In this study, a great deal of attention is given to the "percentage of acreage option." We assume this is the reason for granting the Commissioner authority to withhold acreage from any sale areas under Section 180 (c) (4) (f). Under this scheme, certain amounts of acreage would be withheld from a sale so that following a discovery the state could collect a windfall on drainage acreage sales. This is a workable approach only if you know which acreage to withhold and on which structures. This is rarely the case, as we saw in the MAFLA, Gulf of Alaska and NPRA. Furthermore, industry cannot bid or drill on only portions of prospects in high risk or high cost areas which predominate in Alaska.

I would like to make a few more comments about the Department of Natural Resources' report. The one overriding conclusion of that study was that a variety of bidding methods, widely employed, would increase the state's return from its commitment of oil and gas properties.

Chevron believes this conclusion is biased against cash bonus bidding, and we feel that the odds are against anyone knowing all they need to know to use the right method at the right time. The state, even if armed with a skilled staff and large amounts of data, can hope to do no better than an individual company in evaluating potential and risks, and these companies are more often wrong than right in their appraisals.

We believe the state's report, and particularly its main bias against cash bonus bidding, is based on a few but major faulty economic assumptions.

First, the authors of the report assume that the industry will make an 18 percent rate of return. Although this is very desirable, and would not be out of line considering the high risk involved, past experience shows that the industry has averaged no more than seven to eight percent from OCS ventures which approximates Alaska lands, according to several exhaustive studies. For example, in May 1977 Prof. Walter J. Mead of U.C. Santa Barbara testified before a U.S. House of Representatives Committee that weighted average rate of return from 184 leases issued in the Gulf of Mexico in 1954-55 amounted to only 7½ percent before taxes. This sale period was selected because these leases have a 20-year production history which provides a com= prehensive data base.

Second, no reduction of state income was assumed in royalty cases, but it almost certainly will occur. The economic limit of a field is going to be greatly influenced by the amount of royalty. The higher the royalty, the earlier the economic limit is reached. When an operator can no longer produce oil or gas profitably the result will be oil and gas left in the ground and neither industry, nor the state, will make any money on it.

* * *

Next, I would like to turn to the provision of the bill that would require the lessee or permittee to make available to the Commissioner all data obtained from exploration and production activities on the lease or permit. We believe this provision raises fundamental questions about the appropriateness of the state's entry into the exploration business, and secondly, points to grave problems—from our point of view—about the preservation of confidentiality.

(subsection (aa))

should but
The language in the proposed legislation does not distinguish between, "raw", "processed" and "interpretative" data. We are unalterably opposed to providing the state with the results of the efforts of our interpretative staff. Industry cannot operate under this law. We urge the committee to delete this section.

We are also opposed to giving the state our basic geophysical data. We are not convinced that the state can hold this data confidential because of its large staff and turnover rate. Any leak of this sensitive information to our competitors definitely will have an immediate and adverse impact on our exploration program in this state.

The third provision we object to (Sec. 38.05.180(v)) gives the state the right to purchase up to 16 and two-thirds percent of the lessee's share of the oil and up to 100 percent of the lessee's gas.

We are not opposed to the state's right to take its royalty share of oil or gas in kind, but we oppose any provisions which empowers the state to take any portion of the lessee's share.

In order to justify the risk and expense of exploration and development, and be able to satisfy its contractual commitments, the lessee must retain the right to dispose of all of its share of production. Without this right, the state of Alaska lands become less desirable to explore and develop. We believe this is another step toward the state's entry into the oil and gas business, which should stay with private industry.

It seems inconceivable to Chevron that the state would take a portion of the lessee's share when that is the very incentive for industry to explore in the state initially.

Another provision we oppose is Paragraph Q. Paragraph Q refers to drilling and development contracts and to the authority of the state to share in the cost of exploration.

We're not clear on the meaning and intent of this paragraph. If it means the state intends to become a working interest participant in leases, then we strongly object.

Our next objection concerns the terms and conditions of the lease itself. Because of the remoteness of most of Alaska's land and the seasonal restriction on operations, Chevron prefers a ten-year primary lease term. We feel this length of time is necessary to adequately evaluate a lease under Alaskan conditions.

There is one provision which would allow the Commissioner to grant rights on leases only to the depth drilled at the time production begins. Chevron is at a total loss to see how this provision can benefit the state in any way. It will certainly cause waste in time and money for the industry because wells will be drilled far beyond primary objectives--just to ensure earning the rights of a normal lease. In effect, this will delay production and thereby delay revenue to the state.

Considering the geological, legal and practical ramifications of this provision, one must conclude that it is totally unacceptable to the industry and can do the state no good. It should be stricken from the bill.

Our next objection is to any effort to restrict joint bidding between majors or multinational companies. In Alaska, particularly, with its accompanying expensive costs of exploration and production, it is essential for large and small companies to be able to join together to share the risk.

A ban on joint bidding by majors does not necessarily increase state income. In fact, a recent study by the Department of Interior showed that joint bidders tend to bid higher, on the average, than solo bidding competitors. (November 1976 issue of the Journal of Petroleum Technology.)

The next provision we wish to discuss deals with the need for the Commissioner to submit and defend his leasing program to the legislature. We prefer that the various reporting methods set out in this section not be prescribed in law. We believe this review is an administrative function and that public hearings are an adequate and effective vehicle for gathering comments and reactions to the proposed action. Neither the timber leases nor any other types of state lease are submitted to the legislature, and to require this approach in law for the petroleum industry will lead to further delays in development of the state's natural resources. Particularly objectionable to us is the requirement that the Commissioner must defend his previous year's program and explain why he used certain methods. This is certain to toss the entire leasing program into an interminable bureaucratic morass.

And finally we oppose the provision which deals with acreage chargeability. We believe the reduction to 200,000 acre limitation on uplands is arbitrary and unjustified. The 500,000 acre limitation in this state, where there are large areas of state lands potentially available for bid, is not unreasonable. A large acreage position is necessary as an incentive for an operator to explore frontier areas.

In closing, Mr. Chairman, Chevron believes H.B. 854 is an unreasonable, unwise and unworkable piece of legislation that simply is not in the best interest of the citizens of Alaska.

As I said at the outset of my remarks, my own company would be faced with the prospect of seriously reassessing its current and future exploration activities on Alaska state lands if this bill is enacted.

It is our opinion that this legislation will only serve to inhibit or prevent the orderly exploration and development of Alaska's oil and gas properties.

We oppose a shift away from the successful cash bonus bidding system because we believe that the cash bonus ensures a fair and equitable return to the state, as well as ensuring the fair share of any revenue resulting from production.

It is conceivable that Prudhoe Bay may not have been found if royalty or net profits bidding or percentage acreage option had been employed.

Mr. Chairman, members of the committee, we have serious concern that if this legislation becomes law, the ultimate losers will be the citizens of this state, as well as the consumers of oil and gas.

Thank you for giving Chevron this opportunity to comment on this proposed legislation.

* * *

Rep. Malone

File, HB 854.

EXPERIMENTATION IN ALASKA'S OIL AND GAS LEASING PROGRAM

AN ANALYSIS OF LEASING POLICY ISSUES RAISED IN H.B. 854

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EXPERIMENTATION IN ALASKA'S OIL AND GAS LEASING PROGRAM

-An Analysis of Leasing Policy Issues Raised in H.B. 854-

PAGE

Introduction: David S. Mace i

PART I: AT THE CROSSROADS

I. THE IMPORTANCE OF OIL AND GAS POLICY DECISIONS

A. Global Prospects 1
B. Alaskan Outlook 4
C. Implications 5

II. OBJECTIVES FOR ALASKA'S OIL AND GAS LEASING PROGRAM

A. Objectives Outlined for H.B. 854 6
B. Objectives Related to Federal Legislation 9
C. Alaska's Leasing Objectives: Problems and Priorities 11

III. BROAD ISSUES AND OBJECTIVES

A. Data Acquisition: How Useful? 13
B. Experimentation in Leasing: How Successful? 15
C. Oil and Gas Leasing: How Competitive? 21

PART II: H.B. 854: PROBLEMS AND SUGGESTED AMENDMENTS

I. PROPOSED AMENDMENTS TO MAJOR PROVISIONS

Subject

A. Objectives (Findings) 25
B. Procedures 26
C. Lease Methods 27
D. Reduction of Royalty 27
E. Bonus Bid Defferal 27
F. Withholding Acreage 27
G. W -k Credit 29
H. Terms and Regulations 31
I. Lease Terms: 31
J. 90-Day Provision 31
K. Role of Commissioner re Conservation 32
L. Non-competitive Leasing 32
M. Joint Bidding Prohibiti ns 33
N. State's Right to Purchase Oil and Gas 33
O. Data 34
P. Acreage Limitation 34

II. SUMMARY AND CONCLUSIONS

ATTACHMENTS

1. Suggested Amendments to H.B. 854.

2. M.I.T. Professor John W. Devarney III, "How to Bid for Offshore Rights," Technology Review, February 1976, p. 44.

3. "Alberta, Canada: Exploratory Drilling Incentive System," The Landman, March 1978, pp. 18-20.

4. Articles from Mineral Leasing as an Instrument of Public Policy, British Columbia Institute for Economic Policy Analysis, 1977:

   - Gregg K. Erickson, "Work Commitment Bidding"

   - Dale R. Jordan, "Petroleum Leasing in British Columbia"

   - Walter J. Mead, "Cash Bonus Bidding for Mineral Resources"

   - Arlon R. Tussing, "The Role of Public Enterprise"

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SOHIO–BP ALASKA PRODUCTION DIVISION

March 28, 1978

Rep. Al Osterback
Chairman
House Natural Resources Committee
Alaska State House of Representatives
Juneau, Alaska

Dear Rep. Osterback:

When I testified before your committee two weeks ago on H.B. 854, I indicated then that Sohio Petroleum Company would be willing to submit additional information in written form to the committee, in further consideration of changes in Alaska's oil and gas leasing policies.

In this regard, attached is a memorandum, "Experimentation in Alaska's Oil and Gas Leasing Program: An Analysis of Leasing Policy Issues Raised in H.B. 854," prepared by our staff in Anchorage. An addendum presents suggestions for new language in certain sections of H.B. 854 that in our opinion would improve the bill from the State's standpoint as well as that of industry's. We hope you will consider our suggestions as constructive, if critical.

In general, we feel that H.B. 854 as it is now written would create a bias in the State's leasing system toward experimentation with procedures that are unusual and new in Alaska. Our suggested language changes would essentially create a bill that would give the Commissioner of Natural Resources the flexibility that he desires, but with a bias instead toward relying on well-known and proven leasing systems, unless special circumstances would call for the use of an alternative bidding system.

We are also concerned over the extent to which the Administration, in proposing H.B. 854, has simply tracked many concepts (and copied specific language in many cases) from OCS bills now in Congress, without an apparent close examination as to whether these specific provisions proposed for federal OCS sales are really appropriate for the State of Alaska.

We hope you will find this information useful in your consideration of H.B. 854.

With regards,

AGO 547143

D.S. Mace
Assistant General Manager

PART I: AT THE CROSSROADS

I. THE IMPORTANCE OF OIL AND GAS POLICY DECISIONS

A. Global Prospects

The Workshop on Alternative Energy Strategies (WAES), a two-year international energy and economic project, directed by the Massachusetts Institute of Technology, recently released their final report which indicated that:

(1) All energy resources and conservation measures must be developed vigorously to meet total projected demand in the period 1985 - 2000; and

(2) Energy policy decisions made now will be the critical determinants as to whether or not sufficient incremental supplies will be available to meet demand in the years ahead.

In other words; according to the WAES Report:

> The years up to 1985 are critical ones...We are...on the threshhold of a critical decision period. We cannot afford to waste the years immediately ahead if we are to have any large-scale energy options available before the end of the century. The time for decisive action is now. 1/

In this environment, the importance of H.B. 854, the Administration's proposed oil and gas leasing bill, cannot and must not be underestimated, as Alaska's oil and gas resources can and will play an important role in determining the future global energy, economic and political balance. The critical nature of energy decision-making at this time is further underscored by the following conclusions stated in the WAES Report:

1/ ENERGY:GLOBAL PROSPECTS, 1985-2000, Report of the Workshop on Alternative Energy Strategies, M.I.T. Professor Carroll L. Wilson, Project Director McGraw-Hill Book Company, San Francisco, 1977.

(1) The supply of oil will fail to meet increasing demand before the year 2000, most probably between 1985 and 1995...(p.3)

(2) Demand for energy will continue to grow even if governments adopt vigorous policies to conserve energy...(p. 4)

(3) The continued growth of energy demand requires that energy resources be developed with the utmost vigor...(p.4)

(4) Even if there are no governmental constraints on oil production, oil supply will meet demand only under the most optimistic assumptions about gross additions to reserves...(p.145)

(5) Possible constraints on oil production by members of OPEC are likely to cause oil supply to peak at the latest some-time around 1990 although lower production limits could bring this date forward into the early 1980's...(p.145)

(6) All the effort put into oil exploration around the world over the past one hundred years has only yielded 240 large oil fields...(p.123)

(7) With only a small chance of either discovering a new Middle East or discoveries in the Middle East as large as in the past, the past rate of genuine new discoveries can only be achieved if a large number of smaller producing areas are found. (p.122)

(8) Given lead times of 5-10 years or more for many projects, failure to make necessary near-term commitments or to resolve a variety of current restraints on production, or to develop future supplies may foreclose some options for 1985. (p.265)

(9) Failure to recognize the importance and validity of these findings and to take appropriate and timely action will almost certainly result in a world different from the one on which these projections have been based. (p.5)

(10) Failure to act could lead to substantially higher energy prices as the supply/demand imbalance becomes more apparent with the consequent frustration of the aspirations of the less developed countries. The major political and social difficulties that might arise could cause energy to become a focus for confrontation and conflict. (p.5)

(11) The longer the world delays facing this issue the more serious the outcome will be. Even with prompt action the margin between success and failure in the 1985-2000 period is slim. Time has become one of the most precious of our resources. (p.5) 2/ (Emphasis added)

2/ Ibid., pages as indicated above.

