

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

AUG 24 2011

FORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. Farmingdale 16-SF1078894
2. Name of Operator Williams Production Company, LLC		6. If Indian, Allottee or Tribe Name
3a. Address PO Box 640 Aztec, NM 87410		7. If Unit of CA/Agreement, Name and/or No. Rosa Unit
3b. Phone No. (include area code) 505-634-4206		8. Well Name and No. Rosa Unit #383
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sur. 1031' FSL & 1107' FEL, BHL 1200' FNL & 900' FEL, sec 29, T31N, R4W		9. API Well No. 30-039-29367
		10. Field and Pool or Exploratory Area Basin Fruitland Coal
		11. Country or Parish, State Rio Arriba

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☒ Recomplete	☐ Other _____
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	<u>Plug back & sidetrack</u>
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Due to problems encountered while drilling the horizontal section of this well, Williams intends to plug back and redrill the horizontal portion of this well as per attached procedure. This was given verbal approval on August 22nd by Troy Salyers, BLM and Charlie Perrin, NMOCD.

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

RCVD SEP 1 '11
OIL CONS. DIV.

DIST. 3

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Larry Higgins	Title Permit Supervisor
Signature <i>Larry Higgins</i>	Date 8/24/11

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by <u>Troy L. Salyers</u>	Title PE	Date 8/29/2011
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office FFO	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

NMOCD

Hold C104
for Directional Survey
and "As Drilled" plat



Rosa Unit #383

Plug Back and Re-Sidetrack

API: 30-039-29367

SE

SHL: SE/4 ~~NE~~/4 Sec 29 T31N R4W

BHL: NE/4 NE/4 Sec 29 T31N R4W

Rio Arriba County, NM

Description:

The Rosa Unit #383 is vertical well producing from a cavity completion in the Fruitland Coal. Williams has re-entered this wellbore and is sidetracking it to drill a ~2,500' lateral in the Fruitland Coal. This was done by setting a whipstock at 3,030' MD. A window was cut in the 7" casing and the curve drilled to 3,770' MD/3,566' TVD. ~400' of lateral were drilled in the coal however, the coal was highly unstable and the hole would not stay open. While drilling ahead at 4,148' the standpipe pressure increased by ~800 psi. Attempts were made to continue drilling, drilling ahead to a TD of 4,194' MD before the MWD stopped working due to the increased pressure. The drill string was pulled to investigate the pressure increase. Upon tripping in the hole the bit tagged up at 3,640'. 120' of coal were washed and reamed and, due to MWD readings showing a near bit inclination of 82°, it was clear that the original had been lost and was now being re-drilled. Therefore, Williams proposes the following operations to allow this well to be successfully drilled.

Operations:

1. POOH to top of coal (3,700' MD/3,460' TVD)
2. Circulate hole clean
3. POOH & LD directional tools
4. PU 14 jts 2-3/8" tbg as tailpipe
5. TIH w/drill pipe to 3,700' MD
6. Set balanced cmt kickoff plug as follows:
 - a. 10 bbl fresh water
 - b. 75 sacks type G cmt (1.06 ft³/sk, 16.5 ppg) 79.5 ft³, 14.1 bbls

- c. 2.5 bbl fresh water
- d. 21 bbl drilling fluid
- e. Estimated top of plug is 3,400' MD w/ 20% excess
- 7. POOH to above top of cmt
- 8. Circulate long way with rig pump to ensure drill pipe is clear of cement
- 9. WOC 18 hours
- 10. PU directional tools & TIH
- 11. Time drill off of plug until samples read 100% formation for 10'
- 12. Build curve and land at 3,989' MD/3,453' TVD (3' TVD above top of target coal) and 816' vertical section
- 13. Drill lateral to permitted BHL

Attachments:

- 1. Survey_Rosa Unit 383 ST1_20Aug11_1800.pdf surveys showing original wellpath
- 2. Williams Rosa Unit #383 stk-2.pdf newly formulated directional plan report showing new landing point

Brian Alleman
Drilling Engineer II
Brian.Alleman@Williams.com
Office (918)573-2434
Cell (719)330-1052



