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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: NM-8405

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.: Canyon #19E

2. Name of Operator: Amoco Production Company Attn; Julie L. Acevedo

9. API Well No.: 3004529212

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

10. Field and Pool, or Exploratory Area: Basin Dakota

4. Location of Well (Footage, Sec., T., R., M., or Survey Description): 1840FSL & 1840FWL Sec. 2, T25N-R11W

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: Revise APD	☐ 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 your approval of the attached casing, cementing and BOP revisions for the application for permit to drill approved on 2/2/95.

RECEIVED
MAY 15 1995
OIL CON. DIV.
DIST. 3

14. I hereby certify that the foregoing is true and correct

Signed [signature] Title Sr. Staff Admin. Date 5/5/95

(This space for Federal or State office use)

Approved by _____ Title _____ Date APPROVED MAY 10 1995

Conditions of approval, if any:

sc

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

Instruction on Reverse Side

AMOCO PRODUCTION COMPANY

DRILLING and COMPLETION PROGRAM

Lease: Canyon
County: San Juan New Mexico
Former name:

Well No. #19E
Surface Location: 1840' FSL & 1840' FWL of Section 2, T25N, R11W
Field: GCU - Basin Dakota

OBJECTIVE: Develop Dakota Gas formation.

METHOD OF DRILLING
TYPE OF TOOLS: Rotary
DEPTH OF DRILLING: Ground Level - TD

LOGGING PROGRAM

TYPE	DEPTH
SP-GR-Cal-HRI-SDL-DSN-ML (Triple Combo)	Minimum run required

Logging Program Remarks:

APPROXIMATE DEPTHS OF GEOLOGICAL MARKER

Actual GL——Estimated KB: 6287 / 6300

Marker	Depth (ft.)	SS Elev. (ft.)
Ojo Alamo	220	6,080
Kirtland	370	5,930
Fruitland Coal	1,150	5,150
PC	1,300	5,000
Lewis Shale	1,500	4,800
Cliff House	2,800	3,500
Menefee Shale	2,840	3,460
Point Lookout	3,800	2,500
Mancos	4,070	2,230
Gallup	4,670	1,630
Greenhorn	5,732	568
Dakota **	5,824	476
TOTAL DEPTH	6,124	176

* Possible pay
**Probable completion
Ojo Alamo is possible usable water

SPECIAL TESTS

TYPE	DEPTH INTERVAL, ETC
None	

Remarks:

DRILL CUTTING SAMPLES

FREQUENCY	DEPTH

DRILLING TIME

FREQUENCY	DEPTH
Geolograph	Int - TD

Remarks:
Mud Logging Program: One man to pick TD or an automated unit.
Coring Program: None

MUD PROGRAM:

Approx. Interval	Type Mud	Weight, #/gal	Vis, sec/qt	W/L, cc's/30 min.
0 - 250'	Spud			
250' - 4070' (1)	Water	8.6 - 8.8	Sufficient to clean hole	N/C
4070' - TD (2) (3)	LSND	8.8 - 9.2	Sufficient to clean hole and run logs	As required

Mud Program Remarks:
1 - The hole will require sweeps to keep unloaded while fresh water drilling. Let hole conditions dictate frequency.
2 - Mud up at the top of the Mancos Shale.
3 - Sweep the hole as necessary.

CASING PROGRAM:

Casing String	Estimated Depth	Casing Size	Hole Size	Landing Point, Cement, Etc
Conductor				
Surface	250	7"	8.75"	1
Production	6,124	4-1/2"	6.25"	1, 2

Casing Program Remarks:
1 - Circulate cement to surface.
2 - Production cement to be designed by Denver drilling staff.

GENERAL REMARKS:

Business Unit Engineering staff to design completion program.

Form 46 Reviewed by:
Logging program reviewed by:

PREPARED BY:	APPROVED:	APPROVED:
P. Edwards/Logan/Ovitz		
Form 46 7-84bw	For Production Dept	For Exploration Dept
Date: 2/27/95	Rev. Date: 5/4/95 7:25	File: Canyon19e.xlw

Version No. 2
05/04/95
649A2.XLS

CEMENTING PROGRAM
Canyon #19E

blp

Well Name:	Canyon #19E	Field:	Basin Dakota
Location:	1840' FSL X 1840' FWL, Sec 02, T25N, R11W	API No.	30-045-29212
County:	San Juan	Well Flac	
State:	New Mexico	Formation:	Dakota
		KB Elev. (est.)	6300 ft.
		GL Elev. (est.)	6287 ft.