Another important point in the Report relates to the size of future oil fields. Worldwide, over 30,000 oil fields have been discovered, but about 75 percent of the oil lies within 240 large fields, each with over 500 million barrels of recoverable reserves. 3/

Out of the tens of thousands of producing oil fields in North America, there are only five fields that have recoverable reserves of more than 500 million barrels (Prudhoe Bay, which is new; and Elk Hills and Wilmington in California, and East Texas and Yates in Texas, all of which are old fields). Despite a great deal of exploration in North America, there has been no recent discoveries of fields more than 500 million barrels, except Prudhoe Bay. In other words, the probabilities of finding large new fields on the order of Prudhoe Bay has significantly diminished, not only globally, but also in the United States.

The WAES Report also makes clear that in certain environments, such as the North Sea, a 500 million barrel field is at the economic margin. 4/ Because of the particularly harsh environment in Alaska's North Slope, and elsewhere in the unexplored part of the State, a field that may contain even more than 500 million barrels of oil could be right on the edge of economic viability in Alaska, given the uniquely high costs and transportation difficulties.

While all of the above has critical implications both for the United States and Alaska, there are yet another set of reasons why we believe that the designing of the future oil and gas leasing program in Alaska deserves serious and careful consideration.

3/ Ibid., p.123

4/ Ibid.

B. Alaskan Outlook

In a sense, the State of Alaska is facing on a smaller scale some of the same problems described earlier on a global scale. Whereas world oil production may begin to decline in about seven years, so also will Prudhoe Bay. The fact has important implications to all Alaskans and, in view of the revenue needs of the State, it would appear to be in the State's interest to encourage a steady, ongoing oil and gas development program in parts of the State with petroleum potential. But the historic rate of genuine new discoveries can only be achieved worldwide if a large number of small producing areas are found. Likewise the future of petroleum discoveries in Alaska will most probably involve smaller fields which will be more costly to develop.

Actually, the possibility of finding another Prudhoe Bay-sized field in Alaska is extremely remote. Further, because of the very high costs of operating in much of Alaska, the size of a discovery must be larger in Alaska than it would in other states to make the project economic. Even the Lisburne and Kuparuk oil pools, which according to State estimates range in potential from one to two billion barrels, are marginally economic and may be typical, in terms of economics, of many future oil and/or gas finds in Alaska. All this tends to suggest that Alaska is special and needs to pay closer attention to the development of her resource policy than a State like Louisiana, for example.

Some have argued that Alaska might be better off 'sitting on' her potential oil and gas resources and waiting for the world oil price to rise even further. Dr. Arlon Tussing, an Alaskan economist and advisor to the Senate Energy Committee, considers this attitude, "simplistic" and "naive."

In real terms, world oil prices may stabilize as a result of a prolonged period of relatively low economic growth which would result in lower growth rates for energy consumption than is generally projected. Additionally, as global attention is increasingly focused on energy, the drive to conserve energy and to develop heavier oils, such as Athabascan tar sands, Rocky Mountain oil shale and Orinoco tar belt; and substitutes for conventional oil and gas will increase. Again, to quote Dr. Tussing, "if you choose to 'sit on' your oil and the decision was wrong, the resultant imbalances could be serious."

A final serious consideration for Alaska relates to a realistic assessment of the growth of State spending. While this subject cannot be addressed in the analysis, there is reason to believe that Alaska's revenue needs in future years requires continuous exploration and development of her oil and gas resources so that new revenues will be coming in as Prudhoe Bay starts to decline. This is especially true when one considers the long lead times involved in exploration and production in the frontier areas of Alaska, where a decade may be needed to find, prove up and begin to develop a field, and where transportation problems can be enormously complex.

C. Implications

Being at the economic/energy crossroads globally -- and in Alaska -- would seem to suggest that it is of critcal importance to the State to (1) carefully delineate its goals with respect to a new oil and gas leasing bill and (2) ensure that the proposed legislation, in its implementation, will achieve the desired goals outlined in the legislation. With this in mind, it would appear appropriate both to review the goals outlined for H.B. 854 and to analyze some of the broad issues raised by the draft legislation.

II. OBJECTIVES FOR ALASKA'S OIL AND GAS LEASING PROGRAM

> "As a prerequisite to a discussion of mineral leasing alternatives there should be a clear statement of the goal (s) to be achieved." 5/

A. Objectives Outlined for H.B. 854

To analyze the objectives outlined for H.B. 854, there are two relevant source documents: the Governor's letter of transmittal and the language contained in the "findings" section of H.B. 854. Both contain ambiguities and sources of conflict that deserve serious attention.

This is important in that the goals and objectives outlined in the legislation reflect the intent of the Legislature, in offering guidance to the Commissioner of Natural Resources.

As described in the bill [Sec. 38.05.180(a)(1)(A-D)] the State's goals are to:

(A) maximize the economic recovery of these natural reosurces in protection of the public interest;

(B) minimize the exploitation of these natural resources in protection of the public interest;

(C) maximize competition among parties seeking to explore and develop the resources;

(D) maximize use of Alaska's human resources;

While (D) is clearly in the State's interest, (B) appears to be in direct conflict with (A) and, in and of itself, could certainly be interpreted to mean more than one thing, e.g., 'sit on' the oil until later or 'protect the environment' or 'don't develop at all,' depending on one's definition of the "the public interest." One might also raise the question as to

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5/ Walter J. Mead, "Cash Bonus Bidding for Mineral Resources," Mineral Leasing as an Instrument of Public Policy, ed. M. Crommelin and A. Thompson, British Columbia Institute for Economic Policy Analysis Series, 1977, p.46

whether (C) could conflict with (A) or is even a necessary goal for the State of Alaska's leasing program or whether the goal to "maximize competition" means having more companies bidding or more competition among current bidders. In short, while goals (A) and (D) appear well-defined, there are important questions that could be raised with respect to the other goals as stated.

If one looks to the Governor's letter of transmittal for guidance on the matter, one becomes more confused. Some of what is presented as broad goals are in fact provisions of the bill related to goals which may in actuality work against the achievement of the overall broad objectives. What appear to be the three major goals of the legislation are presented in paragraph 3 of the Governor's February 17 letter of transmittal on H.B 854:

> "The proposed changes will update the leasing law to provide increased public control over exploration, development, and production from state land, obtain a fair return from our non-renewable resources, and, at the same time, provide land from which explorers may find new energy supplies."

Yet the letter lists six "important state objectives," which include items such as reducing "the length of the term of a lease from ten years to five years..." The reduction of a lease term should not be listed as an "important state objective," it would seem, in that it is not an objective but rather a provision designed to achieve the State objective of assuring "that exploration begins promptly once State land is leased." Whether or not reducing lease terms is the best means to assure prompt exploration or not is not the issue here, but rather the importance of clearly delineating goals (prompt exploration) as opposed to suggested means of implementation (reduce length of term of lease).

While clarifying what are the State's goals may seem academic, the exercise would seem worthwhile, particularly since what are described as "important State objectives" in the Governor's letter appear to conflict with the goals stated in H.B. 854. If it is a State goal in H.B. 854 to maximize competition, for example, then increasing rentals on fields may not be in the State's interest at all and should certainly not be listed as one of the "important State objectives" in the Governor's transmittal letters.

Thus, it would appear to be in the State's interest to set out more clearly, and in some order of priority, what the State is really seeking to do in this legislation. The Commissioner of Natural Resources, who would be designing the leasing program today, and future Commissioners who will be administering the program in future years, need to know what the State really intends and what is most important, given the energy and economic environment today and the future needs of Alaskans. If the Commissioner is given clear guidance by the Legislature as to the overall goals, then the State should be able to rely on the Commissioner to use his judgment and discretion in designing a program that is the best interests of the State.

In addition to the ambiguity relating to the State's most important objectives related to H.B. 854, we are also concerned that the overall legislation would actually deny the Commissioner the very object the bill's proponents suggest they are seeking to guarantee, i.e., flexibility so that the Commissioner may design a program best suited to achieving the State's broad goals. Instead of really allowing flexibility, this bill appears to put stress on the Commissioner by (1) requiring him (her) in many instances to adopt changes; and (2) setting limits on those changes;

and (3) forcing him (her) to account for why this or that was not done, for example, as opposed to merely requesting information as to why what is planned or was done is planned or was done.

Based on studies we have analyzed, we would also suggest that "maximum" experimentation in bidding at this time may not be in the State's interest any more than it is the Federal Government's interest. While we will go into this subject in some detail in Section III, we think it important to highlight here that the Alaska Legislature should be aware that, in many respects, H.B. 854 appears to copy the Federal draft legislation. A brief review of the goals related to the Federal bills would thus appear to be in order.

B. Objectives Related to Federal Legislation

It is noteworthy that the Governor's letter of transmittal states that the "proposed changes will update the leasing law to provide increased public control over exploration, development and production from State land..." (emphasis added). Many in Washington D. C. have been working for years to amend the laws affecting OCS oil and gas exploration and development so as to be able to establish a Federal oil and gas corporation (popularly known by the opponents of the concept as "FOGCO").

While we do not mean to suggest here that the drafters of H.B. 854 are aiming to establish an Alaskan State drilling corporation, we do think it pertinent for the State to analyze the goals and provisions of H.B. 854 in terms of where it would take Alaska, if enacted as presently conceived. Would the result be more exploration and development by private companies, or would the result be added complications in petroleum development and the eventual need for Alaska to establish its own "FOGCO?" We would offer two cautionary notes.

First, Dr. Arlon Tussing has pointed out that "the scholarly literature on public enterprise is remarkably skimpy. Rigorous comparisons - theoretical or empircal - of the economic performance of governmental and private enterprises in the same industry are, to the extent I can determine, nonexistent." 6/

Second, from our own limited experience of government drilling corporations, we would tend to concur with Dr. Tussing's conclusion that a State FOGCO is, as Dr. Tussing says, "unlikely to be as effective a device for maximizing [resource] rents as the combination of a leasing system that takes full advantage of competition among private firms (considering the technology and institutional characteristics of each branch of the ...industry) and an appropriate tax system." 7/

There are a host of reasons given by economists why government drilling corporations (would not) do not serve the public interest, 8/ but the point here is that certainly many companies and analysts view the Federal draft legislation - upon which Alaska's H.B. 854 appears to be patterned - as the first step towards the creation of a FOGCO, especially in that this type of legislation greatly increases the amount of uncertainty and risk related to what is already an uncertain and risky business, that of exploring for oil and gas.

6/ Arlon R. Tussing, "The Role of Public Enterprise," Mineral Leasing as an Instrument of Public Policy, British Columbia Institute for Economic Policy Analysis, 1977, p.163.

7/ Ibid., pp. 168-169

8/ See also "Natural Gas Policy Issues and Options," Prepared at the Request of Henry M. Jackson, Pursuant to R. Res. 45, A National Fuels and Energy Policy Study, Serial No. 93-20 (92-55), 1973, pp. 108-109.

C. Alaska's Leasing Objectives: Problems and Priorities

As the discussion above indicates, we see a host of problems both with the explicit and implicit objectives for H.B. 854. To summarize, we are concerned with:

(1) The Governor's Letter of Transmittal - As this letter is part of the legislative package, it will be used as a reference when, assuming H.B. 854 is passed, a future Commissioner seeks guidance in decision-making. The fact that it confuses objectives and provisions is of concern, especially where some of the provisions that are listed as "important objectives" may be counter-productive to the goals of the legislation.

(2) The Goals Listed in H.B. 854 - At least one goal (B) could be interpreted in drastically different ways, and it is unclear what goals really are most important nor how several of the goals interrelate.

(3) Implicit Goals - While the bill's supporters contend that an important purpose of H B. 854 is to provide the Commissioner of Natural Resources with flexibility in administering the leasing program, several provisions would not only deny real flexibility but also would require justifications for non-experimentation, in effect putting political pressure on the Commissioner to experiment in bidding practices, for example, even though such experimentation may not be, in the Commissioner's judgment, in the best interests of the State of Alaska.

(4) Following the Federal Trend - We are concerned that H.B. 854, in many ways, parallels many of the provisions in the bills passed by the U. S. House and Senate. Whereas the ultimate goal (implicit or explicit) of many supporters of the Federal legislation may be the establishment of a federal drilling corporation, we would question whether or not it is in

Alaska's best interest to so closely follow the Federal lead in this area at this time...or any time. We would also caution the State, particularly about (1) the reasons why data gathering is viewed as the first step in establishing government drilling corporations; (2) the lack of hard evidence and the experimental nature of using different bidding methods; and (3) the issues related to competition and joint bidding.

To take care of the above-described problems relating to objectives, we would like to suggest some new language in the opening section of the bill (see Attachment I). We have sought, through the proposed changes, to highlight the fact that prompt exploration is an important goal which should be stated in the legislation and that this goal is inextricably related to the overall State goal of maximizing State revenue. We have sought also to provide flexibility for the Commissioner without forcing him (implicitly or explicitly) into experimentation. These and other proposed amendments are further explained in the following two sections.

III. BROAD ISSUES AND OBJECTIVES

A. Data Acquisition: How Useful?

While we understand the State's desire to know more about the potential oil and gas resources underlying State lands, we would reiterate what we and other companies have previously stated: obtaining more data from the companies does not necessarily put the State in a better position to evaluate potential resources. In fact the opposite could be true; government officials, looking at company data, might well understate the potential value of proposed lease acreage because of the general conservative nature of a government compared with, for example, the daringness of one Company geologist willing to stake a professional career on an interpretation of exploratory data. It could also be argued that the very nature of a large government agency makes it easier to hide errors of judgment whereas the company which decides to "go" on a project can hold specific employees more accountable for errors of judgment. But the most important fact to remember is that regardless of how much data the State may obtain, the State will never know what it does or does not have unless the State drills.

