ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672
4987 HRES HB 545

539

cause of criticism of the state income tax as early as 1973, 26/ the Department of Revenue and the Legislative Council engaged Professors Jerome M. Ziefman and Kenneth G. Ainsworth to make a special study of the income tax. 27/

The Department's report -- Alaska's Oil and Gas Tax Structure: A Study with Recommendations for Improvement (February 1977) (the "1977 Tax Study") 28/ -- was transmitted to the Governor on February 11, 1977. Besides incorporating the criticisms and recommendations of Professors Ziefman and Ainsworth about the income tax, the 1977 Tax Study examined the Production Tax, the state ad valorem tax on pipelines and production and exploration equipment and facilities, and the reserves tax. In its review of the Production Tax, the 1977 Tax Study noted:

> . . . Typically production taxes do not reflect the expenses incurred to obtain the production. The tax is either some specified percentage of the gross value of the production or a flat fee of so

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from the in-state activities. The other way is "apportionment," in which a slice of the business's total income is attributed to its in-state activities on the basis of a prescribed formula. Of the consultants advising the Legislature in the mid-1970s, perhaps the most respected was Milton Lipton of Walter J. Levy & Associates. He and Dr. Michael Tanzer of Tanzer Economic Associates, Inc. were preeminent advocates of separate accounting as the way to reform the state income tax and even Alaska's oil and gas tax structure in general.

26/ Milton Lipton, "Testimony at the Joint Hearings of Proposed Oil and Gas Legislation before the House and Senate resources Committees" (March 23, 1973 transcript), p. 7.

27/ Ziefman and Ainsworth, The Taxation of the Petroleum Industry under Alaska's Corporate Income Tax (January 9, 1977).

28/ The principal draftsmen of the 1977 Tax Study were John R. Messenger, then Deputy Commissioner of Revenue (Taxation), and Thomas K. Williams, then Director of the Department's Petroleum Revenue Division. Important editorial review and suggestions were made by Dr. David L. T. Knudson, Petroleum Economist in the Petroleum Revenue Division. Revenue Commissioner Sterling Gallagher closely supervised the preparation of the report.

many cents per unit of production. Since it is not based on net proceeds of the production operation, the production tax simply represents another cost of doing business to the producer. 29/

. . . .

Once a discovery has been made and production begins, however, the production tax (and the landowner's royalty) can have a more significant impact on the economics of the production operation and the associated decisions. As operating costs rise during the life of the field, the profit margin shrinks. At some point the total production costs overtake the value of the oil or gas produced, and production can then be continued only by operating at a loss. As one of the costs of doing business, the production tax contributes to the total costs and tends to hasten the time when this break-even point (called the economic limit) is reached. 30/

Besides this negative economic effect of production and severance taxes in general, the 1977 Tax Study drew attention to a particular problem with the "stair step" tax as it applied to areas of Alaska where the operating costs differed greatly from each other:

The current State oil production tax contains a "stair step" feature which is intended to alleviate the adverse impact that a production tax can have on an oil well operating close to its true economic limit. . . . The "stair step" feature of the existing oil production tax schedule is an attempt to reduce the tax rate as production falls closer to the true economic limit. The tax rate declines from 8% to 6% to 5% as individual well output falls. Unfortunately, the current "stair steps" appear to be sized incorrectly.

Economic factors governing production operations vary widely in the State of Alaska. Some areas in the State are located close to the refinery market and have low operating costs. In these areas wellhead values are high. As a consequence, the true economic limit (measured in barrels per day) for these properties can be quite low: 50 to 75 barrels a day per well, or even lower, in some cases in Cook Inlet.

29/ 1977 Tax Study, p. V-19.

30/ Id., p. V-21.

> Other crude oil wells in Alaska are not located close to refinery markets and could have extremely high operating costs. The netback value in the field for these isolated areas is lower than in Cook Inlet and the operating and capital costs can be much higher than in Cook Inlet. Accordingly, the true economic limit (measured in barrels per day) for these producing properties can be quite high. Depending on the property, this limit might range from 300 to perhaps 1000 barrels per day [per well]. There is, then, a rather wide range of values which can be generated regarding the minimum production level at which Alaska crude oil wells can be operated.
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> From this perspective, an economic flaw in the existing or any other "stair step" production tax schedule becomes obvious. By establishing a fixed schedule of "stair stepped" tax rates, the State crude oil production tax is based on the faulty assumption that production economics are similar in Cook Inlet, Prudhoe Bay, and everywhere else in Alaska. 31/

To take care of these problems, the 1977 Tax Study made the following recommendation to replace the "stair steps" with the ELF: 32/

> The Department of Revenue recommends perfecting the "stair step" approach as a means of eliminating effects of the production tax on the economics of oil production operations. The key to doing so is not found by creating a series of "steps" and rates that succeed in this for any one area of the State, such as Cook Inlet. As explained in Chapter V, a well producing 1000 bar-

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31/ Id., pp. V-28 to V-30.

32/ The original idea for an economic limit was by the then Director of the Petroleum Revenue Division of the Alaska Department of Revenue, Thomas K. Williams, in response to criticism, particularly by Milton Lipton, about the adverse economic effects of the Production Tax on properties as they near their economic limit. The precise formula for the ELF proposed in the 1977 Tax Study (and still the formula for the gas ELF) was developed jointly by Mr. Williams and Dr. David L. T. Knudson, Petroleum Economist in that division. The exponent for the oil ELF and the number 460 appearing in the exponent were features added during the legislative process as the result of work by Alan Latham, who was working for the Legislature.

> rels a day may be quite a money maker in Cook Inlet but be mediocre or even marginal in other areas of the state such as the Interior or North Slope. Consequently the "stair steps" that succeed for the Inlet won't eliminate the economic effects of the tax elsewhere. Conversely, "stair steps" designed to eliminate those effects [for] production on the North Slope would give too much away to production in the Inlet.
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> To eliminate this difficulty, the Department of Revenue recommends an Economic Limit Factor (ELF), based on the ratio of the rate at the true economic limit to the current production rate, as a mechanism for scaling down the tax rate as the production declines toward the economic limit. This would be done by multiplying a basic tax rate times the difference between unity (the number, one) and the ratio of rate at limit to current rate.
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> . . . .
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> If the tax law conclusively sets the rate at the economic limit at some specific rate like 200 barrels a day per well, the ELF becomes simply one more economically rigid structure like the present "stair steps." It would not respond to the great regional differences in economic scale for production operations in Alaska. But the great advantage of the ELF over any specific set of "stair steps" is that it can be tied to the actual economic condition of a property anywhere in the state . . . . (emphasis in original) 33/

This was the first public proposal to adopt the ELF as a replacement for the "stair steps" in the Production Tax. Instead of a series of discrete "steps" in production rates at which tax rates changed, the ELF represented in effect a smooth curve, a series of an infinite number of "steps" each infinitesimally small. But beyond simply smoothing the "steps" into a continuous curve, the ELF had the additional advantage of allowing the whole curve itself to be shifted, to reflect the rate of production needed for that particular property to cover its basic operating costs at the economic limit. It could reflect the fact that in remote areas of Alaska like Prudhoe Bay, the rate of production needed merely to break even would be very much greater than the rates needed to break even in the more accessible areas like Cook Inlet and the Kenai Peninsula. Thus, the adverse economic

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33/ 1977 Tax Study, pp. VI-17 and VI-19.

effects on the economic life of an oil and gas property were no longer a necessary evil of a tax based on gross production value as the Production Tax is.

Governor Hammond acted on this recommendation by introducing Senate Bill 238 to the 1977 Session of the Legislature. 34/ After much legislative wrangling, an amended version of this bill (FCCS HCS CSSB 238) finally passed, and the ELF became part of the Production Tax. 35/

34/ See 1977 Senate Journal, pp. 540-541 (Governor's transmittal letter).

35/ Ch. 136, SLA 1977.

HOW THE ELF WORKS: VARIATIONS ON THE THEME

A. Introduction to the Exponent. The ELF formula for gas production (and formerly for "old oil" under now expired federal oil price controls) is simple and straightforward in its operation. It is merely one minus the ratio of production at the economic limit (PEL) to current production (TP), or to put it into mathematical symbols:

$$ELF = 1 - [PEL/TP]$$

As current production (TP) declines toward the "break even" rate (PEL), the ratio of PEL to TP gets larger and larger, eventually equaling one when TP has declined to the point that it equals PEL. At that point, the ELF becomes 1 - 1, or zero. The tax is then also zero.

This same formula is at the root of the ELF for oil, except that there is, in addition, an exponent that is applied to it. (For a review of how exponents work and what fractional exponents mean, see Appendix A.)

The exponent in the oil ELF is a fraction whose numerator is 460 times the number of "well days" in the month when the oil was produced, and whose denominator is the monthly production rate at the economic limit. The number of well days is simply the sum for all wells of the number of days each of them was operated during the month. If 10 wells were each operated for 30 days during a month and two others were operated for 25 days each, then the number of well days is 350 (10 times 30, plus two times 25).

Depending on what PEL is, the exponent may be greater than, equal to, or less than one. If it is greater than one, the exponent is a "net power function" -- that is, the effect of raising to a power equal to the numerator of the exponent outweighs the effect of taking the a root equal to the denominator of the fraction. Conversely, if it is less than one, the exponent is a "net root function" and the effect of taking the root outweighs that of raising to the power.

As set out in the "simple" explanation of the ELF, the value of one minus the ratio of PEL to TP is always less than one and can range all the way down to zero. For numbers between zero and one, the effect of a "net power function" is to make the result smaller than the starting number. For example, 0.9 squared is 0.81; 0.01 to the fifth power is 0.0000000001; 0.5 to the "1.000001"-th power is 0.499999653. Conversely, the effect of a "net root function" on this range of numbers is to produce a larger number: the square root of 0.81 (0.81 raised to the "one half"-th power) is 0.9; the fifth root (the "1/5"-th or

"0.2"-th power) of 0.0000000001 is 0.01; and 0.5 to the "0.999999"-th power is 0.500000347.

The value of PEL therefore has an important but subtle effect on the exponent. If PEL corresponds to more than 460 barrels a day per well, the exponent becomes a "net root function" and makes the value of the ELF larger than the starting number to which the exponent is applied. On the other hand, if PEL is less than 460 barrels times the number of well days, the exponent is a "net power function" and makes the final value of the ELF less than the number to which the exponent is applied.

B. The PEL Presumption: To Rebut or Not to Rebut?

PEL appears twice in the oil ELF formula -- once in the exponent and once in the calculation of the number to which the exponent is applied:

$$ELF = (1 - [PEL/TP])^{([460 \times WD]/PEL)}$$

For oil there is a rebuttable presumption that PEL equals 300 barrels times the number of well days in the particular month. 36/ The presumption may be rebutted only once a year, and if it is rebutted, the value that is demonstraced to be the proper PEL must be used for that entire calendar year. 37/ If the presumption is not rebutted, then the formula for the ELF is, in effect, the following:

$$ELF = (1 - ([300 \times WD]/TP))^{(460/300)}$$

The decision to rebut the presumption or not, presents some subtle trade-offs that must be carefully considered before proceeding. On the one hand, if the presumption is not rebutted, then the exponent is a "net power function," which produces a result that is smaller than the number to which the exponent is applied. On the other hand, if the presumption is rebutted and shown to be greater than 300 barrels per well day, then the ratio of PEL to current production will be made greater, leaving a smaller number to which the exponent is applied. If the demonstrated PEL is still less than 460 barrels per well day, the exponent will remain a "net power function" although, as the value for PEL approaches 460 barrels per well day, the effectiveness of the exponent in reducing the number to which it is applied will diminish. The effects of rebutting the PEL -- that is, the reduction in the difference between one and the ratio of PEL to current production (that difference being the number

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36/ AS 43.55.013(d).

37/ Id.

to which the exponent will be applied), and the "net power function" nature of the exponent -- will both be working in the same direction and reduce the ELF.

If PEL equals 460 barrels per well day, the exponent becomes exactly equal to one and has no effect at all on the number to which it is applied. The effect of rebutting the presumption is then simply the reduction in the difference between one and the ratio of PEL to current production, which will still yield a lower ELF than if the presumption were not rebutted.

Beyond 460 barrels per well day, the demonstrated PEL will turn the exponent into a "net root function," which will tend to offset the advantage to be gained by reducing the difference between one and the ratio of PEL to current production. Although that advantage always outweighs the offsetting effect of the exponent (in other words, it is always worth rebutting the presumption if possible, because doing so reduces the final value of the ELF), the extent to which this happens depends on how what the current average daily production per well is. The higher the production rate, the smaller the net effect is from rebutting the presumption.

The following table illustrates this for four cases: Case 1 has current average production of 500 barrels a day per well; in Case 2 it is 1,000 barrels a day per well; in Case 3, 5,000 barrels a day per well; and in Case 4, 10,000 barrels a day per well, corresponding roughly to the expectations in early 1977 for what would be the situation with the Prudhoe Bay field by the beginning of 1978. 38/

38/ The throughput capacity of TAPS represents a physical constraint on the rate of production from North Slope fields. TAPS had been planned to start up in three phases: the first at a throughput of 600,000 barrels a day; the second and 1.2 million barrels a day; and the third at 1.5+ million. Until the third phase was implemented, TAPS's throughput capacity represented the upper limit at which the Prudhoe Bay field could be produced (Phase 3 would be at or above the maximum efficient rate for Prudhoe Bay of 1.5 million barrels a day). By early 1977 the first two phases had been "telescoped" together, so that TAPS was expected to be at 1.2 million barrels a day by the end of the year. That was, of course, before the fire and explosion at Pump Station 8 while the pipeline was being filled. However, for purposes of analyzing the ELF, the assumptions used by the Legislature and the Administration reflected the planned 1.2 million-barrel-a-day rate of production from the field into TAPS, with approximately 120 producing wells.

PEL	Case 1 (TP=500) ELF	Case 2 (TP=1,000) ELF	Case 3 (TP=5,000) ELF	Case 4 (TP=10,000) ELF
300	0.245372	0.578740	0.909486	0.954370
400	0.157103	0.555743	0.908565	0.954140
450	0.095012	0.542741	0.908095	0.954023
460	0.080000	0.540000	0.908000	0.054000
470	0.063701	0.537208	0.907905	0.953977
500	-0-	0.528509	0.907618	0.953906
600	---	0.495351	0.906644	0.953670
700	---	0.453309	0.905641	0.953430
800	---	0.396362	0.904608	0.953187
900	---	0.308240	0.903544	0.952940
1000	---	-0-	0.902446	0.952690
2000	---	---	0.889149	0.949972

As the table shows, the effect of raising PEL by 100 barrels per well day from its presumed level of 300 is greatest in Case 1, dropping the ELF from 0.245372 to 0.157103. This reduction of 0.088269 in the ELF represents a tax reduction of 35.974 percent as the result of rebutting the presumption (0.088269 is 35.974 percent of the 0.245372 value of the ELF in Case 1 if the presumption is not rebutted). The reduction from similarly raising the PEL from its presumed rate steadily drops off as the rate of current daily production per well gets larger: the ELF is reduced by 0.022997 for the 1,000 barrel-a-day Case 2 (corresponding to a tax reduction of 3.974 percent); by 0.000921 for the 5,000 barrel-a-day Case 3 (tax reduction of 0.101 percent), and by a mere 0.000230 for Case 4 (tax reduction of 0.024 percent), the case approximating Prudhoe Bay as expected after the completion of TAPS start up. In fact, in the Prudhoe-type case, even showing a PEL of 1,000 barrels a day per well (which is about what PEL was then expected to be if the Prudhoe Bay producers had rebutted the presumption) would only reduce the ELF by 0.001680 from its value with the presumed PEL. Rebuttal of the presumption thus represented a potential tax reduction of only 0.176 of one percent.

The decision to rebut or not rebut the presumed PEL is thus seen to have a rule of diminishing returns, the larger the average of current daily production per well becomes. With a property with extremely productive wells, the potential advantage from rebutting the presumption may simply be too small to be worth the effort even though the property is in a high operating cost area of the state.

C. The ELF's Incentive to Continue Development Drilling in "Mature" Fields. Recent (1986) proposals to modify the ELF so that the presumed PEL is on a field-wide or

reservoir-wide basis instead of a per-well basis have overlooked the incentive that the present ELF offers for producers to continue development drilling in mature fields that are already producing at their maximum efficient rate (MER). This incentive is best illustrated by examining a particular example, rather than trying to describe it abstractly.

