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File 3

The Revenue Side of the Budget Equation: How We Gave Away Up To Ten Years of General Fund Revenues Without Even Noticing It, and What To Do About It Now

Remarks of Richard A. Fineberg to Common Ground
March 13, 1993

Summary

Production: Although Prudhoe Bay has entered its decline, State forecasts consistently under-estimate and then revise upwards estimated future production figures. Thus, between 1985 and 1992 there was a 27.6% increase in total North Slope production forecasted through 2010. At the same time, the still-undefined date of shutdown has been moving away from us almost as fast as we approach.

Despite clear indications that ARCO intends to produce from the West Sak field when Kuparuk slows down, State forecasts slashed forecasted West Sak production between 1990 and 1992.

Profits: Estimating North Slope profits requires gathering and integrating data from a variety of sources. The result is an estimated 1991 after-tax profit from Alaska production and pipeline operations of $4.77 per barrel. If that production were controlled by one company, that firm would have been among the three most profitable firms on the Fortune 500 in 1991.

Using the same methodology, North Slope estimated profits in FY 2000 (at one million barrels per day without West Sak) would still rank among the ten most profitable corporaitons in the nation.

Arctic National Wildlife Refuge production would produce about $0.98 per barrel less revenue for the State than an equivalent barrel of oil from State land near Purdhoe Bay.

Settlements: The secrecy associated with revenue dispute settlements can have serious repercussions. For example, a little-noticed provision of the 1985 TAPS settlement that was portrayed as revenue neutral will actually produce an off-book or hidden profit to the TAPS owners estimated at $12 to $22 billion in 1992 dollars.

To ensure effective oil and gas policy and reduce the likelihood of such mistakes in the future:

(1) The Legislature should require by law an annual audit and report on all major tax, royalty and pipeline disputes;

(2) A statute should be enacted proscribing any settlement from extending confidentiality beyond that currently required by law;

(3) To place pipeline tariff management in its appropriate administrative context, authority for inter-state tariff matters should be transferred from the Department of Law to an agency with a statutory resource or revenue management mandate; and

(4) The Governor should establish an inter-agency working goup whose first task should be to establish a mechanism for independent review of all major oil and gas revenue settlements.

Thank you for the opportunity to participate with and address you in your deliberations on the future of state government. It's a pleasure to be here today, and to share the platform with such knowledgeable veterans of the oil industry and public service. I hope the information I have tried to put together will prove as worthy of your time as the expertise of these extraordinarily well-informed and competent individuals.

At this luncheon session of this two-day gathering, we are considering the revenue side of the budget equation. Since this portion of the State budget is too often treated as a given or overlooked altogether, I think you were wise to include this item on your agenda. I'm going to base my talk on two reports I prepared in late 1992 on the remarkable profitability of North Slope oil operations. I believe you have received the executive summaries in your information packets.[1] To this date, I am aware of no significant substantive challenges to thrust or the bottom line of the information presented in either report.

Let me make it clear at the outset: I am not here to advocate higher taxes on the oil industry. I am suggesting two things:

(1) There is a need for better understanding of the enormous production potential and profitability of North Slope operations to evaluate intelligently both taxation and environmental policy options.

(2) There may be opportunities to enhance our revenues by avoiding inadvertent revenue losses through relatively simple statutory and administrative changes in the way we conduct and execute our policies.

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[1] Richard A. Fineberg, Hidden Billions: The TAPS DR&R Provision (report prepared for Stan Stephens, August 21, 1992) and North Slope Profits and Production Prospects (report prepared for the Alaska State Senate Finance Committee, Nov. 12, 1992). All tables and graphs I am presenting today are taken from these reports.

Although the super-giant Prudhoe Bay field has entered its decline, the rate and importance of North Slope decline may be exaggerated. It is a matter of fact — not speculation — that State forecasts typically underestimate and then revise upwards future production figures. The first slide breaks North Slope production into three time periods: 1977-84, 1985-91 and 1992-2010. The three periods are summed in the right-hand column. Our focus is the third column. I break off in the year 2010 so that the data can be compared with other forecasts that may cut off at different time, and because estimates that far in the future are highly dependent upon assumptions about the price of oil, inflation and other factors that are essentially unknowable. Note in the totals that there is a 27.6 percent increase between the 1985 and 1992 forecasts of total production, and that most of that increase is due to increases in the third column -- production forecast totals between 1992 and 2010.

At the same time, the much-discussed but still undefined date of North Slope shutdown has been moving away from us, almost as fast as we approach. In 1985, for example, the state estimated that the last time we would see one (1.0) million barrels of oil per day through TAPS would be 1994 — next year. Seven years later, in 1992, the forecast indicates that we'll be producing over **1.6** million barrels per day in 1994. Now it is estimated that we won't cross the one million barrel level until the year 2001. While the 1992 production level represents a drop of nearly 20 percent from the North Slope peak achieved in 1988, at the same time the 1992 production level was almost identical to that of 1985. Back in 1977, Prudhoe was expected to start declining by 1985 — year eight of North Slope production. In year fifteen, we were still at the level originally anticipated for year eight, and State forecasters estimate we'll be at that level for two more years.

Changes in ANS Production Forecasts, 1985-1992

/ = Total ANS Production (all fields) = = = = = = = = = = = = = = = = = = = /

	(actual 000 bbls.)		*(forecast and/or actual 000 bbls.)*		*(forecast 000 bbls.)*		*(forecast + actual 000 bbls.)*
	1977 - 1984	+	1985 - 1991	+	1992 - 2010	=	Total (1977-2010)
Year of Forecast:							
1985	3,894,105	+	4,210,185	+	4,066,100	=	12,170,390
1988	3,894,105	+	4,781,704	+	4,427,815	=	13,103,624
1989	3,894,105	+	4,838,996	+	4,928,230	=	13,661,331
1990	3,894,105	+	4,723,021	+	5,823,575	=	14,440,701
1991	3,894,105	+	4,801,909	+	6,506,762	=	15,202,776
1992	3,894,105	+	4,780,297	+	6,857,985	=	15,532,387
% increase over 1985 forecast:	0.00%		13.54%		68.66%		27.62%

Source : 1977-84 from Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," January 1985, p. 13;
1985-2010 from 1992 and previous issues of same publication.

The following table demonstrates that the lion's share of the increase in production is at Prudhoe Bay and Kuparuk — the two largest fields in North America. Forecasts are consistently revised upwards because of three factors: (1) the fecundity of major North Slope fields, (2) improved recovery technology such as horizontal drilling, fraccing, miscible injectant and WAG processes and (3) the conservatism that is rightly inherent in forecasting.

After an extended look at North Slope production techniques, in 1989 the Congressional Office of Technological Assessment erroneously concluded that we had ascended the Arctic learning curve and should expect no further increases in North Slope production. In fact, in the relatively stable price environment since 1989, by 1992 we had added another 14 to 15 percent to North Slope production totals. The 1992 increase was smaller than previous years. Whether this is because the 1992 forecast fell on the back side of the Middle East war, or because OTA's bleak assessment is finally coming to pass, I cannot tell you. [2]

But I can tell you this: With production declining, the trend of increased future production (i.e., decreasing decline) becomes increasingly important. 1992 state forecasts show Kuparuk dropping from a current level of 300,000 barrels per day to 150,000-175,000 barrels in 2000. But last year both ARCO and BP told their stockholders that Kuparuk production is likely to hold at current levels until the end of the decade. If the company information is accurate, you can add 125,000 barrels per day to the State forecast totals for the year 2000.

I think you can count on this additional production with or without Kuparuk, because the industry has a backup in case they're wrong about Kuparuk (their history, too, is one of under-estimation and

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[2] See North Slope Profits and Production Prospects at Table 9, p. 22 for a 1989-92 field-by-field comparison. For an earlier discussion of the reasons for this trend, see Richard A. Fineberg, An Overview of North Slope Production Prospects, 1990-2010 (report prepared for the Legislative Budget and Audit Committee of the Alaska State Legislature, December 15, 1990).

1985 v. 1992 State North Slope Production Forecasts by Field (for 1992 through 2010)

	1985 Forecas	1992 Forecast	1992 v. 1985
Field:	*/ = = = million bbls., 1992-2010 = = = /*		*% increase (decrease)*
Prudhoe Bay	2,436.4	4,615.8	89.4%
Kuparuk	523.8	1,033.0	97.3%
Lisburne	206.2	86.1	(59.2%)
Pt. McIntyre	0.0	305.9	n.a.
Endicott	246.4	257.7	4.5%
Milne Pt.	16.4	96.4*	487.8%
Niakuk	0.0	60.2	n.a.
W. Sak / Beaufort	636.9	403.0	(36.7%)
Total	4,066.1	6,858.0	68.7%

* Milne Pt. 1992 estimate includes Schrader Bluffs production.

Source: Dept. of Natural Resources, "Historical and Projected Oil and Gas Consumption," January 1985 and April 1992 (tables 1 and 6, above).

upward revision). It's called West Sak, a reservoir that contains at least 20 to 25 billion barrels of oil in place directly above Kuparuk and Milne Point, near Prudhoe Bay. While West Sak nearly equals Prudhoe Bay in volume, industry observers have tended to write off the possibility of Prudhoe-scale production from West Sak due to the sandy content and relatively high viscosity of ts oil.

Some of you may recall that ARCO shut down its West Sak pilot project in 1989 after the state closed the ELF loophole. At that time both ARCO and BP claimed that closing the tax loophole would cause capital to dry up, thus slowing North Slope development significantly. In fact, investment in Prudhoe and Kuparuk have continued, and some of the projects that were supposed to be shut down by ELF have gone ito development as if the tax structure were never changed. But ARCO did shut down its West Sak operation, leaving the public guessing as to its intentions.

While ARCO, which controls the major portion of West Sak, is busy claiming that West Sak cannot be produced economically at current prices, Conoco quietly started producing from its portion of West Sak, the Schrade Bluffs formation, which lies directly above its Milne Point reservoir. This despite the fact that Conoco's West Sak oil has two handicaps compared to ARCO: Conoco lacks ARCO's potential volume and Conoco must pay more than $1.50 per barrel in additional pipeline charges — $0.78 for the Milne Point pipeline tariff between the Conoco field and the main production area and approximately $1.10 per barrel that the TAPS owners receive in profit from shipments through that line. Does Conoco know something that ARCO doesn't? Given ARCO's consistently impressive exploration record in Alaska, this seems unlikely. If Conoco can produce West Sak despite its handicaps, it seems likely that ARCO will produce West Sak when better (more profitable) oil is no longer available to it.

What I believe is happening is this: West Sak's future is tied to Kuparuk because ARCO hopes to to produce West Sak by using Kuparuk facilities, thereby avoiding the capital costs of building new

cleaning and gathering plants.[3] But Kuparuk facilities are operating at full capacity. This means that West Sak will have to wait until Kuparuk slows down. In the meantime, West Sak is uneconomic. Translation: ARCO has a better (cheaper) source of oil at this time.

Despite indictions that Kuparuk will continue producing at current levels and that West Sak is likely to be produced as Kuparuk facilities become available, State forecasts show sharp declines at Kuparuk and no corresponding production increase from West Sak. One reason for omissions of this sort is the inherent conservatism of forecasting. I believe a more important cause may be that North Slope forecasts often fail to reflect important facts about the reason that oil companies produce oil: profit. I want to turn now to what may be Alaska's best-kept secret: The enormous profitability of the North Slope.

The following table, also taken from my November report to the state Legislature, identifies the elements of profit in Alaskan oil operations. It does not include profits on marine transportation, refining or marketing, off-book profits which I'll discuss later or the intangible value to the owners of having a stable supply of crude oil for their refineries. To get the per-barrel profit estimate at the bottom of the page – $4.77 per barrel in calendar year 1991 — I had to work with five different institutional data sources. They are identified by the numbers circled at the right — three state agencies, trade sources and a fifth source for a federal tax rate. In fact, it took many more than five sources to generate this table. Much of the best information is shielded by confidentiality statutes. Some of the public approximations used here are not published but are available if you know where to look, or whom

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[3] In December 1991 ARCO officials told the Wall Street Journal that because of its marginal economics, the company did not want to produce West Sak until Kuparuk facilities were available. In June 1992 ARCO executive vice president James A. Middleton was quoted in the AAPG (American Association of Petroleum Geologists) Explorer saying that daily production from West Sak will probably peak at 100,000 to 150,000 barrels of oil per day. (See North Slope Profits and Production Prospects, pp. 16-17.)

to ask. The integration of the data into a comprehensive picture of North Slope profits requires understanding of the terms to make sure that each piece of data provided by different agencies is compatible with the other pieces. While the math is simple, the trick is to set up the table and locate data that will produce realistic results. If you have specific questions, I'll be happy to talk to you, as time permits, about how I assembled these numbers and why I think they're a fair approximation of reality.

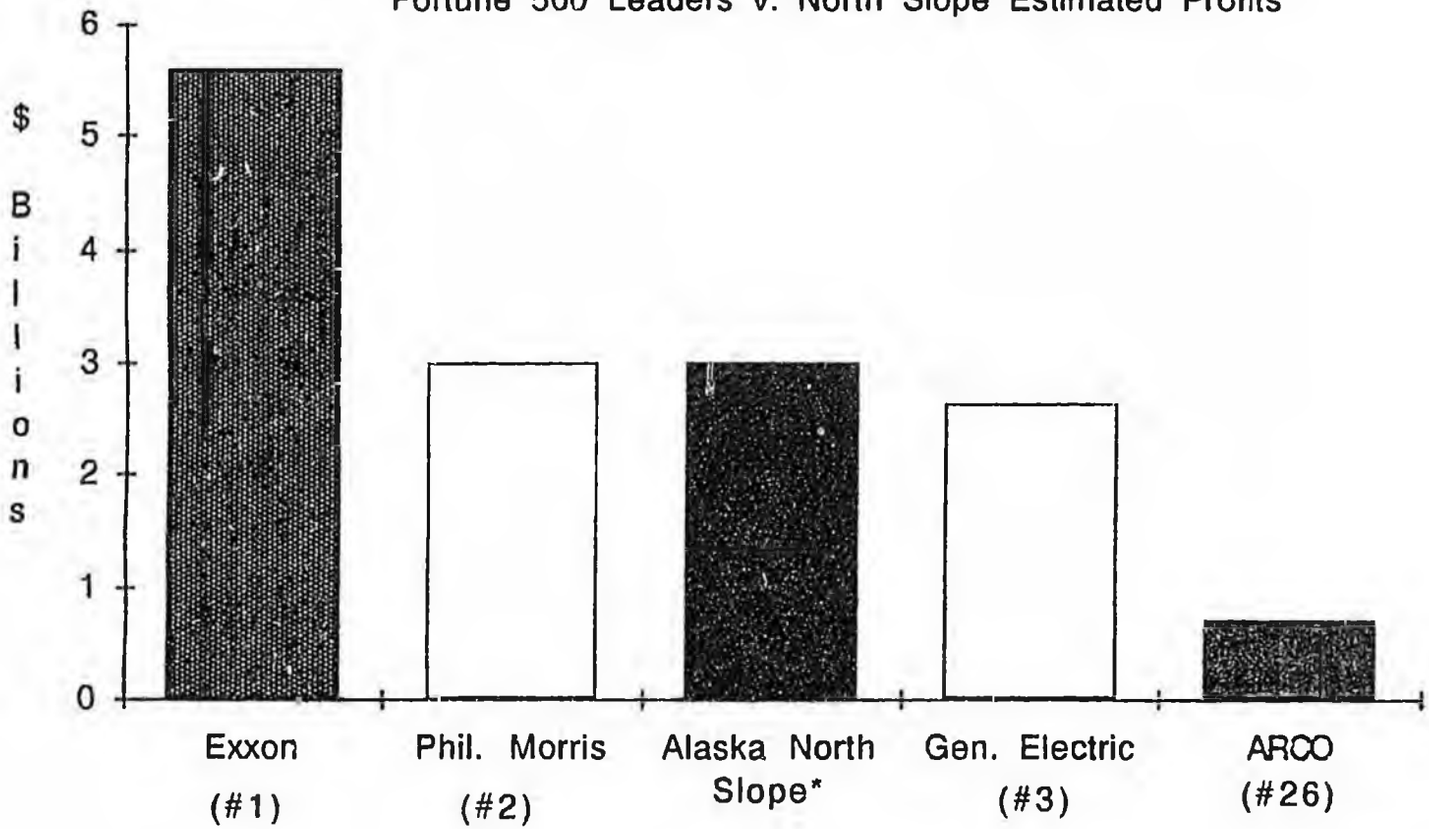
When you put the pieces of this puzzle together, you find that if ANS production and transportation were the province of one company -- instead of the three that control more than 90% of North Slope operations — in 1991 that company would have ranked among the top three most profitable companies on the Fortune 500. Perhaps even more surprising than the results is the difficulty one has in answering the seemingly simple question: What is the value to the North Slope producers of producing ANS crude oil and shipping it through TAPS?

CY 1991 North Slope Barrel Profit Analysis (Table 12-A)

North Slope Profit Analysis: ALL FIELDS	/ - - CY 91 ANS Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data (1)
2 Quality Adjusted Price			
3 Production / Disposition *Bbls./year* / *Day*			
a Production (mm bbls. yr. / day) 664.870 / 1.822			DNR 1992 Historical Oil Production (incl. NGL's) (2)
b Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariffs	($0.10)	($0.10)	Wghtd. avg. sum of items 4a thru 4g (3)
a Operating & capital costs	($0.04)	($0.04)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	$0.00	$0.00	30% of total DOR property tax
c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.01)	($0.01)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.02)	($0.02)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.01)	($0.01)	"
g DR&R allowance	$0.00	$0.00	"
5 TAPS Pipeline Tariff	($3.41)	($3.41)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5h
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge			Dept. of Revenue data
6 State Share (Feeder Lines)	($0.01)	($0.01)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.01)	($0.01)	Item 4d
8 Industry Profit (Feeder Lines)	$0.03	$0.03	Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.83)	($1.07)	USFRA data (DOR)
13 Wellhead value	$11.02	$12.64	Sum of items 1, 4, 5, 12
14 State Royalties, Production & Property Taxes	($3.01)	($3.41)	Sum of items 14a thru 14d
a Royalty	($1.30)	($1.50)	Item 13 less field costs * est. field royalty
b Severance tax	($1.31)	($1.51)	Item 13 * .875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($3.49)	($3.49)	Sum of items 15a, 15b
a Lifting Costs	($1.19)	($1.19)	Derived from trade publication estimates (4)
b Depletion, Depreciation & Amortization	($2.30)	($2.30)	Derived from trade publication estimates
16 Net Revenue (production)	$4.52	$5.74	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($1.40)	($1.79)	Est. 32.1% of items 16 + 17 (5)
19 Industry Profit (production)	$2.96	$3.79	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.42	$3.82	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$2.06	$2.45	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$4.12	$4.95	Sum of items 8, 11, 19
23 CY 91 Industry Avg. per-barrel ANS Profit		$4.77	

CY 1991 Estimated Profits

Fortune 500 Leaders v. North Slope Estimated Profits



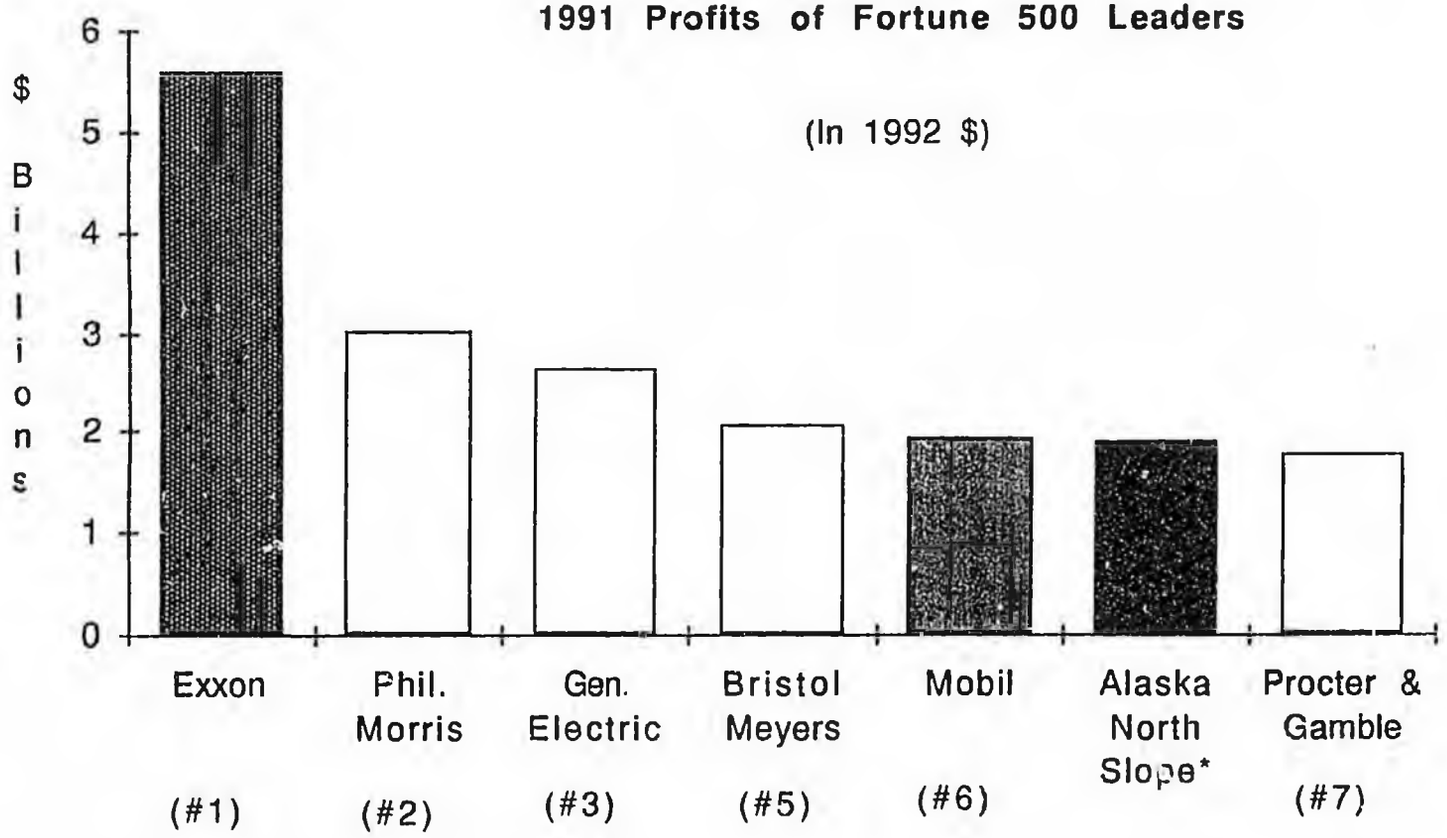
* Principally Exxon, ARCO and BP (BP is not listed in Fortune 500)

Sources: Fortune, April 20, 1992; Table 12-A

We all know production is declining. What kind of profits will the North Slope be generating in the year 2000? Once I had gathered the data to build this table, putting in the forecast numbers for the year 2000 and cranking out the model one more time was relatively simple. Nobody knows wht the top companies in the year 2000 will look like — for example, who would have thought in 1985 that by 1991 perennial leaders such as IBM would be mega-losers? So I compared North Slope earnings in the year 2000 to the income of the 1991 profit leaders. And guess what? In the year 2000 forecasted North Slope production, still at one million barrels, generates enough profit that the North Slope would rank among the ten most profitable corporations in the nation. That's with Kuparuk cut in half and no West Sak replacernent.

Estimated FY 2000 North Slope Profits
v.
1991 Profits of Fortune 500 Leaders

(In 1992 $)



* Principally Exxon, ARCO and BP

Sources: Fortune, April 20, 1992; Table 15-A

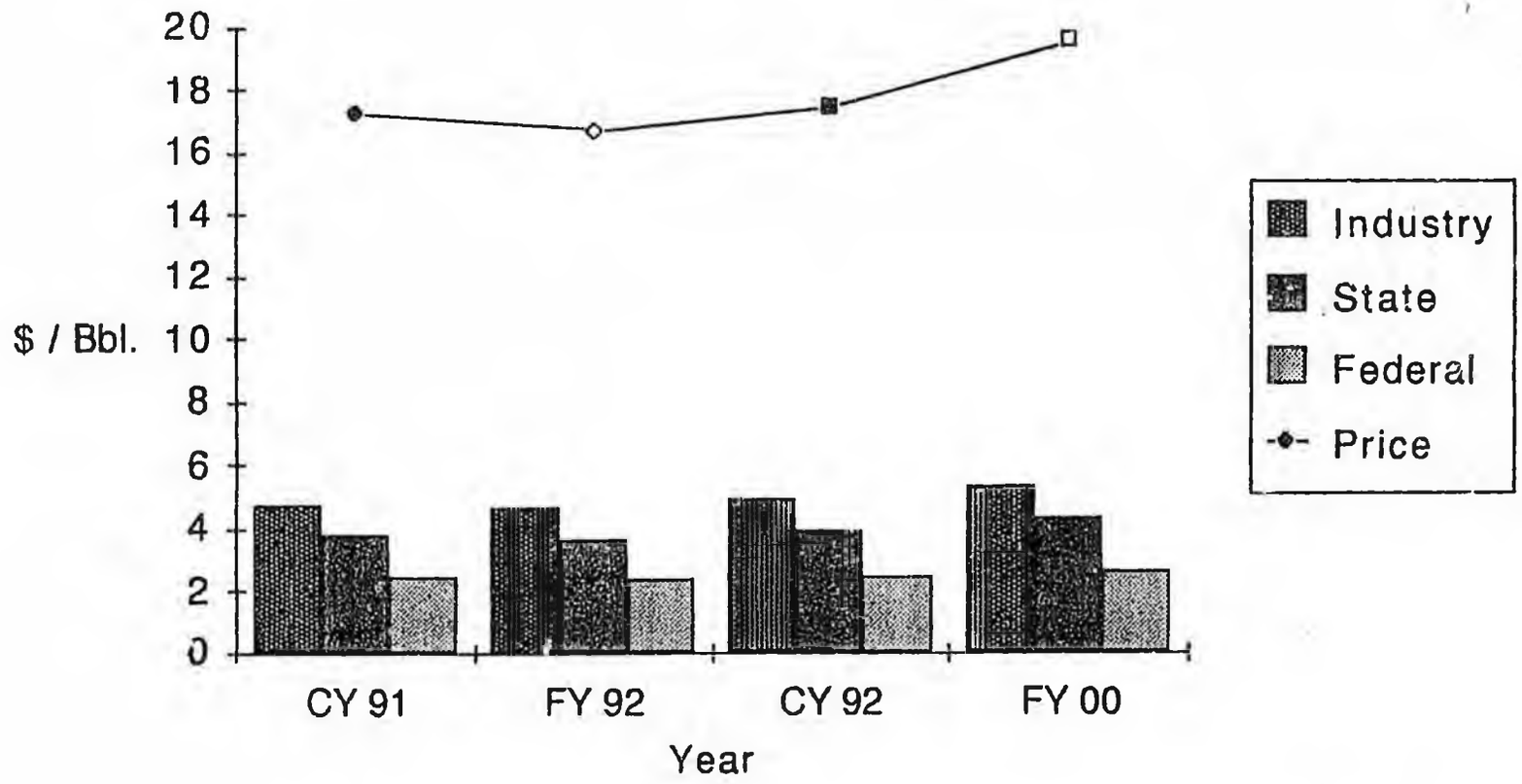
In the last two weeks you've probably seen ARCO's latest advertisement (this one has, of all things, a big, green toad) and heard BP's pitch to the Legislature. Both are heralding a North Slope turn-around and linking a continuation of the North Slope's strong showing to a stable tax climate (read: no tax increases). In my estimation, the only turn-around has been in the public relations campaigns of the oil companies. Last year, Alyeska's departing President was busy warning that excessive environmental regulation was going to kill the Golden Goose. The industry's media moguls were so pessimistic that their dire warnings apparently freaked out some Alaskans. So BP reversed gears and began running ads assuring Alaska that "we're still here." When you look at the profit margins on North Slope production, it is perfectly obvious why these guys are sticking around — and it's not because we're kind enough to encourage toads, as ARCO would now have us believe.

The following table summarizes industry, state and federal income from Alaska oil operations, again including pipelines and excluding West Sak production. These are conservative figures, if only because it is difficult to imagine what set of circumstances — other than a similar quantity of cheaper, better oil from another source — would prevent ARCO from putting West Sak into production.

If this information seems relevant to you as connoisseurs of public policy, then you might want to ask yourselves: Why aren't we generating this information for public consumption in the normal course of revenue and resource management?

Should the information lead you to consider oil tax revisions, several observations are in order: First, the State should retain specialists to assess the implication of different taxing mechnisms. It is probable that tax revisions should speed the payback of development costs on a field by keeping taxes low until the development is paid off. Similarly, a tax change at the top end should be instituted to cap profits.

West Coast ANS Prices and Economic Rents
CY 91 - FY 2000 (Selected Years)



	CY 1991 ($17.21 / Bbl.)	FY 1992 ($16.64 / Bbl.)	CY 1992 ($17.42 / Bbl.)	FY 2000 ($19.54 / Bbl.) *(In 1992 $)*
Industry Share	$4.77 (43.2%)	$4.67 (43.9%)	$4.92 (43.9%)	$5.34 (43.7%)
State Share	$3.82 (34.6%)	$3.65 (34.3%)	$3.85 (34.4%)	$4.30 (35.2%)
Federal Share	$2.45 (22.1%)	$2.31 (21.7%)	$2.43 (21.7%)	$2.59 (21.2%)

Source: Tables 12-A, 13-A, 14-A, 15-A

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From this perspective, I want to turn now to the economics of production from the Arctic National Wildlife Refuge. The following table uses the same methodology described above to determine the state's share of Arctic Refuge production. In presenting this table I'm correcting one part of the analysis in my report to the Alaska State Legislature. Subsequent to 1986, the Department of Interior's 1002 report described the mean-case field at 3.2 billion barrels. The Department of Revenue did an in-house estimate of Arctic Refuge tariffs — never published, to my knowledge. That analysis, based largely on the increased field size resulting from the Interior Department's estimate, resulted in a reduction of the feeder-line tariff from the Arctic Refuge to TAPS from approximately $5.50 to $1.80. If you revise the numbers accordingly, the effective tax nd royalty basis goes to $13.20 nd the State's take goes up, in turn, to approximately $2.78 — $0.97 per barrel less than an equivalent barrel of oil from the near-Prudhoe provinces on State lands.

If North Slope development dollars are really in short supply, then the funds to explore the Arctic Refuge and develop whatever may be discovered there are competing with funds to expand production in the provinces near Prudhoe Bay. All other things being equal, by supporting Arctic Refuge development the State is effectively penalizing itself nearly $1.00 per barrel when compared to oil found in the Prudhoe region. Moreover, oil from the Prudhoe region bears less of an environmental regulatory burden, stands less chance of damaging a wilderess and tourism resources and is apt to be on line far sooner than oil yet to be disdovered in the Arctic Refuge.

Of course, there is a very slim chance that the Arctic Refuge contains a super-giant field of light oil. Are the odds worth risking either catastrophic or chronic environmental degredation of a wilderness treasure? You and I might not answer this question the same way, but I don't think we should be considering this question without recognizing more clearly (1) the potential of the near-Prudhoe area in terms of both production prospects and profitability and (2) the economic penalties, from the state's perspective, of Arctic Refuge production.

State Shares: Near-Prudhoe Barrel v. Arctic Refuge Barrel

	Near-Prudhoe Barrel	Arctic Refuge Barrel
Market Price (at refinery)	$20.00	$20.00
Less:		
Arctic Refuge Pipeline Tariff (Revised estimate)	--	(1.80)
TAPS tariff	(4.00)	(4.00)
Tanker Cost	(1.00)	(1.00)
Effective Tax and Royalty Basis	$15.00	$13.20
State Share:		
(est. 12.5% royalty, 12.5% severance = 25%) . . .	$3.75	
or		
(est. 6.25% roy.+ 12.5% sev. = 18.75% + est. $0.30 feeder line property tax) *		$2.78
Loss to state from industry investment in Arctic Refuge instead of near-Prudhoe development	(3.75 - $2.78 = $0.97 per barrel)	

* Assumed 50-50 state-federal split of a 12.5% federal royalty.

Source: Revised from North Slope Profits and Production Prospects, Table 17.

I want to turn now to a different area of petroleum revenue policy: the management of settlement of long-standing pricing, pipeline tariff, tax and royalty disputes between the North Slope producers and the State is an area that has definite revenue enhancement potential. We lesser mortals in the public have no basis for judging settlements such as BP's recent income tax payment of $630 million. In fact, the joint State-BP announcement of the settlement seems to suggest that we should stop petting toads just long enough to thank BP for granting a limited waiver of its taxpayer confidentiality so that our elected officials could inform us they had settled a dispute of this magnitude.

