

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

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.*

5. Lease Serial No.

NMSF - 078039

6. If Indian, Allottee or tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.

Barnes LS 6M

9. API Well No.

30-045-32682

10. Field and Pool, or Exploratory Area

Basin Dakota & Blanco Mesa Verde

County or Parish, State

SAN JUAN, NM

1. Type of Well



Oil Well



Gas Well



Other

2. Name of Operator

BP AMERICA PRODUCTION COMPANY

3a. Address

PO BOX 3092 HOUSTON, TX 77253

3b. Phone No. (include area code)

281-366-4081

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

1645' FSL & 860' FEL; SEC 23 T32N R11W NESE Mer NMP

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

TYPE OF SUBMISSION



Notice of Intent



Subsequent Report



Final Abandonment Notice

TYPE OF ACTION



Acidize

☐ Deepen



Production (Start/Resume)



Water shut-Off



Alter Casing

☐ Fracture Treat



Reclamation



Well Integrity



Casing Repair

☐ New Construction



Recomplete



Other



Change Plans

☐ Plug and Abandon



Water Disposal



Convert to Injection



Plug Back

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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.

The original directional drilling application was filed 11/16/04 and approved 12/22/04.

BP America respectfully requests BLM approval to move the bottom hole location from 760' FSL & 1640' FEL to a new directional location of: 725' FSL & 1800' FEL. The surface location remains the same.

Please see the attached C-102 and supporting documentation.

HOLD C102 FOR Directional Survey

14. I hereby certify that the foregoing is true and correct
Name (Printed/typed)

Cherry Hlava

Title Regulatory Analyst

Signature

Cherry Hlava

Date 06/14/2005

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Adrian Brumley

Title

Pet. Eng

Date

6/21/05

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.

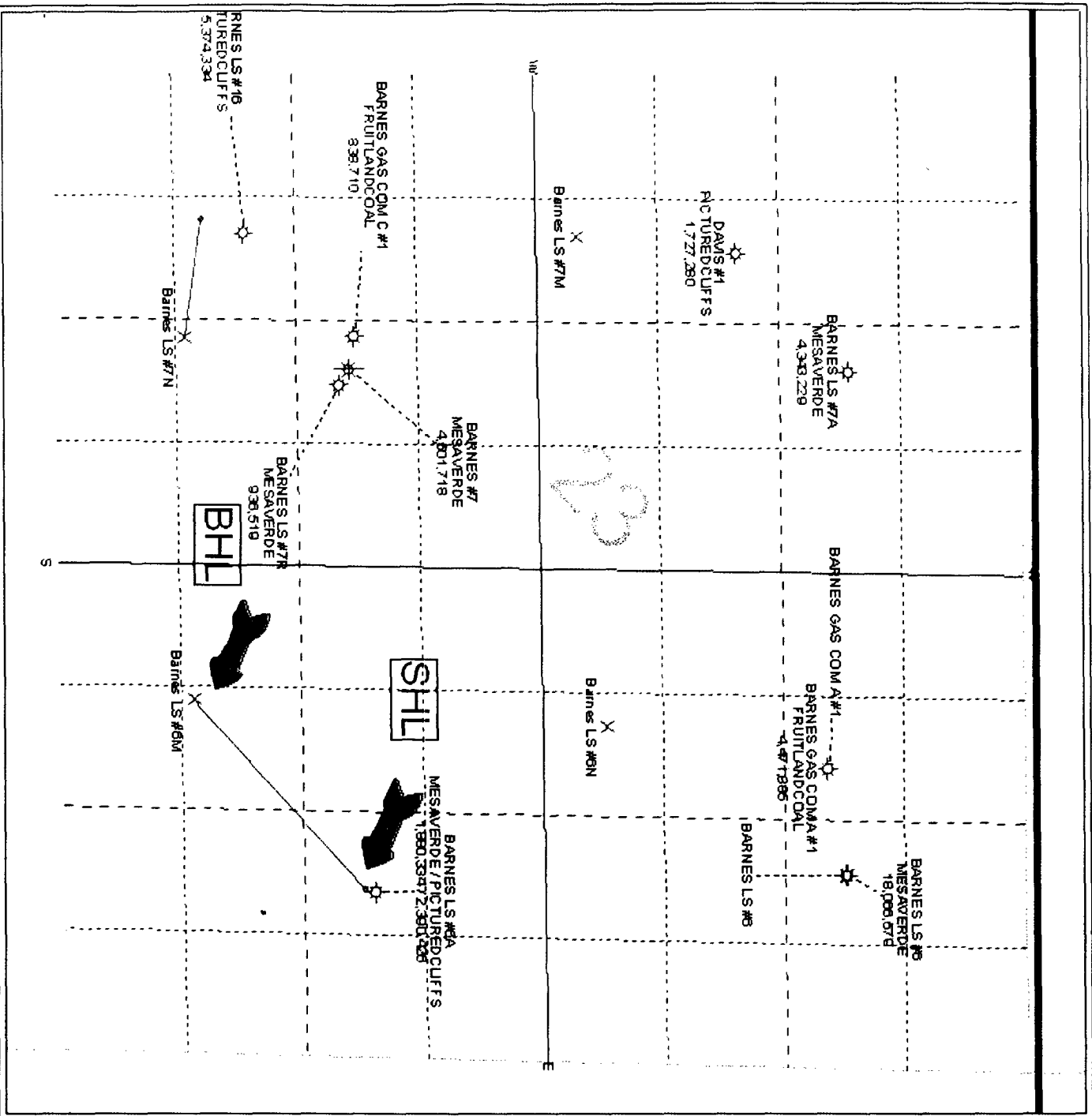
Office

PFO

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.