Suppose there is a field that is producing at its MER, which is 1,500,000 barrels a day, or 45,000,000 barrels in a 30-day month. Since this is the MER for the field, the 45,-000,000 barrel figure will not change if another development well is drilled. Suppose further that there are already 500 producing wells in the field and that the presumption for PEL is unrebutted. What happens to the tax burden if the 501st development well is drilled?

Since the presumption for PEL is in effect, PEL can be replaced in the ELF formula by the expression [300 x WD]. Thus the formula becomes:

$$ELF = \{1 - ([300 \times WD]/TP)\}^{([460 \times WD]/[300 \times WD])}$$

Given how WD is in both the numerator and denominator of the exponent, it cancels itself out and the exponent can be simplified to 460/300. With 500 wells all operating every day in a 30-day month, the number of well days is 15,000. Using the simplified exponent and filling in the variables with the appropriate numerical values from this example, the ELF becomes:

$$ELF = \{1 - ([300 \times 15{,}000]/45{,}000{,}000)\}^{(460/300)}$$

$$= \{1 - (4{,}500{,}000/45{,}000{,}000)\}^{(460/300)}$$

$$= \{1 - (0.1)\}^{(460/300)}$$

$$= 0.850822$$

Now if the 501st well is drilled, the number of well days will become 15,030, and the new ELF will be:

$$ELF = \{1 - ([300 \times 15{,}030]/45{,}000{,}000)\}^{(460/300)}$$

$$= \{1 - (4{,}509{,}000/45{,}000{,}000)\}^{(460/300)}$$

$$= \{1 - 0.100200\}^{(460/300)}$$

= 0.850532

While the difference in the ELF seems small -- a reduction of 0.000290 in the value of the ELF, or 0.034 percent -- its dollars-and-cents effect is not insignificant. If the field is still in its first ten years of production, the nominal tax rate is 15 percent. If it costs $7.00 a barrel to get the oil to market, where it fetches $15.00, the "wellhead" value is $8.00. Assuming a one-eighth governmental royalty interest that is exempt from the Production Tax, the annual tax burden on this field with 500 wells would be:

Tax = (1,500,000 B/D) x (365 days) x (1 - 1/8 tax exempt share) x ($8.00/Bbl) x (15%) x (ELF of 0.850822)

= $489,116,297

Now with 501 wells the tax becomes:

Tax = (1,500,000 B/D) x (365 days) x (1 - 1/8 tax exempt share) x ($8.00/Bbl) x (15%) x (ELF of 0.850532)

= $488,949,583

In this example, drilling the 501st well results an annual savings of $166,714 39/ in the Production Tax. One must remember that the decision to drill each additional development well is a decision that must be made on its own merits. Past expenditures in developing the field may or may not have been good investments, but they are in any event irrelevant to the decision to spend additional money for further development. In contrast, a savings in the future Production Tax burden that will result from the drilling of an additional development well is definitely a factor to be weighed in the decision to drill that additional well or not, and it is one that helps tip the balance in favor of drilling it. Other favorable factors affecting the decision will be the ability to sustain production at the MER for a longer period of time if additional wells are drilled, and the likelihood that the amount of production ultimately

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39/ It should be apparent from the calculation that the exact amount of tax savings to be realized from drilling an additional development well is also dependent on other factors as well, particularly the "wellhead" price. If in the example the market price had been $25 instead of $15, the tax savings would have been considerably greater -- $375,106. Conversely, lower prices would have meant smaller tax savings.

recovered from the reservoir will be greater with more wells, both of which benefit the state as well as the taxpayer.

As this example shows, if the presumption regarding PEL has not been rebutted, all of the incentive provided under the present ELF is due to the fact that the presumed PEL is based on well days, which in turn depends on the number of development wells in operation. 40/ In other words, the only difference between the calculation of the ELF for 500 wells and the one for 501 wells is in the fact that there are 15,000 well days in the first and 15,030 in the second.

40/ It is a slightly different story if the presumption has been rebutted and PEL is established as a fixed number number of barrels per month. There is still an incentive to drill the 501st well, but this time it is due to the fact that the well-days factor still appears in the numerator of the exponent even though it is no longer a factor in PEL (the denominator of the exponent). To illustrate how the ELF provides a drilling incentive when the presumption has been rebutted, let us start with the same figures as in the example in the main text and suppose PEL has been shown to be 9,000,000 barrels per month. With 500 wells the ELF is:

$$ELF = (1 - 9{,}000{,}000/45{,}000{,}000)^{(460 \times 15{,}000)/9{,}000{,}000}$$

$$= (1 - 0.200000)^{6{,}900{,}000/9{,}000{,}000}$$

$$= 0.842757$$

With 501 wells the ELF becomes:

$$ELF = (1 - 9{,}000{,}000/45{,}000{,}000)^{(460 \times 15{,}030)/9{,}000{,}000}$$

$$= (1 - 0.200000)^{6{,}913{,}800/9{,}000{,}000}$$

$$= 0.842469$$

In this example the difference in the ELF between having 500 producing wells and 501 is 0.000288. It is coincidental that this figure comes out so close to the difference in the ELF from drilling the 501st well in the example in the main text with the unrebutted presumption about PEL. The point being made here is that, if the presumption is rebutted, the present ELF still provides an incentive to drill another well.

APPENDIX A

A Review of How Exponents Work

Exponents can be sorted into two kinds: whole numbered exponents (1, 2, 3 etc.) and fractional exponents (1/2, 1/3, 2/3 etc.). The whole numbered exponents are the easiest to understand. Basically, a whole numbered exponent states how many times a particular number is to be multiplied by itself. For example,

$$4^3 = 4 \times 4 \times 4, \text{ and}$$

$$6^7 = 6 \times 6 \times 6 \times 6 \times 6 \times 6 \times 6.$$

Whole number exponents are often called "powers" -- in the two examples above, the first is four to the third power, the second is six to the seventh power.

Now suppose we want to multiply two numbers together, each of which is some power of the same number. What happens? Suppose we want to take four to the third power and multiply it by four to the second power. We already know that four to the third power is four times four times four, and four to the second power similarly is four times four. Thus,

$$\begin{aligned} 4^3 \times 4^2 &= (4 \times 4 \times 4) \times (4 \times 4) \\ &= 4 \times 4 \times 4 \times 4 \times 4 \\ &= 4^5 \end{aligned}$$

Notice that the exponent, 5, in the last line equals the sum of the two exponents, 3 and 2, of the numbers being multiplied together. One may draw from this example the following generalization: if a number, A, to the N-th power is multiplied by A to the M-th power, the product is A to the "N plus M"-th power, or

$$A^N \times A^M = A^{(N+M)}$$

(Remember, though, that it must always be the same base number that is being taken to the different powers and mul-

tiplied together, for this generalization to be true. A to the N-th power times B to the M-th power does not equal A times B taken to the "N plus M"-th power, nor does it equal just A to the "N plus M"-th power or B to the "N plus M"-th power. As a generalized statement, A to the N-th power times B to the M-th power equals A to the N-th power times B to the M-th power, and that's as simple as the statement can be made and still be a generalized statement. In limited kinds of cases it can be made into a simpler statement, but only when there are special values for A and B or special values for M and N, or both.)

Exponents have a similar property when division is involved instead of multiplication. Suppose we wish to divide five to fifth power by five to the third power (the third power of a number is called its "cube"; five to the third power is "five cubed"). The following shows what happens:

$$\frac{5^5}{5^3} = \frac{5 \times 5 \times 5 \times 5 \times 5}{5 \times 5 \times 5}$$

$$= \frac{\cancel{5} \times \cancel{5} \times \cancel{5} \times 5 \times 5}{\cancel{5} \times \cancel{5} \times \cancel{5}}$$

$$= 5^2$$

Note that the exponent of the answer equals the difference between the exponent in the dividend (five to the fifth) and that in the divisor (five cubed). The generalization to be drawn from this example is that, when different powers of the same number are divided into each other, the exponent in the result equals the difference between those powers:

$$\frac{A^N}{A^M} = A^{(N - M)}$$

This generalized equation gives meaning to two special cases: the numbers one and zero when used as exponents. If N equals M plus one, then:

$$A^1 = A^{(N - M)}$$

$$= \frac{A^{N}}{A^{M}}$$

$$= \frac{A^{(M+1)}}{A^{M}}$$

$$= \frac{A^{M} \times A}{A^{M}}$$

$$= A$$

Thus, any number to the first power equals that number. (The preceding demonstration does not apply when A equals zero, because it would involve dividing by zero; however, the generalization still applies in the case of zero, so that zero to the first power is zero.)

Now, to get the zero-th power, N and M must be equal, and then the following happens:

$$A^{0} = A^{(N-M)}$$

$$= \frac{A^{N}}{A^{M}}$$

$$= \frac{A^{N}}{A^{N}}$$

$$= 1$$

Therefore, any number (except zero itself) raised to the zero-th power equals one.

Now, what happens if a number being raised to some power is itself the power of another number? For example, four is two to the second power (the second power of a number is its "square"; two to the second power is "two squared"). What is four cubed if it is converted into powers of two?

$$4^3 = 4 \times 4 \times 4$$

$$= (2^2) \times (2^2) \times (2^2)$$

$$= (2 \times 2) \times (2 \times 2) \times (2 \times 2)$$

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$= 2^6$$

In other words,

$$\left[2^2\right]^3 = 2^6$$

Notice that the exponent 6 in the answer equals 2 times 3. Once again this example gives rise to a generalization: if the quantity, A to the N-th power, is itself raised to the M-th power, the result equals A to the "N times M"-th power:

$$\left[A^N\right]^M = A^{(N \times M)}$$

When a number is raised to the N-th power, we are asking what the product is of multiplying one by that number N times. The N-th root of a number works the other direction. For a given number, it asks what number, when raised to the N-th power, will yield that given number. Thus, two is the cube root of eight, because two cubed (i.e., two times two times two) equals eight.

To show the N-th root of a number (call it A), the exponent is the fraction 1/N. The reason for having 1/N as the exponent to show the N-th root of a number is as follows: Let R stand for the N-th root of A. then by definition R to the N-th power equals A, or in mathematical terms:

$$R^N = A$$

Now let X stand for the exponent applied to A that is to be used to signify the N-th root of A; In other words, A to the X-th power equals the N-th root of A, which is R. In mathematical terms again, this is:

$$A^{X} = R$$

Substituting A to the X-th power in the second equation above gives the following:

$$R^{N} = \left[A^{X}\right]^{N} = A$$

Just a little bit above we showed that if the N-th power of a number is itself taken to the M-th power, the result equals that base number taken to the "N times M"-th power. Hence,

$$\left[A^{X}\right]^{N} = A^{(X \times N)} = A^{1} = A$$

Since A to the "X times N"-th power equals A to the first power, then the exponents, although expressed differently, must be equal. So, X times N equals one. Therefore, X equals one divided by N, or 1/N. Since R, the N-th root of A, equals A to the X-th power, and since X equals 1/N, then R equals A to the "1/N"-th power. Q.E.D.

It is now but a simple step to understand what fractional exponents do. If the exponent is a fraction, M/N, it simply means that the N-th root of the base number is found and then that root is raised to the M-th power, or alternatively, that the base number is first raised to the M-th power and then the N-th root is taken. In mathematical terms:

$$A^{(M/N)} = A^{[(1/N) \times M]} = \left[A^{(1/N)}\right]^{M}$$

or

$$A^{(M/N)} = A^{[M \times (1/N)]} = \left[A^{M}\right]^{(1/N)}$$

It does not matter which is done first, taking the N-th root or raising to the M-th power, as a brief example will show. Suppose we want to take eight to the two-thirds power. The cube root of eight is two, which when squared equals four. Now, reversing the order between taking the root and raising

to the power, the square of eight is 64; the cube root of 64 is four. Both ways, the answer is four.

Fractional exponents expressed in decimal terms are no different from any other fractional exponent. Thus,

$$A^{0.125}$$

is simply the 125th power of the 1,000th root (or equivalently, the 1,000th root of the 125th power) of A. If, as here, the fraction can be simplified (0.125 equals 1/8), there is no change in the result if the simpler fraction is substituted (nor would there be if a less simple form of the same fraction were substituted for a simple one). The 125th power of the 1,000th root of A is exactly equal to the eighth root of A:

$$A^{0.125} = A^{(1/8)}$$

February 2, 1986

THE PETROLEUM SEVERANCE TAX IN ALASKA: MODIFICATION OF THE ECONOMIC LIMIT FACTOR

Prepared by: Thomas Chester
Office of Management and Budget

Severance Tax

Alaska's petroleum severance tax is set by law at 15 percent[1] of the gross value of production, but this percentage is adjusted downward on the basis of the average productivity of the wells in a field. Only fields with extremely productive wells would pay the full 15 percent.

The Prudhoe Bay field now pays the full nominal severance tax rate of 15 percent, but only because of a special statutory provision that will expire in 1987 (FY '88[2]). At that time, the severance tax on Prudhoe Bay will begin to be adjusted downward in relationship to the declining average productivity of the wells in the field.

The formula for the downward adjustment of the nominal severance tax rate is called the economic limit factor (ELF). It is intended to encourage the maximum total production of an oil field by progressively lowering its effective severance tax as the field goes into decline.

ELF

Each field has its own ELF, which is computed monthly as a function of average daily output per well. Figure 1 shows this relationship. Fields with higher daily output have a higher ELF, and thus pay more tax. Figure 1 also indicates

the forecasted FY 88 average daily production of three North Slope fields and their associated ELFs.

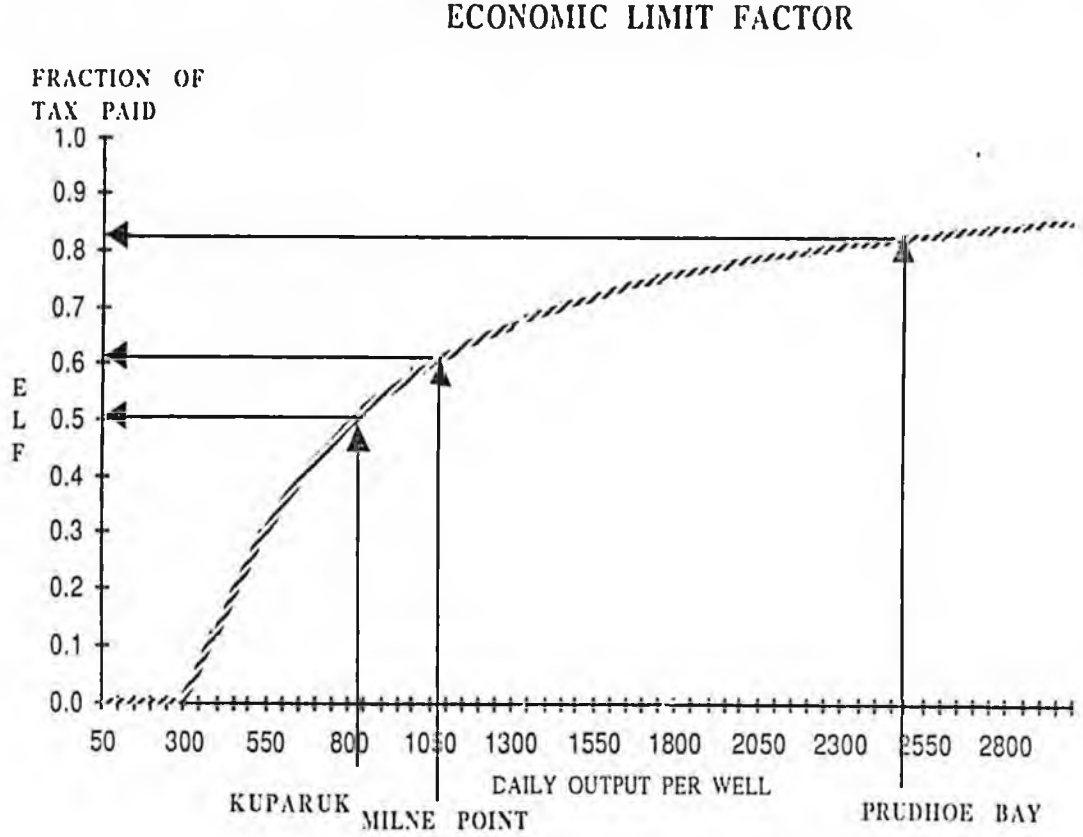


Figure 1

The actual severance tax rate paid (the effective severance tax rate) is equal to the ELF (which is always between 0 and 100 percent) multiplied by the statutory tax rate (usually 15%) . This produces the effective severance tax rates shown in Table 1 below.

