

OIL & GAS CONSERVATION COMMISSION  
Meeting: May 18, 1966  
John Bannister, Executive Secy

# APPROPRIATIONS

	<u>1965-66</u>	<u>1966-67</u>
Personal Services	\$29,500.00	\$29,500.00
Professional Services	2,000.00*	2,000.00*
Travel-State	5,000.00*	5,000.00*
Travel-out of State	2,500.00*	2,500.00*
Subscriptions and Organization Dues	150.00*	150.00*
Current Fixed Charges	450.00*	450.00*
Other Current Expenditures	7,350.00	7,350.00
Capital Outlay	3,000.00*	2,500.00*
Museum of Northern Arizona	2,500.00	2,500.00
Bureau of Mines, U of A	2,500.00	2,500.00
TOTAL APPROPRIATIONS	\$54,950.00	\$54,450.00

\*exempt from quarterly allotment

**REGULATING THE GAS PRODUCER:**

**10 Years  
of  
Trial and Error**

**Natural Gas Facts — No. 1**

**from the**

**Independent Petroleum Association of America**

## REGULATING THE GAS PRODUCER — 10 YEARS OF TRIAL AND ERROR

IT IS A LITTLE-KNOWN FACT that there could be a shortage of natural gas at higher prices to the consuming public. This would happen because of the creeping paralysis resulting from 10 years of frustrating, chaotic, indecisive, and costly federal regulation of those engaged in discovering and producing this vital source of energy.

Q. How did producers of natural gas, a commodity, come to be regulated?

A. In 1938 Congress authorized the Federal Power Commission to regulate interstate pipeline companies which move natural gas from producing fields to public utilities in the cities where it is consumed. However, Congress declared, "the provisions of this act . . . shall not apply . . . to the production or gathering of natural gas."

But 16 years later, in 1954, the Supreme Court, contrary to this clear legislative language, held that independent producers selling natural gas, which subsequently moved into interstate commerce, were subject to regulation by the Federal Power Commission.

Q. How has federal utility regulation of thousands of gas producers worked?

A. It hasn't. Natural gas production has none of the characteristics of a public utility. Faced with the impractical problem of regulating a competitively produced commodity on a utility basis,

FPC on numerous occasions in the past has urged Congress to relieve gas producers of the burden and expense of such controls.

Q. What progress has FPC made in trying to regulate gas producers?

A. After 10 years of confusion and experimentation, no guidelines have been established for such regulation and gas producers remain in the dark as to what price they can expect to receive for their gas.

For six years, the Commission attempted to regulate individual producers on a traditional cost-of-service utility basis. It abandoned this approach in 1960, saying "producers of natural gas cannot by any stretch of the imagination be properly classified as traditional public utilities . . ." The Commission then embarked on its current experiment when it announced in the Fall of 1960 that it would try an "area rate" approach.

Q. Has the "area pricing" method produced better results than the cost-of-service approach?

A. No. The first of 23 such "area rate" proceedings, seeking to establish "just and reasonable" prices for gas produced in the Permian Basin of West Texas-New Mexico, was begun in early 1961. Three years later, after 30,000 pages of testimony, 337 exhibits and dozens of legal briefs, the Permian Basin area rate remains undetermined. FPC states in its 1964 report only that the "decisional

stage" has begun in this proceeding. Final legal disposition of this single case appears years away.

In short, the "area pricing" method is proving that FPC regulation of this commodity is unworkable, futile and serves no useful purpose.

Q. Where is FPC regulation of gas producers leading?

A. It is leading, inevitably, to less natural gas at higher prices to consumers and is denying thousands of producers due process of law. Unless corrective action is taken it can end, in the last analysis, only in an arbitrary type of government control over natural gas as well as competing fuels such as oil, coal, and other energy sources.

Meanwhile, this decade of regulatory experimentation plods along, building up tremendous expense in time and money to government and to producers of gas. In the long run, this great cost will be borne by the consuming public.