NMOCD

BP AMERICA PRODUCTION COMPANY											
DRILLING AND COMPLETION PROGRAM											
11/12/2004 (Revised 06/13/2005)											
Lease: Barnes LS		Well Name & No. Barnes LS #6M		Field: Blanco Mesaverde/Basin Dakota							
County: San Juan, New Mexico		Surface Location: 23-32N-11W: 1645' FSL, 860' FEL									
Minerals:		Surface: Lat: 36.9678433 deg; Long: -107.9528650 deg									
Rig: Aztec 184		BH Location: 23-32N-11W: 725' FSL, 1800' FEL; 36.9652690 deg; -107.9561538 deg									
OBJECTIVE:		Drill 240' below the top of the Two Wells Mbr, set 4-1/2" production casing, Stimulate DK, MF, and PL intervals.									
METHOD OF DRILLING				APPROXIMATE DEPTHS OF GEOLOGICAL MARKER							
TYPE OF TOOLS		DEPTH OF DRILLING		Actual GL: 6435		Estimated KB: 6,449.0'					
Rotary		0 - TD		Marker		SUBSEA		TVD			
								APPROX. MD			
LOG PROGRAM											
Type		Depth Interval									
Single Run				Ojo Alamo		5,071'		1,378'			
				Kirtland		5,017'		1,439'			
				Fruitland		3,912'		2,537'			
				Fruitland Coal		3,647'		2,802'			
				Pictured Cliffs		3,267'		3,182'			
				Lewis		3,076'		3,373'			
Cased Hole				Cliff House		1,752'		4,697'			
TDT- CBL		TD to 7" shoe		Menefee		1,354'		5,095'			
		Identify 4 1/2" cement top		Point Lookout		999'		5,450'			
REMARKS: - Please report any flares (magnitude & duration).				Mancos		645'		5,804'			
				Greenhorn		-1,061'		7,510'			
				Graneros (bent,mkr)		-1,114'		7,563'			
				Two Wells		# -1,185'		7,634'			
				Paguate		# -1,251'		7,700'			
				Cubero		# -1,284'		7,733'			
				L. Cubero		# -1,315'		7,764'			
				Encinal Cyn		# -1,345'		7,794'			
				TOTAL DEPTH:				-1,425'		7,874'	
										8,132'	
				# Probable completion interval				* Possible Pay			
SPECIAL TESTS				DRILL CUTTING SAMPLES		DRILLING TIME					
TYPE				FREQUENCY		Start depth to TD		FREQUENCY			
None				30'/10' intervals		3,722'		Geograph			
REMARKS:								DEPTH			
								0 - TD			
MUD PROGRAM:											
Interval	TypeMud	#/gal ~	Vis, sec/qt	/30 min	Other Specification						
200' 240'	Spud	8.8 - 9.0	Sufficient to clean hole.								
3,722'	Water/LSND	8.4 - 9.0		<9	Sweep hole while whilst water drilling, LCM onsite						
8,132'	Air	1	1000 cfm for hammer		Volume sufficient to maintain a stable and clean wellbore						
CASING PROGRAM:											
CasingString	Depth	Size	Casing Size	Grade, Thread	Weight	Landing Point	Cement				
Surface/Conductor	200' 240'	13 1/2"	9-5/8"	H-40 ST&C	32#		cmt to surface				
Intermediate 1	3,722'	8-3/4"	7"	J/K-55 ST&C	20#	100' below LWIS	cmt to surface				
Production	8,132'	6-1/4"	4-1/2"	J-55	11.6#	DKOT	150' inside Intermediate - TOC survey required				
CORING PROGRAM:											
None											
COMPLETION PROGRAM:											
Rigless, 2-3 Stage Limited Entry Hydraulic Frac, FMC Unihead											
GENERAL REMARKS:											
Notify BLM/NMOCD 24 hours prior to Spud, BOP testing, and Casing and Cementing.											
BOP Pressure Testing Requirements											
Formation	Depth	Anticipated bottom hole pressure				Max anticipated surface pressure**					
Cliffhouse	4,697'	500				0					
Point Lookout	5,450'	600				0					
Dakota	7,634'	2600				920.52					
Requested BOP Pressure Test Exception = 1500 psi				** Note: Determined using the following formula: ABHP - (.22*TVD) = ASP							
Form 46 Reviewed by:		Logging program reviewed by:									
PREPARED BY:		APPROVED:		DATE:		APPROVED:		DATE:			
HGJ	JMP			12/2004 (Revised 06/13/2005)							
Form 46 7-84bw		For Drilling Dept.				For Production Dept.					



BP America Production

Barnes LS #6M

23-32N-11W

SHL 1045 FNL x 860 FEL

BHL 725 FSL x 1800 FEL



POSTED WELL DATA

Well Label
PdQm: FNLWME
PdQm: CLMGAS

WELL SYMBOLS
X Fairway: new well location
* Gas Well
Abandoned GAS Well

By: GQZ

June 8, 2005

District I
PO Box 1980, Hobbs NM 88241-1980
District II
PO Drawer KK, Artesia, NM 87211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994

Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-045-32682		2 Pool Code 71599; 72319		3 Pool Name Basin Dakota & Blanco Mesaverde	
4 Property Code 000300		5 Property Name Barnes LS			6 Well Number # 6M
7 OGRID No. 000778		8 Operator Name BP AMERICA PRODUCTION COMPANY			9 Elevation 6435

10 Surface Location

UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	23	32 N	11 W		1645	SOUTH	860	EAST	SAN JUAN

11 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
O	23	32 N	11 W		725	SOUTH	1800	EAST	SAN JUAN

12 Dedicated Acres 320	13 Joint or Infill	14 Consolidation Code	15 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

16 Bottom Hole Location 725' F/SL 1800' F/EL Azimuth - 225°51' 1343' 860' 1645'	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. <i>Cherry Hlava</i> Signature Cherry Hlava Printed Name Regulatory Analyst Title 6-15-05 Date
	18 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. Revised BHL: June 15, 2005 September 28, 2004 Date of Survey Signature and Seal of Professional Surveyor GARY D. VANN 7016 Certificate Number

