Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT - " for such proposals

5. Lease Designation and Serial No.
NM-012647

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
Riddle D LS 4A

2. Name of Operator
Amoco Production Company

Attention:
Patty Haefele

9. API Well No.
3004510604

3. Address and Telephone No.
P.O. Box 800, Denver, Colorado 80201

(303) 830-4988

10. Field and Pool, or Exploratory Area
Blanco Mesaverde

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1100' FNL 810' FWL Sec. 22 T 31N R 9W Unit D

11. County or Parish, State
San Juan New Mexico

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

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☐ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Other Directional drill	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Amoco Production Company requests permission to directionally drill the subject well per the attached procedure.

(Directional drill application submitted to NMOCD July 7, 1995)

RECEIVED
AUG - 8 1995
OIL CON. DIV.
DIST. 3

RECEIVED
95 JUL 25 PM 12:43
070 FARMINGTON NM

14. I hereby certify that the foregoing is true and correct
Signed Patty Haefele Title Staff Assistant Date 7-24-95

APPROVED

(This space for Federal or State office use)

Approved by _____ Title _____ Date JUL 28 1995
Conditions of approval, if any:

Chip Harradon
for DISTRICT MANAGER

Title 18 U.S.C. Section 1001, makes 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

* See Instructions on Reverse Side

Procedures for Riddle D LS 4

1. Run gyro, change wellhead
2. Plug back per BLM specs
3. Whipstock at 3250' with 6-1/8" bit
4. Drill vertical to 4285+/- with air/mist.
5. Kick off, build to 45 deg at 5 deg /100 ft.
6. Core when fracture intercepted.
7. Core +/- 120' as directed.
8. Rotate ahead to +/- 5800' MD, 5475' TVD.
9. Run 4.5" casing with ECP's as necessary.
10. Cement, using ECP's to protect fracture.
11. Perf and stimulate as required.
12. Put on production/install pump (if necessary).

Riddle D LS 4A
Orig. Comp. 12/77
TD= 5716', PBTD = 5699'
Page 2 of 2

1. Move in and rig up Aztec Well Service Rig #124 complete with two double-gate ram preventers, dual 6 inch blooie lines, air package and associated safety equipment.
2. Nipple down tree, install casing spool to allow hanging a full string of 4.500" casing and nipple up blowout prevention equipment. Test to 250 and 2,000 psi.
3. Pull and lay down the 2.375" tubing. Pick up cement retainer on 3.500" drill pipe and set at 3,300'. Mix and pump 200sx of 50:50 Pozmix containing 1/2 lb per sack of flocele and 10 lb. per sack of gilsonite. If no pressure obtained on pump in, clear retainer and drill pipe. WOC 6 hours. Test cement to 500 psi. If lower zones do not test, mix and pump an additional 100 sacks of the same mix. After obtaining a successful plug back, test 7.000" casing to 500 psi. If the 7.000" casing leaks, POH and pick up an RTTS packer. Isolate leak and squeeze with 100 sacks of the same cement. WOC for 6-10 hours, drill out and pressure test to 500 psi. While WOC, pick up the non-magnetic and standard 4.750" drill collars and 25 joints of 3.500" weight pipe.
4. Run gyroscopic survey and set oriented (90 degrees azimuth) whipstock at 3,250'. Cut window with air/mist in 7.000" casing from 3,235 to 3,250'. Dress out window to 6.250" , pick up 6.250" Reed EHP 51-A bit and air/mist drill to 4,285' holding angle to =/- 5 degrees with an azimuth of 75 to 105 degrees with the bottom hole assembly. Run single shot surveys while drilling and at 4,285' run a multishot to confirm bottom hole location. If the direction and angle can not be maintained, pick up a 4.750" Baker A/D motor and proceed to kick-off point.
5. Pick up a 6.125" Smith F 57 DDP bit and the necessary angle building assembly with a Baker A/D motor. Build angle at 5 degrees per 100' to 45 degrees, holding a +/-90 degree azimuth. Attempt to single shot this build if possible; picking up Geo Services EMD equipment if necessary. At 45 degrees and 4,985' MD, the bottom hole location should be approximately 4,895 'TVD and 336' East of the surface location.
6. Utilizing a packed bottom hole assembly, rotate ahead, maintaining the 45 degree angle and the 90 degree azimuth as closely as possible. Use motor if it is apparent that the increased penetration rates are economically viable or if corrections if necessary. Continue using the diamond enhanced Smith bits for maximum bit life and minimum bit trouble.
7. At the first indication of fractures; bit torquing, sudden gas increases, etc., pick up a Baker 30' core barrel and rental core head. Core ahead for +/-100' or until it becomes obvious no further fractures will be encountered.
8. Maintaining the +/-45 degree angle and 90 degree azimuth, drill ahead through the Point Lookout member of the Mesaverde. At total depth, with a MD of 5,885', the bottom hole location should be approximately 972' East of the surface location with a TVD of 5,532'.
9. Log well if required. Lay down the 3.500" drill string and run 4.500", 11.6#/ft, N-80, 8 rd, LTC casing to total measured depth utilizing Applied Technology or CTC International's ECP's (external casing packers) to isolate any major fracture (s) encountered. Dependent on the fracture locations and placement of the ECP's, cementing the gross Mesaverde interval may not be required and can only be determined after reaching TD. In any event, the hole above the top packer will be cemented back into the 7.000" casing. The cement shall be 50:50 Pozmix containing 2% gel, 0.25 #/sx flocele, 0.4% Halad 344 mixed and pumped at 12.5 ppg.
10. Pick up a 3.750" bit on new or inspected 2.375", 4.7#/ft, fully normalized EUE tubing and clean out to total measured depth. Complete as required and land the 2.375" tubing at 5,750' with a mule shoe on bottom, one joint of tubing, a seating nipple and the remainder of the tubing. Run bottom hole pump and rods if necessary.