Q. Is there an answer to this dilemma?

A. Yes — One, and only one; corrective legislation by the Congress to relieve natural gas consumers and producers from the growing expense and unworkable regulatory experiments of the Federal Power Commission. Without such legislation, the 10-year cloud of uncertainty which has plagued natural gas producers can only worsen—at growing expense to the American public.

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INDEPENDENT PETROLEUM ASSOCIATION  
OF AMERICA

P. O. Box 1019  
Tulsa, Oklahoma

1110 Ring Building  
Washington, D. C.

REGULATING THE GAS PRODUCER:

10 Years  
of  
Trial and Error

Natural Gas Facts — No. 1  
from the  
Independent Petroleum Association of America

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Independent p

A G E N D A

Meeting

May 18, 1966

9:30 a.m. Call to order

- ✓1. Approval of minutes of meeting of April 20, 1966
- ✓2. Acceptance of Executive Secretary's Report
- ✓3. Acceptance of Geologist's Report
- ✓4. Old business
- ✓5. New business
6. Adjourn

July 20 meeting on Secondary  
Recovery  
" 20 Flaggstaff

Tidewater-film



OIL AND GAS CONSERVATION COMMISSION  
1624 West Adams - Suite 202  
Phoenix, Arizona

Minutes of Meeting  
April 20, 1966

Present:

Mr. Lynn Lockhart, Chairman  
Mr. Orme Lewis, Vice Chairman  
Mr. Lucien B. Owens, Member  
Mr. George T. Siler, Member  
Mr. Hiram S. Corbett, Member  
Mr. John Bannister, Executive Secretary  
Mr. J.R. Scurlock, Geologist

Dr. Willard Pye  
Mr. J.H. Waterhouse  
Mr. Ed Packwood

Chairman Lockhart called the meeting to order at 9:35 a.m.

Minutes of the meeting of February 23, 1966 were approved.

Reports of the Executive Secretary and the Geologist were accepted.

Attendance by representatives of the Commission at the Interstate Oil Compact Commission meeting June 20-22, 1966 in Tulsa, Oklahoma, was discussed. It was agreed that Mr. Lockhart, Mr. Lewis if he could, and Mr. Bannister would attend.

Mr. Lewis suggested that in connection with the Interstate Oil Compact Commission meeting of December, 1966 in Phoenix that it might be well to contact as soon as possible the Phoenix Chamber of Commerce to alert them for assistance. Chairman Lockhart directed Mr. Bannister to do so.

Mr. Bannister reminded the Commission that he would be attending the IPAA meeting in Los Angeles May 8-10, 1966.

Mr. Bannister informed the Commission members of the new telephone service for State employees from various Arizona cities to the Capitol.

Mr. Bannister commented upon the favorable Post Auditor's report, a copy of which was furnished to the Commissioners.

Motion was made and passed that the regular Commission meeting of July 20, 1966 be held in Flagstaff.



Minutes of Meeting  
April 20, 1966  
Page 2

Chairman Lockhart asked if it was the desire of the Commission to make a change in the chairmanship. It was unanimously voted that Mr. Lockhart continue as Chairman. It also was unanimously voted that Mr. Orme Lewis continue as Vice Chairman.

Mr. Bannister reported that the two bills providing incentives for oil and gas exploration in the State had no chance of getting out of Legislature during this session.

Mr. Lewis suggested that the Commission gather information from all other states concerning bonuses, what kind, how much of what period of time; and then inform the various legislative committees; and that this perhaps would avoid the Commission's getting entangled in an industry dispute and serve a useful purpose rather than worry about backing a bill.

Mr. Siler stated he felt that by restricting a bonus to State lands it would eliminate entanglement with promoters.

Dr. Pye stated that the Commission should back anything that will further develop oil and gas and conservation within the State. He told of the bonus bill in Oregon where a well was brought in, the bonus paid, and the industry no longer found incentive and exploration just died. He said in other areas, mostly foreign, that the footage bill was used very profitably because it takes away from the overall operation costs and he felt this type of program would be successful in Arizona.