(R) - BLM Record

Cementing Program

30-045-32682

REVISION

Well Name: Barnes LS 6M	Field: Blanco Mesaverde / Basin Dakota
Location: 23-32N-11W, 1645 FSL, 860 FEL	API No.
County: San Juan	Well Flac
State: New Mexico	Formation: Blanco Mesaverde/Basin Dakota
	KB Elev (est) 6449
	GL Elev. (est) 6435

Casing Program:

Casing String	Est. Depth (ft.)	Hole Size (in.)	Casing Size (in.)	Thread	TOC (ft.)	Stage Tool Or TOL (ft.)	Cmt Cir. Out (bbl.)
Surface	200 240	13.5	9.625	ST&C	Surface	NA	
Intermediate	3722	8.75	7	ST&C	Surface	NA	
Production -	8132	6.25	4.5	ST&C	3622	NA	

Casing Properties:

(No Safety Factor Included)

Casing String	Size (in.)	Weight (lb/ft)	Grade	Burst (psi)	Collapse (psi)	Joint St. (1000 lbs.)	Capacity (bbl/ft.)	Drift (in.)
Surface	9.625	32	H-40	3370	1400	254	0.0787	8.845
Intermediate	7	20	K-55	3740	2270	234	0.0405	6.456
Production -	4.5	11.6	J-55	5350	4960	154	0.0155	3.875

Mud Program

Apx. Interval (ft.)	Mud Type	Mud Weight
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Recommended Mud Properties Prio Cementing:

PV <20
YP <10
Fluid Los: <15

0 - SCP	Water/Spud	8.6-9.2
SCP - ICP	Water/LSND	8.6-9.2
ICP - ICP2	Gas/Air Mist	NA
ICP2 - TD	LSND	8.6 - 9.2

Cementing Program:

	Surface	Intermediate	Production
Excess %, Lead	100	75	40
Excess %, Tail	NA	0	40
BHST (est deg. F)	75	120	183
Special Instructions	1,6,7	1,6,8	2,4,6

1. Do not wash pumps and lines.
2. Wash pumps and lines.
3. Reverse out
4. Run Blend Test on Cement
5. Record Rate, Pressure, and Density on 3.5" disk
6. Confirm densitometer with pressurized mud scales
7. 1" cement to surface if cement is not circulated.
8. If cement is not circulated to surface, run temp. survey 10-12 hr. after landing plug.

Notes:

*Do not wash up on top of plug. Wash lines before displacing production cement job to minimize drillout.

Surface:

Preflush	20 bbl.	Fresh Water	
Slurry 1	154 sx Class C Cement		195 cuft
TOC@Surface	+ 2% CaCl2 (accelerator)		
			0.4887 cuft/ft OH

Slurry Properties:

	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	15.2	1.27	5.8

Casing Equipment:

9-5/8", 8R, ST&C
1 Guide Shoe
1 Top Wooden Plug
1 Autofill insert float valve
Centralizers, 1 per joint except top joint
1 Stop Ring
1 Thread Lock Compound

Intermediate:

Fresh Water	20 bbl	fresh water
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Cementing Program

Lead Slurry 1 TOC@Surface		316 sx Class "G" Cement + 3% D79 extender + 1/4 #/sk. Cellophane Flake + 5 lb/sk Gilsonite	830 cuft
Tail Slurry 2		59 sx 50/50 Class "G"/Poz + 2% gel (extender) + 1/4 #/sk. Cellophane Flake + 2% CaCl2 (accelerator) + 5 lb/sk Gilsonite	75 cuft
	500 ft fill		0.1503 cuft/ft OH 0.1746 cuft/ft csg ann

Slurry Properties:	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	11.4	2.63	15.8
Slurry 2	13.5	1.27	5.72

Casing Equipment: 7", 8R, ST&C

- 1 Float Shoe (autofill with minimal LCM in mud)
- 1 Float Collar (autofill with minimal LCM in mud)
- 1 Stop Ring
- Centralizers one in middle of first joint, then every third collar
- 1 Top Rubber Plug
- 1 Thread Lock Compound

Production:

Fresh Water 10 bbl CW100

Lead Slurry 1 TOC, 400' above 7" shoe		199 LiteCrete D961 / D124 / D154 + 0.03 gps D47 antifoam + 0.5% D112 fluid loss + 0.11% D65 TIC	502 cuft
Tail Slurry 2		137 sx 50/50 Class "G"/Poz + 5% D20 gel (extender) + 0.1% D46 antifoam + 1/4 #/sk. Cellophane Flake + 0.25% D167 Fluid Loss + 5 lb/sk Gilsonite + 0.1% d800, retarder + 0.15% D65, dispersant	197 cuft
	1370 ft fill		0.1026 cuft/ft OH
Slurry Properties:	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	9.5	2.52	6.38
Slurry 2	13	1.44	6.5
			0.1169 cuft/ft csg ann
Casing Equipment:	4-1/2", 8R, ST&C		Top of Mancos 6262

- 1 Float Shoe (autofill with minimal LCM in mud)
- 1 Float Collar (autofill with minimal LCM in mud)
- 1 Stop Ring
- Centralizers, every 4th joint in mud drilled holes, none in air drilled holes.
- 1 Top Rubber Plug
- 1 Thread Lock Compound



