



02055241

FORM 4 Rev 12/05

Page 1

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



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SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

1. OGCC Operator Number: 69175
4. Contact Name: Jeff Glossa
2. Name of Operator: Petroleum Development Corporation
3. Address: 1775 Sherman Street, Suite 3000
5. API Number: 05-045-14360
6. Well/Facility Name: Puckett
7. Well/Facility Number: 34A-7D
8. Location: SWSE 7 7S 96W 6 PM
9. County: Garfield
10. Field Name: Grand Valley
11. Federal, Indian or State Lease Number:
Survey Plat
Directional Survey
Surface Eqpm Diagram
Technical Info Page
Other

General Notice

CHANGE OF LOCATION: Attach New Survey Plat
CHANGE SPACING UNIT
CHANGE OF OPERATOR (prior to drilling):
CHANGE WELL NAME
ABANDONED LOCATION:
NOTICE OF CONTINUED SHUT IN STATUS
SPUD DATE:
REQUEST FOR CONFIDENTIAL STATUS
SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK
RECLAMATION:

Technical Engineering/Environmental Notice

Notice of Intent
Report of Work Done
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)
Intent to Recomplete (submit form 2)
Request to Vent or Flare
E&P Waste Disposal
Change Drilling Plans
Repair Well
Beneficial Reuse of E&P Waste
Gross Interval Changed?
Rule 502 variance requested
Status Update/Change of Remediation Plans
Casing/Cementing Program Change
Other: NOAV Response for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Jeff Glossa Date: 9/8/2011 Email: jglossa@petd.com
Print Name: Jeff Glossa Title: Sr. Engineering Tech

COGCC Approved: David Anderson Title: PE II Date: 9/8/2011
CONDITIONS OF APPROVAL IF ANY.

TECHNICAL INFORMATION PAGE



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- 1. OGCC Operator Number: 69175 API Number: 05-045-14360
- 2. Name of Operator: Petroleum Development Corporation OGCC Facility ID # \_\_\_\_\_
- 3. Well/Facility Name: Puckett Well/Facility Number: 3A-7D
- 4. Location (QtrQtr, Sec, Twp, Rng, Meridian): SWSE 7 7S 96W 6 PM

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. **DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

Petroleum Development Corporation ("PDC") submitted a surface casing cement report to COGCC Staff on 7/5/2011 for the PDC Puckett 34A-7D well which is located on the in the SWSE Section 7, Township 7 South, Range 96 West, 6th P.M. COGCC Staff reviewed cement characteristics presented in the this report and concluded that a gap of cement coverage was likely behind the surface casing. PDC staff analysis of the same surface cement report also suggest a gap in cement coverage covering an interval of 434' extending from the base of top-out cement, 63' below surface, to top of lead cement estimated to be 497' from surface. (Calculations and wellbore diagram attached)

The surface casing cement program for the Puckett 34A-7D was generally consistent with the surface casing cement program for other wells drilled on the Puckett lease. Sixteen inch surface hole was drilled to 2400', the hole swept using 9.3 ppg, 131 vis mud, then 9 5/8" casing set at a depth of 2,326 feet. PDC reported pumping lead cement consisting of 1317 sacks of (12.5 pounds per gallon, 1.97 cubic feet per sack yield) and tail cement consisting of 194 sacks (14.2 pounds per gallon, 1.47 cubic feet per sack yield). Cement was not circulated to surface and operations continued with a top-out cement job which is a common procedure for cementing surface casing in this area. The top-out cement volume for this well was 10 bbl, significantly less than other wells on this lease which, according to PDC, require 300 to 600 sacks of cement and this short-fall is attributed to the hole sloughing which created a bridge preventing complete cement coverage. PDC engineering staff believe further attempts to squeeze remedial cement in this situation would compromise the integrity of the surface casing.

Fluid migration in the annular void described for this cement job is not anticipated to occur. This assumption is based on drilling and mud records which indicate no significant mud volume changes, either increase or loss, while drilling this section. Not until a depth of 1143 was a lost circulation zone encountered and this was quickly healed by the addition to the mud of standard LCM material. A review of water wells within 1 mile adjacent to this well (Colorado Division of Water Resources data base) indicated no fresh water aquifers have been penetrated in equivalent stratigraphic section, and open-hole logs through this section in adjacent oil & gas wells were not found. Further, surface water and water monitoring wells sampled by PDC environmental group throughout this area of development has never shown evidence contamination from gas production operations.

The surface cement configuration that exists in the Puckett 34A-7D, while not in accordance with cement requirements of COGCC rule 317.h, does not violate the basic intent of the Oil and Gas Conservation Act because environmental protection is provided with cement at the bottom and top of the surface casing, fluid cross-flow is not expected in the annular void behind the surface casing, and the production casing has been cemented 226' feet above the surface casing shoe.