Williams Energy

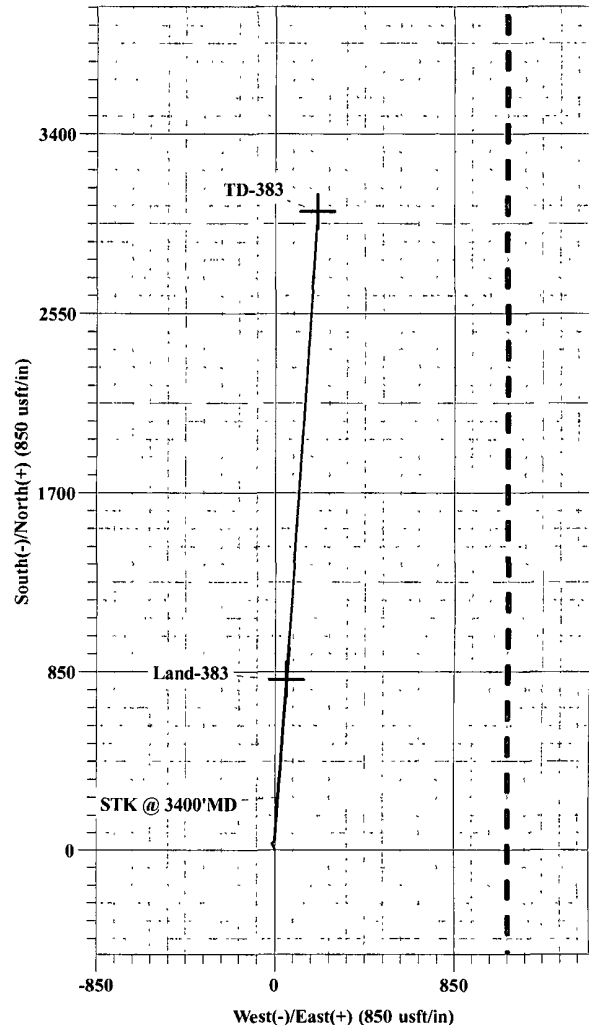
Rosa Unit #383 Stk-2
Sec29 T31N-R4W - 383
Rio Arriba Co. NM
GL: 6633' KB: 14'



A Schlumberger Company

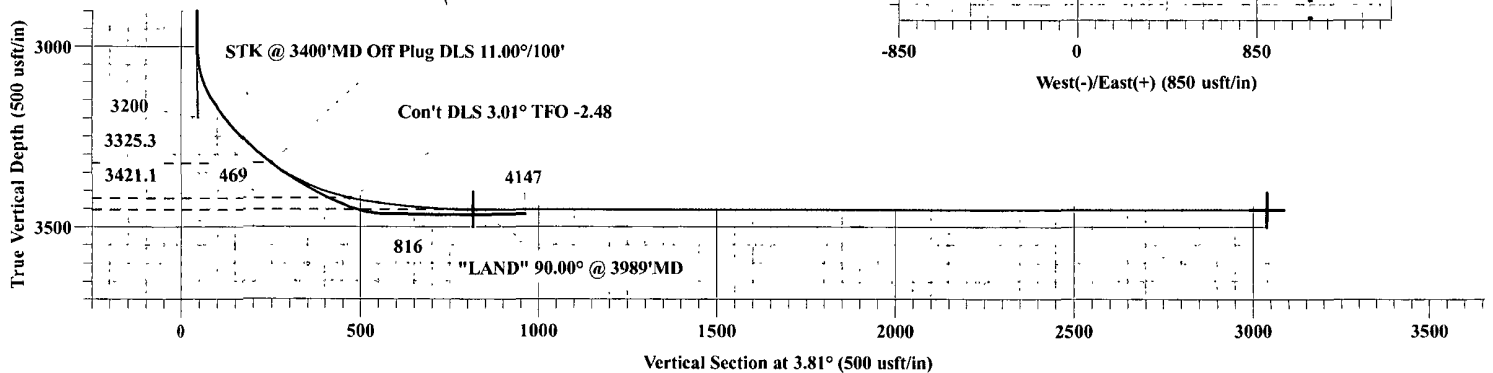
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Land-383	3453.0	814.2	54.2	2136941.76	200970.17	Point
TD-383	3453.0	3032.8	201.8	2139158.67	201141.54	Point



