



End of Well Report

Marshall 12 Federal Com #1

Samson Resources Company

9/8/2006

Received
Hobbs
O&D

HALLIBURTON

Sperry Drilling Services • 9800 W Reno • Oklahoma, OK 73127
Phone 405.324.2222 • Fax 405.324.1009

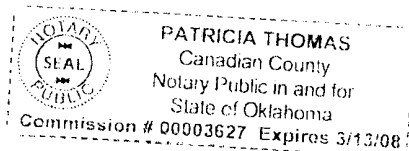
September 13, 2006

Re: Samson Resources Company
Marshall 12 Fed Com #1
Sec. 12-T20S-R33E
Lea County, New Mexico

Enclosed please find the original and one copy of the surveys performed on the referenced well by Halliburton/Sperry Drilling Services.

<u>Name & Title of Supervisor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Dennis Cook Directional Supervisor	Original	5,341' – 8,327'	08/30/06 – 09/07/06	MWD
Dennis Cook Directional Supervisor	Projection to TD	8,327' – 8,370'		MWD

If any other information is required, please contact the undersigned at the letterhead address and phone number.



D. Cook
Dennis Cook
Directional Supervisor

My Commission Expires: 3.13.08

Patricia Thomas
Notary Public

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OCD

Customer : Samson Resources Company

Well Number : Marshall 12 Federal Com #1

Job Objectives:

To kick off at 5350' MD and build to 3.35 Deg. with 1.00 Deg/DL at an Azi. of 269.79 Deg., hold that till 6449.47' MD, TVD of 6447.97', at that point drop back to vertical by 8342.58' MD, TVD of 8340.00'.

After runing Gyro the plan has changed.

New Plan on 9/01/06

Kick off at 5350' and build to 6.68 Deg. with 2.00 Deg/DL at an Az. of 259.36 Deg. till 6373.80' MD / TVD of 6363.86' then drop back to vertical by MD of 8354.42' / TVD @ 8340'.

Summary of Results:

BHA #1

Objective:

To kick off at 5345' and build to 6.68 Deg with 2.00 Deg/DL, at an Az. of 259.36 Deg. Then hold that till 6373' MD, drop back to vertical with 0.34 Deg/DL by 8354' MD / TVD of 8340'.

Results:

After drilling from 5345' to 8370' in 105.5 drilling hrs. avg. ROP of 28.5'. Motor out put of 8.80 Deg/100' in the build section slides of 8' to get 2.00 Deg/100'. In the drop section slides of 15' to 17' were used to drop .50 Deg. per kelly, 1.50 Deg/100' DL.

Discussion:

BHA #	Bit #	Motor Run #	Hole Size (in)	MD In (ft)	MD Out (ft)	TVD In (ft)	TVD Out (ft)	Inc In (deg)	Inc Out (deg)	Azi In (deg)	Azi Out (deg)	Drig hrs	Circ hrs
1	1rr1	1	8.750	5345	8370	5341	8355	1.1	0.7	183	235	106	1

Table 1 - BHA Summary

Motor Run #	Manufacturer	Type	Lobe	OD (in)	Gauge (in)	Bend (deg)	Adj	DLS (Ori) (°/100')	ROP (Ori) (ft/hr)	ROP (Rot) (ft/hr)
1	SSDS	SperryDrill	8/9	6.750		1.50	Y	2.50	23	30

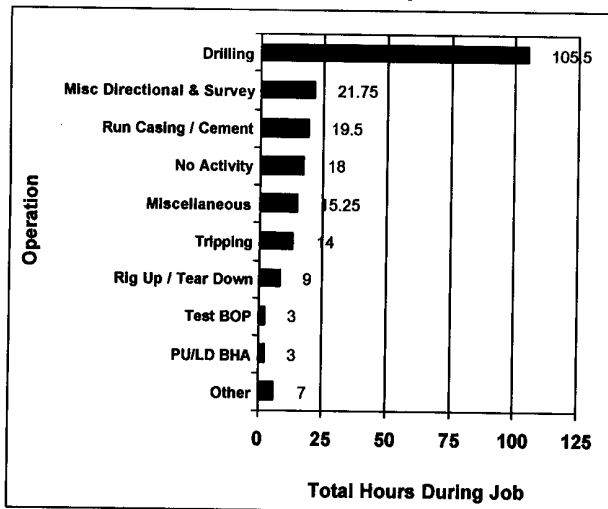
Table 2 - Motor Run Summary

Bit #	Manufacturer	Style	OD (in)	Gge Len (in)	Nozzles (/32's)	TFA (in ⁴)	Dull Grades I O D L B G O R	Ftge (ft)	Drig hrs	ROP (ft/hr)
1rr1	Smith	F47HY	8.750	6.750	3x15	0.518	5-5-WT-AA-E-1-FC-TD	3025	105.50	29