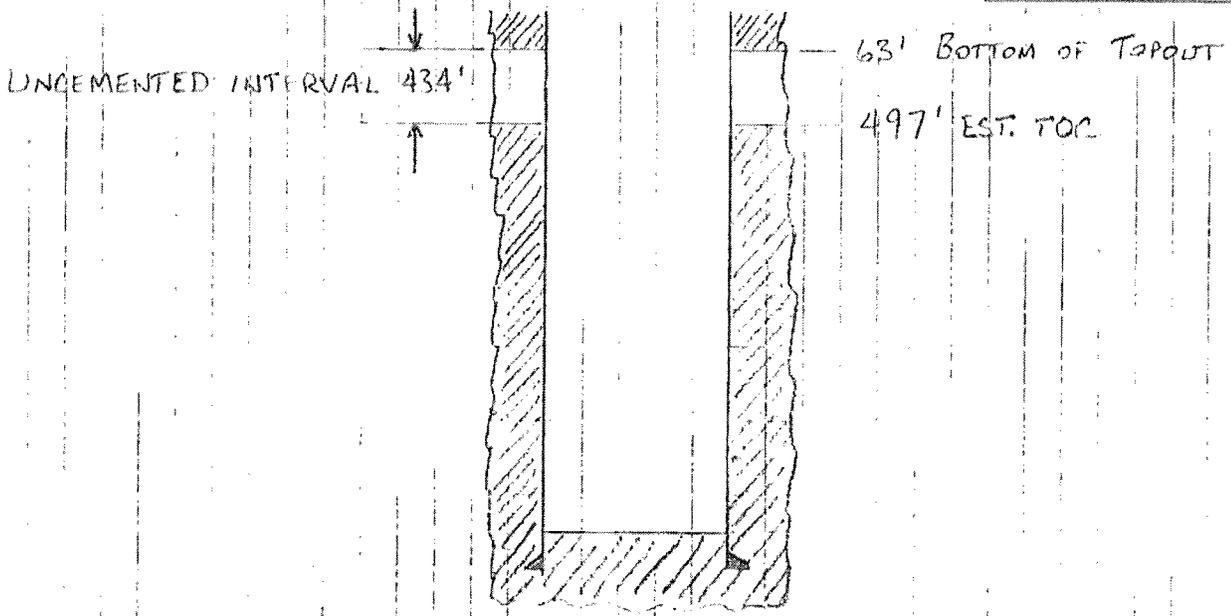
PDC procedures for drilling and completion operations and reporting those operations to COGCC have been discussed with the Piceance basin Asset Manager and field staff to prevent recurrence of this alleged violation and ensure PDC's compliance with COGCC policies, regulations and Conditions of Approval in future operations.

PDC Engineering calculations attached

LENGTH OF TAPOUT CEMENT:

$$\frac{10 \text{ BBL CEMENT}}{.1587 \text{ BBL/FT}} = 63.0 \text{ FT}$$

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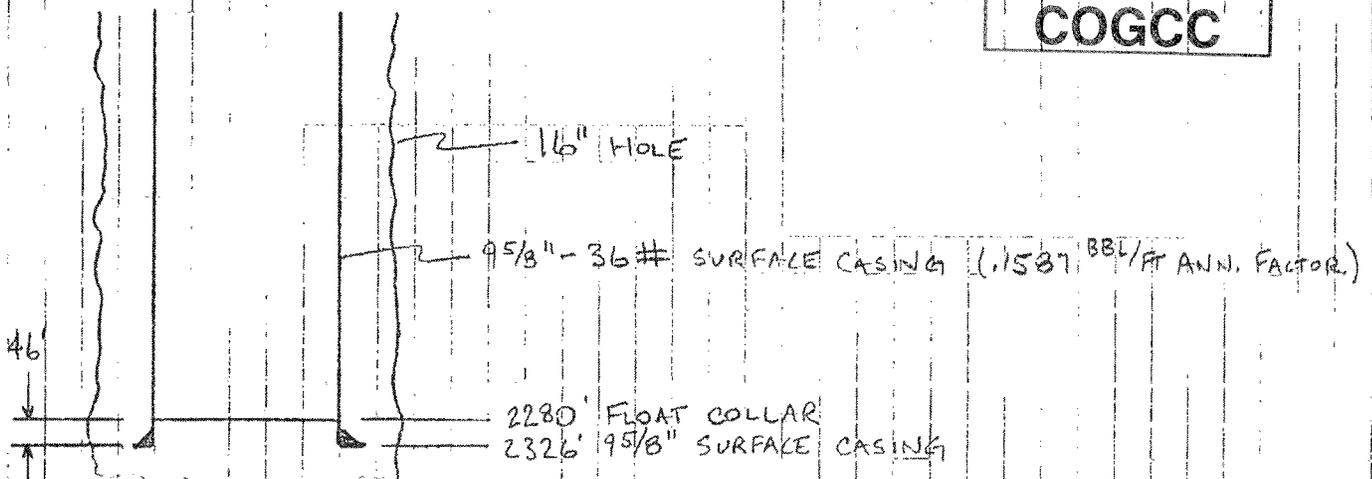


(NOT TO SCALE)

PUCKETT 34A-7D

PRESSURE TO LAND PLUG: 276 psi

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PRESSURE INSIDE CASING:  $2,280' \times 8.33 \times .05195 = 986.655 \text{ PSI}$   
 $46' \times 14.2 \times .05195 = 33.934 \text{ PSI}$   
 $\Sigma = 1,020.6 \text{ PSI}$

PRESSURE TO LAND PLUG =  $\Delta P = P_{\text{OUTSIDE}} - P_{\text{INSIDE}}$

$\Delta P + P_{\text{INSIDE}} = P_{\text{OUTSIDE}}$

$P_{\text{OUTSIDE}} = 276 \text{ PSI} + 1,021 = 1,297 \text{ PSI}$

HEIGHT OF FLUIDS OUTSIDE CASING:

ANNULAR FLUIDS	VOL (BBL)	DENSITY (lb/gal)	LENGTH (FT)	HYDRO PRESSURE
WATER SPACER	40	8.33	252	109

SOLVING FOR LENGTH OF CEMENT COLUMN...

HYDROSTATIC OF CEMENT =  $1,297 - 109 = 1,188 \text{ PSI}$

LENGTH =  $\frac{1,188 \text{ PSI}}{12.5 \times .05195} = 1,829 \text{ FT}$

ESTIMATED TOP OF CEMENT =  $2326' - 1,829 \text{ FT} = 497'$