30-045-32682

Scientific Drilling
 Directional Drilling Operations

 Field: SAN JUAN, New Mexico
 Site: SEC 23-T32N-11W
 Well: Barnes LS #6M
 Wellpath: OH
 Plan: Plan #2


bp

SECTION DETAILS

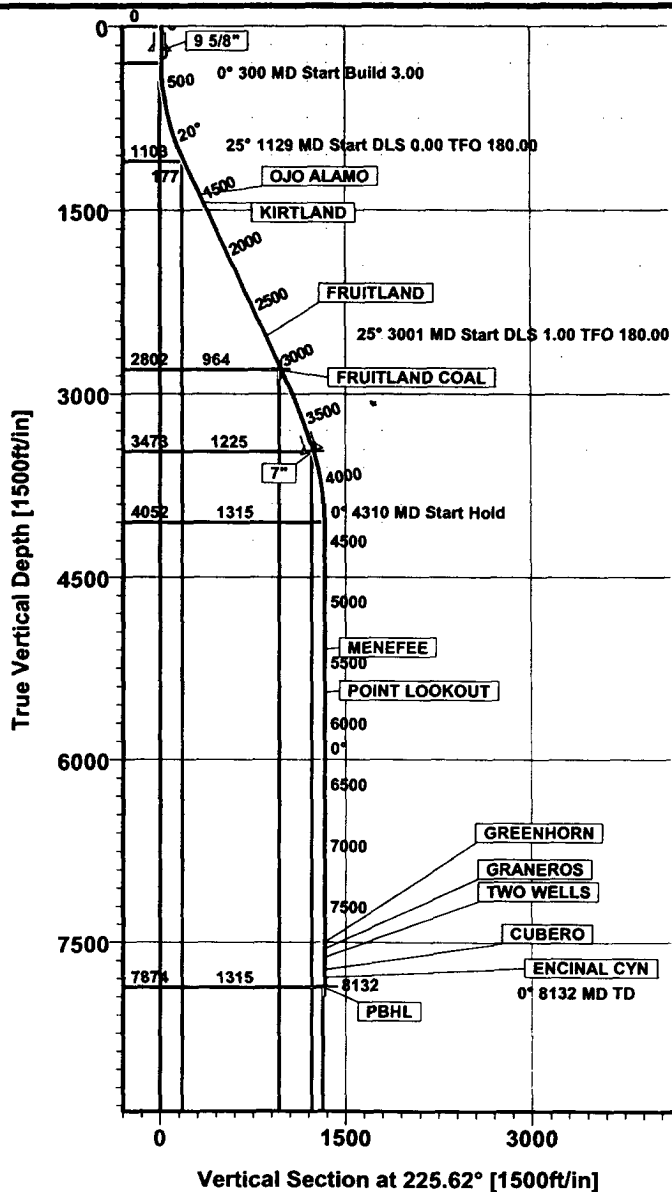
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1128.77	24.86	225.62	1103.00	-123.81	-126.51	3.00	225.62	177.01	
4	3001.30	24.86	225.62	2802.00	-674.43	-689.18	0.00	180.00	964.28	
5	3721.76	17.66	225.62	3473.00	-875.00	-875.75	1.00	180.00	1225.32	7" casing point
6	4310.28	0.00	0.00	4052.24	-919.92	-940.05	3.00	180.00	1315.28	
7	8132.03	0.00	0.00	7874.00	-919.92	-940.05	0.00	0.00	1315.28	PBHL

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Fruitland Coal	2802.00	-674.43	-689.10	2170977.536	2687489.082	Point
7" casing point	3473.00	-875.00	-875.70	2170776.983	2687302.497	Point
PBHL	7874.00	-920.00	-940.00	2170731.986	2687238.202	Circle (Radius: 100)

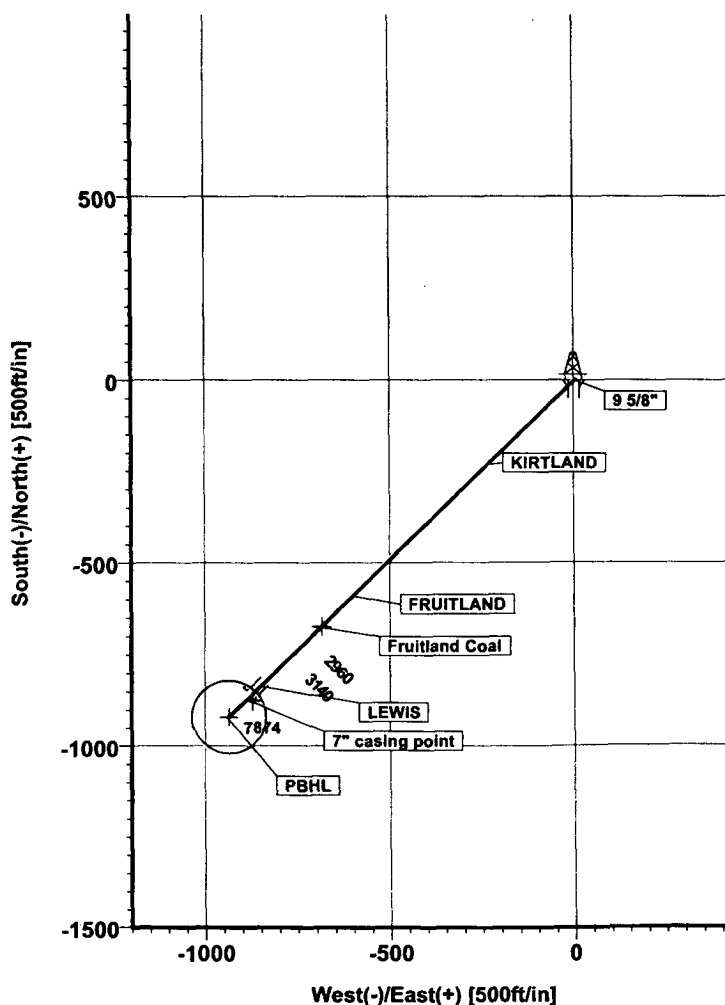
WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Barnes LS #6M	0.00	0.00	2171651.911	2688178.125	36°58'04.236N	107°57'10.314W	N/A



SITE DETAILS

 SEC 23-T32N-11W
 SAN JUAN NEW MEXICO

 Ground Level: 6435.00
 Positional Uncertainty: 0.00
 Convergence: -0.07




Scientific Drilling Planning Report



Company: BP Date: 6/8/2005 Time: 16:22:36 Page: 1
Field: SAN JUAN, New Mexico Co-ordinate(NE) Reference: Site: SEC 23-T32N-11W, Grid North
Site: SEC 23-T32N-11W Vertical (TVD) Reference: SITE 6449.0
Well: Barnes LS #6M Section (VS) Reference: Well (0.00N,0.00E,225.62Azi)
Wellpath: OH Plan: Plan #2