Despite the lamentable paucity of public information, there are some legitimate bases for being skeptical about these settlements. First, there is the lack of statutory guidelines as to what constitutes a good settlement. In most areas of public policy, administrative discretion is bounded by statute and regulation. But when oil companies consistently underpay by huge amounts their taxes and royalties, judgments about the appropriate remedy becomes a matter of administrative discretion. And in precisely this area of broad discretion, the normal checks and balances that govern administrative action are stifled by the industry's assertion of the need for confidentiality. From time to time the State has been pretty good about making settlement information available. But at other times in recent years, the state has been more willing to withhold information than either the courts or administrative law judges in pipeline proceedings have found appropriate. From a policy standpoint, what happens is this: The company acts reprehenisibly, then uses the economic leverage of settlement cash to secure an agreement that denies the public any knowledge of the company's conduct. The result, from a public policy standpoint, is that settlements may encourage bad corporate behavior by hiding that conduct under the veil of confidentiality while the settlors are lauded as heroes who cut through legal red tape. The question I have is this: Was the red from the tape or from self-inflicted wounds?

Can I demonstrate the basis for my concerns more substantively? You bet. Consider the 1985 TAPS settlement.[4] For all of the controversy and reviews of the 1985 TAPS tariff settlement, one factor that received little discussion was the clause covering dismantling, removal and restoration of the pipeline (DR&R). That clause received virtually no review because it was portrayed as revenue neutral. Here is the description of DR&R provided by the Alaska Department of Law and the U.S. Justice Department's June 1985 explanation of the settlement — an official document filed with the settlement.

Explanation of the 1985 TAPS Settlement DR&R Provision *

> The schedule for the DR&R Allowance is found in Exhibit E of the Agreement. See Section II-4. As with the depreciation schedule described below, the DR&R schedule was accelerated in order to further Protestant's [State's] objective of ensuring a declining tariff profile. The annual amounts were calculated so that when they are accumulated at a rate equal to the after-tax yield on Moody's Aa bonds, the balance will be sufficient to meet the expected costs of dismantling, removal and restoration of TAPS, stipulated for purposes of the TSM [TAPS Settlement Methodology for tariff calculation] at $872 million in 1977 dollars.

Source: State of Alaska and U.S. Department of Justice, "Explanatory Statement of the State of Alaska and the United States Department of Justice in Support of Settlement Offer," June 28, 1985, pp. 30-31. (Federal Energy Regulatory Commission Docket No. OR 78-1 [emphasis added].

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[4] The following discussion borrows heavily from Hidden Billions, op. cit. Additionally, the writer's 1990 review of the documentary record of materials provided to the Governor, to the Legislature and to the public before and after the 1985 TAPS settlement identified and documented twenty specific examples of omission, misinformation, needlessly obscure and delayed presentations that may have hampered officals making and reviewing key policy decisions regarding this settlement (see: The 1985 TAPS Settlement: A Case Study ij the Effects of Con fidentiality on Information Available to Decision Makers in Oil and Gas Revenue Disputes [Supplemental Report to Oil and Gas Revenue Disputes: Status Report and Recommendations], prepared for the Alaska State Legislature, February 5, 1990).

Translation: DR&R was not supposed to be a money-making item for the TAPS owners. On the next page is the spreadsheet that described the cash flows from stipulated DR&R payment of that $872 million in 1977 dollars. This material was presented by the Alaska Public Utilities Commssion staff's expert wltness more than a year after the Federal Energy Regulatory Commission approved the settlement in Washington. The annual payment figures in column L of the spreadsheet that follows are identical to the payment schedule found in the settlement's "Exhibit E." Note that when all is said and done, after dismantling the DR&R balance in column S is $156,000.00. In short, the amount collected for DR&R was calculated to zero itself out on completion of its task.

Table 1-B. TAPS SETTLEMENT METHODOLOGY FOR DETERMINING DR&R COLLECTIONS

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)
Calendar Year	Nominal Fed. Tax Rate (%)	Nominal State Tax Rate (%)	Inflation Factor (Decimal)	GNP Deflator (Index)	Stipulated Expenditure Fraction (%)	Actual Expenditure (MM$)	Projected Thruput (1000 bbls)	TSM Adjustment Factors (decimal)	Adjusted Thruput (1000 bbls)	Depreciation Factor (Decimal)	DR&R Allowance (MM$)	Moody's Aa Corp. Bond Yield (%)	Imputed Interest (MM$)	State Taxable Income (MM$)	State Tax (MM$)	Fed. Taxable Income (MM$)	Fed. Tax (MM$)	After-Tax Balance (MM$)
											1,795.350							
1977	48.0%	9.4%		140.1		872.1	97,094	1.00	97,094	0.015	23.536			23.536	2.212	21.323	10.235	11.088
1978	48.0%	9.4%					395,905	1.00	395,905	0.061	95.968	8.90%	0.987	0.987	0.093	96.862	46.494	61.456
1979	46.0%	9.4%					466,759	1.00	466,759	0.072	113.143	9.94%	6.109	6.109	0.574	118.677	54.591	125.542
1980	46.0%	9.4%					552,294	0.95	524,679	0.081	127.183	12.50%	15.693	15.693	1.475	141.400	65.044	201.898
1981	46.0%	9.4%					551,085	0.90	495,977	0.077	120.225	14.75%	29.780	29.780	2.799	147.206	67.715	281.389
1982	46.0%	9.4%					587,985	0.85	499,787	0.077	121.149	14.41%	40.548	161.697	15.200	146.497	67.389	360.498
1983	46.0%	9.4%					596,869	0.80	477,495	0.074	115.745	12.42%	44.774	160.519	15.089	145.430	66.898	439.030
1984	46.0%	9.4%		232.4			607,135	0.75	455,351	0.070	110.377	13.50%	59.269	169.646	15.947	153.700	70.702	522.028
1985	46.0%	9.4%	1.05	244.0			613,200	0.70	429,240	0.066	104.048	12.00%	62.643	166.691	15.669	151.022	69.470	603.580
1986	46.0%	9.4%	1.06	258.7			620,500	0.65	403,325	0.062	97.766	12.00%	72.430	170.196	15.998	154.197	70.931	686.846
1987	46.0%	9.4%	1.06	274.2			653,350	0.60	392,010	0.061	95.023	12.00%	82.422	177.445	16.680	160.765	73.952	773.659
1988	46.0%	9.4%	1.06	290.6			640,575	0.55	352,316	0.055	85.402	12.00%	92.839	178.241	16.755	161.486	74.284	860.862
1989	46.0%	9.4%	1.06	308.1			604,075	0.50	302,038	0.047	73.214	12.00%	103.303	176.517	16.593	159.925	73.565	947.221
1990	46.0%	9.4%	1.06	326.6			556,625	0.45	250,481	0.039	60.717	12.00%	113.667	174.383	16.392	157.991	72.676	1,032.537
1991	46.0%	9.4%	1.06	346.1			518,300	0.40	207,320	0.032	50.254	12.00%	123.904	174.159	16.371	157.788	72.582	1,117.742
1992	46.0%	9.4%	1.06	366.9			475,412	0.35	166,394	0.026	40.334	12.00%	134.129	174.463	16.400	158.064	72.709	1,203.096
1993	46.0%	9.4%	1.06	388.9			428,875	0.30	128,663	0.020	31.188	12.00%	144.372	175.559	16.503	159.057	73.166	1,288.987
1994	46.0%	9.4%	1.06	412.3			402,412	0.25	100,603	0.016	24.386	12.00%	154.678	179.065	16.832	162.233	74.627	1,376.593
1995	46.0%	9.4%	1.06	437.0			397,850	0.20	79,570	0.012	19.288	12.00%	165.191	184.479	17.341	167.138	76.883	1,466.847
1996	46.0%	9.4%	1.06	463.2			379,600	0.15	56,940	0.009	13.802	12.00%	176.022	189.824	17.843	171.981	79.111	1,559.717
1997	46.0%	9.4%	1.06	491.0			346,750	0.10	34,675	0.005	8.405	12.00%	187.166	195.571	18.384	177.188	81.506	1,655.398
1998	46.0%	9.4%	1.06	520.5			321,300	0.05	15,060	0.002	3.893	12.00%	198.648	202.541	19.039	183.502	84.411	1,754.489
1999	46.0%	9.4%	1.06	551.7			299,300	0.05	14,965	0.002	3.628	12.00%	210.539	214.166	20.132	194.035	89.256	1,859.268
2000	46.0%	9.4%	1.06	584.8			301,125	0.05	15,056	0.002	3.650	12.00%	223.112	226.762	21.316	205.446	94.505	1,970.209
2001	46.0%	9.4%	1.06	619.9			284,700	0.05	14,235	0.002	3.451	12.00%	236.425	239.876	22.548	217.327	99.971	2,087.565
2002	46.0%	9.4%	1.06	657.1			266,450	0.05	13,322	0.002	3.229	12.00%	250.508	253.737	23.851	229.886	105.748	2,211.704
2003	46.0%	9.4%	1.06	696.5			235,425	0.05	11,771	0.002	2.853	12.00%	265.404	268.256	25.216	243.042	111.799	2,342.946
2004	46.0%	9.4%	1.06	738.3			215,350	0.05	10,767	0.002	2.610	12.00%	281.154	283.764	26.674	257.090	118.261	2,481.775
2005	46.0%	9.4%	1.06	782.6			198,925	0.05	9,946	0.002	2.411	12.00%	297.813	300.224	28.221	272.003	125.121	2,628.656
2006	46.0%	9.4%	1.06	829.6			184,325	0.05	9,216	0.001	2.234	12.00%	315.439	317.673	29.861	287.812	132.393	2,784.075
2007	46.0%	9.4%	1.06	879.3			158,775	0.05	7,939	0.001	1.924	12.00%	334.089	336.013	31.585	304.428	140.037	2,948.466
2008	46.0%	9.4%	1.06	932.1			136,875	0.05	6,844	0.001	1.659	12.00%	353.816	355.475	33.415	322.060	148.148	3,122.378
2009	46.0%	9.4%	1.06	988.0			105,850	0.05	5,292	0.001	1.283	12.00%	374.685	375.968	35.341	340.627	156.689	3,306.317
2010	46.0%	9.4%	1.06	1047.3	2.5%	162.982	78,475	0.05	3,924	0.001	0.951	12.00%	396.758	397.709	37.385	197.342	90.777	3,412.882
2011	46.0%	9.4%	1.06	1110.1	5.0%	345.522	65,700	0.05	3,285	0.001	0.796	12.00%	409.546	410.342	38.572	26.248	12.074	3,427.055
2012	46.0%	9.4%	1.06	1176.7	50.0%	3,662.536						12.00%	411.247	411.247	0.000	(3,251.290)	(1,495.593)	1,671.359
2013	46.0%	9.4%	1.06	1247.4	30.0%	2,329.373						12.00%	200.563	200.563	0.000	(2,128.810)	(979.253)	521.802
2014	46.0%	9.4%	1.06	1322.2	10.0%	823.045						12.00%	62.616	62.616	0.000	(760.429)	(349.797)	111.170
2015	46.0%	9.4%	1.06	1401.5	2.5%	218.107						12.00%	13.340	13.340	0.000	(204.767)	(94.193)	0.595
							13,345.125		6,459.246								Surplus DR&R in 1992 MM $ ==>	0.166

Source: Cash flows from the DR&R element of TAPS Settlement Methodology (TSM) prepared by Rudolph L. Bertschi (Alaska Public Utilities Commission staff expert witness in the TAPS case) for State of Alaska Office of Management and Budget, June 1, 1988; based on Trans-Alaska Pipeline System Interstate Settlement Agreement, June 28, 1985, Sec. II-4, Exhibit E; see also Explanatory Statement of State of Alaska and U.S. Dept. of Justice, June 28, 1985, pp. 30-31. (Surplus DR&R in 1992 $ calculated from spreadsheet.)

$(151,000)

That's what we were told the settlement did. What the collected DR&R money actually did is very different. What follows is an update of the same spreadsheet calculating the value of TAPS DR&R payments to the owner companies. Note that the TAPS owners' estimated after-tax balance in 1992 is almost $3.5 billion, nearly triple the $1.2 billion estimated back in 1977. This is the same spreadsheed with identical cash inputs at column (L). I have boxed the only changes to the 1985 spreadsheet you just saw at columns (B), (C), (D) and (M). Columns (B) and (C) reduce the owners' pay-outs to represent estimated actual tax rates rather than nominal tax rates and Column (M) substitutes the owner companies' return on equity from 1982 through 1991, as reported in the Fortune 500, for the Moody's bond rate stipulated in the settlement. As a result of these changes, in the year 2015, the TAPS owners will have a tax-paid surplus after dismantling of $22.2 billion in 1992 dollars. I also estimated the tax-paid DR&R balance at the frequently used industry standard 10% real rate of return, or 10% over inflation. The result was that the TAPS DR&R collections produced a tax-paid surplus of $11.7 billion.

Twelve to $22 billion on an item officially portrayed as "sufficient to meet the expected costs"? Go figure. Note: This $12 to $22 billion in after-tax profit is over and above the $4.77 per-barrel profit that produced the North Slope returns discussed above. In the per-barrel calculations presented above, DR&R is treated as a shipping cost at line 5(g). The discoverer of this hole in the TAPS settlement — the APUC's staff expert witness — characterized the owners' DR&R windfall as an off-book or hidden profit.

Table 2-B. ESTIMATED VALUE TO TAPS OWNERS OF TSM DR&R COLLECTIONS AT OWNER COMPANIES' 1982-1991 RATE OF RETURN

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)
	Revised Estimates											Revised Estimates						
Calendar Year	Fed. Tax Rate (%)	State Tax Rate (%)	Inflation Factor (Decimal)	GNP Deflator (Index)	Stipulated Expenditure Fraction (%)	Actual Expenditure (MM$)	Projected Thruput (1000 bbls)	TSM Adjustment Factors (decimal)	Adjusted Thruput (1000 bbls)	Depreciation Factor (Decimal)	DR&R Allowance (MM$)	Parent Co. Ret. on Equity (%)	Imputed Interest (MM$)	State Taxable Income (MM$)	State Tax (MM$)	Fed. Taxable Income (MM$)	Fed. Tax (MM$)	After-Tax Balance (MM$)
											1,795.350							
1977	25.0%	4.0%		140.1		872.1	97,094	1.00	97,094	0.015	23.536	13.04%		23.536	2.212	21.323	5.331	15.992
1978	25.0%	4.0%					395,905	1.00	395,905	0.061	95.968	17.14%	2.741	2.741	0.110	98.599	24.650	89.942
1979	25.0%	4.0%					466,759	1.00	466,759	0.072	113.143	32.13%	28.898	28.898	1.156	140.885	35.221	195.605
1980	25.0%	4.0%					552,294	0.95	524,679	0.081	127.183	35.86%	70.144	70.144	2.806	194.521	48.630	341.496
1981	25.0%	4.0%					551,085	0.90	495,977	0.077	120.225	24.50%	83.667	83.667	3.347	200.545	50.136	491.905
1982	25.0%	4.0%					587,985	0.85	499,787	0.077	121.149	18.40%	90.510	211.659	8.466	203.193	50.798	644.299
1983	25.0%	4.0%					596,869	0.80	477,495	0.074	115.745	18.40%	118.551	234.296	9.372	224.924	56.231	812.993
1984	25.0%	4.0%		232.4			607,135	0.75	455,351	0.070	110.377	18.40%	149.591	259.968	10.399	249.569	62.392	1,000.170
1985	25.0%	4.0%	1.036	240.8			613,200	0.70	429,240	0.066	104.048	18.40%	184.031	288.079	11.523	276.556	69.139	1,207.587
1986	25.0%	4.0%	1.019	245.3			620,500	0.65	403,325	0.062	97.766	18.40%	222.196	319.962	12.798	307.164	76.791	1,437.960
1987	25.0%	4.0%	1.036	254.2			653,350	0.60	392,010	0.061	95.023	18.40%	264.585	359.608	14.384	345.224	86.306	1,696.877
1988	25.0%	4.0%	1.041	264.6			640,575	0.55	352,316	0.055	85.402	18.40%	312.225	397.627	15.905	381.722	95.430	1,983.169
1989	25.0%	4.0%	1.048	277.3			604,075	0.50	302,038	0.047	73.214	18.40%	364.903	438.117	17.525	420.592	105.148	2,298.613
1990	25.0%	4.0%	1.054	292.3			556,625	0.45	250,481	0.039	60.717	18.40%	422.945	483.662	19.346	464.315	116.079	2,646.849
1991	25.0%	4.0%	1.042	304.5			518,300	0.40	207,320	0.032	50.254	18.40%	487.020	537.275	21.491	515.784	128.946	3,033.687
1992	25.0%	4.0%	1.033	314.6			475,412	0.35	166,394	0.026	40.336	18.40%	558.198	598.533	23.941	574.591	143.648	3,464.434
1993	25.0%	4.0%	1.036	325.9			428,875	0.30	128,663	0.020	31.188	18.40%	637.492	668.680	26.747	641.933	160.483	3,946.080
1994	25.0%	4.0%	1.037	338.1			402,412	0.25	100,603	0.016	24.386	18.40%	726.079	750.465	30.019	720.446	180.112	4,486.415
1995	25.0%	4.0%	1.039	351.1			397,350	0.20	79,570	0.012	19.288	18.40%	825.500	844.788	33.792	810.997	202.749	5,094.662
1996	25.0%	4.0%	1.041	365.6			379,600	0.15	56,940	0.009	13.802	18.40%	937.418	951.220	38.049	913.171	228.293	5,779.541
1997	25.0%	4.0%	1.043	381.3			346,750	0.10	34,675	0.005	8.405	18.40%	1,063.436	1,071.841	42.874	1,028.967	257.242	6,551.266
1998	25.0%	4.0%	1.043	397.5			321,200	0.05	16,060	0.002	3.893	18.40%	1,205.433	1,209.326	48.373	1,160.953	290.238	7,421.981
1999	25.0%	4.0%	1.043	414.6			299,300	0.05	14,965	0.002	3.628	18.40%	1,365.645	1,369.272	54.771	1,314.501	328.625	8,407.857
2000	25.0%	4.0%	1.044	432.7			301,125	0.05	15,056	0.002	3.650	18.40%	1,547.046	1,550.695	62.028	1,488.668	372.167	9,524.358
2001	25.0%	4.0%	1.044	451.7			284,700	0.05	14,235	0.002	3.451	18.40%	1,752.482	1,755.932	70.237	1,685.695	421.424	10,788.629
2002	25.0%	4.0%	1.044	471.5			266,450	0.05	13,322	0.002	3.229	18.40%	1,985.108	1,988.337	79.533	1,908.804	477.201	12,220.232
2003	25.0%	4.0%	1.044	492.2			235,425	0.05	11,771	0.002	2.853	18.40%	2,248.523	2,251.376	90.055	2,161.321	540.330	13,841.222
2004	25.0%	4.0%	1.044	513.8			215,350	0.05	10,767	0.002	2.610	18.40%	2,546.785	2,549.395	101.976	2,447.419	611.855	15,676.787
2005	25.0%	4.0%	1.044	536.4			198,925	0.05	9,946	0.002	2.411	18.40%	2,884.529	2,886.940	115.478	2,771.462	692.866	17,755.383
2006	25.0%	4.0%	1.044	560.0			184,325	0.05	9,216	0.001	2.234	18.40%	3,266.991	3,269.225	130.769	3,138.456	784.614	20,109.225
2007	25.0%	4.0%	1.044	584.5			158,775	0.05	7,939	0.001	1.924	18.40%	3,700.097	3,702.022	148.081	3,553.941	888.485	22,774.681
2008	25.0%	4.0%	1.044	610.2			136,875	0.05	6,844	0.001	1.659	18.40%	4,190.541	4,192.200	167.688	4,024.512	1,006.128	25,793.065
2009	25.0%	4.0%	1.044	637.0			105,850	0.05	5,292	0.001	1.283	18.40%	4,745.924	4,747.207	189.888	4,557.319	1,139.330	29,211.054
2010	25.0%	4.0%	1.044	664.9	2.5%	103.479	78,475	0.05	3,924	0.001	0.951	18.40%	5,374.834	5,375.785	215.031	5,057.274	1,264.319	33,004.009
2011	25.0%	4.0%	1.044	694.1	5.0%	216.044	65,700	0.05	3,285	0.001	0.796	18.40%	6,072.738	6,073.534	242.941	5,614.548	1,403.637	37,214.921
2012	25.0%	4.0%	1.044	724.6	50.0%	2,255.286						18.40%	6,847.545	6,847.545	0.000	4,592.259	1,148.065	40,659.115
2013	25.0%	4.0%	1.044	756.4	30.0%	1,412.576						18.40%	7,481.277	7,481.277	0.000	6,068.701	1,517.175	45,210.640
2014	25.0%	4.0%	1.044	789.6	10.0%	491.529						18.40%	8,318.758	8,318.758	0.000	7,827.228	1,956.807	51,081.062
2015	25.0%	4.0%	1.044	824.3	2.5%	128.277						18.40%	9,398.915	9,398.915	0.000	9,270.638	2,317.660	58,044.041
							13,345,125		6,459,246							Surplus DR&R in 1992 MM$ ===>		22,150,017

Source: TAPS Settlement Methodology DR&R calculations (Table 1), modified as follows:
Cols. (B), (C): Estimated actual taxes, based on aggregate information from Alaska Dept. of Revenue.
Col. (D): 1977-1991 = U.S. CPI-U; subsequent years = Alaska Dept. of Revenue Spring 1992 revenue forecast.
Col. (M): 1977-81: Standard & Poors, Vol. 55 from Bertschi APUC Testimony, Dec. 17, 1986, Exh. RLB-15, p. 2); 1982-91 = ARCO & Exxon Avg. Total Return to Investors (Fortune, April 20, 1992); subsequent years = 1982-91 avg.

$22,150,017.

If you ask the owner companies about TAPS DR&R, you will probably be told one of two things:

(1) There is no such DR&R fund, so it's meaningless to calculate its value, but we'll be there to fulfill our legal obligations when the time comes. Translation: the company has paid these funds out to its shareholders. Or:

(2) A deal is a deal, and besides it might cost more than we anticipated. Who knows what inflation will bring and wht those crazy greenies will dream up next? Calculate the return under double-digit inflation and a doubling of estimated pay-outs, and even under this double-whammy the DR&R collections still generate a tax-paid surplus. A better way to handle this kind of long-term uncertainty might be to escrow the collections with a periodic review of the collection terms to ensure their adequacy.

In short, the industry ran off with a bundle equal to five to ten years of general fund budgets on an item of a settlement that was billed as revenue neutral. How did it happen? Elsewhere, I have noted that the record of the TAPS settlement is laced with misinformation to decision-makers, and that most of the intensive review the TAPS settlement received was after the State's settling team had already committed the State to the terms of the settlement. As a result, the review was a debate between knowledgeable specialists with a vested interest in their settlement and uninformed generalists. Those specialists now say, "A settlement is a set of compromises." You see that language in every settlement announcement. Or they say, "We knew all along what we were giving away. " I am aware of no discussion by settlement reviewers of what we might have received in exchange for the DR&R provision that gave the TAPS owners an off-book profit of $12 to $22 billion over and above the foregiveness of billions of dollars in refunds. The main focus of TAPS settlement review was on the manner in which the settlement allowed the owner companies to trot off with billions of dollars of past over-charges in exchange for lower future tariffs. But lower future tariffs was something we were likely to achieve in court

without giving up refunds. The DR&R give-away was not discussed, to my knowledge, until it was reported by the staff of the Alaska Public Utilities Commission a year after the settlement was completed.

Are the post-TAPS settlements as bad? Perhaps not. But the smokescreen of confidentiality may hide problems that cost the citizens of Alaska millions of dollars annually. Based on my experience with the Administration's oil and gas litigation efforts between 1987 and mid-1989, I believe the post-TAPS settlements are prone to contain hidden defects that result principally from two factors: (1) the desire of the negotiators to come away from the table with a settlement and (2) the perversion of public policy due to the erosion of checks and balances resulting from industry's successful assertion of a right to what I believe to be excessive confidentiality. Where the would-be critic can push the record to demonstrate concerns based on public information, the State's settling team can come back with a self-righteously indignant claim that the critic simply does not have the big picture. In cases where I am aware of settlement defects and have enough knowledge of the settlement parameters to determine with confidence that the problems are significant, I am restrained from sharing my concerns by confidentiality statutes and agreements. Not a healthy climate for public policy involving billions of dollars.

I will conclude by suggesting four remedies that could be implemented fairly quickly and easily. The thrust of these measures would be to improve inter-agency coordination and maximize public information on oil and gas issues that are so vital to the State's future.

==> (1) Require by law an annual State audit and report to the Legislature by the Legislative Audit staff on all tax, royalty and pipeline disputes over a certain dollar amount and/or age. The annual report should contain an update on ongoing cases with a status report on significant issues and should be issued in two forms: a confidential report to the Legislative Budget and Audit Committee and a public report containing as much information as the auditors can shoe-horn into the

record under existing statutes. In this manner, the Legislature would gain the information it needs to have effective legislative overshight to insure that State policies in this important area are integrated and effective.

==> (2) Proscribe by law any tax or royalty or pipeline settlement that extends confidentiality beyond provisions required by law.

Statutes to effect these two change were proposed by the Department of Revenue in 1990 and passed the House unanimously, only to die in a watered-down version of the bill tht passed the Senate in the fina,. moments of the session but did not get back to the House in time to become law.

==> (3) Transfer pipeline authority from the Department of Law by amending AS 42.06 — the statute governing the Alaska Public Utilities Commission that gives management of inter-state pipeline management to the Department of Law — to give authority for pipeline policy to an agency with a resource or revenue management mandate. The Department of Law will still handle inter-state tariffs through its control over all tate contract attorneys who work for the State, but those attorneys would also would also be working for and tasked by a client agency with resource or revenue responsibilities instead for the Department of Law, which has no such management authority in statute.

==> (4) Re-establish within the administration an inter-agency group to coordinate oil and gas policy. That group should as its first order of business establish a formal mechanism to guarantee a coordinated policy on oil and gas litigation that ensures that the implications of all major settlements are reviewed independently prior to settlement to avoid perverse policy impacts that the settling team may fail to recognize. The second order of business should be to consider whether the information the industry deems confidential really serves any purpose other than to hamstring policy makers and blind the public. From sad experience, I can guarantee that this suggestion will meet with resistance from resource managers who will feel that their administrative lattitude is being constrained.

From an information standpoint, with such measures in place, we could rely on our public agencies to produce reports making clear the kind of profits the North Slope is generating and will continue to generate for some years to come, as well as the better information in the arcane area of settlements. From a policy standpoint, with these measures in place, reports such as the DR&R analysis summarized here will, hopefully, be unnecessary in the future.

I can give you a bottom line on these proposals because I learned how to translate policy options into dollars and cents by reading countless anlyses by the State's litigation lawyers. Whether such results are meaningful I leave for you to determine. Here's my assessment: First, there are tangible gains. Assume we have outstanding tax and royalty claims of $4 billion, and that we tend to settle for something like $0.50 on every dollar we claim. That's $2 billion. Then assume the recommended oversight measures increase settlment gains by ten percent. That's $200 million. There's a kicker: Assume the better precedent of the tougher settlements yields a similar gain in the future through deterrence of future delays and encouragement of higher future payments. Total gain: $400 million. That money could probably fund a good chunk of your favorite general fund program that is now in jeopardy. Additionally, there's the more difficult to quantify value of preventing or reducing the risk of a give-away like the DR&R clause in the 1985 TAPS settlement . Not bad pay-off on a few simple and relatively inexpensive housekeeping measures.

I wish you luck in your endeavors and look forward to your questions. Thank you.

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North Slope Profits and Production Prospects

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November 12, 1992

Prepared for:
Senate Finance Committee
Alaska State Legislature

Project Director:
Senator Jalmar Kerttula, Co-Chair
Senate Finance Committee

Foreward

This report would not have been possible without information provided by personnel with the Department of Revenue's Oil and Gas Audit Division research unit. Others state personnel graciously provided information, including contract specialists with the Department of Law who monitor pipeline tariffs, staff of the Department of Natural Resources Division of Oil and Gas, the State Pipeline Coordinator's Office and the Alaska Oil and Gas Conservation Commission. Of the many additional people who provided information, the insights of Professor G.D. Sharma at the University of Alaska's Petroleum Development Laboratory and Professor Elmer Dougherty of the University of Southern California were particularly useful. My gratitude to these and other unnamed sources does not alter the fact that responsibility for the approach, data and conclusions presented in this report rests entirely with the author.

In the belief that the public needs access to better information in this important public policy arena, I have footnoted extensively. Understanding production prospects on the North Slope, the unique profitability of that area and the relationship between the two is necessarily complicated; suggestions to improve the materials presented here will be welcome.

Finally, this report would not have been possible without Senator Jalmar Kerttula's continued interest in identifying and exploring the factors that will determine the future of North Slope oil development.

Richard A. Fineberg
Talkeetna, Alaska
November 12, 1992

North Slope Profits and Production Prospects

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Executive Summary

==> Continual increases in forecasted production from the North Slope stand in marked contrast to the industry's fatuous claims that the golden goose of the North Slope is about to cackle its last. In April 1992 the annual forecast of the Department of Natural Resources estimated North Slope production from 1992 through 2010 at 6.86 billion barrels. This figure represents an increase of 5.5% over the department's 1991 forecast and 68.7% over that of 1985. *(Section II.A.)*

==> Forecasted production for the 1992-2010 period has increased 39.2% over the 1989 forecast. The vast majority of the increase since 1989 has come at Prudhoe Bay and Kuparuk, contradicting repeated industry warnings that correction of the severance tax economic limit factor (ELF) "will only make the next barrel of oil more expensive to produce and therefore it will be less likely to ever be produced. . . . that means there will be more oil left in the ground" because "new work [at Prudhoe and Kuparuk] . . . to add a hundred million barrels here, a hundred million barrels there . . . can become too expensive." The tax loophole was closed despite industry warnings. *(Section II.C.)*

==> In real terms, the annual average price of North Slope crude oil has been relatively flat since 1986. *(Section III.C., Graph 1)*

==> In the absence of comprehensive information on North Slope profitability, a per-barrel profitability model was developed. *(Section iII.C.)*

==> The model delineates the importance of pipeline costs and profits to the economic viability of North Slope operations. Since the North Slope producing companies undoubtedly consider pipeline profits in their development decisions, forecasts that omit this crucial element should be regarded as irrelevant. *(Section III.C.; III.E., p. 86.)*

==> Although their significance is masked in all-field average calculations, feeder pipeline costs and profits can play a significant role in determining the profitability of an individual field. *(Section III.D.; p. 69, Graph 3).*

==> The model indicates that North Slope production, feeder line and Trans-Alaska Pipeline System (TAPS) profits for calendar year 1991 averaged approximately $4.77 per barrel. With total production of [illegible] million barrels, the North Slope operators

earned in excess of $3.0 billion in calendar year 1991. This figure places the North Slope operators on a par with the second most profitable corporation on the 1991 Fortune 500. This figure does not include downstream profits, the intangible value to refiners of a stable crude supply or the off-book profits from TAPS DR&R collections. *(Section III.D.; Table 12-A, Graph 2.)*

==> The model shows the least profitable field on the North Slope — Milne Point — to be marginally profitable at current prices, even without the benefit of TAPS profits. *(Section III.D., Tables 12-F, 13-F and 14-F.)*

==> Estimated North Slope production and pipeline profits for FY 2000 of $1.9 billion would place the North Slope operators on a par with the seventh most profitable corporation on the 1991 Fortune 500. Because the Department of Revenue removed West Sak from its Spring 1992 forecast, this figure does not include West Sak production. *(Section III.E.; Table 15-A, Graph 4.)*

==> Additional production of 150,000 barrels per day from West Sak would add approximately $200 million to total North Slope profitability in FY 2000. *(Section III.E.; Table 16, p. 85).*

==> Due to its distance from TAPS and the fact that it is on federal land, a barrel of oil discovered in the Arctic National Wildlife Refuge would generate approximately $1.67 less for the state in taxes and royalty payments than a barrel of equivalent oil discovered on state land in the Prudhoe Bay region. From a direct revenue standpoint, in promoting the Arctic Refuge over near-Prudhoe development the state is effectively penalizing itself by this amount. *(Section IV.A.; Table 17.)*

==> If Hadami and Kuvlum prove to be major discoveries, they could increase the economic attractiveness of any discovery in the Arctic Refuge by reducing the economic penalties of a stand-alone feeder line from the arctic Refuge. At this time neither discovery has been delineated and Kuvlum's location — 15 miles off shore — presents a significant obstacle to production. *(Section IV. B.)*

==> While it is reasonable to defer economic decisions involving a major North Slope natural gas sale until there is a concrete proposal, issues discussed in this report pertaining to forecasts, pipeline matters and basic information from the industry indicate that problems in inter-agency coordination may prevent state officials from defining issues and making recommendations in a timely manner. *(Section IV.C.)*

I. Introduction

This report has three basic goals:

1. to bring up to date a report the author prepared for the Alaska State Legislature in December 1990 on potential North Slope oil and gas developments (Chapter II.);

2. to estimate current per-barel returns to the industry, state and federal governments at recent oil prices (Chapter III.); and

3. to consider North Slope development policy questions in light of recent events and the unique economics of the North Slope (Chapter IV.).

