	6149.71	41.55	41.35	41.35	10.00	621816.15	801561.54	N 32 42 23.62	W 103 28 14.38	88.74	41.35	219.00	
	10200.00	31.80	88.74	10193.77	6232.77	86.53	86.53	86.53	10.00	621816.36	801806.72	N 32 42 23.62	W 103 28 13.86	88.74	86.53	319.00	
	10300.00	41.80	88.74	10293.64	6312.64	146.50	146.50	146.50	10.00	621816.62	801866.86	N 32 42 23.61	W 103 28 13.30	88.74	146.50	419.00	
	10400.00	51.80	88.74	10393.68	6390.68	218.42	218.42	218.42	10.00	621816.85	801739.81	N 32 42 23.61	W 103 28 12.30	88.74	218.42	519.00	
	10500.00	61.90	88.74	10396.42	6435.42	303.08	303.08	303.08	10.00	621817.32	801823.27	N 32 42 23.61	W 103 28 11.32	88.74	303.08	619.00	
	10600.00	71.90	88.74	10425.61	6474.95	384.95	384.95	384.95	10.00	621817.73	801819.15	N 32 42 23.60	W 103 28 9.11	88.74	384.95	719.00	
	10700.00	81.90	88.74	10484.24	6497.24	482.22	482.22	482.22	10.00	621818.17	802012.40	N 32 42 23.60	W 103 28 8.11	88.74	482.22	819.00	
	10800.00	90.47	88.74	10453.62	6502.62	577.62	577.62	577.62	10.00	621818.55	802097.80	N 32 42 23.60	W 103 28 7.94	88.74	577.62	904.66	
	10800.00	90.47	88.74	10453.62	6502.62	577.62	577.62	577.62	10.00	621818.55	802097.80	N 32 42 23.60	W 103 28 7.94	88.74	577.62	904.66	
	10900.00	90.47	88.74	10453.01	6502.01	681.95	681.95	681.95	0.00	621819.06	802212.13	N 32 42 23.59	W 103 28 6.77	88.74	681.95	114.34	
	11000.00	90.47	88.74	10452.19	6501.19	781.95	781.95	781.95	0.00	621819.51	802312.12	N 32 42 23.59	W 103 28 5.60	88.74	781.95	214.34	
	11100.00	90.47	88.74	10451.36	6500.36	881.95	881.95	881.95	0.00	621819.86	802412.11	N 32 42 23.59	W 103 28 4.43	88.74	881.95	314.34	
	11200.00	90.47	88.74	10450.56	6499.56	981.94	981.94	981.94	0.00	621820.40	802512.11	N 32 42 23.58	W 103 28 3.26	88.74	981.94	414.34	
	11300.00	90.47	88.74	10449.75	6498.75	1081.94	1081.94	1081.94	0.00	621820.85	802612.10	N 32 42 23.58	W 103 28 2.08	88.74	1081.94	514.34	
	11400.00	90.47	88.74	10448.93	6497.93	1181.94	1181.94	1181.94	0.00	621821.30	802712.10	N 32 42 23.58	W 103 28 0.82	88.74	1181.94	614.34	
	11500.00	90.47	88.74	10448.12	6497.12	1281.93	1281.93	1281.93	0.00	621821.74	802812.09	N 32 42 23.57	W 103 28 58.58	88.74	1281.93	714.34	
	11600.00	90.47	88.74	10447.30	6496.30	1381.92	1381.92	1381.92	0.00	621822.19	802912.08	N 32 42 23.57	W 103 28 58.58	88.74	1381.92	814.34	
	11700.00	90.47	88.74	10446.48	6495.48	1481.91	1481.91	1481.91	0.00	621822.64	803012.08	N 32 42 23.57	W 103 28 57.41	88.74	1481.91	914.34	
	11800.00	90.47	88.74	10445.67	6494.67	1581.92	1581.92	1581.92	0.00	621823.08	803112.07	N 32 42 23.56	W 103 28 56.24	88.74	1581.92	1014.34	
	11900.00	90.47	88.74	10444.86	6493.86	1681.92	1681.92	1681.92	0.00	621823.53	803212.07	N 32 42 23.56	W 103 28 55.07	88.74	1681.92	1114.34	
	12000.00	90.47	88.74	10444.04	6493.04	1781.92	1781.92	1781.92	0.00	621823.98	803312.06	N 32 42 23.56	W 103 28 53.90	88.74	1781.92	1214.34	
	12100.00	90.47	88.74	10443.22	6492.22	1881.91	1881.91	1881.91	0.00	621824.42	803412.06	N 32 42 23.55	W 103 28 52.73	88.74	1881.91	1314.34	
	12200.00	90.47	88.74	10442.41	6491.41	1981.91	1981.91	1981.91	0.00	621824.87	803512.05	N 32 42 23.55	W 103 28 51.56	88.74	1981.91	1414.34	
	12300.00	90.47	88.74	10441.59	6490.59	2081.91	2081.91	2081.91	0.00	621825.32	803612.04	N 32 42 23.54	W 103 28 50.38	88.74	2081.91	1514.34	
	12400.00	90.47	88.74	10440.77	6489.77	2181.90	2181.90	2181.90	0.00	621825.77	803712.04	N 32 42 23.54	W 103 28 49.22	88.74	2181.90	1614.34	
	12500.00	90.47	88.74	10439.96	6488.96	2281.90	2281.90	2281.90	0.00	621826.21	803812.03	N 32 42 23.54	W 103 28 48.05	88.74	2281.90	1714.34	
	12600.00	90.47	88.74	10439.14	6488.14	2381.87	2381.87	2381.87	0.00	621826.66	803912.03	N 32 42 23.53	W 103 28 46.88	88.74	2381.87	1814.34	