Riddle D LS 4A

Version: #1
Date: July 27, 1995
Budget: DRA/Recompletion
Work Type: PXA /Sidetrack

Objectives:

1. Plugback the existing non-productive MV perforations
2. Sidetrack to encounter MV natural fractures located east of the wellbore
3. Complete well and return to production

Pertinent Information:

Location:	1100'N x 810'W; Sec 22D T 31N R 9W	Horizon:	MV
County:	San Juan	API #:	3004522488
State:	New Mexico	Engr:	Kutas
Lease:	BLM NM 012647	Phone:	H--(303)840-3700
Well Flac:	979369		W-(303)830-5159
			P--(303)553-6334

Economic Information:

APC WI:	50%	MV Prod. Before Repair:	0 MCFD
Estimated Cost:	$603M	MV Anticipated Prod.:	1100MCFD
Payout:			
Max Cost -12 Mo. P.O.			
PV15:	$800M		
Max Cost PV15:			

Note: **Economics will be run on all projects that have a payout exceeding ONE year.**

Formation Tops: (Estimated formation (log) tops)

Nacimento:		Menefee:	4959-5290'
Ojo Alamo:		Point Lookout:	5290-5453'
Kirtland Shale:		Mancos Shale:	5453'-TD
Fruitland:		Gallup:	
Pictured Cliffs:		Graneros:	
Lewis Shale:		Dakota:	
Cliff House:	4595-4959'	Morrison:	

Bradenhead Test Information:

Test Date: **Tubing:** **Casing:** **BH:**

Time	BH	CSG	INT	CSG
5 min				
10 min				
15 min				

Comments:

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 18, 1995

RECEIVED
AUG 23 1995
OIL CON. DIV.
DIST. 3

Amoco Production Company
P. O. Box 800
Denver, Colorado 80201

Attention: J. W. Hawkins

Administrative Order DD-113

Dear Mr. Hawkins:

Reference is made to Amoco Production Company's application dated July 7, 1995 for authorization to recomplete its existing Riddle "D-LS" Well No. 4-A (**API No. 30-045-22488**) by side tracking off of the vertical wellbore and directionally drill to a pre-determined bottom-hole location in order to further develop the Blanco-Mesaverde Pool underlying its existing 320-acre standard gas spacing and proration unit ("GPU") comprising the N/2 of Section 22, Township 31 North, Range 9 West, NMPM, San Juan County, New Mexico.