The game plan is straight-forward:

In the second chapter, recent increases in state production forecasts are charted. A central point of the 1990 report was that although North Slope production was declining, improved production techniques had consistently delayed and softened the forecasted decline. This trend resulted in forecasts between 1985 and 1990 that showed continually increasing total production from North Slope fields between 1990 and 2010. Two years later, that trend is still evident. Despite the increases in forecasted production and the fact that more than a decade remains before shutdown becomes a pressing question, the public has been treated to a steady bombardment of warnings from the industry that with shutdown approaching, costly environmental regulations will cause a premature demise of Alaska's golden goose. Conflicts between estimates of different state agencies and estimates of other informed observers add a layer of confusion to the industry's propaganda campaign. The West Sak field and information provided by the industry on production prospects during the 1989 debate over revision of a tax factor known as the economic limit factor (ELF) are also discussed.

Because the reason for production is profit, North Slope production prospects cannot be understood without a firm grasp on the profits North Slope producers derive from their Alaska operations. Unfortunately, there is a paucity of information on North Slope profitability. Chapter III. seeks to remedy that problem by assembling public information from a variety of sources to set up a model of North Slope profits at current prices and under future scenarios. Per-barrel profit analysis provides another tool for assessing the significance of the industry's incessant warnings that the Golden Goose is about to cackle its last.

With production and profit data assembled, the fourth chapter offers brief consideration of several recent developments and their potential effects on the future of North Slope operations. Items selected for focus are the Arctic National Wildlife Refuge, the recent discoveries east of Prudhoe Bay and a major natural gas sale.

II. Production Forecasts

A. Recent Trends in North Slope Production Forecasts

In November 1991, a clear message was passed at the American Petroleum Institute's annual meeting in Houston: "The American industry is not abandoning the United States; we're being thrown out, closed out," Mobil Corp. Chairman Allen M. Murray told the leading oil industry trade group.[1] Picking up on this theme, six weeks later Alyeska Pipeline Sevice Co. President James Hermiller told the Anchorage Chamber of Commerce that Alyeska was about to begin its eventual shut down. Lay-offs were coming, he warned. In the near future, Alyeska might even close a pump station or two. Hermiller then gave his usual strong plug for a cost-benefit approach to environmental regulation: "If the state imposes excessive financial burdens on the owners of the production going through the line or on the pipeline system itself, the line will close sooner than later."[2] Hermiller's adaptation of the API pitch was misleading; he overstated the decline and incorrectly linked it with environmental regulations. But Hermiller's pitch at least had an aura of theoretical plausiblity; his minions at Alyeska applied the API Houston theme in a manner that defied both facts and logic.[3]

It is true that the Alaska Department of Natural Resource (DNR) April 1992 annual production forecast shows North Slope production dropping from the current level — about 1.7 million barrels per day — to just below one million barrels per day in the year 2001. But the North Slope's well-publicized declining daily production rate is only one part of the North Slope oil development picture. Hermiller did not mention that the same forecast six years earlier had predicted that North Slope production would to slip under the million-barrel milestone in 1995. But now the current DNR forecast predicts that in 1995 the North Slope will still be producing in excess of 1.6 million barrels per day, very near the current level.

Tables 1 through 6 present DNR's field-by-field breakdown of annual forecasts of prodeuction from 1992 through 2010. As in the previous report, the Department of Natural

---

[1] Laura Tolley, "Big Oil 'must go' outside: Environment forcing firms out, exec says," Anchorage Daily News, Nov. 19, 1991, p. B-4.

[2] Hermiller's Jan. 6 speech was headlined on the front page of the Anchorage Times Jan. 7, repeated in an editorial the following day and reprinted in full in the Anchorage Times, Jan. 12, 1992.

[3] For example, see footnote 53, below.

Tables 1 through 6 present DNR's field-by-field breakdown of annual forecasts of prodeuction from 1992 through 2010. As in the previous report, the Department of Natural Resources forecast is used because that agency's annual forecast is a consistent and more or less direct reflection of information the industry provides the state of its current plans. The year 1985 was selected as the reference point beause that was the final forecast before the oil price crash that ushered in a new era of lower oil prices.

Table 1.

1985 Production Forecast (Alaska Dept. of Natural Resources)

000 Barrels per day:

Year	*Field =>*	Prudhoe	Kuparuk	Lisburne	Pt. McIntyre	Endicott	Milne	Other	W.Sak	Beaufort	Total	
1992		850	200	90		100	15	50	<= = = = = = = = = = = =		1,305	*(XX) bpd*
1993		750	200	75		85	10	50	<= = = = = = = = = = = =		1,170	"
1994		650	170	70		75	10	50	<= = = = = = = = = = = =		1,025	"
1995		575	145	65		70	10	100	<= = = = = = = = = = = =		965	"
1996		510	120	60		65	0	125	<= = = = = = = = = = = =		880	"
1997		460	100	55		60		125	<= = = = = = = = = = = =		800	"
1998		420	80	50		55		125	<= = = = = = = = = = = =		730	"
1999		380	75	40		50		125	<= = = = = = = = = = = =		670	"
2000		340	65	30		45		120	<= = = = = = = = = = = =		600	"
2001		300	55	20		40		115	<= = = = = = = = = = = =		530	"
2002		270	50	10		20		110	<= = = = = = = = = = = =		460	"
2003		240	40	0		10		105	<= = = = = = = = = = = =		395	"
2004		210	35			0		100	<= = = = = = = = = = = =		345	"
2005		180	30					95	<= = = = = = = = = = = =		305	"
2006		160	25					90	<= = = = = = = = = = = =		275	"
2007		140	20					80	<= = = = = = = = = = = =		240	"
2008		110	15					70	<= = = = = = = = = = = =		195	"
2009		80	10					60	<= = = = = = = = = = = =		150	"
2010		50	0					50	<= = = = = = = = = = = =		100	"
Total Barrels:		2,436,375	523,775	206,225	0	246,375	16,425	636,925	<= = = = = = = = = = = =		4,066,100	*(XX) bbls.)*

Source: Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," January 1985, p. 13 (Table 2.2: Estimated Availability of N. Slope Oil For Sale).

Table 2.

1988 Production Forecast (Alaska Dept. of Natural Resources)

000 Barrels per day.

Year	*Field =>*	Prudhoe	Kuparuk	Lisburne	Pt. McIntyre	Endicott	Milne	Other	W.Sak	Beaufort	Total	
1992		1,062	240	70		85	10	0			1,467	*(XX) bpd*
1993		924	205	70		75	0	0			1,274	"
1994		804	175	70		70		0			1,119	"
1995		699	150	70		65		135	<==========		1,119	"
1996		608	125	70		60		135	<==========		998	"
1997		529	105	70		55		135	<==========		894	"
1998		461	90	65		50		120	<==========		786	"
1999		400	75	58		45		108	<==========		686	"
2000		348	65	52		40		103	<==========		608	"
2001		303	55	47		20		98	<==========		523	"
2002		264	45	42		10		112	<==========		473	"
2003		230	40	38		0		105	<==========		413	"
2004		200	35	34				100	<==========		369	"
2005		174	30	31				95	<==========		330	"
2006		151	25	28				88	<==========		292	"
2007		131	25	25				67	<==========		248	"
2008		114	20	20				56	<==========		210	"
2009		100	15	15				44	<==========		174	"
2010		86	10	10				42	<==========		148	"
Total Barrels:		2,769,620	558,450	323,025	0	209,875	3,650	563,195	<==========		4,427,815	*(XX) bbls*

Source: Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," January 1988, p. 9 (Table 2.2A: Production Forecast and Available Royalty Oil).

Table 3.

1989 Production Forecast (Alaska Dept. of Natural Resources)

(000 Barrels per day:

Year	*Field =>*	Prudhoe	Kuparuk	Lisburne	Pt. McIntyre*	Endicott	Milne	Other *	W.Sak	Beaufort	Total	
1992		1,251	240	40		85	10	0	6	< = = =	1,632	*(XX) bpd*
1993		1,126	205	40		75	7	20	6	< = = =	1,479	"
1994		1,011	175	40		70	7	60	6	< = = =	1,369	"
1995		862	150	37		65	6	58	12	< = = =	1,190	"
1996		731	125	34		60	5	56	12	< = = =	1,023	"
1997		620	105	31		55	4	55	25	< = = =	895	"
1998		528	90	28		50	0	89	25	< = = =	810	"
1999		450	75	25		45		83	50	< = = =	728	"
2000		383	65	21		40		78	50	< = = =	637	"
2001		327	55	19		20		73	75	< = = =	569	"
2002		264	45	13		10		64	75	< = = =	471	"
2003		230	40	9		0		56	100	< = = =	435	"
2004		200	35	5				49	100	< = = =	389	"
2005		174	30	0				38	150	< = = =	392	"
2006		151	25					32	150	< = = =	358	"
2007		131	20					27	150	< = = =	328	"
2008		114	15					23	150	< = = =	302	"
2009		100	15					13	140	< = = =	268	"
2010		86	10					11	120	< = = =	227	"
Total Barrels:		3,189,735	554,800	124,830	0	209,875	14,235	323,025	511,730	< = = =	4,928,230	*(XX) bbls.)*

* "Other" includes some Pt. McIntyre production.

Source: Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," January 1989, p. 8 (Table 2.2: Production Forecast and Available Royalty Oil)

Table 4.

1990 Production Forecast (Alaska Dept. of Natural Resources)

000 Barrels per day:

Year *Field =>*	Prudhoe	Kuparuk	Lisburne	Pt. McIntyre	Endicott	Milne	Niakuk	W.Sak	Beaufort	Total	
1992	1,102	280	40	20	85	20	0	6		1,553	*(XX) bpd*
1993	1,014	250	40	60	75	16	20	6		1,481	"
1994	932	220	40	60	70	13	20	12		1,367	"
1995	857	190	37	60	65	10	20	12		1,251	"
1996	789	175	34	54	60	8	17	12		1,149	"
1997	726	150	31	49	55	7	14	25		1,057	"
1998	668	125	28	44	50	6	12	25		958	"
1999	614	105	25	39	45	5	10	50	0	893	"
2000	553	90	21	35	40	5	9	50	60	863	"
2001	498	75	19	32	20	5	7	75	54	785	"
2002	448	65	13	29	10	0	6	75	49	695	"
2003	403	55	9	26	0		5	100	44	642	"
2004	363	45	5	23			5	100	39	580	"
2005	326	35	0	21			0	150	35	567	"
2006	284	30		19				150	32	515	"
2007	247	25		17				150	29	468	"
2008	215	20		15				150	26	426	"
2009	187	15		14				140	23	379	"
2010	163	10		12				120	21	326	"
Total Barrels:	3,791,985	715,400	124,830	229,585	209,875	34,675	52,925	513,920	150,380	5,823,575	*(XX) bbls.)*

Source: Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," January 1990, p. 10 (Table 2.2: Production Forecast and Available Royalty Oil).

Table 5.

1991 Production Forecast (Alaska Dept. of Natural Resources)

000 Barrels per day:

Year *Field =>*	Prudhoe	Kuparuk	Lisburne	Pt. McIntyre	Endicott	Milne	Niakuk	W. Sak	Beaufort	Total	
1992	1,248	300	44	0	108	19	0	0		1,719	*(XX) bpd*
1993	1,096	300	40	75	94	17	0	6		1,628	"
1994	987	300	34	80	83	16	0	6		1,506	"
1995	988	280	27	80	72	16	0	6		1,469	"
1996	889	250	22	80	63	17	10	12		1,343	"
1997	799	220	17	72	55	18	20	12		1,213	"
1998	739	190	14	65	47	19	20	12		1,106	"
1999	683	170	11	58	40	20	17	25	0	1,024	"
2000	632	150	10	52	34	20	14	25	60	997	"
2001	584	125	9	47	29	18	12	50	54	928	"
2002	526	105	7	41	24	16	10	50	49	828	"
2003	474	90	5	36	21	14	9	75	44	768	"
2004	426	75	0	30	18	13	7	75	39	683	"
2005	383	65	0	26	16	12	6	75	35	618	"
2006	345	55		22	0	10	5	67	32	536	"
2007	293	45		19		8	5	61	29	460	"
2008	249	35		16		6		55	26	387	"
2009	212	30		14		5		50	23	334	"
2010	180	25		12				42	21	280	"
Total Barrels:	4,282,545	1,025,650	87,600	301,125	256,960	96,360	49,275	256,960	150,380	6,506,855	*(XX) bbls.)*

Source Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," June 1991, pp. 4-5 (Table 2.1: Production Forecast and Available Royalty Oil)

Table 6.

1992 Production Forecast (Alaska Dept. of Natural Resources)

000 Barrels per day:

Year	*Field =>*	Prudhoe	Kuparuk	Lisburne	Pt. McIntyre	Endicott	Milne	Niakuk	W. Sak	Beaufort	Total	
1992		1,260	310	40	0	110	19	0	0		1,739	*(000) bpd*
1993		1,190	310	40	20	94	17	0	0		1,671	"
1994		1,110	300	34	80	83	16	0	0		1,623	"
1995		1,110	280	27	80	72	16	20	6		1,611	"
1996		1,020	250	22	80	63	17	20	12		1,484	"
1997		922	220	17	80	55	18	20	12		1,344	"
1998		840	190	14	72	47	19	20	12		1,214	"
1999		765	170	11	65	40	20	17	25	0	1,113	"
2000		697	150	10	58	34	20	14	25	60	1,068	"
2001		633	125	9	52	29	18	12	50	54	982	"
2002		532	105	7	47	24	16	10	50	49	840	"
2003		479	90	5	41	21	14	9	75	44	778	"
2004		426	75	0	36	18	13	7	75	39	689	"
2005		383	65	0	30	16	12	6	75	35	622	"
2006		345	55		26	0	10	5	67	32	540	"
2007		293	45		22		8	5	61	29	463	"
2008		249	35		19		6		55	26	390	"
2009		212	30		16		5		50	23	336	"
2010		180	25		14				42	21	282	"
Total Barrels:		4,615,790	1,032,950	86,140	305,870	257,690	96,360	60,225	252,589	150,380	6,857,985	*(000 bbls.)*

Source Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," April 1992, pp. 4-5 (Table 2.1: Production Forecast and Available Royalty Oil).

The retreat of production declines is a steady phenomenon that is readily observable in these data. For example, as recently as 1991 North Slope production was supposed to fall below one million barrels in the year 2000 (Table 5) — one year earlier than under the current DNR forecast. The source of the delayed decline is increased total production through the life of the North Slope fields.[4]

Table 7 presents North Slope total production estimates for selected years since 1985 through the first decade of the next century. In this table, North Slope production is divided into three periods: 1977-84, 1985-91, and 1992-2010.[5] The left-hand column, which covers the 1977-84 period, contains actual production figures. The second column, covering 1985-91, contains a combination of oil produced and forecasted totals. For example, the 1990 figure in the 1985-91 column is the sum of the actual barrels produced from 1985 through 1989 plus the forecasted barrels for 1990-91. The total barrels forecasted for the 1992-2010 period appears in the third column. These are the totals at the lower right-hand corner of Tables 1 through 6. In the third column, the DNR April 1992 forecast estimates total production for this 19-year period at 6.86 billion barrels, compared to 6.51 billion barrels forecasted in 1991 and 5.82 billion in 1990. The 1992 estimate represents a 68.66% increase in total North Slope production compared to the 1985 forecast total of 4.07 billion barrels for the same period Total production through 2010 in the fourth column is the sum of the first three columns.

While forecasted future production has increased, current production also increased. This can be seen in the second column of Table 7, where total production from 1985 through 1991 was 4.78 billion barrels — 13.54% greater than the 4.21 billion barrels forecasted for that period in 1985.

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[4] For a discussion of potential recovery techniques, see U.S. Congress, Office of Technology Assessment, Oil Production in the Arctic National Wildlife Refuge: The Technology and the Alaskan Oil Context, Washington, D.C.: U.S. Government Printing Office, February 1989 [Report #OTA-E-394].

[5] In this analysis forecast figures are cut off at the year 2010 to reduce the effects of differing assumptions about shutdown that may produce unrealistic comparisons.

Table 7.

Changes in ANS Production Forecasts, 1985-1992

/ = Total ANS Production (all fields) = /

	(actual 000 bbls.)		*(forecast and/or actual 000 bbls.)*		*(forecast 000 bbls.)*		*(forecast + actual 000 bbls.)*
	1977 - 1984	+	1985 - 1991	+	1992 - 2010	=	Total (1977-2010)
Year of Forecast:							
1985	3,894,105	+	4,210,185	+	4,066,100	=	12,170,390
1988	3,894,105	+	4,781,704	+	4,427,815	=	13,103,624
1989	3,894,105	+	4,838,996	+	4,928,230	=	13,661,331
1990	3,894,105	+	4,723,021	+	5,823,575	=	14,440,701
1991	3,894,105	+	4,801,909	+	6,506,762	=	15,202,776
1992	3,894,105	+	4,780,297	+	6,857,985	=	15,532,387
% increase over 1985 forecast:	0.00%		13.54%		68.66%		27.62%

Source : 1977-84 from Dept. of Natural Resources, "Historical and Projected Oil & Gas Consumption," January 1985, p. 13;
1985-2010 from 1992 and previous issues of same publication.

The following table summarizes the changes in DNR production forecasts for the 1992-2010 period by field between 1985 and 1992.

Table 8.

1985 v. 1992 State North Slope Production Forecasts by Field (for 1992 through 2010)

	1985 Forecast	1992 Forecast	1992 v. 1985
Field:	*/ = = = million bbls., 1992-2010 = = = /*		*% increase (decrease)*
Prudhoe Bay	2,436.4	4,615.8	89.4%
Kuparuk	523.8	1,033.0	97.3%
Lisburne	206.2	86.1	(59.2%)
Pt. McIntyre	0.0	305.9	n.a.
Endicott	246.4	257.7	4.5%
Milne Pt.	16.4	96.4*	487.8%
Niakuk	0.0	60.2	n.a.
W. Sak / Beaufort	636.9	403.0	(36.7%)
Total	4,066.1	6,858.0	68.7%

* Milne Pt. 1992 estimate includes Schrader Bluffs production.

Source: Dept. of Natural Resources, "Historical and Projected Oil and Gas Consumption," January 1985 and April 1992 (tables 1 and 6, above).

The data presented here point out the importance of Prudhoe and Kuparuk, which account for the preponderance of the growth in future production forecasts. The data also point to a question of crucial importance to the future of the fields already under development. The incremental gain in total production between 1991 and 1992 was smaller than the gains of the three previous years. In 1989 the Congressional Office of Technology Assessment wrote that future increases in production from existing fields were liable to be relatively small because the industry had already ascended the Arctic learning curve.[6] The increases in forecasted production since that time have proven OTA was at the least several

[6] Oil Production in the Arctic National Wildlife Refuge: The Technology and the Alaskan Oil Context (op. cit.), pp. 12, 14.

years early in its conclusion. Is the relatively modest increase in the 1992 forecast totals an indication that soon technological gains will no longer offset future production declines, or will North Slope improved production techniques continue to defy the pundits and augment production?[7]

Standard & Poor's July revision of Prudhoe Bay's production prospects is the most recent indication from informed economic analysts that the OTA's bleak assessment has not yet come to pass. In upgrading the state's bond rating from "AA-" to "AA" (removing the "minus"), the credit rating agency cited three factors: state financial reserves, low and declining debt burden and "[c]ontinued extension of the north slope oil production curve as enhanced recovery techniques prolong the life of producing fields." According to Standard & Poor's, Prudhoe Bay was originally estimated to contain 9.6 billion barrels of oil but shipments to date have totalled nine billion barels, with another 6.2 billion estimated to remain. Standard & Poors reported Prudhoe shutdown date has been moved back ten years since its 1988 review, to 2016. The basis for its estimates was not given.[8] Standard & Poor's estimates for Prudhoe are considerably higher than those of the state.[9]

Department of Revenue Senior Economist Chuck Logsdon offers little guidance about the shutdown of the North Slope. Once a field begins producing, his department's model simply lets the field produce as long as barrels remain in the ground that can be shipped to the Lower 48 for less than $20.00 per barrel. When transportation hits that price, he figures, alternatives to North Slope oil will be found. Logsdon is not claiming that North Slope fields will produce all the barrels in the distant years his forecast shows. "You never know if that's how it's really going to turn out because there's a heck of a lot of things that can happen, and we've seen it happen," he once told an interviewer. "It's virtually impossible to forecast what's going on next year, and the farther you go out in time the greater your uncertainty."[10]

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[7] The question is similar to the conundrum that faces prospective buyers of computers, who have watched computers get better and prices drop year after year as technology continues to improve, seemingly without end. Can this trend continue? The answer depends on your understanding both the technology and the economics that apply to the question.

[8] "State Review: Alaska," Standard & Poor's Creditweek — Municipal. Sept. 14, 1992, p. 1.

[9] Alaska Department of Natural Resources, Historical and Projected Oil & Gas Consumption. April 1992, pp. 4-5 (Table 2.1: Production Forecast and Available Royalty Oil) and pp. 10-13, (Table 3: Historical Oil Production).

[10] Alyson Pytte, "High Stakes Forecaster" Anchorage Daily News. Nov. 25, 1991 (interview), p. C-6.

It is widely recognized that the single most important factor affecting development decisions is the prospective producer's assumptions about future price of oil.[11] Nevertheless, increases in actual and forecasted North Slope production since 1985 have been logged in the face of forecasted prices significantly lower than those anticipated in 1985.[12] Is it possible that, contrary to conventional wisdom, price is not the most significant determining variable in production scenarios? Or is it that the North Slope induces inexplicably irrational behavior? A third possibility comes to mind: while price is in fact the most significant variable in the future of North Slope production, those operations may be so profitable that even today's relatively low prices provide ample profits to stimulate future production. We will return to price considerations in Chapter III.

B. West Sak: The Enigma Near Prudhoe Bay

Meanwhile, a second major area of concern emerges from the data presented above: the future of the West Sak field, a reservoir that contains an estimated 20 to 25 billion barrels of heavy oil in place and sits directly above the Kuparuk and Milne Point fields already in production.[13] While West Sak nearly equals Prudhoe Bay in volume, industry observers have tended to write off the possibility of Prudhoe-scale production from West Sak due to the sandy content and relatively high viscosity of West Sak oil.[14] Since 1990 both the Department of Revenue and the Department of Natural Resources have slashed forecasted production from West Sak.[15] Nevertheless, since July 1991 at Milne Point

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[11] U.S. Department of Energy in cooperation with the State of Alaska, Alaska Oil and Gas: Energy Wealth or Vanishing Opportunity? (prepared by EG&G Idaho, Inc. under Dept. of Energy Contract # DE-AC07-761-D01570, January 1991), pp. 3-52 through 3-56.

[12] For example, the Department of Revenue's June 1985 forecast price for ANS on the West Coast was nearly $50 per barrel in 1992 dollars — nearly twice the department's Spring 1992 mid-case West Coast forecast price of $26.46. (1985 ANS West Coast price for 2000 from Alaska Department of Revenue, Petroleum Production Revenue Forecast, June 1985, p. 10; 1992 ANS West Coast mid-case forecast price for 2000 from Alaska Department of Revenue, Spring 1992 Revenue Sources Book, p. 17.)

[13] In 1989 ARCO estimated 13 billion barrels in place with another 7 billion barrels listed as "potential" ("Kuparuk River Unit, West Sak Overview, AOGCC Presentation," August 21, 1989). A technical article published by he Society of Petroleum Engineers in 1988 estimated 25 billion barels of heavy oil of 10.5-22.5 degrees API gravity (M.N. Panda, M. Zhang, D.O. Ogbe, V.A. Kamath and G.D. Sharma, "Reservoir Description of West Sak Sands Using Well Logs" [Society of Petroleum Engineers Bulletin No. SPE 18759, 1988], p. 1).

[14] For a discussion of current West Sak issues see Allana Sullivan, "One Oil Field Environmentalists Want," Wall Street Journal, December 31, 1991, p. C-1.

[15] The Alaska Department of Natural Resources cut its West Sak production forecast in half in 1991 to bring its forecast into line with the Department of Revenue's economic model (see Tables 4 and 5, above). In 1992 the Department of Revenue struck West Sak production entirely from its production forecast.

Conoco has been producing approximately 3,000 barrels of oil per day from its portion of the West Sak reservoir.[16] Conoco's West Sak production is from the Schrader Bluffs formation, which lies directly above its Milne Point reservoir.

It is generally agreed that some form of enhanced recovery will be required to produce West Sak at rates sufficient to make recovery economically feasible. ARCO experimented on a pilot project for several years and determined that waterflooding is effective; laboratory work indicates that approximately 20 percent recovery rates can be achieved using hydrocarbon miscible injectant with a water-alternating-gas recovery process.[17] Conoco has begun to waterflood Schrader Bluffs to augment production but has not yet been determined whether enhanced recovery techniques will boost production sufficiently to make Schrader Bluffs cost-effective.[18] Per-well productivity gives a clear measure of the difficulties in producing West Sak. Conoco's wells are in the 300 barrel per day range, compared with 1,000 to 3,000 barrels per day from Prudhoe Bay and Kuparuk wells.[19] There is another complication: conditions vary across the densely faulted West Sak field. Development will therefore require a variety of recovery techniques, making West Sak's potential more difficult to assess.[20] Nevertheless, Dr. G.D. Sharma, head of the University of Alaska's petroleum development laboratory in Fairbanks, believes a 25 percent recovery rate is possible, amounting to more than six billion barrels.[21]

Officials of ARCO, the major holder and operator of the West Sak field, believe the company will be able to produce a smaller but still significant fraction of its holdings at West Sak by making use of Kuparuk production facilities already in place. A similar synergy has been identified as critical to the economic viability of Conoco's West Sak production. In December 1991, ARCO offered the Wall Street Journal two versions of the

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[16] Alaska Department of Revenue, "Monthly Marketing Summary," July 1991 to date.

[17] "Kuparuk River Unit, West Sak Overview" (presentations to Alaska Oil & Gas Conservation Commission, August 21, 1989 and Department of Natural Resources, August 23, 1989. See also: Patti Epler, "ARCO foresees West Sak Production: Field expected to produce up to 200,000 barrels daily by mid-1990's," Anchorage Daily News, Aug. 9, 1988.

[18] Alan Hastings, Director Of External Affairs for Conoco's Alaska operations, personal communication, September 4, 1992.

[19] Kathy Shirley, "'Finding' Isn't the Same as 'Getting': West Sak Stingy With Treasures," AAPG Explorer, June 1992, p. 38.

[20] Alaska Oil & Gas Conservation Commission, "Conservation Order No. 255 [for] Kuparuk River Field, Milne Point Unit, Schrader Bluiff Oil Pool," July 2, 1990, p. 2; Michael T. Lu, "A Simplified Approach to Steamflood Performance and Economic Feasibility Forecasting Calculations: Applications to the West Sak Reservoir" (University of Alaska, Fairbanks; unpublished Master's thesis, 1989), p. 192.

[21] Sullivan, op. cit.

relationship between West Sak production and the utilization of facilities already in place to gathering, process and forward the oil to TAPS:[22]

> ARCO officials say they have examined Conoco's technique but claim it's an uneconomical method for them — its piece of West Sak is closer to the permafrost and therefore more viscous, they say. They claim Conoco can hold down its cost by moving the oil, once it's pumped to the surface, through facilities it is already using for another field [Milne Point] where there is additional capacity. ARCO also says that the strata that contains its piece of West Sak oil overlies its prolific Kuparak [sic.] oil field where there is no extra capacity. And as Kurparak production declines, West Sak will hopefully be phased in. ARCO also points out the daily flow rate at West Sak won't replace Prudhoe or Kuparak. [Emphasis added.]

A slightly different version of the story in the West Coast edition of the newspaper the same day said:[23]

> "The strata that contains its piece of West Sak oil overlies its prolific Kuparak oil field. And ARCO doesn't want to use any of those drill sites to move West Sak oil until Kuparuk is drained dry sometime in the next century. [Emphasis added.]

In June 1992, the AAPG Explorer reported that ARCO estimates that 500 million to one billion barrels of oil are recoverable from West Sak:[24]

> "Daily production from the field will probably peak at 100,000 to 150,000 barrels a day," said James A. Middleton, executive vice president of ARCO.
>
> "While these reserves are important to Alaska and certainly to ARCO, they obviously are nothing like the 1.3 million barrels per day currently produced at Prudhoe or, for that matter, what we might have expected out of the Arctic National Wildlife Refuge."
>
> . . . . The West Sak Field does have one definite advantage — the extensive infrastructure of the Kuparak [sic] and Milne Point fields that can be used for developing the shallow field.
>
> ARCO plans to co-mingle production from Kuparuk and West Sak through the same gathering centers and pipelines, Middleton said. "As Kuparuk declines, West Sak will increase."
>
> [Conoco's Al] Hastings said the same is true at Milne Point.

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[22] Dow-Jones wire service, December 31, 1991.

The same synergy has been noted at Lisburne and Pt. McIntyre, where the existence of extra capacity in Lisburne's processing facilities contributes to Pt. McIntyre's economic viability by saving $150 million (Alaska Oil and gas: Energy Wealth or Vanishing Opportunity?, pp. 3-14-15).

[23] Sullivan, op. cit. According to environmental attorney Randall Weiner, former Executive Director of Trustees for Alaska, the Wall Street Journal carried different versions in different editions because ARCO representatives changed their statement on this key point on the date of publication.

[24] "'Finding' Isn't the Same as 'Getting'" (op. cit.), pp. 38-39.

> "It is so much cheaper to develop this shallow zone with an existing infrastructure," he said. "Frankly, if we had to build new facilities this zone would likely not be economic at all."

While production at the level ARCO personnel envision will not replace the super-giant Prudhoe Bay, production of 150,000 barrels per day would rank West Sak with the largest fields currently operating in the Lower 48.[25] More important, from Alaska's standpoint, is this: by sharing TAPS pipeline costs with other fields, West Sak production would reduce the TAPS shipping charge per barrel and therefore might extend production from other fields.

But don't start counting West Sak chickens just yet. Despite industry indications that a portion of West Sak's reserves will be produced, the Department of Revenue removed West Sak production altogether from its Spring 1992 revenue forecast. According to the DOR Spring 1991 forecast, at prices ranging between $20 and $30 per barrel during the first decade of the next century West Sak production would rise to 166,000 barrels per day. But one year later, the department 's forecast showed no production at all from West Sak, even at high-scenario forecast prices from $30 to $58 dollars per barrel between 2000 and 2010.[26] Department of Revenue Chief Economist Logsdon said West Sak dropped out — perhaps temporarily — because forecast economic inputs were revised. He identified three major factors: (1) A higher target investment rate or hurdle rate of return was used in the Spring 1992 forecast model.[27] Under these tougher investment criteria, West Sak did not generate sufficient profit to warrant development. West Sak bombed out even though the department kept its facilities cost assumptions low, Logsdon said. (2) Logsdon said his unit is pessimistic about West Sak for many reasons, including Conoco's reported problems with sand and relatively low per-

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[25] In 1989, the two largest fields in the Lower 48 each produced about 160,000 barrels per day (Oil & Gas Journal, Jan. 30, 1989, pp. 69-70).

[26] Alaska Department of Revenue, Spring 1991 Revenue Sources Book, pp. 35, 46-48; Spring 1992 Revenue Sources Book, pp. 34, 46-48.

In the Spring of 1991, the Dept. of Revenue's model forecasted West Sak producing 86,000 barrels per day at a low scenario price of $20.63 in the year 2000, with production rising to 165,000 barrels per day in 2005. In the spring 1992 forecast, the low-case price was, coincidentally, $20.63; but that forecast contained no West Sak production. In the Spring 1991 mid-case forecast, a price of $29.46 in 2000 resulted in production of 92,000 barrels per day from West Sak; in the Spring of 1992, a price of $30.80 in the high scenario resulted in no production from West Sak.

[27] According to Logsdon, in late 1991 the hurdle rate of return for West Sak was raised from 8% to 10% to bring the state's economic model more into line with the 12-1/2% figure used by the International Tax Comparison Study Group one year earlier. Since that group reported in April 1990, it is not clear why the Department of Revenue waited until late 1991 to reflect a higher hurdle rate of return for West Sak. Moreover, some industry sources believe that with the infrastructure for production already in place, a much lower hurdle rate of return is appropriate.

well production. (3) He also indicated that the department's production model does not include profits from TAPS in considering whether a prospective field should be added to the forecast. Since TAPS contains a healthy profit margin for its owners and ARCO is a major TAPS owner, the exclusion of profits from TAPS appears to penalize West Sak production unrealistically. Additionally, the Department of Revenue's scenario also fails to recognize that West Sak production would have a beneficial effect on all fields by spreading TAPS costs among a larger number of barrels.

In view of the questions and the apparent contradictions in information surrounding the massive amounts of West Sak oil, closer consideration of West Sak production economics is warranted. We will return to the economics of West Sak production after we examine the mechanics of North Slope accounting and estimate profits in the next chapter.