Table 1

Effective Severance Tax Rates

North Slope Fields - FY 88, under current ELF

Field	ELF	X	Nominal Rate	=	Effective Rate
Prudhoe Bay	.82		15%		12.3%
Kuparuk	.52		15%		7.5%
Milne Point	.60		15%		9.0%

Modification of the ELF formula

The existing ELF formula is based on average daily well productivity and does not take account of the average daily production of the entire field. That is why the Prudhoe Bay and Kuparuk fields begin to enjoy the severance tax reduction even though they are among the most productive fields in the western hemisphere. Also, because the existing ELF formula fails to account for average daily field production, the Milne Point field will have a comparatively high ELF even though it is a very small and economically marginal field on the north slope.

A modification of the ELF formula that incorporates overall field production characteristics could increase the effective severance tax rate on large, productive fields such as Prudhoe Bay and Kuparuk, and reduce the effective tax rate

on the small, marginal fields that most need the economic benefits of the lower tax burden.

At the request of Rep. Cotten, OMB has evaluated the effects of one such modification.[3] Table 2 shows the change in the effective tax rate for several oil fields. Table 3 shows the revenue implications of those changes.

Modification of the ELF formula to include total field productivity would improve the chances of a small, marginal field being brought into commercial production. These fields may have good well productivity characteristics but high costs because of the inability to spread fixed costs over a large number of producing wells (as in the case of Prudhoe Bay and Kuparuk).

Table 2

COMPARISON OF ELF'S

FY 89

	Existing ELF	Modified ELF	% change
Prudhoe Bay	.80	.99	+23%
Kuparuk	.50	.86	+72%
Milne	.60	.31	-48%
Endicott	.31	.0	-100%
Lisburne	.11	.05	-54%
West Sak	.0	.0	no change
Cook Inlet	.03	.0	100%

M E M O R A N D U M

STATE OF ALASKA

Department of Revenue

Petroleum Research Section

February 11, 1987

To: Vincent D. Wright, Chief of Research

From: Charles Logsdon, Petroleum Economist

Subject: New ELF

Per your request, I have examined the revenue and production impacts associated with changing the ELF to consider field size. This modification is similiar to the one outlined in HB 545 and presented in analysis done by myself in papers prepared for presentation to the tax committee.

Briefly, the modification is accomplished by introducing a scaling factor and also the rate of field production into the exponent of the current ELF formula. The value of this scaling factor determines at what level of production the resulting ELF is greater than under the current law. For instance, in HB 545 the factor has a value of 37,000,000 which, given a PEL of 300, translates into a break point of roughly 80,000 bbls/day. The analysis I did for the tax committee last December under the OMB modified alternative ELF used a factor with a value of 45,500,000. This translates into a break point of roughly 100,000 bbls./day. In the analysis contained in this memo I have used a factor value of 55,000,000, which results in a break point of roughly 120,000 bbls./day. A breakpoint of 120,000 bbls./day would increase the effective severance tax rate on Prudhoe Bay and Kuparuk production. It would reduce the effective severance tax rate on all other oil fields now producing or likely to produce in the next two years, including all Cook Inlet fields, Milne Point, Lisburne, and Endicott. This is because none of these fields are projected to produce at or above the 120,000 bbl./day level. I have attached a computer printout which illustrates the sensitivity of the change in effective tax rate on each field of different assumptions for production and well count using the 55 million scaling factor

Sam's Copy

To illustrate the effect of different scaling factors on the ELF calculation I have developed the following tables. The first table illustrates the break point for various values of the scaling factor i.e. the total field production which would result in a lower ELF than that currently calculated.

Factor	Breakpoint
20000000	43479 bbls./day
30000000	65219
40000000	86958
50000000	108698
60000000	130438
70000000	152177
80000000	173917
90000000	195656
100000000	217396
110000000	239136

The following table shows the calculated ELF by North Slope field for various values of the scaling factor.

			Factor/ELF							
Field	Prod.	Prod/Well	30MM	40MM	50MM	60MM	70MM	80MM	90MM	100MM
Prudhoe	1510000	2900	.9928	.9904	.9880	.9856	.9833	.9809	.9785	.9762
Kuparuk	230000	885	.8353	.7866	.7408	.6977	.6571	.6188	.5828	.5488
Milne	20000	900	.1317	.0670	.0341	.0173	.0088	.0045	.0023	.0012
Endicott	70000	900	.5603	.4619	.3808	.3140	.2588	.2134	.1759	.1450
Lisburne	35000	1400	.5021	.3990	.3171	.2521	.2003	.1592	.1266	.1006
West Sak	100000	550	.4545	.3495	.2687	.2066	.1589	.1221	.0939	.0722

The following two tables illustrate the revenue and production impact of modifying the ELF to include field size in the formulas using the 55 millon scaling factor. The results were generated by the PETREV monte carlo simulation model that DOR uses to forecast petroleum production revenues. Interestingly the revenue impacts are not that much different from those contained in the fiscal note prepared last year concerning HB 545. The average expected production impacts are also relatively low. The mildly negative impact on Lisburne production is a result of a slightly higher TAPS tariff, due to slightly lower throughput, more than offsetting the lower severance tax burden. The negative impact on West Sak reflects the probability that should this project become economic, production may exceed 120,000 bbls/day from a large number of low productive wells.

Revenue Impact of Field Size ELF, Field Factor = 55 Million
(Millions $)

Fiscal Year	Delta 30%	Delta Mean
1987	10.45	10.93
1988	88.18	112.29
1989	98.14	136.23
1990	109.61	147.04
1991	96.13	132.35
1992	94.18	127.23
1993	91.30	124.34
1994	81.51	118.59
1995	77.60	112.06
1996	69.74	98.74
1997	62.21	92.73
1998	49.52	82.14
1999	43.91	75.70
2000	33.42	72.90
2001	31.73	72.49
2002	27.43	73.42
2003	28.46	73.09
2004	23.53	62.25
2005	20.23	47.44

Table 3
Revenue Impact
from ELF, FY 87 - 94
Millions of $

Year	Revenue Loss From Current ELF	Revenue Gain From Proposed ELF
87	70	68
88	234	183
89	263	185
90	243	180
91	241	172
92	324	169
93	332	166
94	340	155

FOOTNOTES

[1]For any lease or property coming into commercial oil production after June 30, 1981, the severance tax rate is 12.25% during the first 5 years of production and 15% after that. (AS 43.55.011)

[2]This special statutory provision applies to all fields.

[3]

EXISTING ELF

$$ELF = (1 - PEL/TP)^{(460*WD/PEL)}$$

POSSIBLE ALTERNATIVE

$$ELF = (1 - PEL/TP)^{(37,000,000/(PEL*TP/Days))}$$

Where:
- PEL is production at the economic limit and in statute is set at 300 barrels per day per well
- TP is total production for the field
- WD is well days
- 460 and 37,000,000 are constants

Questions and Answers on the "ELF"

What does the ELF bill do?

A provision in current law will reduce Prudhoe Bay severance taxes on June 20, 1987. The Governor's bill (HB-164 and companion SB-158) will prevent this reduction. The bill also deletes another section of the current law which could allow oil producers to avoid severance tax payments entirely.

How much would Alaska lose from the cut in Prudhoe taxes?

The Department of Revenue estimates the fiscal year (FY) 1988 loss at $93 million, or $77 million under the more conservative "30 percent" forecast. The reduction is already accounted for in the official forecasts, so adopting the bill will be reflected in future forecasts as a revenue increase -- $92 million, $98 million, $100 million, $106 million in FY 1989-92, respectively.

Some industry sources say the bill will have a bad effect on future development? Will the bill impact future production?

Yes, but the impact won't be large. A Department of Revenue analysis shows that allowing the tax cut to go into effect could boost total North Slope output during FY 1988 by 1 million barrels -- equal to 13 hours of flow through the TAPS pipeline. Effects taper off in later years. The total impact over the next 20 years is pegged at 10 million barrels, equal to 5 days TAPS output at current rates.

How did we get this provision in our law, and why does it take effect on June 20?

In 1981, the legislature amended the oil and gas corporate income tax and the severance tax. By changing from separate accounting to modified apportionment the act reduced income taxes for Prudhoe Bay producers. Legislators were assured -- incorrectly, as it turned out -- that most of this reduction would be offset by other provisions. These included a severance tax amendment which had the effect of suspending the applicability of the economic limit factor (ELF) to Prudhoe Bay "for the first ten years following the commencement of commercial production." The tenth anniversary will come on June 20 of this year. Since the ELF is a formula that reduces severance tax rates by variable amounts, depending on per-well production, suspending the ELF had the effect of increasing the tax.

How does the ELF formula work to reduce taxes?

The ELF is alway a number between 1 and zero that gets multiplied times the nominal tax rate, producing the effective tax rate. This number is determined by the per-well productivity of the field. If the productivity is high, the ELF is relatively close to 1.0, and the field gets a small tax break. Fields with low per well productivity get a smaller ELF, and a larger tax break. For example, most fields in Cook Inlet are currently paying no severance tax because their low production per

well gives them ELFs of zero. (Zero times the nominal tax rate of 12.25 percent gives an effective rate of 0.0 percent.).

When the ELF is calculated for Prudhoe it comes out to about .84, but (because of the 1981 amendments) during the first ten years of production the ELF doesn't apply to that field unless it is below .70, which is not expected to happen for some years. The Governor's bill simply retains the status quo for an additional five years.

Didn't legislators realize in 1981 that this "ten year" business would cause us problems later?

Most legislators were probably unaware of the potential problem. The proposal was first unveiled to a free conference committee on June 22, and was adopted as the Free Conference Committee Substitute the next day. On June 24 it passed both houses and was on its way to the governor. Obviously there was little time to study the bill. The fiscal note included no projections beyond FY 1985.

A post-session analysis by the Legislative Finance Division did show that the ELF provision would cause state revenue to fall sharply in FY 1988. Governor Hammond acknowledged this when he signed the bill, but expressed "full confidence in the ability of the legislature to deal at that time" with adverse revenue consequences, should they prove to be serious.

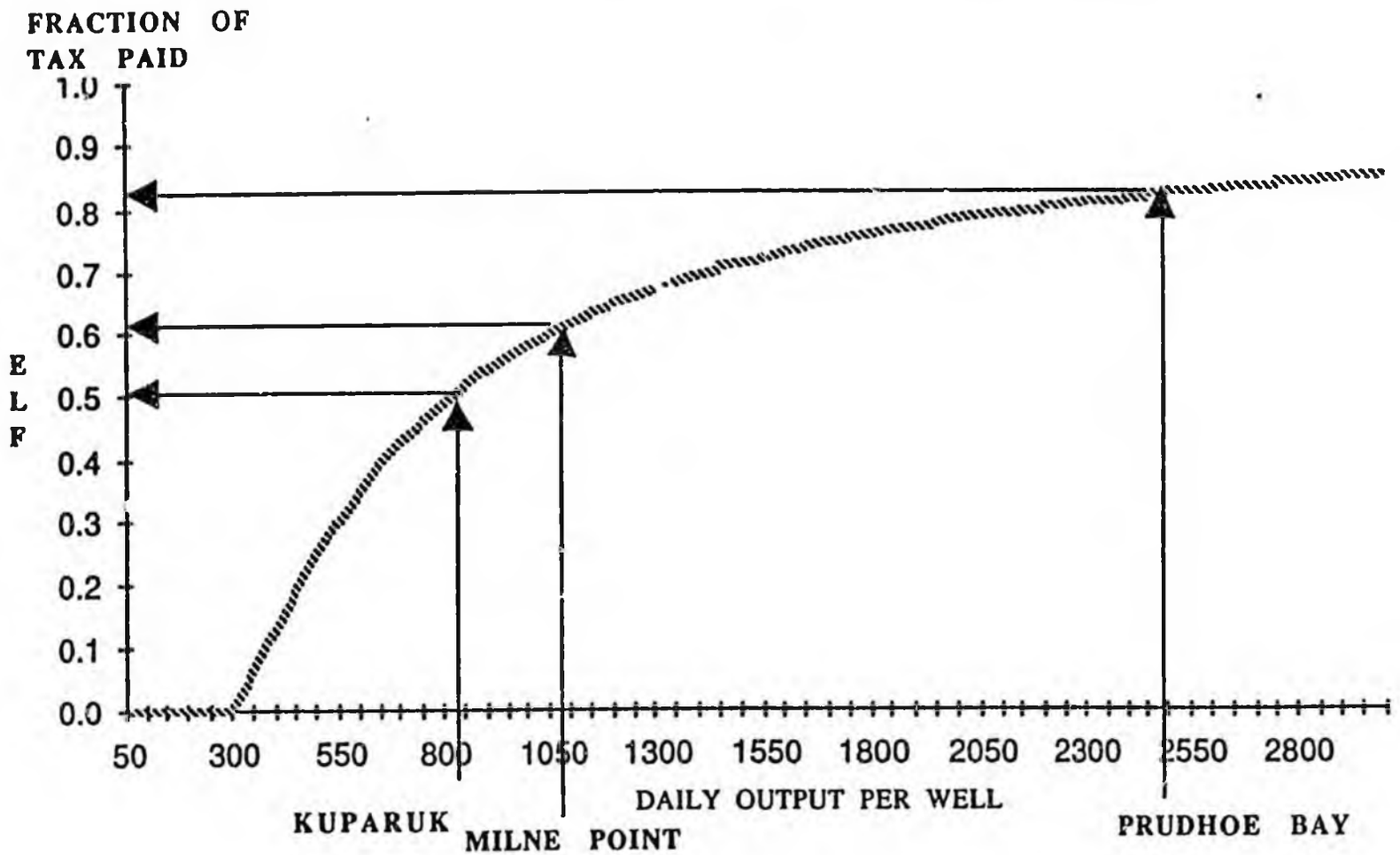
What about the other provision in the ELF bill?

As the law now stands, in a period of very low oil prices producers could conceivably request, and the Department of Revenue could be required to grant, increases in the "presumed production at the economic limit" or PEL, a factor used in calculating the ELF. Other provisions in current law together with an increase in the PEL could open a "trap door" through which Prudhoe producers or other oil taxpayers might entirely escape severance tax. This could have a drastic financial effect on the state. By fixing the PEL at 300 barrels per well per day, the Governor's bill will foreclose this possibility.

The change has no immediate revenue impact, since all currently producing fields are already operating under the 300 barrel presumption. The change would likely affect the Milne Point field should it be reopened, since the PEL adjustment requested last year would no longer be allowed.

OMB/Division of Policy, 3/16/87

ECONOMIC LIMIT FACTOR



CASE 1

HOW THE ELF IS CALCULATED

ELF = (1 - [PEL/TP])exp(460*WD/PEL)

PEL = (Production at the Economic Limit) =
(300 barrels per day)*
(average number of operating wells during the month)*
(number of days of production for the month).

EXAMPLE

PEL = 300 barrels * 541 wells * 30 days = 4,869,000 barrels per month

TP = (Total Production for the field for the month) =
(average number of operating wells during the month)*
(number of days of production for the month)*
(average daily production per well).

EXAMPLE

TP = 541 wells * 30 days * 2477 barrels per well = 40,201,710 barrels per month

WD = (Well Days) =
(number of operating wells during the month)*
(number of days each well operates)

EXAMPLE

WD = 541 wells * 30 days = 16,230 well days

CALCULATION EXAMPLE

ELF = (1 - [PEL / TP])exp(460* WD / PEL)

ELF = (1 - [4,869,000/40,201,710])exp(460*16,230/4,869,000)

ELF = (1 - .1211) exp (1.533)

ELF = (.8789) exp (1.533)

ELF = .82

CASE 4

WHAT HAPPENS WHEN THE PEL CONSTANT IS INCREASED?

ELF = (1 - [PEL/TP])exp(460*WD/PEL)

PEL = (Production at the Economic Limit) =
(400 barrels per day)*
(average number of operating wells during the month)*
(number of days of production for the month).

EXAMPLE

PEL = 400 barrels * 541 wells * 30 days = 6,492,000 barrels per month

TP = (Total Production for the field for the month) =
(average number of operating wells during the month)*
(number of days of production for the month)*
(average daily production per well).

EXAMPLE

TP = 541 wells * 30 days * 2477 barrels per well = 40,201,710 barrels per month

WD = (Well Days) =
(number of operating wells during the month)*
(number of days each well operates)

EXAMPLE

WD = 541 wells * 30 days = 16,230 well days

CALCULATION EXAMPLE

ELF = (1 - [PEL / TP])exp(460* WD / PEL)

ELF = (1 - [6,492,000/40,201,710])exp(460*16,230/6,492,000)

ELF = (1 - .1615) exp (1.150)

ELF = (.8385) exp (1.150)

ELF = .816 RESULT: A DECREASE IN THE TAX

STANDARD ALASKA PRODUCTION COMPANY

TESTIMONY

ON

House Bill 164

March 19, 1987

MY NAME IS BOB VAN HOOK. I AM TAX COUNSEL AT STANDARD ALASKA PRODUCTION COMPANY. WITH ME IS JIM PALMER, MANAGER OF GOVERNMENTAL AFFAIRS.