Mr. Owens stated that gathering information, as suggested by Mr. Lewis, would be very valuable and then the Commission might be in a position where it would feel it could recommend consideration of a bill.

Mr. Corbett felt that the footage bill might be better for the purposes of encouraging wider exploration.

Mr. J.H. Waterhouse felt that when operating under a government patronage system, which he said we are, he could see where it was necessary to force the taxpayer to do those things that under the free enterprise system the independent producer would do himself. Mr. Waterhouse then expressed his dissatisfaction with some of the Commission's Rules and Regulations, particularly concerning prorationing.

Mr. Siler requested more information about bank oil financing and helium pricing.

Mr. Bannister explained the many facets of why and how drilling contractors and lease brokers obtain bank financing in oil areas. Institutions in Arizona were not familiar with this type of finance. Since there is a small demand, and looking to the future, talks have been had with the local banks. Valley National Bank so far is the only institution who has taken this concept to their policy-making board and are making further study in other

Minutes of Meeting  
April 20, 1966  
Page 3

states.

Mr. Bannister, further, clarified the State Land Department-Kerr McGee helium price suit.

Mr. Bannister reported that the ArkLa potash exploration program is still secret. Inasmuch as ArkLa is drilling under a mining permit rather than an oil and gas lease, they come under the surveillance of the Commission only because they penetrate the coconino formation.

Mr. Bannister introduced Dr. Pye as being present at this meeting as a representative of American Association of Petroleum Geologists in connection with the fiftieth anniversary of that Association's organization.

Dr. Pye cited the history of American Association of Petroleum Geologists in promoting and developing the oil and gas industry.

Chairman Lockhart read the memorial letter to this Association from the Commission, signed by all the commissioners. Dr. Pye, on behalf of the Association, presented to the Commission a paperweight made from an oil well core.

The meeting adjourned at 11:05 a.m.

APPROVED May 18, 1966

Lynn Lockhart, Chairman

May 6, 1966

Memo to: Commissioners  
From: John Bannister, Executive Secretary  
Re: Report of Activities

Together with Dr. Willard Pye I visited the Skelly #1 Federal well, located SE/4SE/4, 2-39N-7W, Mohave County. At this time the well was drilled to a depth of 3,160 feet and had not encountered any shows.

The well drilled easily. Although there was a little lost circulation problem, it was easily overcome.

As of May 6th, the well was drilling at 3,550 feet. It is approximately 1,000 feet above target depth and should be completed within ten days to two weeks. There will be no significant formations to look at until the well approaches total depth.

While in this area Dr. Pye and I took a general geological survey of the northern portion of Mohave County, and I would like to officially express my appreciation for his time and teaching.

On May 4 and 5th there was a large amount of leasing in southern Navajo and Apache Counties. Tenneco took approximately 80,000 acres and two independent lease brokers, Dan Johnston and Jack Hansen, took approximately 35,000 acres of State leases. The lease play followed closely the northern portion of the Mogollon Rim, and is principally in Townships 9 through 12 North and Ranges 16-31 East. It is possible that the total acreage has been executed for Tenneco, however at this time more definite news is not available.

Apache Drilling Co. Inc. recently announced that Holmes & Narver, Inc., engineering contractors from Los Angeles, California, have been given a contract to complete the design of the new helium plant. This contract was let through LaFleur Corp.

Mr. C.T. Henderson has advised that while the beginning phase of the plant has been delayed, the ultimate target dates of October for the beginning of the shakedown runs and January 1, 1967 for full plant operations, are still firm dates. I have been informed that LaFleur Corp. is actually engaged in pre-fabricating the plant at this time.

The Willett well has been closed out as to operations by George Willett and a new permit was taken by Mr. James M. Potter of Flagstaff to take this well on down. This well is located southwest of Flagstaff in SW/4NW/4 24-20N-5E. Mr. Potter has posted a new bond and Mr. Willett has completed his obligations to the Commission.

