

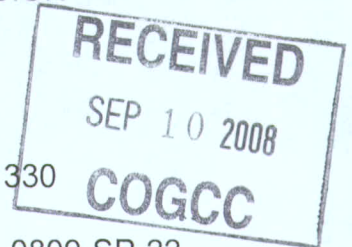


BEFORE THE OIL & GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO

IN THE MATTER OF THE APPLICATION OF )  
PETROLEUM DEVELOPMENT CORPORATION )  
FOR AN ORDER ESTABLISHING FIELD RULES )  
TO GOVERN OPERATIONS IN THE ARMEL )  
FIELD, YUMA COUNTY, COLORADO )

Cause No. 330

Docket No. 0809-SP-22



REQUEST FOR RECOMMENDATION OF  
APPROVAL OF APPLICATION WITHOUT A HEARING

Petroleum Development Corporation ("Applicant") by and through its undersigned attorneys, hereby requests pursuant to Rule 511b of the Rules and Regulations of the Colorado Oil and Gas Conservation Commission for the Director to recommend approval of the verified application and the supporting exhibits without a hearing.

Applicant requests that the captioned matter be so approved based upon the merits of the Application and exhibits to be submitted since it is a simple request to vacate Order No. 330-2 as to these lands and revert back to 318.b for wells less than 2,500 feet.

On or before close of business on September 9, 2008, Applicant will provide sworn written testimony verifying sufficient facts along with exhibits that adequately support the relief requested in the Application for a Commission order.

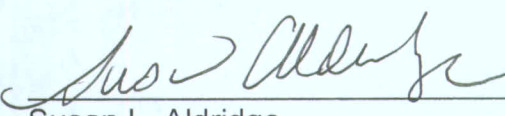
In the event that this request is denied, Applicant request that the administrative hearing for this matter occur at a convenient time prior to the Commission hearing on September 22 and 23, 2008.

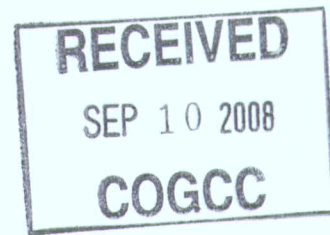
WHEREFORE, Applicants request that their request for a recommendation for approval of its Application without a hearing be granted.

DATED this 9<sup>th</sup> day of September, 2008.

Respectfully submitted,

PETROLEUM DEVELOPMENT CORPORATION

By:   
Susan L. Aldridge  
BEATTY & WOZNIAK, P.C.  
216 16<sup>th</sup> Street, Suite 1100  
Denver, CO 80202  
(303) 407-4499



**Petroleum Development Corporation**

**1775 Sherman Street, Suite 3000**

**Denver, Colorado 80203**

**303-860-5800 office**

**303-860-5838 fax**

**Spacing Hearing**

**Cause No. 330**

**Docket No. 0809-SP-22**

## **A. Tyson Johnston**

### **Land Testimony**

Colorado Oil and Gas Conservation Commission Hearing  
Cause No. 330  
Docket No. 0809-SP-22

Township 3 South, Range 42 West, 6<sup>th</sup> P.M., Yuma County, Colorado  
Sections 3, 4, 5, 8, 9, 10, 15, 16, 17, 21 and 22: ALL

My name is A. Tyson Johnston, and I am currently employed as a Landman for Petroleum Development Corporation ("PDC"). I have over 5 years of oil and gas experience in the Rocky Mountain Regions and I have previously testified before the Colorado Oil and Gas Conservation Commission.

In support of PDC's application, I am submitting three (3) exhibits. These exhibits are attached to my sworn testimony and outline the parameters for this application to vacate Cause 330-2 and revert back to Rule 318.b for wells less than 2,500 feet.

#### Exhibit No. L1 Spacing and Location Map

Exhibit No. L1 shows existing spacing rules for the Niobrara formation, drilling windows, setback rules for the affected lands, as well as all producing, permitted locations and proposed locations.

#### Exhibit No. L2 Mineral or Leasehold Ownership Map

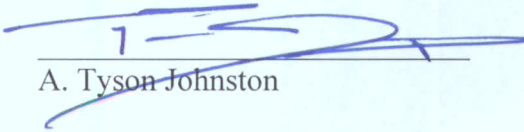
Exhibit No. L2 shows mineral or leasehold ownership on a topographic map.

#### Exhibit No. L3 Surface Ownership and Topographic Map

Exhibit No. L3 shows surface ownership.

The matters described herein were all conducted under my direction and control. To the best of my knowledge, all of the matters set forth herein, my testimony and exhibits, are true, correct and accurate.

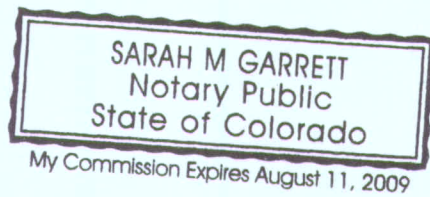
Dated this 8<sup>th</sup> day of September, 2008.

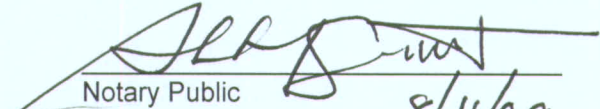
  
A. Tyson Johnston



BEFORE ME, the undersigned authority, on this day personally appeared A. Tyson Johnston, in his capacity as Landman for Petroleum Development Corporation, a corporation created under the laws of Nevada, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity stated, and as the act and deed of said corporation.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 8<sup>th</sup> day of September, 2008.



  
Notary Public  
My Commission expires: 8/11/09



**A. Tyson Johnston**  
3134 Deer Creek Dr.  
Highlands Ranch, CO 80129  
303-953-8223 (home)  
303-250-1885 (mobile)  
andretyson@yahoo.com

## **Professional Experience**

### **Petroleum Development Corporation Landman**

**2005 to Present**

Manage and oversee leasehold acreage for various exploration and development prospects; organize and coordinate exploration strategy for future development; manage and prioritize tasks for field personal; conduct field inspections; analyze and cure drilling and division order title opinions; assist in compliance with state, federal and COGCC rules and regulations; negotiate and draft oil and gas leases, joint operating agreements, JIB setups, surface contracts, facility contracts, pipeline right of ways and other various contracts; managed the construction and design of an \$18M road project.

### **LoneTree Energy and Associates Contract Landman**

**2003-2005**

Produced mineral and surface ownership reports, title chains and abstracts in various counties in North Dakota, Montana, Wyoming, Utah and Colorado; Analyzed and cured drilling and division order title opinions; Negotiated oil and gas leases for various projects throughout the U.S.; Conducted field inspections and executed surface use agreements.

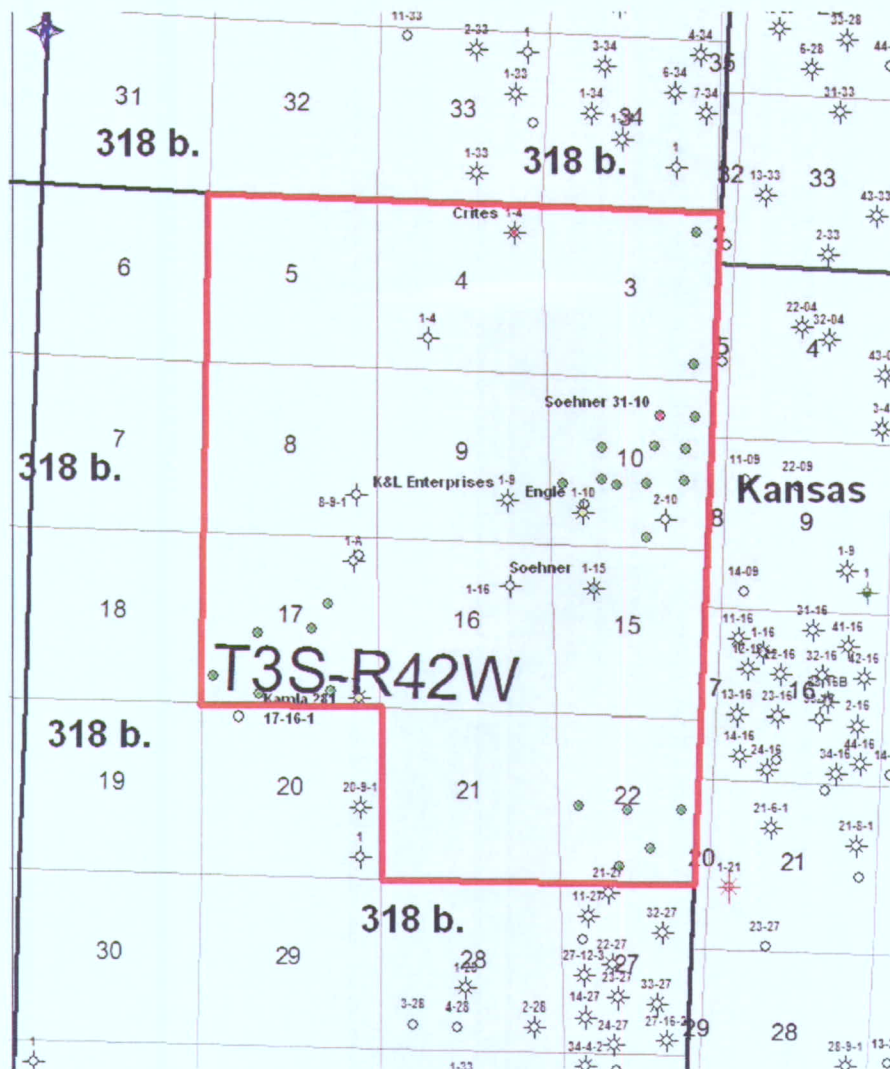
## **Education**

Numerous post-graduate seminars and extended education classed presented by various oil and gas industry companies, law firms and private organizations including: AAPL, DAPL, RMMLF, University of Tulsa CESE and Davis Graham and Stubbs, LLP. Topics included federal, state and fee oil and gas leasing; division order analysis; title analysis; royalty obligations; regulatory compliance; engineering; and geology.

B.S. Sociology from Arizona State University, Tempe, AZ

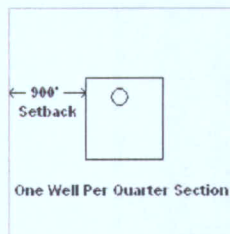
## **Affiliations**

- Member, American Association of Petroleum Landmen
- Member, Denver Association of Petroleum Landmen
- Western Slope COGA
- Garfield County EAB
- Eastern COGA

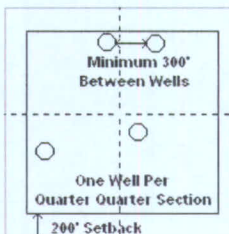


- PDC Permitted Well Locations
- PDC Proposed Well Locations
- ★ PDC Operated Wells
- ★ Rosewood Operated Wells
- ★ Tindall Operated Wells
- Existing Cause 330-2 Outline

Cause 330-2 Setbacks  
(Quarter Section Shown)



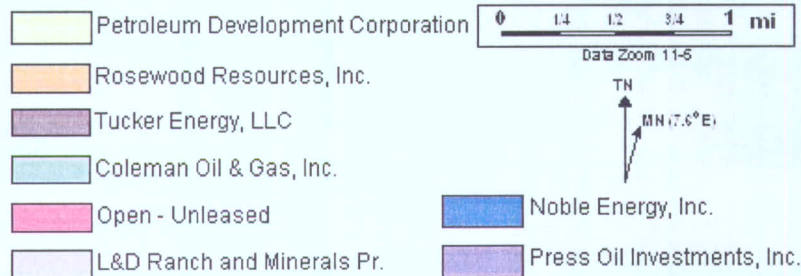
318 b. Setbacks  
(Quarter Section Shown)



Petroleum Development Corporation

EXHIBIT L1  
Spacing and Location Map  
Cause No. 330  
Docket No. 0809-SP-22  
Armel Field - Yuma County, Colorado  
Authored by Tyson Johnston, Landman  
Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT L2**