Since you may not wish to simply take a company's word for it, the following quotation is presented to underscore the importance of drilling as a means of obtaining useful information and to highlight the relative lack of usefulness of data without drilling. This excerpt is from the writings of an acknowledged expert in leasing policy, Professor Walter Mead, University of Southern California at Santa Barbara:

> "...while the technology for oil exploration prior to the drilling has been advanced in the last century, exploration is still subject to extemely high risk. Drilling is the only definitive test to determine the presence of oil or gas. Thus, bonus bids must be

> submitted by bidders and accepted or rejected by the government when neither the buyer nor the seller knows whether and in what quantities oil is present..." 9/ (Emphasis added)

It would seem obvious, therefore, that if the companies -- with all their data and experience -- don't know at the time of a lease sale whether they've just spent millions for the right to put millions more into drilling potentially dry holes, then the government, with the same data, could hardly be better off. And having all the data of all the companies doesn't necessarily lower the risk of error for the government in that the view supported by most of the data of most of the companies (data that might suggest that "Tract 20" is worthless, for example) could be wrong.

Because more is not necessarily better in the exploration data game, many companies do in fact view data acquisition by the government as the first step which will inevitably lead -- and naturally extend to -- the establishment of government drilling corporations. And, as previously noted, Dr. Arlon Tussing does not view "governmental ownership of producing operations" as "the most effective way of accomplishing the social ends for which it is currently being advocated..." 10/

Additionally, Dale R. Jordan details some of the more severe problems of esblishing government drilling corporations:

> "...This article's purpose is not to examine the political repercussions that might occur when dry holes are drilled with public funds; however, we should examine some of the practical considerations involved in the operation of a public company which has an almost exclusive area within which to explore as a result of discouraging the private sector. For the government to discourage both the existing explorer and the entry of any new ones and to expect the public corporation to be able to fill this void suggests that the government is saying, "if the private companies do it, so can we."

9/ Mead, op. cit., p.51.

10/ M. Crommelin and A. Thompson, "Introduction," Mineral Leasing as an Instrument of Public Policy, British Columbia Institute for Economic Policy Analysis, 1977, p.xvi.

Now remember that the private companies comprise all the oil and gas explorers working in the province and those contemplating doing so, given the right opportunities. All these companies have geological staffs, many of who will be geologists who devote most of their time over a considerable number of years entirely to the study of British Columbia's geology. The public corporation could not expect to have such an extensive source of expertise as that available in the free enterprise system. And so the public corporation would suffer from a reduction in the number of ideas generated.

It is not unusual in oil and gas exploration, with its inherent problem of scientific interpretation and evaluation of geological prospects, to find that one company will acquire a block of land, will explore it, and perhaps even drill on it before deciding the search is unsuccessful. The company will then return the land to its owner, the Crown. This does not mean that there are not any commercial hydrocarbons underlying this land; but rather that that particular company was unable to find them. To find these hydrocarbon deposits, a second, a third, or a fourth company should acquire this land, and, if this is done often enough, the hydrocarbon will be encountered, and production will follow. The problem with the public company being the only explorer in the province is that, unless it is fortunate enough to make the initial discovery, it is very doubtful whether there would be enough enthusiasm to have a second, third or perhaps even a fourth try at that particular prospect, with the result that the discovery would not be made. This is surely the worst thing that could happen and is probably the most damning argument against a public corporation moving into an area with an almost exclusive right to explore. 11/

B. Experimentation in Leasing: How Successful?

The simple answer to the above question is "No one knows." The U. S. Government tried royalty bidding on eight tracts in an October 1974 lease sale with questionable results. It appears that neither the industry participants nor government officials found the experiment to be particularly successful.

According to The Oil and Gas Journal, "operators say they doubt royalty bidding will ever surface again except in areas where production is almost certain or possibly in drainage-tract sales. Development of wildcat acreage

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11/ Dale R. Jordan, "Petroleum Leasing in British Columbia," Ibid., pp. 252-253.

can prove too costly on a royalty bid basis, despite the absence of high front-end expenditures normally budgeted under the traditional bonus-bid system." 12/

Similarly, Energy Secretary Schlesinger appeared to be disenchanted with the royalty bidding experience in Louisiana in that, in a letter to Interior Department Secretary Andrus, Schlesinger apparently stated that the Department of Energy has reservations about the effectiveness of the royalty method based on past experience in the Gulf of Mexico. It appears in fact that Schlesinger raised the same objections to the royalty system as had been raised by industry and formerly by officials in the Department of Interior, i.e., that royalty bidding leads to early abandonment of leases because declining production eventually makes the lease unprofitable under a high royalty arrangement.

Significantly, the Department of Energy and the Interior Department are considering the formation of a task force of experts to help analyze pros and cons of the various systems being proposed in the Federal legislation (which were largely copied in H.B. 854). A key problem seems to be a dearth of experts, however, in that few governments have undertaken experiments in bidding practices long enough or in a manner similar enough as that envisioned in the proposed Federal and State legislation, and to paraphrase Dr. Arlon Tussing's comments: scholarly, empirical analysis of the different bidding systems appears to be 'remarkably skimpy.'

One source document, from which we have already quoted, appears to be quite useful, however. Published by the British Columbia Institute for Economic Policy Analysis, Mineral Leasing as an Instrument of Public Policy,

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12/ Mike Long, "Royalty-bidding experiment turns sour," Oil and Gas Journal, May 2, 1977, p.32.

contains articles by an international and interdisciplinary group of economists, mining engineers, businessmen and industry consultants. In an introductory section, Dr. Mason Gaffney describes the report as "an outstanding contribution to a rapidly growing field of study."

Our greatest concern with the proposed legislation is reflected in many of the articles in the British Columbia Institute's report. The publication cites significant problems with many of the bidding systems proposed in H.B. 854. Since each new system is so experimental, moreover, the likelihood of the Alaska's experiments not succeeding is high. An additional concern is that it would be years before the success or lack of success with a given system can be determined.

An example of our concern relates to the use of royalty bidding. Dr. Arlon Tussing, Dr. Walter Mead and others (including now Energy Secretary Schlesinger) have raised objections to royalty bidding for a variety of reasons. In the Report, Professor Hayne E. Leland, University of California at Berkeley, echoes some of their concerns and ours:

> "Competitive bidding theory makes clear that undesirable consequences may follow from royalty or profit share bidding. If there are no bonus payments required, speculative bidding may lead to extremely high royalties or profit shares being bid, with development occuring only in the most favorable circumstances. This happens because firms have little or nothing to lose by bidding high and then failing to explore or develop..." 13/ (Emphasis added)

Gregg Erickson, a well-known Alaskan economist, in his article on "Work Commitment Bidding," suggests that the problems associated with royalty bidding are well known:

> "The problems created by royalty bidding, principally the premature shutdown effect and the potential for speculator induced misallocation of leases, have been well discussed in the literature. More importantly, they are well understood by persons influencing both public and private mineral resource policies." 14/ (Emphasis added)

13/ Hayne Leland, "Comment," British Columbia Institute Report, p.60.

14/ Gregg Erickson, "Work Commitment Bidding," Ibid., p.61.

Yet, it is not clear to us that royalty bidding problems are well understood by the officials who will guide the Department of Natural Resources in leasing decisions in the next few critical years or in the future.

A specific example of why we are concerned relates to the material prepared by the Department of Natural Resources to accompany H.B. 854, entitled "Two Views on Bidding Strategies." Not only are the numerous problems and dangers of royalty bidding (cited by Meade, Erickson and others in the University of British Columbia Report) not even mentioned, but also, after three short descriptive phrases under the heading "Royalty Bid-Fixed Bonus," the Department of Natural Resources, with no further comment, analysis, or explanation, simply states: "The Beaufort Sale is an ideal candidate for a royalty bidding scheme." (Emphasis added)

We view such remarks by the State Administration with concern. As indicated previously, many who have taken the time to study the various proposed bidding methods in depth list extensive problems with various schemes for royalty bidding (see also Attachment 2) and, would hesitate to use royalty bidding schemes of any sort except in drainage sales or where there are known, proven reserves (as mentioned above in the Leland citation). The Beaufort Sea is believed to have a high potential for discovery, but, as in the Gulf of Alaska, the drilling of wells may result in no discoveries, or discoveries of marginal fields. No discoveries - with royalty bidding - means no income for the State of Alaska. And, as royalty bidding adds risk for the State, another quote from Leland is perhaps appropriate here:

> "Note that if the lessor is such that leasing forms a substantial fraction of its revenue (for example the State of Alaska), it may not be optimal to transfer risk from firms to the lessor. Thus, lease contracts which might be appropriate to the federal government may not be appropriate for regional governments". 15/ (Emphasis added)

15/ Leland, op cit., p.60.

In view of the Department of Natural Resources' apparent current ease of decision-making with regard to where and how the current competitive-bid lease system should be abandoned, we feel it important to stress that we concur both with Mason Gaffney and Gregg Erickson as to where the burden of proof should lie, i.e., with those who would change the current system--not, as is implied and indirectly stated in H.B. 854, upon the Commissioner who would be cautious about a great deal of experimentation. In this regard, we believe we are safe in assuming that Gregg Erickson's statement below with respect to the work commitment bidding system would apply to any new proposed bidding system:

> "The adoption of a work commitment bidding system implies a judgment that existing institutions for private exploration of public resources result in a suboptimal rate of resource development.
>
> Any argument for the adoption of such a system must first establish that this is in fact the case..." 16/

Similarly, though in a more general way, Mason Gaffney warns:

> "To serve his citizens best, the statesman should...resist the temptation to use his power to manipulate and control...on the too easy presumption that the market has no rationale or normative value of its own. Generations of economists have established that it has, and governments seeking to improve on it need face a certain burden of proof." 17/

One final point: The effects of the cash bonus bidding method, though not perfect, have been rigorously scrutinized, with over 20 years of experience as a basis for analysis. And, according to Professor Mead's extensive studies related to the results of 35 oil and gas lease sales during the period November 1954 to May 29, 1974, bonus bidding with a fixed royalty is effective:

16/ Erickson, op cit., p.75.

17/ Gaffney, op cit., p.3.

> "On the basis of this evidence, we conclude that competitive bidding for oil and gas leases is sufficiently strong to protect the public interest in obtaining competitive values for its oil and gas resources. This conclusion is further supported by evidence presented above indicating an increase in the average number of bidders and a substantial increase in the average price bid per acre for oil and gas leases". 18/

Thus, it is our judgment that, although in certain, special circumstances, changes in the bidding approach may be advantagous to the State, several factors should be remembered. First, the State currently depends on the petroleum production for some 70 percent of its revenue, most of which is from a field that will begin to decline in about seven years. New exploration in Alaska is vitally needed.

Second, although oil companies by the nature of their business deal daily in risk and uncertainty, there is no question but that, to the extent the State can reduce uncertainty and foster confidence with regard to the use of new bidding systems, oil and gas exploration will be encouraged.

Third, because the new systems are experimental, we would suggest that the burden of proof for adopting a new system for any lease sale be placed on the Department of Natural Resources because the use of any new system involves greater risks and uncertainty not only for the companies but also for the State. The proposed amendments contained in Attachment 1 reflect this analysis and these conclusions.

18/ Mead, op cit., p.55.

C. Oil and Gas Leasing: How Competitive?

Much has been said in recent years about the competitiveness or lack of competition in oil and gas exploration and development. Concern has risen particularly with respect to joint ventures in general and joint bidding in particular. Although the formation of joint venture groups for lease sale bidding facilitates ease of entry in high-risk ventures, and allows producers to spread their financial investments in an effort to minimize overall risks, the sheer numbers of joint ventures have been interpreted by some as 'fostering something other than competition.'

The two theories about the nature of joint bidding in Federal lease sales (collusive vs. risk-sharing purposes) have been tested by University of North Carolina Professor Edward Erickson and M.I.T. Professor Robert Spann. As they reported in testimony before the U.S. Senate Commerce Committee, the observed patterns of bidding partnerships are most consistent with the hypothesis that joint bidding is a means of risk-sharing, not collusion. 19/ Among the ways in which competition might be fostered rather than reduced by joint arrangements are the following:

Because risks are shared, the cost of capital per unit of supply increment is less, so that entry barriers are lowered in high risk ventures;

Because of joint agreements, smaller independents can and do form independent and successful groups for bidding purposes in Federal lease sales, as evidenced by data on successful bidders in the June 1973 Federal lease sale;

19/ In their study of the 1972 and 1973 Federal offshore lease sales, Erickson and Spann found that membership of bidding groups varies from year to year; market shares for members fluctuate from one year to the next; the most frequent bidding group is a combination of majors and smaller firms, but majors bid alone, as do smaller firms; single firm bids are frequently made by the largest firms, but other firms are also successful single firm bidders, and bidding groups which contain a large number of firms are predominantly composed of smaller firms. They also concluded that the incidence of joint bidding increased as the size of the firm decreased; there was a heavy incidence of joint bidding partnerships between unlike firms; smaller firms use joint bidding ventures as a vehicle for entry into offshore activity. "Competition in the Field Markets for New Natural Gas Supplies," Statement before Senate Commerce Committee, November 8, 1973.

Because of the number of large and small producer combinations and the frequency with which new groups are formed with different members, producers are able to become involved in many projects so that competition is spread through many projects.

Since joint operating agreements also expressly provide for separate marketing of production from joint ventures, it would appear safe to conclude that risk-sharing through joint ventures need not make competition less intense. By facilitating ease of entry, joint ventures by domestic petroleum companies may indeed make competition more intense. 20/

The work of Professor Mead tends to underscore the findings of Erickson and Spann:

> "The most conclusive test of the workability of cash bonus bidding based on the United States record of OCS oil and gas lease sales is in terms of the rate of return on capital earned by the successful bidders. An analysis has been made on 184 offshore Louisiana oil and gas tracts leased in 1954 and 1955. Precise data are available on bonus payments, rental payments, oil and gas royalty payments, and production of oil and gas during the period from 1954 through 1967. Cost estimates were made for exploration, well drilling and equipment, and operation. Annual cost and annual wellhead values were discounted to obtain a net internal rate of return. The calculations indicate that these early OCS leases generated a 7.5 per cent before tax rate of return to the lessees. Given the fact that oil companies pay relative low U.S. income tax rates, the after tax rate of return would be only modestly lower than the 7.5 per cent before tax rate of return. This net yield clearly does not reflect monopoly power; it shows an excessive degree of competition". 21/ (Emphasis added).