There has been no report from the C & J well and the Commission has ordered this well plugged. A date of June 20, 1966, or 60 days, was given to the company in which to comply with our plugging order. Should this not be done, we will turn to their bonding company for compliance with our regulations.

There has been no development on the Ari-Mass well in Pinal County. However, the State lease upon which this well is being drilled is now in jeopardy due to lack of rental payment. Should this lease expire the Commission will of course order this well plugged and abandoned.

Kerr-McGee has completed their #3A well, located NE/4NE/4 4-19N-26E, Apache County, as a helium producer. This well is located on Pinta Dome Unit Iv. The original Pinta Dome #3 well will be plugged and abandoned as it had begun to make water. The #3A well was completed at 584 MCF per day.

New Permits:

- 350 Ferrin #1 Aja Cattle Co.-Babbitt Bros. Fee, NW/4SW/4 4-17N-16E, Navajo County
- 351 Potter #1 State 8219, SW/4NW/4 24-20N-5E, Coconino County (formerly Willett #1 State well)

By letter dated April 28, 1966, El Paso Natural Gas Company has requested that the State of Arizona consider changing its pressure base for potential production tests from 15.025 psia to 14.73 psia. This request was accompanied by copies of a directive dated December 21, 1965 over the signature of

Raymont T. Bowman, Assistant Director for Statistical Standards, Bureau of the Budget to the Department of the Interior advising that the federal pressure base would be set at 14.73 psia for the purpose of all reports and statistics concerning natural gas.

As you may be aware, in Section A of our Rules and Regulations, Page 1, definition 6, a cubic foot of gas is defined at a standard pressure base of 15.025 pounds per square inch at 60 degrees Fahrenheit. Should the Commission desire to change to a pressure base of 14.73 psia it would require a hearing. No action of the Legislature would be required.

One effect of changing the pressure base would be to somewhat enlarge the volumes of gas reported.

On July 18-20, 1966 the Petroleum Engineering Associates are conducting "Thermal Recovery Techniques Short Course: in Los Angeles. This course covers recent techniques developed in the mechanics of secondary recovery, particularly of heavy oil formations.

It is felt that the opportunity to upgrade the knowledge of the staff should be taken advantage of and consequently we are requesting the Commissioner's permission that both Mr. Scurlock and I be permitted to attend this school. The registration fee per person is \$100.00.

I would like to point out that this money must come from out-of-State travel expense allotments. However, inasmuch as the December 1966 meeting of Interstate Oil Compact Commission will be held in Phoenix, there will be sufficient money to allow this expense.

May 13, 1966

Memo to: Commissioners  
From: J.R. Scurlock, Geologist  
Re: Report of Activities

April 5. Holbrook: conferred with Mr. Car regarding data for our structural map, which should soon be ready for final drafting.

Many Farms: Checked Cactus well. Drilling at 5,702 feet. They have since plugged at total depth 5,720 feet in granite.

April 6. Winslow: Checked Ferrin well. Drilling at 400 feet. They have since tested water in the Coconino.

May 11. Flagstaff: Conferred with Bill Breed (Museum of Northern Arizona) re our structural map.

Skelly #1 Federal A has plugged in the Mississippian at total depth 4,031 feet. No shows encountered. Total cost of well (which was drilled with very little lost-circulation trouble) approximately \$150,000.