Leasehold or Mineral Ownership Map

Cause No. 330

Docket No. 0809-SP-22

Arnel Field - Yuma County, Colorado

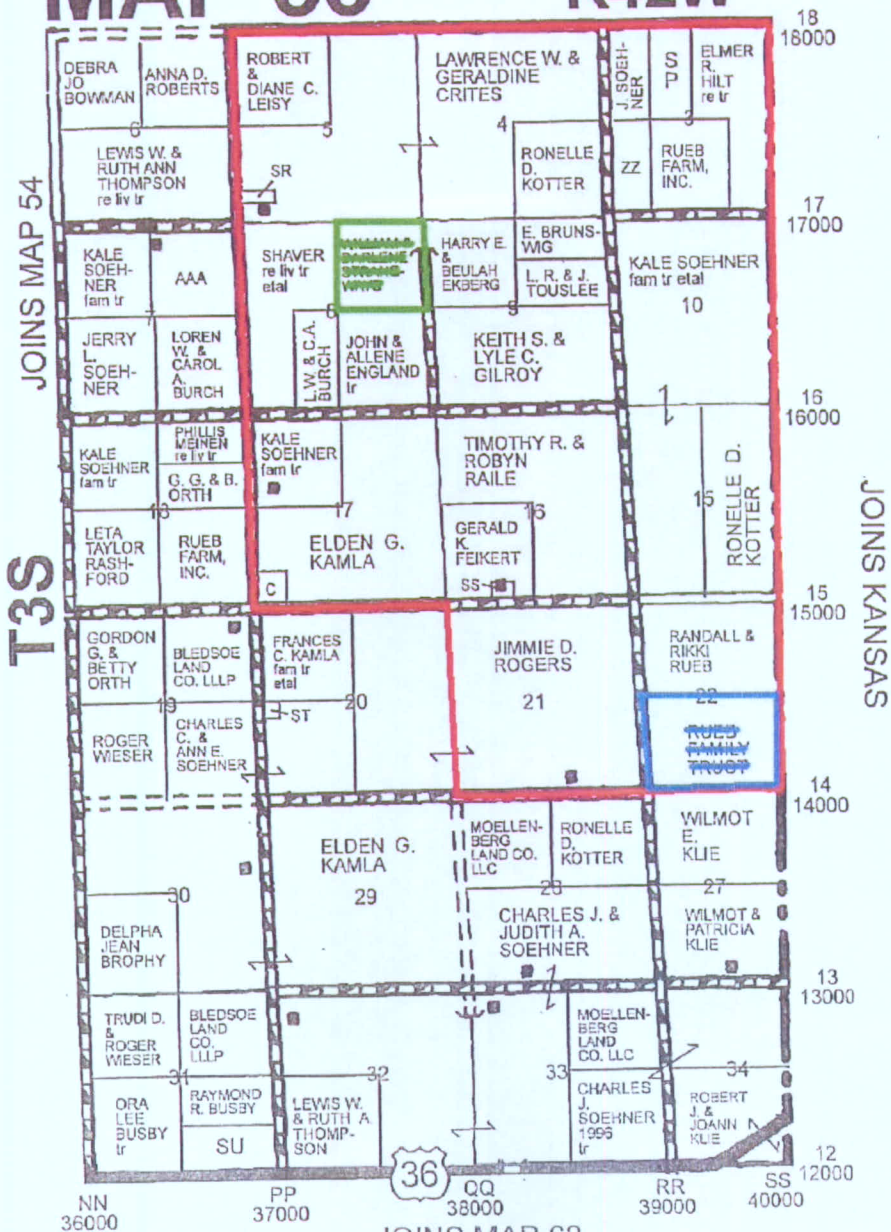
Authorized by Tyson Johnston, Landman

Dated this 8th day of September, 2008



# MAP 55

JOINS MAP 48  
R42W



- Existing Cause 330-2 Outline
- Roger Wieser and Trudi D. Wieser  
- current surface owner
- Steven Frederick Rueb and Janet Rueb Herbst -  
current surface owner
- SR - Kale Soehner fam tr etal
- ZZ - Ronelle D & Ken Kotter
- SR - Eric L & C Jones
- C - The East Yuma County Cemetary
- SS - Allen J Wodack



**Petroleum Development Corporation**

## EXHIBIT L3

Surface Ownership Map

Cause No. 330

Docket No. 0809-SP-22

Amel Field - Yuma County, Colorado

Authored by Tyson Johnston, Landman

Dated this 8th day of September, 2008

# **Jim Brothers**

## **Geoscience testimony**

Colorado Oil and Gas Conservation Commission Hearing  
Cause No. 330  
Docket No. 0809-SP-22

Township 3 South, Range 42 West, 6<sup>th</sup> P.M., Yuma County, Colorado  
Sections 3, 4, 5, 8, 9, 10, 15, 16, 17, 21 and 22: ALL

My name is Jim Brothers, and I am currently employed as Manager Geoscience for Petroleum Development Corporation ("PDC"). I have Bachelors (1976) and Masters (1984) of Science Degrees in Geology from Baylor University, Waco, Texas. I have over 30 years of oil and gas experience, primarily in the Rocky Mountain Region. In addition, I have lead PDC's Niobrara Gas Exploitation Team (Northeast Colorado) since the team's inception in 2006. I have not previously testified before the Colorado Oil and Gas Conservation Commission.

In support of PDC's application, I am submitting six (6) exhibits. These exhibits are attached to my sworn testimony and outline the parameters for this application to vacate Cause 330-2 and revert back to Rule 318.b for wells less than 2,500 feet in depth in the above-referenced Armel Field Area.

Exhibit No. G1:        Regional Setting Map

Exhibit No. G1 shows the Armel Area in relation to the regional setting of the Niobrara Formation shallow biogenic gas producing play, Yuma Co, Colorado and adjacent areas in Kansas and Nebraska.

Exhibit No. G2:        3D Seismic Structure Map

Exhibit No. G2 shows structural position of the top of the Beecher Island gas producing zone, the top approximately forty (40') feet of the Niobrara Formation. This structural interpretation is derived from the integration of 3D Seismic and well log data. It covers PDC oil and gas leases over which PDC has acquired 3D Seismic data. Colors indicate structural position of the top of the Beecher Island Gas Zone as follows:

Red to Brown	Structurally Highest position within a fault block
Orange to Yellow	Medium structural position within a fault block
Green	Lowest position within a fault block
Light to dark Grey	Down-faulted, structurally low areas

High structural position is critical to gas charge and productivity. Low structural position yield poor gas and high water charge, resulting in uneconomic production.



Exhibit No. G3:      Beecher Island Zone Gross Isopach Map

Exhibit No. G3 shows thickness of the gas producing Beecher Island Zone in the Armel Area. Note the relative consistency of 35 feet to 38 feet of Beecher Island, except in a thin area predominantly in the north half of Section Sixteen (16), where well log and seismic data indicates that the zone has been thinned or is absent due to faulting.

Exhibit No. G4:      Beecher Island Zone Type Log

Exhibit G4 shows a typical combined Gamma Ray, Dual Induction, Compensated Density Compensated Neutron open-hole well log over the gas producing Beecher Island Zone. This well is the PDC R & J Klie #22-27, SE NW Section 27 – T3S – R42W, Yuma County, Colorado, which has been producing gas since 6-11-2008. This log shows typical curve responses over the Beecher Island Gas Zone, including reduced Gamma Ray, increased Resistivity, greater Density Porosity, and reduced Neutron Porosity, the later in response to gas in the pore system.

Exhibit No. G5:      NE – SW Seismic Cross-Section

Exhibit No. G5 shows a northeast-to-southwest trending cross-section from PDC's 3D Seismic interpretation through part of Armel Area. Note the Beecher Island Gas Zone in yellow, with high-angle normal faults in blue and black. Producing gas traps are structurally high Beecher Island Zone Fault Blocks. Structurally low areas are non-gas charged and water wet. Note critical placement of producing gas wells and proposed drilling locations (vertical red lines) to ensure a structurally high, gas charged structural position, resulting in economic gas production.

Exhibit No. G6:      3D Seismic Structure Map, Section 17 Detail

Exhibit No. G6 shows the detailed structural interpretation, from 3D Seismic and well control, of the top of the Beecher Island Zone, Section 17 – T3S – R42W, Yuma Co, Colorado. This interpretation is also shown within the larger area covered by the Exhibit G2 map. Colors indicate structural position of the top of the Beecher Island Gas Zone as follows:

Red to Brown	Structurally Highest position within a fault block
Orange to Yellow	Medium structural position within a fault block
Green	Lowest position within a fault block
Light to dark Grey	Down-faulted, structurally low areas

Note critical placement of the producing gas well (SE SE Section 17) and proposed drilling locations (Drill Rig Symbols) on high structural positions based on the 3D Seismic structural interpretation.

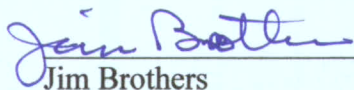


All six (6) Exhibits are intended to help illustrate:

- The definitive nature of the 3D Seismic interpretation for picking drilling locations in the Beecher Island Gas Zone productive area. PDC currently drills all of its wells in this gas play based on 3D Seismic structural interpretation.
- High Beecher Island zone structural position is critical to economic gas production.
- Reversion to Rule 318.b spacing for wells less than 2,500 feet in the above-referenced Armel Field Area will give the necessary flexibility to designate new well locations in an optimally high structural position, as defined by the 3D Seismic interpretation. Current spacing rules in the above referenced Armel Field area restrict placement of and number of wells.
- From its existing 3D Seismic interpretation, plus the accompanying Engineering Exhibits and Testimony supporting 40 Acre gas well spacing in the Armel Field area, PDC has identified a minimum of 24 new drilling well locations which can be drilled on structural highs based on Reversion to Rule 318.b spacing for wells less than 2,500 feet. Only nine (9) of these 24 locations can be drilled under current spacing regulations for the area.
- Reversion to Rule 318.b spacing for wells less than 2,500 feet will allow recovery of over 3 Billion Cubic Feet (BCF) of additional gas from the above referenced Armel Field area compared to drilling under existing spacing regulations. (Based on fifteen (15) additional wells and average gas recovery of 0.224 BCF gas per well from the accompanying Engineering Testimony.)

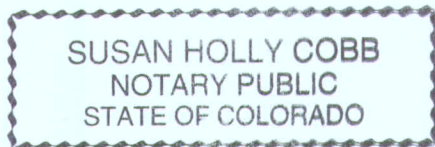
The matters described herein were all conducted under my direction and control. To the best of my knowledge, all of the matters set forth herein, my testimony and exhibits, are true, correct and accurate.

Dated this 8th day of September, 2008.

  
\_\_\_\_\_  
Jim Brothers

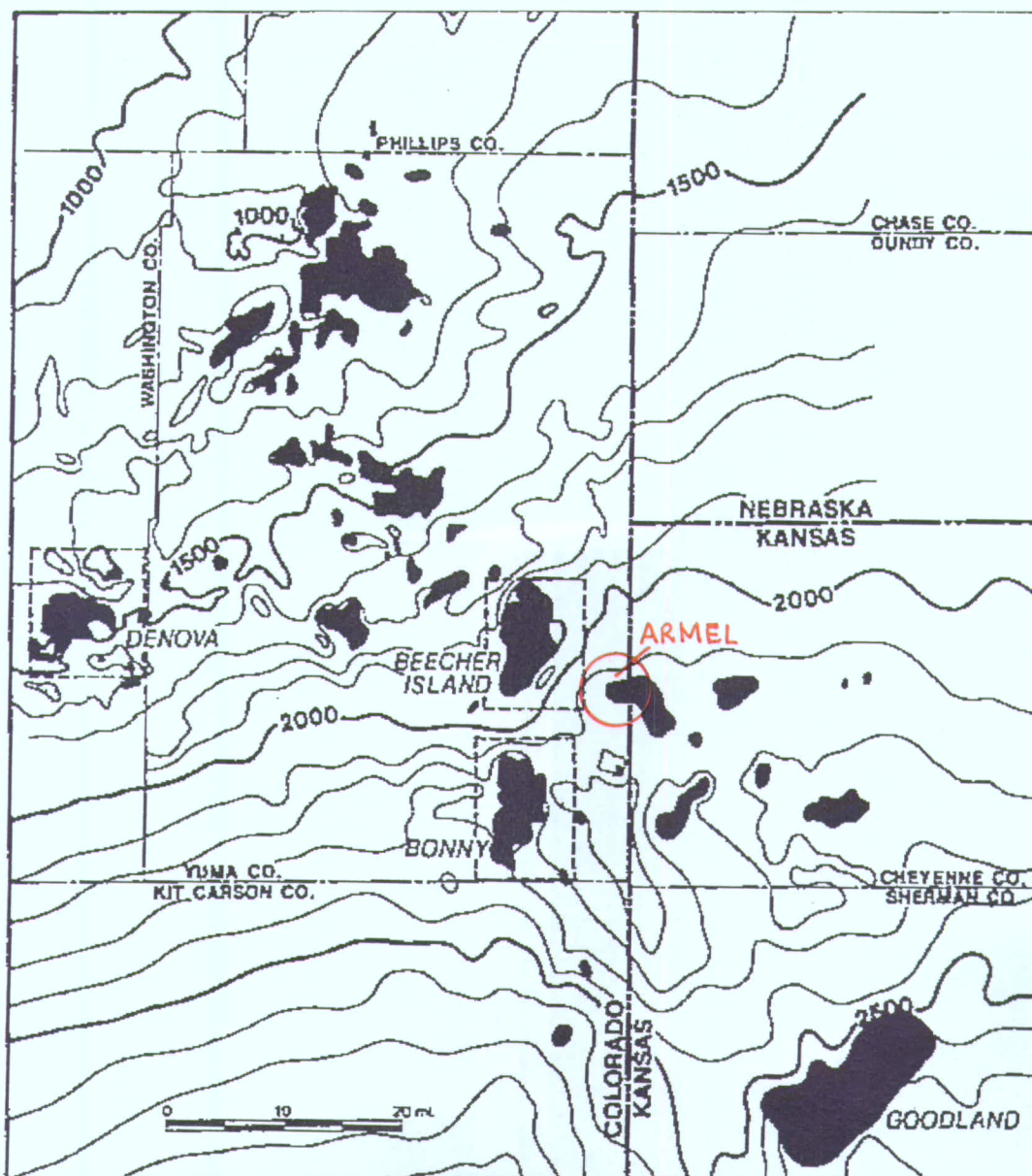
BEFORE ME, the undersigned authority, on this day personally appeared Jim Brothers, in his capacity as Manager Geoscience for Petroleum Development Corporation, a corporation created under the laws of Nevada, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity stated, and as the act and deed of said corporation.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 8<sup>th</sup> day of September, 2008.