C. Information Regarding Production Decisions: The ELF Debate Revisited

Is Alaska's long, slow walk toward the evening of the petroleum production about to turn into a pell-mell dash, or will the twilight of North Slope operations continue to recede into the future? Will West Sak go into production, as ARCO comments to the press indicate, or will the Department of Revenue's more pessimistic view come to pass? As indicated above, at their root, these questions are economic. Both the economic model used to calculate returns and the information that is put into those models can aprove crucial to conclusions about the feasibility of future development. Unfortunately, such information seldom reaches the public. Major North Slope producers preferring to deal with such issues in terms of over-simplified rhetoric rather than substantive economic data.[28] And although these matters are crucial to state revenues, in this atmosphere of closely held information and superficial rhetoric it is not clear that responsible state officials have sufficient information to evaluate industry production decisions.[29]

Skepticism about those data the major North Slope producers are willing to share is re-enforced by comparing the constantly increasing production totals presented above to statements by North Slope officials during their efforts to thwart correction of a tax

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[28] See notes 30 and 55, below.

[29] The Alaska Department of Revenue's Division of Oil and Gas Audit makes no claim to reservoir geology or engineering expertise. For this reason, the state's forecasters depend on information from the producers. The Department of Natural Resources' division of of Oil and Gas and Alaska Oil and Gas Conservation Commission have more technical expertise on reservoir geology on staff, but these agencies are also highly dependent on the producers for their information.

provision known as the economic limit factor (ELF) in 1989. At that time, representatives of the major North Slope producers barraged legislators and the public with statements that "several hundred million barrels of oil could be left in the ground at Prudhoe if the ELF were modified."[30] State administration proponents of the ELF modification responded that because the proposed ELF would increase the tax break to truly marginal fields, the proposed tax correction was not liable to reduce future production. Shortly after the Legislature closed the loophole, ARCO announced cancellation of its West Sak pilot program and claimed the tax change could prohibit development of its Pt. McIntyre discovery. Meanwhile, BP stopped its Hurl State development at Prudhoe Bay. At the time, some industry observers dismissed the industry actions as political posturing.[31] Whether or not that is the case, ARCO is in fact developing Pt. McIntyre at this time and BP subsequently went ahead with the Hurl State project. While West Sak remains in limbo, the assertion that the ELF revision had a significant impact on West Sak stretches credulity. As indicated above, technological factors and the price of oil are in fact the major factors affecting West Sak development. Moreover, ARCO's subsequent attempts to secure a tax advantage at Kuparuk in exchange for continuing West Sak development

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[30] ARCO Alaska, "Where Do You Stand on ELF?" (insert in major Alaska newspapers, Feb. 17, 1989).

In response to a 1989 questionnaire from the House Resources Committee on the long-term effects on Prudhoe and Kuparuk, ARCO responded: "At Prudhoe and Kuparuk, [the proposed ELF revisions in] HB-118 will only make the next barrel of oil more expensive to produce and therefore it will be less likely to ever be produced. That means there will be more oil left in the ground. . . . " ("Response to House Resources Committee ELF Questions — HB 118" from Hugh R. Motley, then-Vice President and General Tax Officer, ARCO Alaska, to Reps. Curt Menard and Cliff Davidson, February 22, 1989, question 24; emphasis added.)

BP tax attorney Tom Williams made the same point, stating that "[t]he proposed changes are also ill-advised because the state stands to gain more from additional investment and development of Prudhoe Bay and Kuparuk than it will from any of the marginal fields [that might benefit from lower taxes due to a corrected ELF] . . . . But the new work in the [Prudhoe] field to add a hundred million barrels here, add a hundred million barrels there. . . . can become too expensive. . . . [c]hanges in the ELF changes the economic climate in which the decision to invest or not to invest is made. There's less money available, more is being paid in taxes . . ." (House Resources Committee transcript, Feb. 11, 1989, pp. 6-7, 13, 15; emphasis added.)

Throughout the spring of 1989, the industry's battle against the ELF continued. On April 20, an Exxon tax lawyer testified that the ELF revision's "increased cost of production would adversely affect investment in future Prudhoe Bay development projects . . . necessary to optimize production . . . After current development is completed, it is estimated that 10 billion barrels of oil will be left in formation at Prudhoe Bay. [The proposed ELF revisions in] H.B. 118 would increase the cost of producing those barrels and thereby reduce the incentive to undertake those projects." (Gerald Sereno, testimony before the Senate Special Oil and Gas Committee, April 20, 1989, pp. 1, 3; emphasis added.)

[31] According to a report by the investment firm First Boston, ARCO's reduced drilling activity was "at least partially the result of political posturing . . . to gain a reversal or modification in the Economic Limit Factor." (First Boston Equity Research, "Atlantic Richfield Company," Nov. 21, 1989, p. 1). For a summary of the ELF-related counterclaims, see Bill White, "The flip sides of ELF," Anchorage Daily News, August 6, 1989, p. C-1.

indicates that ARCO regards development-related discussions as a province for hard-ball negotiations rather than sharing of engineering and economic data for mutual benefit.[32]

The sizeable increases in forecasted future production that have been logged since the closing of the ELF loophole in 1989 are summarized in Table 9. It is evident from this table that correction of the tax loophole has not led to reduced North Slope production, as industry opponents of the tax measure warned. Estimated future production has grown significantly in each of the annual state forecasts issued since the loophole was closed in 1989. The 1992 estimate for the 1992-2010 period of 6.86 billion barrels exceeds by 39.2% the 4.93 billion barrels forecasted for that period when the ELF correction was being debated in 1989. At the current North Slope production rate of approximately 1.7 million barrels per day, the 1.93 billion barrels of increased forecasted production over the next 18 years that have been added to North Slope production estimates since the ELF was revised represent three additional years of North Slope production ([1.7 million barrels per day] x 365 days = 620.5 million barrels; [620.5 million barrels per year] x 3 years = 1.875 billion barrels). As Table 9 makes clear, the preponderance of that increased production is at Prudhoe Bay and Kuparuk — in direct contradiction of the dire warnings by oil industry officials in 1989 that developments at those fields would be shut down and more oil left in the ground if the ELF loophole were corrected.[33]

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[32] BP announced Hurl State development again in June 1990 (Oil & Gas Journal, June 18, 1990, p. 18); state forecasts anticipate production to begin at Pt. McIntyre in 1993. For ARCO's linking of West Sak development to a tax break at Kuparuk, see the Anchorage Daily News, February 21, 1990, p. A-1. These events were discussed in An Overview of North Slope Production Prospects, 1990-2010, pp. 26, 33.

BP recently noted in its international magazine that "The agreement [with other companies to development Pt. McIntyre] paves the way for economic development of other, smaller accumulations nearby, because these deposits and Point McIntyre could be tied into production facilities now serving the neighboring Lisburne field." (BP Shield, Summer 1992,p. 24.) Asked to identify these fields, BP declined.

[33] As noted above, changes in forecast prices do not appear to explain the increases in production forecasts for the 1992-2010 period between 1989 and 1992. The Department of Revenue's long-range forecast prices for 1995 and 2000 were slightly higher in 1989 than in 1992 (Alaska Dept. of Revenue, Spring 1989 Petroleum Production Revenue Forecast, p. 6 and Spring 1992 Revenue Sources Book, p. 17).

Table 9.

1989 v. 1992 State North Slope Production Forecasts by Field

	1989 Forecast	1992 Forecast	1992 v. 1989 Increase (Decrease)	
Field:	/= = = = = = = *million bbls., 1992-2010* = = = = = = = =/			*% Change*
Prudhoe Bay	3,189.7	4,615.8	1,426.1	44.7%
Kuparuk	554.8	1,033.0	478.2	86.2%
Lisburne	124.8	86.1	(38.7)	(31.1%)
Pt. McIntyre *	?	305.9	?	?
Endicott	209.9	257.7	47.8	22.8%
Milne Pt.	14.2	96.4 **	82.2	578.9%
Niakuk *	0.0	60.2	n.a.	n.a.
W. Sak / Other *	834.8	403.0	(431.8)	(51.7%)
Total	4,928.2	6,858.0	1,929.8	39.2%

* "Other" includes some Niakuk and Pt. McIntyre production
** Milne Pt. 1992 estimate includes Schrader Bluffs production.

Source: Dept. of Natural Resources, "Historical and Projected Oil and Gas Consumption," January 1989 and April 1992 (Tables 3 and 6, above).

In sum, the major North Slope producers argued that closing the ELF loophole would lead to reduced production by absorbing more of the capital that otherwise would be available for further development.[34] The data presented here indicate that the net increase in state tax collections caused by correcting the ELF did not have that effect. Why not? As in the case of the puzzle posed earlier — increasing future production despite lower prices — the anwer to this mystery may be found by examining the unique economics of North Slope operations. We turn now to that task.

[34] It is possible that if the State had not opted to close the ELF loophole, production forecasts might have increased even more than the 39.2% increase logged in the last three years. By ignoring the fact that forecasted North Slope production was increasing, the industry spares the reader the necessity of considering this line of conjectural argument. The question before us in this section is whether the representations of the major North Slope producers during the ELF debate give cause for confidence in information presented by the industry when its economic interests are involved.

III. Analysis of Current and Future North Slope Per-Barrel Profits

A. Introduction

In this chapter we will attempt to delineate the profitability of North Slope crude oil by field in current price environments. We will also look at future scenarios. Our aim is to ballpark returns from the North Slope to the three parties who share the economic rent from these operations — the owner companies, the state and the federal government. The information we are seeking is not readily available from published sources or public records; profitability is not something the industry likes to discuss. Company annual reports are obscure, and even when they provide information on North Slope operations, one needs a magnifying glass to read the fine print and a detective with a degree in accounting to explain what the numbers include and what they leave out. The major North Slope operators were contacted but declined to provide cost information for this report.[35] In view of the importance of North Slope operations to the owner companies and the state, some may find the paucity of data in this area remarkable. We begin, therefore, with a review of available public information on North Slope profitability.

B. Sources

1. Newspaper reports

"Oil firms' profits up: Arco, Unocal report 3rd-quarter earnings," the Anchorage Daily News headlined recently.[36] What does the story tell us?

==> Arco's results outpaced the expectations of some industry analysts;

==> Arco earned $332 million in the third quarter, compared with a loss of $156 million for the same quarter the previous year. However, the previous year loss included a $340 million one-time cost associated with restructuring and property sales.

==> Arco is the major gasoline marketer in the Los Angeles region and Arco (Alaska) Inc. is one of this state's top oil producers and a major owner in Prudhoe Bay.

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[35] When the intention to build a model that would show prices, costs and the division of the economic rents from North Slope production was described to the ARCO tax specialist to whom the query had been referred, he responded that ARCO had no interest in providing that information. BP also declined to provide information (see note 54, below).

[36] Anchorage Daily News, October 27, 1992, p. C-1 (article from the Los Angeles Daily News).

This article, which is typical of newspaper quarterly earnings reports,[37] is not very useful to our quest. Since ARCO also has earnings from Lower-48 production, overseas production and Lower-48 marketing — not to mention coal, petrochemical and other operations — we will have to look beyond press coverage of industry's quarterly profit and loss reports for hard data on the economics of North Slope operations.

Earlier this year, The Anchorage Times tackled North Slope crude oil pricing in a lengthy business section feature. The article came up with a handy formula for estimating the State's per-barrel share of a barrel of North Slope crude: "just knock about $5 off the per-barrel market price, and the state's royalty and severance tax share is about a quarter of what is left."[38] The Times article was a commendable effort to shed light on the complex mechanics of oil valuation. For example, it explained that the fields on the North Slope produce oil of different specific gravity and consequently have different value, and that the fields outside Prudhoe have additional pipeline tariffs to reach the TAPS line at Pump Station #1. In an effort to put all these figures into context (the article appeared on the eve of the anticipated court opening of the state's royalty case agains Exxon for under-valuing North Slope crude oil; the case was settled on the courthouse steps and the trial never took place), the Times divvied up an $18 barrel of oil for its readers in the following manner:

Market price	$18.00
minus tanker cost	($1.00)
minus pipeline cost	($3.60)
minus Alaska's 1/8th royalty share	(1.68)
Oil industry's share plus 1/8th severance tax	$11.73

Unfortunately, the analysis stopped there. The North Slope is quite profitable, but the industry's $10.26 share — 7/8 of the remaining $11.73 — does not represent profit. From that $10.26 must come exploration and development costs, property tax, state and federal income taxes, exploration costs and development costs. By the time these costs are reckoned, the industry's profit is roughly half of the share indicated in the Times analysis, as we shall see below. When you're pumping 1.7 million barrels of oil per day, the difference between $5 per barrel and $10 per barrel adds up quickly.

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[37] See, for example, "BP profits jump 67 percent," Anchorage Daily News, Nov. 6, 1992, p. C-1.

[38] Bert Tarrant, "The value of CRUDE: Every Alaskan has a stake in price of North Slolpe oil," Anchorage Times, April 12, 1992, pp. D-1, D-4.

The Times failed to note that the tariff or shipping charge for pipelining the oil includes a profit margin for the pipeline owners in excess of $1.00 per barrel.[39] Since the major producers own TAPS in proportions roughly similar to their share of production, this is a profit element that needs to be reckoned with.

Clearly, we will have to look beyond press reports for a more refined analysis of North Slope profitability.

2. Trade Sources (Investment Analyses and Industry Publications)

From time to time in recent years, trade publications have examined North Slope profitability. In 1987 and 1988, for example, industy reports stressed the profitability of Prudhoe Bay and Kuparuk, even at low prices.[40] Of late there have been few North Slope profitability write-ups. However, two 1991 reports are noteworthy. In September 1991 the First Boston Company — a major investment banking firm — examined the U.S. operations of six major international oil companies to ascertain why the industry was heading overseas. Although the North Slope was not the focus of this report, First Boston did give Alaska special treatment. The data assembled by First Boston indicated that recent upstream returns on domestic operations had diminished radically, in marked contrast to overseas operations. First Boston concluded, "The domestic exploration and production business has not even come close to returning the cost of capital for the major oil companies over the last five years." The only international major that found U.S. operations more profitable than overseas, wrote First Boston, was BP:

> ". . .[T]he trend is unmistakable. Except for British Petroleum, every company in this universe [of major international oil companies operating in the U.S.] generated substantially higher levels of profitability per dollar of net property, plant and equipment outside the United States than within this country."

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39 A 1989 accountancy study of North Slope profitability estimated that income from pipeline tariffs generated 30 percent of all North Slope profits for the North Slope producers (Edward B. Deakin, Oil Industry Profitability in Alaska, 1969 through 1987 [Alaska Department of Revenue, March 15, 1989], pp. 1-11). Except for Milne Point, whose major producer (Conoco) has no ownership in TAPS, the pipelines that bring the oil from the field to Valdez are universally owned by the producing companies.

40 "Atlantic Richfield Company — Restructured and Resourceful," Salomon Brothers Inc. (stock research, domestic oils), April 28, 1987, p. 10; "Atlantic Richfield Company — The News Gets Better," Sept. 11, 1987, p. 7; Alaskan Oil Profits Staying Buoyant Amid Volatile Prices," Petroleum Intelligence Weekly, Feb. 5, 1988, pp. 1-2; "Alaska's Oil Promise Remains Strong," International Petroleum Finance, Mar. 13, 1988, p. 8.

According to First Boston, BP's U.S. returns outpaced its foreign investments by 75%. In contrast, the U.S. investments of the other five major oil companies under-earned their foreign investments by significant margins. According to First Boston, the reason for BP's success in the U.S. is its North Slope operations. "Only those companies that produce oil from Alaska's Prudhoe Bay field," First Boston reported, "have been able to show above-average returns in the U.S. upstream sector."[41]

To explain the flight of capital and superior foreign returns, First Boston continued with a more detailed analysis of domestic production. First Boston reported that upstream domestic return on investment was "abysmal," with two exceptions: "Exxon has led the pack in the international oil universe with a stellar 6.2% return on investment," First Boston wryly observed. Nobody else in the international group earned better than a 4% return on U.S. upsteam operations over the five-year period.[42]

The second exception was ARCO, which First Boston added to the domestic analysis "to highlight the fact that Alaska is the only part of the country in which producing operations have provided attractive returns over time." Wrote First Boston:

> ARCO's Alaskan properties have generated an 11.4% return on investment over the last five years — clearly a multiple of what the lower 48 producers enjoyed. If one were to look at only the last four years in this time series, deleting the disastrous 1986 results which coincided with the collapse in world oil prices, ARCO's average ROI from Alaskan operations would have been 13.5%.

First Boston estimated that over the five years from 1986 through 1990 ARCO averaged a per-barrel profit from Alaska production of $2.70. The contrast between ARCO's handsome domestic profits and the paltry returns of other companies was so sharp that First Boston isolated the ARCO data from other companies in special boxes.[43]

The First Boston per-barrel data suffers from two major shortcomings that result in significant understatement of North Slope profits. The first is that the First Boston data

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[41] First Boston Equity Research, "Assessing the Domestic Operations of International Oil Companies: Explaining the Exodus of Capital," September 5, 1991, pp. 2, 4, 10.

[42] "Assessing the Domestic Operations of International Oil Companies: Explaining the Exodus of Capital," p. 5.

[43] "Assessing the Domestic Operations of International Oil Companies: Explaining the Exodus of Capital," pp. 5, 12-13. (First Boston had to drop BP from this portion of its analysis because BP's financial data was not reported in such a way that its upstream operations could be compared to domestic companies.)

excludes pipeline profits. ARCO officials doubtless remember to take their Alaska pipeline profits to the bank.

The second problem is that First Boston's 1991 estimates relied on data from company annual financial reports. Some analysts do not consider annual report data a reliable indicator of company profitability. In any given year annual report data can be very misleading due to the practice of shifting gains and losses to other years to reduce taxes, as ARCO's did in the third quarter of 1991.[44] The purpose of such creative but legitimate bookkeeping shifts is to reduce income for tax purposes; the over-all effect may be to reduce the apparent bottom-line profit.

One need not regard First Boston's 1991 profit estimates as definitive to accept the investment company's conclusion that the profitability of their Alaska operations set ARCO and BP apart from other oil companies who find greater profits overseas.

The second recent trade analysis of North Slope profits is a June of 1991 report on ARCO by the oil stock research department at Salomon Brothers. While Salomon's updated review of ARCO's profitability is more detailed than First Boston's, the Salomon Brothers model also excludes key elements that are necessary to a complete analysis of per-barrel profitability. Because Salomon's interest is limited to trends in ARCO's profitability, data needed for a complete reckoning of North Slope profits are not provided. For starters, Salomon model profit figures are reckoned on ARCO's company-owned barrels. This means royalty barrels and royalty payments are excluded from this analysis. Moreover, the costs and profits of other producers — which may be different from ARCO's — are not considered. Additionally, Salomon Brothers — like the Anchorage Times — makes no provision for property tax or state and federal income tax payments. Finally, Salomon, like the other analyses we have seen, treats pipeline tariffs as a cost of oil production. Despite these shortcomings, the Salomon analysis provides a basis for trends in North Slope production costs and profitability through time. We will return to Salomon's production cost estimates later in this chapter.

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[44] See: "Oil firms' profits up," op. cit. See also: Robert Brandon, Edwin Rothschild and Robert McIntyre, Oil Company Profits: What They Mean and Where They Go (Washington, D.C.: Citizen/Labor Energy Coalition, Energy Action Education Foundation and Tax Reform Research Group, Nov. 14, 1979), passim. In the past First Boston has done more detailed analysis of North Slope production economics.

3. State Data

The Alaska Department of Revenue analyzes field profitability to generate its semi-annal revenue forecast. However, the only data published from this effort are the estimated production by field, the forecasted price and transportation charges and the total revenues the state anticipates in production, property, conservation and income taxes, and in royalties. The department also maintains a smaller model, known as "Shortcut." This model, which can be run on a personal computer, revises the forecast monthly as revenues are collected and shows how state revenues from oil production will vary with the price of oil. However, Shortcut provides no information on property tax, state income tax, federal income tax or corporate profits. And, once again, Shortcut provides no data on pipeline profitability. Nevertheless, if you're into the field costs that are deducted from the wellhead for royalties or the ELF for a particular field, you'll love Shortcut.

In 1989 the Department of Revenue commissioned a pioneering study of oil industry profitability. That report, by Professor Edward B. Deakin, Price Waterhouse Centennial Professor of Accounting at the University of Texas, was published the week before the Exxon Valdez hit Bligh Reef. By culling various financial statements and Department of Revenue data, Deakin estimated North Slope production and pipelining profits after taxes between start-up in mid-1977 and the end of 1987 of $41.5 billion, or nearly $4 billion per year.[45] Deakin estimated per-barrel profits between $2.26 (1977) and $9.86 (1984).[46] Perhaps more important for this analysis, Deakin estimated the breakdown of economic rent on North Slope production and pipeline operations during the first 10-1/2 years of production as follows:[47]

State Share:	$27.6 billion	29.4%
Federal Share:	$24.6 billion	26.3%
Industry Profit:	$41.5 billion	44.3%

[45] Oil Industry Profitability in Alaska, 1969 through 1987 (op. cit.), pp. i-ii.

[46] From Oil Industry Profitability in Alaska, 1969 through 1987, Appendix E. Deakin divided estimated after-tax income for working interest barrels, excluding royalty barrels. This report, on the other hand, will delineate economic rent in terms of total barrels produced, including the royalty shares. For consistency with the methodology used in this report, Deakin's numbers have been adjusted to spread industry profits across total production, including royalty barrels. (Deakin's figures were $2.58 for 1977 and $11.27 for 1984.)

[47] From Oil Industry Profitability in Alaska, 1969 through 1987, pp. 3, 5, 9.

Deakin's work, which represents the only comprehensive analysis of North Slope profits this writer has been able to locate, has not been updated.

Several other state agencies keep track of reported costs and income that relate to the piece(s) of North Slope operations for which that agency is responsible. However, no other agency makes North Slope economic information public in any manner that can be called comprehensive.

C. Setting Up a Per-Barrel Profitability Model

Having described briefly the kinds of information available on the subject of North Slope, we turn now to the task of setting up a model that answers the question: How much do the oil companies make per barrel on their North Slope operations?[48] Each period under consideration begins with a table that summarizes North Slope production economics for a barrel of oil produced during the period in question. The summary table is followed by a similar table for each of the producing fields that comprise total North Slope production. The format for every table is identical; the model contains 23 lines, numbered at the left and captioned. The value for each line is given for ANS at the Gulf Coast and the West Coast, followed by a note in the right-hand column identifying the source of the data.

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[48] To determine the attractiveness of a given project, industry planners makes use of several modes of economic analysis. At center stage would be a net present value (NPV) calculation that describes the worth of a project after taking into account the time value of money. NPV is measured by the income a project makes over and above inflation and a discount rate that represents the rate the money might earn invested elsewhere. Analysis of return on investment — how much is the project going to earn on each dollar spent? — and the timing — will the project pay for itself in one year or ten? — are also critical factors. Typically, these performance measures cannot be considered in isolation. A project requiring a large investment and a long development time must have a high rate of return to compete with projects that require less investment and pay out more quickly. (For a discussion of these approaches, see Alexander Kemp, david Rose, Peter Gaffney and H. Motamen Scobie, International Oil Tax Comparison Study, prepared for the Alaska State Legislature and the Department of Revenue, April 1990, pp 5-7, 15. Department of Revenue analysts Roger Marks and J. William Moore described the department's model in "A Model to Assess Economic Feasibility and Optimum Production Volume for North Slope Fields," in Journal of Petroleum Technology, Aug. 1987, pp. 943-954. "Economic Feasibility of Potential Fields" and "The Relationship of Production Volume to Price," in Dept. of Revenue, Petroleum Production Revenue Forecast, June 1985, pp. 42-48. Unfortunately, NPV analysis — which looks at expenditures and receipts and the value of that money at the time that it is paid out from or received by company coffers — requires a great deal of investment data that is not publicly available. Primarily for this reason, NPV modelling itself is beyond the limited resources available for this project.

A second approach is the accountancy method applied by Deakin (op. cit.). This approach uses standard accounting tools and depends on making certain informed assumptions about data contained in corporate annual reports, federal Security and Exchange Commission reports and other documents. An accountancy background is required to execute this approach.

A third approach — the one used here — is to begin with the market price per barrel and identify all costs as accurately as possible. While this approach is less sophisticated, the model's assumptions cannot feed on themselves. Additionally, the model is transparent to the reader.

We turn now to a line-by-line consideration of the model.

1. Price

a. Spot v. Contract Prices: The price used here is the average spot market price for ANS at the Gulf and West Coasts. In the early years of North Slope production the spot market price did not track the contract price at which most ANS was sold or transferred from a North Slope company's producing arm to the refining arm. In recent years, however, the spot price has become an increasingly accurate proxy for the value of ANS. One indication of its accuracy is that the state now uses the reported ANS spot price as one of its basic indices for both tax and royalty calculations.[49]

b. West v. Gulf Prices: The West Coast price is typically about $1.00 per barrel lower than the Gulf Coast price. The reason usually given for this difference is that the West Coast price is driven down by the surplus of oil on the West Coast created by the export ban on North Slope crude.[50]

c. Price Trends. After the price spike at the end of the 1970's, ANS held fairly steady in the $27 range between 1982 and 1985, when the price crashed at year-end. Rebounding from its lows near $10 in early 1986, prices began working their way back up, only to fall again in late 1988. In the last four years, ANS has averaged slightly over $17 on the West Coast, except for the six-month spike following Iraq's occupation of Kuwait in August 1990. In Graph 1, the average calendar year West Coast spot price since 1985 is charted in nominal and inflation-adjusted or real (1992) dollars. Annual average inflation-adjusted West Coast prices appear to be travelling nearly dead-level over the last six years.

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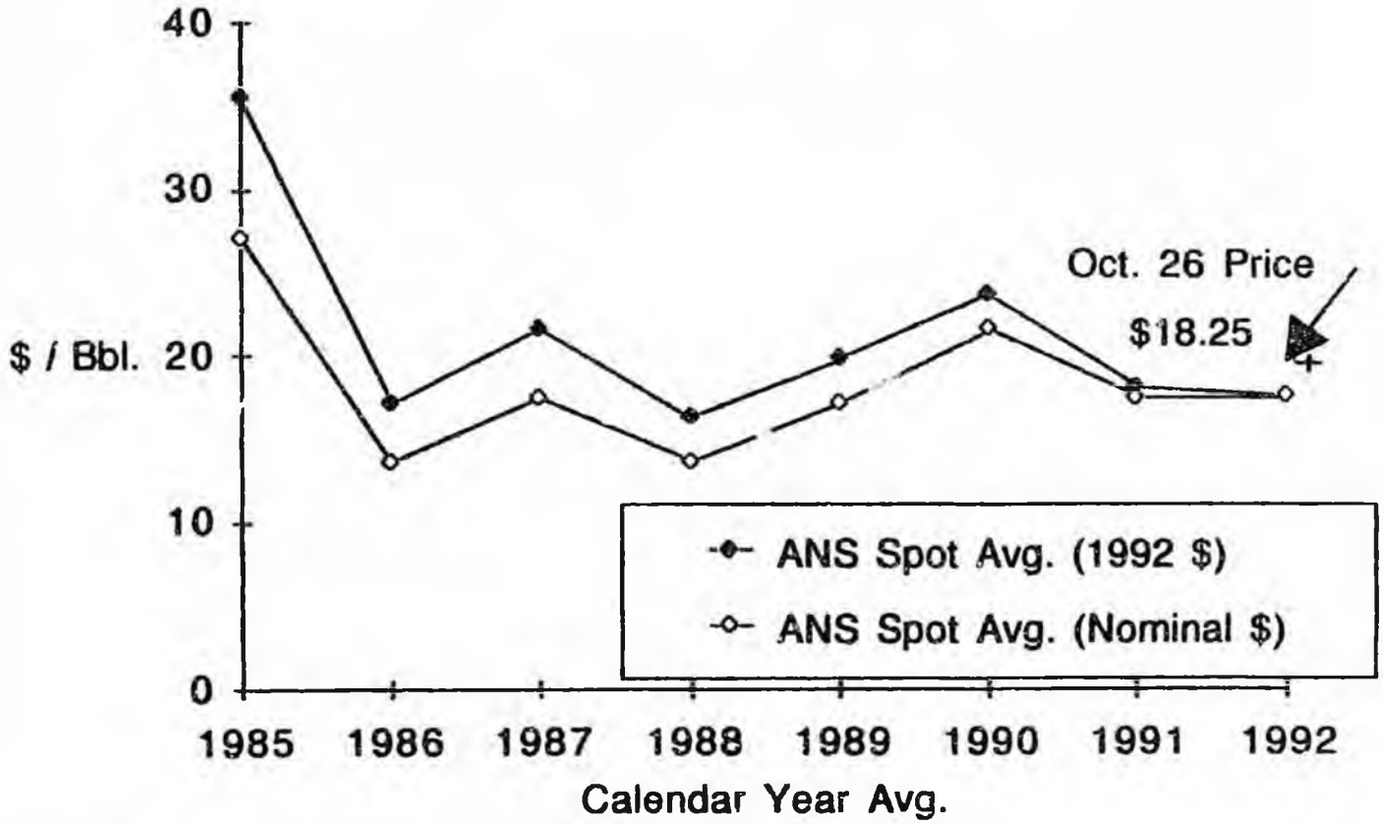
[49] For an example of a valuation formula using spot prices, see "ANS Royalty Settlement Agreement" between ARCO and the State of Alaska, Sept. 12, 1990, Par. III.A.3. Subsequent settlements with BP and Exxon use a similar formula.

[50] It has also been argued that the West Coast market has been depressed by collusion of the major producers. Despite the fact that the state's royalty and severance payments for West Coast oil are tied to the West Coast price, the state's oil litigation attorneys have shown a marked disinterest in the law suits that have alleged price-fixing in the West Coast crude oil market.

Graph 1.

ANS Weighted Avg. Spot Price
(Nominal and 1992 $)



Source: Nominal Weighted Spot Avg. from DOR
(1992 thru September)

2. Quality Adjusted Price

This adjustment is made for individual fields; no adjustment is necessary for the average ANS price. Refiners pay a premium for light-weight oils that will produce greater quantities of more valuable motor fuel-grade products; heavier grades are discounted. Prices are also adjusted for sulfur content and other impurities. This line adjusts each field's estimated market price for the quality of the oil produced in that field. Lisburne and Prudhoe Bay oil weigh in above the North Slope average; Endicott, Kuparuk and Milne Point fall below the average.

3. Production and Disposition

Production is totalled in millions of barrels by year and day in line 3(a); in line 3(b), the percentage of oil to the West Coast and Gulf Coasts is estimated by dividing the difference betwen the weighted average price and the West Coast price by the difference between the West and Gulf Coast prices.[51] In 1992, approximately four out of every five barrels goes to the West Coast — up from a 50-50 split six years earlier. The Department of Revenue forecasts that the by 1996 it will be possible to dispose of all ANS on the West Coast.

4. Feeder Pipeline Tariffs

By convention, the pipes that bring oil from the fields outside Prudhoe Bay to the head of the Trans-Alaska Pipeline System are treated as pipelines whose costs are subtracted from the market price for royalty and tax calculations and whose profits are reckoned separately from production. The components of the feeder tariff that comprise line 4 are presented in lines (a) through (g). Where they are known and available to the public, the elements of the feeder line tariffs were provided by the Department of Law. Where these data were not available, estimates were made.

Since more than 75 percent of all North Slope production — Prudhoe and Lisbune production — do not use feeder lines, the composite feeder-line tariff, when averaged across all barrels, reduces the wellhead value by an average of only $0.09 per barrel. The

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[51] The owners consider even the most basic information on marketing proprietary and only one company — BP — markets on the Gulf Coast. For this reason, the East/West breakdown must be estimated in the manner described here.

$0.00 entries at lines 4[b], 4[c] and 4[g] indicate weighted average entries of less than $0.005 (one-half cent) per barrel. However, this weighted average reduction to the composite wellhead price of the North Slope crude oil masks the importance of the feeder line tariffs to the individual fields whose oil must bear feeder line shipping costs. Three such pipelines are in operation on the North Slope: Milne Point, Kuparuk and Endicott Pipelines. Each is owned by the producers of the field the pipeline was built to serve. The Kuparuk tariff is $0.21 per barrel, while Endicott's is $0.71 and the Milne Point Pipeline carries an $0.78 tariff. Milne Point producers also pay an additional $0.21 to use the Kuparuk Pipeline to complete its shipment to TAPS.

Because the settlement of the Kuparuk Pipeline tariff dispute in 1991 did not provide a breakdown of tariff elements, that the ratio of each line to the total tariff for TAPS was applied to the Kuparuk tariff of $0.21 per barrel.

The Endicott Pipeline tariff is the subject of a dispute before the Federal Energy Regulatory Commission (FERC) between the state and the Endicott owners; for this tariff, cost elements (lines (a), (b), (f) and (g) lines are taken from the State of Alaska's cost of service estimates. The remainder is divided among lines (c), (d) and (e) using the methodology for TAPS described in the following section.