I'D LIKE TO START WITH A COMMENT ABOUT SEVERAL SUCCESSES IN ALASKA'S OIL INDUSTRY. THESE SUCCESSES HAVE BEEN GIVEN LITTLE NOTICE IN THIS PERIOD OF FALLING PRICES, BUT BY WORLD STANDARDS ARE REMARKABLE. THREE MAJOR PROJECTS WILL COMMENCE PRODUCTION BETWEEN DECEMBER 1986 AND DECEMBER 1987. THE PROJECTS ARE LISBURNE, ENDICOTT, AND THE CENTRAL GAS FACILITY AT PRUDHOE. THE CENTRAL GAS FACILITY ACTUALLY COMPRISES TWO PROJECTS. THE FIRST EXTRACTS NATURAL GAS LIQUIDS FROM A GAS STREAM AND COMBINES THE NATURAL GAS LIQUIDS WITH BLACK OIL SHIPPED DOWN TAPS. THE SECOND MANUFACTURES AND INJECTS MISCIBLE FLUID INTO THE RESERVOIR TO INCREASE RECOVERY. COLLECTIVELY, ADDITIONAL RECOVERY FROM THESE PROJECTS IS ESTIMATED TO BE 1.4 BILLION BARRELS. THE COST OF THE PROJECTS IS ESTIMATED AT $3.5 BILLION.

THESE PROJECTS DEMONSTRATE THAT THE OIL INDUSTRY HAS REINVESTED LARGE SUMS IN ALASKA AND HAS SIGNIFICANTLY INCREASED RECOVERY.

MOVING NOW TO H.B. 164: THIS BILL ESSENTIALLY LEAVES THE ECONOMIC LIMIT FACTOR OR ELF IN PLACE AT ALL FIELDS EXCEPT PRUDHOE. THIS SEEMS TO REFLECT THE THEORY THAT THE ELF IS GENERALLY A GOOD THING BUT IS UNNEEDED AT PRUDHOE. SAPC BELIEVES THAT THE ELF IS IMPORTANT FOR PRUDHOE AS WELL AS OTHER FIELDS. THIS BILL IS

ESPECIALLY IMPORTANT TO SAPC BECAUSE OF THE GREATER THAN 50% INTEREST THAT STANDARD HAS IN PRUDHOE.

ALASKA'S NOMINAL PRODUCTION (OR SEVERANCE) TAX RATE OF 15% IS THE HIGHEST IN THE NATION. LOUISIANA IS SECOND AT 12.5%. OKLAHOMA HAS A 7% RATE; TEXAS HAS A 4.6% RATE AND CALIFORNIA DOES NOT HAVE A PRODUCTION TAX. PRODUCTION TAX IS AN INCREASINGLY BURDENSOME TAX IN HIGH COST AREAS. THIS IS BECAUSE THE TAX IS BASED ON WELLHEAD VALUE WITHOUT ANY REDUCTION FOR OPERATING COSTS OR CAPITAL COSTS. THE ELF HAS THE EFFECT OF REDUCING THE PRODUCTION TAX RATE AS THE FIELD MATURES. DURING THIS PERIOD OF DECLINING PRODUCTION, OPERATING COSTS PER BARREL INCREASE AND CAPITAL COSTS RELATING TO ADDITIONAL RECOVERY INCREASE.

THE ELF ACTUALLY ENCOURAGES FULL FIELD DEVELOPMENT. ONE EXAMPLE IS THE DRILLING OF WELLS. THE ADDITION OF WELLS CONSISTENT WITH SOUND ECONOMIC AND RESERVOIR MANAGEMENT WILL GENERALLY INCREASE ULTIMATE RECOVERY WITHIN A FIELD BUT DECREASE SLIGHTLY THE AVERAGE PRODUCTION PER WELL WITHIN THE FIELD. THE ELF WILL DECREASE SLIGHTLY AS THE PRODUCTION PER WELL DECREASES. OVERALL THEN THE STATE WILL COLLECT TAXES ON MORE BARRELS.

THE HIGH SEVERANCE TAX RATE OF 15% WITHOUT ELF RELIEF CAN BE A SUBSTANTIAL LIMITATION ON MARGINAL PROJECTS OTHER THAN WELL DRILLING. FUTURE ENHANCED OIL RECOVERY PROJECTS ARE VERY EXPENSIVE YET MAY RESULT IN SIGNIFICANT ADDED RECOVERY, MORE RECOVERY IN SOME INSTANCES THAN ENTIRE FIELDS WHICH THE STATE IS APPARENTLY TRYING TO ENCOURAGE. INCREASING THE EFFECTIVE SEVERANCE TAX RATE ON THE FIELD CAN RESULT IN THESE MAJOR PROJECTS NOT BEING PURSUED.

H.B. 164 CHANGES THE EXISTING TAX STRUCTURE. THIS CHANGE WILL MAKE JUSTIFICATION OF FUTURE INVESTMENTS EXTREMELY DIFFICULT. THE TAX RATE WILL BE SUBSTANTIALLY HIGHER FOR 5 YEARS WITH A SEEMINGLY HIGH POTENTIAL FOR ANOTHER INCREASE WHEN THAT 5 YEARS IS UP. BETWEEN $460 MILLION AND $610 MILLION WILL BE TAKEN FROM PRUDHOE OWNERS AND WILL NOT BE AVAILABLE FOR REINVESTMENT. THIS TAX INCREASE COMES AT THE TIME PRUDHOE FACES DECLINE AND LOW PRICES, AND AT THE TIME NEW, VERY EXPENSIVE TECHNOLOGIES ARE BEING DEVELOPED WHICH COULD HAVE APPLICATION TO THE 12 BILLION BARRELS CURRENTLY CONSIDERED UNRECOVERABLE AT PRUDHOE.

GREAT RELIANCE IS BEING PLACED ON THE LOST PRODUCTION FIGURES GENERATED BY THE DEPARTMENT OF REVENUE. PRUDHOE HAS 12 BILLION BARRELS WHICH ARE CURRENTLY CONSIDERED UNRECOVERABLE. TECHNOLOGIES ARE BEING DEVELOPED WHICH MAY BE ECONOMIC AT PRUDHOE. STANDARD SERIOUSLY DOUBTS THAT THE DEPARTMENT OF REVENUE MODEL CAN FAIRLY PREDICT THIS TECHNOLOGICAL PROGRESS. MAJOR PROJECTS COULD BE FOREGONE.

IN ANALYZING A PROJECT, THERE ARE TWO MAJOR CONSIDERATIONS:

1. IS THE PROJECT ECONOMIC?

2. ARE OTHER PROJECTS MORE ECONOMIC IN USING THE FUNDS AVAILABLE?

THE DEPARTMENT OF REVENUE MODEL DOES NOT CONSIDER ALTERNATIVE PROJECTS AND DOES NOT CONSIDER WHETHER FUNDS ARE AVAILABLE. OVERALL, STANDARD BELIEVES THAT AN ACCURATE MODEL PREDICTING LOST PRODUCTIONS CANNOT BE DEVELOPED AND THAT THE SENSE OF SECURITY GENERATED BY THE DEPARTMENT OF REVENUE FIGURES IS A FALSE SENSE OF SECURITY.

THIS BILL WOULD ALSO ELIMINATE THE PEL CHALLENGE. SAPC OPPOSES THIS CHANGE AND BELIEVES THAT FIELD LIFE WILL BE SHORTENED AND TOTAL PRODUCTION REDUCED IF THE PEL CHALLENGE IS ELIMINATED.

IN CONCLUSION SAPC WOULD LIKE TO EMPHASIZE TWO POINTS.

1. THE OIL INDUSTRY HAS CONTINUED TO MAKE MAJOR CAPITAL INVESTMENTS IN ALASKA WITH SUBSTANTIAL ADDITIONAL RECOVERY RESULTING.

2. REMOVAL OF THE ELF AT PRUDHOE COULD SUBSTANTIALLY DECREASE ULTIMATE RECOVERY FROM THAT FIELD AND WILL CHANGE THE EXISTING TAX STRUCTURE MAKING JUSTIFICATION OF FUTURE INVESTMENTS EXTREMELY DIFFICULT.

Testimony of

EXXON COMPANY, U.S.A.

by D. E. Cornell

Joint House Resources and

Finance Committee Hearing

House Bill 164

March 19, 1987

I am Don Cornell, Alaska Coordinator for Exxon Company, U.S.A. I appreciate the opportunity to speak before you today and explain Exxon's basis for opposing house bill 164. Obviously it would result in a significant tax increase at a time when we are still in the severe impacts of last year's crude price collapse. Passage of this bill would not only add to our costs, but would also be a strong negative signal for future petroleum exploration and development. On that basis, it would be contrary to the state's best interest as a whole.

As you know, depressed crude prices have forced dramatic cutbacks in the oil and gas industry, such as a 48% reduction in domestic capital spending over the last two years. A quick look at the North Slope bears this out. Prudhoe Bay's west end development has been deferred at least a year; drilling activity has been reduced from thirteen rigs to five; and perhaps the most dramatic example is the shut-in of the Milne Point field.

Even under current law, Alaska places a very high tax burden on the industry. One way to view this is to look at the rising state share of industry's net revenues. Using estimates from the Department of Revenue's December 1986 petroleum income tax study, the state's share of 1987 petroleum production net income would have been 35% for a $20 wellhead price. At the current wellhead price of $9 per barrel, the states share jump. to 73%.

While Alaska wrestles with the question of whether or not to increase its severance taxes, states such as Texas, Wyoming, North Dakota, Montana, Mississippi, Kansas and Oklahoma are considering measures for severance tax relief to help stimulate exploration and production.

House Bill 164 goes in the opposite direction. It increases the industry's tax burden by modifying the Economic Limit Factor used to calculate the effective severance tax rate. In the proposed Committee substitute, taxes on the state's largest fields would be significantly increased while those on smaller fields would be reduced by a lesser amount, apparently on the assumption that large fields can absorb higher costs. This assumption is incorrect. The Prudhoe Bay field simply can't absorb what appears to us to b a multi-billion dollar tax increase without a negative effect on future investments in the state.

As I have said before, industry is already having a hard time justifying new projects at Prudhoe Bay. Additional wells, enhanced oil recovery, West End development and other projects seeking to recover some of the 10 billion barrels of oil beyond the reach of the existing development would be hardest hit by such a tax change. Enactment of this legislation will raise the minimum crude price needed to justify each new project at Prudhoe Bay. Loss or deferral of such projects would have long term negative impacts both on employment and on state royalty and tax revenues.

Tax stability is needed in Alaska. Severance taxes have been increased five times since statehood, four of which occurred since the discovery of the Prudhoe Bay field. By changing the tax rules once again in the middle of the game, the state would add considerable uncertainty to all future projects at Prudhoe Bay and elsewhere. This would add a significant economic hurdle to our efforts to justify Alaska projects.

Exxon looks forward to continued participation in petroleum projects in Alaska. More exploration is needed to determine this state's hydrocarbon potential, and important investment decisions confront us to recover marginal production from Prudhoe Bay and to fully develop the Endicott and Lisburne fields. But with the current economic environment, such projects will be more difficult to justify than in previous years.

Exxon appreciates the fiscal challenge facing the state. We share it and have had to undertake an enormous r structuring, cut spending, and reduce our workforce to meet the challenge. But higher taxes would simply leave us with less money to spend in Alaska and would send a strong signal of tax instability that would discourage future resource development decisions. Turning to the oil industry for more revenue today is in neither the state's nor industry's long-term best interest.

JDH/4200B:dag

3/16/87

State of Alaska
MEMORANDUM

Office of the Governor

Division of Policy

P.O. Box AM, Juneau, AK, 99811
Tel. 465-3568 / Mail Stop 0164

TO: Rep. Drew Pearce DATE: 19 March 1987

FROM: Gregg Erickson
Senior Economist

SUBJECT: Shares of Alaska Oil Revenue.

I have enclosed OMB's most recent (April 11, 1986) analysis of the shares of net revenue from oil production and transportation in Alaska during the FY 82-85 period. Oil industry Alaska profits over this 4-year period (net of capital charges, costs, royalties and taxes) totaled $22,103 million.

The profits earned in Alaska can be compared with the $6 billion in oil industry invested in Alaska over the same period. Testimony of Harold Heinze, House Finance transcript, April 12, 1985, p. 130.

I have also provided copies of our correspondence with Exxon regarding the "shares" analysis.

cc: Rep. Cotten
Mary Halloran

STATE, FEDERAL AND INDUSTRY SHARES OF ALASKA OIL RESOURCE INCOME: FISCAL 1982-1985

(millions of dollars except as noted)

Fiscal year	[1] Total Revenue	[2] State Royalty	[3] Sever. Conser. tax	[4] Total Prop. tax	[5] Total Oper. Costs	[6] Total Deprec.	[7] Total Acquis. Costs	[8] Windfall Profits Tax
1982	$16,456	$1,553	$1,581	$276	$940	$602	$1	$2,018
1983	$15,470	$1,448	$1,494	$307	$1,101	$780	$1	$1,018
1984	$14,955	$1,409	$1,393	$358	$1,259	$998	$1	$412
1985	$15,136	$1,390	$1,389	$397	$1,449	$1,093	$1	$70

Fiscal Year	[9] Uncap. Interest Expense	[10] Explore. Costs	[11] Admin. Costs	[12] Other Deducs.	[13] Total Deducs.	[14] State Taxable Net Income	[15] Corp. Petrol Income Tax	[16] Federal Taxable Income
1982	$721	$191	$236	$149	$8,268	$8,188	$669	$7,519
1983	$676	$204	$252	$142	$7,423	$8,047	$236	$7,811
1984	$614	$219	$265	$136	$7,064	$7,891	$265	$7,626
1985	$566	$234	$278	$130	$6,997	$8,139	$169	$7,970

Fiscal Year	[17] Federal Corp. Income Tax	[18] Oil Industry Alaska Profits	[19] Total Federal Tax	[20] Total State Tax & Royalty	[21] ----Share of Oil Income---- State	[22] Federal	[23] Industry
1982	$2,098	$5,421	$4,116	$4,079	30%	30%	40%
1983	$2,140	$5,671	$3,158	$3,485	28%	26%	46%
1984	$2,242	$5,384	$2,654	$3,425	30%	23%	47%
1985	$2,343	$5,627	$2,413	$3,345	29%	21%	49%

SOURCES AND FORMULAS --

Column [1]: Vincent Wright, chief of research, to Mary Nordale, Commissioner of Revenue, Memorandum of October 31, 1985, Table 3.

Columns [2] & [3]: January 1986 DOR Revenue Sources, p. 39.

Columns [4] to [12]: Vincent Wright, loc. cit.

Column [13]: sum of columns [2] through [12]

Column [14]: column [1] - column [13]

Column [15]: Revenue Sources, p. 39.

Column [16]: column [14] - column [15].

Column [17]: column [16] * (production-weighted average tax rate -- 1982 = .279; 1983 = .274; 1984 = .294; 1985 = .294). Company effective rates for '82-84 from R. McIntire and R. Folen, "Corporate Income Taxes in the Reagan Years," Oct. 1984, pp. 32-36; '85 estimated by OMB.

Column [18]: column [16] - column [17].

Column [19]: column [8] + column [17].

Column [20]: sum of columns [2], [3], [4], and [15].

Column [21]: (column [18])/(sum of columns [18], [19], and [20]).

Column [22]: (column [19])/(sum of columns [18], [19], and [20]).

Column [23]: (column [20])/(sum of columns [18], [19], and [20]).

Office of Management and Budget
Division of Strategic Planning
revised April 11, 1986

TESTIMONY OF MARK L. HAZELWOOD

BEFORE THE HOUSE RESOURCES AND FINANCE COMMITTEES

CONCERNING MODIFICATIONS TO THE ECONOMIC LIMIT FACTOR OF

THE ALASKA OIL & GAS PROPERTIES PRODUCTION TAX (HB 164 & CSHB 164)

THURSDAY - MARCH 19, 1987

GOOD MORNING. MY NAME IS MARK L. HAZELWOOD AND I AM THE VICE PRESIDENT OF FINANCE, PLANNING & CONTROL FOR ARCO ALASKA, INC. I APPRECIATE THE OPPORTUNITY TO OFFER TESTIMONY TODAY CONCERNING SEVERAL PROPOSED MODIFICATIONS TO THE ECONOMIC LIMIT FACTOR OF THE ALASKA OIL AND GAS PROPERTIES PRODUCTION TAX. THE TWO BILLS CURRENTLY BEFORE YOU ARE HB 164 INTRODUCED AT THE REQUEST OF THE ADMINISTRATION AND CS HB 164, PROPOSED YESTERDAY.