WELL DETAILS: Rosa Unit #383 Stk

Northing	Easting	Latitude	Longitude
2136128.19	200907.24	36° 51' 58.356 N	107° 16' 20.820 W



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3400.0	53.06	4.14	3325.3	250.7	13.8	0.00	0.00	251.1	
3640.4	79.50	4.26	3421.1	468.2	29.8	11.00	0.25	469.2	
3989.1	90.00	3.81	3453.0	814.2	54.2	3.01	-2.48	816.0	Land-383
6212.6	90.00	3.81	3453.0	3032.8	201.8	0.00	0.00	3039.5	

Plan: Design #2 (Rosa Unit #383 Stk/STK-2)

Created By: Frank C. Scardino

Date: 8/18/2011

Williams Energy

Rio Arriba Co. NM

Sec29 T31N-R4W - 383

Rosa Unit #383 Stk

STK-2

Plan: Design #2

Standard Planning Report

22 August, 2011

Planning Report

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Sec29 T31N-R4W - 383
Company:	Williams Energy	TVD Reference:	WELL @ 6647.0usft (Original Well Elev)
Project:	Rio Arriba Co. NM	MD Reference:	WELL @ 6647.0usft (Original Well Elev)
Site:	Sec29 T31N-R4W - 383	North Reference:	True
Well:	Rosa Unit #383 Stk	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK-2		
Design:	Design #2		

Project:	Rio Arriba Co. NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico Central 3002		

Site:	Sec29 T31N-R4W - 383		
Site Position:		Northing:	2,136,128.18 usft
From:	Lat/Long	Easting:	200,907.24 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	36° 51' 58.356 N
		Longitude:	107° 16' 20.820 W
		Grid Convergence:	-0.61°

Well:	Rosa Unit #383 Stk		
Well Position	+N-S	0.0 usft	Northing: 2,136,128.18 usft
	+E-W	0.0 usft	Easting: 200,907.24 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Latitude: 36° 51' 58.356 N
			Longitude: 107° 16' 20.820 W
			Ground Level: 6,633.0 usft

Wellbore:	STK-2		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	08/22/11	(°) 9.68
			Dip Angle (°) 63.66
			Field Strength (nT) 50,852

Design:	Design #2		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 3,400.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°) 3.81