Field: SAN JUAN, New Mexico
SAN JUAN COUNTY, NEW MEXICO
USA
Map System: US State Plane Coordinate System 1983
Geo Datum: GRS 1980
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Western Zone
Coordinate System: Site Centre
Geomagnetic Model: igrf2005

Site: SEC 23-T32N-11W

SAN JUAN NEW MEXICO

Site Position: Northing: ft Latitude:
From: Lease Line Easting: ft Longitude:
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 6435.00 ft Grid Convergence: -0.07 deg

Well: Barnes LS #6M

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 2171651.911 ft Latitude: 36 58 4.236 N
+E/-W 0.00 ft Easting: 2688178.125 ft Longitude: 107 57 10.314 W
Position Uncertainty: 0.00 ft

Wellpath: OH

Current Datum: SITE Height 6449.00 ft Drilled From: Surface
Magnetic Data: 6/8/2005 Tie-on Depth: 0.00 ft
Field Strength: 51497 nT Above System Datum: Mean Sea Level
Vertical Section: Depth From (TVD) +N/-S +E/-W Declination: 10.73 deg
ft ft ft Mag Dip Angle: 63.76 deg
Direction
deg
0.00 0.00 0.00 225.62

Plan: Plan #2

Date Composed: 6/8/2005
Version: 11
Tied-to: From Surface

Principal: Yes

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1128.77	24.86	225.62	1103.00	-123.81	-126.51	3.00	3.00	0.00	225.62	
3001.30	24.86	225.62	2802.00	-674.43	-689.18	0.00	0.00	0.00	180.00	
3721.76	17.66	225.62	3473.00	-857.00	-875.75	1.00	-1.00	0.00	180.00	7" casing point
4310.28	0.00	0.00	4052.24	-919.92	-940.05	3.00	-3.00	22.83	180.00	
8132.03	0.00	0.00	7874.00	-919.92	-940.05	0.00	0.00	0.00	0.00	PBHL

Section 1 : Start Hold

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Section 2 : Start Build 3.00

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
400.00	3.00	225.62	399.95	-1.83	-1.87	2.62	3.00	3.00	0.00	0.00
500.00	6.00	225.62	499.63	-7.32	-7.48	10.46	3.00	3.00	0.00	0.00
600.00	9.00	225.62	598.77	-16.45	-16.81	23.51	3.00	3.00	0.00	0.00
700.00	12.00	225.62	697.08	-29.19	-29.83	41.74	3.00	3.00	0.00	0.00
800.00	15.00	225.62	794.31	-45.52	-46.51	65.08	3.00	3.00	0.00	0.00
900.00	18.00	225.62	890.18	-65.38	-66.81	93.48	3.00	3.00	0.00	0.00
1000.00	21.00	225.62	984.43	-88.72	-90.66	126.85	3.00	3.00	0.00	0.00
1100.00	24.00	225.62	1076.81	-115.48	-118.01	165.12	3.00	3.00	0.00	0.00

Scientific Drilling

Planning Report

Company: BP	Date: 6/8/2005	Time: 16:22:36	Page: 2
Field: SAN JUAN, New Mexico	Co-ordinate(NE) Reference: Site: SEC 23-T32N-11W, Grid North		
Site: SEC 23-T32N-11W	Vertical (TVD) Reference: SITE 6449.0		
Well: Barnes LS #6M	Section (VS) Reference: Well (0.00N,0.00E,225.62Azi)		
Wellpath: OH	Plan: Plan #2		

Section 2 : Start Build 3.00

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
1128.77	24.86	225.62	1103.00	-123.81	-126.51	177.01	3.00	3.00	0.00	0.00

Section 3 : Start DLS 0.00 TFO 180.00

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
1200.00	24.86	225.62	1167.63	-144.75	-147.92	206.96	0.00	0.00	0.00	-180.00
1300.00	24.86	225.62	1258.36	-174.16	-177.97	249.01	0.00	0.00	0.00	180.00
1400.00	24.86	225.62	1349.10	-203.57	-208.02	291.05	0.00	0.00	0.00	180.00
1431.86	24.86	225.62	1378.00	-212.93	-217.59	304.45	0.00	0.00	0.00	0.00
1499.09	24.86	225.62	1439.00	-232.70	-237.80	332.71	0.00	0.00	0.00	0.00
1500.00	24.86	225.62	1439.83	-232.97	-238.07	333.10	0.02	-0.02	0.00	180.00
1600.00	24.86	225.62	1530.56	-262.38	-268.12	375.14	0.00	0.00	0.00	180.00
1700.00	24.86	225.62	1621.29	-291.78	-298.17	417.18	0.00	0.00	0.00	180.00
1800.00	24.86	225.62	1712.02	-321.19	-328.22	459.23	0.00	0.00	0.00	-180.00
1900.00	24.86	225.62	1802.76	-350.60	-358.27	501.27	0.00	0.00	0.00	180.00
2000.00	24.86	225.62	1893.49	-380.00	-388.32	543.31	0.00	0.00	0.00	180.00
2100.00	24.86	225.62	1984.22	-409.41	-418.36	585.36	0.00	0.00	0.00	180.00
2200.00	24.86	225.62	2074.95	-438.81	-448.41	627.40	0.00	0.00	0.00	180.00
2300.00	24.86	225.62	2165.69	-468.22	-478.46	669.44	0.00	0.00	0.00	180.00
2400.00	24.86	225.62	2256.42	-497.62	-508.51	711.48	0.00	0.00	0.00	180.00
2500.00	24.86	225.62	2347.15	-527.03	-538.56	753.52	0.00	0.00	0.00	-180.00
2600.00	24.86	225.62	2437.89	-556.43	-568.60	795.57	0.00	0.00	0.00	180.00
2700.00	24.86	225.62	2528.62	-585.83	-598.65	837.61	0.00	0.00	0.00	180.00
2709.24	24.86	225.62	2537.00	-588.55	-601.43	841.49	0.00	0.00	0.00	0.00
2800.00	24.86	225.62	2619.35	-615.24	-628.70	879.65	0.00	0.00	0.00	180.00
2900.00	24.86	225.62	2710.09	-644.64	-658.75	921.69	0.00	0.00	0.00	180.00
3001.30	24.86	225.62	2802.00	-674.43	-689.18	964.28	0.00	0.00	0.00	180.00