My Commission Expires 10/04/2011

Susan Holly Cobb  
Notary Public  
My Commission expires: 10/04/2011



### **ARMEL AREA REGIONAL SETTING**

**East Flank of Denver Basin**

**Structure Contours Top of Niobrara Formation**

**CI = 1000'**



**Petroleum Development Corporation**

#### **EXHIBIT G 1**

Regional Setting Map

Cause No. 330

Docket No. 0809-SP-22

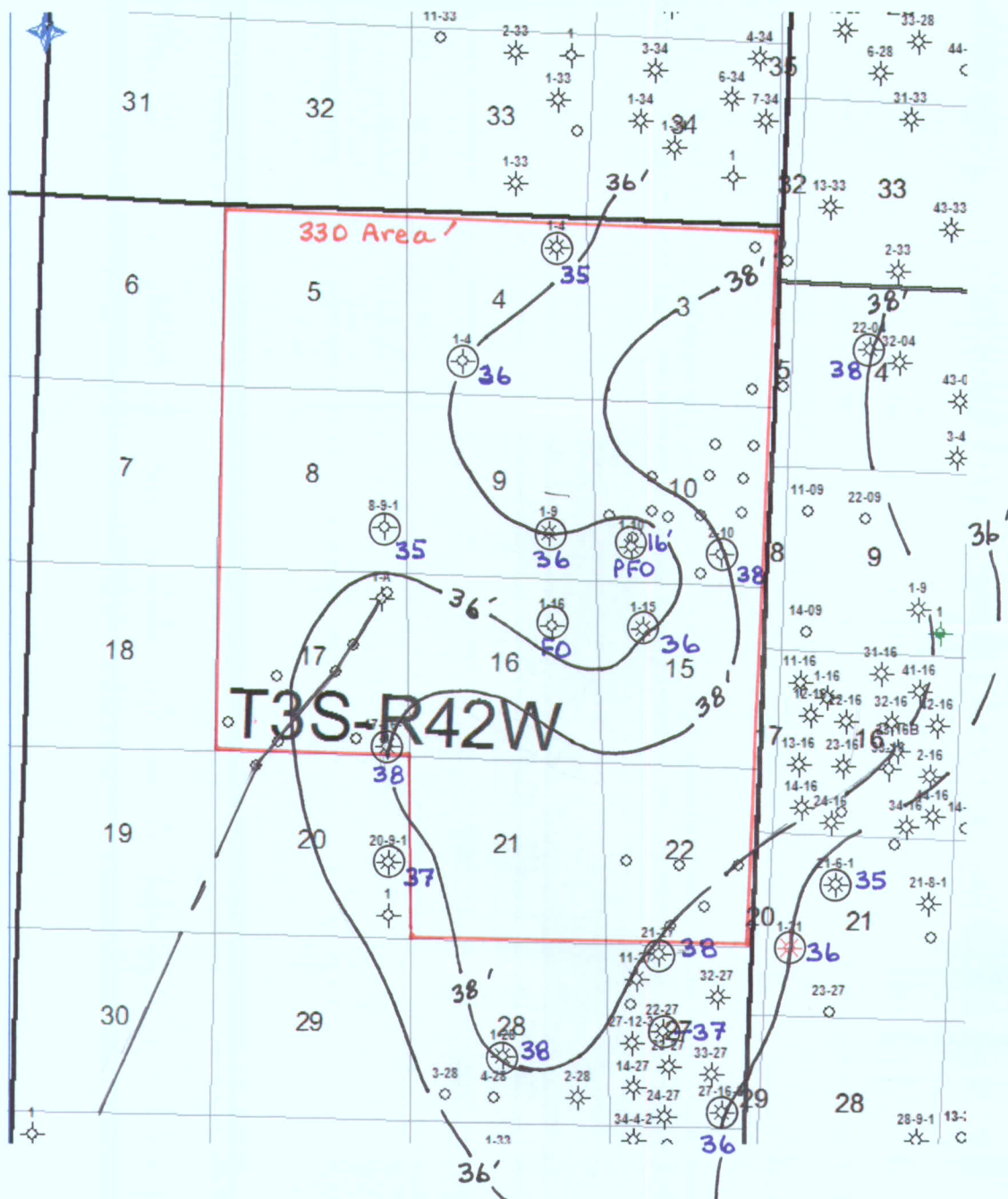
Armel Field - Yuma County, Colorado

Authored by Jim Brothers, Manager Geoscience

Dated this 8th day of September, 2008







GROSS ISOPACH  
Beecher Is. Gas Zone  
CI = 2'

NE-SW Seismic Section  
—

Gas Well \*  
D&A Well \*  
Location ○

Thickness = 38'  
FO = Faulted  
out  
PFO = Partially  
Faulted  
out



**Petroleum Development Corporation**

**EXHIBIT G 3**

Beecher Island Gross Isopach Map

Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authorized by Jim Brothers, Manager Geoscience

Dated this 8th day of September, 2008

Database File: 7323.db  
Dataset Pathname: pdcie  
Presentation Format: pdcie  
Dataset Creation: Mon Jul 23 14:31:18 2007 by Log Open-Cased 061129  
Charted by: Depth in Feet scaled 1,240

0 Gamma Ray (GAPI) 200  
0 SP (mV) 200  
4 Caliper (in) 14

0.2 Deep Resistivity (Ohm-m) 20 60  
0.2 Shallow Resistivity (Ohm-m) 20 60  
0.2 Medium Resistivity (Ohm-m) 20

Density Porosity (pu)  
Neutron Porosity (pu)

1500  
1600  
1700

Gamma Ray  
Caliper  
SP  
Shallow Resistivity  
Deep Resistivity  
Medium Resistivity  
Neutron Porosity  
Density Porosity

2.71 LS Matrix

EXHIBIT  
Beech  
Cause  
Dock  
Armed  
Author  
Dated

Prefs 1575'-1563'  
1<sup>st</sup> Production 6-11-2008

## NIOBRARA FORMATION

**Petroleum Development Corporation**

EXHIBIT G 4

Beecher Island Zone Type Log

Cause No. 330

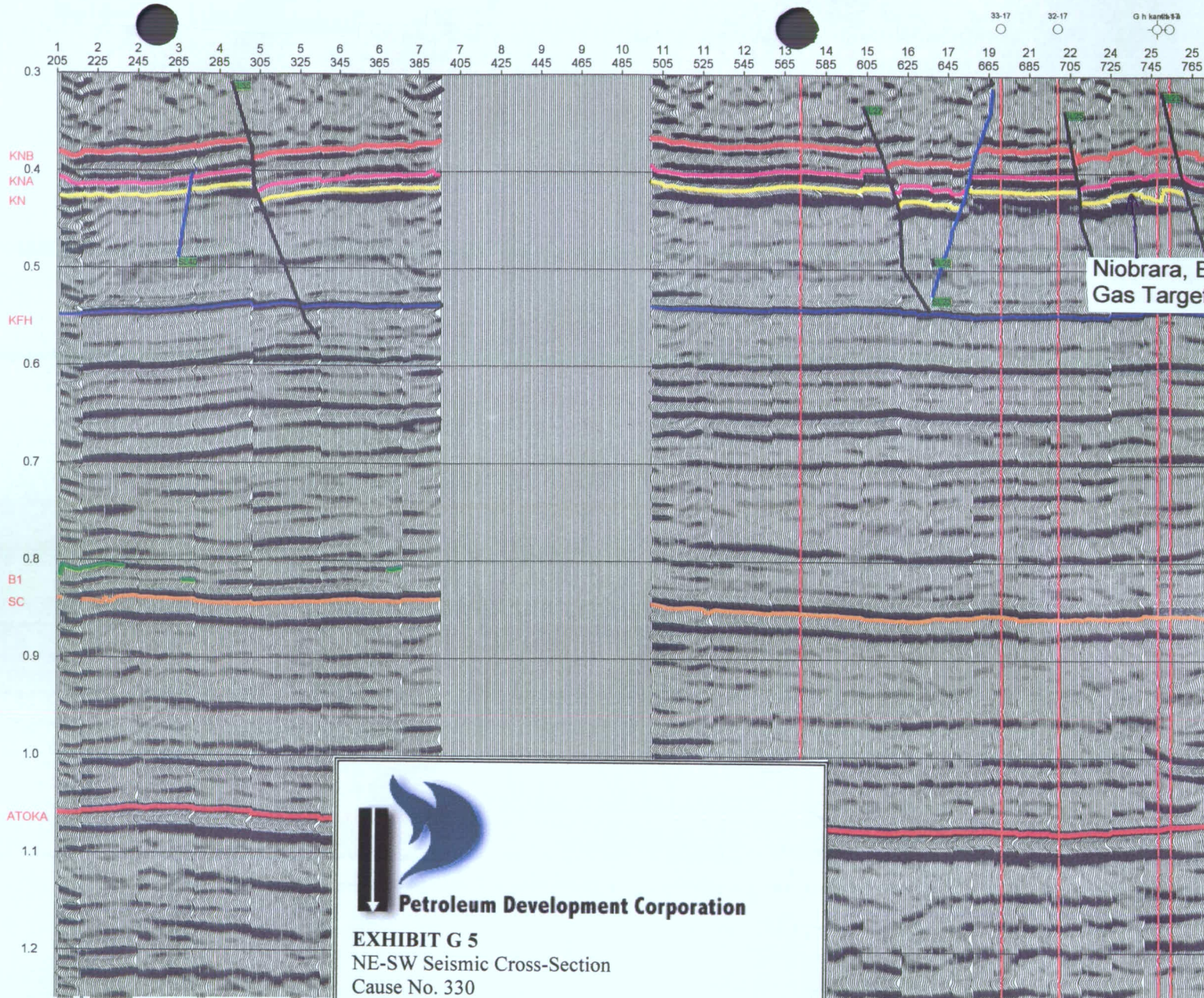
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Author: Jim Brothers, Manager Geoscience

Dated this 8th day of September, 2008





STONE'S THROW, CO  
SEISMIC  
WEST SIDE

SOUTH (LEFT)



Petroleum Development Corporation

EXHIBIT G 5

NE-SW Seismic Cross-Section

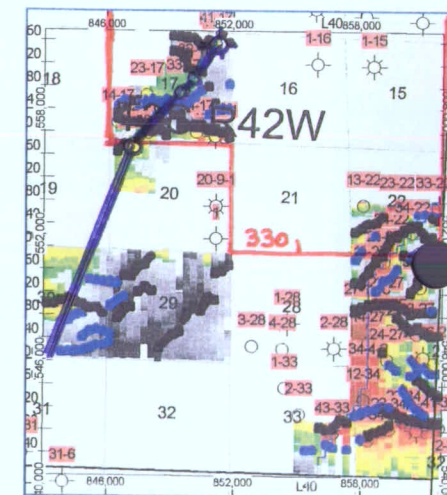
Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Jim Brothers, Manager Geoscience

Dated this 8th day of September, 2008





CHEYENNE KS - KS PLAYS

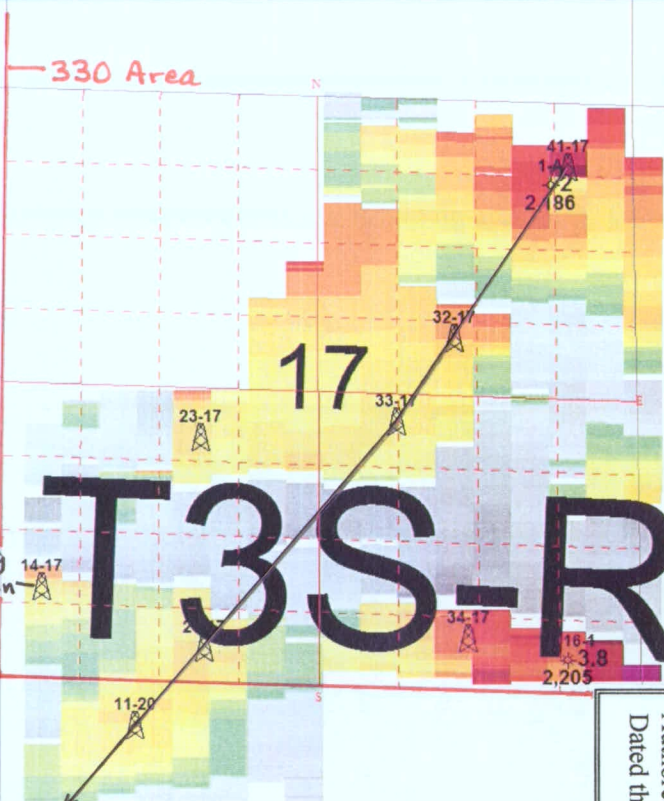
18

17

16

T3S-R42W

Drilling  
Location  
Symbol



Section 17 3S 42W CO – all ok either 318B or statewide



Petroleum Development Corporation

EXHIBIT G 6

3D Seismic Structure Map, Section 17 Detail

Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Jim Brothers, Manager Geoscience

Dated this 8th day of September, 2008

Illustrating critical placement of drilling locations identified on 3D Seismic  
Red is structurally High, Green is Low, Grey is down-faulted.  
NE-SE Seismic Section

**DETAILED 3D SEISMIC STRUCTURE**  
Section 17-T3S-R42W



## **JIM BROTHERS**

755 Ivanhoe Street, Denver, CO 80220  
(303) 355-1780 hm (303) 502-4829 cell  
jimbrothers@msn.com

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### **TECHNICAL EXPERIENCE**

**2006-Present     Manager Geoscience, Sr. Geologist, Petroleum Development Corporation     Denver, CO**

Manage all Geoscience activities & personnel for PDC's exploitation areas nationwide including:

DJ Basin, Colorado; Piceance Basin, Colorado; Williston Basin, North Dakota; Ft Worth basin, Texas; Michigan Basin, Appalachian Basin.

Initial western-based Geoscientist for West VA company. Part of new staff charged with establishing long-term company presence in western US, & with expediting company transition from conservative drilling fund operator to stand alone exploration & production group.

Team Leader for Northeast Colorado/Kansas (NECO) Niobrara gas exploration & exploitation program.

Responsible for overseeing PDC's ongoing program: 2007 will result in drilling + 140 wells & acquiring 50+ sq mi of 3D Seismic – approx \$38 million expenditure. Planning for similar programs in 2008 & 2009 in progress.

Principal Geoscientist for PDC's DJ Basin Exploitation Team. Responsible for evaluation of drilling locations, recompletion & workover opportunities: 200 new drill wells & 300+ recompletions & workovers planned for 2007 - \$200 million + budget. Planning for similar future programs in progress.

Geoscience evaluation of new ventures, exploration projects, & potential acquisitions as needed.

Mentoring of younger technical personnel.