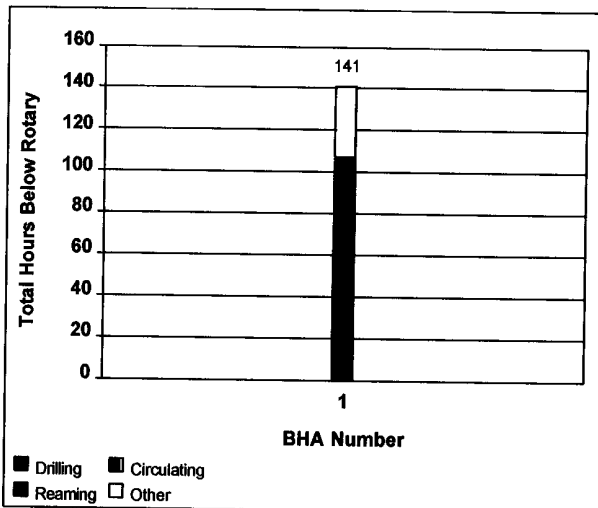
Table 3 - Bit Run Summary

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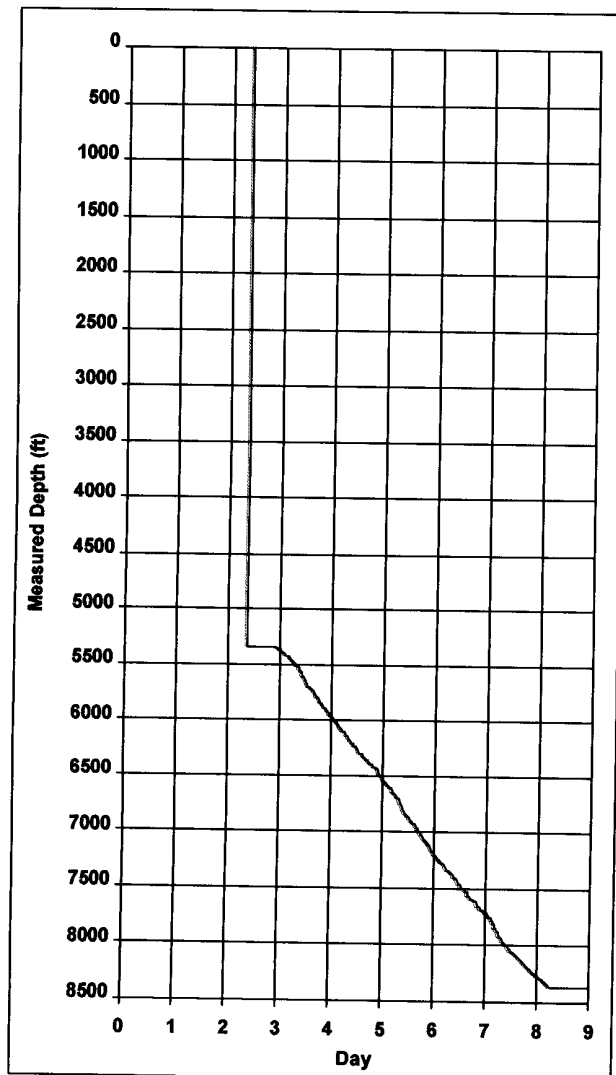
Hours by Operation Summary



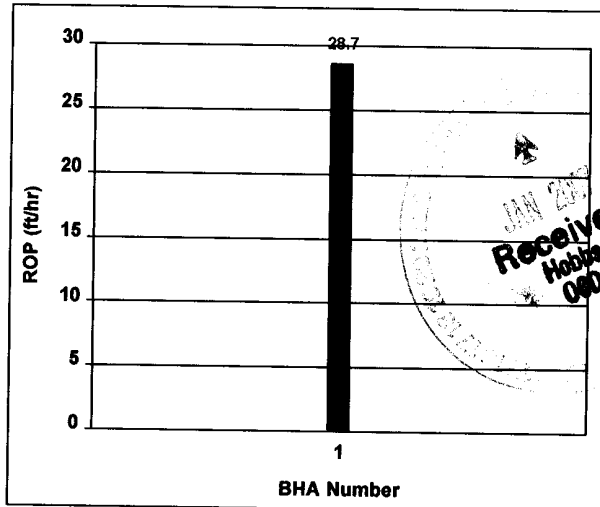
Hours per BHA Breakdown



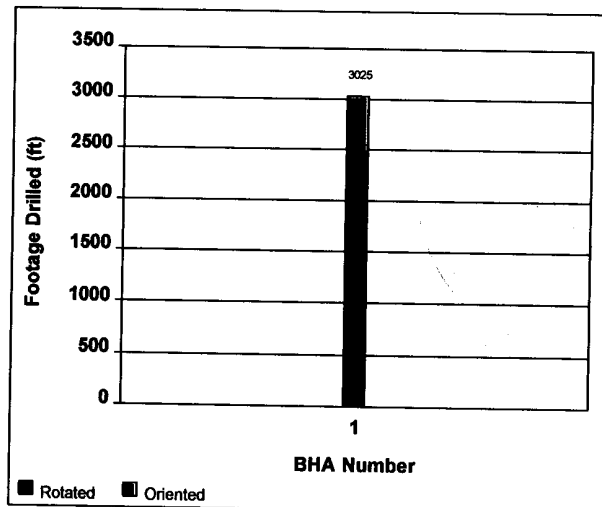
Days vs. Depth



Average Rate of Penetration per BHA



Footage per BHA



Sperry-Sun Drilling Services

Samson Resources Company
Marshall 12 Federal Com #1
Patterson # 480

Sec. 12-T20S-R33E
MO-MJ-0004600222

MD (ft)	Formation Name MD/TVD	Inclination	Bit Data	Drilling Parameters	Motor	BHA Stabilizers	Comments	BHA ID
		DLS						
0		0 1 2 3 4 5 6 7 8 9						@ 0
500								
1000								
1500								
2000								
2500								
3000								
3500								
4000								
4500								
5000								
5500								
6000			F47HY 3x15 /32's 0.48 ft/min 105.50 hrs	WOB 38778 lbs RPM 44 FLO 358 gpm SPP 1569 psi	6-3/4" SperryDrill 8/9 L 1.50" ABH			#1 @ 5345
6500								
7000								
7500								
8000								
8500								
		0 1 2 3 4 5 6 7 8 9						