Section 4 : Start DLS 1.00 TFO 180.00

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
3100.00	23.87	225.62	2891.91	-702.91	-718.29	1005.00	1.00	-1.00	0.00	180.00
3200.00	22.87	225.62	2983.70	-730.65	-746.64	1044.67	1.00	-1.00	0.00	180.00
3300.00	21.87	225.62	3076.17	-757.28	-773.85	1082.73	1.00	-1.00	0.00	180.00
3400.00	20.87	225.62	3169.29	-782.77	-799.89	1119.17	1.00	-1.00	0.00	180.00
3413.59	20.74	225.62	3182.00	-786.14	-803.34	1124.00	1.00	-1.00	0.00	180.00
3500.00	19.87	225.62	3263.04	-807.11	-824.77	1153.99	1.00	-1.00	0.00	180.00
3600.00	18.87	225.62	3357.37	-830.31	-848.48	1187.16	1.00	-1.00	0.00	180.00
3616.51	18.71	225.62	3373.00	-834.03	-852.28	1192.47	1.00	-1.00	0.00	180.00
3700.00	17.87	225.62	3452.27	-852.36	-871.01	1218.68	1.00	-1.00	0.00	180.00
3721.76	17.66	225.62	3473.00	-857.00	-875.75	1225.32	1.00	-1.00	0.00	180.00

Section 5 : Start DLS 3.00 TFO 180.00

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
3800.00	15.31	225.62	3548.02	-872.53	-891.62	1247.51	3.00	-3.00	0.00	180.00
3900.00	12.31	225.62	3645.12	-889.22	-908.67	1271.38	3.00	-3.00	0.00	180.00
4000.00	9.31	225.62	3743.33	-902.33	-922.08	1290.13	3.00	-3.00	0.00	180.00
4100.00	6.31	225.62	3842.39	-911.83	-931.78	1303.71	3.00	-3.00	0.00	180.00
4200.00	3.31	225.62	3942.03	-917.70	-937.77	1312.09	3.00	-3.00	0.00	180.00
4300.00	0.31	225.62	4041.97	-919.90	-940.03	1315.25	3.00	-3.00	0.00	180.00
4310.28	0.00	0.00	4052.24	-919.92	-940.05	1315.28	3.00	-3.00	1307.78	180.00

Section 6 : Start Hold

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
4400.00	0.00	0.00	4141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
4500.00	0.00	0.00	4241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
4600.00	0.00	0.00	4341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
4700.00	0.00	0.00	4441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00



Scientific Drilling Planning Report



Company: BP
Field: SAN JUAN, New Mexico
Site: SEC 23-T32N-11W
Well: Barnes LS #6M
Wellpath: OH

Date: 6/8/2005 Time: 16:22:36 Page: 3
Co-ordinate(NE) Reference: Site: SEC 23-T32N-11W, Grid North
Vertical (TVD) Reference: SITE 6449.0
Section (VS) Reference: Well (0.00N,0.00E,225.62Azi)
Plan: Plan #2

Section 6 : Start Hold

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg
4800.00	0.00	0.00	4541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
4900.00	0.00	0.00	4641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
4955.03	0.00	0.00	4697.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5000.00	0.00	0.00	4741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5100.00	0.00	0.00	4841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5200.00	0.00	0.00	4941.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5300.00	0.00	0.00	5041.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5353.03	0.00	0.00	5095.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5400.00	0.00	0.00	5141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5500.00	0.00	0.00	5241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5600.00	0.00	0.00	5341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5700.00	0.00	0.00	5441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5708.03	0.00	0.00	5450.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5800.00	0.00	0.00	5541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
5900.00	0.00	0.00	5641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6000.00	0.00	0.00	5741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6062.03	0.00	0.00	5804.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6100.00	0.00	0.00	5841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6200.00	0.00	0.00	5941.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6300.00	0.00	0.00	6041.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6400.00	0.00	0.00	6141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6500.00	0.00	0.00	6241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6600.00	0.00	0.00	6341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6700.00	0.00	0.00	6441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6800.00	0.00	0.00	6541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
6900.00	0.00	0.00	6641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7000.00	0.00	0.00	6741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7100.00	0.00	0.00	6841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7200.00	0.00	0.00	6941.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7300.00	0.00	0.00	7041.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7400.00	0.00	0.00	7141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7500.00	0.00	0.00	7241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7600.00	0.00	0.00	7341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7700.00	0.00	0.00	7441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7768.03	0.00	0.00	7510.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7800.00	0.00	0.00	7541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7821.03	0.00	0.00	7563.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7892.03	0.00	0.00	7634.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7900.00	0.00	0.00	7641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7958.03	0.00	0.00	7700.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
7991.03	0.00	0.00	7733.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
8000.00	0.00	0.00	7741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
8022.03	0.00	0.00	7764.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
8052.03	0.00	0.00	7794.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
8100.00	0.00	0.00	7841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00
8132.03	0.00	0.00	7874.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	0.00

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD ISCWSA
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	9 5/8"
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD ISCWSA
400.00	3.00	225.62	399.95	-1.83	-1.87	2.62	3.00	3.00	0.00	MWD ISCWSA
500.00	6.00	225.62	499.63	-7.32	-7.48	10.46	3.00	3.00	0.00	MWD ISCWSA
600.00	9.00	225.62	598.77	-16.45	-16.81	23.51	3.00	3.00	0.00	MWD ISCWSA
700.00	12.00	225.62	697.08	-29.19	-29.83	41.74	3.00	3.00	0.00	MWD ISCWSA
800.00	15.00	225.62	794.31	-45.52	-46.51	65.08	3.00	3.00	0.00	MWD ISCWSA
900.00	18.00	225.62	890.18	-65.38	-66.81	93.48	3.00	3.00	0.00	MWD ISCWSA
1000.00	21.00	225.62	984.43	-88.72	-90.66	126.85	3.00	3.00	0.00	MWD ISCWSA