Milne Point Pipeline tariff elements were provided by the Department of Law. Because the Milne Point owners have no ownership share in the Kuparuk or TAPS pipelines that carry oil from Milne Point to Valdez, economic rents from Milne Point's share of the TAPS and Kuparuk tariffs require special treatment in this model. Because TAPS profits accrue to the TAPS owners and not to the Milne Point shippers, TAPS profits from line 11 are not included in Milne Point profits at Line 22; however, Milne Point oil's share of state and federal taxes on TAPS — paid by the Milne Point owners and transferred to the taxing authorities — is included at lines 20 and 21. Kuparuk Pipeline costs and income, like that of TAPS, accrues to the owners of Kuparuk, not to the Milne Point producers. But to reflect the Kuparuk tariff in our model, different treatment is required to distinguish between the Kuparuk feeder line tariff that Milne Point pays out and the Milne Point tariff, whose costs and profits are paid directly to the Milne Point owners. The Kuparuk tariff is therefore subtracted from the price of Milne Point oil at line 13 to produce the wellhead value; the economic rents for Milne Point oil shipped through the Kuparuk pipeline are tallied on a separate sheet (G).

The next section contains a brief discussion of the specific elements that comprise the feeder and TAPS tariffs.

5. TAPS Pipeline Tariff

The costs of building and operating the 800-mile trans-Alaska Pipeline system are covered in the TAPS tariff. Like the feeder lines, the TAPS tariff contains profit elements for its owners and is subtracted from the market price for royalty and tax calculations. The TAPS tariff on line 5 is the sum of the eight lines below it, identified as lines (a) through (h). These lines cover the following elements:

==> Line (a) totals operating costs and capital repayment.

==> State and local property taxes identified in line (b) were not isolated by the Department of Law but were included in operating costs. To estimate these tax payments to the state it was assumed that pipelines generate 30% of all state and local property taxes; this fraction was pro-rated to the specific pipeline tariffs in line (b). Line (b) totals, in turn, were subtracted from line (a).

==> Total income tax payments reported by the Department of Law were separated into state income tax on line (c) and federal income tax on line (d). The division between state and federal tax is based on an assumed federal tax of 25 percent and a state tax of 3 percent of net income.

==> Pipeline tariffs contain two profit elements, the after-tax margin (e) and recovery of deferred return (f). The latter element is identified separately in these tables because it is often overlooked in reports of pipeline profits.

==> Line (g), the fee charged for pipeline dismantling, removal and restoration (DR&R), is separated from operating charges to reflect its unique nature as an advanced collection for possible future expenditure.[52] Although the pipeline owners retain possession of the DR&R sums they have already collected, company officials tend to speak as if these funds didn't exist.[53] In fact, the DR&R requirement may be a significant factor

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52 For information on the extraordinary profitability to the TAPS owners of DR&R, see the author's Hidden Billions: The TAPS DR&R Provision (report prepared for Stan Stephens, Valdez Alaska), Aut 21, 1992.

53 For example, speaking at an international conference on energy issues in Anchorage in July 1992, Alyeska Vice President M.F.G. Williams pointed out that "there comes a time when all of those small costs (on environmental measures) become factors in future operating or investment decisions." Williams then hopped nimbly to his experience in coal mining to suggest that foreign coal producers seemed to undercut their U.S. competitors "by the amount we had to pay to the U.S. for end of mine reclamation." (M.F.G. Williams, "Economic Regulations and Development," presented at the University of Alaska Anchorage School of Business and Organization of Petroleum Exporting Countries conference, July 23, 1992, p. 2.) Mr. Williams omitted mention of the fact that TAPS owners have already amassed a small fortune for this purpose through the liberal terms of the 1985 TAPS tariff settlement, or the fact that this money is subtracted from calculation of the profits Alyeska and the North Slope producers are earning before those profits are calculated. This windfall to Mr. Williams' employers is estimated at $300 to $400 million per year over and above the marketing profits normally attributed to Alaskan oil production and pipelining. (For estimated 1992 profit to the owner companies, see Hidden Billions: The TAPS DR&R Provision, at pp. 23, 26.)

in extending North Slope production because the DR&R requirement may encourage the owners to delay shutdown of North Slope operations in order to defer payout of these funds. When it can no longer be delayed, the outlay of DR&R funds and the loss of earnings from these funds will add up to a cash drain on the owner companies of hundreds of millions of dollars per year.[54] Nevertheless, the value to the owners of delaying these expenditures is overlooked in most North Slope economic models.

==> Line (h) adjusts the tariff by field for the additional pumping costs attributed to oil with higher specific gravities (lower API numbers) than Prudhoe Bay crude oil. For example, Kuparuk oil is heavier than Prudhoe oil and therefore pays a pumpability fee of $0.29 per barrel; Lisburne's oil is lighter and therefore realizes a tariff reduction.

Lines 6 through 8

These lines subtotal the economic rents from the feeder tariffs to the state (line 6), the federal government (line 7) and the industry (line 8).

Lines 9 through 11

These lines subtotal the economic rents from the TAPS tariffs to the state (line 9), the federal government (line 10) and the industry (line 11).

Line 12

This line represents the estimated tanker costs to the Gulf or West Coast. Because reported data is deemed confidential, this report uses the industry charter rates published by the United States Freight Rate Association (USFRA). It should be noted that the tanker element contains a profit, but all profits downstream from Valdez are excluded from this analysis.

Line 13

The wellhead price is the crude oil price (line 1 or 2) minus the total transportation charge (lines 4, 5 and 12). This is the starting point for calculating royalties, state and federal taxes. It is here that the West Coast barrel, which began with a lower market price than its Gulf Coast counterpart, becomes more valuable. The reason for the higher wellhead value of West Coast crude is not hard to find: West Coast oil has a lower tanker

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[54] Hidden Billions: The TAPS DR&R Provision, pp. 32-36.

charge at line 12 than Gulf Coast oil, reflecting the shorter trip from Valdez to the West Coast.

Line 14

Line 14 is the sum of state royalty (a), severance tax (b), spill response and conservation tax (c) and state and local property tax on production (d).

(a) Royalty, paid to the state as landowner under AS 38.05, is a fixed percentage of the wellhead price less field costs, which average approximately $0.70 per barrel. The state's royalty percentage is 12.5% for Prudhoe Bay, Kuparuk and Lisburne. Endicott pays approximately 14.45%, while Milne Point's royalty is 18.35%. While the state can and does take some of its royalty and sells it directly, the majority of royalty is disposed of by the owner companies, who then pay the state. This model treats all barrels as if the owner companies dispose of the oil and make the appropriate payment to the state.

(b) The severance tax paid under AS 43.55 is a fixed percentage of all working interest or non-royalty barrels. The severance tax is 15% for Prudhoe and Kuparuk and 12.25% for the other producing fields. Severance has one major adjustment: the ELF, discussed above. The effect of the ELF will be clear when we look at the severance paid on oil from the relatively less profitable fields, such as Lisburne and Milne Point, at different prices.

(c) The spill response tax of $0.05 per barrel, enacted after the Exxon Valdez spill and the conservation tax of $0.004 per barrel apply, like the severance tax, to non-royalty barrels.

(d) State and local property taxes collected under AS 43.56 are derived by dividing the total reported tax by the number of barrels produced during the period under consideration. In this model, it is assumed that 70% of the property tax applies to production and 30% applies to pipelines (lines 4 [b] and 5 [b]).

Line 15

Line 15 is the sum of (a) lifting costs and (b) capital expenditures, which are recovered through depletion, depreciation and amortization (DD&A). Since the producer does not directly control the world price of oil, transportation costs and the tax regime, production costs are a key variable that can determine whether production is economically viable. The North Slope producers are reluctant to provide information about this

important aspect of production.[55] The only per-barrel production cost estimates available since the Middle East crisis of 1990-1991 come from Salomon Brothers. The estimates are contained in the investment firm's estimates of Prudhoe and Kuparuk profitability through 1995, last published in June 1991.[56] While it is widely assumed that it costs more to pull each barrel of oil from the ground as the North Slope fields age, this trend is not evident from Salomon's estimates.[57]

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[55] A senior official at BP said he could provide one piece of the North Slope production economics puzzle for this report: BP's lifting costs. But first, he said, he had to coordinate with other persons within BP who were working on a new advertisement. The data were not provided and did not appear in the advertisement.

A recent BP advertising campaign did offer an over-simplified picture of recovery techniques such as gas injection and fracturing, but the ads contained no substantive information on production costs. (BP Exploration [advertisement], "How Intentional Fracturing Actually Speeds Recovery," Anchorage Daily News, Oct. 8, 1992, p. B-6, and "Our Latest Investment is an Absolute Gas," Anchorage Daily News, Oct. 13, 1992, p. B-4.) Although its treatment is superficial, at least BP is discussing its operations. A recent ARCO advertisement contains a picture of Sacajawea guiding Lewis and Clark and this message: "Modern exploration depends on local knowledge. Cooperation. And learning everything we can about the land and sea. And as we look ahead to our future, we salute Lewis and Clark . . . ." (ARCO Alaska [advertisement], "Local support goes a long way," Anchorage Daily News, Oct. 3, 1992, p. C-2.)

[56] Salomon Brothers, "Atlantic Richfield Company — Prudhoe Redux," (Stock Research: Oils) Oct. 19, 1990, p. 5; "Atlantic Richfield Company — Hitting a Rough Patch," (Stock Research: Oils) June 25, 1991, p. 5. Sources at Salomon say the company is not keeping its ARCO model current at this time.

[57] In view of the paucity of published data in this area, it may be worth noting that during the late 1980's Salomon Brothers production cost estimates were consistent with other public estimates from industry and trade sources at that time:

Source:	*First Boston*	*Salomon Bros.*	*Petro. Intel. Weekly*	*International Petro. Finance*	*BP*
Estimate Date:	*4/86*	*4/87-9/87*	*2/88*	*3/88*	*2/89*
For:	1986	1988	1988	1988	1988
Field / Item					
Prudhoe Bay —					
Lifting	$1.00	$0.85		$0.63	
DD&A	$1.85-$2.28	$1.85		$1.68	
Totals	$2.85-$3.28	$2.70		$2.31	
Kuparuk —					
Lifting		$1.80		$0.76	
DD&A		$3.65		$3.37	
Totals		$5.45		$4.13	
All Fields —					
Lifting					
DD&A					
Totals			$3.10		$3.39

Table 10.

Estimated ARCO Lifting and Amortization Costs, 1992 through 1995

(Estimate Published: October 1990 and June 1991)

	1992	1993	1994	1995
Prudhoe Bay				
Lifting	$0.95	$1.00	$1.00	$1.05
DD&A	$1.80	$1.80	$1.80	$1.80
Total	$2.75	$2.80	$2.80	$2.85
Kuparuk				
Lifting	$1.70	$1.75	$1.80	$1.85
DD&A	$3.30	$3.30	$3.30	$3.30
Total	$5.00	$5.05	$5.10	$5.15

Source: Salomon Brothers, "Atlantic Richfield Company — Prudhoe Redux," (Stock Research: Oils) Oct. 19, 1990, p. 5; "Atlantic Richfield Company — Hitting a Rough Patch," (Stock Research: Oils) June 25, 1991, p. 5.

It appears that the Salomon model held production costs steady except for a slight increase in operating costs to cover inflation.

While Salomon's estimate of lifting costs increased slightly for production in 1992 as compared to 1990, it is significant to note that the current estimate of ARCO's production costs is significantly less than the investment firm anticipated five years ago. The following table considers Salomon Brothers' production cost estimates for production in 1990 and 1992, as estimated in 1987 and re-estimated in 1990.

Table 11.

Salomon's Estimated ARCO Lifting and Amortization Costs, 1990 and 1992

Estimate Date:	*4/87 and 9/87* (a)	*10/90 and 6/91* (b)
For Production Years:	*1990 - 1992*	*1990 - 1992*
Prudhoe Bay —		
Lifting	$0.95 - 1.05	$0.95 - $0.95
DD&A	$1.95 - 2.05	$1.80 - $1.80
Totals	$2.90 - $3.10	$2.75 - $2.75
Kuparuk —		
Lifting	$1.90 - $2.00	$1.65 - $1.70
DD&A	$3.85 - $4.00	$3.30 - $3.30
Totals	$5.75 - $6.00	$4.95 - $5.00

Source:

(a) Salomon Brothers, "Atlantic Richfield Company — Restructured and Resourceful," (Stock Research: Domestic Oils) April 18, 1987, p. 10; "Atlantic Richfield Company — The News Gets Better," (Stock Research: Domestic Oils) Sept. 11, 1987, p. 6.

(b) Salomon Brothers, "Atlantic Richfield Company — Prudhoe Redux," (Stock Research: Oils) Oct. 19, 1990, p. 5; "Atlantic Richfield Company — Hitting a Rough Patch," (Stock Research: Oils) June 25, 1991, p. 5. (Note: Lifting cost and DD&A estimates are identical to the company's previous estimate, published in October 1990.)

This table shows that in 1987 Salomon Brothers estimated that 1992 per-barrel lifting and amortization costs for Prudhoe Bay would total $3.10 per barrel; three years later, the 1992 per-barrel estimate for Prudhoe production was reduced more than ten percent, to $2.75. Similarly, over the same period, Kuparuk cost estimates for 1992 were reduced from $6.00 per barrel to $5.00. Thus near-term field production cost estimates tended to drop between 1987 and 1990-91. Although Salomon does not discuss the basis for its estimates, the cost-reduction may be attributed to three factors: (1) production of additional barrels of oil against which field costs can be charged, (2) cost-saving technological applications and (3) cost-saving management measures.

Viewed together, these two tables indicate that the price of more expensive recovery techniques is likely to be off-set, at least in part, by cost reductions.

To estimate current and past-year lifting costs, the following tables use Salomon Bros. data for Prudhoe Bay, Lisburne and Kuparuk. Because Salomon was reporting on

ARCO, its analysis did not provide data for Endicott and Milne Point. For those fields, field costs are derived from comparative data on operating costs per barrel of fluids provided by EG&G Idaho in its 1991 report to the U.S. Department of Energy.[58] For DD&A costs in current and prior years, Salomon data are used when available. For Endicott and Milne Point, the EG&G operating cost factor is applied to Salomon Brothers data for the available fields.

Line 16

Net revenue (production) is the wellhead value liess the state royalty and taxes identified in line 14 and ande production costs from line 15.

Line 17

State income tax per barrel is calculated by dividing total collections reported by the Department of Revenue under AS 43.20 by total barrels produced. The portion allotted to pipelines in lnes 4(c) and 5(c) is subtracted from the per-barrel total in line 17. Since state income tax is based on world-wide production and income factors rather than North Slope operations, the figures here are not adjusted to reflect higher West Coast per-barrel profits.

Line 18

Federal income tax is calculated at 32.1% of net revenue less state income tax. It is likely that the average federal income tax paid by North Slope producers is significantly lower. A 1984 study found the North Slope's three major producers paid an average of 23.25% in federeal income taxes between 1981 and 1983. In a 1988 update to that study, ARCO and BP were not reported but Exxon paid approximately 23% from 1981 through 1987.[59] For this line the more conservative 32.1% figure that Deakin reported for the 1977-87 period is used.

Line 19

Industry profit on production equals net producton revenue (line 16) minus state and federal income taxes (lines 17 and 18).

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[58] Alaska Oil and gas: Energy Wealth or Vanishing Opportunity? (op. cit.), p. 3-16.

[59] Robert S. McIntyre and Robert Folen, "Corporate Income Taxes in the Reagan Years: A Study of Three Years of Legalized Tax Avoidance" (Citizens for Tax Justice, 1984), pp. 32-33, 36; Robert S. McIntyre, Johathan M. Crystal and David C. Wilhelm, "The Corporate Tax Comeback" (Citizens for Tax Justice and the Institute on Taxation and Economic Policy, 1988), p. 43.

Lines 20 through 22

These lines total state, federal and industry share of the profits from North Slope production (lines 17 through 19) and related pipeline activities (lines 6 through 11). Because it is anticipated that by 1996 all ANS will be marketed on the West Coast, in charting trends for future production, the reader may be most interested in West Coast profit at Line 22.

Line 23

Line 23 is the average North Slope per-barrel profit. This figure is found by multiplyting the Gulf and West Coast profits at line 22 by the percentage of Gulf and West Coast barrels at line 3(b).

As we turn to the tables, this caveat is in order: As indicated above, oil pricing is complicated and the companies are, as a rule, reluctant to share data on their North Slope operations. Therefore, the following tables represent approximations of North Slope profitability. The numbers used here are believed to be the most accurate numbers available to the public. Where precise data are not available and assumptions are necessary, the conventions employed reflect the best information available. These assumptions are identified above. To check the validity of the estimates generated by this model, this model was run for 1987 and the results were compared to those reported by Deakin in his 1989 accountancy study for the Department of Revenue. The results generated by this model track quite closely with those of Deakin.[60]

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[60] Because various elements of the oil price regime — most notably the TAPS tariff and the federal tax structure — have changed significantly since the 1977-87 period that Deakin covered, a comparison of current per-barrel profitability with Deakin's aggregate results would not be meaningful. To compare the results of these two approaches, the model developed for this report was run for 1987, the last year in the Deakin study and the first year after the federal Tax Reform Act of 1986. A comparison of the results is shown in the following table. The per-barrel profitability approach developed for this report produced a division of the economic rent for 1987 nearly identical to that reported by Deakin. This congruence indicates that the per-barrel profitability model produces a reasonable representation of North Slope economic rents.

	/----- Deakin Study, 1987 -----/			/-- Per-Barrel Profit Model, 1987 --/		
	Deakin Totals * ($mm)	% of Total Economic Rent	Implied per-bbl. share *	Implied Total ($mm)	% of Total Economic Rent	Per-barrel Share
State	$2,263	31.73 %	$3.16	$2,520	30.73 %	$3.52
Federal	$1,653	23.18 %	$2.31	$1,998	24.30 %	$2.79
Industry	$3,215	45.08 %	$4.59	$3,687	44.97 %	$5.15

* Revenue and per-barrel profit figures from the two analyses do not match due to reliance on different data sources. A brief explanation of the major differences follows:

D. Current Profits

Per-barrel North Slope profits for calendar year 1991 by field are displayed in Tables 12-A through 12-G. Table 12-A summarizes all fields and feeder pipelines; Tables 12-B through 12-G break down the summary data for 1991 by producing field. Producers' profits on production and pipelining average $4.77 per barrel, ranging from $5.38 per barrel for Prudhoe Bay oil to $0.60 per barrel for Milne Point oil.

To avoid overstating industry income and profits, Deakin chose conservative numbers when he encountered data discrepancies. According to Deakin, this approach resulted in a probable understatement of revenue and per-barrel profits. For example, Deakin relied on the price the companies reported to the State of Alaska for tax and royalty payments. That price was liable to be lower than the prevailing market prices. Delayed payments to the state in settlement of tax and royalty disputes typially include payments for previous years, confirming higher per-barrel prices than the reported prices on which Deakin relied. (Oil Industry Profitability in Alaska, 1969 through 1987, pp. T-58, T-59).

Deakin's per-barrel profit figures have been re-stated for consistency with this report. Deakin delineated per-barel profits in terms of working interest ownership, excluding royalty barrels; this report spreads revenues, costs (including royalty payments) and profits across total barrels.

CY 1991 North Slope Barrel Profit Analysis (Table 12-A)

North Slope Profit Analysis: ALL FIELDS	/ - - CY 91 ANS Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data
2 Quality Adjusted Price			
3 Production / Disposition (Bbls. year / Day)			
a Production (mm bbls. yr. / day) 664.870 / 1.822			DNR 1992 Historical Oil Production (incl. NGL's)
b. Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariffs	($0.10)	($0.10)	Wghtd. avg. sum of items 4a thru 4g
a Operating & capital costs	($0.04)	($0.04)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	$0.00	$0.00	30% of total DOR property tax
c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.01)	($0.01)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.02)	($0.02)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.01)	($0.01)	"
g DR&R allowance	$0.00	$0.00	"
5 TAPS Pipeline Tariff	($3.41)	($3.41)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge			Dept. of Revenue data
6 State Share (Feeder Lines)	($0.01)	($0.01)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.01)	($0.01)	Item 4d
8 Industry Profit (Feeder Lines)	$0.03	$0.03	Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f
12 Tanker to Gulf / West Coast	($3.53)	($1.67)	USFRA data (DOR)
13 Wellhead value	$11.02	$12.64	Sum of items 1, 4, 5, 12
14 State Royalties, Production & Property Taxes	($3.01)	($3.41)	Sum of items 14a thru 14d
a Royalty	($1.30)	($1.50)	Item 13 less field costs * est. field royalty
b Severance tax	($1.31)	($1.51)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	$.054 * .875	
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($3.49)	($3.49)	Sum of items 15a, 15b
a Lifting Costs	($1.19)	($1.19)	Derived from trade publication estimates
b Depletion, Depreciation & Amortization	($2.30)	($2.30)	Derived from trade publication estimates
16 Net Revenue (production)	$4.52	$5.74	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($1.40)	($1.79)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$2.96	$3.79	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.42	$3.82	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$2.06	$2.45	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$4.12	$4.95	Sum of items 8, 11, 19
23 CY 91 Industry Avg. per-barrel ANS Profit		$4.77	

CY 1991 North Slope Barrel Profit Analysis (Table 12-B)

North Slope Profit Analysis: PRUDHOE BAY	/ - - CY 91 Prudhoe Avg. ($/bbl.) - - / Gulf Coast	West Coast	/ Notes
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data
2 Quality Adjusted Price	$18.68	$17.54	From DOR data
3 Production / Disposition — Bbls. year / Day			
a Production (mm bbls. yr. / day) 486.706 / 1.330			DNR 1992 Historical Oil Production (incl. NGL's)
b. Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff	($3.41)	($3.41)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge	$0.00	$0.00	Dept. of Revenue data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.83)	($1.07)	USFRA data (DOR)
13 Wellhead value	$11.44	$13.07	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($3.22)	($3.64)	Sum of items 14a thru 14d
a Royalty	($1.33)	($1.54)	Item 13 less field costs * est. field royalty
b Severance tax	($1.49)	($1.70)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($2.75)	($2.75)	Sum of items 15a, 15b
a Lifting Costs	($0.95)	($0.95)	Salomon Bros., June 25, 1991
b Depletion, Depreciation & Amortization	($1.80)	($1.80)	Salomon Bros., June 25, 1991
16 Net Revenue (production)	$5.47	$6.68	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($1.71)	($2.09)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$3.61	$4.43	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.62	$4.04	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$2.35	$2.74	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$4.74	$5.56	Sum of items 8, 11, 19
23 CY 91 Industry Avg. per-barrel Profit (Prudhoe Bay)		$5.38	

CY 1991 North Slope Barrel Profit Analysis (Table 12-C)

North Slope Profit Analysis: KUPARUK	/--CY 91 Kuparuk Avg. ($/bbl.)--/ Gulf Coast	West Coast	Notes
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data
2 Quality Adjusted Price	$17.26	$16.12	From DOR data
3 Production / Disposition *Bbls. year* / *Day*			
a Production (mm bbls. yr. / day) 113.532 / 0.311			DNR 1992 Historical Oil Production (incl. NGL's)
b. Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariffs	($0.21)	($0.21)	Sum of items 4a thru 4g
a Operating & capital costs	($0.08)	($0.08)	Pro-rated from TAPS estimates
b State & local property tax (pipelines)	($0.01)	($0.01)	Pro-rated from TAPS estimates
c State income tax (pipelines)	($0.01)	($0.01)	Pro-rated from TAPS estimates
d Federal income tax (pipelines)	($0.04)	($0.04)	Pro-rated from TAPS estimates
e After-tax margin	($0.03)	($0.03)	Pro-rated from TAPS estimates
f Recovery of deferred return	($0.04)	($0.04)	Pro-rated from TAPS estimates
g DR&R allowance	$0.00	$0.00	Pro-rated from TAPS estimates
5 TAPS Pipeline Tariff	($3.70)	($3.70)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge	($0.29)	($0.29)	From DOR data
6 State Share (Feeder Lines)	($0.02)	($0.02)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.04)	($0.04)	Item 4d
8 Industry Profit (Feeder Lines)	$0.07	$0.07	Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.83)	($1.07)	USFRA data (DOR)
13 Wellhead value	$9.52	$11.15	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.60)	($2.99)	Sum of items 14a thru 14d
a Royalty	($1.13)	($1.34)	Item 13 less field costs * est. field royalty
b Severance tax	($1.07)	($1.25)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($4.95)	($4.95)	Sum of items 15a, 15b
a Lifting Costs	($1.65)	($1.65)	Salomon Bros., June 25, 1991
b Depletion, Depreciation & Amortization	($3.30)	($3.30)	Salomon Bros., June 25, 1991
16 Net Revenue (production)	$1.97	$3.21	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	from DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.58)	($0.98)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$1.23	$2.07	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.02	$3.40	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.27	$1.67	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$2.43	$3.27	Sum of items 8, 11, 19
23 CY 91 Industry Avg. per-barrel Profit (Kuparuk)		$3.09	

CY 1991 North Slope Barrel Profit Analysis (Table 12-D)

North Slope Profit Analysis: ENDICOTT	/ - - CY 91 Endicott Avg. ($/bbl) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data
2 Quality Adjusted Price	$17.37	$16.23	From DOR data
3 Production / Disposition — Bbls. year — Day			
a Production (mm bbls. yr. / day) 42.530 / 0.116			DNR 1992 Historical Oil Production (incl. NGL's)
b. Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariffs	($0.71)	($0.71)	Sum of items 4a thru 4g
a Operating & capital costs	($0.29)	($0.29)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.03)	($0.03)	30% of total DOR property tax
c State income tax (pipelines)	($0.01)	($0.01)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.07)	($0.07)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.20)	($0.20)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.08)	($0.08)	"
g DR&R allowance	($0.03)	($0.03)	"
5 TAPS Pipeline Tariff	($3.58)	($3.58)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge	($0.17)	($0.17)	From DOR data
6 State Share (Feeder Lines)	($0.04)	($0.04)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.07)	($0.07)	Item 4d
8 Industry Profit (Feeder Lines)	$0.28	$0.28	Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.83)	($1.07)	USFRA data (DOR)
13 Wellhead value	$9.25	$10.88	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.44)	($2.81)	Sum of items 14a thru 14d
a Royalty	($1.26)	($1.49)	Item 13 less field costs * est. field royalty
b Severance tax	($0.78)	($0.92)	Item 13 *.856 * nominal severance* ELF
c Spill Response & Cons. ($.054/bbl*.875)	($0.05)	($0.05)	$.054 * .856
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($5.82)	($5.82)	Sum of items 15a, 15b
a Lifting Costs	($1.94)	($1.94)	Derived from trade data
b Depletion, Depreciation & Amortization	($3.88)	($3.88)	Derived from trade data
16 Net Revenue (production)	$0.99	$2.24	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.27)	($0.67)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$0.57	$1.41	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.89	$3.26	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$0.98	$1.38	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$1.98	$2.83	Sum of items 8, 11, 19
23 CY 91 Industry Avg. per-barrel Profit (Endicott)		$2.64	

CY 1991 North Slope Barrel Profit Analysis (Table 12-E)

North Slope Profit Analysis: LISBURNE	/ - - CY 91 Lisburne Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data
2 Quality Adjusted Price	$19.33	18.19	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 14.652 / 0.040			DNR 1992 Historical Oil Production (incl. NGL's)
b. Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff	($3.11)	($3.11)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge	$0.30	$0.30	From DOR data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.83)	(1.07)	USPRA data (DOR)
13 Wellhead value	$12.39	$14.07	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($1.92)	($2.13)	Sum of items 14a thru 14d
a Royalty	($1.45)	($1.65)	Item 13 less field costs * est. field royalty
b Severance tax	($0.06)	($0.07)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($8.45)	($8.45)	Sum of items 15a, 15b
a Lifting Costs	($2.80)	(2.80)	Salomon Bros. June 25, 1991
b Depletion, Depreciation & Amortization	($5.65)	(5.65)	Salomon Bros. June 25, 1991
16 Net Revenue (production)	$2.03	$3.44	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.60)	($1.05)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$1.27	$2.23	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.32	$2.53	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.25	$1.70	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$2.40	$3.36	Sum of items 8, 11, 19
23 CY 91 Industry Avg. per-barrel Profit (Lisburne)		$3.15	

CY 1991 North Slope Barrel Profit Analysis (Table 12-F)

North Slope Profit Analysis: MILNE PT.	/ - - CY 91 Milne Pt. Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.35	$17.21	Dept. of Revenue data
2 Quality Adjusted Price	$17.02	$15.88	From DOR data
3 Production / Disposition (Bbls. year / Day)			
a Production (mm bbls. yr. / day) 7.457 / 0.020			DNR 1992 Historical Oil Production (incl. Schrader BL)
b. Volume to East / West Coast (%)	21.93%	78.07%	From DOR data
4 Feeder Pipeline Tariff (Milne Pt. only)	($1.36)	($1.36)	Sum of items 4a thru 4g
a Operating & capital costs	($0.88)	($0.88)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.06)	($0.06)	30% of total DOR property tax
c State income tax (pipelines)	($0.02)	($0.02)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.13)	($0.13)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.16)	($0.16)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.05)	($0.05)	"
g DR&R allowance	($0.06)	($0.06)	"
5 TAPS Pipeline Tariff	($4.00)	($4.00)	Sum of items 5a thru 5h
a Operating & capital costs	($1.31)	($1.31)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pepelines)	($0.65)	($0.65)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.49)	($0.49)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.64)	($0.64)	"
g DR&R allowance	($0.08)	($0.08)	"
h Pumpability Charge	($0.59)	($0.59)	From DOR data
6 State Share (Milne Pt. Feeder Line)	($0.09)	($0.09)	Sum of items 4b, 4c
7 Federal Share (Milne Pt. Feeder Line)	($0.17)	($0.13)	Item 4d
8 Industry Profit (Milne Pt. Feeder Line)	$0.21	$0.21	Sum of items 4e, 4f
9 State Share (TAPS)	($0.25)	($0.25)	Sum of items 5b, 5c (to TAPS owners)
10 Federal Share (TAPS)	($0.65)	($0.65)	Item 5d
11 Industry Profit (TAPS)	$1.13	$1.13	Sum of items 5e, 5f (to TAPS owners)
12 Tanker (to Gulf / West Coast)	($3.83)	($1.07)	USFRA data (DOR)
13 Wellhead value	$7.63	$9.25	Sum of items 2, 4, 5, 12 + ($0.21) Kuparuk Pipe tariff
14 State Royalties, Production & Property Taxes	($1.67)	($2.01)	Sum of items 14a thru 14d
a Royalty	($1.27)	($1.57)	Item 13 less field costs * est. field royalty
b Severance tax	$0.00	($0.03)	Item 13 *.817 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($6.20)	($6.20)	Sum of items 15a, 15b
a Lifting Costs	($2.07)	($2.07)	Derived from trade data
b Depletion, Depreciation & Amortization	($4.13)	($4.13)	Derived from trade data
16 Net Revenue (production)	($0.24)	$1.05	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.15)	($0.15)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	$0.00	($0.29)	West: Est. 32.1% of items 16 + 17; Gulf Coast negative
19 Milne Pt. Profit (production)	($0.39)	$0.61	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.17	$2.50	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$0.82	$1.07	Sum of items 7, 10, 18
22 Total Milne Profit (production + pipeline)	($0.18)	$0.82	Sum of items 8 (Milne Pt. Pipeline only), 19
23 CY 91 Industry Avg. per-barrel Profit (Milne Pt.)		$0.60	

CY 1991 North Slope Barrel Profit Analysis (Table 12-G)

North Slope Profit Analysis: OTHER	/ - - CY 91 Other Revenue Avg. ($/bbl.) - - /		Notes
(Kuparuk Pipeline tariff on Milne Pt. Oil)	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	(n.a.)	(See analysis of Milne Pt. oil)
2 Quality Adjusted Price		(n.a.)	
3 Production / Disposition (Milne Pt.) *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 7.457 / 0.020			
b. Volume to East / West Coast (%)	0.00%	(n.a.)	
4 Feeder Pipeline Tariff (Kuparuk's Milne Pt. oil)	($0.21)	($0.21)	Sum of items 4a thru 4g
a Operating & capital costs	($0.10)	($0.10)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.01)	($0.01)	30% of total DOR property tax
c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.03)	($0.03)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.05)	($0.05)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.01)	($0.01)	"
g DR&R allowance	$0.00	$0.00	"
5 TAPS Pipeline Tariff			
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
h Pumpability Charge			
6 State Share (Kuparuk's Milne Pt. oil)	($0.02)	($0.02)	Sum of items 4b, 4c
7 Federal Share (Kuparuk's Milne Pt. oil)	($0.03)	($0.03)	Item 4d
8 Industry Profit (Kuparuk's Milne Pt. oil)	$0.05	$0.05	Sum of items 4e, 4f
9 State Share (TAPS)			
10 Federal Share (TAPS)			
11 Industry Profit (TAPS)			
12 Tanker (to Gulf / West Coast)			
13 Wellhead value			
14 State Royalties, Production & Property Taxes			
a Royalty			
b Severance tax			
c Spill Response & Conservation Taxes			
d State & local property tax (production)			
15 Production costs			
a Lifting Costs			
b Depletion, Depreciation & Amortization			
16 Net Revenue (production)			
17 State Income Tax (production)			
18 Federal Income Tax (production)			
19 Industry Profit (production)			
20 Total State Share (production + pipelines)	$0.02	$0.02	Sum of items 6, 9, 14, 17 (Kuparuk Pipeline only)
21 Total Federal Share (production + pipelines)	$0.03	$0.03	Sum of items 7, 10, 18 (Kuparuk Pipeline only)
22 Total Industry Profit (Kuparuk's Milne Pt. oil)	$0.05	$0.05	Sum of items 8, 11, 19 (Kuparuk Pipeline only)
23 CY 91 Industry Avg. per-barrel Profit (Kup. Pipe / Milne Pt. oil)		$0.05	

One can estimate the North Slope producers' total profits from Alaska operations for 1991 by multiplying the estimated per-barrel profit of $4.77 by the 664.9 million barrels produced during the course of that year; the North Slope producers' total profit on their Alaska operations would be $3,006,000,000 ($3.006 billion). If the North producers were a single corporation — in fact, three companies control over 90% of North Slope production and pipeline profits and work closely together in most aspects of their operations — the North Slope Oil Corporation would have been in a dead heat with Phillips Morris for second place among the most profitable corporations in the United States in 1991.[61]

The following graph shows 1991 North Slope profits in relation to the profits earned by the nation's most profitable corporations for that year.