In fact, two studies conducted under the auspices of the United States Geological Survey (both authored jointly by Dougherty of the University of Southern California and Lorenz of the U.S.G.S.) have indicated that the restriction of joint-bidding has failed to achieve its objectives in Federal OCS lease sales.

20/ In the last analysis, if the formation of such groups constituted monopoly power, one would expect to see some results where such groups are formed, e.g., a non-random bid price pattern in Federal lease sales.

21/ Mead, op. cit., p.55.

Major conclusions were:

1. The ban of joint-bidding by major oil companies may in fact have acted to broaden the overall influence of major companies in a given sale. The percentage of all bids and the number of bids per lease in which a major oil company was involved actually increased, which in turn may have increased the total amount of acreage in which major companies participated during this period.

2. When the U.S.G.S studies compared solo bids to joint-bids on given tracts, it was concluded that the joint-bidders tended to go after more highly sought-after leases and that they tended to bid higher on the average than sole-bidding competitors.

From a practical standpoint, allowing joint-bidding has important advantages to the State as well as to the industry, in terms of overall economic efficiency, environmental effects of exploration activity, and flexibility.

For example: Often, a given company may have a great deal of geologic and geophysical data in an area, but for one reason or another does not have the cash on hand to fully utilize its data in a competitive-bonus sale. In this kind of situation, it would make sense to join with another company that has the necessary investment capital and does not have the data.

If the two were unable to combine in partnership, a situation could develop where one company had to duplicate seismic and geologic information already held by the other company. Ironically, a situation would then develop where overall competition in the sale would be reduced, because one company with cash reserves would have expended part of its funds in gaining data, while the other company with information would be limited in participation

because of its cash limitations. Also, there would be the obvious environmental effect of the increased seismic and other activity, including, possibly, the drilling of wells, that would go along with the need to gain additional data.

In view of all of the above, we wonder why the State Administration proposes to ban joint bidding among "major and multinational oil and gas companies" (terms which are not defined in H.B. 854). Again, is the State simply following the Federal government's lead? If so, we would repeat Leland's cautionary note that it may not be in the State of Alaska's best interest so to do.

NOTE: The fact that Sohio/BP has proposed amendments to some sections of H.B. 854 does not mean that the Company endorses the bill in its entirety with the proposed amendments nor that we endorse the provisions to which we did not offer amendments. Part I of this paper is meant to clarify many of the concerns we have with H.B. 854 conceptually as well as in detail, concerns which, as shown in Part I, have been expressed in the analytical literature on the subject of the bill.

PART II: H.B. 854: PROBLEMS AND SUGGESTED AMENDMENTS

I. PROPOSED AMENDMENTS TO MAJOR PROVISIONS

A. Objectives (findings):

As explained in Part I above, we feel strongly that the language pertaining to the State's objectives as contained in the "findings" section of H.B. 854, should be amended to clarify the State's major goals in its leasing program. This section will and should be used by the Commissioner of Natural Resources in carrying out the Department's responsibilities under the proposed act in the "best interests" of the State.

These suggested amendments to H.B. 854 are particularly important in that, as explained before, some of the "important goals" outlined in the Governor's letter of transmittal appear to conflict with the apparent goals expressed in H.B. 854.

Suggestions: (Refer to attached draft language, Attachment 1, Page 1 and 2).

We suggest amending (A) to reflect the global and Alaskan energy/economic outlook. We also substituted the goal of encouraging prompt exploration and competition, in place of the ambiguous language of the original (B).

On Page 2, under (2), our amending language was designed to reduce uncertainty with regard to the implementation of the program. The language would allow flexibility, but only where consistent with the findings in (1).

Changes in (A) and (B) on Page 2 simplify the language in the original bill to reach the same goals, listed in (A) through (D) in H.B. 854.

B. Procedures

On Page 2, in (B), we suggest that the Commissioner be required to make his lease sale program consistent with the objectives in the bill.

Under (1), on Page 3 of the draft, we suggest that the status of the current leasing program shall be reported to the legislature, rather than, "submitted."

Section (2) clarifies ambiguous language in the same section of the original bill.

Section (3), also on Page 3, provides more certainty in lease stipulations and conditions by adopting language already contained in proposed state pre-leasing regulations.

On Page 4, under (B) in the suggested language, we suggest permitting the public to comment on the form of the lease sale as well as the leasing program itself.

Changes in (C) and (D) are being suggested to make the language more specific to reduce unnecessary delays and the potential for litigation, by adding "appropriate" federal agencies, "affected" local governments, etc...

Section (G) was added to clarify that (A) through (F) do not supercede Section 305 and 345 of the Alaska Lands Act, which provide for extensive review by affected municipalities and Alaska Native groups.

On Page 5 of the draft language, in (A), we would suggest that the Commissioner review bidding methods and leasing procedures used in the previous five years, rather than one year.

We suggest deleting (E) in the original H.B. 854 because we feel that such a requirement would put the Commissioner under undue pressure to experiment. It would tend to undercut the overall goal of flexibility for the Commissioner.

C. Lease Methods

We suggest new language in (C) on Page 6 of the draft, to provide more flexibility to the Commissioner, to insure fairness to all participants, to insure that the program is consistent with legislative findings of H.B. 854, and to place the burden of proof for the need of change to an alternative bidding system on the Commissioner.

D. Reduction of Royalty

On Page 9 of the draft language, the purpose of our amending language is to make it more difficult for speculation in the bidding of royalties. Under the proposed language, the lessee would have to clearly show that a reduction in royalty is required. These amendments should help in avoiding the problem of irresponsible bidding during a royalty-bid sale.

E. Bonus Bid Deferral

We would propose deleting this language (E) in original bill, Page 9, because we think that the option to defer payment of bonuses would encourage speculation and could lead to charges of unfairness if lessees have the option to "renegotiate" bonuses.

F. Withholding Acreage

For a variety of reasons, we would propose deleting Section (F) in the original bill, page 10. This is similar to powers held by the Commissioner under existing statutes and, as such, is not objectionable.

However, the problem with withholding acreage is illustrated by the description of it as "the fifth bidding system" by the Department of Natural Resources. This is further amplified by written comments by DNR personnel, in Report 2-77, where the withholding of acreage was specifically recommended as a means of significantly increasing state income on the assumption that the withheld acreage would cover half a known geological structure.

In the example discussed in Report 2-77 under the title of "Percentage of Acreage Withheld Leasing," it is assumed that 60% of a structure is leased initially at odds of 1 success in 10 which, after exploration, improve to 9 in 10. The fallacy of the argument is that the authors, (and subsequent proponents of the idea), neglected to take into account the other nine instances where exploration shows the acreage to be more or less worthless. Although 4% (10% of the withheld 40%) would attract high bids, the average overall income should be no different than if the whole acreage had been leased initially.

The assumption that all closed geological structures contain hydrocarbons is attractive, but untrue. The ability to close the rare structures which are filled with hydrocarbons is not vested in the State's geologists or those of a single oil company. Consequently the chances of the State losing income by deliberately withholding leases over a structure far exceed the chances of it making a windfall profit from the procedure.

What is often forgotten in the use of the example of Prudhoe Bay to show how not to lease, is the fact that at the time of the geophysical recognition of the Prudhoe structure, a bigger and geologically more attractive structure was found a short distance away. This was known as

the "Colville High". The Colville structure was drilled in 1966 with disastrous results because it was discovered to be dry and devoid of prospects. Those results seriously downgraded the Prudhoe structure, in the following year. It is highly unlikely that even if the Commissioner has the choice of multiple bidding methods he would have leased the Prudhoe acreage by anything other than cash bonus bids. If he had guessed, the same way that industry did, that the Colville High was the better of the two structures and had deliberately withheld half of it from leasing, would he have dared, in the light of the drilling failures, to do the same for Prudhoe? Obviously he would not have risked a second debacle. It is annoying in the light of this history to read that DNR authors, in, "Two Views on Bidding Strategies", 1978, persist in misusing the Prudhoe Bay example to reach the incorrect conclusion that "Bonus bidding should not have been used in that instance."

G. Exploration Work Credit Program

This is a suggestion made before the House Resources Committee by Sohio in early hearings on H.B. 854, involving credits for exploration as an incentive.

A major objective of H.B. 854 is to maximize revenues to Alaska, but to do this it is essential that the State adopt policies which encourage a steady, ongoing exploration program on State lands. Many sections in H.B. 854, if enacted, could actually serve to dampen exploration, but one option the State Legislature could consider to add an incentive for exploration is a program similar to Alberta's Exploratory Drilling Incentive System. This kind of program has proven to be successful as a way of encouraging high levels of exploratory activity, and in Alberta has been largely responsible for the record-breaking levels of drilling

activity in recent years, and subsequent high rates of discoveries since it was introduced in 1974. This year, the program was extended, until 1981.

The system is simple and is based on a drilling credit which can be earned by all exploratory wells and which varies according to the footage drilled and the region drilled in. For example, under the Alberta system, a well drilled to 8,000 feet on the North Slope could earn a credit of, for example, $2 million, where a similar well on the Kenai Peninsula might qualify for a $1.5 million credit. Deeper wells could earn proportionately more, as would offshore wells. These credits could be scheduled to equal approximately one-third to one-half of the cost of a well in each region, and they could be used by the earning company against bonus bids in a State sale, or against lease rental payments of royalty payments. The result could be an influx of capital into Alaska, similar to what has taken place in Alberta. But since the Commissioner would control the incentive program by regulation, it would be capital that would be directed by the State to areas in which the State wished exploration to occur.

To allow the Commissioner the discretion to introduce such a drilling credit system, we have taken the liberty of proposing general language in section (f) that could be translated into detailed regulations for a successful incentive program (see Page 10).

The system would require control by the Department of Natural Resources, but it could operate with less manpower than is needed for the policing of net profit bidding or royalty-bidding systems. The benefits would be tangible and immediate, and would probably exceed, in terms of new revenues to Alaska, the theoretical and untried potential of royalty or net-profits bidding.

H. Terms and Regulations

On Page 11 of the draft, our proposed language in (G) would replace (G) and (H) in the original bill. Our language would be simpler and would accomplish the same purpose, we think.

I. Lease Terms

On Page 13 of the draft language, our new language in (H) would give the Commissioner the option to have five-year lease terms, but only where the Commissioner finds that environmental and economic conditions would not severely restrict operations. The original language in the bill requires a five-year lease unless severe environmental conditions require a longer period.

In most parts of Alaska, severe environmental conditions and remote exploration locations dictate that drilling and other exploration activity be done only on a seasonal basis. A five-year lease term would therefore place great strain on the operator in all parts of the State except for Cook Inlet or Southern Alaska locations where work can proceed ye r-round. Our proposed language would leave the 10-year lease term intact, although the Commissioner would have the option for shorter terms where environmental conditions permit.

Our proposed language would also give the Commissioner authority to go to larger lease tracts if ircumstances require, if, for example, a work-commitment system is used.

J. 90-Day Provision

Also on Page 13 of the draft language, we also amend section (H) in language dealing with expiration of leases, to reflect unique Alaskan environmental problems in the term "reasonable diligence." This language

deals with activities that an operator may have underway at the time of the expiration of a lease. We would like to see environmental conditions taken into consideration by the Commissioner in delays that might affect an operator.

Also in section (H) on Page 13, we would suggest amending the language to reflect that a lease will be extended if there is a well capable of producing oil and gas, rather than a well producing oil and gas, as in the original language. Our reasoning is that there could be situations where a productive well has been drilled, but there are delays in building transportion systems to actually take the oil away.

K. Commissioner's Role in Conservation

On Page 17 of the draft, we propose new language that would clarify an apparent ambiguity in the original language regarding the Commissioner's conservation regulatory authority under Title 31 over pools unitized under this chapter. Our suggested language would reinforce the Commissioner's conservation authority, and would clarify this language.

L. Noncompetitive Leasing

Sohio-BP has no corporate position on noncompetitive leasing, but while some companies would like to have the option of noncompetitive leasing available, there may be situations where the State's broader public interest might not be served. Noncompetitive leasing can invite speculation in leases and in certain circumstances, there could be adverse environmental effects.

M. Joint Bidding Prohibitions

On Page 21 of the draft, the original language in the bill allows the Commissioner to restrict joint bidding by "major and multinational oil and gas companies" (these terms are nowhere defined). There are many serious problems that are discussed extensively in Part I, Section III C with respect to this provision. Based on the conclusions of the studies cited in this section ("Oil and Gas Leasing: How Competitive?"), we would suggest that it is neither necessary nor in the State's interest ot restrict joint bidding in any way. Such prohibitions not only restrict entry into Alaska leasing, but also could reduce potential revenues from lease sales. We would suggest deletion of this section from the bill.

N. State's Right to Purchase Oil and Gas

Section (v) on page 21 in H.B. 854 would include in leases a provision whereby the State would be allowed to puchase up to 100 percent of any gas discovered on State lands. This could be very harmful to the State in the long run, as it could effectively eliminate the financing of exploration programs by means of gas sale contracts. These contracts have been normal in Alaska, and in the past few years have contributed many millions of dollars to oil and gas drilling. This source of investment would be cut off and the proposed provision would only discourage exploration and the purposeful search for gas.

Under the terms of this section, contractual commitments would be impossible to make because the lessee would have no certainty of ownership of gas and would lose the right to dispose of his share of production to his best advantage, which could also be to the State's advantage. The result could be an increase in the risks and costs of exploration.

O. Data

In accordance with statements made by Administration officials with respect to the intent of the langugage in H.B. 854 relating to data acquisition and confidentiality, we have amended (w) of H.B. 854 on Page 21. Under our amended language in (s) on the same page, therefore, the Commissioner is given access only to noninterpretative data which shall be held confidential upon the request of the lessee or permittee as provided in AS 38.05.035. Additionally, in our (s) section, we have added that the Commissioner shall, by regulation establish procedures to govern access to and the safekeeping of such data.