Received
11/11/2002
4:00 PM
4004 hrs

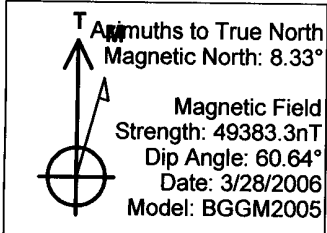


Project: Lea County NM NAD 83

Site: Sec 12-T20S-R33E

Well: Marshall 12 Fed Com #1

Plan: Plan 090106 (Marshall 12 Fed Com #1/Wellbore #1)



SECTION DETAILS

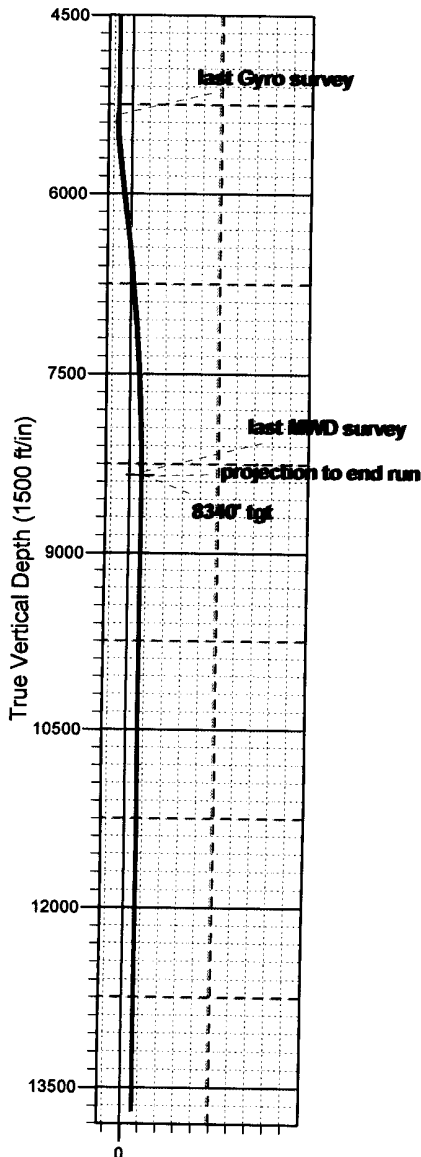
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	5335.00	1.29	173.16	5330.64	42.80	102.88	0.00	0.00	-102.80	
K.O.P.	5671.46	6.68	259.68	5666.30	35.52	84.05	2.00	97.50	-83.98	
End Build	6373.80	6.68	259.68	6363.86	20.88	3.63	0.00	0.00	-3.59	
Start Drop	8354.42	0.00	359.94	8340.00	0.21	-109.90	0.34	180.00	109.90	8340' tgt
End Drop	13714.42	0.00	359.94	3700.00	0.21	-109.90	0.00	359.94	109.90	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

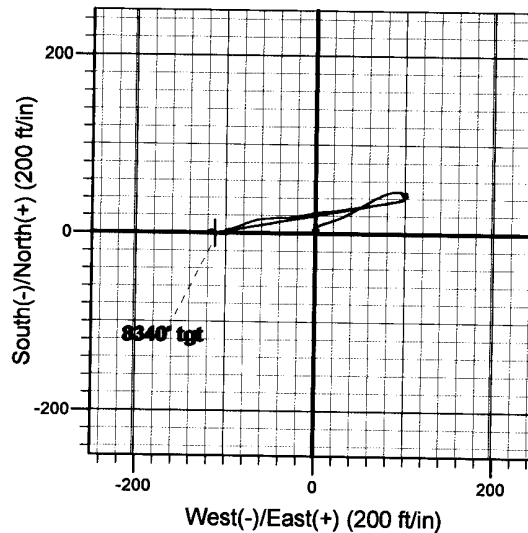
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
8340' tgt	8340.00	0.21	-109.90	576225.30	722852.90	Point

WELL DETAILS: Marshall 12 Fed Com #1

Northing	Easting	Ground Level: 3630.00	Latitude	Longitude
576225.70	722962.80		32° 34' 57.774 N	103° 44' 37.202 W



Vertical Section at 270.11° (1500 ft/in)



Received
Hobbs
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DISTRICT I
1000 N. FRANCIS DR., SMOKE, NM 87540

DISTRICT II
1001 N. GRAND AVENUE, ALBUQUERQUE, NM 87102

DISTRICT III
1000 Elia Briscoe Rd., Aztec, NM 87410

DISTRICT IV
1000 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

Received
Revised October 12, 2006
Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