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
3,400.0	53.06	4.14	3,325.3	250.7	13.8	0.00	0.00	0.00	0.00	
3,640.4	79.50	4.26	3,421.1	468.2	29.8	11.00	11.00	0.05	0.25	
3,989.1	90.00	3.81	3,453.0	814.2	54.2	3.01	3.01	-0.13	-2.48	Land-383
6,212.6	90.00	3.81	3,453.0	3,032.8	201.8	0.00	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Sec29 T31N-R4W - 383
Company:	Williams Energy	TVD Reference:	WELL @ 6647 0usft (Original Well Elev)
Project:	Rio Arriba Co NM	MD Reference:	WELL @ 6647 0usft (Original Well Elev)
Site:	Sec29 T31N-R4W - 383	North Reference:	True
Well:	Rosa Unit #383 Stk	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK-2		
Design:	Design #2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,400.0	53.06	4.14	3,325.3	250.7	13.8	251.1	2.56	0.81	-3.04	
STK @ 3400 MD Off Plug DLS 11.00°/100'										
3,450.0	58.56	4.17	3,353.4	292.0	16.8	292.4	11.00	11.00	0.06	
3,500.0	64.06	4.20	3,377.4	335.7	20.0	336.3	11.00	11.00	0.05	
3,550.0	69.56	4.22	3,397.1	381.5	23.4	382.2	11.00	11.00	0.05	
3,600.0	75.06	4.24	3,412.2	429.0	26.9	429.8	11.00	11.00	0.04	
3,640.4	79.50	4.26	3,421.1	468.2	29.8	469.2	11.00	11.00	0.04	
Cont DLS 3.01° TFO -2.48										
3,700.0	81.30	4.18	3,431.1	526.9	34.2	528.0	3.01	3.01	-0.13	
3,800.0	84.31	4.05	3,443.6	625.8	41.3	627.2	3.01	3.01	-0.13	
3,900.0	87.32	3.92	3,450.9	725.3	48.2	726.9	3.01	3.01	-0.13	
3,989.1	90.00	3.81	3,453.0	814.2	54.2	816.0	3.01	3.01	-0.13	
"LAND" 90.00° @ 3989 MD										
4,000.0	90.00	3.81	3,453.0	825.0	54.9	826.9	0.00	0.00	0.00	
4,100.0	90.00	3.81	3,453.0	924.8	61.6	926.9	0.00	0.00	0.00	
4,200.0	90.00	3.81	3,453.0	1,024.6	68.2	1,026.9	0.00	0.00	0.00	
4,300.0	90.00	3.81	3,453.0	1,124.4	74.9	1,126.9	0.00	0.00	0.00	
4,400.0	90.00	3.81	3,453.0	1,224.2	81.5	1,226.9	0.00	0.00	0.00	
4,500.0	90.00	3.81	3,453.0	1,323.9	88.1	1,326.9	0.00	0.00	0.00	
4,600.0	90.00	3.81	3,453.0	1,423.7	94.8	1,426.9	0.00	0.00	0.00	
4,700.0	90.00	3.81	3,453.0	1,523.5	101.4	1,526.9	0.00	0.00	0.00	
4,800.0	90.00	3.81	3,453.0	1,623.3	108.1	1,626.9	0.00	0.00	0.00	
4,900.0	90.00	3.81	3,453.0	1,723.1	114.7	1,726.9	0.00	0.00	0.00	
5,000.0	90.00	3.81	3,453.0	1,822.8	121.3	1,826.9	0.00	0.00	0.00	
5,100.0	90.00	3.81	3,453.0	1,922.6	128.0	1,926.9	0.00	0.00	0.00	
5,200.0	90.00	3.81	3,453.0	2,022.4	134.6	2,026.9	0.00	0.00	0.00	
5,300.0	90.00	3.81	3,453.0	2,122.2	141.2	2,126.9	0.00	0.00	0.00	
5,400.0	90.00	3.81	3,453.0	2,222.0	147.9	2,226.9	0.00	0.00	0.00	
5,500.0	90.00	3.81	3,453.0	2,321.7	154.5	2,326.9	0.00	0.00	0.00	
5,600.0	90.00	3.81	3,453.0	2,421.5	161.2	2,426.9	0.00	0.00	0.00	
5,700.0	90.00	3.81	3,453.0	2,521.3	167.8	2,526.9	0.00	0.00	0.00	
5,800.0	90.00	3.81	3,453.0	2,621.1	174.4	2,626.9	0.00	0.00	0.00	
5,900.0	90.00	3.81	3,453.0	2,720.9	181.1	2,726.9	0.00	0.00	0.00	
6,000.0	90.00	3.81	3,453.0	2,820.6	187.7	2,826.9	0.00	0.00	0.00	
6,100.0	90.00	3.81	3,453.0	2,920.4	194.4	2,926.9	0.00	0.00	0.00	
6,200.0	90.00	3.81	3,453.0	3,020.2	201.0	3,026.9	0.00	0.00	0.00	
6,212.6	90.00	3.81	3,453.0	3,032.8	201.8	3,039.5	0.00	0.00	0.00	
"TD" 90.00° @ 6213 MD										

Design Targets										
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
TD-383	- plan hits target center - Point	0.00	0.00	3,453.0	3,032.8	201.8	2,139,158.67	201,141.54	36° 52' 28.344 N	107° 16' 18.336 W
Land-383	- plan hits target center - Point	0.00	0.00	3,453.0	814.2	54.2	2,136,941.75	200,970.18	36° 52' 6.407 N	107° 16' 20.153 W