STATEMENT OF LEDGER TRANSACTIONS  
APRIL 1966

	Expenditures Current Month	Total Expenditures to date	Outstanding Encumbrances	Allotment to date	Unexpended Allotment to date	Total Appropriation	Balance of Appropriation
Personal Services: Staff	\$2,215.00						
Commissioners	<u>250.00</u>						
TOTAL	\$2,465.00	\$24,117.50		\$29,500.00	\$ 5,382.50	\$29,500.00	\$ 5,382.50
Current Expenditures-Other							
Telephone	\$ 93.74						
Miscellaneous: office supplies, stationery printing, geology publications	<u>287.90</u>						
TOTAL	\$ 381.64	\$ 4,413.51	\$181.00	\$ 7,350.00	\$ 2,755.49	\$ 7,350.00	\$ 2,755.49
TOTAL Subscription-organization Dues	18.20	\$ 76.40	\$ 3.00	\$ 150.00	\$ 70.60	\$ 150.00	\$ 70.60
Travel-State: Staff	\$ 166.00						
Commissioners	<u>217.00</u>						
Gasoline-related	<u>109.52</u>						
TOTAL	\$ 492.52	\$ 3,704.59	\$200.00	\$ 5,000.00	\$ 1,095.41	\$ 5,000.00	\$ 1,095.41
TOTAL Travel out-of-State	\$ 31.24	\$ 1,512.04	\$140.00	\$ 2,500.00	\$ 847.96	\$ 2,500.00	\$ 847.96
TOTAL Capital Outlay Equipment		\$ 3,000.00		\$ 3,000.00		\$ 3,000.00	
TOTAL Current Fixed Charges		\$ 286.70		\$ 450.00	\$ 163.30	\$ 450.00	\$ 163.30
TOTAL Professional Services	\$ 30.00	\$ 108.60		\$ 2,000.00	\$ 1,89.40	\$ 2,000.00	\$ 1,891.40
TOTAL Museum Northern Arizona		\$ 1,875.00		\$ 2,500.00		\$ 2,500.00	\$ 625.00
TOTAL Arizona Bureau Mines	\$ 625.00	\$ 2,500.00		\$ 2,500.00		\$ 2,500.00	
TOTAL	\$4,043.60	\$41,594.34	\$524.00	\$54,950.00	\$12,831.66	\$54,950.00	\$12,831.66

RECEIPTS: Current Month \$ 50.00  
Year to date \$ 775.00  
Balance \$8,645.25



9B  
PAUL FANNIN  
GOVERNOR

LYNN LOCKHART  
CHAIRMAN

R. KEITH WALDEN  
VICE CHAIRMAN

CHARLES KALIL, M.D.  
MEMBER

ORME LEWIS  
MEMBER

LUCIEN B. OWENS  
MEMBER



OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

ROOM 202

1624 WEST ADAMS

Phoenix, Arizona 85007

PHONE: 271-5161

JOHN BANNISTER  
EXECUTIVE SECRETARY

JOHN K. PETTY  
PETROLEUM GEOLOGIST

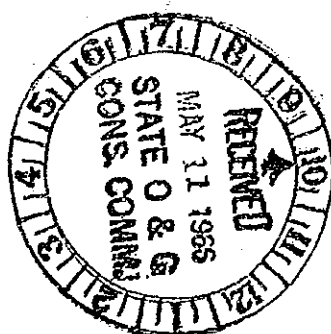
Holbrook, Arizona.  
May 10 1966

Mr Lynn Lockhart, Chairman  
✓ Mr John Bannister, Executive Secretary

Due to conditions coming up on the date of our May meeting  
of the 18th., it will be impossible for me to attend.

Sincerely,

*Lucien B. Owens*  
Lucien B. Owens



PETROLEUM ENGINEERING ASSOCIATES

Suite 202, 302½ South Second Street

Phone 307-742-3521

Laramie, Wyoming 82070

May 2, 1966

John Bannister, Executive Secretary  
Arizona Oil and Gas Conservation Commission  
1624 West Adams Street  
Phoenix, Arizona

Dear Mr. Bannister:

Enclosed is a brochure presenting the details of the "Thermal Recovery Techniques Short Course" which we have scheduled for Houston on July 6 through July 8 and for Los Angeles on July 18 through July 20, 1966. The course has been presented in Calgary, Alberta and in Denver this year.