Form C-102

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 83280	Pool Name Quail Ridge Morrow
Property Code	Property Name MARSHALL 12 FEDERAL COM	Well Number 1
OCRD No. 20165	Operator Name SAMSON RESOURCES	Elevation 3606'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	12	20-S	33-E		660	SOUTH	550	EAST	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
P	12	20-S	33-E		660	SOUTH	660	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320		COM.	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION <i>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> Signature: <u>George R. Smith</u> Date: <u>3/22/06</u> Printed Name: <u>George R. Smith</u>
	SURVEYOR CERTIFICATION <i>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.</i> FEBRUARY 17, 2006 Date Signed: _____ DSR Signature & Seal of Professional Surveyor: <u>Barry J. Smith</u> 06.11.0332 Certificate No. <u>GARY SMITH</u> 12841

SURFACE LOCATION
GEODETIC COORDINATES
NAD 27 NME

Y=576225.7 N
X=722962.8 E

LAT.=32°34'55.44" N
LONG.=103°36'34.14" W

BOTTOM HOLE LOCATION

Y=576225.3 N
X=722852.9 E

2.02N
117,204W

SEE DETAIL
(BH) 680'
(SURF) 550'
680' 550'

Samson Resources Company

Lea County NM NAD 83

Sec 12-T20S-R33E

Marshall 12 Fed Com #1

Wellbore #1

Design: Wellbore #1

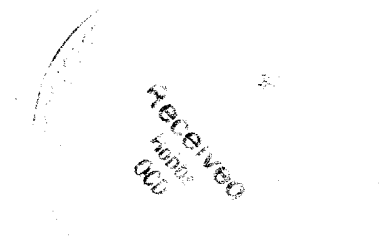
Sperry Drilling Services Combo Report

08 September, 2006

Well Coordinates: 576,225.70 N, 722,962.80 E (32° 34' 57.77" N, 103° 44' 37.20" W)
Ground Level: 3,630.00 ft

Local Coordinate Origin:	Centered on Well Marshall 12 Fed Com #1
Viewing Datum:	WELL @ 3650.00ft (Original Well Elev)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet

Version: 2003.14 Build: 82



HALLIBURTON

Design Report for Marshall 12 Fed Com #1 - Wellbore #1 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
0.00	0.00	0.00	3,650.00	0.00	0.00 S	0.00 W	576,225.70	722,962.80	0.00	0.00	
100.00	0.23	292.77	3,550.00	100.00	0.08 N	0.19 W	576,225.78	722,962.61	0.23	0.19	
200.00	0.39	23.66	3,450.00	200.00	0.47 N	0.23 W	576,226.17	722,962.56	0.46	0.23	
300.00	0.60	27.27	3,350.01	299.99	1.24 N	0.14 E	576,226.94	722,962.94	0.21	-0.14	
400.00	0.72	40.11	3,250.01	399.99	2.19 N	0.79 E	576,227.89	722,963.58	0.19	-0.78	
500.00	0.81	44.35	3,150.02	499.98	3.18 N	1.69 E	576,228.89	722,964.47	0.11	-1.68	
600.00	0.70	49.47	3,050.03	599.97	4.08 N	2.65 E	576,229.79	722,965.42	0.13	-2.63	
700.00	0.39	57.69	2,950.03	699.97	4.66 N	3.40 E	576,230.38	722,966.17	0.32	-3.38	
800.00	0.18	171.91	2,850.03	799.97	4.68 N	3.71 E	576,230.40	722,966.48	0.49	-3.69	
900.00	0.37	196.01	2,750.04	899.96	4.22 N	3.64 E	576,229.94	722,966.42	0.22	-3.63	
1,000.00	0.40	210.94	2,650.04	999.96	3.61 N	3.37 E	576,229.33	722,966.15	0.10	-3.36	
1,100.00	0.45	270.48	2,550.04	1,099.96	3.31 N	2.80 E	576,229.03	722,965.58	0.42	-2.79	
1,200.00	0.61	295.12	2,450.04	1,199.96	3.54 N	1.92 E	576,229.25	722,964.70	0.27	-1.91	
1,300.00	0.57	291.28	2,350.05	1,299.95	3.95 N	0.98 E	576,229.65	722,963.76	0.06	-0.97	
1,400.00	0.39	267.36	2,250.05	1,399.95	4.11 N	0.18 E	576,229.81	722,962.95	0.27	-0.16	
1,500.00	0.37	264.25	2,150.06	1,499.94	4.06 N	0.49 W	576,229.76	722,962.29	0.03	0.50	
1,600.00	0.33	33.26	2,050.06	1,599.94	4.27 N	0.65 W	576,229.97	722,962.13	0.63	0.66	
1,700.00	0.48	43.02	1,950.06	1,699.94	4.82 N	0.21 W	576,230.52	722,962.57	0.16	0.22	
1,800.00	0.55	48.44	1,850.06	1,799.94	5.44 N	0.44 E	576,231.15	722,963.21	0.09	-0.42	
1,900.00	0.61	41.01	1,750.07	1,899.93	6.16 N	1.15 E	576,231.87	722,963.91	0.10	-1.13	
2,000.00	0.53	55.84	1,650.07	1,999.93	6.83 N	1.88 E	576,232.54	722,964.64	0.17	-1.86	
2,100.00	0.54	58.49	1,550.08	2,099.92	7.33 N	2.66 E	576,233.05	722,965.42	0.03	-2.64	
2,200.00	1.01	55.75	1,450.09	2,199.91	8.07 N	3.79 E	576,233.80	722,966.55	0.47	-3.77	
2,300.00	0.92	65.73	1,350.10	2,299.90	8.90 N	5.26 E	576,234.63	722,968.01	0.19	-5.23	
2,400.00	0.97	62.52	1,250.11	2,399.89	9.62 N	6.74 E	576,235.36	722,969.48	0.07	-6.71	
2,500.00	1.27	68.46	1,150.13	2,499.87	10.42 N	8.52 E	576,236.17	722,971.26	0.32	-8.49	
2,600.00	2.21	72.53	1,050.18	2,599.82	11.40 N	11.39 E	576,237.17	722,974.13	0.95	-11.36	
2,700.00	3.95	71.56	950.33	2,699.67	13.07 N	16.50 E	576,238.86	722,979.22	1.74	-16.46	
2,800.00	4.97	69.31	850.63	2,799.37	15.69 N	23.82 E	576,241.52	722,986.53	1.03	-23.77	
2,900.00	5.62	64.24	751.06	2,898.94	19.35 N	32.28 E	576,245.23	722,994.97	0.80	-32.22	
3,000.00	6.12	59.68	651.58	2,998.42	24.17 N	41.29 E	576,250.10	723,003.96	0.68	-41.22	
3,100.00	6.28	59.37	552.17	3,097.83	29.65 N	50.60 E	576,255.63	723,013.23	0.16	-50.51	
3,200.00	6.45	59.68	452.79	3,197.21	35.27 N	60.15 E	576,261.30	723,022.76	0.17	-60.05	
3,300.00	5.71	60.57	353.35	3,296.65	40.55 N	69.34 E	576,266.63	723,031.91	0.75	-69.21	
3,400.00	4.21	63.67	253.73	3,396.27	44.62 N	76.96 E	576,270.75	723,039.51	1.52	-76.82	
3,500.00	3.19	71.39	153.93	3,496.07	47.14 N	82.89 E	576,273.29	723,045.42	1.13	-82.74	
3,600.00	2.68	81.06	54.07	3,595.93	48.39 N	87.83 E	576,274.57	723,050.36	0.71	-87.69	
3,700.00	2.15	89.54	-45.85	3,695.85	48.76 N	92.02 E	576,274.97	723,054.55	0.64	-91.87	
3,800.00	1.80	101.36	-145.79	3,795.79	48.47 N	95.43 E	576,274.70	723,057.96	0.54	-95.29	
3,900.00	1.44	133.43	-245.75	3,895.75	47.30 N	97.89 E	576,273.54	723,060.42	0.96	-97.74	