	12700.00	90.47	88.74	10438.32	6487.32	2481.88	2481.88	2481.88	0.00	621827.11	804012.02	N 32 42 23.53	W 103 28 45.71	88.74	2481.88	1914.34	
	12800.00	90.47	88.74	10437.51	6486.51	2581.89	2581.89	2581.89	0.00	621827.55	804112.01	N 32 42 23.53	W 103 28 44.54	88.74	2581.88	2014.34	
	12900.00	90.47	88.74	10436.69	6485.69	2681.89	2681.89	2681.89	0.00	621828.00	804212.01	N 32 42 23.52	W 103 28 43.37	88.74	2681.88	2114.34	
	13000.00	90.47	88.74	10435.87	6484.87	2781.86	2781.86	2781.86	0.00	621828.45	804312.00	N 32 42 23.52	W 103 28 42.20	88.74	2781.88	2214.34	
	13100.00	90.47	88.74	10435.05	6484.05	2881.85	2881.85	2881.85	0.00	621828.89	804412.00	N 32 42 23.52	W 103 28 41.03	88.74	2881.88	2314.34	
	13200.00	90.47	88.74	10434.23	6483.23	2981.88	2981.88	2981.88	0.00	621829.34	804511.99	N 32 42 23.51	W 103 28 39.86	88.74	2981.88	2414.34	
	13300.00	90.47	88.74	10433.42	6482.42	3081.84	3081.84	3081.84	0.00	621829.79	804611.99	N 32 42 23.51	W 103 28 38.69	88.74	3081.87	2514.34	
	13400.00	90.47	88.74	10432.60	6481.60	3181.84	3181.84	3181.84	0.00	621830.24	804711.98	N 32 42 23.51	W 103 28 37.52	88.74	3181.87	2614.34	
	13500.00	90.47	88.74	10431.78	6480.78	3281.83	3281.83	3281.83	0.00	621830.68	804811.97	N 32 42 23.50	W 103 28 36.35	88.74	3281.87	2714.34	
	13600.00	90.47	88.74	10430.96	6479.96	3381.83	3381.83	3381.83	0.00	621831.13	804911.97	N 32 42 23.50	W 103 28 35.18	88.74	3381.86	2814.34	
	13700.00	90.47	88.74	10430.14	6479.14	3481.86	3481.86	3481.86	0.00	621831.58	805011.96	N 32 42 23.50	W 103 28 34.01	88.74	3481.86	2914.34	
	13800.00	90.47	88.74	10429.32	6478.32	3581.86	3581.86	3581.86	0.00	621832.02	805111.96	N 32 42 23.49	W 103 28 32.84	88.74	3581.86	3014.34	
	13900.00	90.47	88.74	10428.50	6477.50	3681.85	3681.85	3681.85	0.00	621832.47	805211.95	N 32 42 23.49	W 103 28 31.67	88.74	3681.85	3114.34	
	14000.00	90.47	88.74	10427.68	6476.68	3781.85	3781.85	3781.85	0.00	621832.92	805311.94	N 32 42 23.49	W 103 28 30.49	88.74	3781.85	3214.34	
	14100.00	90.47	88.74	10426.86	6475.86	3881.85	3881.85	3881.85	0.00	621833.37	805411.94	N 32 42 23.48	W 103 28 29.32	88.74	3881.85	3314.34	
	14200.00	90.47	88.74	10426.05	6475.05	3981.84	3981.84	3981.84	0.00	621833.81	805511.93	N 32 42 23.48	W 103 28 28.15	88.74	3981.84	3414.34	
	14300.00	90.47	88.74	10425.23	6474.23	4081.84	4081.84	4081.84	0.00	621834.26	805611.93	N 32 42 23.47	W 103 28 26.98	88.74	4081.84	3514.34	
	14400.00	90.47	88.74	10424.41	6473.41	4181.84	4181.84	4181.84	0.00	621834.71	805711.92	N 32 42 23.47	W 103 28 25.81	88.74	4181.84	3614.34	
	14500.00	90.47	88.74	10423.59	6472.59	4281.83	4281.83	4281.83	0.00	621835.16	805811.91	N 32 42 23.47	W 103 28 24.64	88.74	4281.83	3714.34	
	14600.00	90.47	88.74	10422.76	6471.76	4381.83	4381.83	4381.83	0.00	621835.60	805911.81	N 32 42 23.46	W 103 28 23.47	88.74	4381.83	3814.34	
	14700.00	90.47	88.74	10421.94	6470.94	4481.83	4481.83	4481.83	0.00	621836.05	806011.80	N 32 42 23.46	W 103 28 22.30	88.74	4481.83	3914.34	
	14800.00	90.47	88.74	10421.12	6470.12	4581.82	4581.82	4581.82	0.00	621836.50	806111.80	N 32 42 23.45	W 103 28 21.13	88.74	4581.82	4014.34	



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 33 State 1H (Preferred) - PBHL	14815.02	80.47	89.74	10421.00	8470.00	4808.85	20.60	4806.80	0.00	621836.57	806126.82	N 32 42 23 48	W 103 28 20.86	89 74	4806.85	4029 36

Survey Type: Def Plan

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

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 2H Rev1 mcs 30Aug12
	18.000	14815.025	1/100.000	SLB_MWD-STD	Original Borehole / McElvain South Ironhouse 32 State 2H Rev1 mcs 30Aug12