I AM CERTAIN THAT IT WILL COME AS NO SURPRISE TO YOU THAT ARCO ALASKA OPPOSES ANY MODIFICATIONS TO THE ECONOMIC LIMIT FACTOR (ELF)

WHICH WOULD HAVE THE EFFECT OF INCREASING THE OIL AND GAS INDUSTRY'S TAX BURDEN. WE DO RECOGNIZE, HOWEVER, THAT YOU ARE FACED WITH BALANCING A NUMBER OF DIFFICULT AND, TO SOME EXTENT, CONFLICTING POLICY OBJECTIVES. IN THE COURSE OF ADDRESSING THE STATE'S NEAR TERM BUDGET DEFICIT PROBLEMS, YOU WILL BE CHALLENGED TO CAREFULLY CONSIDER THE IMPACT OF LEGISLATIVE PROPOSALS ON THE STATE'S RESOURCE DEVELOPMENT, CONSERVATION AND TAX POLICIES. HOPEFULLY, THE TESTIMONY THAT I AND OTHERS PRESENT TODAY WILL ASSIST YOU IN YOUR DELIBERATIONS.

A LITTLE OVER A YEAR AGO, I APPEARED BEFORE THE HOUSE FINANCE COMMITTEE AND PRESENTED TESTIMONY CONCERNING HB 545, A BILL WHICH WOULD HAVE MADE SIGNIFICANT CHANGES TO THE ECONOMIC LIMIT FACTOR. THE MODIFICATIONS PROPOSED IN HB 545 ARE SIMILAR IN MANY WAYS TO CHANGES BEING PROPOSED IN COMMITTEE SUBSTITUTE FOR HB 164. AS A RESULT, MY TESTIMONY OF LAST YEAR HAS APPLICATION TO THE LEGISLATIVE PROPOSALS WHICH ARE UNDER CONSIDERATION TODAY. IN THAT EARLIER TESTIMONY I FOCUSED ON THE INNER WORKINGS OF THE ELF AND ITS IMPORTANCE IN MITIGATING THE REGRESSIVE NATURE OF THE ALASKA PRODUCTION TAX BY TAKING INTO ACCOUNT THE ECONOMIC REALITIES OF OIL

FIELD OPERATIONS. THE CURRENT ELF IS PREMISED ON THE NOTION THAT AS THE PRODUCTION RATE PER WELL DECLINES, THE PRODUCER'S TAX BURDEN SHOULD DECREASE SO AS NOT TO DISCOURAGE CONTINUED INVESTMENT AND OPERATIONS.

ADDITIONALLY, I POINTED OUT IN MY EARLIER TESTIMONY THAT CHANGES TO THE ELF WHICH HAD THE EFFECT OF INCREASING THE OIL INDUSTRY'S TAXES RAN COUNTER TO THE OFTEN RECITED POLICY OBJECTIVES OF BROADENING THE STATE'S TAX BASE AND OF BECOMING LESS DEPENDENT ON INCOME DERIVED FROM A SINGLE INDUSTRY. I ALSO TESTIFIED THAT THE TIMING WAS PARTICULARLY TROUBLESOME GIVEN THE VERY DIFFICULT CHALLENGES THAT THE INDUSTRY WAS ANTICIPATING AS A RESULT OF FALLING CRUDE PRICES. BASED ON DOWNWARD CHANGES TO THE LEADING INDICATORS OF OIL AND GAS ACTIVITY THROUGHOUT OUR NATION, BOTH THE INDUSTRY AND THE STATE FACED A RATHER BLEAK OUTLOOK LAST FEBRUARY. BECAUSE THE PRICE OF CRUDE HAD ONLY BEGUN ITS PRECIPITIOUS DECLINE AND BECAUSE THE STATE HAD NOT YET REVISED ITS REVENUE FORECASTS DOWNWARD, MY TESTIMONY WAS MET WITH SOME SKEPTICISM AND THOUGHTS OF OVER-EXAGGERATION. IN RETROSPECT,ALMOST EVERYONE (INCLUDING MYSELF) FAILED TO ANTICIPATE JUST HOW SEVERE THE FALL IN CRUDE

PRICES WOULD BE AND HOW SIGNIFICANT AN IMPACT THIS DECLINE WOULD HAVE ON OUR INDUSTRY AND ON THE STATE.

IN MY TESTIMONY TODAY, I DO NOT INTEND TO DEVOTE ANY SIGNIFICANT AMOUNT OF TIME TO THE MECHANICS OF THE ELF OR TO DWELL UNNECESSARILY ON THE TAX POLICY ISSUES UNDERLYING THE ELF. THE TESTIMONY I PRESENTED LAST YEAR CONTINUES TO EXPRESS ARCO'S VIEWS ON THOSE ASPECTS OF THE ELF. I DO HAVE COPIES OF THAT TESTIMONY WITH ME TODAY IF YOU WOULD LIKE TO HAVE ONE.

I WOULD INSTEAD LIKE TO DEVOTE MY TESTIMONY THIS MORNING TO THE PROPOSITION THAT THE NEAR AND LONG TERM ECONOMIC WELFARE OF THE INDUSTRY AND THE STATE OF ALASKA ARE INEXTRICABLY LINKED. ACCORDINGLY, ANY CHANGE IN THE TAX LAWS WHICH ADVERSELY AFFECTS THE INDUSTRY'S ABILITY TO FULLY DEVELOP THE STATE'S OIL AND GAS RESOURCES IS DETRIMENTAL BOTH TO THE STATE AND TO THE INDUSTRY.

AS I MENTIONED AT THE BEGINNING OF MY TESTIMONY, WE RECOGNIZE THAT YOU MUST COME TO GRIPS WITH A NUMBER OF DIFFICULT POLICY ISSUES WHICH HAVE BOTH SHORT AND LONG TERM IMPLICATIONS. ARCO CAN EMPATHIZE WITH THE STATE'S CURRENT ECONOMIC DILEMNA. THE DECLINE IN THE PRICE OF CRUDE OIL HAS HAD A PROFOUND AND PROBABLY PERMANENT

IMPACT ON THE OIL INDUSTRY. LAST SUMMER, WHEN OIL PRICES FELL TO A LOW OF AROUND $10/BBL IN THE LOWER 48 STATES, THE INDUSTRY IN ALASKA WAS STRUGGLING WITH THE PROSPECT OF NEGATIVE WELLHEAD VALUES AND OF FALLING BELOW OUR PROFIT AND CASH FLOW BREAKEVEN POINTS. AS A RESULT, THE INDUSTRY MADE A NUMBER OF DIFFICULT CHOICES WHICH RESULTED IN ORGANIZATIONAL RESTRUCTURINGS AND SUBSTANTIAL REDUCTIONS IN OPERATING COSTS AND CAPITAL EXPENDITURES. ALTHOUGH THE STATE'S REVENUES WERE SEVERELY REDUCED, IT IS IMPORTANT TO REMEMBER THAT THE STATE RECEIVES ITS SHARE OF OIL AND GAS REVENUES FROM "OFF THE TOP". INASMUCH AS PRODUCTION TAXES ARE ASSESSED AGAINST THE GROSS VALUE OF THE OIL BEFORE CONSIDERATION OF THE ATTENDANT COSTS OF PRODUCTION, THE INDUSTRY DOES NOT NECESSARILY HAVE TO EARN A PROFIT FOR THE STATE TO ENJOY CONTINUED BENEFITS FROM OIL AND GAS PRODUCTION.

AS HARD AS THE STATE WAS HIT, THE INDUSTRY WAS HIT HARDER. IN FACT, AS THE PRICE OF CRUDE DECLINED, THE STATE'S RELATIVE SHARE OF NET REVENUE INCREASED. IN 1986, THE STATE'S SHARE OF TOTAL OIL AND GAS NET REVENUES AVERAGED 58%. DURING THE LOW POINT OF THE OIL

PRICE DECLINE IN 1986, THE STATE RECEIVED OVER 100% OF THE REVENUES NET OF OPERATING EXPENSES.

EVEN AFTER THE INDUSTRY'S RE-STRUCTURING AND AFTER SOME CRUDE PRICE RECOVERY, WE STILL FIND OURSELVES IN AN EXTREMELY TIGHT ECONOMIC POSITION TODAY. THERE IS NO SLACK. ANY INCREASE IN TAXES HAS THE EFFECT OF LIMITING THE AMOUNT OF CAPITAL AVAILABLE FOR OIL AND GAS EXPLORATION AND PRODUCTION IN ALASKA.

THE LEGISLATIVE PROPOSALS BEFORE YOU TODAY WILL SIGNIFICANTLY INCREASE THE AMOUNT OF TAXES WHICH THE INDUSTRY WOULD OTHERWISE BE REQUIRED TO PAY. ALTHOUGH THE RECENTLY PROPOSED SUBSTITUTE BILL IS SUBSTANTIALLY MORE ONEROUS THAN THE BILL INTRODUCED ON BEHALF OF THE ADMINISTRATION, BOTH MAY LEAD TO SIGNIFICANT CHANGES IN THE SCOPE AND TIMING OF ONGOING AND FUTURE PROJECTS AND MAY CAUSE SUBSTANTIAL AMOUNTS OF RECOVERABLE OIL TO BE LEFT IN THE GROUND. AS I WILL EXPLAIN IN A FEW MINUTES, THIS REDUCTION IN OIL AND GAS ACTIVITY WILL ALSO HAVE A DETRIMENTAL IMPACT ON THE STATE'S OVERALL ECONOMIC RECOVERY.

WITH REGARD TO HOW INVESTMENT DECISIONS ARE MADE AND WHY THE TAX PROPOSALS BEFORE YOU ARE VIEWED WITH CONCERN, IT IS IMPORTANT

TO RECOGNIZE THAT TAXES ARE SIGNIFICANT FACTORS WHICH ARE CONSIDERED IN ASSESSING THE ECONOMIC VIABILITY OF PROPOSED PROJECTS. OF INCREASING IMPORTANCE IS THE IMPACT THAT STATE TAXES CAN HAVE ON PROJECT ECONOMIC EVALUATIONS, ESPECIALLY AT A TIME WHEN PROPOSED ALASKA PROJECTS ARE COMPETING FOR LIMITED CAPITAL RESOURCES WITH INVESTMENT OPPORTUNITIES THAT EXIST ELSEWHERE IN THE WORLD. IN RECOGNITION OF THE ROLE THAT STATE TAXES PLAY IN INVESTMENT DECISION MAKING, SOME OIL STATES, INCLUDING WYOMING AND LOUISANA, HAVE RECENTLY REDUCED STATE TAX BURDENS TO STIMULATE THE OIL INDUSTRY IN THEIR RESPECTIVE STATES. OTHER OIL PRODUCING STATES ARE CONSIDERING THE ENACTMENT OF TAX INCENTIVES AS WELL (E.G. KANSAS AND OKLAHOMA). IT IS ALSO INTERESTING TO NOTE THAT SECRETARY OF ENERGY HERRINGTON HAS PROPOSED FEDERAL TAX INCENTIVES TO ENCOURAGE OIL AND GAS INVESTMENTS IN THE UNITED STATES.

ANOTHER FACTOR WHICH INFLUENCES INVESTMENT DECISIONS TODAY IS THE REALIZATION THAT OIL, AS AN INTERNATIONALLY TRADED COMMODITY, IS HIGHLY SENSITIVE TO THE VAGARIES OF FLUCTUATIONS IN WORLD SUPPLY AND DEMAND. ACCORDINGLY, PRODUCERS MUST PLACE PRIMARY IMPORTANCE ON PRODUCING OIL AT A LOW COST PER BARREL IN ORDER TO COMPETE IN A

LOW CRUDE PRICE ENVIRONMENT WHERE LOW COST OPEC AND OTHER PRODUCERS POSSESS ENORMOUS MARKET ADVANTAGES.

REALITIES SUCH AS THE IMPORTANCE OF TAXES IN PROJECT EVALUATION AND THE ABSOLUTE NECESSITY OF BEING A LOW COST PRODUCER IMPACT MANY OF OUR INVESTMENT OPPORTUNITIES IN ALASKA, PARTICULARILY IF OUR SEVERANCE TAX BURDEN INCREASES. THIS IS ESPECIALLY TRUE WITH RESPECT TO THOSE "MARGINAL" PROJECTS WHICH HAVE A LOW PRESENT WORTH. SUCH PROJECTS EXIST NOT ONLY AT SMALL MARGINAL FIELDS BUT ALSO AT LARGER MATURING FIELDS. AT A MATURING FIELD, LIKE PRUDHOE BAY, WE MUST RELY INCREASINGLY ON HIGHER COST SECONDARY AND TERTIARY RECOVERY TECHNIQUES AND ON EXTENSIVE INFILL DRILLING PROGRAMS. MOREOVER, WELLS LOCATED AT THE PERIPHERY OF THE FIELD WHERE THE RESERVOIR IS SHALLOWER ARE ECONOMICALLY MARGINAL AND BECOME UNECONOMIC IF THE ATTENDANT RISKS AND COSTS, SUCH AS TAXES, INCREASE. AMONG THE THREATENED MARGINAL PROJECTS AT PRUDHOE BAY ARE THE WEST END DEVELOPMENT PROJECT, HURL STATE, AND VARIOUS WATERFLOOD AND INFILL DRILLING PROGRAMS.

WE ESTIMATE (AT CRUDE PRICES HIGHER THAN THOSE PREVAILING TODAY) THAT IF THE SEVERANCE TAX RATE AT PRUDHOE BAY REMAINED AT

15%, THE INFILL DRILLING PROGRAM COULD BE REDUCED BY AS MUCH AS 30%. SUCH A CHANGE COULD SHORTEN THE PRODUCING LIFE OF THE FIELD BY AS MUCH AS THREE YEARS, LEAVING SIGNIFICANT AMOUNTS OF OTHERWISE RECOVERABLE OIL IN THE GROUND.

BECAUSE THESE PROPOSALS MAY ADVERSELY IMPACT OUR ABILITY TO UNDERTAKE MARGINAL PROJECTS, WE VIEW THESE PROPOSALS AS ADVERSE BOTH TO THE STATE AND TO THE INDUSTRY. THE PROPOSALS FRUSTRATE OUR MUTUAL GOALS OF MAXIMIZING THE VALUE OF THE RESOURCES IN PLACE.

AS I HAVE DISCUSSED, BOTH THE INDUSTRY AND THE STATE WILL BE DIRECTLY AND ADVERSELY AFFECTED BY THE POSTPONEMENT OF OIL DRILLING AND OTHER DEVELOPMENT PROJECTS AND BY THE REDUCED ULTIMATE RECOVERY OF WHAT COULD BE SUBSTANTIAL AMOUNTS OF OIL. ADDITIONALLY, THE ADVERSE IMPACT OF THESE LEGISLATIVE PROPOSALS BECOMES EVEN GREATER WHEN THEIR OVERALL IMPACT ON THE ALASKAN ECONOMY IS CONSIDERED. STUDIES OF THE ALASKA ECONOMY AND THE WAY IN WHICH ECONOMIC GROWTH CAN BE STIMULATED REVEAL - NOT SURPRISINGLY - THAT THE OIL AND GAS INDUSTRY AND ITS RELATED SUPPORT INFRASTRUCTURE CONSTITUTE THE PRINCIPAL "ENGINE" WHICH DRIVES THE STATE'S ECONOMY. OF COURSE, ALASKA'S GROSS STATE PRODUCT IS ALSO BENEFITTED BY FISHING,

TOURISM, TIMBER, NET FEDERAL GOVERNMENT EXPENDITURES, MINERALS, AND COAL. HOWEVER, THESE STUDIES REVEAL THAT THE WEALTH GENERATED THROUGH OIL AND GAS FAR EXCEEDS THAT OF ANY OTHER SEGMENT OF THE ALASKA ECONOMY. AN ECONOMIC MODEL DEVELOPED BY THE STATE CHAMBER OF COMMERCE'S COMMISSION ON STRATEGIC PLANNING REVEALS THAT IN 1986 OVER 60% OF THE TOTAL NET WORTH GENERATED BY THE STATE'S ECONOMY WAS DERIVED FROM THE OIL INDUSTRY. IT SHOULD BE NOTED THAT THE IMPACT OF OIL AND GAS ON THE STATE'S ECONOMY WAS SIGNIFICANTLY GREATER PRIOR TO LAST YEAR'S DECLINE IN CRUDE PRICES. THUS, CHANGES IN OUR LAWS WHICH REDUCE PRIVATE SECTOR SPENDING, PARTICULARLY IN THE OIL INDUSTRY (WITH ITS HIGHER THAN AVERAGE ECONOMIC MULTIPLER EFFECT) DETER ECONOMIC GROWTH IN THE STATE.