We are sure that the course will be of considerable current interest and value to your organization in view of recent advances in the use of insitu combustion and hot fluids (steam, water, inert gases) for the recovery of heavy oils. The course will be taught on a practical level and will include a handbook containing the significant technical papers, tables and graphs necessary for the solution of the thermal oil recovery problems of engineering interest. The handbook will also include a thorough discussion and mathematical treatment of the problems surrounding the recovery of oil by the application of heat as taken from the recently completed book titled "Mechanics of Secondary Oil Recovery" by Charles R. Smith.

Viscous crude reservoirs are known to exist in most parts of the United States and in widely scattered locations throughout the world. A preliminary estimate indicates that 40 billion barrels of heavy oil deposits may now be producible in the United States by the thermal oil recovery methods. If true, this will result in a more than doubling of the 32 billion barrels of proven reserves of the United States.

Please note that the enrollment deadline is June 22 for the Houston session and is July 6 for the Los Angeles meeting.

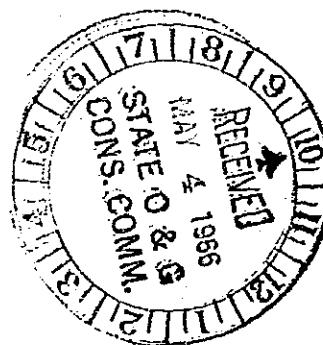
Yours very truly,

*R. D. Rinehart*

R. D. Rinehart, P. E.  
Partner

RDR:bs

Enclosure



# THERMAL RECOVERY TECHNIQUES SHORT COURSE

Sheraton-Lincoln Hotel  
 Houston, Texas  
 July 6-7-8, 1966

Presented by  
 PETROLEUM ENGINEERING ASSOCIATES  
 Laramie, Wyoming

Statler Hilton Hotel  
 Los Angeles, California  
 July 18-19-20, 1966

## Enrollment

The course will be offered to a minimum of ten students and is limited to a maximum enrollment of forty students.

ENROLLMENT DEADLINE: Houston - June 22 Los Angeles - July 6

## Requirements for Enrollment

Persons enrolling in the course should have a basic understanding of reservoir engineering, either by formal education or practical experience.

## Course Material

All course material will be provided and covered under the registration fee. The course material will include copies of the chapters of a book to be published by Dr. Smith pertaining to the subject and reprints of significant and current technical papers. Participants will be required to furnish a notebook, pencil, slide rule, ruler, and French curve. All other materials will be furnished.

## Instructors

Charles A. Smith, Ph. D.  
 Assoc. Professor of Petroleum Engineering, University of Wyoming,  
 Partner - Petroleum Engineering Associates  
 Richard D. Rinehart  
 Partner - Petroleum Engineering Associates, formerly associated  
 with Saturn Oil & Gas Company, Inc.

## Arrangements

A fee of \$150.00 per person will be charged with a deposit of \$50.00 at the time of enrollment, balance to be paid at the time of the first meeting. Deposit will be returned in the event that minimum enrollment is not achieved. Make checks payable to Petroleum Engineering Associates.

## COURSE OUTLINE

### First Day

Lecture Sessions - 8:00 a.m. - 12:00 p.m.

1. Calculation of Oil Reserves - Heavy Oil Deposits
2. General Discussion of Thermal Recovery Techniques, Equipment Aspects and Field Techniques
3. Application of and Principles of Insitu Combustion
4. Insitu Combustion Performance Calculation Techniques - Forward Combustion

Problem Sessions - 1:00 p.m. - 5:00 p.m.