Received
Hobbs
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Design Report for Marshall 12 Fed Com #1 - Wellbore #1 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
4,000.00	1.02	163.20	-345.73	3,995.73	45.58 N	99.06 E	576,271.83	723,061.60	0.75	-98.92	
4,100.00	0.81	166.78	-445.71	4,095.71	44.04 N	99.47 E	576,270.29	723,062.03	0.22	-99.34	
4,200.00	0.52	150.96	-545.71	4,195.71	42.96 N	99.86 E	576,269.21	723,062.42	0.34	-99.73	
4,300.00	0.25	42.32	-645.70	4,295.70	42.72 N	100.22 E	576,268.98	723,062.78	0.64	-100.09	
4,400.00	0.29	13.22	-745.70	4,395.70	43.13 N	100.43 E	576,269.38	723,062.99	0.14	-100.30	
4,500.00	0.39	5.17	-845.70	4,495.70	43.71 N	100.52 E	576,269.97	723,063.07	0.11	-100.38	
4,600.00	0.45	7.07	-945.70	4,595.70	44.44 N	100.60 E	576,270.70	723,063.15	0.06	-100.46	
4,700.00	0.53	352.98	-1,045.70	4,695.70	45.29 N	100.59 E	576,271.55	723,063.13	0.14	-100.45	
4,800.00	0.50	349.15	-1,145.69	4,795.69	46.18 N	100.45 E	576,272.43	723,062.99	0.05	-100.31	
4,900.00	0.42	38.57	-1,245.69	4,895.69	46.89 N	100.60 E	576,273.15	723,063.13	0.39	-100.45	
5,000.00	0.38	59.60	-1,345.69	4,995.69	47.35 N	101.11 E	576,273.61	723,063.65	0.15	-100.97	
5,100.00	0.64	143.60	-1,445.68	5,095.68	47.07 N	101.73 E	576,273.33	723,064.26	0.71	-101.59	
5,200.00	1.10	164.08	-1,545.67	5,195.67	45.69 N	102.32 E	576,271.96	723,064.87	0.55	-102.18	
5,300.00	1.36	171.02	-1,645.65	5,295.65	43.60 N	102.77 E	576,269.87	723,065.33	0.30	-102.64	
5,335.00	1.29	173.16	-1,680.64	5,330.64	42.80 N	102.88 E	576,269.07	723,065.44	0.24	-102.75	last Gyro survey
5,341.00	1.10	182.12	-1,686.64	5,336.64	42.67 N	102.89 E	576,268.94	723,065.45	4.43	-102.76	
5,373.00	0.80	193.92	-1,718.63	5,368.63	42.15 N	102.82 E	576,268.42	723,065.39	1.11	-102.70	
5,404.00	1.30	194.22	-1,749.63	5,399.63	41.60 N	102.68 E	576,267.87	723,065.25	1.61	-102.56	
5,436.00	1.80	216.92	-1,781.62	5,431.62	40.84 N	102.29 E	576,267.11	723,064.87	2.45	-102.17	
5,468.00	2.50	238.92	-1,813.59	5,463.59	40.08 N	101.39 E	576,266.34	723,063.97	3.34	-101.27	
5,499.00	3.80	245.32	-1,844.55	5,494.55	39.30 N	99.88 E	576,265.56	723,062.46	4.34	-99.76	
5,530.00	4.40	252.72	-1,875.47	5,525.47	38.52 N	97.81 E	576,264.76	723,060.40	2.58	-97.70	
5,562.00	5.20	258.52	-1,907.36	5,557.36	37.87 N	95.22 E	576,264.10	723,057.81	2.92	-95.10	
5,593.00	6.00	262.32	-1,938.21	5,588.21	37.37 N	92.24 E	576,263.58	723,054.83	2.84	-92.12	
5,625.00	6.20	258.92	-1,970.03	5,620.03	36.82 N	88.88 E	576,263.01	723,051.48	1.29	-88.77	
5,657.00	6.60	262.12	-2,001.83	5,651.83	36.23 N	85.37 E	576,262.40	723,047.96	1.67	-85.26	
5,688.00	6.90	257.02	-2,032.61	5,682.61	35.57 N	81.79 E	576,261.72	723,044.39	2.16	-81.68	
5,720.00	7.20	258.72	-2,064.37	5,714.37	34.75 N	77.95 E	576,260.88	723,040.55	1.14	-77.84	
5,751.00	6.60	258.82	-2,095.15	5,745.15	34.02 N	74.29 E	576,260.13	723,036.90	1.94	-74.19	
5,783.00	7.20	259.92	-2,126.91	5,776.91	33.31 N	70.52 E	576,259.40	723,033.13	1.92	-70.42	
5,813.00	7.00	262.82	-2,156.68	5,806.68	32.75 N	66.85 E	576,258.82	723,029.47	1.37	-66.75	
5,845.00	6.90	263.72	-2,188.45	5,838.45	32.30 N	63.01 E	576,258.35	723,025.63	0.46	-62.91	
5,874.00	7.10	260.72	-2,217.23	5,867.23	31.82 N	59.51 E	576,257.85	723,022.13	1.44	-59.41	
5,906.00	7.20	262.82	-2,248.98	5,898.98	31.25 N	55.56 E	576,257.26	723,018.19	0.87	-55.47	
5,938.00	6.80	263.12	-2,280.75	5,930.75	30.77 N	51.69 E	576,256.76	723,014.32	1.26	-51.60	
5,969.00	6.90	258.82	-2,311.52	5,961.52	30.19 N	48.04 E	576,256.16	723,010.68	1.69	-47.95	
6,000.00	6.70	262.72	-2,342.31	5,992.31	29.60 N	44.42 E	576,255.55	723,007.06	1.62	-44.34	
6,032.00	6.50	258.42	-2,374.09	6,024.09	29.00 N	40.80 E	576,254.93	723,003.44	1.67	-40.71	
6,064.00	6.60	261.42	-2,405.89	6,055.89	28.36 N	37.21 E	576,254.27	722,999.85	1.11	-37.12	