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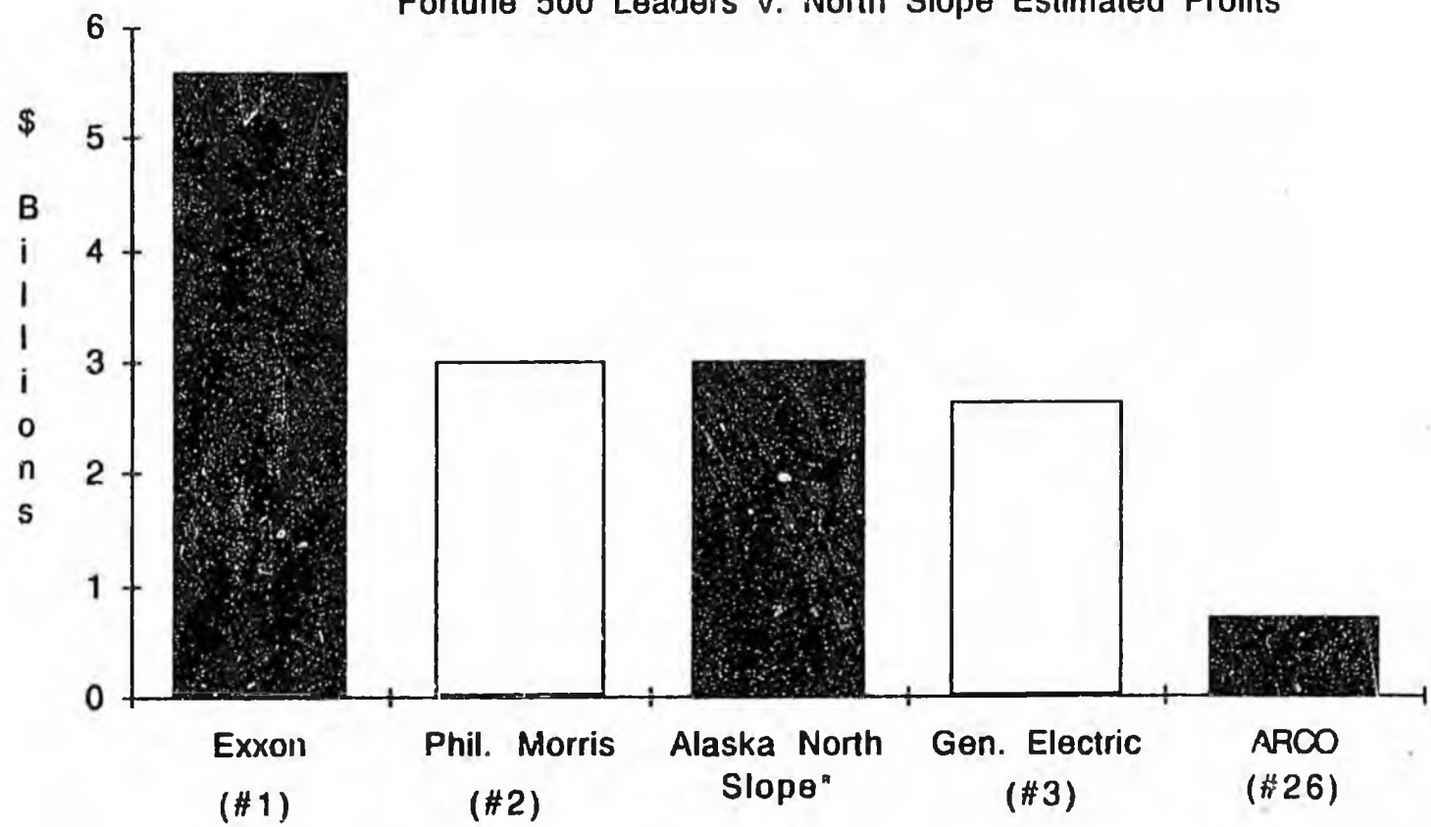
[61] Fortune, April 20, 1992.

Graph 2.

CY 1991 Estimated Profits

Fortune 500 Leaders v. North Slope Estimated Profits



* Principally Exxon, ARCO and BP (BP is not listed in Fortune 500)

Sources: Fortune, April 20, 1992; Table 12-A

The industry's $3 billion profit earned North Slope operations does not include:

==> downstream profits from marine transportation, refining and marketing of North Slope crude oil;

==> the intangible value to the vertically integrated North Slope producers of assuring its refineries a stable supply of crude oil through its North Slope production; and

==> off-book or hidden profits totalling hundreds of millions of dollars from the accumulation of funds such as TAPS DR&R collections.[62]

North Slope profits for 1991 were impressive, but they were not unusual. ARCO reports after-tax profits for its ARCO Alaska production arm, ARCO Alaska, in its annual report. ARCO Alaska's 1991 income of $413 million, down 41% from 1990's Mid-East crisis high, was 13% below the company's 1987-89 average.[63]

Tables 13A-G and 14A-G present composite and field per-barrel profit estimates for state fiscal year 1992 (FY 92) and calendar year 1992 (CY 92) through September. FY 92 fell into a price trough. Oil prices dropped after the the U.S. bombardment of Iraq in early 1991 and did not rebound for more than a year. Thus FY 92 may be used as a conservative indicator of North Slope oil profits. The average North Slope per-barrel profit for FY 92 dropped to $4.51, down $0.26 per barrel from CY 91. Estimated profits rebounded to an estimated $4.72 for the current calendar year. In addition to indicating the magnitude and the consistent nature of North Slope profits, these tables also serve to demonstrate the subtleties of relationship between price and profitability.

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[62] DR&R pay-outs may have significant affects on future production scenarios (see Hidden Billions: The TAPS DR&R Provision, (op. cit.).

[63] Atlantic Richfield Co., 1991 Annual Report, p. 61. ARCO Alaska's profit is derived almost entirely from its North Slope production; TAPS profits are included with a different subdivision, the ARCO Transportation Co.

FY 1992 North Slope Barrel Profit Analysis (Table 13-A)

yl		/ - - FY 92 ANS Avg. ($/barrel) - - /		Notes
		Gulf Coast	West Coast	
1	Average Price for ANS (Spot)	$17.81	$16.64	Monthly spot averages (DOR)
2	Quality Adjusted Price			
3	Production / Disposition *Bbls. year* *Day*			
	a Production (mm bbls. yr. / day) 654.332 / 1.788			From DOR data (incl. NGL's)
	b Volume to East / West Coast (%)	20.51%	79.49%	From DOR data
4	Feeder Pipeline Tariffs	($0.09)	($0.09)	Wghtd. avg. sum of items 4a thru 4g
	a Operating & capital costs	($0.04)	($0.04)	From Dept. of Law (7/29/92) less 4b
	b State & local property tax (pipelines)	$0.00	$0.00	30% of tot. l DOR property tax
	c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
	d Federal income tax (pipelines)	($0.01)	($0.01)	From Dept. of Law (7/29/92) less item 4c
	e After-tax margin	($0.02)	($0.02)	From Dept. of Law (7/29/92)
	f Recovery of deferred return	($0.01)	($0.01)	*
	g DR&R allowance	$0.00	$0.00	*
5	TAPS Pipeline Tariff	($3.44)	($3.44)	Sum of items 5a thru 5h
	a Operating & capital costs	($1.36)	($1.36)	From Dept. of Law (7/29/92) less 5b
	b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
	c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
	d Federal income tax (pipelines)	($0.64)	($0.64)	From Dept. of Law (7/29/92) less item 5c
	e After-tax margin	($0.51)	($0.51)	From Dept. of Law (7/29/92)
	f Recovery of deferred return	($0.61)	($0.61)	*
	g DR&R allowance	($0.07)	($0.07)	*
	h Pumpability Charge			Dept. of Revenue data
6	State Share (Feeder Lines)	($0.01)	($0.01)	Sum of items 4b, 4c
7	Federal Share (Feeder Lines)	($0.01)	($0.01)	Item 4d
8	Industry Profit (Feeder Lines)	$0.03	$0.03	Sum of items 4e, 4f
9	State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10	Federal Share (TAPS)	($0.64)	($0.64)	Item 5d
11	Industry Profit (TAPS)	$1.12	$1.12	Sum of items 5e, 5f
12	Tanker (to Gulf / West Coast)	($3.74)	($1.04)	USFRA data (DOR)
13	Wellhead value	$10.53	$12.06	Sum of items 1, 4, 5, 12
14	State Royalties, Production & Property Taxes	($2.90)	($3.27)	Sum of items 14a thru 14d
	a Royalty	($1.24)	($1.43)	Item 13 less field costs * est. field royalty
	b Severance tax	($1.26)	($1.44)	Item 13 *.875 * nominal severance* ELF
	c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
	d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15	Production costs	($3.49)	($3.49)	Sum of items 15a, 15b
	a Lifting Costs	($1.19)	($1.19)	Derived from trade publication estimates
	b Depletion, Depreciation & Amortization	($2.30)	($2.30)	Derived from trade publication estimates
16	Net Revenue (production)	$4.15	$5.31	Sum of items 13, 14, 15
17	State Income Tax (production)	($0.13)	($0.13)	DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18	Federal Income Tax (production)	($1.29)	($1.66)	Est. 32.1% of items 16 + 17
19	Industry Profit (production)	$2.73	$3.52	Sum of items 16 thru 18
20	Total State Share (production + pipelines)	$3.28	$3.65	Sum of items 6, 9, 14, 17
21	Total Federal Share (production + pipelines)	$1.94	$2.31	Sum of items 7, 10, 18
22	Total Industry Profit (production + pipelines)	$3.88	$4.67	Sum of items 8, 11, 19
23	FY 92 Industry Avg. per-barrel ANS Profit		$4.51	

FY 1992 North Slope Barrel Profit Analysis (Table 13-B)

North Slope Profit Analysis: PRUDHOE BAY	/ - - FY 92 Prudhoe Avg. ($/bbl.) - - /		/ Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$17.81	$16.64	Dept. of Revenue data
2 Quality Adjusted Price	$18.14	$16.97	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 476.834 / 1.303			From DOR data
b. Volume to East / West Coast (%)	20.51%	79.49%	From DOR data
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff	($3.44)	($3.44)	Sum of items 5a thru 5h
a Operating & capital costs	($1.36)	($1.36)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.64)	($0.64)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.51)	($0.51)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.61)	($0.61)	"
g DR&R allowance	($0.07)	($0.07)	"
h Pumpability Charge	$0.00	$0.00	Dept. of Revenue data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.64)	($0.64)	Item 5d
11 Industry Profit (TAPS)	$1.12	$1.12	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.74)	($1.04)	USFRA data (DOR)
13 Wellhead value	$10.96	$12.49	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($3.10)	($3.50)	Sum of items 14a thru 14d
a Royalty	($1.28)	($1.47)	Item 13 less field costs * est. field royalty
b Severance tax	($1.42)	($1.62)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($2.75)	($2.75)	Sum of items 15a, 15b
a Lifting Costs	($0.95)	($0.95)	Salomon Bros., June 25, 1991
b Depletion, Depreciation & Amortization	($1.80)	($1.80)	Salomon Bros., June 25, 1991
16 Net Revenue (production)	$5.11	$6.25	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.13)	($0.13)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($1.60)	($1.96)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$3.38	$4.15	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.48	$3.87	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$2.24	$2.60	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$4.50	$5.27	Sum of items 8, 11, 19
23 FY 92 Industry Avg. per-barrel Profit (Prudhoe Bay)		$5.11	

FY 1992 North Slope Barrel Profit Analysis (Table 13-C)

North Slope Profit Analysis: KUPARUK	/ - - FY 92 Kuparuk Avg. ($/bbl) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$17.81	$16.64	Dept. of Revenue data
2 Quality Adjusted Price	$16.72	$15.55	From DOR data
3 Production / Disposition (Bbls. year / Day)			
a Production (mm bbls. yr. / day) 115.970 / 0.317			From DOR data
b. Volume to East / West Coast (%)	20.51%	79.49%	From DOR data
4 Feeder Pipeline Tariffs	($0.21)	($0.21)	Sum of items 4a thru 4g
a Operating & capital costs	($0.08)	($0.08)	Pro-rated from TAPS estimates
b State & local property tax (pipelines)	($0.01)	($0.01)	Pro-rated from TAPS estimates
c State income tax (pipelines)	($0.01)	($0.01)	Pro-rated from TAPS estimates
d Federal income tax (pipelines)	($0.04)	($0.04)	Pro-rated from TAPS estimates
e After-tax margin	($0.03)	($0.03)	Pro-rated from TAPS estimates
f Recovery of deferred return	($0.04)	($0.04)	Pro-rated from TAPS estimates
g DR&R allowance	$0.00	$0.00	Pro-rated from TAPS estimates
5 TAPS Pipeline Tariff	($3.73)	($3.73)	Sum of items 5a thru 5h
a Operating & capital costs	($1.36)	($1.36)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.64)	($0.64)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.51)	($0.51)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.61)	($0.61)	"
g DR&R allowance	($0.07)	($0.07)	"
h Pumpability Charge	($0.29)	($0.29)	From DOR data
6 State Share (Feeder Lines)	($0.01)	($0.01)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.04)	($0.04)	Item 4d
8 Industry Profit (Feeder Lines)	$0.07	$0.07	Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.64)	($0.64)	Item 5d
11 Industry Profit (TAPS)	$1.12	$1.12	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.74)	($1.04)	USFRA data (DOR)
13 Wellhead value	$9.04	$10.57	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.51)	($2.88)	Sum of items 14a thru 14d
a Royalty	($1.08)	($1.27)	Item 13 less field costs * est. field royalty
b Severance tax	($1.03)	($1.21)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($4.95)	($4.95)	Sum of items 15a, 15b
a Lifting Costs	($1.65)	($1.65)	Salomon Bros., June 25, 1991
b Depletion, Depreciation & Amortization	($3.30)	($3.30)	Salomon Bros., June 25, 1991
16 Net Revenue (production)	$1.58	$2.74	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.13)	($0.13)	from DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.47)	($0.84)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$0.99	$1.78	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.90	$3.26	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.15	$1.52	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$2.17	$2.96	Sum of items 8, 11, 19
23 FY 92 Industry Avg. per-barrel Profit (Kuparuk)		$2.80	

FY 1992 North Slope Barrel Profit Analysis (Table 13-D)

North Slope Profit Analysis: ENDICOTT FIELD	/ - - FY 92 Endicott Avg. ($/barrel) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$17.81	$16.64	Dept. of Revenue data
2 Quality Adjusted Price	$16.83	$15.66	From DOR data
3 Production / Disposition (Bbls. year / Day)			
a Production (mm bbls. yr. / day) 40.843 / 0.112			From DOR data
b. Volume to East / West Coast (%)	20.51%	79.49%	From DOR data
4 Feeder Pipeline Tariffs	($0.71)	($0.71)	Sum of items 4a thru 4g
a Operating & capital costs	($0.29)	($0.29)	From Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.03)	($0.03)	30% of total DOR property tax
c State income tax (pipelines)	($0.01)	($0.01)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.07)	($0.07)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.20)	($0.20)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.08)	($0.08)	"
g DR&R allowance	($0.03)	($0.03)	"
5 TAPS Pipeline Tariff	($3.60)	($3.60)	Sum of items 4a thru 4g
a Operating & capital costs	($1.36)	($1.36)	From Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.64)	($0.64)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.51)	($0.51)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.61)	($0.61)	"
g DR&R allowance	($0.07)	($0.07)	"
h Pumpability Charge	($0.17)	($0.17)	From DOR data
6 State Share (Feeder Lines)	($0.04)	($0.04)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.07)	($0.07)	Item 4d
8 Industry Profit (Feeder Lines)	$0.28	$0.25	Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.64)	($0.64)	Item 5d
11 Industry Profit TAPS)	$1.12	$1.12	Sum of items 5e, 5f
12 Tanker to Gulf / West Coast)	($3.74)	($1.04)	USFRA data (DOR)
13 Wellhead value	$8.77	$10.30	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.27)	($2.61)	Sum of items 14a thru 14d
a Royalty	($1.19)	($1.41)	Item 13 less field costs * est. field royalty
b Severance tax	($0.68)	($0.80)	Item 13 *.856 * nominal severance* ELF
c Spill Response & Coast. ($.054/bbl*.875)	($0.05)	($0.05)	$.054 * .856
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($5.82)	($5.82)	Sum of items 15a, 15b
a Lifting Costs	($1.94)	($1.94)	Derived from trade data
b Depletion, Depreciation & Amortization	($3.88)	($3.88)	Derived from trade data
16 Net Revenue (production)	$0.68	$1.87	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.12)	($0.12)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.18)	($0.56)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$0.38	$1.19	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.68	$3.02	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$0.89	$1.27	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$1.78	$2.59	Sum of items 8, 11, 19
23 FY 92 Industry Avg. per-barrel Profit (Endicott)		$2.42	

FY 1992 North Slope Barrel Profit Analysis (Table 13E)

North Slope Profit Analysis: LISBURNE	/ - - FY 92 Lisburne Avg. ($/barrel) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$17.81	$15.64	Dept. of Revenue data
2 Quality Adjusted Price	$18.79	17.62	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 13.359 / 0.037			From DOR data
b. Volume to East / West Coast (%)	20.51%	79.49%	From DOR data
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff	($3.14)	($3.14)	Sum of items 5a thru 5h
a Operating & capital costs	($1.36)	($1.36)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.64)	($0.64)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.51)	($0.51)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.61)	($0.61)	"
g DR&R allowance	($0.07)	($0.07)	"
h Pumpability Charge	$0.30	$0.30	From DOR data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.64)	($0.64)	Item 5d
11 Industry Profit (TAPS)	$1.12	$1.12	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.74)	(1.04)	USFRA data (DOR)
13 Wellhead value	$11.91	$13.44	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($1.80)	($1.99)	Sum of items 14a thru 14d
a Royalty	($1.40)	($1.59)	Item 13 less field costs * est. field royalty
b Severance tax	$0.00	$0.00	Item 13 * 875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($8.45)	($8.45)	Sum of items 15a, 15b
a Lifting Costs	($2.80)	(2.80)	Salomon Bros. June 25, 1991
b Depletion, Depreciation & Amortization	($5.65)	(5.65)	Salomon Bros. June 25, 1991
16 Net Revenue (production)	$1.66	3.00	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.13)	($0.13)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.49)	($0.92)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$1.04	$1.95	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.18	$2.37	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.13	$1.56	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$2.16	$3.07	Sum of items 8, 11, 19
23 FY 92 Industry Avg. per-barrel Profit (Lisburne)		$2.88	

FY 1992 North Slope Barrel Profit Analysis (Table 13-F)

North Slope Profit Analysis: MILNE PT.	/ - - FY 92 Milne Pt. Avg. ($/barrel) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$17.81	$16.64	Dept. of Revenue data
2 Quality Adjusted Price	$16.48	$15.31	From DOR data
3 Production / Disposition (Bbls. year / Day)			
a Production (mm bbls. yr. / day) 7.326 / 0.020			From DOR data
b. Volume to East / West Coast (%)	20.51%	79.49%	From DOR data
4 Feeder Pipeline Tariff (Milne Pt. only)	($1.07)	($1.07)	Sum of items 4a thru 4g
a Operating & capital costs	($0.64)	($0.64)	From Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.05)	($0.05)	30% of total DOR property tax
c State income tax (pipelines)	($0.02)	($0.02)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.11)	($0.11)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.16)	($0.16)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.05)	($0.05)	*
g DR&R allowance	($0.04)	($0.04)	*
5 TAPS Pipeline Tariff	($4.02)	($4.02)	Sum of items 5a thru 5h
a Operating & capital costs	($1.36)	($1.36)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.15)	($0.15)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.64)	($0.64)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.51)	($0.51)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.61)	($0.61)	*
g DR&R allowance	($0.07)	($0.07)	*
h Pumpability Charge	($0.59)	($0.59)	From DOR data
6 State Share (Milne Pt. Feeder Line)	($0.08)	($0.08)	Sum of items 4b, 4c
7 Federal Share (Milne Pt. Feeder Line)	($0.11)	($0.11)	Item 4d
8 Industry Profit (Milne Pt. Feeder Line)	$0.21	$0.21	Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.64)	($0.64)	Item 5d
11 Industry Profit (TAPS)	$1.12	$1.12	Sum of items 5e, 5f (to TAPS owners)
12 Tanker (to Gulf / West Coast)	($3.74)	($1.04)	USFRA data (DOR)
13 Wellhead value	$7.44	$8.97	Sum of items 2, 4, 5, 12 + ($0.21) Kuparuk Pipe tariff
14 State Royalties, Production & Property Taxes	($1.65)	($1.93)	Sum of items 14a thru 14d
a Royalty	($1.25)	($1.53)	Item 13 less field costs * est. field royalty
b Severance tax	$0.00	$0.00	Item 13 *.8165 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.04)	($0.04)	$.054 * .8165
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($6.20)	($6.20)	Sum of items 15a, 15b
a Lifting Costs	($2.07)	($2.07)	Derived from trade data
b Depletion, Depreciation & Amortization	($4.13)	($4.13)	Derived from trade data
16 Net Revenue (production)	($0.40)	$0.85	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.12)	($0.12)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	$0.00	($0.24)	West: Est. 32.1% of items 16 + 17; Gulf Coast negative
19 Milne Pt. Profit (production)	($0.52)	$0.50	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.08	$2.36	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$0.75	$0.99	Sum of items 7, 10, 18
22 Total Milne Profit (production + pipeline)	($0.31)	$0.71	Sum of items 8 (Milne Pt. Pipeline only), 19
23 FY 92 Industry Avg. per-barrel Profit (Milne Pt.)		$0.50	

FY 1992 North Slope Barrel Profit Analysis (Table 13-G)

North Slope Profit Analysis: OTHER	/ - - FY 92 Other Revenue, Avg. ($/bbl.) - - /		Notes
(Kuparuk Pipeline tariff on Milne Pt. Oil)	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	(n.a.)	(See analysis of Milne Pt. oil)
2 Quality Adjusted Price		(n.a.)	
3 Production / Disposition (Milne Pt.) *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 7.326 / 0.020			
b. Volume to East / West Coast (%)	0.00%	(n.a.)	
4 Feeder Pipeline Tariff (Kuparuk's Milne Pt. oil)	($0.21)	($0.21)	Sum of items 4a thru 4g
a Operating & capital costs	($0.10)	($0.10)	From Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.01)	($0.01)	30% of total DOR property tax
c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.03)	($0.03)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.05)	($0.05)	From Dept. of Law (7/29/92)
f Recovery of deferred return	($0.01)	($0.01)	"
g DR&R allowance	$0.00	$0.00	"
5 TAPS Pipeline Tariff			
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
h Pumpability Charge			
6 State Share (Kuparuk's Milne Pt. oil)	($0.02)	($0.02)	Sum of items 4b, 4c (KPL payment on Milne Pt. oil)
7 Federal Share (Kuparuk's Milne Pt. oil)	($0.03)	($0.03)	Item 4d (KPL payment on Milne Pt. oil)
8 Industry Profit (Kuparuk's Milne Pt. oil)	($0.05)	($0.05)	Sum of items 4e, 4f (KPL profit on Milne Pt. oil)
9 State Share (TAPS)			
10 Federal Share (TAPS)			
11 Industry Profit (TAPS)			
12 Tanker (to Gulf / West Coast)	———	———	
13 Wellhead value			
14 State Royalties, Production & Property Taxes			
a Royalty			
b Severance tax			
c Spill Response & Conservation Taxes			
d State & local property tax (production)			
15 Production costs			
a Lifting Costs			
b Depletion., Depreciation & Amortization	———	———	
16 Net Revenue (production)			
17 State Income Tax (production)			
18 Federal Income Tax (production)	———	———	
19 Industry Profit (production)			
20 Total State Share (production + pipelines)	$0.02	$0.02	Sum of items 6, 9, 14, 17 (Kuparuk Pipeline only)
21 Total Federal Share (production + pipelines)	$0.03	$0.03	Sum of items 8, 10, 18 (Kuparuk Pipeline only)
22 Total Industry Profit (Kuparuk's Milne Pt. oil)	$0.05	$0.05	Sum of items 8, 11, 19 (Kuparuk Pipeline only)
23 FY 92 Industry Avg. per-barrel Profit (Kup. Pipe / Milne Pt. oil)		$0.05	

CY 1992 North Slope Barrel Profit Analysis (Table 14-A)

North Slope Profit Analysis: ALL FIELDS	/ - - CY 92 ANS Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.10	$17.42	Jan.-Sept. spot average (DOR)
2 Quality Adjusted Price			
3 Production / Disposition *Bbls. year / Day*			
a Production (mm bbls. yr. / day) 636.8156 / 1.740			DOR actuals thru August, then Spr. 92 forecast incl. NGLs
b. Volume to East / West Coast (%)	18.70%	81.30%	From DOR data
4 Feeder Pipeline Tariffs	($0.10)	($0.10)	Wghtd. avg. sum of items 4a thru 4g
a Operating & capital costs	($0.04)	($0.04)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	$0.00	$0.00	30% of total DOR property tax
c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.01)	($0.01)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.02)	($0.02)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.01)	($0.01)	"
g DR&R allowance	$0.00	$0.00	"
5 TAPS Pipeline Tariff	($3.46)	($3.46)	Sum of items 5a thru 5h
a Operating & capital costs	($1.41)	($1.41)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.16)	($0.16)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.63)	($0.63)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.53)	($0.53)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.58)	($0.58)	"
g DR&R allowance	($0.06)	($0.06)	"
h Pumpability Charge			Dept. of Revenue data
6 State Share (Feeder Lines)	($0.01)	($0.01)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.01)	($0.01)	Item 4d
8 Industry Profit (Feeder Lines)	$0.03	$0.03	Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.63)	($0.63)	Item 5d
11 Industry Profit (TAPS)	$1.11	$1.11	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.76)	($1.05)	USFRA data (DOR) thru June
13 Wellhead Value	$10.79	$12.81	Sum of items 1, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.96)	($3.46)	Sum of items 14a thru 14d
a Royalty	($1.27)	($1.52)	Item 13 less field costs * est. field royalty
b Severance tax	($1.28)	($1.52)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($3.65)	($3.65)	Sum of items 15a, 15b
a Lifting Costs	($1.24)	($1.24)	Derived from trade publication estimates
b Depletion, Depreciation & Amortization	($2.41)	($2.41)	Derived from trade publication estimates
16 Net Revenue (production)	$4.17	$5.70	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.14)	($0.14)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($1.29)	($1.78)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$2.74	$3.77	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.36	$3.85	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.94	$2.43	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$3.88	$4.92	Sum of items 8, 11, 19
23 CY 92 Industry Avg. per-barrel ANS Profit		$4.72	

CY 1992 North Slope Barrel Profit Analysis (Table 14-B)

North Slope Profit Analysis: PRUDHOE BAY	/ - - CY 92 Prudhoe Avg. ($/bbl.) - - /		/ Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$19.35	$17.21	DOR Spr. 92 revenue forecast mid-case (pp. 17-18)
2 Quality Adjusted Price	$18.68	$17.54	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 459.330 / 1.255			DOR actuals thru August, then Spr. 92 forecast; incl. NGL's
b. Volume to East / West Coast (%)	18.70%	81.30%	From DOR data
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff	($3.46)	($3.46)	Sum of items 5a thru 5h
a Operating & capital costs	($1.41)	($1.41)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.16)	($0.16)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.63)	($0.63)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.53)	($0.53)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.58)	($0.58)	"
g DR&R allowance	($0.06)	($0.06)	"
h Pumpability Charge	$0.00	$0.00	Dept. of Revenue data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.63)	($0.63)	Item 5d
11 Industry Profit (TAPS)	$1.11	$1.11	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.76)	($1.05)	USFRA data (DOR) thru June
13 Wellhead value	$11.22	$13.24	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($3.17)	($3.69)	Sum of items 14a thru 14d
a Royalty	($1.32)	($1.58)	Item 13 less field costs * est. field royalty
b Severance tax	($1.44)	($1.70)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total property tax (from DOR data)
15 Production costs	($2.87)	($2.87)	Sum of items 15a, 15b
a Lifting Costs	($0.99)	($0.99)	Salomon Bros (June 25, 1991) * inflation
b Depletion, Depreciation & Amortization	($1.88)	($1.88)	Salomon Bros (June 25, 1991) * inflation
16 Net Revenue (production)	$5.18	$6.69	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.14)	($0.14)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($1.62)	($2.10)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$3.42	$4.44	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$3.56	$4.07	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$2.25	$2.73	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$4.53	$5.55	Sum of items 8, 11, 19
23 CY 92 Industry Avg. per-barrel Profit (Prudhoe Bay)		$5.36	

CY 1992 North Slope Barrel Profit Analysis (Table 14-C)

North Slope Profit Analysis: KUPARUK	/ - - CY 92 Kuparuk Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.10	$17.42	Jan.-Sept. spot average (DOR)
2 Quality Adjusted Price	$17.01	$16.33	From DOR data
3 Production / Disposition *Bbls. year* / *Day*			
a Production (mm bbls. yr. / day) 116.071 / 0.317			DOR actuals thru August, then Spr. 92 forecast
b. Volume to East / West Coast (%)	18.70%	81.30%	From DOR data
4 Feeder Pipeline Tariffs	($0.21)	($0.21)	Sum of items 4a thru 4g
a Operating & capital costs	($0.09)	($0.09)	Pro-rated from TAPS estimates
b State & local property tax (pipelines)	($0.01)	($0.01)	Pro-rated from TAPS estimates
c State income tax (pipelines)	($0.01)	($0.01)	Pro-rated from TAPS estimates
d Federal income tax (pipelines)	($0.04)	($0.04)	Pro-rated from TAPS estimates
e After-tax margin	($0.03)	($0.03)	Pro-rated from TAPS estimates
f Recovery of deferred return	($0.04)	($0.04)	Pro-rated from TAPS estimates
g DR&R allowance	$0.00	$0.00	Pro-rated from TAPS estimates
5 TAPS Pipeline Tariff	($3.75)	($3.75)	Sum of items 5a thru 5h
a Operating & capital costs	($1.41)	($1.41)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.16)	($0.16)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.63)	($0.63)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.53)	($0.53)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.58)	($0.58)	*
g DR&R allowance	($0.06)	($0.06)	*
h Pumpability Charge	($0.29)	($0.29)	From DOR data
6 State Share (Feeder Lines)	($0.01)	($0.01)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.04)	($0.04)	Item 4d
8 Industry Profit (Feeder Lines)	$0.07	$0.07	Sum of items 4c, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.63)	($0.63)	Item 5d
11 Industry Profit (TAPS)	$1.11	$1.11	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.76)	($1.05)	USFRA data (DOR) thru June
13 Wellhead value	$9.30	$11.32	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.58)	($3.06)	Sum of items 14a thru 14d
a Royalty	($1.10)	($1.36)	Item 13 less field costs * est. field royalty
b Severance tax	($1.06)	($1.30)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total property tax (from DOR data)
15 Production costs	($5.16)	($5.16)	Sum of items 15a, 15b
a Lifting Costs	($1.72)	($1.72)	Salomon Bros (June 25, 1991) * inflation
b Depletion, Depreciation & Amortization	($3.44)	($3.44)	Salomon Bros (June 25, 1991) * inflation
16 Net Revenue (production)	$1.56	$3.09	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.14)	($0.14)	from DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.45)	($0.95)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$0.96	$2.01	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.98	$3.46	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.12	$1.62	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$2.14	$3.18	Sum of items 8, 11, 19
23 CY 92 Industry Avg. per-barrel Profit (Kuparuk)		$2.99	

CY 1992 North Slope Barrel Profit Analysis (Table 14-D)