1. Calculation of Secondary Oil Recovery Reserves
2. Problem on Reservoir Performance under Pattern Forward Combustion

### Second Day

1. Combustion Zone Temperatures and Reservoir Temperature Profile Determination
2. Air Requirements and Fuel Availability
3. Theory for the Reverse Combustion Process, Novel Modifications to Conventional Insitu Combustion Method
4. Descriptive Analysis of Steam Injection for Secondary Oil Recovery, Equipment Aspects, Field Applications and Techniques

1. Calculation of Heat Conduction and Convection in the Formation
2. Review of Temperature Distribution Calculation Methods
3. Calculation of Fuel Availability
4. Calculation of Heat Losses - Surface Facilities

### Third Day

1. Calculation Technique - Heat Losses in Surface Facilities
2. Calculation Technique - Heat Losses in the Wellbore - Hot Single-Phase and Two-Phase Fluids
3. Performance Techniques - Huff-and-Puff Stimulation Techniques
4. Performance Principles - Pattern Steam and Hot Water Injection on Well Pattern Basis
5. Review

1. Calculation of Heat Losses - in the Wellbore
2. Calculation of Heat Losses - in the Reservoir
3. Calculation of Hot Water Drive Performance
4. Prediction of Pattern Performance - Pattern Steam and Hot Water Injection
5. Review of Problems

Lunch - 12:00 a.m. - 1:00 p.m. - To be provided each day.

The growing importance of thermal recovery techniques and their economic impact has created a gap in the technical background of most oil industry personnel. Petroleum Engineering Associates presents the practical aspects of this timely and important topic in a manner designed to provide personnel with a technical background, a foundation in the theories of thermal recovery technique, their practical application and the economic aspects of the various parameters involved.

The thermal recovery techniques short course following the course outline (presented above) will be presented at the locations and dates indicated. It is recommended that reservations for the course be made at an early date to assure your place. Persons desiring room reservations should make arrangements directly with the respective hotels.

Please make \_\_\_\_\_ reservation(s) for the Thermal Recovery Techniques Short Course to be presented at the location indicated below:

\_\_\_\_\_ Houston, Texas, July 6-7-8, 1966  
\_\_\_\_\_ Los Angeles, California, July 18-19-20, 1966

Find enclosed check in the amount of \$ \_\_\_\_\_ as deposit for \_\_\_\_\_ reservation(s), balance of \$100.00 per person to be paid at first meeting.