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Design Report for Marshall 12 Fed Com #1 - Wellbore #1 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
6,095.00	7.00	262.72	-2,436.67	6,086.67	27.86 N	33.57 E	576,253.74	722,996.22	1.38	-33.49	
6,127.00	7.20	259.62	-2,468.42	6,118.42	27.25 N	29.66 E	576,253.11	722,992.31	1.35	-29.58	
6,159.00	7.00	262.02	-2,500.18	6,150.18	26.62 N	25.76 E	576,252.46	722,988.41	1.12	-25.68	
6,190.00	7.60	263.62	-2,530.93	6,180.93	26.13 N	21.85 E	576,251.95	722,984.51	2.04	-21.77	
6,222.00	7.70	265.82	-2,562.64	6,212.64	25.74 N	17.61 E	576,251.53	722,980.27	0.97	-17.53	
6,254.00	8.00	265.82	-2,594.34	6,244.34	25.42 N	13.25 E	576,251.19	722,975.91	0.94	-13.18	
6,285.00	8.20	262.52	-2,625.03	6,275.03	24.97 N	8.91 E	576,250.72	722,971.57	1.63	-8.83	
6,316.00	7.40	260.42	-2,655.74	6,305.74	24.35 N	4.75 E	576,250.08	722,967.41	2.74	-4.67	
6,348.00	5.60	256.42	-2,687.54	6,337.54	23.64 N	1.20 E	576,249.35	722,963.87	5.80	-1.13	
6,379.00	5.00	259.82	-2,718.41	6,368.41	23.05 N	1.60 W	576,248.74	722,961.07	2.18	1.67	
6,411.00	4.70	260.32	-2,750.29	6,400.29	22.58 N	4.27 W	576,248.26	722,958.41	0.95	4.33	
6,443.00	5.10	258.82	-2,782.17	6,432.17	22.08 N	6.95 W	576,247.74	722,955.72	1.31	7.02	
6,475.00	5.40	261.42	-2,814.04	6,464.04	21.58 N	9.84 W	576,247.23	722,952.84	1.20	9.90	
6,506.00	5.80	256.92	-2,844.89	6,494.89	21.01 N	12.81 W	576,246.64	722,949.88	1.92	12.87	
6,538.00	6.20	257.72	-2,876.72	6,526.72	20.28 N	16.07 W	576,245.89	722,946.62	1.28	16.13	
6,570.00	6.10	261.62	-2,908.53	6,558.53	19.66 N	19.44 W	576,245.25	722,943.25	1.34	19.50	
6,602.00	5.80	259.32	-2,940.36	6,590.36	19.11 N	22.71 W	576,244.69	722,939.98	1.20	22.77	
6,633.00	5.30	261.72	-2,971.21	6,621.21	18.62 N	25.67 W	576,244.18	722,937.03	1.78	25.72	
6,664.00	4.80	268.02	-3,002.09	6,652.09	18.37 N	28.38 W	576,243.91	722,934.32	2.41	28.44	
6,696.00	4.90	266.72	-3,033.98	6,683.98	18.24 N	31.08 W	576,243.77	722,931.62	0.46	31.14	
6,728.00	5.10	267.12	-3,065.86	6,715.86	18.09 N	33.87 W	576,243.60	722,928.83	0.63	33.92	
6,760.00	5.40	271.92	-3,097.72	6,747.72	18.07 N	36.79 W	576,243.57	722,925.91	1.66	36.85	
6,791.00	5.30	269.12	-3,128.59	6,778.59	18.10 N	39.68 W	576,243.58	722,923.02	0.90	39.74	
6,823.00	5.60	264.52	-3,160.44	6,810.44	17.93 N	42.71 W	576,243.39	722,919.99	1.66	42.77	
6,855.00	5.70	264.52	-3,192.29	6,842.29	17.63 N	45.85 W	576,243.07	722,916.85	0.31	45.90	
6,886.00	5.50	264.22	-3,223.14	6,873.14	17.33 N	48.86 W	576,242.76	722,913.84	0.65	48.91	
6,918.00	5.40	268.82	-3,255.00	6,905.00	17.14 N	51.89 W	576,242.55	722,910.81	1.40	51.94	
6,950.00	5.50	262.22	-3,286.85	6,936.85	16.90 N	54.92 W	576,242.30	722,907.79	1.98	54.97	
6,982.00	5.30	259.12	-3,318.71	6,968.71	16.42 N	57.89 W	576,241.80	722,904.82	1.11	57.94	
7,013.00	5.20	260.32	-3,349.58	6,999.58	15.91 N	60.68 W	576,241.27	722,902.03	0.48	60.73	
7,045.00	5.20	254.52	-3,381.45	7,031.45	15.28 N	63.51 W	576,240.63	722,899.21	1.64	63.55	
7,077.00	4.80	251.62	-3,413.33	7,063.33	14.47 N	66.17 W	576,239.80	722,896.55	1.48	66.22	
7,109.00	4.50	249.72	-3,445.22	7,095.22	13.61 N	68.62 W	576,238.93	722,894.10	1.05	68.66	
7,140.00	4.40	249.72	-3,476.13	7,126.13	12.78 N	70.88 W	576,238.09	722,891.85	0.32	70.92	
7,171.00	4.00	250.22	-3,507.04	7,157.04	12.00 N	73.01 W	576,237.30	722,889.72	1.30	73.05	
7,203.00	4.40	251.72	-3,538.96	7,188.96	11.24 N	75.23 W	576,236.52	722,887.51	1.30	75.26	
7,235.00	4.20	246.52	-3,570.87	7,220.87	10.39 N	77.47 W	576,235.66	722,885.28	1.37	77.50	
7,267.00	4.30	247.12	-3,602.78	7,252.78	9.45 N	79.65 W	576,234.71	722,883.10	0.34	79.68	
7,298.00	4.20	246.02	-3,633.70	7,283.70	8.54 N	81.75 W	576,233.79	722,881.00	0.42	81.78	