As to the usefulness of such data acquisition, we would refer you to the analysis contained in PART I, Section III A above ("Data Acquisition: How Useful?"). This section additionally attempts to explain why data acquisition by the government is frequently viewed as the first step that inevitably leads to government drilling corporations.

P. Acreage Limitations

Section 3 AS 38.05.140(c) in H.B. 854 would limit any one company's onshore lease holdings to a limit of 200,000 acres. We would suggest that this limitation may be unnecessary in reaching the objective of encouraging competition and may, in fact, undercut the goal of maximizing competition on State lands simply because some companies are now near or at the proposed limit in terms of onshore acreage holdings. They would not be able to participate in future state sales for at least five years if this provision were enacted.

The limitation also seems to work against other objectives of H.B. 854. For instance, the Department of Natural Resources, in its comments on the proposed work commitment bidding method, acknowledges that large areas on the order of 100,000 acres are needed to make the type of bidding practical. Such acreage would be low potential, high risk land which would not normally be seriously considered for exploration. If the 200,000 acre maximum is retained, no responsible company could even bid on large work commitment parcels of this kind. Consequently, retention of this stipulation would narrow the leasing options available to the State and would be detrimental to the responsible assessment of State land.

II. SUMMARY AND CONCLUSIONS

In summary, we would offer these observations and conclusions:

1. H.B. 854 as currently drafted would create a State leasing system biased towards experimentation with procedures that are new and untried in Alaska. This may not be in the State's interest, because unusual leasing systems could lead to delays in petroleum development that could have serious consequences on future State revenues and Alaska's contribution toward U.S. energy needs.

2. The United States faces a critical energy-import problem that may have serious consequences for the Nation's economy. Alaska can contribute to the lessening of U.S. dependence on imported oil, but long lead times and large investments are needed to develop new petroleum discoveries in remote Alaskan locations. By enacting new leasing legislation that could lead to unusual and untried lease systems, the State could inadvertently delay exploration and development in remote Alaskan areas with resulting consequences in the global energy/economic sphere.

3. The State of Alaska faces a potentially serious revenue situation in the late 1980's as annual State expenditures increase and oil production from the Prudhoe Bay field begins to decline. Again, the long lead-times needed to find and develop new Alaskan oil discoveries would indicate that exploration must proceed soon on State lands to provide needed petroleum revenues.

4. Alternative bidding systems proposed in H.B. 854, although also proposed in OCS legislation now pending in Congress, have not had extensive use in the U.S., nor in very many other places in the world. Experience with royalty bidding in federal OCS sales has been dissappointing, and the federal government may now be reconsidering the use of alternate bidding systems other than the competitive bonus-bid procedures.

5. The majority of academic literature that we have been able to find supports the thesis that the traditional bidding methods have worked well in the leasing of public lands for petroleum development. Academic experts also seem to agree that alternative bidding systems present serious problems, except when used in certain special situations.

6. We have offered in Attachment 1 suggested language that would, we believe, improve many sections of H.B. 854, and give the Commissioner the flexibility he desires while at the same time encouraging the use of proven leasing systems unless special circumstances dictate the need for an alternate situation. Royalty-bidding in a drainage sale would be an example.

7. We have suggested an exploration work-credit program similar to a successful system used in Alberta that we believe would offer substantial incentives for increased Alaska oil and gas exploration.

AtlanticRichfieldCompany
Post Office Box 360
Anchorage, Alaska 99510
Telephone 907 277 5637

April 6, 1978

The Honorable Alvin Osterback
Chairman, Resource Committee
Alaska House of Representatives
Pouch V
Juneau, Alaska 99811

Dear Chairman Osterback:

Recently, Mr. Mark Singletary provided the Resources Committee with verbal testimony reflecting Atlantic Richfield Company's reaction to proposals contained in HB 854.

Attached is written commentary on HB 854 which I would respectfully request that the Committee consider and include in the official record of these proceedings.

Sincerely,

Dave Harbour
Director
Alaska State and Local
Government Relations

AGO 547181

ATLANTIC RICHFIELD COMPANY COMMENTS ON
HOUSE BILL 854

"An Act relating to the leasing and exploration of state land for oil and gas development."

April 6, 1978

Comments on Section 1:

Sec. 38.05.180(a)(1)(B)

In the description of the legislative purposes of this bill, there is a negative connotation given the word "exploitation" in Sec. 38.05.180(a)(1)(B). This section in general suggests sinister motives to the oil and gas industry which need to be "minimized." A possible modification should read, "regulate the development of these natural resources in protection of the public interest."

Sec. 38.05.180(a)(2)

Underlying this section is the notion that it is in the State's best interest to maximize the leasing methods available to the State. However, it is our view that the new leasing methods proposed are largely untested and may result in reduced revenues to the State. Further, it is not at all clear how a unit agreement could ever be formulated for a group of lessees who had obtained their leases under a combination of the proposed bidding methods.

Sec. 38.05.180(b) AGO 547182

This section deals with the Commissioner's obligations to prepare a leasing program for the following 5 year period and his obligation to keep the legislature informed. We are in favor of such a long-range leasing program and support the State's acknowledged

goal of "stability and predictability" in a petroleum leasing program. However, the long-range benefits intended and the State's goal are frustrated by the ability, and, indeed requirement, that the Commissioner review and possibly revise the leasing program at least annually. Perhaps the possibility of revision could be limited to the last two years of the ongoing five year programs so that industry could expend exploration dollars with some certainty that a sale will be held. Alternatively, Sec. 38.05.180(b)(3) should be deleted.

The annual submission to the legislature of the leasing program, although for "its information," would seem to presuppose further modification of the leasing program. Again, opportunity for yearly modification of the leasing program abrogates the State's goal of a stable and predictable petroleum leasing system. As an alternative to reporting to the legislature, the Commissioner could be required to make an annual public report of the leasing program.

Additionally, in Sec. 38.05.180(b)(5)(E), the Commissioner is required to justify in his report to the legislature why more than 50 percent of an area is leased under any one method of leasing. This requirement of justification seems to be an incentive, if not explicit direction, to utilize the full array of leasing alternatives for any one sale and to, in effect, "experiment".

The language in Sec. 38.05.180(b)(2) is extremely confusing and should be clarified. Further, it is not clear whether or not this section is directed to or will have any effect, intended or otherwise, on the Beaufort Sea sale.

Sec. 38.05.180(c)

This section authorizes four generic categories or methods of leasing: (1) "Bonus bidding," (2) "Royalty bidding," (3) "Net profit bidding," and (4) a "Work commitment bid." Several combinations or variations of methods are authorized under each of the generic headings.

The first method of conventional bonus bidding has the best overall record from the lessor's standpoint. A study of federal OCS sales through 1975 showed that industry had invested $35 billion in bonuses, exploration and development on OCS leases while receiving $22 billion in revenue.

Net profit bidding opens up a multitude of problems as to the definition of "net profit." This method would allow many companies to get into a land position for speculative purposes. It is a

fierce deterrent to early drilling as it is far easier and cheaper to wait out the competition. It is extremely cumbersome to administer and audit, and is even more costly to operate than royalty bidding methods.

The last method of bidding, a work commitment for a lease which cannot, by definition, exceed 5,760 acres, seems completely unworkable as such an area is much too small. This method is usually used in European and mid-east concessions or Canadian permits or reservations which share a common characteristic of being very large geographic areas.

In each of the four leasing methods, the language describing the State's royalty is troublesome. Each description of the State's royalty provides, "... royalty share reserved to the state of not less than 12 1/2 cent in amount or value of the production removed or sold from the lease or unit area encompassing the lease ...." (emphasis added) This language would preclude anything but 100 percent state units. Unitization of lands involving federal or native lands and state lands would be impossible because of the inability of the participants to give the state at least 12-1/2 percent of the production from the "unit area encompassing the [state] lease."

Further, it should be noted that all of the methods and components of the alternate leasing methods will necessitate substantial increases in the budgets and personnel of the agencies involved.

Finally, if some minimum flexibility in leasing methods is desired, the same could be accomplished with minor changes in the existing law.

Sec. 38.05.180(d)

This section allows the Commissioner to reduce royalty when production becomes uneconomical, but only after two years of production. The most recent federal leases require only one year of production, which would be more in line with the stated goal of the bill to minimize revenue from marginal production. Given the explicit description of the royalty in Sec. 38.05.180(c) as "not less than 12 1/2 percent ...," it is not clear whether the Commissioner could ever reduce royalty to any figure below 12 1/2 percent.

Sec. 38.05.180(e)

This section purportedly authorizes the Commissioner to defer payment of any part of a cash bonus bid, provided the bonus is paid within five years. This authority is in direct conflict with AS 38.05.335(c), neither referenced nor repealed by the bill, which requires a deposit of 20 percent, in cash, of the bid.

Sec. 38.05.180(f)

This section authorizes the Commissioner to withhold acreage from leasing in a particular sale. It is assumed that the motive of

this provision is a desire to increase the state's income from leasing by leasing, for example, only part of a structure, and then, once proven productive, leasing the remainder for higher amounts. However, this authority to withhold acreage can just as easily decrease the state's income, in the event the first acreage leased is found non-productive.-- which is usually the case. In essence, this section is authorization for the Commissioner to "gamble" on the productivity of state lands.

This section also seems unfair to the first lessees, who, if the first tracts leased prove productive, are faced with the prospect of having to buy themselves back into the fruits of their own risk at a higher rate.

Sec.'s 38.05.180(g) and (h)

These sections relate net profits and work commitment leasing which, as previously discussed, are ill-advised.

Sec. 38.05.180(i)

There are no objections to this section so long as the trading or storage of royalty oil remains and is clearly the subject of mutual agreement.

Sec. 38.05.180(j)

This section concerns several of the provisions to be included in state oil and gas leases:

First, this section reduces the primary term of state leases from 10 to 5 years. It should be understood that in most areas of Alaska the ability to carry out exploration work is limited to a four month period per year, consequently a five year lease allows only 1-2/3 years of exploratory work. This is clearly insufficient in such a high cost, high risk area.

Second, this section provides that a state lease will be "renewed", if and for so long thereafter as oil and gas is produced in paying quantities or if the lease is committed to a unit. The term "renewed" should be replaced with the term "extended" as this is the long-understood and recognized effect of production or commitment to a unit.

Third, the section's provision concerning shut-in wells should be clarified, since, in its present form, it appears as though the shut-in well must be located on the land prior to the issuance of a lease.

Fourth, this section authorizes the Commissioner to increase rentals up to 150 percent of the preceding year's rate and to provide that a lessee earns production rights only to the depth drilled at the beginning of production. Both of these provisions should be deleted as unnecessary and unworkable.

As to rental increases, as noted, Alaska is already a high cost, high risk area. The prospect of substantial rental increases

during the primary term of a lease will serve only to curb exploration not encourage it.

The provision concerning production rights only as to the depth drilled is unnecessary and unfair. Aside from an obvious example of the lessee drilling into the top of a reservoir and being mechanically unable to go deeper and thereby losing the main body of the reservoir, it also could result in split ownership of a lease with one party having to drill through another's rights to reach his own with possible damage to the upper reservoir resulting.

Finally, the means of extending a lease by drilling are set forth in this section. Given the seasonal nature of drilling in Alaska the 90 day grace period after drilling has ceased should be expanded if further drilling is prevented by environmental considerations or other circumstances imposed by the State.

Sec. 38.05.180(k)

The increased rentals proposed in this section will discourage exploration and will not increase income to the State because the extra expense will be compensated by lower bid totals. The present $1.00 per acre per year rental should be retained.

Further, this section alters substantially the nature of the ordinary rental provisions in oil and gas leases. The rental to be paid under these provisions is no longer a delay rental. This

section provides, "Rental is payable in advance and continues until income to the state from royalty, net profit, or exploration work commitment exceeds rental income to the state ... for three consecutive years ...." There is no provision for credit or set-off of rental paid during those three years against the state's income from production. Consequently, for the first three years of production, the state would receive both rental income and production income.

Sec. 38.05.180(1)

This section should be modified to provide that the state shall issue a State shorelands lease, as AS 38.05.180 presently reads. Also, the Commissioner should be given the discretion to grant a shorelands lease in excess of five years.

Sec.'s 38.05.180(m) and (n)

These two sections concern the unitization of state leases and are re-enactments of present law. However, given the alternate leasing methods of the bill, and the previously discussed, implicit direction to the Commissioner to "experiment" with these methods, unitization of state leases will be extremely difficult, if not impossible.

It is entirely reasonable to assume that under this bill, a proposed unit will be composed of leases involving highly disparate royalty percentages and one net profits or other kind

of lease. The extreme difficulty of applying these completely different lease burdens to the production allocated to each lease under a proposed unit are obvious. These difficulties constitute a disincentive to unitization and therefore nullify the conservation benefits of unitization.

Sec. 38.05.180(o)

This section concerns the acreage chargeability of KGS leases and is unobjectionable.

Sec. 38.05.180(p)

This section is a re-enactment of the present authorization for the pooling of state leases. Like the provisions concerning unitization, the problems inherent in alternate leasing methods will make pooling more difficult, to the detriment of the conservation objectives of pooling.

Sec. 38.05.180(q)

This section authorizes the State to share in the costs of exploration under a drilling or development contract. Oil and gas exploration is extremely risky and historically the province of private enterprise. Financial participation by the state in an exploration venture raises fundamental questions as to the appropriate role of state government. Given the fact that most wells drilled are unsuccessful, and the substantial sums involved in drilling in Alaska, additional challenges may be anticipated as to the authority or wisdom of the State to participate in a particular drilling project.

AGO 547191

Sec. 38.05.180(r)

This section is a re-enactment of present law concerning the subsurface storage of oil or gas on state leases. However, the present law's provision concerning the extension of the lease used for storage for the period of storage and so long thereafter as oil and gas are produced was deleted. This extension provision should be retained.

Sec. 38.05.180(s)

This section concerns the employment of state residents on state leases is substantially the same as the existing law.

Sec. 38.05.180(t)

This section is an attempt by the state to encourage exploration on lands on which no bids have been tendered. This philosophy is laudable. However, the Commissioner should not be restricted by the leasing details of this section.