The Division Director Finds That:

(1) The application has been duly filed under the provisions of Rule 111(D) and (E) of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10388, issued by the Oil Conservation Commission in Case 11,274 on June 13, 1995;

(2) The Riddle "D-LS" Well No. 4-A, located at a standard gas well location 1100 feet from the North line and 810 feet from the West line (Unit D) of said Section 22, was originally drilled and completed as a Blanco-Mesaverde infill well in 1977 to its Riddle "D-LS" Well No. 4 (**API No. 30-045-10604**), located at a standard gas well location 990 feet from the North and East lines (Unit A) of said Section 22 in the 320-acre GPU comprising the N/2 of said Section 22;

(3) By Order No. R-8170, as amended, the Division promulgated the "*General Rules For The Prorated Gas Pools of New Mexico/Special Rules and Regulations For The Blanco-Mesaverde Pool*", which includes provisions for 320-acre gas spacing and proration units and well location requirements whereby the initial well drilled on a GPU shall be located be no closer than 790 feet to the outer boundary of the

quarter section on which the well is located and not closer than 130 feet to any quarter-quarter section line or subdivision inner boundary and the infill well drilled on an existing GPU shall be in the quarter section not containing a Mesaverde gas well and shall be located with respect to the restrictions as previously described;

(4) The applicant/operator proposes to kick-off from vertical at a depth of approximately 4,085 feet in an easterly direction and drill in such a manner as to bottom back into the Blanco-Mesaverde Pool, with total horizontal displacement of said well to be approximately 900 feet;

(5) The applicable drilling window or "producing area" for said wellbore should include that area within the NW/4 of said Section 22 that is no closer than 790 feet to the quarter section line; and,

(6) It appearing the applicant has satisfied all of the appropriate requirements prescribed in said Rule 111.D and E, the subject application should be approved and the well should be governed by the provisions contained within this order and all other applicable provisions of Division General Rule 111.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Amoco Production Company, is hereby authorized to recomplete its existing Riddle "D-LS" Well No. 4-A (**API No. 30-045-22488**), located at a standard gas well location 1100 feet from the North line and 810 feet from the West line (Unit D) of said Section 22, Township 31 North, Range 9 West, NMPM, San Juan County, New Mexico, by side tracking off of the vertical wellbore at a depth of approximately 4,085 feet in an easterly direction and drill in such a manner as to bottom back in the Blanco-Mesaverde Pool, within the NW/4 of said Section 22 such that the bottomhole location is no closer than 790 feet to the quarter section line;

PROVIDED HOWEVER THAT prior to commencing directional drilling operations in said wellbore, the applicant shall establish the location of the kick-off point by means of a directional survey acceptable to the Division.

PROVIDED FURTHER THAT during or upon completion of directional drilling operations, the applicant shall conduct an accurate wellbore survey from the kick-off point to total depth in order that the subsurface bottomhole location, as well as the wellbore's true depth and course, may be determined.

(2) The applicant shall notify the supervisor of the Aztec district office of the Division of the date and time said wellbore surveys are to be conducted so that they may be witnessed. The applicant shall further provide a copy of said wellbore surveys to the Santa Fe and Aztec offices of the Division upon completion.

(3) This well shall remain in the existing 320-acre standard gas spacing and proration unit comprising the N/2 of said Section 22.

(4) The operator shall comply with all requirements and conditions set forth in Division General Rule 111.E(2) and any applicable requirements in 111.D and F and Order No. R-8170, as amended.

(5) Form C-105 shall be filed in accordance with Division Rule 1105 and the operator shall indicate thereon true vertical depth in addition to measured depths.

(6) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY
Director

S E A L

WJL/MES/kv

cc: Oil Conservation Division - Aztec
U. S. Bureau of Land Management - Farmington
File: Case 11,274