Planning Report

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Sec29 T31N-R4W - 383
Company:	Williams Energy	TVD Reference:	WELL @ 6647.0usft (Original Well Elev)
Project:	Rio Arriba Co. NM	MD Reference:	WELL @ 6647.0usft (Original Well Elev)
Site:	Sec29 T31N-R4W - 383	North Reference:	True
Well:	Rosa Unit #383 Stk	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK-2		
Design:	Design #2		

Plan Annotations:				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		N-S (usft)	E-W (usft)	
3,400.0	3,325.3	250.7	13.8	STK @ 3400' MD Off Plug DLS 11 00°/100'
3,640.4	3,421.1	468.2	29.8	Con't DLS 3 01° TFO -2 48
3,989.1	3,453.0	814.2	54.2	"LAND" 90.00° @ 3989' MD
6,212.6	3,453.0	3,032.8	201.8	"TD" 90.00° @ 6213' MD

PathFinder Energy Services, Inc.

Survey Report

WILLIAMS PRODUCTION COMPANY

ROSA 383 ST1

BASIN FRUITLAND COAL

Rig:AZTEC 781

PathFinder Office Supervisor: Tom Schmidt

PathFinder Field Engineers: Robert Gutshall

Dustin Easley

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:36.51.58.3560 N LON:107.16.20.8200 W

GRID Reference:NAD27 new mexico central Transverse Mercator

Ref GRID Coord: X: 200907.2376 Y: 2136128.1872

North Aligned To:TRUE NORTH

Total Magnetic Correction: 9.69° EAST TO TRUE

Vertical Section Plane: 3.84

Survey Vert. Reference: 14.00' Rotary Table To Ground

Altitude:6633.00' Ground To MSL

Survey Calculations by RX5 V6.04 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
THE FOLLOWING ARE GYRODATA GYROSCOPIC SURVEYS											
200.00	0.68	334.78	200.00	186.00	0.75	0.82 N	1.05 W	1.33@	308.07	0.00	0.00
400.00	1.64	336.70	399.96	385.96	4.33	4.52 N	2.68 W	5.26@	329.30	0.48	0.00
600.00	1.90	337.98	599.86	585.86	9.86	10.22 N	5.06 W	11.41@	333.67	0.13	0.00
800.00	1.33	337.98	799.78	785.78	14.93	15.45 N	7.17 W	17.03@	335.09	0.28	0.00
1000.00	0.85	341.05	999.74	985.74	18.39	19.00 N	8.53 W	20.83@	335.84	0.24	0.00
1200.00	0.69	350.88	1199.73	1185.73	20.93	21.60 N	9.20 W	23.47@	336.93	0.10	0.00
1400.00	0.59	319.89	1399.71	1385.71	22.85	23.57 N	10.05 W	25.63@	336.91	0.18	0.00
1600.00	0.64	348.14	1599.70	1585.70	24.66	25.45 N	10.95 W	27.71@	336.73	0.15	0.00
1800.00	0.80	322.78	1799.69	1785.69	26.79	27.66 N	12.02 W	30.16@	336.51	0.18	0.00
2000.00	0.84	287.26	1999.67	1985.67	28.19	29.21 N	14.26 W	32.50@	333.97	0.25	0.00
2200.00	0.65	28.34	2199.66	2185.66	29.56	30.64 N	15.13 W	34.17@	333.73	0.58	0.00
2400.00	2.20	49.03	2399.59	2385.59	33.30	34.16 N	11.69 W	36.10@	341.11	0.80	0.00
2600.00	1.60	44.14	2599.48	2585.48	38.13	38.68 N	6.85 W	39.28@	349.96	0.31	0.00
2800.00	1.19	50.58	2799.42	2785.42	41.68	42.00 N	3.30 W	42.13@	355.51	0.22	0.00
**	TIED INTO GYRODATA SURVEY AT 3000'MD										
3000.00	0.44	64.31	2999.40	2985.40	43.49	43.65 N	1.00 W	43.66@	358.69	0.38	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS											
3099.00	20.75	3.77	3096.23	3082.23	61.40	61.51 N	0.51 E	61.51@	0.48	20.75	101.02
3131.00	27.08	3.25	3125.46	3111.46	74.37	74.45 N	1.30 E	74.46@	1.00	19.79	101.02
3163.00	31.13	5.44	3153.42	3139.42	89.93	89.96 N	2.50 E	90.00@	1.59	13.09	101.02
3195.00	34.82	4.32	3180.26	3166.26	107.34	107.31 N	3.97 E	107.38@	2.12	11.69	101.02
3226.00	37.46	4.15	3205.29	3191.29	125.62	125.54 N	5.32 E	125.66@	2.43	8.52	104.64
3258.00	40.80	4.12	3230.11	3216.11	145.81	145.68 N	6.77 E	145.84@	2.66	10.44	101.02
3290.00	44.67	3.21	3253.61	3239.61	167.52	167.35 N	8.16 E	167.55@	2.79	12.25	104.64
3321.00	47.40	3.00	3275.13	3261.13	189.83	189.63 N	9.36 E	189.86@	2.83	8.82	104.64
3353.00	49.77	3.24	3296.30	3282.30	213.82	213.59 N	10.67 E	213.85@	2.86	7.43	104.64