THIS OBSERVATION IS PARTICULARLY IMPORTANT GIVEN THE CURRENT STATE OF THE ALASKA ECONOMY. THE OIL INDUSTRY AND OTHER SEGMENTS OF THE ECONOMY AFFECTED BY DECLINING OIL PRICES HAVE ALREADY MADE MANY OF THE NECESSARY ADJUSTMENTS. THESE ADJUSTMENTS HAVE BEEN DIFFICULT AND THERE HAVE BEEN SIGNIFICANT DECLINES EXPERIENCED THROUGHOUT THE ECONOMY. AT THE PRESENT TIME, HOWEVER, A CERTAIN

DEGREE OF STABILIZATION IS OCCURRING. SOME RAYS OF LIGHT ARE BEGINNING TO EMERGE AT THE END OF THE TUNNEL. IT IS OUR BELIEF THAT THE STATE'S ECONOMIC DECLINE CAN BE STABILIZED AND THAT ECONOMIC GROWTH IN ALASKA CAN BE REKINDLED IN THE NOT TOO DISTANT FUTURE. TAX INCREASES, HOWEVER, THAT REMOVE SUBSTANTIAL MONETARY RESOURCES FROM THE INDUSTRY (OR FROM ANY OTHER SEGMENT OF THE PRIVATE SECTOR) AT THIS VERY CRITICAL TIME MAY PRECIPITATE FURTHER ECONOMIC DECLINE OR MAY RETARD ECONOMIC RECOVERY.

IN CONCLUSION OF MY TESTIMONY, WE OPPOSE THE PROPOSED MODIFICATIONS TO THE ECONOMIC LIMIT FACTOR ON THE GROUNDS THAT: (1) THESE CHANGES ARE CONTRARY TO THE RESOURCE AND TAX POLICY OBJECTIVES OF THE STATE; (2) THE ADVERSE IMPACT ON THE INDUSTRY WILL IMPAIR THE ECONOMIC VIABILITY OF MARGINAL PROJECTS, THEREBY REDUCING THE AMOUNT OF OIL AND RELATED REVENUES WHICH ULTIMATELY CAN BE RECOVERED BY THE INDUSTRY AND THE STATE; AND (3) INCREASES IN TAXES WHICH RESULT IN CORRESPONDING DECREASES IN PRIVATE SECTOR SPENDING ARE ADVERSE TO THE ECONOMIC RECOVERY OF THE STATE.

THANK YOU AGAIN FOR THE OPPORTUNITY TO SHARE THESE VIEWS WITH YOU TODAY.

THE ALLIANCE

P.O. Box 100100 / Anchorage, Alaska 99510 / (907) 278-4444

TESTIMONY

OF

THE

ALASKA SUPPORT INDUSTRY

A L L I A N C E

Presented by

Chuck Becker

to the

JOINT HOUSE RESOURCES AND FINANCE COMMITTEES

at a

HEARING ON HOUSE BILL 164 (CS)

March 19, 1987

Good morning Chairman Adams, Chairman Cotten, Chairman Herrman, Chairman Pourchot - distinguished members of the House Resources and Finance Committees.

I am Chuck Becker, representing the Alaska Support Industry Alliance of which I am vice president. I am the director of government affairs for the Alaska Division of Brown & Root USA, an international engineering and construction company and a sustaining member of the Alliance.

For those of you who may be unfamiliar with the Alliance, it has become the collective voice of just over 300 firms throughout Alaska which perceive their interests to be best served by a vigorous and profitable petroleum industry in the state. Members of the Alliance are associated with both large companies and small businesses engaged in drilling and cementing, logging and transporting, banking and accounting, constructing and engineering, brokering and designing. Alliance members typically are active in Alaska's political dynamic and concerned over public policy decisions and initiatives. Annually, a survey of the membership is conducted to assess concerns, followed by a series of forums which order a very limited number of priorities of paramount concern to our members.

Ladies and gentlemen, you have before you today <u>the</u> number one priority of the Alliance on which the State government can decisively act - simply stated,"to maintain a stable tax rate and structure on the petroleum industry".

Although the substitute bill has not yet been throroughly reviewed, the concepts contained in it had been anticipated and discussed, meeting with the same chagrin as that generated by the original bill. On behalf of the Alliance members, I am compelled to emphasize that the committee substitute for house bill 164 represents the antithesis of progressive public policy.

The Alaska economy is not suffering from too little government. It is suffering from an insufficient private sector base. Higher taxes on the petroleum industry would only serve to exacerbate that

structural economic problem.

Increasing taxes on the petroleum industry at a time when the price of oil has slumped by over 50% would send precisely the wrong signal to that industry which sustains, in one way or another, Alaska's private sector and its publicly driven economy. With production from the Prudhoe Bay field set to begin its inexorable decline within the next 18 months, the state must improve incentives to explore for new fields and to enhance recovery from existing ones. The proposed modification of the ELF formula which places emphasis on production of fields rather than wells is, in fact, a disincentive confronting the decisionmaker responsible for issuing go/no go orders on development wells. Under the current formula, an additional well in a mature field can drop the production tax burden and can sustain production at the maximum efficient rate for a more prolonged period benefiting both the producer and the state treasury. Approving this proposal risks redirecting future investments by reducing the value of large fields, leaving potential oil fields undiscovered, lowering potential state revenues and further sapping an already anemic private sector.

Alaska must go through withdrawal from its debilitating addiction to state government spending and choose instead the renewal which can come from development of the private sector. You,as leaders of government, are presented with an opportunity to mitigate state spending this year beginning that beneficial redirection. The Alliance urges you to set into place a plan of transition spanning a period of four to six years to gradually bring state expenditures into line with current-year income. Such a plan will allow sufficient time in which to carefully consider specific cuts and will minimize associated economic and social dislocations. Above all, we urge you to stand tall and rebuff any initiative to increase taxes on individuals and businesses in Alaska. Thank you for your consideration.

TESTIMONY OF MARK L. HAZELWOOD
BEFORE THE HOUSE FINANCE COMMITTEE CONCERNING
PROPOSED CHANGES IN THE ECONOMIC LIMIT FACTOR OF
THE ALASKA OIL & GAS PROPERTIES PRODUCTION TAX (H.B. 545)
FEBRUARY 14, 1986

HB 545

INTRODUCTION

GOOD AFTERNOON. MY NAME IS MARK L. HAZELWOOD AND I AM THE VICE PRESIDENT OF FINANCE, PLANNING & CONTROL FOR ARCO ALASKA, INC. I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY IN ORDER TO EXPRESS ARCO ALASKA'S VIEWS CONCERNING H.B. 545 WHICH IS DESIGNED TO MODIFY THE ECONOMIC LIMIT FACTOR (ELF) OF THE ALASKA OIL & GAS PROPERTIES PRODUCTION TAX (AS 43.55).

IN MY TESTIMONY TODAY CONCERNING H.B. 545, I WOULD LIKE FIRST TO EXAMINE SOME OF THE TAX POLICY CONSIDERATIONS UNDERLYING THE STATE'S CURRENT PRODUCTION TAX APPROACH. WITH THESE CONSIDERATIONS IN MIND, AND WITH A CONCEPTUAL UNDERSTANDING OF HOW THE ELF UNDER CURRENT LAW OPERATES, IT WILL BE EASIER TO IDENTIFY THE REASONS WHY ARCO AND OTHER INDUSTRY MEMBERS OPPOSE ENACTMENT OF H.B. 545.

GENERAL TAX POLICY CONSIDERATIONS

FROM A TAX POLICY POINT OF VIEW, TAXES ON GROSS VALUE (SUCH AS THE ALASKA PRODUCTION TAX) ARE REGRESSIVE IN NATURE TO THE EXTENT THAT THE DETERMINATION OF ONE'S TAX BURDEN DOES NOT TAKE INTO ACCOUNT THE ECONOMIC CIRCUMSTANCES OF THE TAX PAYER (SUCH AS COSTS AND OTHER FACTORS AFFECTING PROFITABILITY). POLICY MAKERS MUST, THEREFORE, CONTINUALLY BE SENSITIVE TO THE FACT THAT, IF UNCHECKED, TAXES ON GROSS VALUE CAN BECOME QUITE ONEROUS TO THE TAXPAYER AND CONSTITUTE A DISINCENTIVE TO CONTINUED INVESTMENT AND OPERATIONS.

IN THE CASE OF THE ALASKA PRODUCTION TAX, SUCH DISINCENTIVES WOULD NOT ONLY BE ADVERSE TO THE PRODUCER AND HAVE THE EFFECT OF LEAVING OIL AND GAS RESERVES IN THE GROUND, IT ALSO WOULD BE COUNTERPRODUCTIVE TO THE STATE'S OBJECTIVES OF CONTINUED ECONOMIC GROWTH AND PROSPERITY. THESE VIEWS ARE UNIFORMALLY SUPPORTED BY ECONOMISTS AND OTHER TAX POLICY EXPERTS INCLUDING MR. MILTON LIPTON, AN ECONOMIC CONSULTANT TO THE STATE OF ALASKA.

STATE OF ALASKA APPROACH

THE STATE OF ALASKA HAS AN ESTABLISHED HISTORY OF TAKING THESE TAX POLICY CONSIDERATIONS INTO ACCOUNT WITH REGARD TO ITS PRODUCTION TAX. PRIOR TO 1977, THE STATE EMPLOYED A SLIDING SCALE TAX MECHANISM TO REDUCE THE PRODUCER'S TAX BURDEN AS THE RATE OF PRODUCTION PER WELL DECLINED. UNDER THIS APPROACH, THE REGRESSIVE NATURE OF THE PRODUCTION TAX WAS REDUCED BY APPLYING A PROGRESSIVELY LOWER EFFECTIVE TAX RATE AS THE PRODUCTION RATE PER WELL FELL BELOW CERTAIN LEVELS. FOR EXAMPLE, THE EFFECTIVE TAX RATE FOR WELLS PRODUCING OVER 1000 BARRELS A DAY WAS 8% WHEREAS WELLS PRODUCING FROM 300 BARRELS UP TO 1000 BARRELS A DAY WAS TAXED AT A 6% RATE.

IN 1977, THE STATE'S SLIDING SCALE PRODUCTION TAX WAS REPLACED WITH THE CURRENT ECONOMIC LIMIT FACTOR APPROACH. THIS CHANGE, WHICH COINCIDED WITH THE START UP OF PRUDHOE BAY PRODUCTION, WAS MADE IN RESPONSE TO CRITICISM THAT THE SLIDING SCALE TAX CONCEPT WAS NOT SUFFICIENTLY RESPONSIVE TO DIFFERENCES IN THE ECONOMICS OF OIL PRODUCTION OPERATIONS CONDUCTED IN THE COOK INLET AND ON THE NORTH SLOPE OF ALASKA. THE LEVEL OF CAPITAL EXPENDITURES AND OPERATING COSTS FOR THE TWO DIFFERENT OPERATING ENVIRONMENTS, ALONG WITH THE REALIZATION THAT NORTH SLOPE CRUDE WOULD HAVE A SUBSTANTIALLY LOWER WELLHEAD VALUE THAN COOK INLET CRUDE, CONTRIBUTED TO THE STATE'S DECISION TO CHANGE.

THE STATE'S CURRENT ELF APPROACH

THE CURRENT ELF APPROACH IS CONSIDERABLY MORE SOPHISTICATED THAN THE SLIDING SCALE APPROACH USED PRIOR TO 1977. DESPITE THEIR DIFFERENCES, HOWEVER, BOTH TAX CONCEPTS WERE DESIGNED TO REDUCE THE REGRESSIVE NATURE OF THE PRODUCTION TAX BY TAKING INTO ACCOUNT THE ECONOMIC REALITIES OF OIL FIELD OPERATIONS. BOTH APPROACHES WERE BASED ON THE PREMISE THAT AS PRODUCTION RATE PER WELL DECLINES, THE PRODUCER'S TAX BURDEN SHOULD FALL SO AS NOT TO DISCOURAGE CONTINUED INVESTMENT AND OPERATIONS. UNDERLYING THIS PREMISE IS THE FACT THAT AS THE PRODUCTION RATE PER WELL FALLS, THE PRODUCER'S COSTS OF MAINTAINING PRODUCTION AND OF MAXIMIZING THE RECOVERY OF OIL AND GAS RESERVES FROM THE FIELD ARE INCREASING. THIS IS PARTICULARLY TRUE AS FIELDS MATURE AND PRODUCERS INCREASINGLY RELY ON HIGHER COST SECONDARY AND TERTIARY RECOVERY TECHNIQUES AND ON EXTENSIVE INFIELD DRILLING PROGRAMS. UNLIKE THE PRIOR LAW, THE CURRENT ELF ALSO PROVIDES A MECHANISM WHEREBY THE PRODUCER MAY PETITION THE DEPARTMENT OF REVENUE FOR A LOWER EFFECTIVE TAX RATE TO INSURE RECOVERY OF CERTAIN CASH COSTS.

NOTWITHSTANDING THE SEEMINGLY COMPLEX FORMULA SET FORTH IN THE ALASKA STATUTES, THE ELF FACTOR IS DETERMINED PRIMARILY BASED ON THE RELATIONSHIP BETWEEN (1) A PRESUMED LEVEL OF PRODUCTION REQUIRED TO RECOVER CERTAIN CASH COSTS SUCH AS WAGES AND SUPPLIES (300 BBLS A DAY SUBJECT TO REBUTTAL BY THE PRODUCER) AND (2) THE AVERAGE RATE OF PRODUCTION PER WELL. THE EXPONENT IN THE CURRENT LAW SERVES AS AN ADJUSTMENT MECHANISM WHICH GENERALLY REDUCES THE FACTOR BY A SLIGHT AMOUNT CONSISTENT WITH THE OVERALL INTENT OF REDUCING THE REGRESSIVE NATURE OF THE PRODJCTION TAX. ONCE THE ELF FACTOR IS DETERMINED, IT IS MULTIPLIED TIMES THE STATUTORY RATE TO DERIVE THE TAXPAYER'S EFFECTIVE TAX RATE. IT SHOULD BE NOTED THAT UNDER CURRENT LAW, AN ELF FACTOR OF 1.0 IS USED IN DERIVING THE TAXPAYER'S EFFECTIVE TAX RATE IF, IN THE FIRST TEN YEARS OF A FIELD'S PRODUCTIVE LIFE, THE CALCULATED ELF IS GREATER THAN .7. EXAMPLE CALCULATIONS ARE CONTAINED IN WRITTEN COMMENTS WHICH WILL BE FILED WITH THE FINANCE COMMITTEE.

WITHOUT GOING INTO FURTHER DETAIL AS TO HOW THE FACTOR IS MECHANICALLY DERIVED, THE ELF CONCEPT ADOPTED BY THE STATE IN 1977 ESSENTIALLY CHANGED THE ALASKA PRODUCTION TAX FROM A SLIDING SCALE TAX TO A MORE SOPHISTICATED VARIABLE RATE TAX. OUR VIEW OF THE ELF UNDER CURRENT LAW IS THAT IT REDUCES THE REGRESSIVE NATURE OF THE STATE'S PRODUCTION TAX BY TAKING INTO ACCOUNT CERTAIN COSTS OF OPERATIONS AND THE ECONOMIC REALITIES OF DECLINING RATES OF PRODUCTION PER WELL. THE FACT THAT THE INDUSTRY RELIED UPON THE STATE'S CURRENT ELF TAX LAW AND THAT THE LAW HAS REMAINED STABLE FOR THE PAST SEVERAL YEARS IS EXTREMELY IMPORTANT FROM OUR PERSPECTIVE IN EVALUATING THE INVESTMENT CLIMATE OF THE STATE.

H.B. 545

HOUSE BILL 545 IS DESIGNED TO SUBSTANTIALLY INCREASE THE PRODUCTION TAX BURDEN OF PRODUCERS IN LARGE FIELDS BY MAKING A FUNDAMENTAL CHANGE IN THE ECONOMIC LIMIT FACTOR FORMULA. UNDER THE PROPOSAL, THE EXPONENT FEATURE OF THE EXISTING ELF FORMULA WOULD BE MODIFIED SUCH THAT THE FACTOR WOULD BE BASED BOTH ON AVERAGE PRODUCTION RATE PER WELL (CONSISTENT WITH THE EXISTING LAW) AND ON THE TOTAL RATE OF PRODUCTION FOR THE FIELD (A NEW APPROACH WHICH SUBSTANTIALLY CHANGES THE UNDERLYING CONCEPT AND OPERATION OF THE STATE'S PRODUCTION TAX LAW). AS A RESULT, THE PROPOSED CHANGE WOULD IMPOSE A HEAVIER TAX BURDEN ON LARGER FIELDS THAN THAT IMPOSED ON SMALLER FIELDS EVEN IF THE PROFITABILITY AND THE AVERAGE RATE OF PRODUCTION FOR WELLS IN THE RESPECTIVE FIELDS WERE EXACTLY THE SAME.