Casing Program:

Casing String	Est. Depth (ft.)	Hole Size (in.)	Casing Size (in.)	Casing Weight (lb/ft.)	Casing Grade	Thread	TOC (ft.)
Surface	250	8.75	7.000	23	J-55	8R, LT&C	Surface
Production	6,124	6.25	4.500	10.5	K-55	8R, ST&C	Surface

Casing Properties: (No Safety Factor Included)

Casing String	Casing Weight (lb/ft.)	Burst (psi.)	Collapse (psi.)	Joint St. (1000 lbs.)	Capacity (bbl/ft.)	Torque(ft. lbs.) Opt/Min/Max	Drift (in.)
Surface	23	4360	3270	313	0.0393		6.241
Production	10.5	4970	4010	146	0.0159		3.927

Mud Program:

Apx. Interval (ft.)	Mud Type	Mud Weight (lb/gal)
0 - SCP	Spud	8.6-8.8
SCP - TD	LSND	8.8-9.2

Recommended Mud Properties Prior Cementing:

PV	<20
YP	<10
Fluid Loss	<15

Cementing Program:

	Surface	Production(foam)
Excess %, Bit	75	60
Excess %, Caliper	NA	15
BHST (est. deg. F)	60	160
Pipe Movement	NA	Rotate 10-20 rpm
Rate, Max. (bpm)	1 truck	4
Rate, Recommended (bpm)	8	4
Pressure, Max. (psi)	200	2000
Shoe Joint	40'	80
Batch Mix	NA	NA
Circulating prior cmtng (hr.)	0.5	2
Time Between Stages,(hr.)	NA	NA
Special Instructions	1,6,7	2,4,6,8

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

Notes:

*** Displace top plug on the production casing job with 0.2% Clay Fix II or 2% KCl water.
*** Do not wash up on top of plug. Wash pumps and lines. We want to do rig less completions.

CEMENTING PROGRAM
Canyon #19E

Surface:

Preflush	20 bbl.	Fresh Water + dye marker	
Slurry 1 TOC@Surface	100 sk	Standard Cement + 2% CaCl2 + 1/4 lb/sk flocele	95 cu. ft.

Slurry Properties:	density (lb/gal)	yield (ft3/sk)	water (gal/sk)
slurry 1	15.60	1.18	5.20

Casing Equipment: (Halliburton) 7", 8R, ST&C

1 Type M Guide Shoe
1 Insert Float w Auto Fill
1 Weld A
3 S-4 Centralizer
1 Top Wooden Plug

CEMENTING PROGRAM
Canyon #19E

Production: (Foam Cement)

Preflush	20 bbl.	Mud Flush + dye marker + 150 scf/bbl nitrogen	
	40 bbl.	Fresh Water + 150 scf/bbl nitrogen	
Lead Cement Slurry 1		50/50 Std. Cmt/Poz A + Nitrogen + 2% gel (total) + 5 lb/sk gilsonite + 0.4% Halad-344 + 1/4 lb/sk flocele	588 cu. ft.
Tail Cement Slurry 2 TOC@5500		50/50 Std. Cmt/Poz A + 2% gel (total) + 5 lb/sk gilsonite + 0.4% Halad-344 + 1/4 lb/sk flocele	132 cu. ft.
Top Out Cement Slurry 3	50 sk	Standard Cement + 2% Calcium Chloride	59 cu. ft.

Slurry Properties:

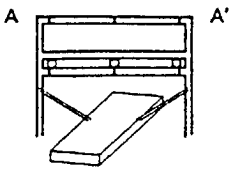
	surf. density (lb/gal)	foam density (lb/gal)	surf. yield (ft3/sk)	foam yield (ft3/sk)	water (gal/sk)	nitrogen rate (scf/bbl)	depth of fill (ft)
slurry 1	13.50	10.00	1.32	1.82	5.59	150	500 - 2500
slurry 1	13.50	10.00	1.32	1.78	5.59	300	2500 - 4000
slurry 1	13.50	10.00	1.32	1.77	5.59	430	4000 - 5500
slurry 2	13.50	NA	1.32	NA	5.59	NA	5500 - TD
slurry 3	15.60	NA	1.18	NA	5.20	NA	0 - 500