PathFinder Energy Services, Inc.

Survey Report

WILLIAMS PRODUCTION COMPANY
ROSA 383 ST1
BASIN FRUITLAND COAL
RIG:AZTEC 781

Page 02/02

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
3385.00	52.94	4.60	3316.28	3302.28	238.81	238.52 N	12.38 E	238.84@	2.97	10.45	104.64
3417.00	53.20	3.63	3335.51	3321.51	264.39	264.03 N	14.22 E	264.41@	3.08	2.55	104.64
3449.00	55.49	3.69	3354.16	3340.16	290.39	289.98 N	15.88 E	290.41@	3.13	7.16	104.64
3480.00	58.04	4.64	3371.15	3357.15	316.32	315.83 N	17.77 E	316.33@	3.22	8.62	108.25
3512.00	60.85	5.05	3387.41	3373.41	343.87	343.29 N	20.09 E	343.88@	3.35	8.85	108.25
3544.00	62.87	5.48	3402.50	3388.50	372.07	371.39 N	22.68 E	372.08@	3.50	6.42	108.25
3576.00	64.02	5.38	3416.81	3402.81	400.69	399.88 N	25.39 E	400.69@	3.63	3.60	111.87
3608.00	65.42	4.87	3430.48	3416.48	429.61	428.70 N	27.98 E	429.61@	3.73	4.61	111.87
3640.00	69.38	1.99	3442.77	3428.77	459.14	458.18 N	29.73 E	459.15@	3.71	14.90	111.87
3671.00	74.39	4.29	3452.41	3438.41	488.59	487.59 N	31.36 E	488.60@	3.68	17.63	111.87
3703.00	78.35	5.13	3459.95	3445.95	519.68	518.58 N	33.91 E	519.68@	3.74	12.64	111.87
3735.00	86.35	4.34	3464.20	3450.20	551.37	550.16 N	36.52 E	551.37@	3.80	25.12	111.87
3764.00	90.22	3.84	3465.07	3451.07	580.35	579.06 N	38.59 E	580.35@	3.81	13.46	101.02
3828.00	88.02	4.26	3466.06	3452.06	644.34	642.89 N	43.11 E	644.34@	3.84	3.50	101.02
3892.00	91.89	2.69	3466.11	3452.11	708.32	706.76 N	46.99 E	708.32@	3.80	6.53	101.02
3955.00	90.84	4.78	3464.61	3450.61	771.30	769.61 N	51.09 E	771.30@	3.80	3.71	101.02
4019.00	89.52	4.52	3464.40	3450.40	835.29	833.39 N	56.28 E	835.29@	3.86	2.10	101.02
4083.00	91.63	3.74	3463.76	3449.76	899.28	897.22 N	60.89 E	899.28@	3.88	3.52	101.02
Extrapolated Survey											
4147.00	89.00	3.50	3463.41	3449.41	963.28	961.09 N	64.93 E	963.28@	3.86	4.13	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.