**2001-2006     Sr. Geologist , Noble Energy / Patina Oil and Gas Corporation     Denver, CO**

Exploitation of producing properties and exploration for new opportunities in structural plays, south-central Oklahoma.

Evaluation and risk analysis of new projects for all Noble Mid-Continent oil districts.

Lead scientist in exploitation of Central Kansas Uplift & Western Kansas properties. Involves technical and economic evaluations, supervising & training junior geologic and support staff, close liaison with engineering & operations personnel & senior management, formal project proposal write up and presentation. Participation in budget preparation & scheduling of capital projects. Initiation & direction of 3D Seismic projects to evaluate properties for infill & step-out drilling. Evaluate & plan waterflood projects. Evaluation of potential production acquisitions.

Develop strategies for expanding company presence in Central & Western KS through generation of exploratory seismic and drilling projects, & active acquisitions program.

Lead scientist on Canyon Sand tight gas field development, West TX.

Evaluate Coal Bed Methane and sandstone Basin Centered Gas potential of projects in Sand Wash Basin, CO & Central WY (as Consulting Geologist to Patina).

**2001-2002     Consulting Geologist     Denver, CO**

Property evaluations, exploitation and exploration prospect generation, regional studies, conventional and unconventional reservoirs, coalbed methane, including:

Reservoir analysis and characterization of producing areas, east central Uinta Basin, UT for large production operator.

Regional to site-specific studies of Coal Bed Methane and sandstone Basin Centered Gas exploration potential: Greater Green River Basin, Uinta Basin and Piceance Basin.

**1998-2001     Sr. Geologist, National Fuel Corporation     Denver, CO**

Developed an overall natural gas (including coalbed methane) exploitation and exploration strategy in company core areas of NW Colorado, NE Utah and SW Wyoming, Rocky Mountain Region for small independent gas producer.

Developed, marketed, and supervised exploitation and exploratory drilling projects within core areas.

Evaluated coalbed methane potential throughout company core producing areas and in Sand Wash Basin exploration project area.

## JIM BROTHERS

Planned workover and recompletion operations on producing properties, and coordinated field execution of those operations with production superintendent.

Evaluated and collaborated in bid development for production and infrastructure purchases in core areas.

GeoGraphics mapping system. Competent in PC-based oil and gas computer applications, and business software in a Microsoft environment.

Marketed development and exploratory drilling programs to industry partners, leading to commitments for drilling of a minimum of eight wells, with no cash outlay by company, in two areas beginning May, 2001.

Acted as company permit agent for drilling and operations activities on company's Federal, State, and Fee lands in CO, UT, and WY.

**1997-1998      Sr. Petroleum Geologist, Petroleum Information/Dwights LLC      Denver, CO**  
Geologic development, quality control, and testing for Geology, Exploration, and Exploitation Group in the development of Petroleum Geology applications software.

**1985-1997      Consulting Petroleum Geologist      Denver, Co and Waco, TX**  
Directed technologic operations for US office of family-owned Canadian oil and gas Company. Primary duties involved analysis of producing properties to enhance oil and gas recovery.  
Researched coalbed methane potential, economics, and lease status of project areas in Mid-continent and Western US.  
Developed bidding scheme for purchase of producing gas properties in Hugoton Gas Field, Kansas.  
Geologic and economic evaluation and quality control of onshore 3-D Seismic Programs, Mid-Continent and Rockies, US.  
Geologic and economic evaluation of drilling and production purchase opportunities for clients.  
Geologic data research in Texas Railroad Commission for clients.

**1992-1997      Adjunct Instructor, Geology, McLennan Community College      Waco, TX**

**1990-2000      PhD Candidate in Geology, Baylor University      Waco, TX**  
Dissertation topic: develop sequence stratigraphic framework for outcrop and subsurface, Fredericksburg Group (Edwards Limestone, etc.) central, north, and west Texas.

**1981-1985      Chief Geologist, Corrida Oils Inc.      Denver, CO**  
Established and directed the exploitation and exploration group for the US subsidiary of a Canadian independent oil and gas firm

**1978-1981      Chief Geologist, Wichita Industries, Inc.      Denver, CO**

**1977-1978      Masters Candidate in Geology, Baylor University      Waco, TX**

**1976-1977      Jr. Geologist, Forest Oil Corp.      Denver, CO**

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### EDUCATION

1976	B.S. in Geology,	Baylor University, Waco, TX
1984	M.S. in Geology,	Baylor University, Waco, TX
2000	PhD Candidate,	Baylor University, Waco, TX



My name is Nicholas A. Polito, and I am currently employed as a Petroleum Engineer for Petroleum Development Corp. I graduated from the University of Pittsburgh with a BS in Civil Engineering. I have 7 years of experience as an engineer in the Petroleum Industry. My resume is attached.

Niobrara wells from this quality reservoir in Yuma County do not adequately drain from a spacing of more than 40 acres. In fact, many wells drain a much smaller spacing area. This drainage can be supported by various engineering practices including Rate vs. Time, Decline Curve analysis and Flowing Material Balance Calculations.

The attached Aries Type Curve illustrates this point (Exhibit – #E2). When constraints are plugged into the area trend model the production attributes come in line with typical North East Colorado Wells drilled on 40 acre spacing to the Niobrara formation. This gives us confidence in the recoverable reserves of 0.224 Bcf (“EUR”) are correct. Also attached are the 13 production curves that were used to create the trend analysis and they show no interference making the original 40 acre state wide spacing viable in this area.

In support of our application today, I am submitting fifteen (15) exhibits. The exhibits are attached to my sworn testimony and form the basis for our application to allow additional wells to be permitted in each existing 160-acre drilling and spacing unit for the Niobrara Formation (for a total of four (4) wells authorized in each drilling and spacing unit) covering the Application Lands.

Exhibit No. E1 Aries Area Trend Curve Chart

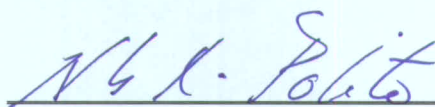
Exhibit No. E1 Aries Area Trend Curve Chart shows decline curves from thirteen (13) forty (40) acre spacing wells drilled in the immediate area that are trended together by initial production. This trend gives us a basis when averaged to construct a type curve for the area. This gives us a good idea of what we can expect from a new 40 acre drilling spot next to this existing production.

Exhibit No. E2 40 Acre Spacing Type Curve STG

Exhibit No. E2 Aries 40 Acre Spacing Type Curve STG shows a type curve that was constructed off of the existing production in the area from the Trend Analysis. This shows that existing forty (40) acre spacing units drilled to the Niobrara gives us confidence in the recoverable reserves of 0.224 Bcf and can therefore support economical extraction of the resources with limited surface disruption.

Exhibit No. E3 through E15 40 Acre Spacing Existing Production Curves with Forecasts

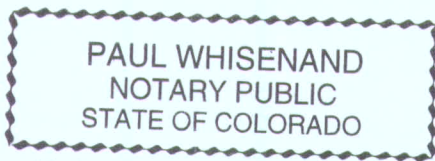
Exhibit No. E3 through E15 40 Acre Spacing Existing Production Curves with Forecasts are existing wells drilled on 40 acre spacing. When compared to each other it is apparent that no interference exists between these wells leading us to believe that further development on 40 acre spacing in the area would not be a detriment to the reservoir or the economical extraction of the reserves there in.



Nicholas A. Polito

BEFORE ME, the undersigned authority, on this day personally appeared Nicholas A. Polito, in his capacity as Petroleum Engineer for Petroleum Development Corporation, a corporation created under the laws of Nevada, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity stated, and as the act and deed of said corporation.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 8<sup>th</sup> day of September, 2008.



My Commission Expires 03/27/2010

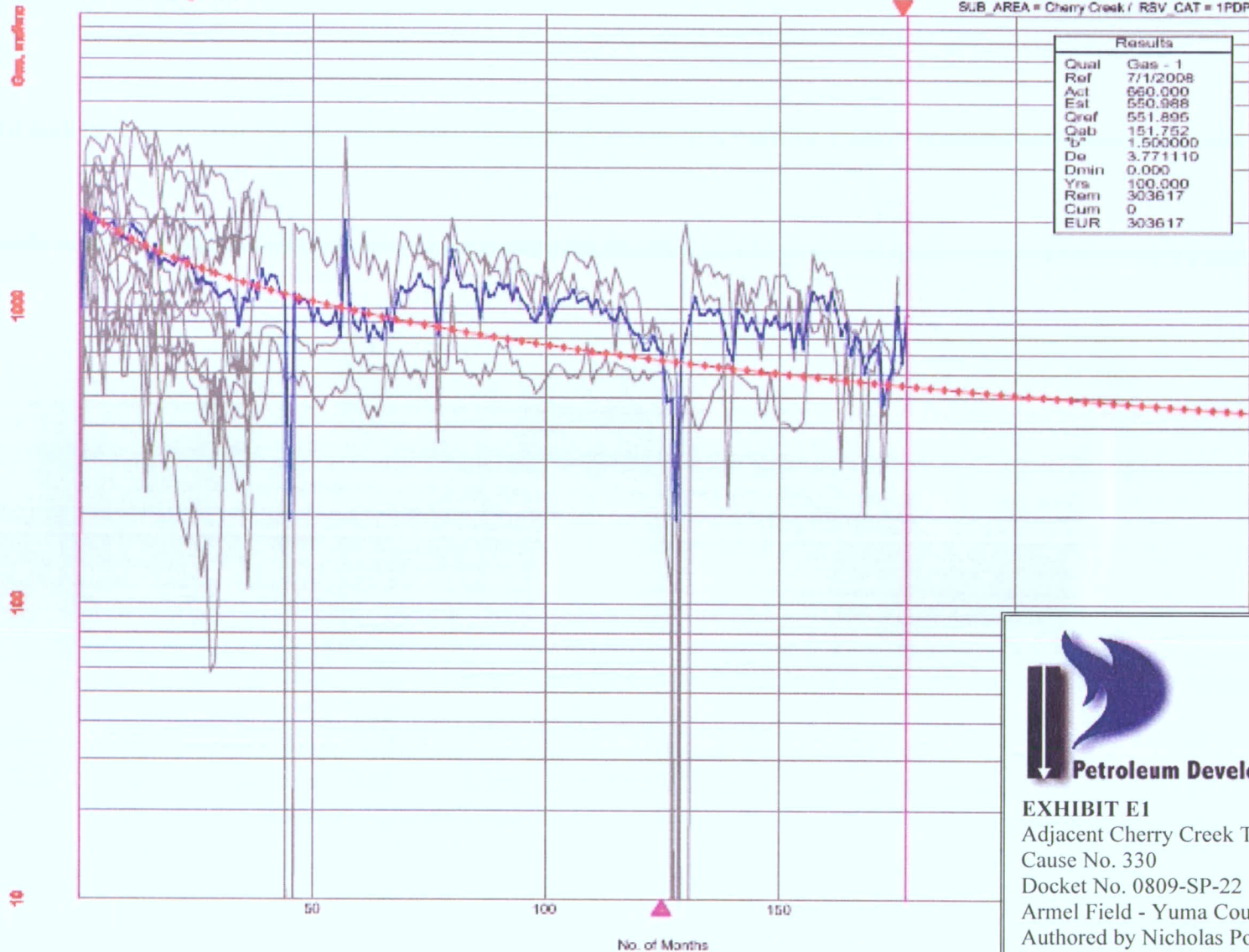
A handwritten signature in blue ink, appearing to be "P. Whisenand", written over a horizontal line.

Notary Public

My Commission expires: 3-27-10



# Gas - Average curve



**Petroleum Development Corporation**

## EXHIBIT E1

Adjacent Cherry Creek Trend Analysis

Cause No. 330

Docket No. 0809-SP-22

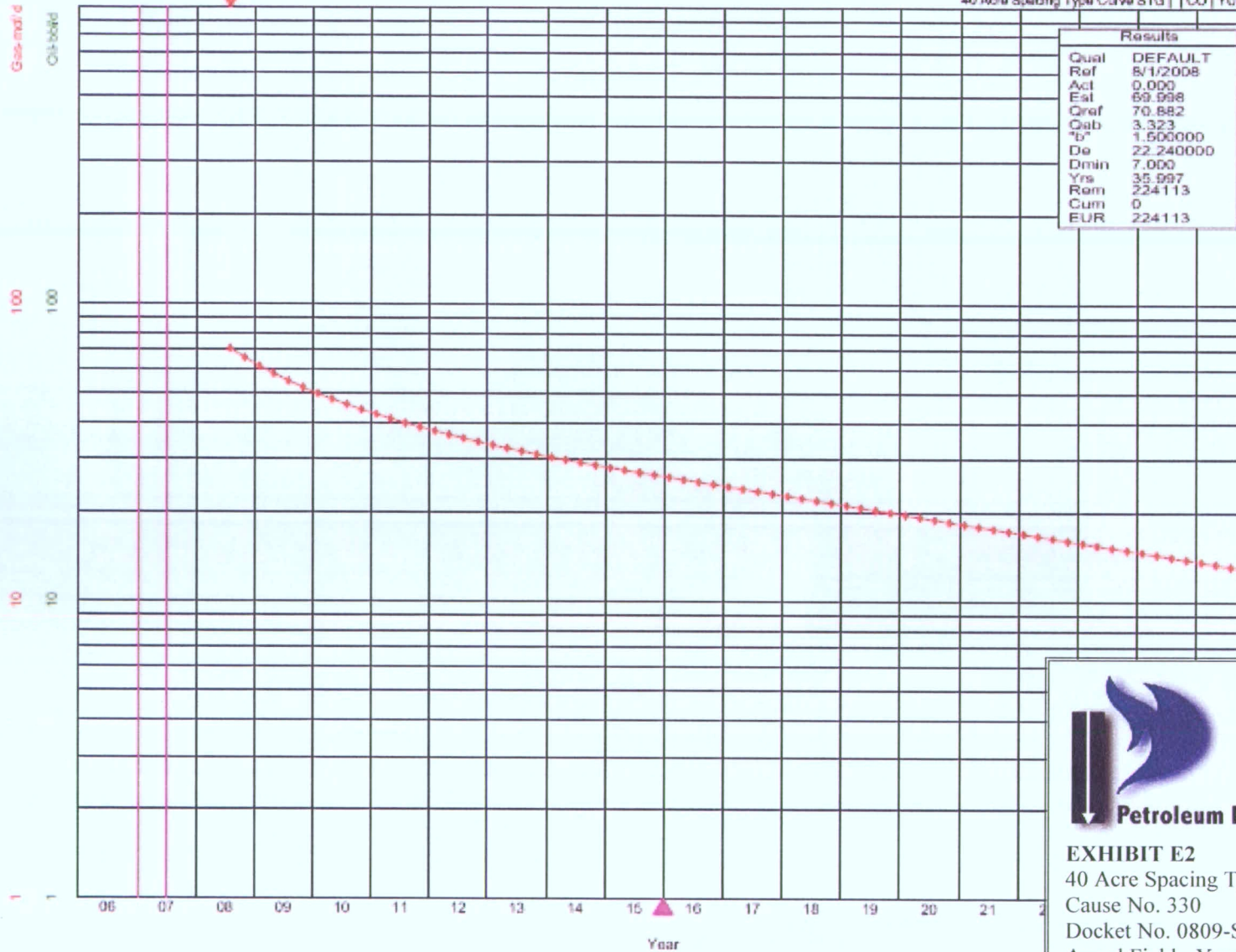
Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008