Sec. 38.05.180(u)

This section would restrict joint bidding and should be deleted. Joint bidding can very well be to the advantage of the state as it tends to increase the size of the bids submitted and facilitates the exploration process. See, for example, the paper in the November 1976 issue of "Journal of Petroleum Technology" in which the authors conclude that "joint bidders tend to bid on more sought-after (and apparently more valuable) leases and that they tend to bid higher, on the average, than solo-bidding

competitors". Industry testimony before the U.S. Senate has indicated that since the first OCS sale in 1954, 172 companies have purchased OCS leases. 42% of these leases were not purchased by the major companies, and in recent years the smaller companies have increased their share of OCS production at the expense of the major oil companies.)

Depending on the content of the regulations adopted, this section may violate Article 8, §17 of the Alaska Constitution. This Constitutional provision requires that laws and regulations governing the use or disposal of natural resources must apply equally to all persons "similarly situated".

Sec. 38.05.180(v)

This section grants the state an unfettered option to purchase 16-2/3 percent of oil and up to 100 percent of gas produced from a state lease. This section will in effect eliminate the lessee's ability to use the gas sales contract as a method of financing. Consequently, gas exploration in Alaska will be discouraged if not precluded. Similarly, if the state should wait several years before deciding to take up to 100 percent of the gas, the discoveror of a gas field would be deprived of all income from his legally obtained gas, because he could not enter into a contract with any other user. This section would also eliminate or impair the ability of lessees to utilize the production payment as a method of financing, likewise discouraging exploration.

Sec. 38.05.180(w) This section requires state access to all of a permittee or lessee's exploration data and should be eliminated from the bill. This section is, in essence, a confiscation of valuable proprietary data, for the sole purpose of deciding whether the explorer has found anything or not. If the state decides he has, the area could then be thrown open to all other competitors, thereby removing any incentive for an aggressive company to be a leader or employ innovative ideas to discover new resources. This section completely removes that incentive, and thereby will cause significant state natural resources to remain unsought.

In addition, grave problems as to the preservation of the confidential nature of the data are inherent in this section. It is common knowledge that such information is extremely confidential and closely guarded by the individual members of the industry.

The existing law upon which the oil and gas industry has relied for the confidentiality of information is contained in AS 38.05.035(a)(9)(C). This existing provision requires the director to keep geological, geophysical and engineering data confidential "upon request of the persons supplying the information." As the Bill's provision requires disclosure of information to the Commissioner, not the director, and since it requires also access, as distinct from supplying copies, are the confidentiality provisions incumbent upon the director not

applicable to the information required to be disclosed to the Commissioner?

If this section is to be applicable to existing exploration data, then the Commissioner's access and utilization of such existing data is almost certainly an unconstitutional taking of this valuable and expensive property. If the Commissioner is to be allowed access at all to such data, such access should be limited to future data only. Further, there should be a requirement of the adoption of regulations prescribing the confidentiality of this data and the addition of statutory criminal penalties for intentional disclosure of such data.

Section 2

There are no objections to this section concerning notice of mineral leasing.

Section 3

This section would amend AS 38.05.140(c) to reduce the upland acreage limitation from 500,000 acres to 200,000 acres. In Alaska, where there are large areas of state lands which are potentially eligible for bid, a 500,000 acre limitation, which the present statute contemplates, is not unreasonable. The effect of a 200,000 acre limitation would clearly be to limit the participation of those individuals who are most active in exploration business in Alaska, i.e., those individuals who have

historically submitted the highest bids to the state. It is not at all clear why the state would seek to discourage, rather than to encourage, the continued involvement of those individuals in Alaska. Further, this section's applicability to the holding of existing lessee's -- requiring them to reduce their holdings within 5 years -- is an unconstitutional taking of leasehold estates.

Prepared by:

Legislative Affairs Agency
Research Division
17 June 1978

Differences Between House and Senate
Versions of HB 854
(Page Numbers Refer to Side-by-Side Analysis)

	Senate	House
1.	Senate added word "physical"(p.1)	
2.		Gives legislature right to "veto" any part of leasing program (p.2).
3.	Includes words "pipeline quality" in description of how royalty shall be delivered (p.4).	
4.		Sliding scale royalty allowed, with bonus as bid variable (p.4).
	REDUCTION of WORK COMMITMENTS	
5.		Sliding scale royalty allowed as bid variable (p.5).
6.	Allows straight royalty bidding, but only in "drainage" situations (p.5).	Allows straight royalty bidding (p.5).
7.		Commissioner may defer bonus bid payment (p.8).
8.	Calls generally for ten year term (p.9).	
9.	Rental terminates whenever royalty is greater (p.10).	Rental terminates when royalty is greater for three consecutive years (p.10).
11.		Includes provision for reduction of royalty (p.11).
12.		Requires use of sliding scale royalty for reoffered leases (p.14).
13.		Provides for possible restriction on joint bidding (p.14).
14.		Provides for possible inclusion in lease of provision under which producers could be required to sell for instate use (p.14).

Senate

House

15. Changed "activity" to "lease" in section giving commissioner access to "noninterpretive data" (p.15).

16. Senate made technical amendment: "lands" to "land" (p.16).

17. Retains 500,000 acre limitation contained in current law (p.16).

18. Senate made conforming amendment to 38.05.140(d). Effect is to insure that (j) of both bills has intended result of setting standards for royalty reduction.

How to Bid for Offshore Rights

Several systems have been proposed to replace the present "bonus-bid" method of assigning leases on offshore oil prospects to developers. Of these, Professor John W. Devanney III of M.I.T. opts for "percentage-of-excess-profits" bids (*see p. 42*). Other proposed arrangements include work obligation permits and various forms of royalty bidding.

The Work Obligation Permit Plan

Under the work obligation permit plan, developers would submit exploratory and provisional drilling plans for a given tract. The government would choose the developer with the most aggressive, best-considered plan, and the developer would then be responsible for agreed-upon amounts of royalties and/or lease rentals. Under this system, used currently by the Norwegians and the British in the North Sea, the great bulk of any economic rent would be transferred to the developer, and a portion of this rent would be returned to the public in the form of corporate income taxes. Of the possible methods reviewed here, this is clearly the most favorable to the developer.

Administering this method to maximize national income depends on the skill and honesty of administrators. There are temptations for prospective developers to submit work plans which represent over-development of the resource so they will be judged the most aggressive, and administrators will have to be wise enough to recognize such over-development and refuse it. The decisions to be made in choosing the "best" work plan are necessarily judgemental, and they are an open invitation to the influence of special interests and even to corruption.

But beyond the possibilities of incompetency or corruption which may result in loss of national income is the basic fact that most of the economic rent goes to the developer. Professor Devanney concludes that work obligation permitting is clearly not desirable, from a nondeveloper point of view. Indeed, as soon as it became clear that economic rent was associated with North Sea oil, the British and Norwegians moved away from this practice.

Royalty Bidding

Royalty bidding involves competitive bidding on a share of the actual gross revenues — generally a percentage of market value — associated with the resource. This method has long been used in state sales of rights, and the federal government experimented with it in the Gulf of Mexico in 1974.

Compared with bonus bidding, royalty bidding transfers some of the risk prior to exploratory drilling from the developer to the public. This helps maintain competition among bidders, for large amounts of up-front capital are not necessary, and the need for large bidding combines disappears.

However, there are other problems. While the method could theoretically give most of the revenues from offshore oil to the public, it could also reduce the total size of the offshore oil pie. This is because the royalty bid, unlike the bonus bid, affects the developer's marginal expenses. For instance, if a developer overestimates production from a certain tract, he will freeze himself into a royalty bid that makes it unprofitable for him to develop the smaller, and thus more expensive, oil find that is actually made. He will refuse to develop it, and the national income will suffer. This risk may especially affect secondary and tertiary production from a tract; such oil will be more expensive than primary oil but still less costly than foreign crude.

Proponents of royalty bidding offer two possible resolutions of this dilemma — re-leasing and renegotiation. The former proposes that if a developer decides not to produce a tract he must turn it back to the government, with all equipment intact, and the government may lease the tract anew, presumably to a different developer at a lower royalty. This would discourage expensive techniques to enhance oil recovery, because the original leaseholder may choose merely to take out the flush production before releasing a tract back to the government. This will be costly to the public, since processes for secondary and tertiary recovery of oil must begin early in a field's life to be most effective. There is also the possibility of excessive administrative costs associated with the negotiations necessary for re-leasing.

Advocates of renegotiation propose that if a developer feels he cannot develop a field at his bid royalty, he should be able to present his evidence to the regulatory body which should be empowered to grant him a decrease if it finds his presentation viable. The obvious problems here are in the regulatory body's verification of the developer's data. The capital-intensiveness of offshore oil makes any estimate extremely sensitive to the cost of capital, and that information is often confidential.

Other potential problems introduced by renegotiation include temptations for developers to "goldplate" a project since additional expenses could come off the royalty — i.e., out of the public's pocket. A developer might deliberately bid high initially in order to obtain a tract, anticipating that he will renegotiate later; and he might go through a whole series of renegotiations as his costs for enhanced recovery techniques begin to appear.

Some have suggested a compromise between bonus bidding and royalty bidding, in which developers would enter a "high" fixed royalty plus a bonus bid of up-front payments. This would decrease the size of bonus bids and aid competition, say its advocates. Unfortunately, this presents the same can of worms as straight royalty bidding.

Installment bonus bidding has also been suggested. This means a developer would pay his bonus in three installments — immediately, after three years, and after five years. He could surrender the lease before the last two payments if things failed to work out. But this presents the same pie-reducing problems as royalty bidding; if a developer originally bid $600 million and after exploratory drilling found oil worth only $350 million, he would abandon the tract rather than pay the final installments even though national income would be increased by $350 million if the find were developed.

There are advantages, however, in installment bonus bidding. There is an automatic re-leasing provision, which could assure that tracts were re-opened for development; and the marginal costs of the oil are not affected, which means that the developer has incentives to invest early in enhanced recovery.

However, the massive amounts of up-front money involved in even a one-third installment payment of a bonus bid will probably still frighten away many bidders. And many bidders would increase their total bonus bids considerably, knowing that they could thus avoid paying additional installments.

ALBERTA, CANADA

Exploratory Drilling Incentive System

A report from Alberta Energy and Natural Resources states the exploratory drilling incentive principles adopted for wells spudded between Jan. 1, 1978 and March 31, 1981 were announced by the government last fall and will be defined in detail in the Exploratory Drilling Incentive Regulation, 1978 when it is issued in the near future.

This regulation, however, may not be available to industry prior to the commencement of the drilling activity it affects. Accordingly, the essential details respecting the forthcoming program are described herewith.

The department expects that the principles and details outlined here will be incorporated, without a change in meaning, into the 1978 Regulation. If, however, such a change does occur, the 1978 Regulation would, of course, take precedence.