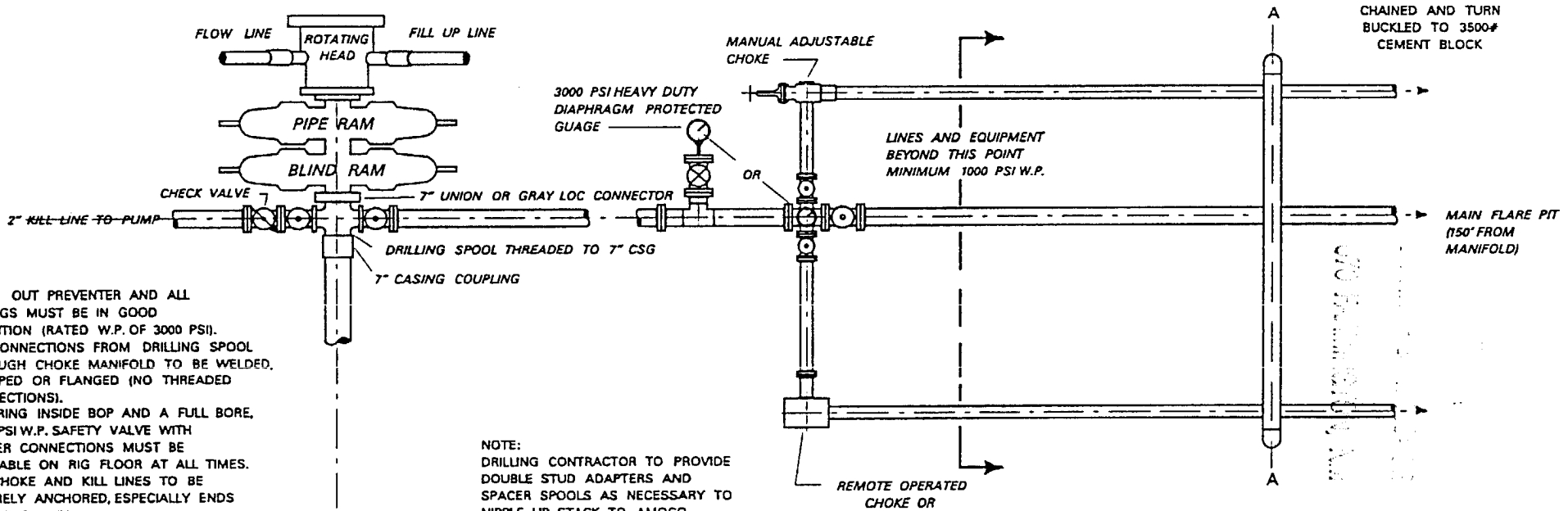
Note: The job should be pumped at 4 bpm max FOAM rate. Do not exceed 6 bpm on displacement. Slow to 2 bpm for the last 25 bbl of displacement. Displace with 2% KCl or 0.2% Clay Fix II water. This is to be a rigless completion.

Casing Equipment: Halliburton 4 1/2", 8R, ST&C, (no need to cut long pin)

1 Super Seal II Float Shoe
1 Super Seal II Float Collar
25 S-4 Fluidmaster Centralizer — 1st 10 centralizers. everyother joint, then one every 10 joints, 1 above and below the Ojo Alamo
1 Lock Clamp
1 Weld A
1 Top Rubber Plug

MINIMUM BLOW-OUT PREVENTER REQUIREMENTS
7 1/16" OR 11" (NOMINAL) 3,000 PSI W.P.
Typical Dakota /Mesaverde Air /Mud (SRBU)