Gas\_Daily

40 Acre Spacing Type Curve STG | CO | YUMA



Results	
Qual	DEFAULT
Ref	8/1/2008
Act	0.000
Est	69.998
Qref	70.882
Qab	3.323
fb	1.500000
De	22.240000
Dmin	7.000
Yrs	35.997
Rem	224113
Cum	0
EUR	224113



**Petroleum Development Corporation**

**EXHIBIT E2**

40 Acre Spacing Type Curve STG

Cause No. 330

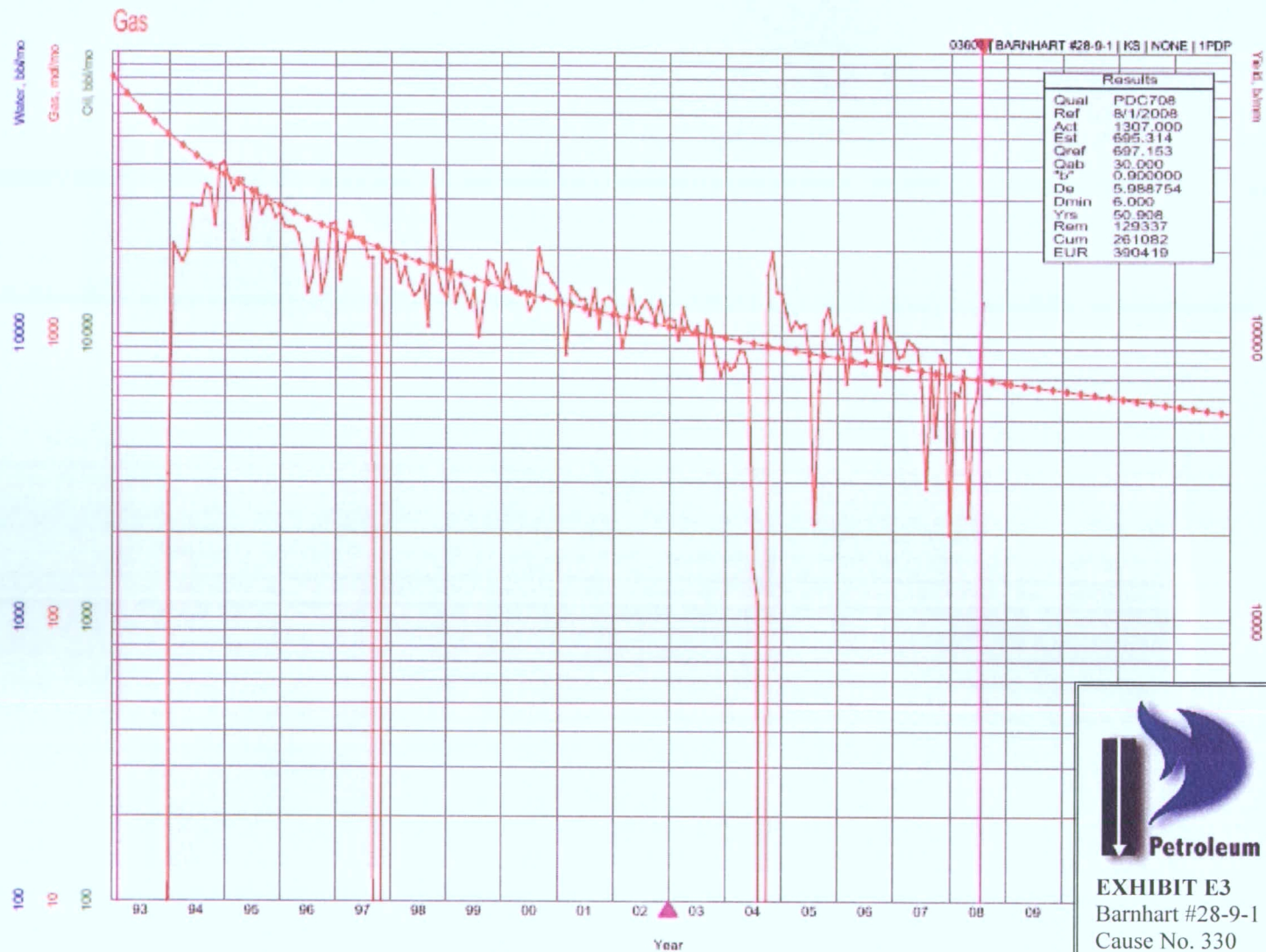
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E3**

Barnhart #28-9-1

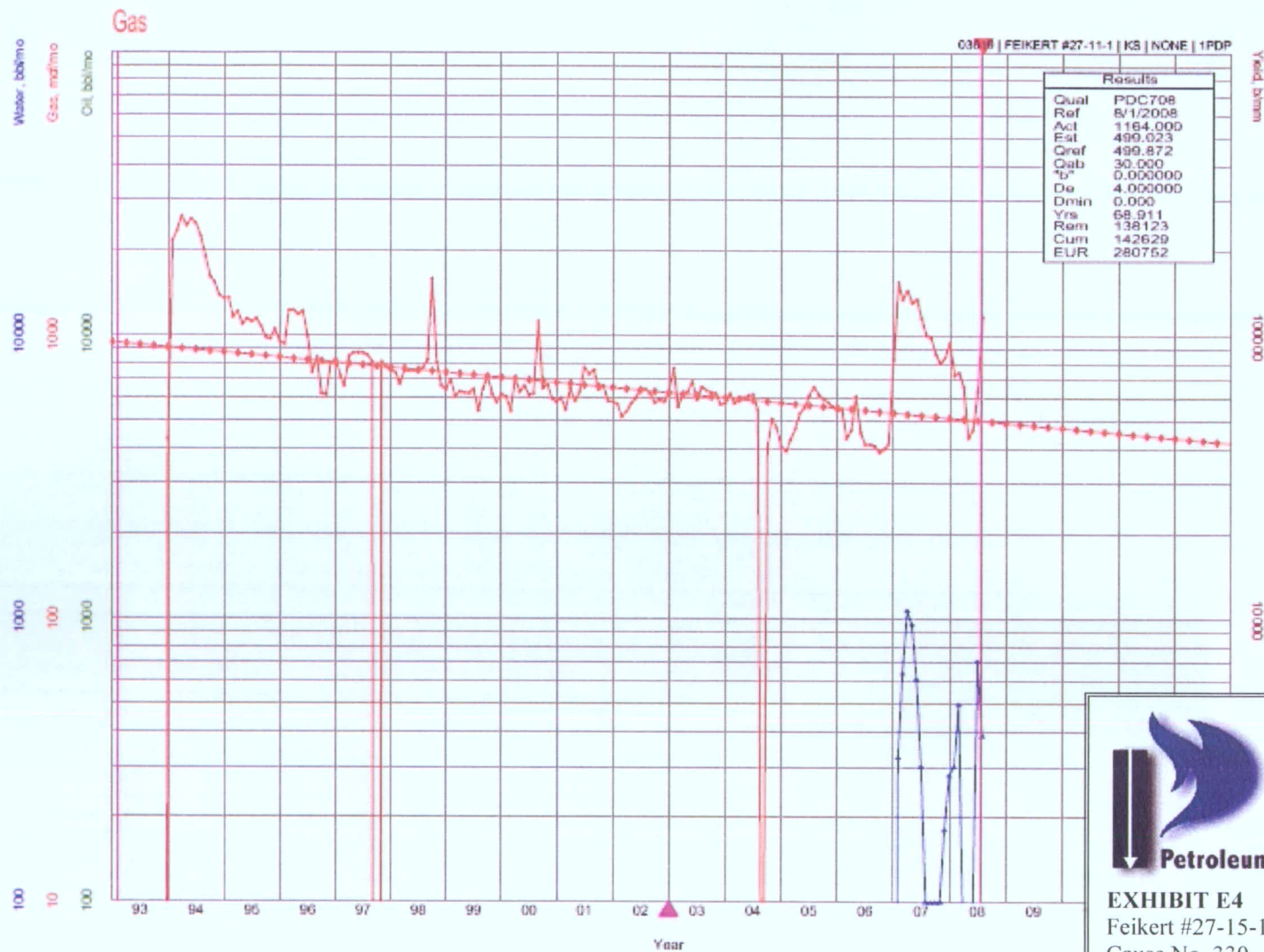
Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008



**Petroleum Development Corporation**

**EXHIBIT E4**

Feikert #27-15-1

Cause No. 330

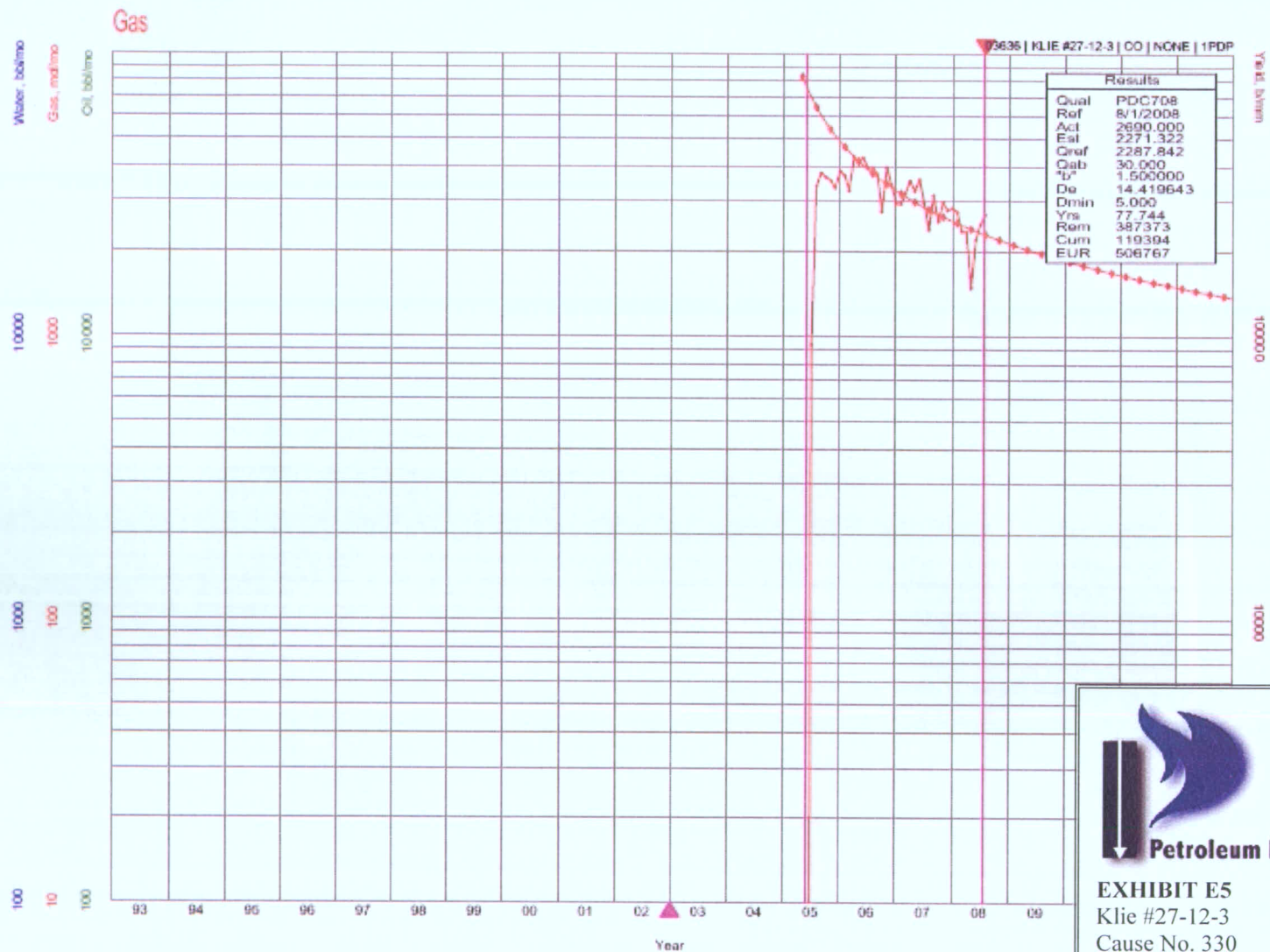
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E5**