IN COMPARING THE EXISTING LAW WITH THE PROPOSED CHANGES CONTAINED IN H.B. 545, A FIELD WHICH PRODUCES MORE THAN 80,000 BARRELS A DAY WOULD BE SUBJECT TO A PROGRESSIVELY HIGHER TAX RATE THAN UNDER CURRENT LAW. ON THE OTHER HAND, A FIELD WHICH PRODUCES LESS THAN 80,000 BARRELS A DAY WOULD BE SUBJECT TO A DECREASINGLY SMALLER RATE OF TAX THAN UNDER CURRENT LAW.

A COMPARISON OF ECONOMIC LIMIT FACTORS UNDER THE EXISTING AND PROPOSED LAWS (PRIOR TO APPLICATION OF THE SPECIAL TEN YEAR RULE UNDER AS 43.55.013(B)(2)) REVEALS A SIGNIFICANT INCREASE IN THE TAX LIABILITY OF PRODUCERS IN LARGE FIELDS. FOR EXAMPLE, WELLS WHICH PRODUCE AT A RATE OF 1500 BARRELS PER DAY WOULD HAVE AN ELF UNDER CURRENT LAW OF APPROXIMATELY .71. UNDER THE PROPOSED LAW, A WELL PRODUCING AT 1500 BARRELS A DAY IN A FIELD WHICH PRODUCES 75,000 BARRELS PER DAY WOULD HAVE AN ELF OF .69 (SLIGHTLY BELOW THE CURRENT LAW ELF). A WELL PRODUCING AT THE SAME RATE IN A FIELD THAT PRODUCES 1.5 MILLION BARRELS A DAY, HOWEVER, WOULD HAVE AN ELF OF .98 OR AN INCREASE IN THE ELF FACTOR OF .29. A CHART ILLUSTRATING THESE RESULTS IS INCLUDED IN OUR WRITTEN COMMENTS. CHANGES OF THIS NATURE UNDER THE PROPOSED LAW WOULD SIGNIFICANTLY AND UNJUSTIFIABLY INCREASE THE TAX BURDENS ON LARGE FIELD PRODUCERS AND WOULD SIGNIFICANTLY UNDERMINE THE TAX POLICY OBJECTIVES HISTORICALLY FOLLOWED BY THE STATE.

EFFECT ON LARGE FIELD PRODUCERS

ARCO OPPOSES THE PROPOSED CHANGES TO THE ECONOMIC LIMIT FACTOR FOR SEVERAL REASONS.

FIRSTLY, THE ENACTMENT OF H.B. 545 WOULD RESULT IN A SIGNIFICANT INCREASE IN THE ALASKA PRODUCTION TAX BURDEN OF ARCO AND OTHER LARGE FIELD PRODUCERS. MOREOVER, THE PROPOSAL, IF ENACTED, WOULD CONSTITUTE A FUNDAMENTAL CHANGE IN THE STATE'S TAX POLICY. THE STATE HAS HISTORICALLY BEEN SENSITIVE TO THE REGRESSIVE NATURE OF TAXES IMPOSED ON GROSS VALUE. THE PROPOSED ELF, HOWEVER, WOULD RESULT IN THE IMPOSITION OF A HIGHER BURDEN OF TAXATION SOLELY BECAUSE OF FIELD SIZE RATHER THAN ECONOMIC VIABILITY. ADDITIONALLY, THE PROPOSED CHANGE IN THE ELF RAISES CONCERNS ABOUT THE STABILITY OF THE STATE'S TAX CLIMATE. WE WOULD URGE THAT SERIOUS CONSIDERATION BE GIVEN TO CONTINUING THE STABLE TAX CLIMATE WHICH HAS EXISTED IN ALASKA FOR THE PAST FIVE YEARS. THIS CLIMATE HAS RESULTED IN ARCO'S HAVING INVESTED APPROXIMATELY $4.2 BILLION IN CAPITAL EXPENDITURES SINCE 1981. INASMUCH AS TAXATION IS ONE OF THE LARGEST ISSUES AFFECTING THE PROFITABILITY OF ALASKAN PRODUCTION, THE MAINTENANCE OF A FAVORABLE TAX CLIMATE IS IMPORTANT TO CONTINUED DEVELOPMENT. LEGISLATION THAT INCREASES TAXES ON THE OIL INDUSTRY WILL JEOPARDIZE SOME OF OUR DEVELOPMENT PLANS.

IT SHOULD BE NOTED IN THIS CONTEXT THAT THE STATE'S SHARE OF NET PRODUCTION REVENUES HAS REMAINED IN EXCESS OF 33% SINCE 1981. IN FACT, THE STATE'S SHARE OF NET PRODUCTION REVENUES INCREASES DRAMATICALLY AS THE PRICE OF CRUDE OIL DECLINES.

ARCO ALSO OPPOSES H.B. 545 BECAUSE THE PROPOSED CHANGES IN THE ECONOMIC LIMIT FACTOR RESULT IN DISINCENTIVES TO MAKE CAPITAL INVESTMENTS TO MAINTAIN AND/OR INCREASE THE LEVEL OF PRODUCTION IN LARGE FIELDS. THE INCREASED TAX BURDEN ON PRODUCTION FROM LARGE FIELDS IN AND OF ITSELF LESSENS THE ECONOMIC VIABILITY OF PROJECTS. MOREOVER, IN EVALUATING PROJECTS DESIGNED TO PRODUCE INCREMENTAL BARRELS, THE PROPOSED LAW WOULD IMPOSE A HIGHER EFFECTIVE TAX RATE NOT ONLY ON THE INCREMENTAL BARRELS PRODUCED BUT ALSO, AS A RESULT OF INCREASING OR MAINTAINING THE LEVEL OF FIELD PRODUCTION, A HIGHER EFFECTIVE TAX RATE ON ALL OF THE BARRELS PRODUCED IN THE FIELD.

UNDER THE EXISTING LAW, AS A PRODUCER DRILLS MORE AND MORE WELLS TO MAINTAIN FIELD RATE, THE EFFECTIVE PRODUCTION TAX RATE ON ALL OF THE BARRELS PRODUCED IS REDUCED AS THE AVERAGE WELL PRODUCTION RATE FALLS. IN SUCH A SITUATION, THE EFFECTIVE SEVERANCE TAX RATE IS REDUCED AS THE PRODUCER'S COSTS INCREASE, THEREBY REDUCING THE REGRESSIVE NATURE OF THE TAX. UNDER THE PROPOSED ELF, HOWEVER, THE DRILLING OF ADDITIONAL WELLS TO MAXIMIZE FIELD PRODUCTION IN A LARGE FIELD WOULD RESULT IN A HIGHER EFFECTIVE TAX RATE ON ALL OF THE BARRELS PRODUCED IN THE FIELD EVEN THOUGH THE PRODUCER'S COSTS INCREASE AND THE AVERAGE WELL PRODUCTION RATE DECLINES. ADDITIONALLY, THE PROPOSED TAX COULD OPERATE TO LIMIT THE ECONOMIC FIELD PRODUCTION CAPACITY OF NEW OR EXISTING FIELDS TO SOMETHING LESS THAN THAT WHICH WOULD HAVE RESULTED UNDER THE CURRENT LAW. THE PROPOSED LAW, THEREFORE, COULD RESULT IN REDUCING CAPITAL INVESTMENTS IN THE STATE, LEAVING RESERVES IN THE GROUND OR SUBSTANTIALLY DELAYING THEIR PRODUCTION, AND REDUCING THE STATE'S REVENUE AS PRODUCTION RATES DECLINE.

FINALLY, ARCO OPPOSES H.B. 545 BECAUSE ITS ENACTMENT COULD SIGNIFICANTLY AGGRAVATE THE WORSENING ECONOMIC OUTLOOK FOR THE OIL INDUSTRY IN ALASKA. CONTINUING UNCERTAINTIES CONCERNING CRUDE PRICES HAVE REQUIRED THAT THE ECONOMIC VIABILITY OF OIL AND GAS RELATED INVESTMENTS BE CAREFULLY RE-EVALUATED. THE PROSPECT OF A TAX INCREASE SENDS A VERY DISTURBING MESSAGE TO THE INDUSTRY CONCERNING THE POTENTIAL LACK OF TAX STABILITY AT A TIME WHEN THE INDUSTRY IS FACING OTHER VERY LEVERAGING UNCERTAINTIES.

THE SERIOUSNESS OF THE CURRENT ECONOMIC SITUATION IS CLEARLY DEMONSTRATED BY RECENT EVENTS.

- SINCE NOVEMBER OF 1985 CRUDE OIL PRICES ON THE NEW YORK MERCANTILE EXCHANGE AND SPOT MARKET HAVE FALLEN FROM $31.00 TO LESS THAN $16.00 A BARREL, AS OF YESTERDAY.

- LOWER 48 CRUDE POSTED PRICES ON THE TERM CONTRACT MARKET HAVE FALLEN BY APPROXIMATELY $6.00 TO $8.00 PER BARREL SINCE THE MIDDLE OF JANUARY SUCH THAT WEST TEXAS INTERMEDIATE CRUDE IN THE GULF COAST IS SELLING FROM $20.00 TO $23.00 PER BARREL TODAY.

- ALASKA NORTH SLOPE CRUDE ON THE U.S. GULF COAST WAS SELLING AT ABOUT $15.60 PER BARREL ON THE SPOT MARKET EARLIER THIS WEEK.

- THE OIL INDUSTRY CONTINUES TO EXPERIENCE A RETRENCHMENT IN DRILLING. ACCORDING TO THE PETROLEUM INFORMATION CORPORATION OF DENVER THE NUMBER OF OIL AND GAS WELLS THAT WERE COMPLETED IN 1985 SHOWED A 20% DECLINE FROM THE PRECEDING YEAR. LIKEWISE THE NUMBER OF ACTIVE DRILLING RIGS HAS BEEN ~~FALLING~~ declining DAILY. CURRENTLY THE RIG COUNT IS DROPPING BY 100 A WEEK ACCORDING TO DATA RESOURCES.

- STANDARD & POOR'S RECENTLY INDICATED THAT IT MIGHT LOWER THE CREDIT RATINGS OF 13 OIL COMPANIES THAT IT BELIEVES ARE PARTICULARLY VULNERABLE TO FALLING OIL PRICES.

ALL OF THESE RECENT EVENTS UNDERSCORE THE IMPORTANCE OF MAINTAINING A FAVORABLE TAX AND INVESTMENT CLIMATE IN ALASKA.

IN ADDITION TO CREATING CONCERNS ABOUT THE INVESTMENT ENVIRONMENT IN ALASKA, THE ENACTMENT OF H.B. 545 COULD FURTHER CONSTRAIN THE AMOUNT OF CAPITAL WHICH IS AVAILABLE FOR OIL AND GAS DEVELOPMENT IN THE STATE. ADDITIONAL TAX PAYMENTS TO THE STATE MOST PROBABLY WOULD TRANSLATE INTO FEWER DOLLARS AVAILABLE FOR INVESTMENT.

DUE TO THE UNCERTAINTIES SURROUNDING CRUDE OIL PRICES, ARCO ANNOUNCED EARLIER THIS WEEK ITS DECISION TO SUBSTANTIALLY REDUCE ITS 1986 PLANNED CAPITAL EXPENDITURES BY $1 BILLION. OF THAT AMOUNT, APPROXIMATELY $200 MILLION OF REDUCTIONS WERE MADE IN ARCO ALASKA'S 1986 CAPITAL PROGRAMS.

ARCO DOES INTEND TO CONTINUE WITH OUR INVESTMENT PLANS PERTAINING TO MAJOR PLANT FACILITIES WHICH ARE SCHEDULED TO BE INSTALLED LATER THIS YEAR AT THE PRUDHOE, KUPARUK AND LISBURNE FIELDS. THE AREAS OF ENDEAVOR WHICH ARE MOST VULNERABLE TO REDUCTIONS OR DEFERRALS, THEREFORE, ARE DEVELOPMENT DRILLING PROGRAMS AND OTHER SMALLER PROJECTS.

CONCLUSION

IN SUMMARY, ARCO ALASKA OPPOSES THE ENACTMENT OF H.B. 545 FOR THE REASONS THAT THE PROPOSED MODIFICATION TO THE STATE'S ECONOMIC LIMIT FACTOR (1) WOULD CONSTITUTE A SIGNIFICANT INCREASE IN THE TAX BURDEN IMPOSED ON PRODUCERS OF LARGE FIELDS IN ALASKA, (2) WOULD CREATE A DISINCENTIVE TO INVESTMENTS DESIGNED TO INCREASE OR MAINTAIN FIELD PRODUCTION LEVELS, (3) WOULD SIGNIFICANTLY DAMAGE THE STATE'S INVESTMENT AND TAX CLIMATE BY RAISING SERIOUS CONCERNS ABOUT TAX STABILITY, (4) WOULD FURTHER DEPLETE THE INDUSTRY OF MONIES AVAILABLE FOR INVESTMENTS IN THE STATE AND (5) WOULD BE INCONSISTENT WITH THE STATE'S TAX POLICY AND ECONOMIC OBJECTIVES.

House Bill 164

Joint Hearings of the House Resources and Finance Committees

Testimony of Thomas K. Williams

March 19, 1987

Mr. Chairman and Members of the Committees:

Thank you for this opportunity to testify on House Bill No. 164, amending the Economic Limit Factor, or "ELF," in the state production tax on oil. My name is Thomas K. Williams, and I am General Counsel for Cook Inlet Region, Inc. -- "CIRI" for short -- one of the original 12 Regional Corporations established pursuant to the Alaska Native Claims Settlement Act. For more than seven years from 1975 through 1982 I had responsibility for administering Alaska's oil and gas taxes, first as Director of Petroleum Revenue and then as Commissioner of Revenue. Not only did I have to make the ELF work after its enactment in 1977, but it was my idea in the first place. Based on my past and present experience, I have three points I would like to share with you regarding this Bill.

First, this is the wrong time to raise taxes on the oil industry, which is what this Bill would do. The collapse of oil prices has hit oil companies' budgets even harder than it has hit the State's. The industry is not lying when it says these are hard times for it. CIRI has interests in three drilling rigs on the North Slope, and all three are idle. We have four joint ventures in the con-

struction and building trades field, and they are starved for work. No other economic sector in Alaska has been hit as directly and hard as the "oil patch." Difficult as it may be to believe, the goose that has been laying golden eggs the past eight years has fallen seriously ill.

Right now more than half of the recoverable oil at Prudhoe Bay has been produced. Even as I speak, the sustainable rate of oil production from that field could be starting to fall. Surely it will start falling soon. To offset or alleviate the effects of this decline, massive additional capital investments must be made in that field and others on the North Slope. A tax increase will "chill" those investments.

The second point I would like to share with you is that a five-year moratorium on the ELF for Prudhoe Bay is not a solution to anything. Right now the computed value of the ELF for Prudhoe is about 0.85, and it is rounded up to 1.0 under the present law. This gap will only widen with time. Delaying the time when the computed ELF becomes effective is simply going to make the problem harder to deal with when the moratorium expires.

The 1981 amendments to the ELF left a revenue "time bomb" set to go off on June 20, 1987. To the extent I had a role in the process leading to those amendments, I apologize for sticking you with this problem today. It was unforeseen that Prudhoe's 10th anniversary would come on the

heels of such a drastic fall in oil prices and state revenues.

I believe these unexpected developments do justify action by the Legislature to protect the State's interests and revenues at this time. But I do not believe the times justify a gutting of the ELF, which a five-year moratorium would do. Rather, I believe it would be appropriate to consider amendments to "phase in" the ELF over several years. This would significantly reduce the immediate revenue impact that would occur under the present law, while preserving the integrity of the ELF as a mechanism to avoid leaving oil in the ground because of the tax.

This brings me to my third point. The rebuttable presumption of 300 barrels a day per well should stay in the tax. It is this rebuttable presumption that allows that tax to be "tailored" for fields in different areas of the state. It takes a lot more production on the North Slope to break even than it does on the Kenai Peninsula. Without such "tailoring," the tax rate may be lower than it needs to be for some fields (a true tax break for those producers), and too high for others (causing them to be shut in prematurely).