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Design Report for Marshall 12 Fed Com #1 - Wellbore #1 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
7,330.00	4.00	246.62	-3,665.61	7,315.61	7.62 N	83.85 W	576,232.86	722,878.91	0.64	83.87	
7,361.00	3.50	247.12	-3,696.55	7,346.55	6.82 N	85.71 W	576,232.05	722,877.05	1.62	85.73	
7,393.00	3.00	255.62	-3,728.50	7,378.50	6.24 N	87.43 W	576,231.45	722,875.34	2.17	87.44	
7,423.00	2.90	258.12	-3,758.46	7,408.46	5.88 N	88.93 W	576,231.09	722,873.84	0.54	88.95	
7,455.00	2.90	259.52	-3,790.42	7,440.42	5.57 N	90.52 W	576,230.77	722,872.25	0.22	90.53	
7,487.00	2.70	258.52	-3,822.38	7,472.38	5.27 N	92.05 W	576,230.46	722,870.72	0.64	92.07	
7,518.00	2.20	257.32	-3,853.35	7,503.35	5.00 N	93.35 W	576,230.18	722,869.43	1.62	93.36	
7,550.00	1.70	245.72	-3,885.33	7,535.33	4.67 N	94.38 W	576,229.84	722,868.40	1.98	94.39	
7,582.00	1.80	245.22	-3,917.32	7,567.32	4.26 N	95.27 W	576,229.43	722,867.51	0.32	95.28	
7,614.00	2.20	244.52	-3,949.30	7,599.30	3.79 N	96.28 W	576,228.95	722,866.50	1.25	96.29	
7,645.00	2.00	241.82	-3,980.27	7,630.27	3.27 N	97.29 W	576,228.44	722,865.49	0.72	97.30	
7,677.00	2.20	248.82	-4,012.25	7,662.25	2.79 N	98.36 W	576,227.94	722,864.43	1.02	98.37	
7,709.00	2.30	245.92	-4,044.23	7,694.23	2.31 N	99.52 W	576,227.45	722,863.27	0.47	99.52	
7,739.00	2.60	253.62	-4,074.20	7,724.20	1.87 N	100.72 W	576,227.01	722,862.07	1.48	100.72	
7,771.00	2.70	252.02	-4,106.17	7,756.17	1.43 N	102.13 W	576,226.56	722,860.66	0.39	102.14	
7,802.00	2.50	260.42	-4,137.14	7,787.14	1.09 N	103.49 W	576,226.22	722,859.30	1.39	103.50	
7,834.00	2.70	265.42	-4,169.10	7,819.10	0.92 N	104.93 W	576,226.03	722,857.86	0.94	104.94	
7,865.00	2.80	278.12	-4,200.07	7,850.07	0.96 N	106.41 W	576,226.07	722,856.39	1.99	106.41	
7,897.00	2.90	296.82	-4,232.03	7,882.03	1.44 N	107.91 W	576,226.54	722,854.89	2.91	107.91	
7,929.00	2.50	307.52	-4,263.99	7,913.99	2.23 N	109.18 W	576,227.32	722,853.61	2.01	109.19	
7,960.00	2.20	298.22	-4,294.97	7,944.97	2.92 N	110.24 W	576,228.01	722,852.54	1.56	110.25	
7,992.00	2.10	303.62	-4,326.94	7,976.94	3.54 N	111.27 W	576,228.62	722,851.51	0.71	111.28	
8,024.00	1.80	284.92	-4,358.93	8,008.93	3.99 N	112.25 W	576,229.07	722,850.53	2.19	112.26	
8,055.00	1.10	258.52	-4,389.92	8,039.92	4.06 N	113.01 W	576,229.13	722,849.77	3.07	113.02	
8,087.00	1.10	253.92	-4,421.91	8,071.91	3.91 N	113.60 W	576,228.98	722,849.18	0.28	113.62	
8,119.00	0.90	257.42	-4,453.91	8,103.91	3.77 N	114.14 W	576,228.84	722,848.64	0.65	114.16	
8,150.00	0.70	228.82	-4,484.90	8,134.90	3.59 N	114.53 W	576,228.66	722,848.26	1.42	114.54	
8,182.00	1.10	241.92	-4,516.90	8,166.90	3.32 N	114.94 W	576,228.38	722,847.84	1.40	114.95	
8,214.00	0.70	234.52	-4,548.89	8,198.89	3.06 N	115.37 W	576,228.12	722,847.41	1.30	115.38	
8,245.00	0.80	230.12	-4,579.89	8,229.89	2.81 N	115.69 W	576,227.87	722,847.09	0.37	115.70	
8,276.00	0.80	262.22	-4,610.89	8,260.89	2.65 N	116.07 W	576,227.70	722,846.71	1.43	116.08	
8,308.00	1.00	239.52	-4,642.88	8,292.88	2.47 N	116.54 W	576,227.53	722,846.25	1.27	116.54	
8,327.00	0.70	234.70	-4,661.88	8,311.88	2.32 N	116.77 W	576,227.38	722,846.02	1.62	116.78	last MWD survey
8,370.00	0.70	234.70	-4,704.88	8,354.88	2.02 N	117.20 W	576,227.07	722,845.59	0.00	117.21	projection to end run