Klie #27-12-3

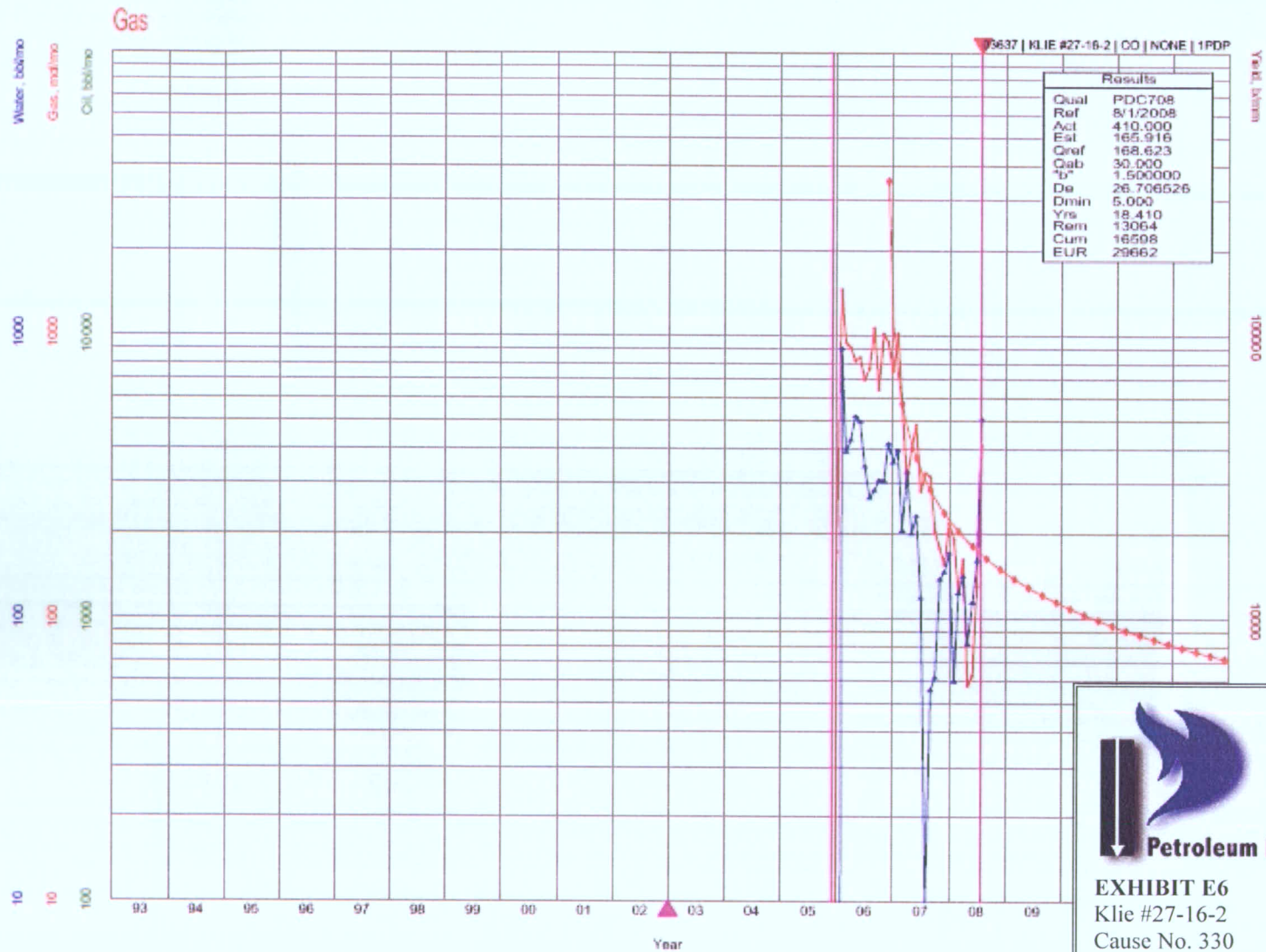
Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008



**Petroleum Development Corporation**

**EXHIBIT E6**

Klie #27-16-2

Cause No. 330

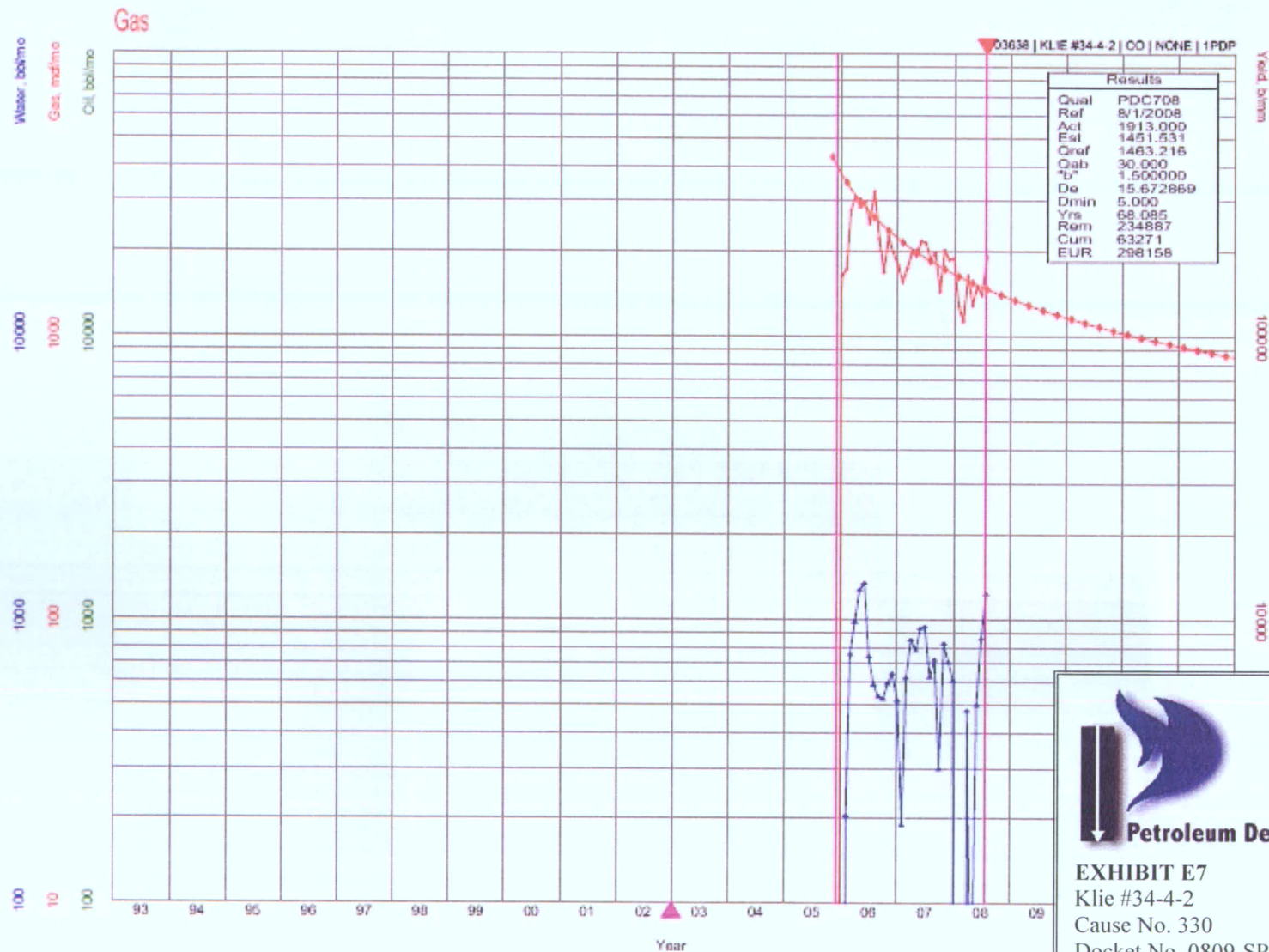
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E7**

Klie #34-4-2

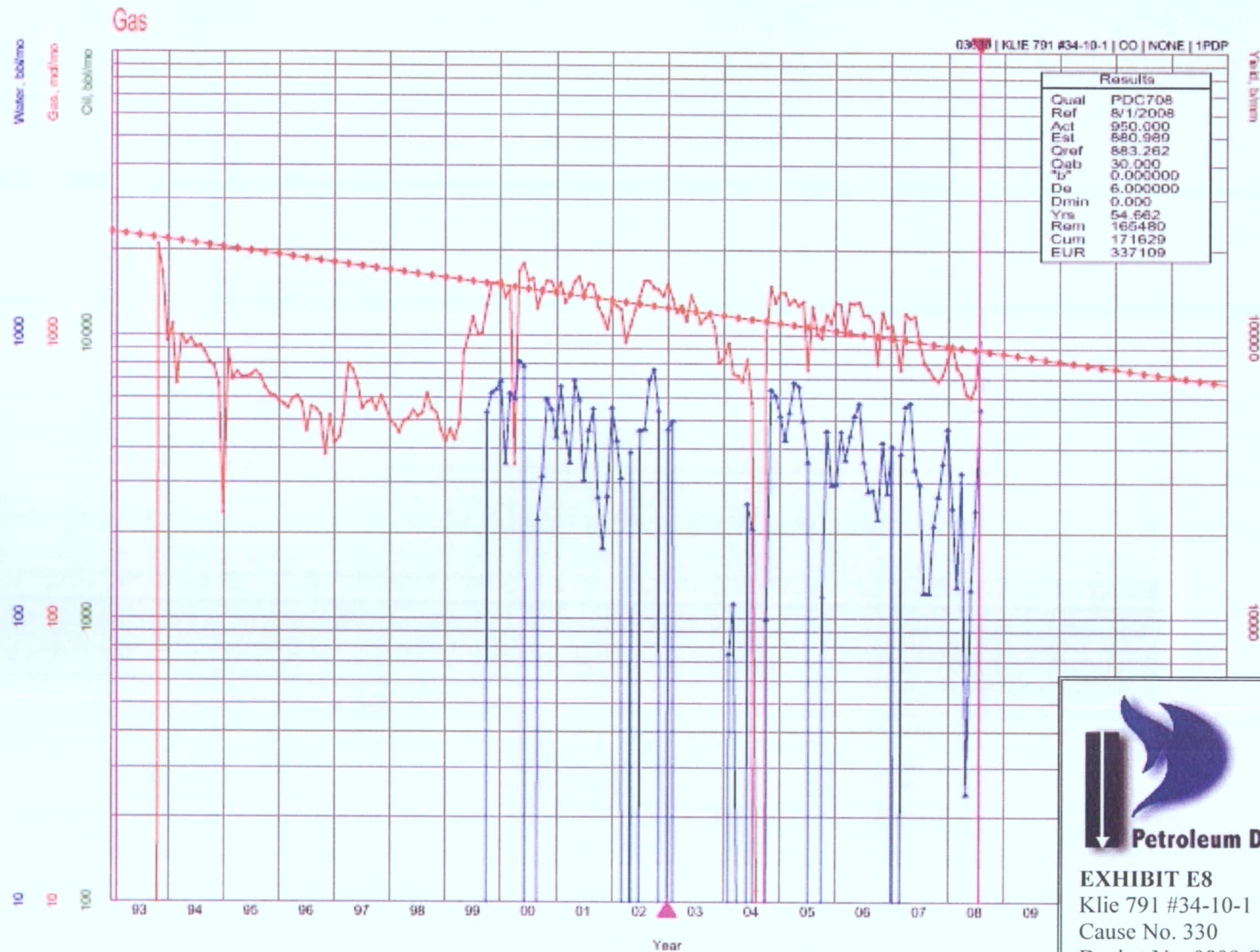
Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008



**Petroleum Development Corporation**

**EXHIBIT E8**

Klie 791 #34-10-1

Cause No. 330

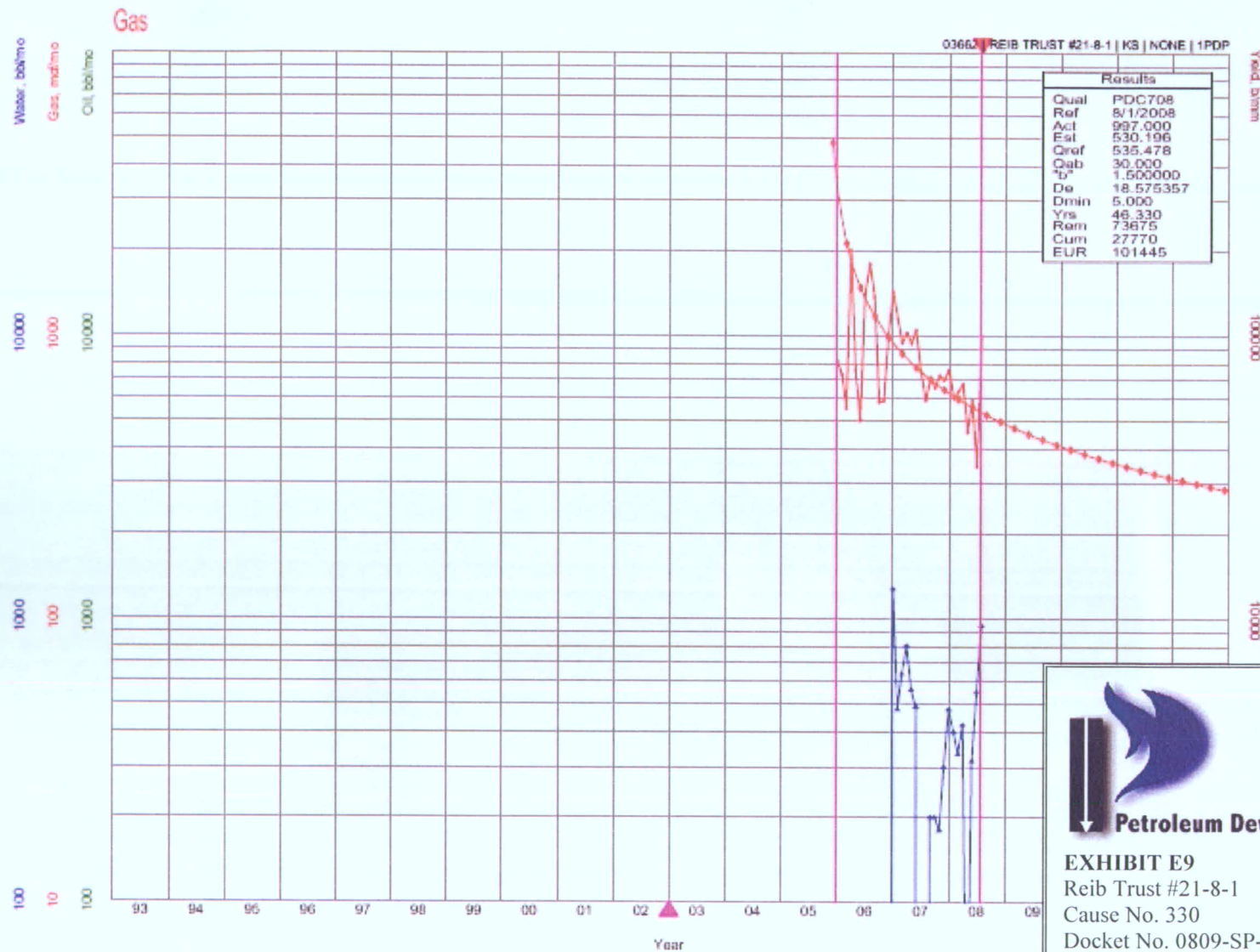
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E9**