North Slope Profit Analysis: ENDICOTT	/ - - CY 92 Endicott Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.10	$17.42	Jan.-Sept. spot average (DOR)
2 Quality Adjusted Price	$17.12	$16.44	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 40.620 / 0.111			DOR actuals thru August, then Spr. 92 forecast
b. Volume to East / West Coast (%)	18.70%	81.30%	From DOR data
4 Feeder Pipeline Tariffs	($0.71)	($0.71)	Sum of items 4a thru 4g
a Operating & capital costs	($0.29)	($0.29)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.03)	($0.03)	30% of total DOR property tax
c State income tax (pipelines)	($0.01)	($0.01)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.07)	($0.07)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.20)	($0.20)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.08)	($0.08)	"
g DR&R allowance	($0.03)	($0.03)	"
5 TAPS Pipeline Tariff	($3.63)	($3.63)	Sum of items 5a thru 5h
a Operating & capital costs	($1.41)	($1.41)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.16)	($0.16)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.63)	($0.63)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.53)	($0.53)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.58)	($0.58)	"
g DR&R allowance	($0.06)	($0.06)	"
h Pumpability Charge	($0.17)	($0.17)	From DOR data
6 State Share (Feeder Lines)	($0.04)	($0.04)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)	($0.07)	($0.07)	Item 4d
8 Industry Profit (Feeder Lines)	$0.28	$0.28	Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.63)	($0.63)	Item 5d
11 Industry Profit (TAPS)	$1.11	$1.11	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.76)	($1.05)	USFRA data (DOR) thru June
13 Wellhead value	$9.03	$11.05	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($2.35)	($2.80)	Sum of items 14a thru 14d
a Royalty	($1.22)	($1.52)	Item 13 less field costs * est. field royalty
b Severance tax	($0.71)	($0.87)	Item 13 *.856 * nominal severance* ELF
c Spill Response & Cons. ($.054/bbl*.875)	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($6.07)	($6.07)	Sum of items 15a, 15b
a Lifting Costs	($2.02)	($2.02)	(1991 costs derived from trade data) * inflation
b Depletion, Depreciation & Amortization	($4.05)	($4.05)	(1991 costs derived from trade data) * inflation
16 Net Revenue (production)	$0.61	$2.13	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.14)	($0.14)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.15)	($0.65)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$0.32	$1.38	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.78	$3.23	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$0.85	$1.35	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$1.71	$2.78	Sum of items 8, 11, 19
23 CY 92 Industry Avg. per-barrel Profit (Endicott)		$2.58	

CY 1992 North Slope Barrel Profit Analysis (Table 14-E)

North Slope Profit Analysis: LISBURNE	/ - - CY 92 Lisburne Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.10	$17.42	Jan.-Sept. spot average (DOR)
2 Quality Adjusted Price	$19.08	18.40	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 13.124 / 0.036			DOR actuals thru August, then Spr. 92 forecast
b. Volume to East / West Coast (%)	18.70%	81.30%	From DOR data
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff	($3.16)	($3.16)	Sum of items 5a thru 5h
a Operating & capital costs	($1.41)	($1.41)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.16)	($0.16)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.63)	($0.63)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.53)	($0.53)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.58)	($0.58)	"
g DR&R allowance	($0.06)	($0.06)	"
h Pumpability Charge	$0.30	$0.30	From DOR data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.63)	($0.63)	Item 5d
11 Industry Profit (TAPS)	$1.11	$1.11	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)	($3.76)	(1.05)	USFRA data (DOR) thru June
13 Wellhead value	$12.17	$14.19	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes	($1.84)	($2.09)	Sum of items 14a thru 14d
a Royalty	($1.42)	($1.68)	Item 13 less field costs * est. field royalty
b Severance tax	($0.01)	($0.01)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.05)	($0.05)	$.054 * .875
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($8.80)	($8.80)	Sum of items 15a, 15b
a Lifting Costs	($2.92)	(2.92)	Salomon Bros (June 25, 1991) * inflation
b Depletion, Depreciation & Amortization	($5.89)	(5.89)	Salomon Bros (June 25, 1991) * inflation
16 Net Revenue (production)	$1.52	$3.29	Sum of items 13, 14, 15
17 State Income Tax (production)	($0.14)	($0.14)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	($0.44)	($1.01)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)	$0.94	$2.14	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.22	$2.48	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$1.07	$1.64	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)	$2.05	$3.25	Sum of items 8, 11, 19
23 CY 92 Industry Avg. per-barrel Profit (Lisburne)		$3.02	

CY 1992 North Slope Barrel Profit Analysis (Table 14-E)

North Slope Profit Analysis: MILNE PT.	/ - - CY 92 Milne Pt. Avg. ($/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$18.10	$17.42	Jan.-Sept. spot average (DOR)
2 Quality Adjusted Price	$16.77	$16.09	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 7.671 / 0.021			DOR actuals thru Aug., then Spr. 92 forecast; incl. Schr. Bl.
b. Volume to East / West Coast (%)	18.70%	81.30%	From DOR data
4 Feeder Pipeline Tariff (Milne Pt. only)	($0.77)	($0.77)	Sum of items 4a thru 4g
a Operating & capital costs	($0.40)	($0.40)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.04)	($0.04)	30% of total DOR property tax
c State income tax (pipelines)	($0.01)	($0.01)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.10)	($0.10)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.16)	($0.16)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.05)	($0.05)	"
g DR&R allowance	$0.01)	($0.01)	"
5 TAPS Pipeline Tariff	($4.05)	($4.05)	Sum of items 5a thru 5h
a Operating & capital costs	($1.41)	($1.41)	Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)	($0.16)	($0.16)	30% of total DOR property tax
c State income tax (pipelines)	($0.09)	($0.09)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.63)	($0.63)	Dept. of Law (7/29/92) less item 5c
e After-tax margin	($0.53)	($0.53)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.58)	($0.58)	"
g DR&R allowance	($0.06)	($0.06)	"
h Pumpability Charge	($0.59)	($0.59)	From DOR data
6 State Share (Milne Pt. Feeder Line)	($0.06)	($0.06)	Sum of items 4b, 4c
7 Federal Share (Milne Pt. Feeder Line)	($0.13)	($0.10)	Item 4d
8 Industry Profit (Milne Pt. Feeder Line)	$0.21	$0.21	Sum of items 4e, 4f
9 State Share (TAPS)	($0.24)	($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)	($0.63)	($0.63)	Item 5d
11 Industry Profit (TAPS)	$1.11	$1.11	Sum of items 5e, 5f (to TAPS owners)
12 Tanker (to Gulf / West Coast)	($3.76)	($1.05)	USFRA data (DOR) thru June
13 Wellhead value	$7.99	$10.01	Sum of items 2, 4, 5, 12 + ($0.21) Kuparuk Pipe tariff
14 State Royalties, Production & Property Taxes	($1.74)	($2.11)	Sum of items 14a thru 14d
a Royalty	($1.33)	($1.71)	Item 13 less field costs * est. field royalty
b Severance tax	$0.00	$0.00	Item 13 *.8165 * nominal severance* ELF
c Spill Response & Conservation Taxes	($0.04)	($0.04)	$.054 * .8165
d State & local property tax (production)	($0.36)	($0.36)	70% of total DOR property tax
15 Production costs	($6.46)	($6.46)	Sum of items 15a, 15b
a Lifting Costs	($2.15)	($2.15)	(1991 costs derived from trade data) * inflation
b Depletion, Depreciation & Amortization	($4.31)	($4.31)	(1991 costs derived from trade data) * inflation
16 Net Revenue (production)	($0.21)	$1.44	Sum of items 13, 14, 15
17 State Income Tax (production)	$0.00	($0.14)	From DOR Spr. 92 forecast (p. 38) less items 4c, 5c
18 Federal Income Tax (production)	$0.00	($0.42)	West: Est. 32.1% of items 16 + 17; Gulf Coast negative
19 Milne Pt. Profit (production)	($0.21)	$0.88	Sum of items 16 thru 18
20 Total State Share (production + pipelines)	$2.05	$2.56	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)	$0.77	$1.14	Sum of items 7, 10, 18
22 Total Milne Profit (production + pipelines)	$0.00	$1.09	Sum of items 8 (Milne Pt. Pipeline only), 19
23 CY 92 Industry Avg. per-barrel Profit (Milne Pt.)		$0.89	

CY 1992 North Slope Barrel Profit Analysis (Table 14-G)

North Slope Profit Analysis: OTHER	/ - - CY 92 Other Revenue Avg. ($/bbl.) - - /		Notes
(Kuparuk Pipeline tariff on Milne Pt. Oil)	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	(n.a.)	(See analysis of Milne Pt. oil)
2 Quality Adjusted Price		(n.a.)	
3 Production / Disposition (Milne Pt *Bbls. year* / *Day*)			
a Production (mm bbls. yr. / day) 7.671 / 0.021			
b. Volume to East / West Coast (%)	0.00%	(n.a.)	
4 Feeder Pipeline Tariff (Kuparuk's Milne Pt. oil)	($0.21)	($0.21)	Sum of items 4a thru 4g
a Operating & capital costs	($0.10)	($0.10)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)	($0.01)	($0.01)	30% of total DOR property tax
c State income tax (pipelines)	$0.00	$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)	($0.03)	($0.03)	Dept. of Law (7/29/92) less item 4c
e After-tax margin	($0.05)	($0.05)	Dept. of Law (7/29/92)
f Recovery of deferred return	($0.01)	($0.01)	*
g DR&R allowance	$0.00	$0.00	*
5 TAPS Pipeline Tariff			
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
h Pumpability Charge			
6 State Share (Kuparuk's Milne Pt. oil)	($0.02)	($0.02)	Sum of items 4b, 4c
7 Federal Share (Kuparuk's Milne Pt. oil)	($0.03)	($0.03)	Item 4d
8 Industry Profit (Kuparuk's Milne Pt. oil)	$0.05	$0.05	Sum of items 4e, 4f
9 State Share (TAPS)			
10 Federal Share (TAPS)			
11 Industry Profit (TAPS)			
12 Tanker (to Gulf / West Coast)			
13 Wellhead value			
14 State Royalties, Production & Property Taxes			
a Royalty			
b Severance tax			
c Spill Response & Conservation Taxes			
d State & local property tax (production)			
15 Production costs			
a Lifting Costs			
b Depletion, Depreciation & Amortization			
16 Net Revenue (production)			
17 State Income Tax (production)			
18 Federal Income Tax (production)			
19 Industry Profit (production)			
20 Total State Share (production + pipelines)	$0.02	$0.02	Sum of items 6, 9, 14, 17 (Kuparuk Pipeline only)
21 Total Federal Share (production + pipelines)	$0.03	$0.03	Sum of items 7, 10, 18 (Kuparuk Pipeline only)
22 Total Industry Profit (Kuparuk's Milne Pt. oil)	$0.05	$0.05	Sum of items 8, 11, 19 (Kuparuk Pipeline only)
23 CY 92 Industry Avg. per-barrel Profit (Kup. Pipe / Milne Pt. oil)		$0.05	

The field profitability model ables one to focus on the economics of the less profitable North Slope endeavors, as well as the vastly lucrative Prudhoe Bay. For understanding North Slope development issues this may be useful. In this regard, Milne Point warrants particular attention. Four factors reducing Milne Point's profitability have already been identified: (1) Milne Point oil is relatively heavy and therefore less valuable than other North Slope crude oils currently in production (line 2); (2) Milne Point volume is small and production costs are relatively high (line 3); (3) Milne Point oil bears the highest feeder line tariffs of all North Slope crude oils (lines 4, 13); and (4) the Milne Point owners do not share ownership in TAPS and therefore do not earn profits on the TAPS shipping fee (line 22).

The fourth point is particularly important to understand Milne Point's bottom line: If Milne Point owners had a share in TAPS, that field's CY 91 West Coast profit of $0.82 per barrel would have been augmented by a TAPS profit of $1.13. Instead, that $1.13 goes to the TAPS owners, who are producing from fields that are already more profitable than Milne Point. [64]

For FY 92, Milne Point's estimated profit dropped only $0.11 per barrel from the CY 91 average. During the same period, Prudhoe Bay's estimated profit dropped $0.28 per barrel. And for CY 92, Milne Point's estimated profit is up $0.38 from FY 92, an increase of $0.27 per barrel from CY 91. Thus Milne Point is well ahead of its CY 91 level, while Prudhoe Bay has yet to return to that level. These figures are shown in Graph 3.

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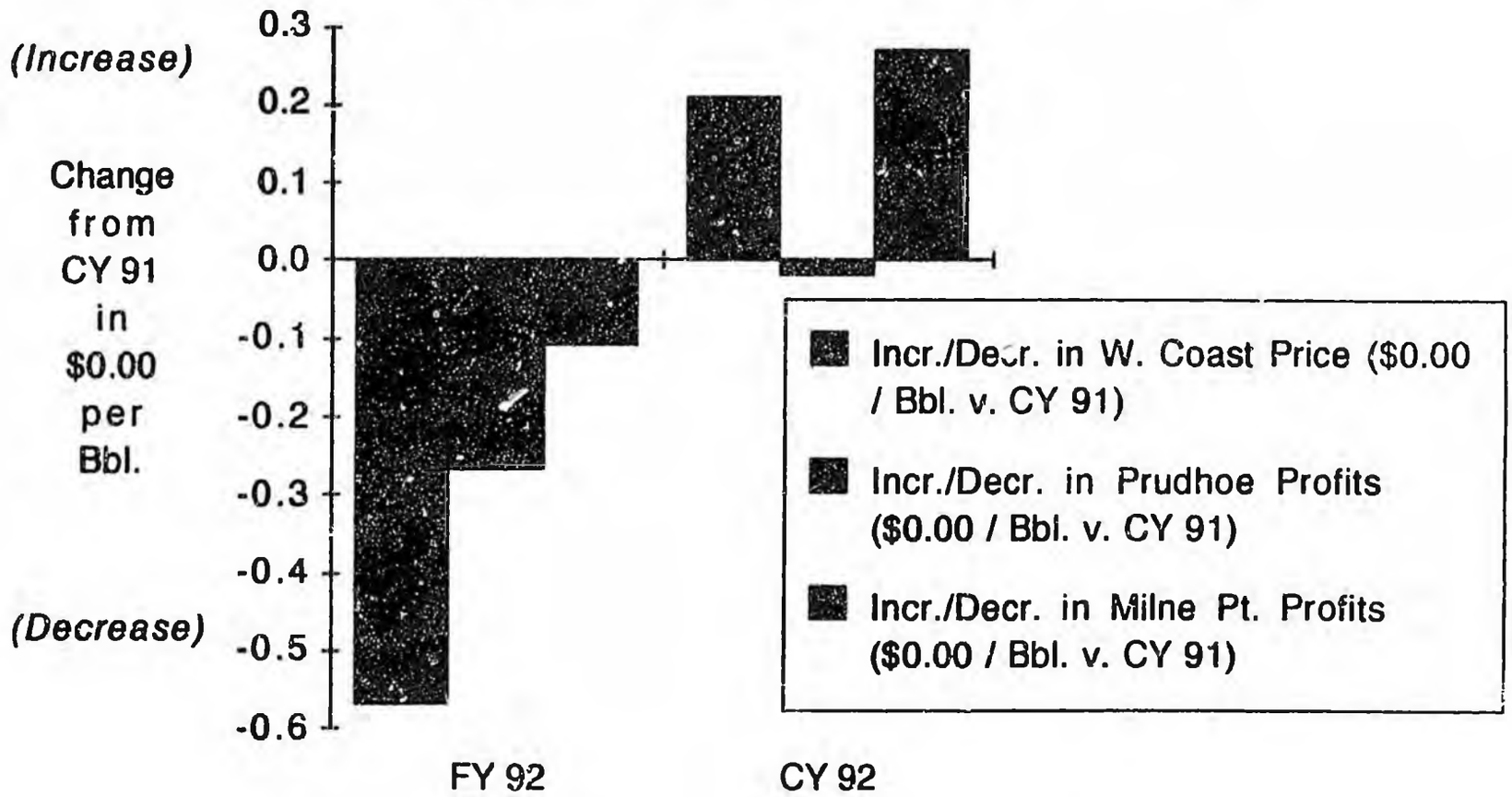
[64] Milne Point oil is marketed on the West Coast; only BP ships to the Gulf. For this reason, the West Coast figure should be regarded as a more realistic calculation of Milne Point income than the weighted average. The negative result shown for Gulf Coast disposition of Milne Point oil is only theoretical. Milne Point oil also bears a higher royalty rate than other fields. Even though Milne pays less than more profitable fields in combined royalty and severance payments due to its lower wellhead value and the operation of the ELF, a relatively high percentage of economic rent that goes to the state compared to that of other production. The model therefore suggests that some form of rate relief for Milne Point — from the state and/or from the TAPS and Kuparuk pipeline owners — may be warranted.

Graph 3.

Change in Price, Estimated Prudhoe and Milne Pt. Profits
(CY 91 v. FY 92 and CY 92)



The Prudhoe Bay results are easily explained: The Prudhoe decrease of $0.27 per barrel in FY 92 represents 47 percent of the $0.57 drop in price. With the industry picking up about 45 percent of the economic rent, if all other factors held constant one would expect the producer to gain or lose that percentage of the change in the price of oil. Although the price of oil has rebounded during the current calendar year, the per-barrel profitability model reflects modest increases in Prudhoe production costs and pipeline tariffs that nibble lightly at Prudhoe's profit margin. Nevertheless, if prices hold steady to year's end, once again in CY 92 North Slope total profits will match those of all but a handful of the most profitable corporations in the nation.

But there's a bit of a mystery about the Milne Point figures. Why didn't the $0.57 drop in the FY 92 average price per-barrel price send Milne Point profits plunging? The primary reason Milne Point suffered a much smaller drop in profits than Prudhoe Bay is that a reduction of $0.58 per barrel in the Milne Point feeder line tariff for CY 92 propped up Milne Point's wellhead value. These reductions resulted from the terms of a settlement in litigation over that tariff. A high feeder-line tariff reduces the wellhead price and production profits. For any given field, the argument over the correct feeder line tariff is a bit unreal; because the producer also owns the feeder line, that tariff is simply a cash transfer from one arm of the company to another. In comparing two fields, however, the field with the more expensive feeder line will produce at a penalty equal to the difference in respective feeder line costs. Milne Point's increasing profit during CY 92 demonstrates the critical importance of feeder line tariffs to marginally profitable fields.

A second noteworthy factor is that the ELF keeps Milne Point's severance tax down when the price of oil drops, reducing the price drop's assault on Milne Point's modest profitability. Note that in the model analysis Milne Point is paying a small severence tax in CY 92 but paid none at FY 92's lower prices. The effect of the ELF, also apparent at Lisburne, would be more visible if we were dealing with fluctuating monthly prices instead of 12-month averages.

E. Future Profits

We turn now to assess future North Slope profits. For this analysis we will use the Department of Revenue's Spring 1992 mid-case forecast scenario for FY 2000. That forecast calls for 971,000 barrels per day — slightly more than half current production rates but about 100,000 barrels per day less than the Department of Natural Resources

April 1992 forecast. One reason for the discrepancy in state forecasts is the absence of West Sak from the Department of Revenue's forecast, discussed above.[65]

Assumptions concerning two variables in the model are especially critical to future profitability: prices (line 1) and production costs (line 15). In July, OPEC Secretary General Subroto told an Anchorage conference that OPEC projections for the 1990's "assume a real price of $21.00 per barrel for OPEC's basket of seven crudes."[66] The head of the Energy Studies Department in the OPEC Secretariat painted a slightly more optimistic picture. He said that OPEC planners think in terms of prices rising from $18.00 to $25.00 by 2000, with an increase of 3% annually after the year 2000.[67] The ANS West Coast spot price typically runs $0.50 to $2.00 below the OPEC basket. Therefore, if OPEC attains its $21.00 target, ANS prices should run at $19.00 per barrel on the West Coast through 2000. A $25.00 per-barrel OPEC price at the end of the century would translate to about $23.00 per barrel for ANS on the West Coast.

The Department of Revenue's Spring 1992 forecast is more conservative than the views of the OPEC officials. DOR's mid-case scenario places ANS in the year 2000 at approximately $19.54 in 1992 dollars. During the next century's first decade, instead of the 3% real annual increase in oil prices price predicted by OPEC researchers, the state forecast price barely exceeds inflation.[68] Those who deal with oil prices are divided as to

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[65] The lower DOR forecast is used for two reasons. First, the aggregate data will match the lower of the two state forecasts, producing a conservative result. Secondly, the Department of Law provided pipeline tariff data for ' is report keyed to the Department of Revenue forecast. The tariff model is sensitive to pipeline throughput and the data could not be converted to DNR figures.

From a policy standpoint state resource managers and the public they serve suffer from having divergent forecasts, neither of which are ready to be used with the pipeline data from the agency responsible for pipelines. In 1990, an international consultant retained by the Legislature and the Department of Revenue observed:

> "A striking feature of the Alaskan oil and gas scene is the lack of coordination between different government agencies .... It has been clear to the consultant through various contacts with representatives of the state government that there is an absence of an exchange of information and ideas on a constructive basis."

Dr. H. Motamen Scobie, "Financial and Other Aspects of Oil Industry Activities and Investment" (prepared for the International Oil Tax Comparison Study Group of the Alaska State Legislature and Department of Revenue, April 1990), p. 40.

[66] Subroto, "The Role of OPEC in the 1990s" (Conference on Energy Issues for the 1990s; University of Alaska Anchorage School of Business and Organization of Petroleum Exporting Countries, July 23-24, 1992), p. 2.

[67] S.A. Al-Fathi, "Current and Future Prospects for Oil" (Conference on Energy Issues for the 1990s; University of Alaska Anchorage School of Business and Organization of Petroleum Exporting Countries, July 23-24, 1992), pp. 11-12.

[68] Spring 1992 Revenue Sources Book, p. 34. (Mid-range 2000 price of $26.95 was converted to 1992 dollars using the inflation forecast in the same table.)

what the future holds. This paper will not rush in where economic wizards tread with fear. In the absence of a crystal ball that enables us to predict the future of oil prices, we will use the more conservative Department of Revenue forecast.[69]

With regard to production costs (line 15), the tables for the year 2000 contain the following adjustments to the current lifting costs used in Tables 12 through 14:

Prudhoe:	(1991 Salomon) x 5% per-year real increase (i.e., inflation plus 5%)
Kuparuk:	(1991 Salomon) x 2
Endicott:	(1991 Salomon x EG&G factor) x 2
Lisburne:	(1991 Salomon) x 5% per-year real increase (i.e., inflation plus 5%)
Milne Pt.:	(1991 Salomon x EG&G factor) x 2.

For the year 2000, DD&A costs are assumed to remain constant. Again, this is believed to be a conservative approach.[70]

These assumptions for FY 2000 are put into the per-barrel profitability model in Tables 15-A through 15-G. The model produces an estimated average profit of $5.34 for each of the 355.4 million barrels forecasted by the Department of Revenue for FY 2000.

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[69] For an excellent statement of the reasons against a pessimistic forecast, see: David Raeume, "A changed world alters oil's future," Anchorage Daily News, Oct. 4, 1992, p. C-1.

[70] DD&A costs were held constant for three reasons: (1) North Slope depreciation schedules typically have been accelerated or front-end loaded, resulting in greater depreciation during early years of production; (2) steadily increasing production forecast totals have made it possible to defray capital costs over a larger number of barrels; and (3) the forecast for FY 2000 is converted to 1992, inflation-adjusted dollars.

FY 2000 North Slope Barrel Profit Analysis (Table 15 - A)

North Slope Profit Analysis: ALL FIELDS	/ - - FY 2000 ANS Avg. (1992$/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	$19.54	From DOR Spr. 92 revenue forecast mid-case (pp. 17-18)
2 Quality Adjusted Price			
3 Production / Disposition (Bbl/t. year / Day)			
a Production (mm bbls. yr. / day) 355.386 / 0.971			DOR Spr. 92 revenue forecast mid-case (p. 47)
b. Volume to East / West Coast (%)	0.00%	100.00%	
4 Feeder Pipeline Tariffs		($0.06)	Wghtd. avg. sum of items 4a thru 4g
a Operating & capital costs		($0.03)	From Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)		$0.00	30% of total DOR property tax
c State income tax (pipelines)		$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.01)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin		($0.01)	From Dept. of Law (7/29/92)
f Recovery of deferred return		$0.00	*
g DR&R allowance		$0.00	*
5 TAPS Pipeline Tariff		($2.74)	Sum of items 5a thru 5h
a Operating & capital costs		($1.39)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)		($0.18)	30% of total DOR property tax
c State income tax (pipelines)		($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.40)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin		($0.58)	From Dept. of Law (7/29/92)
f Recovery of deferred return		($0.12)	*
g DR&R allowance		($0.01)	*
h Pumpability Charge			From Dept. of Revenue data
6 State Share (Feeder Lines)		($0.01)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)		($0.01)	Item 4d
8 Industry Profit (Feeder Lines)		$0.02	Sum of items 4e, 4f
9 State Share (TAPS)		($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)		($0.40)	Item 5d
11 Industry Profit (TAPS)		$0.70	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)		($1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13 Wellhead value		$15.30	Sum of items 1, 4, 5, 12
14 State Royalties, Production & Property Taxes		($3.87)	Sum of items 14a thru 14d
a Royalty		($1.84)	Item 13 less field costs * est. field royalty
b Severance tax		($1.57)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes		($0.03)	$.054 * .875 * deflator
d State & local property tax (production)		($0.43)	70% of total DOR property tax
15 Production costs		($4.45)	Sum of items 15a, 15b
a Lifting Costs		($1.95)	Adj. from trade publication estimates
b Depletion, Depreciation & Amortization		($2.49)	Adj. from trade publication estimates
16 Net Revenue (production)		$6.98	Sum of items 13, 14, 15
17 State Income Tax (production)		($0.18)	From DOR data less items 4c, 5c
18 Federal Income Tax (production)		($2.18)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)		$4.62	Sum of items 16 thru 18
20 Total State Share (production + pipelines)		$4.30	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)		$2.59	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)		$5.34	Sum of items 8, 11, 19
23 FY 2000 Industry Avg. per-barrel ANS Profit		$5.34	

FY 2000 North Slope Barrel Profit Analysis (Table 15 -B)

North Slope Profit Analysis: PRUDHOE BAY FIELD - - FY 2000 Prudhoe Avg. (1992 $/bbl.) - -			Gulf Coast	West Coast	Notes
1	Average Price for ANS (Spot)		$0.00	$19.54	From DOR Spr. 92 revenue forecast mid-case (pp. 17-15)
2	Quality Adjusted Price			$19.87	From DOR data
3	Production / Disposition	*Bbls. year* / *Day*			
	a Production (mm bbls. yr. / day)	242.292 / 0.662			DOR Spr. 92 forecast (incl. NGL's)
	b. Volume to East / West Coast (%)		0.00%	100.00%	
4	Feeder Pipeline Tariffs				None
	a Operating & capital costs				
	b State & local property tax (pipelines)				
	c State income tax (pipelines)				
	d Federal income tax (pipelines)				
	e After-tax margin				
	f Recovery of deferred return				
	g DR&R allowance				
5	TAPS Pipeline Tariff			($2.74)	Sum of items 5a thru 5h
	a Operating & capital costs			($1.39)	From Dept. of Law (7/29/92) less 5b
	b State & local property tax (pipelines)			($0.18)	30% of total DOR property tax
	c State income tax (pipelines)			($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
	d Federal income tax (pipelines)			($0.40)	From Dept. of Law (7/29/92) less item 5c
	e After-tax margin			($0.58)	From Dept. of Law (7/29/92)
	f Recovery of deferred return			($0.12)	"
	g DR&R allowance			($0.01)	"
	h Pumpability Charge			$0.00	From Dept. of Revenue data
6	State Share (Feeder Lines)				Sum of items 4b, 4c
7	Federal Share (Feeder Lines)				Item 4d
8	Industry Profit (Feeder Lines)				Sum of items 4e, 4f
9	State Share (TAPS)			($0.24)	Sum of items 5b, 5c
10	Federal Share (TAPS)			($0.40)	Item 5d
11	Industry Profit (TAPS)			$0.70	Sum of items 5e, 5f
12	Tanker (to Gulf / West Coast)			($1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13	Wellhead value			$15.70	Sum of items 2, 4, 5, 12
14	State Royalties, Production & Property Taxes			($4.29)	Sum of items 14a thru 14d
	a Royalty			($1.87)	Item 13 less field costs * est. field royalty
	b Severance tax			($1.95)	Item 13 *.875 * nominal severance* ELF
	c Spill Response & Conservation Taxes			($0.03)	$.054 * .875 * deflator
	d State & local property tax (production)			($0.43)	70% of total DOR property tax
15	Production costs			($3.20)	Sum of items 15a, 15b
	a Lifting Costs			($1.40)	Salomon Bros. 1991 estimate with 5% p/a (real) increase
	b Depletion., Depreciation & Amortization			($1.80)	Salomon Bros. 1991 estimate
16	Net Revenue (production)			$8.20	Sum of items 13, 14, 15
17	State Income Tax (production)			($0.18)	From DOR data less items 4c, 5c
18	Federal Income Tax (production)			($2.58)	Est. 32.1% of items 16 + 17
19	Industry Profit (production)			$5.45	Sum of items 16 thru 18
20	Total State Share (production + pipelines)			$4.71	Sum of items 6, 9, 14, 17
21	Total Federal Share (production + pipelines)			$2.98	Sum of items 7, 10, 18
22	Total Industry Profit (production + pipelines)			$6.15	Sum of items 8, 11, 19
23	FY 2000 Industry Avg. per-barrel Profit (Prudhoe Bay)			$6.15	

FY 2000 North Slope Barrel Profit Analysis (Table 15 - C)

North Slope Profit Analysis: KUPARUK	/ - - FY 2000 Kuparuk Avg. (1992 $/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	$19.54	From DOR Spr. 92 revenue forecast mid-case (pp. 17-18)
2 Quality Adjusted Price		$18.45	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 61.854 / 0.169			DOR Spr. 92 revenue forecast mid-case (p. 47)
b. Volume to East / West Coast (%)	0.00%	100.00%	
4 Feeder Pipeline Tariffs		($0.21)	Sum of items 4a thru 4g
a Operating & capital costs		($0.11)	Pro-rated from TAPS estimates
b State & local property tax (pipelines)		($0.01)	Pro-rated from TAPS estimates
c State income tax (pipelines)		$0.00	Pro-rated from TAPS estimates
d Federal income tax (pipelines)		($0.03)	Pro-rated from TAPS estimates
e After-tax margin		($0.04)	Pro-rated from TAPS estimates
f Recovery of deferred return		($0.01)	Pro-rated from TAPS estimates
g DR&R allowance		$0.00	Pro-rated from TAPS estimates
5 TAPS Pipeline Tariff		($3.03)	Sum of items 5a thru 5h
a Operating & capital costs		($1.39)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)		($0.18)	30% of total DOR property tax
c State income tax (pipelines)		($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.40)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin		($0.58)	From Dept. of Law (7/29/92)
f Recovery of deferred return		($0.12)	"
g DR&R allowance		($0.01)	"
h Pumpability Charge		($0.29)	From Dept. of Revenue data
6 State Share (Feeder Lines)		($0.02)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)		($0.03)	Item 4d
8 Industry Profit (Feeder Lines)		$0.05	Sum of items 4e, 4f
9 State Share (TAPS)		($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)		($0.40)	Item 5d
11 Industry Profit (TAPS)		$0.70	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)		($1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13 Wellhead value		$13.78	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes		($2.95)	Sum of items 14a thru 14d
a Royalty		($1.67)	Item 13 less field costs * est. field royalty
b Severance tax		($0.81)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes		($0.03)	$.054 * .875 * deflator
d State & local property tax (production)		($0.43)	70% of total DOR property tax
15 Production costs		($6.60)	Sum of items 15a, 15b
a Lifting Costs		($3.30)	Salomon Bros. June 1991 est. * 2
b Depletion, Depreciation & Amortization		($3.30)	Salomon Bros. June 1991 est.
16 Net Revenue (production)		$4.23	Sum of items 13, 14, 15
17 State Income Tax (production)		($0.18)	From DOR data less items 4c, 5c
18 Federal Income Tax (production)		($1.30)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)		$2.75	Sum of items 16 thru 18
20 Total State Share (production + pipelines)		$3.39	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)		$1.73	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)		$3.51	Sum of items 8, 11, 19
23 FY 2000 Industry Avg. per-barrel Profit (Kuparuk)		$3.51	

FY 2000 North Slope Barrel Profit Analysis (Table 15 - D)