(1) Commencement Date of the Forthcoming Program

As previously indicated, an incentive exploratory well in good standing will be

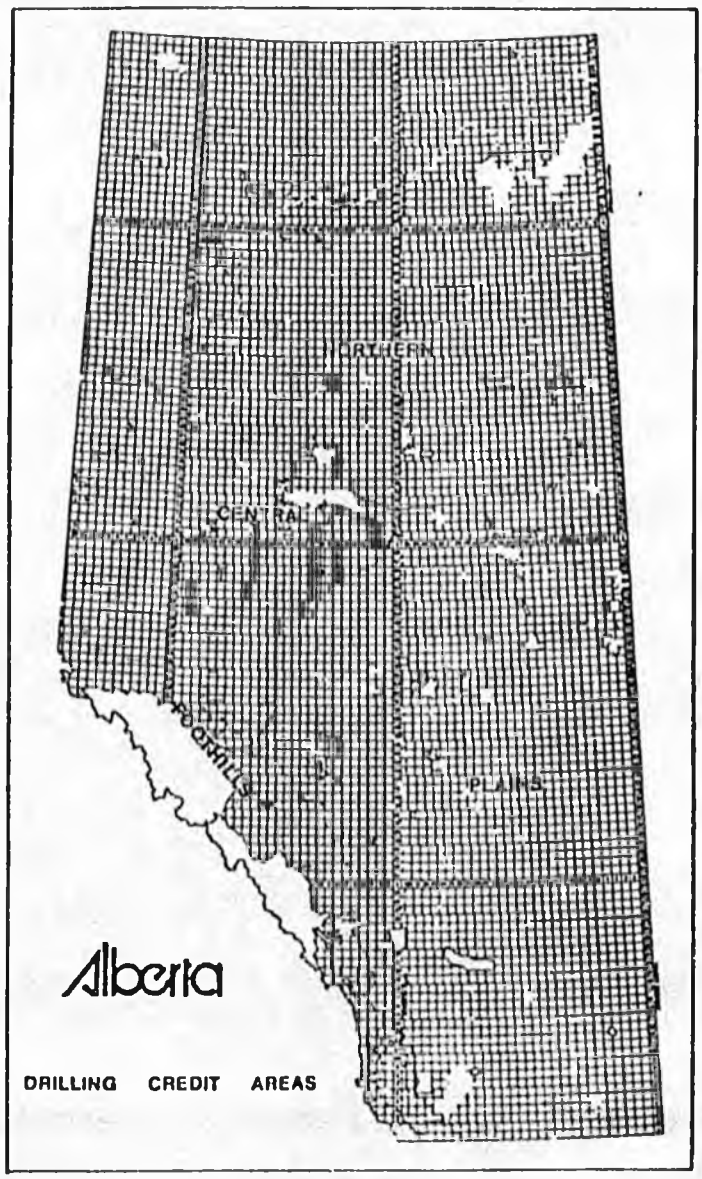


Figure 1

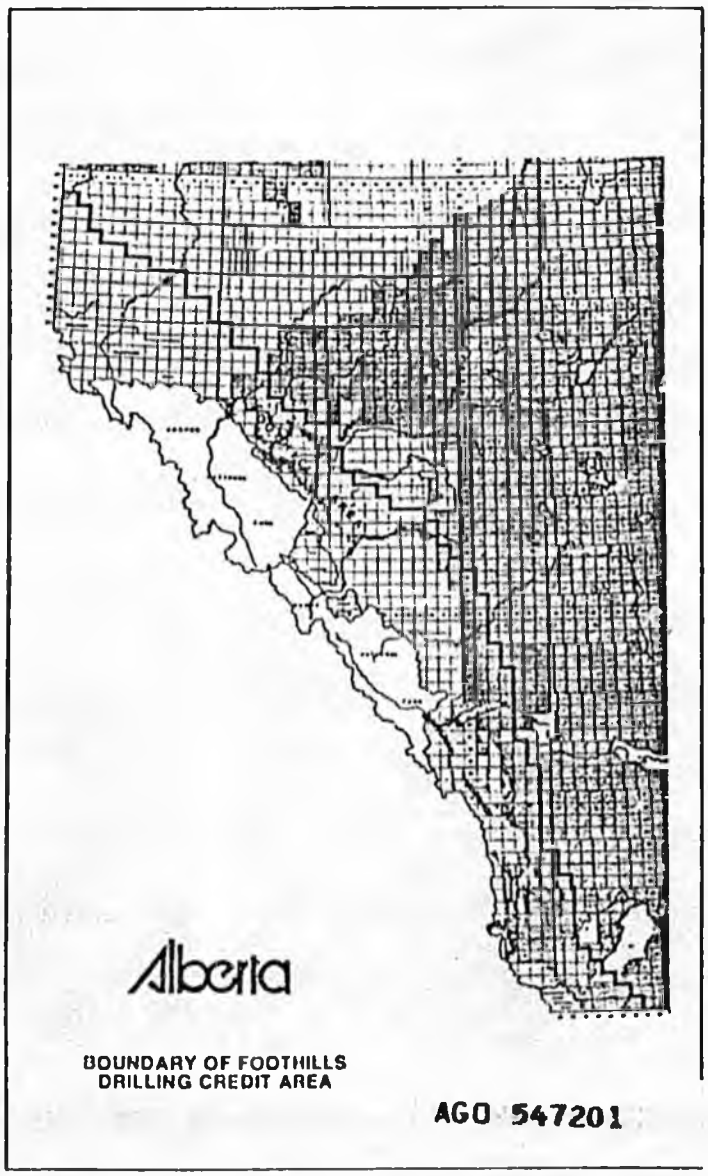


Figure 2

subject to the 1978 Regulation if it commences drilling on or after Jan. 1, 1978. This provision will not be affected if the licensing or certification date is before 1978.

(2) Drilling Credit Areas

Figure 1 shows the drilling credit areas as they will be defined under the 1978 Regulation. The Plains and Foothills Areas have not been changed. The subsisting Nortnern Area, however has been divided into the new Central and Northern Areas shown by the illustration. The boundary between the two new areas was defined by the Department on the basis of well cost data and topographic and access considerations.

Figure 2 is provided for the convenience of industry to depict the irregular eastern boundary of the Foothills Area. A similar map was issued by the Board in 1974.

(3) Drilling Credit Schedules

Drilling credits under the 1978 Regulation will be determined from Schedules F

SCHEDULE F

Applicable to the Class A Interval of an Incentive Exploratory Well that Commences Drilling on or after January 1, 1978

The Class A interval of an incentive exploratory well that commences drilling on or after January 1, 1978 shall be determined by the Board as the interval below the depth of 2,000 feet that

(i) has not been duplicated by a drilled and abandoned well within one and one-half miles.

(ii) occurs more than 500 feet below the base of the deepest accumulation of crude oil or natural gas that in the opinion of the Board has been penetrated by another well within three miles, and

(iii) occurs immediately below the base of the member or formation containing the deepest oil sands deposit that in the opinion of the Board may underlie the location of the said incentive exploratory well.

Where neither (ii) nor (iii) above applies, the Class A interval shall be determined from the depth of 2,000 feet to the total depth of the said incentive exploratory well.

	Basis for Credit Plains Area		Basis for Credit Central Area		Basis for Credit, Northern and Foothills Areas	
Depth, Feet	Cumulative Dollars	Incremental $/Foot	Cumulative Dollars	Incremental $/Foot	Cumulative Dollars	Incremental $/Foot
2,000	0	20	0	30	0	40
3,000	20,000	18	30,000	25	40,000	35
4,000	38,000	18	55,000	25	75,000	40
5,000	56,000	20	80,000	25	115,000	35
6,000	76,000	24	105,000	35	150,000	35
7,000	100,000	30	140,000	40	185,000	50
8,000	130,000	40	180,000	50	235,000	65
9,000	170,000	55	230,000	70	300,000	80
10,000	225,000	75	300,000	90	380,000	100
11,000	300,000	100	390,000	110	480,000	120
12,000	400,000	110	500,000	160	600,000	180
13,000	510,000	160	660,000	200	780,000	210
14,000	670,000	210	860,000	240	990,000	260
15,000	880,000	280	1,100,000	350	1,250,000	350
16,000	1,160,000	340	1,450,000	400	1,600,000	425
17,000	1,500,000	500	1,850,000	550	2,025,000	575
18,000	2,000,000	500	2,400,000	550	2,600,000	575

Figure 3

SCHEDULE G

Applicable to the Class B Interval of an Incentive Exploratory Well that Commences Drilling on or after January 1, 1978

The Class B interval of an incentive exploratory well that commences drilling on or after January 1, 1978 shall be determined by the Board as the interval below the depth of 2,000 feet that

(i) has been duplicated by a drilled and abandoned well within one and one-half miles.

(ii) occurs more than 500 feet below the base of the deepest accumulation of crude oil or natural gas that in the opinion of the Board has been penetrated by another well within three miles, and

(iii) occurs immediately below the base of the member or formation containing the deepest oil sands deposit that in the opinion of the Board may underlie the location of the said incentive exploratory well.

Where neither (ii) nor (iii) above applies, the Class B interval shall be determined from the depth of 2,000 feet to the total depth of the said incentive exploratory well.

	Basic for Credit Plains Area		Basic for Credit Central Area		Basis for Credit, Northern and Foothills Areas	
Depth, Feet	Cumulative Dollars	Incremental $/Foot	Cumulative Dollars	Incremental $/Foot	Cumulative Dollars	Incremental $/Foot
2,000	0	15	0	20	0	28
3,000	15,000	14	20,000	20	28,000	29
4,000	29,000	14	40,000	20	57,000	29
5,000	43,000	14	60,000	19	86,000	24
6,000	57,000	18	79,000	26	110,000	30
7,000	75,000	25	105,000	30	140,000	40
8,000	100,000	30	135,000	40	180,000	45
9,000	130,000	40	175,000	50	225,000	60
10,000	170,000	55	225,000	65	285,000	75
11,000	225,000	65	290,000	90	360,000	95
12,000	290,000	90	380,000	120	455,000	125
13,000	380,000	120	500,000	150	580,000	155
14,000	500,000	160	650,000	180	735,000	190
15,000	660,000	210	830,000	270	925,000	275
16,000	870,000	270	1,100,000	300	1,200,000	310
17,000	1,140,000	360	1,400,000	400	1,510,000	420
18,000	1,500,000	360	1,800,000	400	1,930,000	420

Figure 4

and G *(Figures 3 and 4)*. The schedules reflect the government's decision to exclude the upper 2,000 feet from the forthcoming program, and to increase the credits for qualifying wells deeper than about 3,500 feet. For wells greater than 5,000 feet in depth, the increase is between approximately 25 and 45 percent, the difference being justified by the Department's comprehensive well cost study. An exception applies to the new Northern Area, for which credit increases at certain depths exceed 45 percent to correspond with Foothills credits.

(4) Royalty Exemptions

(4.1) Eligibility

Crude oil or gas production must originate from a Class A or Class B interval to qualify for a royalty exemption. Production from any source shallower than 2,000 feet will thus not qualify for royalty exemption under the 1978 Regulation. An exception to the foregoing exclusion is found under the following circumstances: If conventional crude oil is produced from a source shallower than 2,000 feet in the new Northern Area, and if the 2,000-foot interval would have qualified as Class A or Class B footage pursuant to the 1974 Regulations, the crude oil production will be eligible for the normal royalty exemption applicable to deeper production.

(4.2) Duration

The royalty exemptions authorized under the 1978 Regulation will apply to the initial 60 crude oil-producing months or the initial 12 gas producing months at the well, commencing with the first month in which the crude oil or gas would otherwise be subject to royalty payment.

Additional details concerning these and other principles relating to the forthcoming program will be specified in the 1978 Regulation. If any questions arise after the 1978 Regulation is studied, they may be referred to J. R. Pow or F. Phillips of the Energy Resources Conservation Board, if they pertain to the certification of a well or the determination of its Class A or Class B interval, or to C. R. Smith or E. Saldanha of the Department, if they are concerned with establishing credit or granting royalty exemption. □

Four Articles from Mineral Leasing as an Instrument of Public Policy, British Columbia Institute for Economic Policy Analysis, 1977:

1. Gregg K. Erickson, "Work Commitment Bidding"
2. Dale R. Jordan, "Petroleum Leasing in British Columbia"
3. Walter J. Mead, "Cash Bonus Bidding for Mineral Resources"
4. Arlon R. Tussing, "The Role of Public Enterprise"

Work Commitment Bidding

GREGG K. ERICKSON

One result of the growing concern in the United States over energy matters has been an increased attention to public policies governing the development of Outer Continental Shelf (OCS) oil and gas resources. The institutional structure under which all such development has thus far taken place was established in 1953 by the Outer Continental Shelf Lands Act.[1] This unamended statute provides the Secretary of the Interior with authority to sell oil and gas leases to the public on the basis of cash or royalty bids offered at sealed bid auctions.

The practice of the United States government since the first such sale in 1954 has been to offer relatively small quantities of offshore acreage on an irregular basis, soliciting always cash rather than royalty rate bids. In recent years, the rate at which acreage has moved to market has been accelerating. However, the average per acre bonus received by the government has also increased, partially reflecting worldwide supply conditions. The fact that bids are received in sealed envelopes has resulted in the winning bid being two, three, or several times the amount of the next highest bid.

Among criticisms of present policy is the assertion that this method of lease allocation diverts undesirably large amounts of *front-end money* into the coffers of the government landowner, money that could, would, and should otherwise be used for development of the resource itself.[2] One possible remedy would involve implementation of the existing statutory authority to substitute royalty rate bids, with fixed and presumably low cash bonuses. The problems created by royalty bidding, principally the premature shutdown effect and the potential for speculator induced misallocation of leases, have been well discussed in the literature. More importantly, they are well understood by persons influencing both public and private mineral resource management policies.[3]

An alternative proposed remedy to this same perceived problem is less well understood. Based in part on the method of lease allocation used in the offshore areas of the United Kingdom, it would allocate exploitation rights to the firm that would commit itself to spending the greatest sum in developing the resource. Sealed bids would be solicited as under the present system, but instead of cash the bid variable would be the *work commitment*. Proponents of this system claim that it will divert money the government

landowner would otherwise receive via bonuses into exploration and development expenditures.[4] These additional increments of expenditure, it is further suggested, will increase future production to such an extent that the government landowner will be able to recoup the foregone bonus income in the form of the consequentially increased royalty and tax revenue. Ancillary benefits in the form of employment, resource self-sufficiency, and improved trade balances are also sometimes claimed or alluded to.

To an economist these arguments may not seem too persuasive. Nevertheless, no one appears to have devoted much effort to analyzing the economic implications of such a system, and certainly not in a form that would be comprehensive to the noneconomist policy maker.[5] This is unfortunate not only because of the substantial public and private interests involved; the system has significant implications for minerals other than petroleum and in places other than the United States OCS. The purpose here is to provide such an analysis.

EVALUATION OF WORK COMMITMENT BIDDING

In evaluating something new the first step is usually to establish a standard against which it can be measured. In this context, the system of competitive cash bidding has long attracted economists concerned with the problem of natural resource allocation, not only as an ideal against which the performance of other systems might be measured, but as a practical and proven technique for bringing resources into productive employment.

Under an idealized competitive cash bidding arrangement, bidders determine the amount they can afford to offer for a mineral lease by a very simple process: they subtract their expected costs of extraction from their expected revenues. The resulting residual is the maximum the prospective bidder can offer for the tract without buying himself an expected loss. Competition, of course, implies that multiple firms will be preparing bids on each tract.

Assuming no uncertainty about the amount of oil to be found or the price that oil will eventually bring, and disregarding the time value of money, the firm with the lowest expected costs of extraction will be capable of submitting the highest, and thus the winning, bid. This is good from society's standpoint, since it means that the resource will be developed with the minimum expenditure of scarce goods and services. The resource's contribution to economic welfare will be greater than it would have been had the tract been awarded to any of the other, less efficient bidders.

Under a work commitment system each prospective bidder will be asking himself: What is the maximum amount I can promise to spend on the development of this tract and still expect to break even? Since any cash bonus

that would have been offered to acquire a tract under the traditional system is no longer necessary, the amount of that bonus may clearly be diverted to the work commitment without raising costs beyond the breakeven point. What is not quite so obvious, however, is that the amount a bidder will promise to spend under the commitment system will exceed the sum of the cash bonus and the amount that he would have allocated to development of the tract under the cash bonus system.

This follows from the fact that any additional increment of expenditure can almost always be spent in a way that will bring about some increase in output from the tract and a corresponding increase in revenue.