Reib Trust #21-8-1

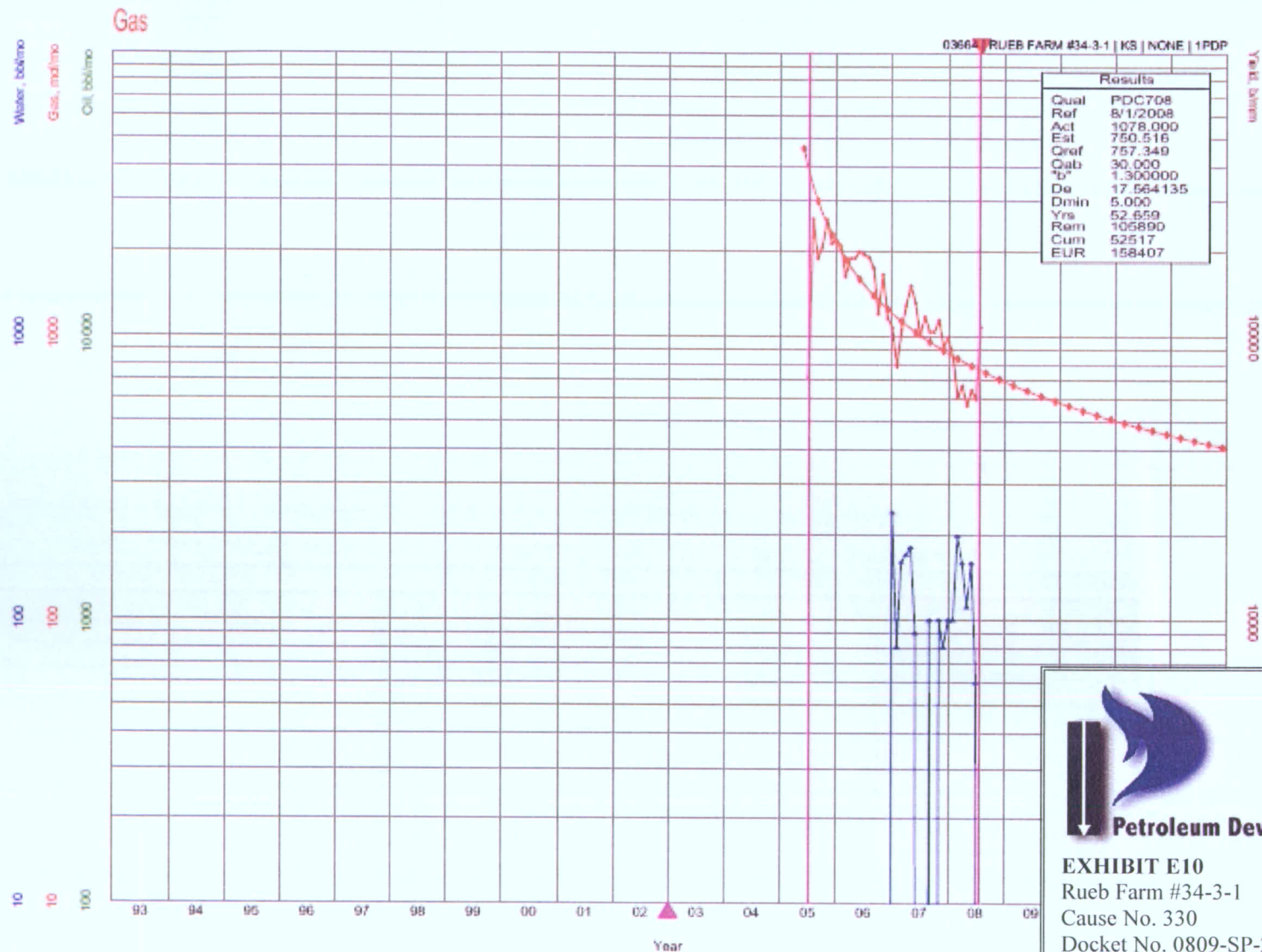
Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008



**Petroleum Development Corporation**

**EXHIBIT E10**

Rueb Farm #34-3-1

Cause No. 330

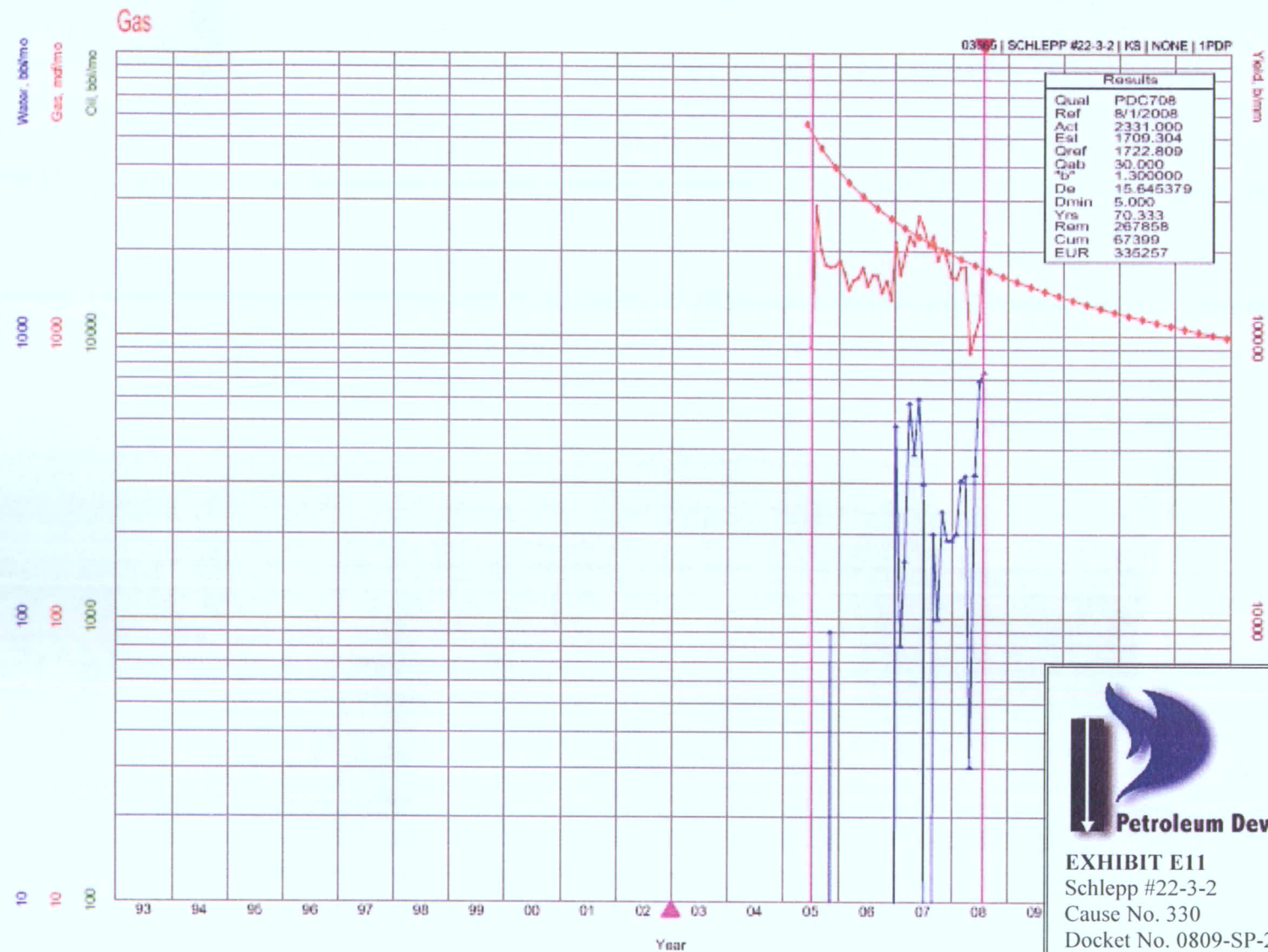
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E11**

Schlepp #22-3-2

Cause No. 330

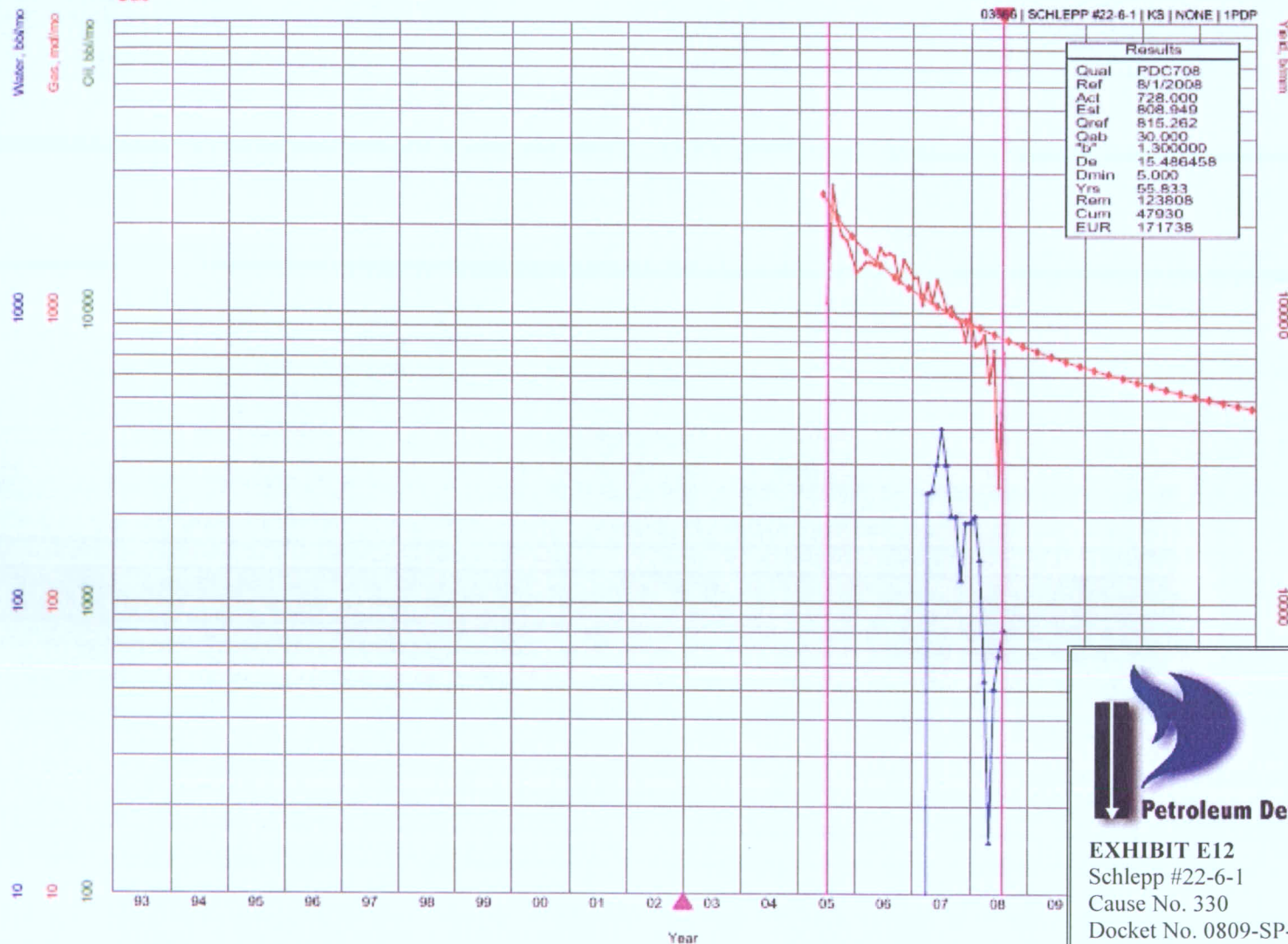
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008