The only argument I see in favor of repealing the presumption is that it protects tax revenues during times when oil prices are very low. However, the exponent in the ELF significantly protects the tax revenues from the effects of rebutting this presumption. For example, in 1977 Prudhoe

Bay production was expected to risk quickly to 1.2 million barrels a day from 120 wells, or an average of 10,000 barrels a day per well. We -- the Administration and the Legislature -- expected that the break-even rate of production was about 1,000 barrels a day per well. If the presumption is not rebutted, the ELF under those circumstances is 0.954 (see Exhibit A). If it is rebutted and 1,000 barrels a day per well is shown, the ELF is 0.953. In fact, even if the break-even rate is shown to be 2,000 barrels a day per well, the ELF is still 0.950.

In today's circumstances the ELF is still resistant to a rebuttal of the presumption. Now production is 1.5 million barrels a day from about 500 wells, or 3,000 barrels a day per well on average. Suppose the Prudhoe owners could demonstrate production at the economic limit of 2,900 barrels a day per well. The ELF would be 0.583 (see Exhibit B). Even if they showed that 2,999 barrels out of every 3,000 produced were needed to cover costs, the ELF would still be almost 0.3.

You should not let yourselves be stampeded by the ultimate horror -- zero tax revenues because the ELF could become zero if prices collapse far enough. First, contract prices never actually fell that low last year. Second, if they were to fall that low in the future, they would have to do so at exactly the right time, since there is only a six-week window between January 1 and February 15 when a taxpayer may rebut the presumption. Third, temporary fluctua-

tions in price levels should be disregarded if the ELF is being rebutted, since it is long-term price expectations, not short-term ones, that are relevant to the number of barrels of production needed to break even at the economic limit. Only if a field is right on the edge of its actual economic limit should one pay any attention to short-term price levels. A simple regulation (Exhibit C) would avoid the revenue risk and put this boogey-man to rest once and for all.

In summary, then, the extension of the 10-year suspension of the Prudhoe Bay ELF to 15 years is merely a quick fix that will make the revenue problem that much worse when eventually it has to be confronted. A much better way to reduce the shock of the ELF's "kicking in" would be to have a phase-in period of several years. Repealing the rebuttable presumption of 300 barrels a day per well also undercuts the purpose of the ELF, which is to reduce the tax burden at the right time for a field so that the tax does cause oil to be left in the ground. To do this, the ELF much reach zero when the field reaches its economic limit, and no North Slope field will be producing only 300 barrels a day at its economic limit. Rebuttability of the presumption is essential for the ELF to work properly. Because of the exponent in the ELF, state tax revenues will be substantially protected until a field actually reaches its economic limit, even if the presumption is rebutted for that field.

EXHIBIT A

to

Testimony of Thomas K. Williams

The Resistance of the Prudhoe Bay ELF to Change When the Presumption is Rebutted (1977 expectations)

1. The Presumption is Unrebutted. In 1977 when the ELF was enacted, Prudhoe Bay was expected to be producing approximately 1.2 million barrels a day from about 120 wells, a daily average of 10,000 barrels per well. Under the presumption of 300 barrels a day per well, the ELF equals --

$$ELF = [1 - (300 \times 120)/1{,}200{,}000]^{460/300}$$

$$= [1 - 36{,}000/1{,}200{,}000]^{460/300}$$

$$= (0.9700)^{1.53333}$$

$$= 0.954$$

2. The Presumption is Rebutted and 1,000 B/D is Shown. It was expected in 1977 that the production rate at the economic limit for Prudhoe Bay would be about 1,000 barrels a day per well. If the presumption was rebutted and this rate was shown instead, the ELF equals --

$$ELF = [1 - (1{,}000 \times 120)/1{,}200{,}000]^{460/1{,}000}$$

$$= (0.9000)^{0.4600}$$

$$= 0.953$$

3. 2,000 B/D is Shown. Even if the presumption is rebutted and 2,000 barrels a day is shown instead, the ELF equals --

$$ELF = [1 - (2{,}000 \times 120)/1{,}200{,}000]^{460/2{,}000}$$

$$= (0.8000)^{0.2300}$$

$$= 0.950$$

EXHIBIT B

to

Testimony of Thomas K. Williams

The Resistance of the Prudhoe Bay ELF to Change When the Presumption is Rebutted (today's expectations)

1. The Presumption is Unrebutted. Prudhoe Bay is now producing at its maximum allowed rate of 1.5 million barrels a day from approximately 500 wells, a daily average of 3,000 barrels per well. Under the presumption, the ELF equals --

$$ELF = [1 - (300 \times 500)/1{,}500{,}000]^{460/300}$$

$$= (0.9000)^{1.5333}$$

$$= 0.851$$

2. The Presumption is Rebutted and 2,900 B/D is Shown. Suppose the Prudhoe Bay producers could show that 2,900 out of every 3,000 barrels produced (97%) was needed to cover allowable operating costs. The ELF would equal --

$$ELF = [1 - (2{,}900 \times 500)/1{,}500{,}000]^{460/2{,}900}$$

$$= (0.0333)^{0.1586}$$

$$= 0.583$$

3. The Presumption is Rebutted and 2,999 B/D is Shown. Suppose the Prudhoe Bay producers could show that all but one barrel a day per well (99.97% of production) was needed to cover allowable operating costs. The ELF would equal --

$$ELF = [1 - (2{,}999 \times 500)/1{,}500{,}000]^{460/2{,}999}$$

$$= (0.0003)^{0.1534}$$

$$= 0.293$$

EXHIBIT C

to

Testimony of Thomas K. Williams

Suggested Regulation to Avoid Effects on the ELF That Might Arise from Temporary Price Fluctuations

15 AAC 55.010 is amended by adding a new subsection to read as follows:

(e) If a taxpayer seeks to rebut the presumed monthly production rate at the economic limit for oil production of a lease or property pursuant to AS 43-.55.013(d), the acquisition cost C.I.F. at West Coast refineries for imported oil of like quality under AS 43.55.013(f) shall be presumed to be $20 a barrel (in 1986 dollars) for oil of 27 degrees API gravity, adjusted by $0.05 (in 1986 dollars) for each degree above or below 27 degrees. The department may rebut the presumption by showing that the average acquisition cost C.I.F. at West Coast refineries for imported oil of like quality during the calendar quarter preceding the hearing was greater than the presumed cost. The taxpayer may rebut the presumption only by showing both that the average during that quarter was less than the presumed cost and that the remaining economic life of the lease or property as of the time of the hearing is less than one year.

STEVE COWPER
GOVERNOR

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

March 3, 1987

The Honorable Ben Grussendorf
Speaker of the House
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Representative Grussendorf:

Under the authority of art. III, sec. 18, of the Alaska Constitution, I am transmitting a bill relating to the oil and gas properties production tax. The primary effect of the bill is to postpone the application of the "true" economic limit factor (ELF) to the Prudhoe Bay field. The bill also amends the economic limit factor provisions applying to all oil fields so that the ELF is not sensitive to changes in the value of oil.

Existing AS 43.55.011(a) provides that an oil producer must calculate its production (severance) tax by multiplying the nominal rate calculated under AS 43.55.011(b) and (c) by the economic limit factor determined under AS 43.55.013. The ELF is a formula that has the effect of reducing the severance tax rate. In 1981, the legislature made several changes in oil and gas taxes: the income tax was changed to substitute modified apportionment for separate accounting; the nominal rate of the severance tax was increased for some fields; and the application of the ELF to a lease or property with an ELF of more than .7 was suspended until after that lease or property had been in commercial production for 10 years. Ch. 116, SLA 1981. Suspension of application of the ELF was accomplished by providing that, if the ELF was more than .7, then the ELF was considered to be "one." AS 43.55.013(b)(3). Thus, when multiplying the severance tax rate by the ELF, the full amount of the tax is the product.

Only the Prudhoe Bay and Lisburne fields currently have an ELF greater than .7. The Lisburne ELF is expected to fall below .7 after fiscal year 1988, but the Prudhoe Bay ELF is expected to remain about .7 for a number of years. Prudhoe Bay will have been in production for 10 years in June, 1987; thus, absent an amendment to AS 43.55.013(b)(3), the "true" ELF, as calculated under AS 43.55.013(b)(1), will begin to apply to that field at that time.

The fiscal note on the 1981 legislation did not include projections beyond FY 1985, but an analysis by the Legislative Finance Division showed that application of the "true" ELF provision would cause state revenue to fall precipitously in FY 1988. Governor Hammond noted this possibility, but expressed "full confidence in the ability of the legislature to deal at that time" with adverse revenue consequences, should they prove to be serious. Statement of Governor Hammond on signing FCCSSB 524 (ch. 116, SLA 1981); see July 27, 1981 press release on oil and gas legislation, fourth page.

Application of the "true" ELF to Prudhoe Bay would result in serious consequences for the state in the coming fiscal year: state severance collections would be reduced by over 15 percent, and FY 1988 revenue would fall by $93,000,000 (already accounted for in the official "mean" forecast). Section 1 of the attached bill would prevent this precipitous decline in revenue by amending AS 43.55.013(b)(3) to delay the applicability of the true ELF to Prudhoe Bay for an additional five years. Section 1 of the bill also makes a conforming amendment to AS 43.55.013(b)(2) and (4). So long as the "true" ELF does not apply, the severance tax rate will be the full 15 percent of value, or $.80 a barrel, whichever is greater, subject to the adjustment in AS 43.-55.012.

The bill also changes the ELF provisions for all oil fields to remove the sensitivity of the ELF to price fluctuations. An element of the ELF calculation is the "PEL," or "production at the economic limit." The PEL represents the number of barrels a producer must produce in order to recover the costs of production. Currently, the PEL is presumed to be 300 barrels per well per day, but the taxpayer may rebut this presumption at a hearing before the Department of Revenue. At the hearing, the PEL would be calculated by dividing the cost of production into the value of the oil. AS 43.55.013(d). If the price of oil drops, the producer may be able to prove an entitlement to a PEL in excess of 300 barrels; if so, the ELF for that producer will go down. Thus, if prices fall drastically, the state loses severance tax revenue not only because the severance tax is applied against a lower value of oil, but also because the severance tax rate itself goes down as the result of a PEL hearing. Earlier in 1986, because of low prices, we were faced with the possibility that the state might suffer from this double reduction in severance tax revenue.

Section 2 of the attached bill deals with that problem by repealing the portion of existing law that provides for a hearing to change the PEL. The PEL is then simply set at 300 barrels per day. As a result, the ELF will be sensitive to changes in the amount of production, but will no longer be sensitive to fluctuations in price or the costs of production. Section 3 of the bill repeals two subsections in AS 43.55.013 dealing with the two elements of the hearing: costs and values. These changes to not apply to the production of gas.

I urge your early consideration and passage of this bill.

Sincerely,

Steve Cowper
Governor

Alaska State Legislature
House

Official Business

P.O. BOX V
State Capitol
Juneau, Alaska 99811

TO: Rep. Sam Cotten, Co-Chair
Rep. Adelheid Herrmann, Co-Chair
Resources Committee members
FROM: Ned Farquhar, staff Ned Farquhar
SUBJECT: Proposed CSHB 164 (Res)
DATE: March 18, 1987

Attached is a proposed committee substitute for HB 164 which will be presented at today's joint Resources-Finance hearing by Rep. Sund. Administration representatives will be present to explain the import of the changes described below.

Section 1 of the bill repeals the existing ELF formula and the ten-year moratorium provision for certain fields, and reinstates a new ELF formula based on the production of fields rather than wells.

Section 2 eliminates the opportunity for a producer to attempt to rebut the presumption that the PEL (production at the economic limit) is 300 bpd.

Section 3 repeals existing law that relates to the PEL rebuttal and hearing provision, eliminated in Section 2.

Section 4 makes the bill retroactive. There is some question as to the constitutionality of this section because tax payments have already been made, on a monthly basis, under existing law.

Section 5 establishes an immediate effective date for the bill.

cc: Finance Committee members and staff

wo1257hcB
Bannister
3/17/87

Original sponsor: Rules/Governor

IN THE HOUSE BY THE RESOURCES COMMITTEE

CS FOR HOUSE BILL NO. 164 (Resources)

IN THE LEGISLATURE OF THE STATE OF ALASKA

FIFTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to the oil and gas properties production tax; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 43.55.013(b) is repealed and reenacted to read:

(b) Th economic limit factor for oil production of a lease or property shall be computed according to the following formula:

(1-[PEL/TP]) exp ([55,000,000 X WD]/[PEL X TP/Days])

where: PEL = the monthly production rate at the economic limit;

TP = the total production during the month for which the tax is to be paid;

WD = the total number of well days in the month for which the tax is to be paid;

Days = the number of days in the month for which the tax is to be paid; and

where "exp" indicates that the expression following it is an exponent.

* Sec. 2. AS 43.55.013(d) is amended to read:

(d) The monthly production rate at the economic limit for a lease or property is [PRESUMED TO BE] 300 barrels times the number of well days for the lease or property during the month for which the tax is to be paid. [THE TAXPAYER MAY REBUT THIS PRESUMPTION AT A FORMAL HEARING UNDER AS 43.05.240 BY PROVIDING CLEAR AND CONVINCING EVIDENCE OF A DIFFERENT MONTHLY PRODUCTION RATE AT THE ECONOMIC LIMIT FOR THE LEASE OR PROPERTY. THE HEARING SHALL BE HELD BEFORE FEBRUARY 15 OF THE YEAR OR WITHIN SIX MONTHS AFTER COMMENCEMENT OF OIL PRODUCTION FOR

A LEASE OR PROPERTY. THE MONTHLY PRODUCTION RATE AT THE ECONOMIC LIMIT FOR THE LEASE OR PROPERTY BASED UPON THE CLEAR AND CONVINCING EVIDENCE OF THE TAXPAYER SHALL BE CALCULATED BY DIVIDING THE VALUE DETERMINED UNDER (f) OF THIS SECTION INTO THE AVERAGE MONTHLY DIRECT OPERATING COST DETERMINED UNDER (e) OF THIS SECTION AND SHALL BE USED FOR PURPOSES OF THIS SECTION FOR ALL OIL PRODUCTION DURING THAT CALENDAR YEAR FROM THE LEASE OR PROPERTY.]

* Sec. 3. AS 43.55.013(e) and (f) are repealed.

* Sec. 4. Sections 1 - 3 of this Act are retroactive to January 1, 1987.

* Sec. 5. This Act takes effect immediately under AS 01.10.070(c).

MEMORANDUM State of Alaska

TO Ray Gillespie
Chief of Staff
Office of the Governor

DATE April 18, 1986

FILE NO

TELEPHONE NO

FROM Richard D. Monkman
Deputy Commissioner, Taxation
Department of Revenue

SUBJECT ELF and Severance Taxes

The severance tax on oil compensates the state for the one-time removal of a non-renewable resource. Presently, the severance tax is set at 12.25% of wellhead value or $.80 per barrel, whichever is greater. AS 43.55.011. At present rates of production, the $.80 "floor" guarantees the state a revenue flow of about $450,000,000 per year.

It had generally been assumed that the severance tax "floor" is fixed, and that no matter what happens to the oil market, the state will continue to receive severance taxes at least at $.80 per barrel. In fact, the "floor" has a trap door: the economic limit factor ("the ELF").

The ELF is a complex formula designed to encourage production from declining wells. */ It was supposed to kick in and lower severance taxes as oil runs out. Thus, the producers would have an incentive to keep marginal wells producing, even though the volume produced has declined.

Unfortunately, the statute is written so that the ELF kicks in when price declines as well. If oil prices take another sharp downturn, the ELF could substantially reduce or even eliminate the severance tax revenue flow. At present prices, the ELF may reduce revenues from the

most expensive field (Milne Point) by about $12,000,000 per year, according to OMB. Other fields will not be affected by the ELF until prices drop substantially below present levels.

A simple change to AS 43.55.011 would nail the ELF "trap door" shut and guarantee that the state would receive -- at the very least -- a severance tax of $.80 per barrel of oil produced, regardless of what happens to the oil market. The attached proposed amendment to AS 43.55.011 would protect the severance tax from future drops in the price of oil, and guarantee a steady, dependable revenue flow. The proposed amendment would not increase severance taxes on any oil field at present prices, with the exception of Milne Point.

Attachment

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*/ The ELF formula is as follows:

ELF = (1 - [PEL/TP] exp ([460* WD]/PEL)

WD = well day

PEL = 300 bbl/well day

TP = total production

AS 43.55.013.

RDN:mll