30-045-32682

Scientific Drilling Planning Report



Company: BP
Field: SAN JUAN, New Mexico
Site: SEC 23-T32N-11W
Well: Barnes LS #6M
Wellpath: OH

Date: 6/8/2005
Co-ordinate(NE) Reference: Site: SEC 23-T32N-11W, Grid North
Vertical (TVD) Reference: SITE 6449.0
Section (VS) Reference: Well (0.00N,0.00E,225.62Azi)
Plan: Plan #2

Page: 4

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1100.00	24.00	225.62	1076.81	-115.48	-118.01	165.12	3.00	3.00	0.00	MWD ISCWSA
1128.77	24.86	225.62	1103.00	-123.81	-126.51	177.01	3.00	3.00	0.00	MWD ISCWSA
1200.00	24.86	225.62	1167.63	-144.75	-147.92	206.96	0.00	0.00	0.00	MWD ISCWSA
1300.00	24.86	225.62	1258.36	-174.16	-177.97	249.01	0.00	0.00	0.00	MWD ISCWSA
1400.00	24.86	225.62	1349.10	-203.57	-208.02	291.05	0.00	0.00	0.00	MWD ISCWSA
1431.86	24.86	225.62	1378.00	-212.93	-217.59	304.45	0.00	0.00	0.00	OJO ALAMO
1499.09	24.86	225.62	1439.00	-232.70	-237.80	332.71	0.00	0.00	0.00	KIRTLAND
1500.00	24.86	225.62	1439.83	-232.97	-238.07	333.10	0.02	-0.02	0.00	MWD ISCWSA
1600.00	24.86	225.62	1530.56	-262.38	-268.12	375.14	0.00	0.00	0.00	MWD ISCWSA
1700.00	24.86	225.62	1621.29	-291.78	-298.17	417.18	0.00	0.00	0.00	MWD ISCWSA
1800.00	24.86	225.62	1712.02	-321.19	-328.22	459.23	0.00	0.00	0.00	MWD ISCWSA
1900.00	24.86	225.62	1802.76	-350.60	-358.27	501.27	0.00	0.00	0.00	MWD ISCWSA
2000.00	24.86	225.62	1893.49	-380.00	-388.32	543.31	0.00	0.00	0.00	MWD ISCWSA
2100.00	24.86	225.62	1984.22	-409.41	-418.36	585.36	0.00	0.00	0.00	MWD ISCWSA
2200.00	24.86	225.62	2074.95	-438.81	-448.41	627.40	0.00	0.00	0.00	MWD ISCWSA
2300.00	24.86	225.62	2165.69	-468.22	-478.46	669.44	0.00	0.00	0.00	MWD ISCWSA
2400.00	24.86	225.62	2256.42	-497.62	-508.51	711.48	0.00	0.00	0.00	MWD ISCWSA
2500.00	24.86	225.62	2347.15	-527.03	-538.56	753.52	0.00	0.00	0.00	MWD ISCWSA
2600.00	24.86	225.62	2437.89	-556.43	-568.60	795.57	0.00	0.00	0.00	MWD ISCWSA
2700.00	24.86	225.62	2528.62	-585.83	-598.65	837.61	0.00	0.00	0.00	MWD ISCWSA
2709.24	24.86	225.62	2537.00	-588.55	-601.43	841.49	0.00	0.00	0.00	FRUITLAND
2800.00	24.86	225.62	2619.35	-615.24	-628.70	879.65	0.00	0.00	0.00	MWD ISCWSA
2900.00	24.86	225.62	2710.09	-644.64	-658.75	921.69	0.00	0.00	0.00	MWD ISCWSA
3001.30	24.86	225.62	2802.00	-674.43	-689.18	964.28	0.00	0.00	0.00	Fruitland Coal
3100.00	23.87	225.62	2891.91	-702.91	-718.29	1005.00	1.00	-1.00	0.00	MWD ISCWSA
3200.00	22.87	225.62	2983.70	-730.65	-746.64	1044.67	1.00	-1.00	0.00	MWD ISCWSA
3300.00	21.87	225.62	3076.17	-757.28	-773.85	1082.73	1.00	-1.00	0.00	MWD ISCWSA
3400.00	20.87	225.62	3169.29	-782.77	-799.89	1119.17	1.00	-1.00	0.00	MWD ISCWSA
3413.59	20.74	225.62	3182.00	-786.14	-803.34	1124.00	1.00	-1.00	0.00	PICTURED CLIFFS
3500.00	19.87	225.62	3263.04	-807.11	-824.77	1153.99	1.00	-1.00	0.00	MWD ISCWSA
3600.00	18.87	225.62	3357.37	-830.31	-848.48	1187.16	1.00	-1.00	0.00	MWD ISCWSA
3616.51	18.71	225.62	3373.00	-834.03	-852.28	1192.47	1.00	-1.00	0.00	LEWIS
3700.00	17.87	225.62	3452.27	-852.36	-871.01	1218.68	1.00	-1.00	0.00	MWD ISCWSA
3721.76	17.66	225.62	3473.00	-857.00	-875.75	1225.32	1.00	-1.00	0.00	7" casing point
3800.00	15.31	225.62	3548.02	-872.53	-891.62	1247.51	3.00	-3.00	0.00	MWD ISCWSA
3900.00	12.31	225.62	3645.12	-889.22	-908.67	1271.38	3.00	-3.00	0.00	MWD ISCWSA
4000.00	9.31	225.62	3743.33	-902.33	-922.08	1290.13	3.00	-3.00	0.00	MWD ISCWSA
4100.00	6.31	225.62	3842.39	-911.83	-931.78	1303.71	3.00	-3.00	0.00	MWD ISCWSA
4200.00	3.31	225.62	3942.03	-917.70	-937.77	1312.09	3.00	-3.00	0.00	MWD ISCWSA
4300.00	0.31	225.62	4041.97	-919.90	-940.03	1315.25	3.00	-3.00	0.00	MWD ISCWSA
4310.28	0.00	0.00	4052.24	-919.92	-940.05	1315.28	3.00	-3.00	1307.78	MWD ISCWSA
4400.00	0.00	0.00	4141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
4500.00	0.00	0.00	4241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
4600.00	0.00	0.00	4341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
4700.00	0.00	0.00	4441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
4800.00	0.00	0.00	4541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
4900.00	0.00	0.00	4641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
4955.03	0.00	0.00	4697.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	CLIFF HOUSE
5000.00	0.00	0.00	4741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5100.00	0.00	0.00	4841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5200.00	0.00	0.00	4941.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5300.00	0.00	0.00	5041.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5353.03	0.00	0.00	5095.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	MENEFFEE
5400.00	0.00	0.00	5141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA



Scientific Drilling Planning Report



Company: BP
Field: SAN JUAN, New Mexico
Site: SEC 23-T32N-11W
Well: Barnes LS #6M
Wellpath: OH

Date: 6/8/2005 Time: 16:22:36 Page: 5
Co-ordinate(NE) Reference: Site: SEC 23-T32N-11W, Grid North
Vertical (TVD) Reference: SITE 6449.0
Section (VS) Reference: Well (0.00N,0.00E,225.62Azi)
Plan: Plan #2

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
5500.00	0.00	0.00	5241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5600.00	0.00	0.00	5341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5700.00	0.00	0.00	5441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5708.03	0.00	0.00	5450.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	POINT LOOKOUT
5800.00	0.00	0.00	5541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
5900.00	0.00	0.00	5641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6000.00	0.00	0.00	5741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6062.03	0.00	0.00	5804.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	MANCOS
6100.00	0.00	0.00	5841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6200.00	0.00	0.00	5941.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6300.00	0.00	0.00	6041.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6400.00	0.00	0.00	6141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6500.00	0.00	0.00	6241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6600.00	0.00	0.00	6341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6700.00	0.00	0.00	6441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6800.00	0.00	0.00	6541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
6900.00	0.00	0.00	6641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7000.00	0.00	0.00	6741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7100.00	0.00	0.00	6841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7200.00	0.00	0.00	6941.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7300.00	0.00	0.00	7041.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7400.00	0.00	0.00	7141.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7500.00	0.00	0.00	7241.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7600.00	0.00	0.00	7341.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7700.00	0.00	0.00	7441.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7768.03	0.00	0.00	7510.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	GREENHORN
7800.00	0.00	0.00	7541.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7821.03	0.00	0.00	7563.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	GRANEROS
7892.03	0.00	0.00	7634.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	TWO WELLS
7900.00	0.00	0.00	7641.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
7958.03	0.00	0.00	7700.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	PAGUATE
7991.03	0.00	0.00	7733.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	CUBERO
8000.00	0.00	0.00	7741.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
8022.03	0.00	0.00	7764.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	L. CUBERO
8052.03	0.00	0.00	7794.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	ENCINAL CYN
8100.00	0.00	0.00	7841.97	-919.92	-940.05	1315.28	0.00	0.00	0.00	MWD ISCWSA
8132.03	0.00	0.00	7874.00	-919.92	-940.05	1315.28	0.00	0.00	0.00	PBHL

Targets

Name	Description Dip. Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec
Fruitland Coal		2802.00	-674.43	-689.10	2170977.5382687	489.082	36 57 57.559 N	107 57 18.795 W
-Plan hit target								
7" casing point		3473.00	-875.00	-875.70	2170776.9832687	302.497	36 57 55.573 N	107 57 21.091 W
-Plan out by 18.00 at		3473.00	-857.00	-875.75	2170794.972687	302.442	36 57 55.751 N	107 57 21.092 W
PBHL		7874.00	-920.00	-940.00	2170731.9882687	238.202	36 57 55.128 N	107 57 21.882 W
-Circle (Radius: 100)								
-Plan hit target								



Scientific Drilling
Directional Drilling Operations

30-045-32682

Scientific Drilling Planning Report



Company: BP	Date: 6/8/2005	Time: 16:22:36	Page: 6
Field: SAN JUAN, New Mexico	Co-ordinate(NE) Reference: Site: SEC 23-T32N-11W, Grid North		
Site: SEC 23-T32N-11W	Vertical (TVD) Reference: SITE 6449.0		
Well: Barnes LS #6M	Section (VS) Reference: Well (0.00N,0.00E,225.62Azi)		
Wellpath: OH	Plan: Plan #2		

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
200.00	200.00	9.625	13.500	9 5/8"
3721.76	3473.00	7.000	8.750	7"

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
1431.86	1378.00	OJO ALAMO		0.00	0.00
1499.09	1439.00	KIRTLAND		0.00	0.00
2709.24	2537.00	FRUITLAND		0.00	0.00
3001.30	2802.00	FRUITLAND COAL		0.00	0.00
3413.59	3182.00	PICTURED CLIFFS		0.00	0.00
3616.51	3373.00	LEWIS		0.00	0.00
4955.03	4697.00	CLIFF HOUSE		0.00	0.00
5353.03	5095.00	MENEFEE		0.00	0.00
5708.03	5450.00	POINT LOOKOUT		0.00	0.00
6062.03	5804.00	MANCOS		0.00	0.00
7768.03	7510.00	GREENHORN		0.00	0.00
7821.03	7563.00	GRANEROS		0.00	0.00
7892.03	7634.00	TWO WELLS		0.00	0.00
7958.03	7700.00	PAGUATE		0.00	0.00
7991.03	7733.00	CUBERO		0.00	0.00
8022.03	7764.00	L. CUBERO		0.00	0.00
8052.03	7794.00	ENCINAL CYN		0.00	0.00