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Design Report for Marshall 12 Fed Com #1 - Wellbore #1 - Wellbore #1

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,335.00	5,330.64	42.80	102.88	last Gyro survey
8,327.00	8,311.88	2.32	-116.77	last MWD survey
8,370.00	8,354.88	2.02	-117.20	projection to end run

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	270.17	User	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
100.00	5,335.00	Gyro Survey	NS-GYRO-MS
5,341.00	8,370.00	MWD Survey	MWD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
8340' tgt	0.00	359.94	8,340.00	0.21	-109.90	576,225.30	722,852.90	32° 34' 57.776 N	03° 44' 38.487 W
- actual wellpath misses by 7.41ft at 8355.06ft MD (8339.94 TVD, 2.13 N, -117.05 E)									
- Point									

North Reference Sheet for Sec 12-T20S-R33E - Marshall 12 Fed Com #1 - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to WELL @ 3650.00ft (Original Well Elev). Northing and Easting are relative to Marshall 12 Fed Com #1

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 104° 20' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:0° 0' 0.000 N°

False Easting: 541,337.50ft, False Northing: 0.00ft, Scale Reduction: 0.99994686

Grid Coordinates of Well: 576,225.70 ft N, 722,962.80 ft E

Geographical Coordinates of Well: 32° 34' 57.77" N, 103° 44' 37.20" W

Grid Convergence at Surface is: 0.32°

Based upon Minimum Curvature type calculations, at a Measured Depth of 8,370.00ft
the Bottom Hole Displacement is 117.22ft in the Direction of 270.99° (Grid).

Magnetic Convergence at surface is: -8.01° (28 March 2006, , BGGM2005)