Gas



**Petroleum Development Corporation**

**EXHIBIT E12**

Schlepp #22-6-1

Cause No. 330

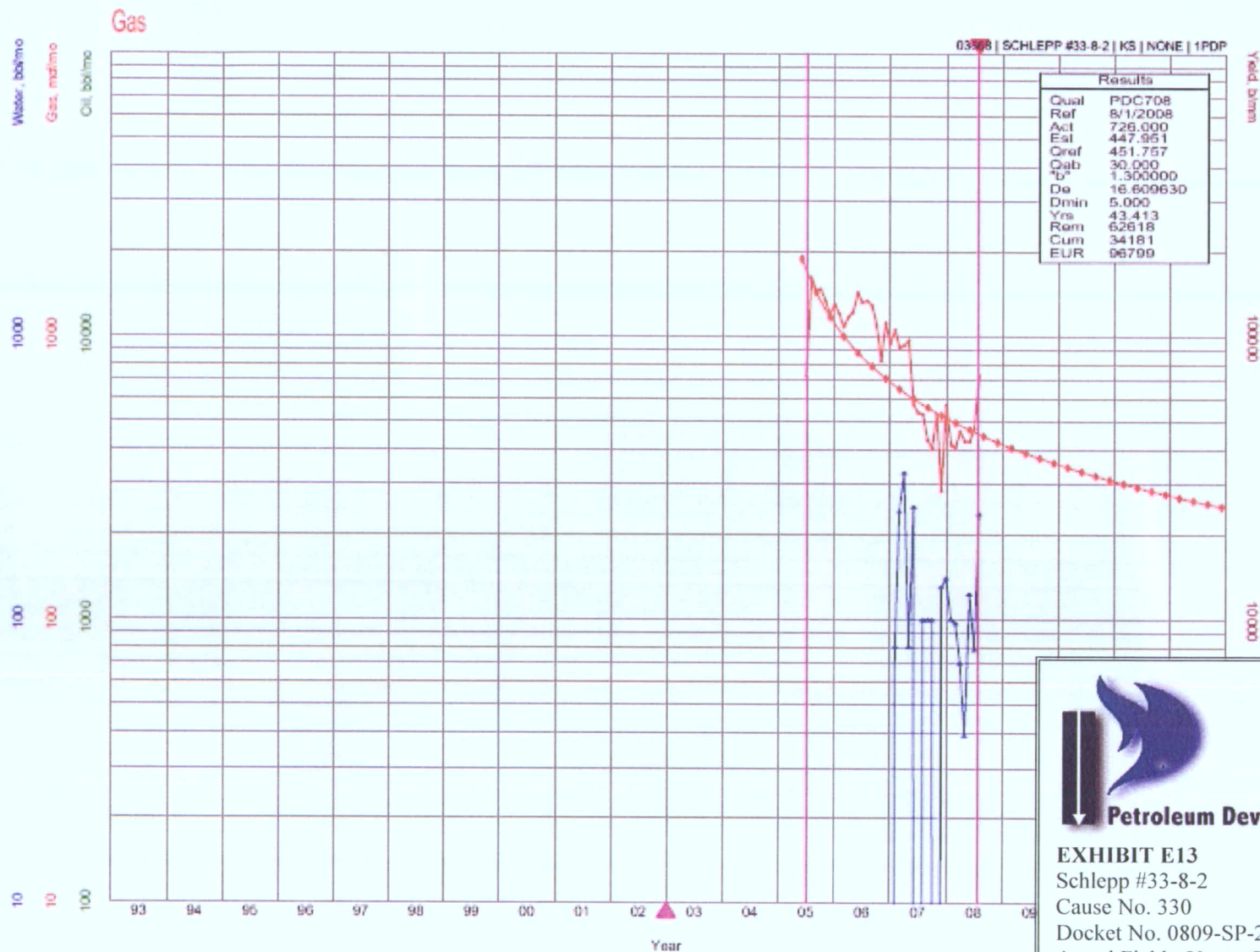
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E13**

Schlepp #33-8-2

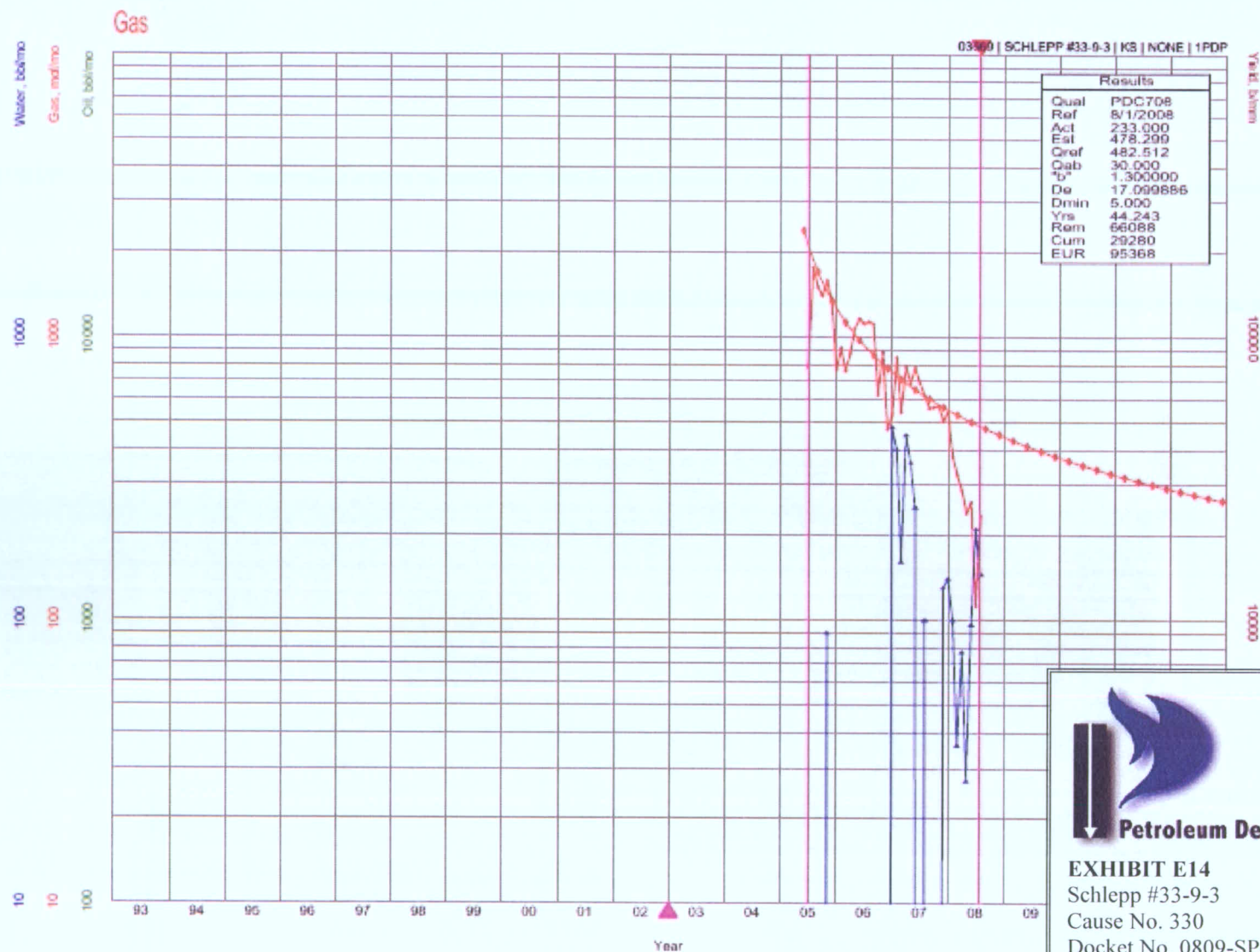
Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008



**Petroleum Development Corporation**

**EXHIBIT E14**

Schlepp #33-9-3

Cause No. 330

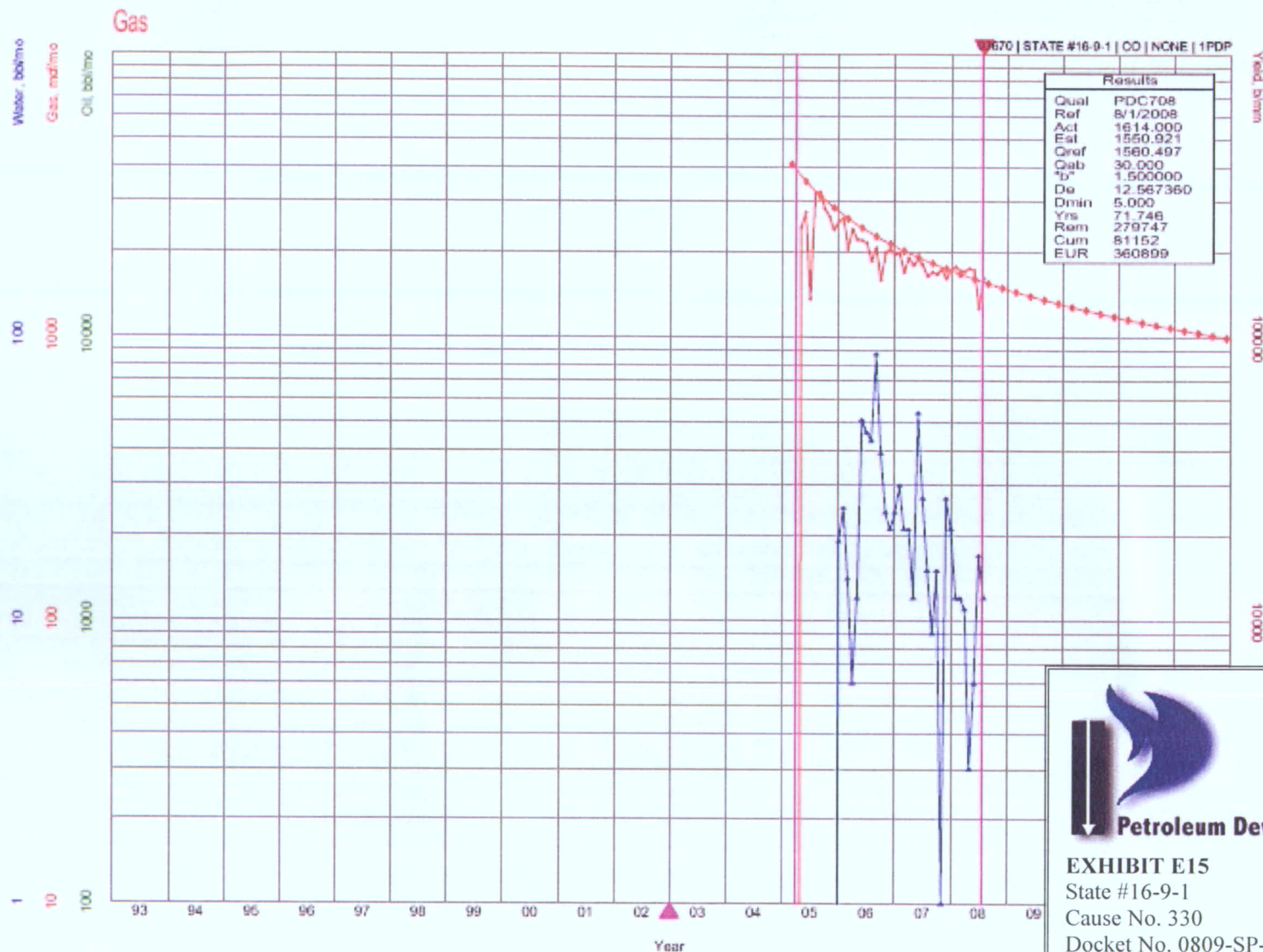
Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008





**Petroleum Development Corporation**

**EXHIBIT E15**

State #16-9-1

Cause No. 330

Docket No. 0809-SP-22

Armel Field - Yuma County, Colorado

Authored by Nicholas Polito, Petroleum Engineer

Dated this 8th day of September, 2008

## **NICHOLAS A. POLITO**

5750 W. 20<sup>th</sup> Street Unit #20-3

Greeley, Colorado 80634

Work: (303) 350-9690

Personal: (724) 422-3277

npolito@petd.com

npolito76@hotmail.com

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### **WORK EXPERIENCE**

#### **Petroleum Development Corporation**

**September 2006 - Present**

##### **Petroleum Engineer**

**Basins:** DJ, North East Colorado, Piceance & North Dakota

**Duties:** Preparation of drilling economics; production forecasting and modeling; open hole log analysis; new technology evaluations; pump jack design and function; basic knowledge of seismic interpretation; cost evaluations for pipelines; interfacing with field personnel to optimize production; Aries decline curve analysis; Aries data base management using Microsoft Access and Excel; Compiling and logging all field reports (drilling, completion and workover).

#### **Multi Products Company**

**July 2005 – September 2006**

##### **Technical Sales Associate**

**Basins:** CO – DJ & North East Colorado; WY – Jonah, Pinedale Anticline & Big Piney

**Duties:** Interfacing with customers on a daily basis for installation and operation of plungerlift equipment and wellhead control; basic tool design and function; basic equipment design and function; integrating wellhead controllers, meters, and separators to help in production optimization.

#### **BJ Services**

**January 2002 – July 2005**

##### **Acting District Technical Supervisor and Field Engineer**

**Basin:** Appalachian (PA, NY, OH, WV)

**Duties:** Computer job design for acidizing, cementing, & fracturing operations; job quality control; advising and managing technical personnel; Meyers fracturing simulation; lab testing & analysis; remote satellite data transmission; open hole log analysis; Frac equipment design & function; interfacing with customer drilling operations; cement slurry design for both deep and shallow well bores; basic reservoir engineering & production.

### **EDUCATION**

#### **University of Pittsburgh**

**September 1999 – December 2001**

**Major:** Civil Engineering (Geo-technical)

**Focus:** Strength & mechanics of materials, statics, environmental engineering, soil and fluid mechanics, steel structures, petroleum reservoir engineering, petroleum drilling and production, foundations, water hydrology.

#### **Indiana University of Pennsylvania**

**August 1996 – April 1999**

**Major:** Natural Science/Pre-Engineering

**Focus:** Physics, chemistry, computer programming, and mathematics

### **ACTIVITIES AND ORGANIZATIONS**

American Society of Civil Engineers

Society of Petroleum Engineers