NOTE:
1. BLOW OUT PREVENTER AND ALL FITTINGS MUST BE IN GOOD CONDITION (RATED W.P. OF 3000 PSI).
2. ALL CONNECTIONS FROM DRILLING SPOOL THROUGH CHOKE MANIFOLD TO BE WELDED, CLAMPED OR FLANGED (NO THREADED CONNECTIONS).
3. A STRING INSIDE BOP AND A FULL BORE, 3000 PSI W.P. SAFETY VALVE WITH PROPER CONNECTIONS MUST BE AVAILABLE ON RIG FLOOR AT ALL TIMES.
4. ALL CHOKE AND KILL LINES TO BE SECURELY ANCHORED, ESPECIALLY ENDS OF CHOKE LINES.
5. KILL LINE MUST BE CONNECTED AT ALL TIMES.
6. EQUIPMENT THROUGH WHICH BIT MUST PASS SHALL BE AS LARGE AS INSIDE DIAMETER OF THE CASING BEING DRILLED THROUGH.
7. MUST HAVE UPPER AND LOWER KELLY COCK ON KELLY.
8. BLOW-OUT PREVENTER CLOSING EQUIPMENT SHALL HAVE SUFFICIENT CAPACITY TO FULFILL REQUIREMENTS OF CURRENT FEDERAL REGISTER (43 CFR) DATED NOV. 1988.
9. NO COLLECTOR BOTTLES, SURGE TANKS OR BUFFER CHAMBERS DOWNSTREAM OF THE CHOKE MANIFOLD.
10. ALL TURNS TO BE MADE WITH TARGETED TEES (18-24" MIN.). NO BENDS OR SWEEPS IN LINE FROM BOP TO CHOKE MANIFOLD.
11. IF A FLEXIBLE HOSE IS TO BE USED AS A CHOKE LINE, IT MUST BE APPROVED BY AMOCO PRIOR TO RIGGING UP.
12. LOCK TO BE INSTALLED ON BLIND RAM CONTROL.

NOTE:
DRILLING CONTRACTOR TO PROVIDE DOUBLE STUD ADAPTERS AND SPACER SPOOLS AS NECESSARY TO NIPPLE UP STACK TO AMOCO WELLHEAD (BRADEN HEAD OR CASING SPOOL).

NOTE:
1. ALL UNMARKED VALVES TO BE FULL-OPENING GATE OR PLUG VALVES, METAL TO METAL SEAL, 3000 PSI W.P.

NOTE:
1. CHOKE ASSEMBLY VERTICAL FOR ILLUSTRATION ONLY. SHOULD BE HORIZONTAL ON RIG. ANCHOR ALL LINES SECURELY EVERY 30' AND WITHIN 5' OF END OF LINE.
2. DRILLING CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING ALL LINES AND VALVES.

Amoco Production Company
BOP Pressure Testing Requirements

Lease: Canyon
County: San Juan

Well No. #19E
State: New Mexico

Formation	TVD	Anticipated Bottom Hole Pressure	Maximum Anticipated Surface Pressure **
Ojo Alamo	381		
Kirtland			
Fruitland Coal			
PC	1300		
Lewis Shale	1500		
Cliff House *	2800	1200	584
Menefee Shale	2840		
Point Lookout *	3800	1700	864
Mancos	4070		
Gallup	4670		
Greenhorn	5732		
Dakota	5824	2500	1219

** Note: Determined using the following formula: ABHP - (.22*TVD) = ASP

Requested BOP Pressure Test Exception: 1250 psi

SAN JUAN BASIN
Dakota Formation
Pressure Control Equipment

Background

The objective Dakota formation maximum surface pressure is anticipated to be less than 1000 psi, based on shut-in surface pressures from adjacent wells. Pressure control equipment working pressure minimum requirements are therefore 2000 psi. Equipment to be used will conform to API RP-53 (Figure 2.C.2) for a 2000 psi system per Federal Onshore Order No. 2. Due to available conventional equipment within the area, 3000 psi rated pressure control equipment will typically be utilized in a double ram type arrangement. Regional drilling rigs to be utilized have substructure height limitations which exclude the use of annular preventers; therefore a rotating head will be installed above these rams. This pressure control equipment will be utilized for conventional drilling below surface to total depth in the Basin Dakota. No abnormal temperature, pressures, or H_2S anticipated.

Equipment Specification

Interval	BOP Equipment
Below surface casing to total depth	11" nominal or 7 1/16", 3000 psi double ram preventer with rotating head.

All ram type preventers and related control equipment will be hydraulically tested to 250 psi (low pressure) and 2000 psi (high pressure), upon installation, following any repairs or equipment replacements, or at 30 day intervals. Accessories to BOP equipment will include kelly cock, floor safety valves and choke manifold which will also be tested to equivalent pressure.