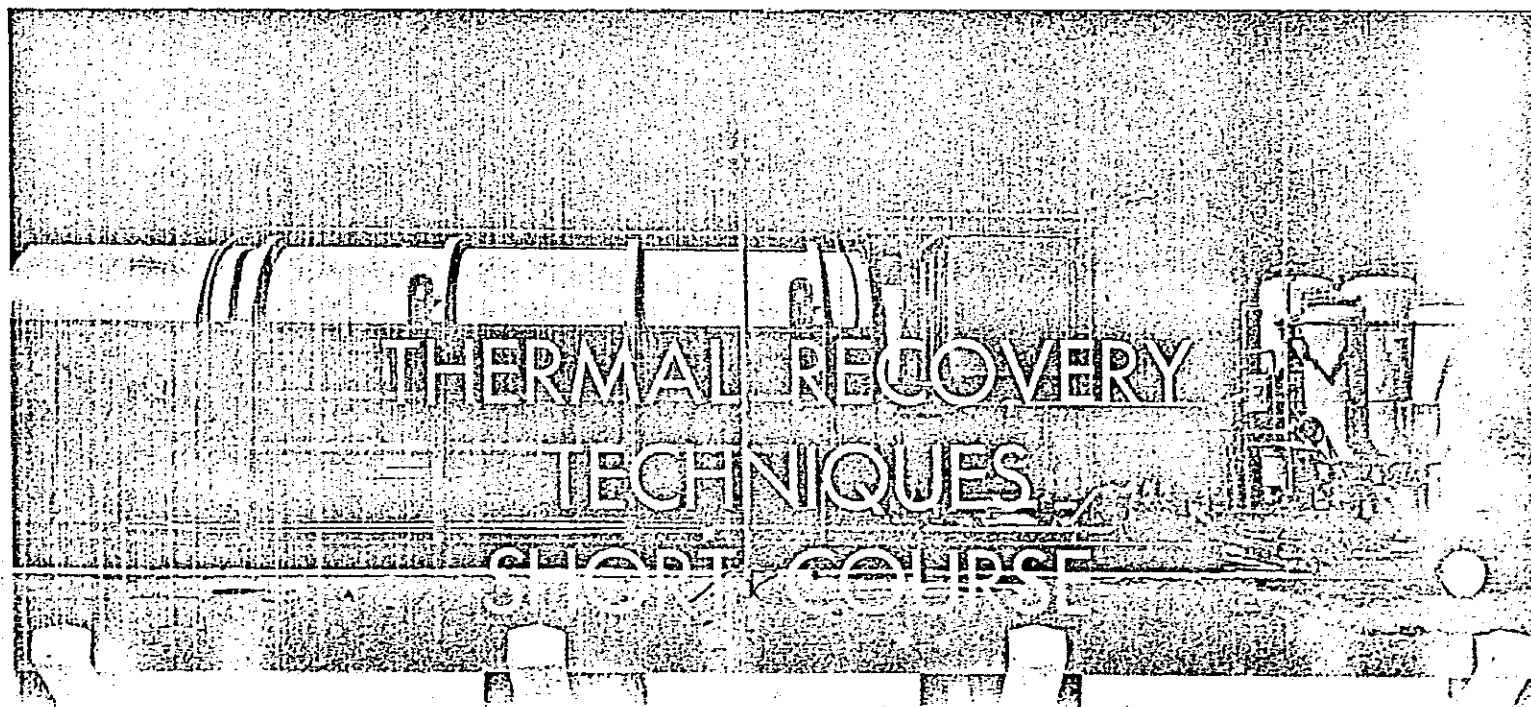
Name: \_\_\_\_\_

Company: \_\_\_\_\_

Street or Box No.: \_\_\_\_\_

City \_\_\_\_\_, State/Province \_\_\_\_\_

PETROLEUM ENGINEERING ASSOCIATES  
Suite 202, 302½ South Second St., Laramie, Wyoming



# GAS WELL OPEN FLOW POTENTIAL TEST REPORT

## 4-POINT TEST

Initial ☐ Test Annual ☐ Special ☐

Field		Reservoir				Test Date	
Operator		Lease				Well No.	
County	Location				Completion Date	Total Depth	T/Pay
Producing Thru TBG.	CSG.	Reservoir Temperature °F	Wellhead Temperature °F	CSG. Size	Wt/Ft.	I.D.	Set @
TBG. Size	Wt/Ft.	O.D.	I.D.	Set @	Gas Gravity (Separator)	Av. Prod. Length (L)	GL
Pipeline Connection				Type Taps			
Multiple Completion (Dual or Triple)				Type production from each zone			

## OBSERVED DATA Flow Data

No.	Time of Flow Hours	(Prover) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h w	Tubing Press. psig	Casing Press. psig	Flowing Temp. °F
SI								
1.								
2.								
3.								
4.								

## FLOW CALCULATIONS

No.	Coefficient (24 Hr.)	$\sqrt{\frac{h}{w}}$	Pressure psia	Flow Temp. Factor $\frac{F}{t}$	Gravity Factor $\frac{F}{g}$	Compress. Factor $\frac{F}{pv}$	Rate of Flow Q MCF/D
1.							
2.							
3.							
4.							

## PRESSURE CALCULATIONS

	$\frac{P_w}{P_t}$ (psia)	$P_t$	$F_c Q$	$(F_c Q)^2$	$(F_c Q)^2 \times 1 - e^{-s}$	$P_w^2$	$P_c^2 - P_w^2$	Cal. $\frac{P_w}{P_c}$	$\frac{P_w}{P_c}$
1.									
2.									
3.									
4.									

Absolute Potential

MCF/D

n

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the \_\_\_\_\_ of the \_\_\_\_\_ (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature

STATE OF ARIZONA OIL & GAS  
CONSERVATION COMMISSION

Gas Well Open Flow Potential Test Report (4-Point Test)

Form No. G-1

File two copies

Effective \_\_\_\_\_, 19\_\_\_\_