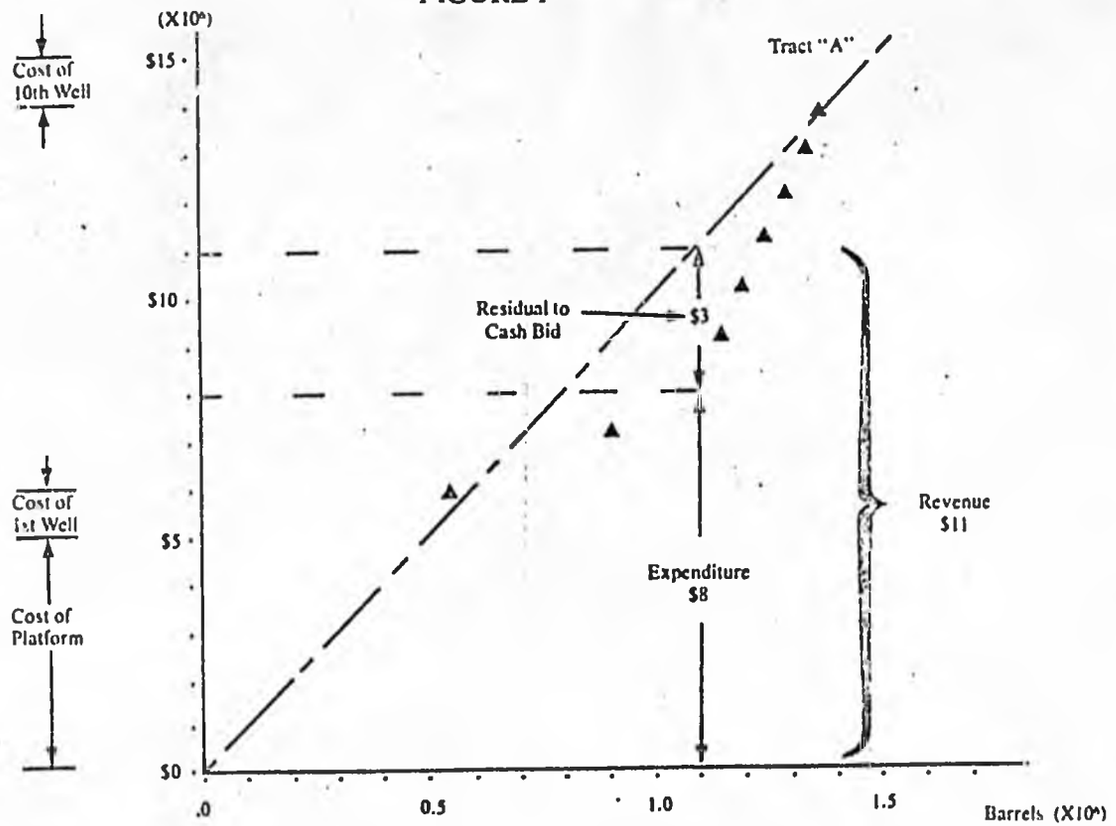
This is most easily demonstrated with a numerical example. Let us assume that a prospective bidder, in determining how much of a cash bonus he can offer for an oil and gas lease on a hypothetical tract A, has calculated the relationship between expenditures on development of the tract and expected production, and that the results of his calculations appear as plotted in Figure 1.

The vertical axis in this graph (and those that follow) measures dollars expended in the tract's development, dollars that we assume will be spent for construction of a platform and the drilling from it of wells. The horizontal scale measures the output that results from that expenditure, denominated in millions of barrels of oil. The relationship between those barrels of output and the revenue they bring their producer (at an assumed price of $10 per barrel) is shown, through appropriate choice of scales, by the dashed 45° straight line running upward to the right. By this means, the vertical scale can be used to show the value of output as well as the cost of production.

In Figure 1, the point closest to the origin indicates that with one platform and one well this operator would expend $6 million (vertical scale) producing an output of 550,000 barrels of oil, worth $5.5 million (determined by the intersection of the 45° line with a line drawn vertically from .55 million barrels). Moving upward and to the right, each subsequent point reflects seriatum the increases in expenditures and output resulting from the drilling of additional wells.

The general shape of the curve defined by these points is characteristic of situations where one major input to the productive process (in this case land) is held constant, while other inputs (in this case wells) are varied. The output curve originates at the lower left hand corner, but it rises vertically at first because the initial input of investment is unproductive: a platform and oil well costs a certain amount, and an expenditure of anything less than that threshold amount produces no oil. The cost of subsequent wells is assumed to be $1 million, no matter how many wells are drilled, creating a curve that looks like a staircase where each increment of cost (representing a new well) creates a new step. The fact that the staircase steepens as we move

FIGURE 1



to the right is a reflection of the diminishing returns, in terms of oil produced, to each additional well drilled into the fixed geographic area encompassed by the lease.

Naturally the prospective bidder will be looking for the point on this output curve that puts his costs as far below the 45° line (his output-revenue function) as possible. As shown in Figure 1, the maximum cash bid this operator could afford to make on tract A (and still expect to break even) is $3 million, which—if he is the winner—would require him to drill three wells.

Consider now the situation this bidder would face were a work commitment bidding system adopted. The question that now confronts him is: How much can I spend (or how many wells can I drill) on tract A and still break even? The answer is clearly $14 million (representing nine wells), indicated on the right side of Figure 2 by the output curve for tract A.

If the bidder wins tract A under a work commitment system, his oil output will be 1.4 million barrels (Figure 2) as compared to the 1.1 million barrels (Figure 1) that he would have produced had he won the tract in a cash bonus sale.

If the success of a mineral resource management policy is measured by the physical quantities of the mineral educed from the earth, the work commitment bidding is clearly superior. A resource's contribution to economic welfare, however, is not its total output (whether measured in dollars or physical quantities) but is the residual left over when the costs of all inputs to the productive process (other than the resource itself) are subtracted from the value of the outputs. In the case of tract A this residual is maximized at $3 million, when the value of the inputs is $8 million. As the input expenditure is increased above this optimum point, the residual—the resource's potential contribution to economic welfare—is gradually dissipated until, at the point where the value of inputs reaches $14 million, there is no more residual left to be dissipated.

In this particular example, the increase in output that would result from a switch to work commitment bidding ($3 million) happens to equal the amount of the residual. This coincides with the fact that the expenditure of each additional $1 million above $8 million (three wells) contributes exactly $500,000 to revenue. If the incremental contribution of the fourth and succeeding wells were greater, for example $750,000, the slope of the output curve traced by these points would be flatter, as shown by the squares in Figure 3, and the increase in production from a switch to commitment bidding would be much greater. To put it another way, it would take twice as large an increase in expenditure to dissipate the $3 million residual.

FIGURE 2

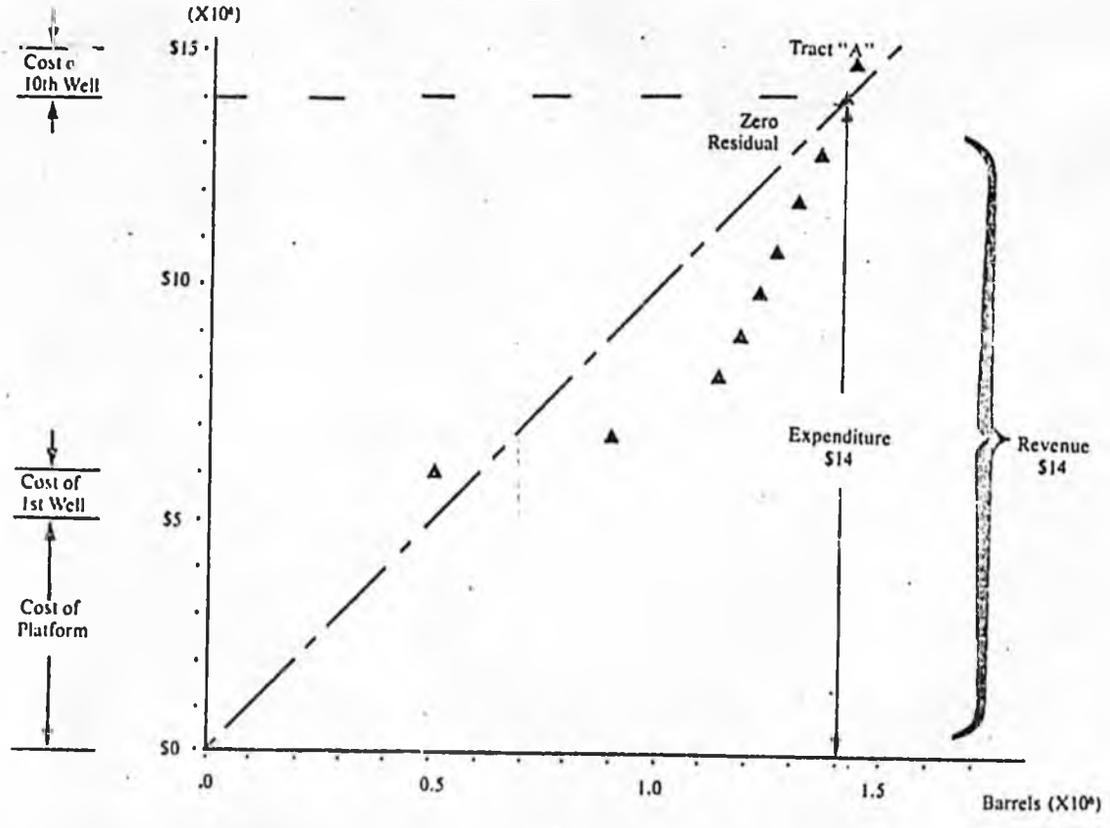
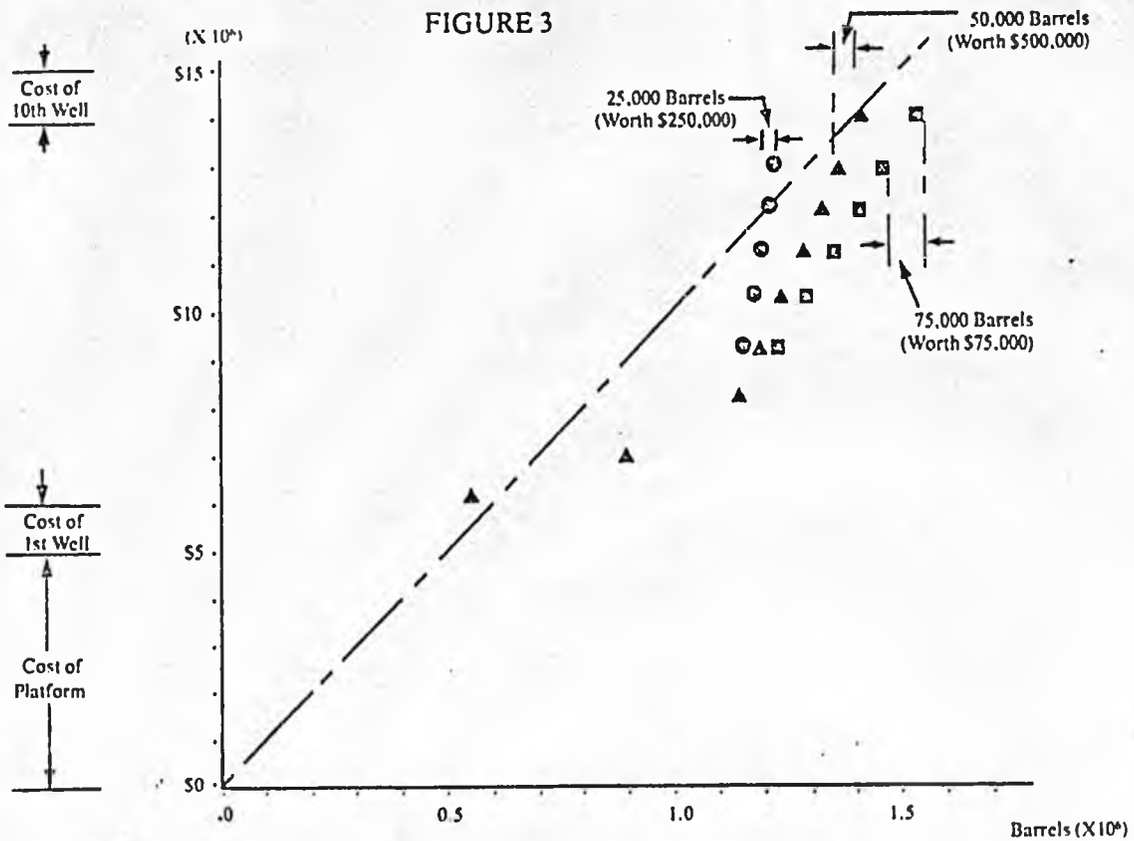


FIGURE 3



67

On the other hand, a smaller incremental contribution to output and revenue by the fourth and succeeding wells (for example, an increase of only $250,000 in revenue for each $1 million well) would trace a steeper curve such as the one defined by the circles in Figure 3. The addition to revenue would clearly be less than the $3 million residual sacrificed to obtain it, which is another way of saying that the increase in production would be worth less than the bonus bid sacrificed to obtain it.

TRANSFERABILITY OF COMMITMENTS

Clearly the previously discussed simple work commitment bidding system results in more intensive development of the tract to which it is applied. Clear also is the fact that this effect is dependent on the characteristics of the tract to which it is applied, and in particular on the efficiency with which the successive increments of additional expenditures required under the commitment can be put to work to increase output.

One way to increase this efficiency is to allow an operator who assumes a work commitment in the course of acquiring a particular tract to fulfil that commitment through expenditures on a different tract or tracts.

For example, assume that a bidder has acquired both tract A and tract B as shown in Figure 4. If the work commitment assumed in order to acquire a tract must be fulfilled on that same tract, then his maximum commitment on A (Figure 2) is $14 million; and on B (as indicated in Figure 4 by the dashed lines) it is $8 million. Total output from the two tracts will be 2.2 million barrels.

TABLE 1

WORK COMMITMENT BIDDING

	Output (bbl's)	Revenue ($)	Expenditure ($)	Residual ($)
Tract A	1.4	14	14	0
Tract B	0.8	8	8	0
	2.2	22	22	0

Note: All figures in millions

If the operator is allowed to bid on the two tracts jointly or is otherwise permitted to shift a commitment made to acquire one to the other, then his total work commitment will rise to $24 million, with a corresponding increase in output. As shown in Figure 4, this is possible by operating tract A at the point on the output curve which produces the greatest residual and by transfering that residual, as an internal subsidy, to tract B, where, as indicated by the flatter slope of the output curve, it can be utilized more efficiently. The numbers are summarized in Table 2.

FIGURE 4