North Slope Profit Analysis: ENDICOTT FIELD / - - FY 2000 Endicott Avg. (1992 $/bbl.) - - /			Gulf Coast	West Coast	Notes
1	Average Price for ANS (Spot)		$0.00	$19.54	From DOR Spr. 92 revenue forecast mid-case (pp. 17-18)
2	Quality Adjusted Price			$18.56	From DOR data
3	Production / Disposition	*Bbls. year* / *Day*			
	a Production (mm bbls. yr. / day)	13.176 / 0.036			DOR Spr. 92 revenue forecast mid-case (p. 47)
	b. Volume to East / West Coast (%)		0.00%	100.00%	
4	Feeder Pipeline Tariffs			($0.52)	Sum of items 4a thru 4g
	a Operating & capital costs			($0.20)	From Dept. of Law (7/29/92) less 4b
	b State & local property tax (pipelines)			($0.04)	30% of total DOR property tax
	c State income tax (pipelines)			($0.01)	4d * (eff. state tax rate / eff. fed. tax rate)
	d Federal income tax (pipelines)			($0.05)	From Dept. of Law (7/29/92) less item 4c
	e After-tax margin			($0.15)	From Dept. of Law (7/29/92)
	f Recovery of deferred return			($0.06)	"
	g DR&R allowance			($0.02)	"
5	TAPS Pipeline Tariff			($2.91)	Sum of items 5a thru 5h
	a Operating & capital costs			($1.39)	Dept. of Law (7/29/92) less 5b
	b State & local property tax (pipelines)			($0.18)	30% of total DOR property tax
	c State income tax (pipelines)			($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
	d Federal income tax (pipelines)			($0.40)	Dept. of Law (7/29/92) less item 5c
	e After-tax margin			($0.58)	Dept. of Law (7/29/92)
	f Recovery of deferred return			($0.12)	"
	g DR&R allowance			($0.01)	"
	h Pumpability Charge			($0.17)	From Dept. of Revenue data
6	State Share (Feeder Lines)			($0.04)	Sum of items 4b, 4c
7	Federal Share (Feeder Lines)			($0.05)	Item 4d
8	Industry Profit (Feeder Lines)			$0.21	Sum of items 4e, 4f
9	State Share (TAPS)			($0.24)	Sum of items 5b, 5c
10	Federal Share (TAPS)			($0.40)	Item 5d
11	Industry Profit (TAPS)			$0.70	Sum of items 5e, 5f
12	Tanker (to Gulf / West Coast)			($1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13	Wellhead value			$13.69	Sum of items 2, 4, 5, 12
14	State Royalties, Production & Property Taxes			($2.50)	Sum of items 14a thru 14d
	a Royalty			($1.90)	Item 13 less field costs * est. field royalty
	b Severance tax			($0.12)	Item 13 *.856 * nominal severance* ELF
	c Spill Response & Cons. ($.054/bbl*.875)			($0.03)	$.054 * .856 * deflator
	d State & local property tax (production)			($0.43)	70% of total DOR property tax
15	Production costs			($7.76)	Sum of items 15a, 15b
	a Lifting Costs			($3.88)	1992 estimate (derived from 1991 trade sources) * 2
	b Depletion, Depreciation & Amortization			($3.88)	Derived from 1991 trade estimates
16	Net Revenue (production)			$3.43	Sum of items 13, 14, 15
17	State Income Tax (production)			($0.18)	From DOR data less items 4c, 5c
18	Federal Income Tax (production)			($1.04)	Est. 32.1% of items 16 + 17
19	Industry Profit (production)			$2.21	Sum of items 16 thru 18
20	Total State Share (production + pipelines)			$2.96	Sum of items 6, 9, 14, 17
21	Total Federal Share (production + pipelines)			$1.49	Sum of items 7, 10, 18
22	Total Industry Profit (production + pipelines)			$3.12	Sum of items 8, 11, 19
23	FY 2000 Industry Avg. per-barrel Profit (Endicott)			$3.12	

FY 2000 North Slope Barrel Profit Analysis (Table 15 - E)

North Slope Profit Analysis: LISBURNE	/ - - FY 2000 Lisburne Avg. (1992 $/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	$19.54	From DOR Spr. 92 revenue forecast mid-case (pp. 17-18)
2 Quality Adjusted Price		20.52	From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 32.208 / 0.088			DOR Spr. 92 forecast (p. 47); mid-case; incl. Pt. McIntyre
b. Volume to East / West Coast (%)	0.00%	100.00%	
4 Feeder Pipeline Tariffs			None
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
5 TAPS Pipeline Tariff		($2.44)	Sum of items 5a thru 5h
a Operating & capital costs		($1.39)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)		($0.18)	30% of total DOR property tax
c State income tax (pipelines)		($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.40)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin		($0.58)	From Dept. of Law (7/29/92)
f Recovery of deferred return		($0.12)	"
g DR&R allowance		($0.01)	"
h Pumpability Charge		$0.30	From Dept. of Revenue data
6 State Share (Feeder Lines)			Sum of items 4b, 4c
7 Federal Share (Feeder Lines)			Item 4d
8 Industry Profit (Feeder Lines)			Sum of items 4e, 4f
9 State Share (TAPS)		($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)		($0.40)	Item 5d
11 Industry Profit (TAPS)		$0.70	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)		(1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13 Wellhead value		$16.65	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes		($3.14)	Sum of items 14a thru 14d
a Royalty		($1.99)	Item 13 less field costs * est. field royalty
b Severance tax		($0.69)	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes		($0.03)	$.054 * .875 * deflator
d State & local property tax (production)		($0.43)	70% of total DOR property tax
15 Production costs		($8.45)	Sum of items 15a, 15b
a Lifting Costs		(2.80)	Salomon Bros. 1991 est. for 1992 with 5% p/a (real) increa
b Depletion, Depreciation & Amortization		(5.65)	Salomon Bros. 1992 estimate
16 Net Revenue (production)		$5.05	Sum of items 13, 14, 15
17 State Income Tax (production)		($0.18)	From DOR data less items 4c, 5c
18 Federal Income Tax (production)		($1.56)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)		$3.31	Sum of items 16 thru 18
20 Total State Share (production + pipelines)		$3.56	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)		$1.97	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)		$4.01	Sum of items 8, 11, 19
23 FY 2000 Industry Avg. per-barrel Profit (Lisburne)		$4.01	

FY 2000 North Slope Barrel Profit Analysis (Table 15 - F)

North Slope Profit Analysis: MILNE PT.	/ - - FY 2000 Milne Pt. Avg. (1992 $/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	$19.54	From DOR Spr. 92 revenue forecast mid-case (pp. 17-18)
2 Quality Adjusted Price		$18.21	From DOR data
3 Production / Disposition (Bbls. year / Day)			
a Production (mm bbls. yr. / day) 2.928 / 0.008			DOR Spr. 92 forecast (no Schrader Bluffs)
b Volume to East / West Coast (%)	0.00%	100.00%	
4 Feeder Pipeline Tariff (Milne Pt. only)		($0.75)	Sum of items 4a thru 4g
a Operating & capital costs		($0.46)	From Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)		($0.05)	30% of total DOR property tax
c State income tax (pipelines)		($0.01)	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.05)	From Dept. of Law (7/29/92) less item 4c
e After-tax margin		($0.12)	From Dept. of Law (7/29/92)
f Recovery of deferred return		($0.04)	"
g DR&R allowance		($0.03)	"
5 TAPS Pipeline Tariff		($3.32)	Sum of items 5a thru 5h
a Operating & capital costs		($1.39)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)		($0.18)	30% of total DOR property tax
c State income tax (pipelines)		($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.40)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin		($0.58)	From Dept. of Law (7/29/92)
f Recovery of deferred return		($0.12)	"
g DR&R allowance		($0.01)	"
h Pumpability Charge		($0.59)	From Dept. of Revenue data
6 State Share (Milne Pt. Feeder Line)		($0.07)	Sum of items 4b, 4c
7 Federal Share (Milne Pt. Feeder Line)		($0.05)	Item 4d
8 Industry Profit (Milne Pt. Feeder Line)		$0.16	Sum of items 4e, 4f
9 State Share (TAPS)		($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)		($0.40)	Item 5d
11 Industry Profit (TAPS)		$0.70	Sum of items 5e, 5f (to TAPS owners)
12 Tanker (to Gulf / West Coast)		($1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13 Wellhead value		$12.49	Sum of items 2, 4, 5, 12 + ($0.21) Kuparuk Pipeline tariff
14 State Royalties, Production & Property Taxes		($2.64)	Sum of items 14a thru 14d
a Royalty		($2.17)	Item 13 less field costs * est. field royalty
b Severance tax		$0.00	Item 13 *.817 * nominal severance* ELF
c Spill Response & Conservation Taxes		($0.03)	$.054 * .817 * deflator
d State & local property tax (production)		($0.43)	70% of total DOR property tax
15 Production costs		($7.19)	Sum of items 15a, 15b
a Lifting Costs		($3.06)	1991 estimate (from trade data) with 5% p/a real increase
b Depletion, Depreciation & Amortization		($4.13)	1991 estimate (from trade data)
16 Net Revenue (production)		$2.66	Sum of items 13, 14, 15
17 State Income Tax (production)		($0.18)	From DOR data less items 4c, 5c
18 Federal Income Tax (production)		($0.80)	Est. 32.1% of items 16 + 17
19 Milne Pt. Profit (production)		$1.69	Sum of items 16 thru 18
20 Total State Share (production + pipelines)		$3.12	Sum of items 6, 9, 14, 17 (excludes Kuparuk Pipeline)
21 Total Federal Share (production + pipelines)		$1.25	Sum of items 7, 10, 18 (excludes Kuparuk Pipeline)
22 Total Milne Profit (production + pipeline)		$1.84	Sum of items 8 (Milne Pt. Pipeline only), 19
23 FY 2000 Industry Avg. per-barrel Profit (Milne Pt.)		$1.84	

FY 2000 North Slope Barrel Profit Analysis (Table 1 - G)

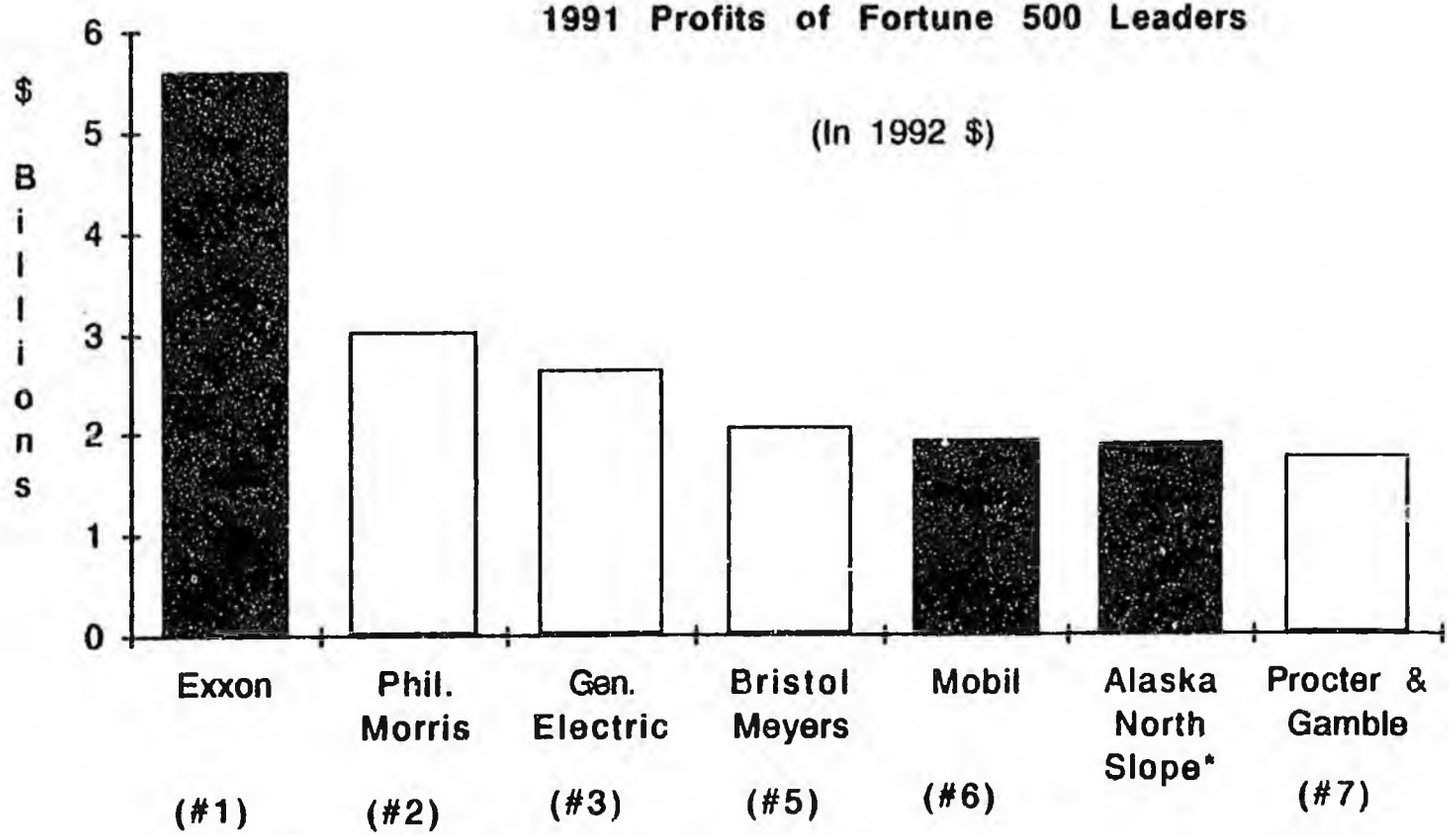
North Slope Profit Analysis: OTHER	/ -- FY 2000 Other Revenue Avg. (1992 $/bbl.) -- /		Notes
(Kuparuk Pipeline tariff on Milne Pt. Oil)	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	(n.a.)	(See analysis of Milne Pt. oil)
2 Quality Adjusted Price		(n.a.)	
3 Production / Disposition (Milne Pt.) *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 2.928 / 0.008			
b. Volume to East / West Coast (%)	0.00%	(n.a.)	
4 Feeder Pipeline Tariff (Kuparuk's Milne Pt. oil)		($0.21)	Sum of items 4a thru 4g
a Operating & capital costs		($0.10)	Dept. of Law (7/29/92) less 4b
b State & local property tax (pipelines)		($0.01)	30% of total DOR property tax
c State income tax (pipelines)		$0.00	4d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.03)	Dept. of Law (7/29/92) less item 4c
e After-tax margin		($0.05)	Dept. of Law (7/29/92)
f Recovery of deferred return		($0.01)	"
g DR&R allowance		$0.00	"
5 TAPS Pipeline Tariff			
a Operating & capital costs			
b State & local property tax (pipelines)			
c State income tax (pipelines)			
d Federal income tax (pipelines)			
e After-tax margin			
f Recovery of deferred return			
g DR&R allowance			
h Pumpability Charge			
6 State Share (Kuparuk's Milne Pt. oil)		($0.02)	Sum of items 4b, 4c
7 Federal Share (Kuparuk's Milne Pt. oil)		($0.03)	Item 4d
8 Industry Profit (Kuparuk's Milne Pt. oil)		$0.05	Sum of items 4e, 4f
9 State Share (TAPS)			
10 Federal Share (TAPS)			
11 Industry Profit (TAPS)			
12 Tanker (to Gulf / West Coast)			
13 Wellhead value			
14 State Royalties, Production & Property Taxes			
a Royalty			
b Severance tax			
c Spill Response & Conservation Taxes			
d State & local property tax (production)			
15 Production costs			
a Lifting Costs			
b Depletion, Depreciation & Amortization			
16 Net Revenue (production)			
17 State Income Tax (production)			
18 Federal Income Tax (production)			
19 Industry Profit (production)			
20 Total State Share (production + pipelines)		$0.02	Sum of items 6, 9,14, 17 (Kuparuk Pipeline only)
21 Total Federal Share (production + pipelines)		$0.03	Sum of items 7, 10, 18 (Kuparuk Pipeline only)
22 Total Industry Profit (Kuparuk's Milne Pt. oil)		$0.05	Sum of items 8, 11, 19 (Kuparuk Pipeline only)
23 FY 00 Industry Avg. per-barrel Profit (Kuparuk Pipe: Milne Pt. oil)		$0.05	

These per-barrel earnings generate total FY 2000 production and pipeline profit of $1,897,700,000 ($1.897 billion) for the North Slope producers. The FY 2000 North Slope profit estimate generated by the per-barrel profitability model represent a reduction of nearly 40% percent from 1991. Nevertheless, when compared to the nation's corporate profit leaders in 1991, estimated North Slope net income for FY 2000 is on a par with the net income of the seventh most profitable corporation in the nation in 1991. The following graph depicts this comparison.

Graph 4.

Estimated FY 2000 North Slope Profits
v.
1991 Profits of Fortune 500 Leaders

(In 1992 $)



* Principally Exxon, ARCO and BP

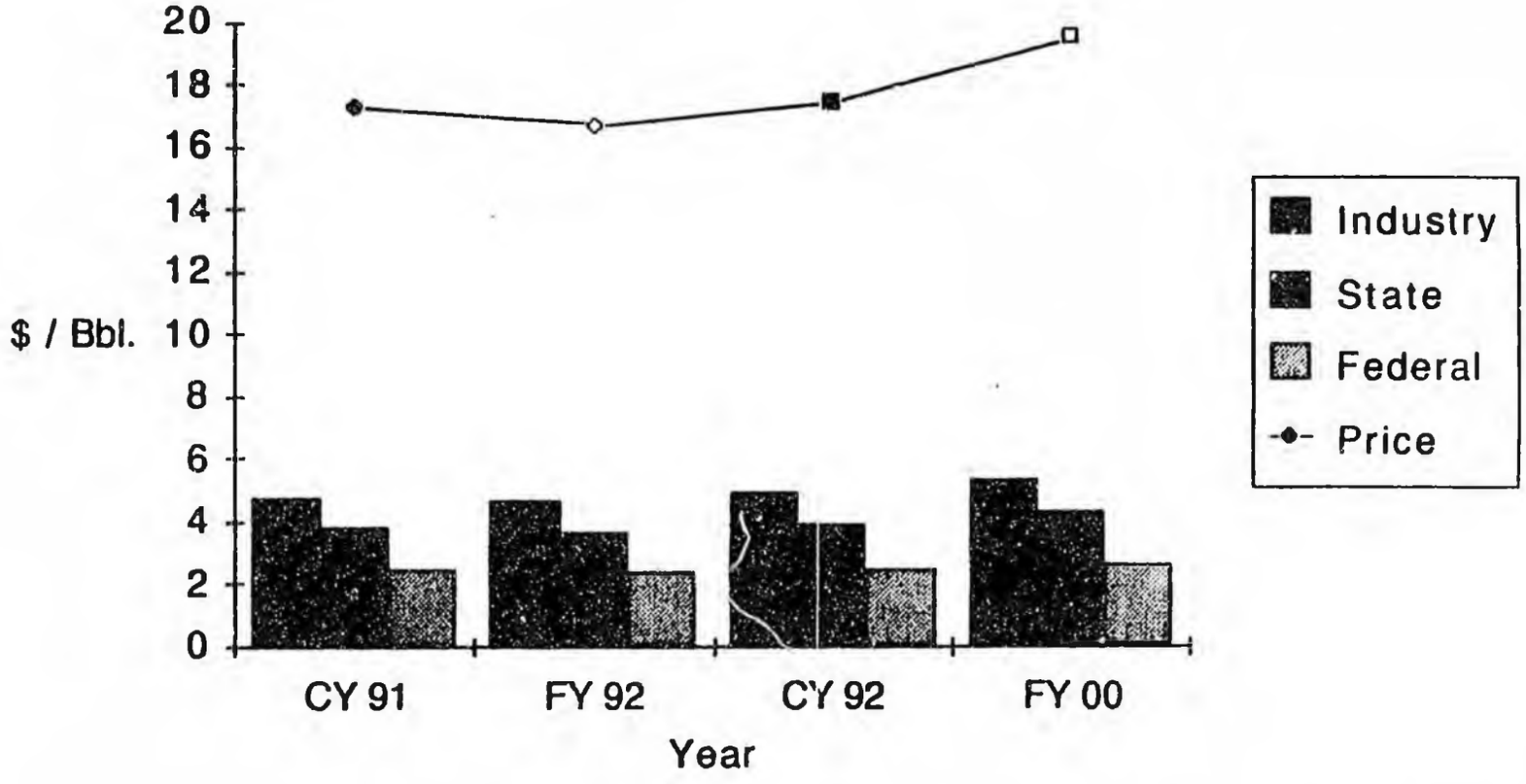
Sources: Fortune, April 20, 1992; Table 15-A

The model indicates that the North Slope is likely to continue to generate handsome profits, even in the face of relatively conservative projections that include: (1) a relatively modest rise in prices, (2) increases lifting costs sharply in opposition to the current trends, (3) exclusion of West Sak, despite industry statements of its plans to produce West Sak as Kuparuk facilities become available.

The following graph summarizes the division of economic rents for the years analyzed in tables 12 through 15.

Graph 5.

West Coast ANS Prices and Economic Rents
CY 91 - FY 2000 (Selected Years)



	CY 1991 ($17.21 / Bbl.)	FY 1992 ($16.64 / Bbl.)	CY 1992 ($17.42 / Bbl.)	FY 2000 ($19.54 / Bbl.) *(in 1992 $)*
Industry Share	$4.77 (43.2%)	$4.67 (43.9%)	$4.92 (43.9%)	$5.34 (43.7%)
State Share	$3.82 (34.6%)	$3.65 (34.3%)	$3.85 (34.4%)	$4.30 (35.2%)
Federal Share	$2.45 (22.1%)	$2.31 (21.7%)	$2.43 (21.7%)	$2.59 (21.2%)

Source: Tables 12-A, 13-A, 14-A, 15-A

The per-barrel profitability model omits West Sak in order to link accurately the pipeline tariff model from the Department of Law with the Spring 1992 production forecast by the Department of Revenue, which omitted West Sak. Nevertheless, it is possible to use the model to take a rough look at West Sak profitability. For this comparison to Table 15, we will use the quality differential provided by the Department of Revenue at line 2, pipeline tariffs from Kuparuk at lines 4 and 5 and production costs from Milne Point at line 15.[71]

[71] The major North Slope operators were contacted but declined to provide cost information for this report. Public policy makers who wish to understand North Slope production potential, production costs and trends should insist on better public information.

FY 2000 North Slope Barrel Profit Analysis (Table 16)

North Slope Profit Analysis: WEST SAK	/ - - FY 2000 W. Sak Avg. (1992 $/bbl.) - - /		Notes
	Gulf Coast	West Coast	
1 Average Price for ANS (Spot)	$0.00	$19.54	From DNR Apr. 92 production forecast, (pp. 4-5)
2 Quality Adjusted Price			From DOR data
3 Production / Disposition *Bbls. year* *Day*			
a Production (mm bbls. yr. / day) 9.125 / 0.025			DOR Spr. 92 revenue forecast mid-case (p. 47)
b. Volume to East / West Coast (%)	0.00%	100.00%	
4 Feeder Pipeline Tariffs		($0.21)	Sum of items 4a thru 4g
a Operating & capital costs		($0.11)	Pro-rated from TAPS estimates
b State & local property tax (pipelines)		($0.01)	Pro-rated from TAPS estimates
c State income tax (pipelines)		$0.00	Pro-rated from TAPS estimates
d Federal income tax (pipelines)		($0.03)	Pro-rated from TAPS estimates
e After-tax margin		($0.04)	Pro-rated from TAPS estimates
f Recovery of deferred return		($0.01)	Pro-rated from TAPS estimates
g DR&R allowance		$0.00	Pro-rated from TAPS estimates
5 TAPS Pipeline Tariff		($3.62)	Sum of items 5a thru 5h
a Operating & capital costs		($1.39)	From Dept. of Law (7/29/92) less 5b
b State & local property tax (pipelines)		($0.18)	30% of total DOR property tax
c State income tax (pipelines)		($0.06)	5d * (eff. state tax rate / eff. fed. tax rate)
d Federal income tax (pipelines)		($0.40)	From Dept. of Law (7/29/92) less item 5c
e After-tax margin		($0.58)	From Dept. of Law (7/29/92)
f Recovery of deferred return		($0.12)	"
g DR&R allowance		($0.01)	"
h Pumpability Charge		($0.88)	From Dept. of Revenue data
6 State Share (Feeder Lines)		($0.02)	Sum of items 4b, 4c
7 Federal Share (Feeder Lines)		($0.03)	Item 4d
8 Industry Profit (Feeder Lines)		$0.05	Sum of items 4e, 4f
9 State Share (TAPS)		($0.24)	Sum of items 5b, 5c
10 Federal Share (TAPS)		($0.40)	Item 5d
11 Industry Profit (TAPS)		$0.70	Sum of items 5e, 5f
12 Tanker (to Gulf / West Coast)		($1.44)	From DOR Spr. 92 forecast mid-case (p. 18)
13 Wellhead value		$11.58	Sum of items 2, 4, 5, 12
14 State Royalties, Production & Property Taxes		($1.82)	Sum of items 14a thru 14d
a Royalty		($1.36)	Item 13 less field costs * est. field royalty
b Severance tax		$0.00	Item 13 *.875 * nominal severance* ELF
c Spill Response & Conservation Taxes		($0.03)	$.054 * .875 * deflator
d State & local property tax (production)		($0.43)	70% of total DOR property tax
15 Production costs		($7.19)	Sum of items 15a, 15b (from Milne Pt.)
a Lifting Costs		($3.06)	1991 M.P est. (from trade data) with 5% p/a real increase
b Depletion, Depreciation & Amortization		($4.13)	1991 M.P. est. (from trade data)
16 Net Revenue (production)		$2.56	Sum of items 13, 14, 15
17 State Income Tax (production)		($0.18)	From DOR data less items 4c, 5c
18 Federal Income Tax (production)		($0.76)	Est. 32.1% of items 16 + 17
19 Industry Profit (production)		$1.62	Sum of items 16 thru 18
20 Total State Share (production + pipelines)		$2.26	Sum of items 6, 9, 14, 17
21 Total Federal Share (production + pipelines)		$1.20	Sum of items 7, 10, 18
22 Total Industry Profit (production + pipelines)		$2.37	Sum of items 8, 11, 19
23 FY 2000 Industry Avg. per-barrel Profit (W. Sak)		**$2.37**	

The results shown in Table 16 assume that West Sak production replaces Kuparuk barrels. In fact, Kuparuk processing facilities can process in excess of 320,000 barrels per day; they are doing so now. If Kuparuk is at 169,000 barrels per day in FY 2000, West Sak could produce at 150,000 barrels per day while sharing the Kuparuk facilities with the forecasted Kuparuk production.

The production and shipping of 150,000 barrels per day from West Sak additional to the DOR forecast would increase industry profits by about $200 million. Immediately visible is $130 million: $2.37 per-barrel x 54,750,000 barrels = $129,757,500. In addition, West Sak shipments would reduce the TAPS tariff for all barrels produced — including those produced from West Sak. Precise calculation of the TAPS tariff reduction per barrel due to increased production is beyond the scope of this paper, but it is reasonable to assume the tariff reduction would match the percentage increase in total TAPS shipments. If West Sak increased forecasted production of 971,000 barrels per day by 150,000 barels, this would be approximately 15% of the $2.74 tariff, or $0.40 per barrel. The per-barrel profitability model indicates that this amount would be divided amont the producers, the state and the federal government as follows:

State share (35.2%)	$0.14
Federal share (21.2%)	$0.08
Industry share (43.7%)	$0.18

The industry's $0.18 per barrel would add approximately $63 million to the $1.897 billion all-field estimated industry profit for FY 2000 shown in Tables 15-A. The same savings from increased production would apply to the West Sak barrels, increasing the profitability shown in Table 16 for West Sak by the same $0.18 per barrel. That's another $9.8 million. If producing costs are $7.19 per barrel, the expenditure necessary to produce $200 million in profit appears to be something on the order of $400 million. That's an after-tax return of $0.50 per dollar.

While these numbers are only rough approximations, they demonstrate why West Sak will probably be produced unless something better comes along. One other factor lends strength to the case for West Sak production: After nearly two decades of North Slope surplus, California is forecasted to be crude-short again in 1996. Its refineries have learned to deal with heavy oils like that of West Sak. Where other refineries in the world cannot process heavy oil, California refineries have had to deal with heavy oils for decades. In short, California is a ready made market for West Sak oil.

One of the reasons the Department of Revenue's economic forecasters view West Sak dimly is that their model excludes TAPS profits from calculations of whether a field can produce profitably. The Department of Revenue's future scenario fails twice in this regard. First, in deciding whether a field is economically viable, the department's model fails to take into account the TAPS profit on West Sak — which produces $0.70 of the $2.37 per barrel estimated West Sak profit shown in Table 16. Second, the DOR approach apparently ignores the $0.18 per barrel gain on all North Slope barrels resulting from reduced TAPS tariffs due to West Sak's increased production. North Slope producers will view any North Slope development decision as a package that includes Alaska pipeline shipping costs and profits. Any disussion of Alaska operations that overlooks profits of this magnitude should be regarded as irrelevant from an Alaska policy perspective.[72]

The TAPS tariff significantly affects many North Slope development questions. For example, to the TAPS owners, prospective TAPS profits far outweigh the benefits of drilling incentive credits. Likewise, the costs of pipelining greatly exceed potential benefits from such credits for the prospective developer who is not invested in existing North Slope pipelines. In this regard, in 1990 one of the consultants with the International Tax Comparison Study Group reported to the Alaska State Legislature and the Department of Revenue that Great Britain had recently shifted from placing development in the hands of the major companies to encouraging development by small independents. "[P]erhaps there are some lessons to be learnt from the UK," the consultant noted.[73]

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[72] The Alaska Department of Revenue's modelling decision to exclude TAPS profits from the consideration of whether a field can operate profitably may make sense in the case of a hypothetic field — discovered or undiscovered — whose owners have no share in TAPS. But this convention does not reflect economic realities when the model excludes identifiable profits from a field whose owners are known to have a major interest in TAPS.

[73] "Financial and Other Aspects of Oil Industry Activities and Investment" [op. cit.], p. 42.

IV. Recent Developments

In the preceding chapters two aspects of North Slope oil development have been quantified: continued increases in forecasted future production and estimated profits from Alaska operations that rival the top-earning corporations in the United States. In this chapter we turn to three recent developments whose implications for North Slope development warrant consideration. These are: (A) Prospects for developing the Arctic National Wildlife Refuge; (B) consideration of the effects of potential natural gas sales on North Slope production; and (C) the implications of recent discoveries by Conoco (Badami) and ARCO (Kuvlum).

A. Prospects for Developing the Arctic National Wildlife Refuge

In November 1991 the U.S. Senate declined to consider a proposal that the Arctic National Wildlife Refuge be opened to exploration and that funds from Arctic Refuge leasing underwrite a broad range of energy programs. The architect of that plan, Senator Bennett Johnston of Louisiana, acknowledged that no more than 45 of his colleagues supported opening the Aarctic Refuge to exploration and withdrew the proposal. The industry subsequently drew back, putting the state of Alaska at the forefront of promoting development of this province.[74] The model developed in this report for North Slope profitability highlights two aspects of the economics of Arctic Refuge development that make the state's continued efforts in Arctic Refuge somewhat surprising:

(1) Because the Arctic Refuge is on federal land, there is no direct state royalty on Arctic Refuge production. Instead, the state will receive a yet undetermined portion of federal royalties through revenue sharing.

(2) The high price of a feeder line from the Arctic Refuge to TAPS will place a penalty on Arctic Refuge oil that will reduce both the royalty share and the state's severance tax.[75]

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[74] See: "Hickel seeks ANWR delay: Gov. sas it may be wise to hold vote after election," Fairbanks Daily News-Miner, Feb. 3, 1992, p. 1; "Oil lobby abndons ANWR," Anchorage Daily News, April 15, 1992, p. B-1.

[75] A 1986 study for the federal government indicates tariff sensitivity to throughput assumptions. That report estimated a pipeline from the western Arctic Refuge would bear a tariff of $2.00 per barrel for a field producing 1 billion barrels; for a 200 million barrel field, the tariff would be $9.00 per barrel. Costs would double for a field in the eastern region. (John S. Young and William S. Houser, Economics of Oil & Gas Production from ANWR for the Determination of Minimum Economic Field Size [Bureau of Land

Due to the many uncertainties — field size. cost of feeder lines, timing of development, etc. — even if oil were discovered in the Arctic Refuge, modelling Arctic Refuge profits would be beyond the scope of this project. However, per-barrel profitability analysis does make possible a rough comparison can be made between the state's share of an Arctic Refuge barrel and that of an equivalent barrel near Prudhoe Bay on state lands.

Table 17.

State Shares: Near-Prudhoe Barrel v. Arctic Refuge Barrel

	Near-Prudhoe Barrel	Arctic Refuge
Barrel		
Market Price (at refinery)	$20.00	$20.00
Less:		
Arctic Refuge Pipeline Tariff (1986 DOR est.)	---	(5.50)
TAPS tariff	(4.00)	(4.00)
Tanker Cost	(1.00)	(1.00)
Effective Tax and Royalty Basis	$15.00	$9.50
State Share:		
(est. 12.5% royalty, 12.5% severance = 25%) . . .	$3.75	
or	\	
(est. 6.25% roy.+ 12.5% sev. = 18.75% + est. $0.30 feeder line property tax) *		$2.08
	\	/
	\	/
Loss to state from industry investment in Arctic Refuge instead of near-Prudhoe development	(3.75 - $2.08 = $1.67 per barrel)	

* Assumed 50-50 state-federal split of a 12.5% federal royalty.

Table 17 indicates that the state loses more than $1.50 per barrel on the industry's gamble on Arctic Refuge development, compared to state returns on development near Prudhoe. Development near Prudhoe Bay would also be more valuable to the state for another reason. Production in the vicinity of Prudhoe is likely to generate state revenue years before development of as yet-undiscovered oil in the Arctic Refuge.

Management, Alaska State Office, Division of Mineral Resources, 1986], pp. 29, 32, 34). The Alaska Department of Revenue estimated a 1 billion barrel field 125 miles from TAPS would bear a tariff of $5.50 per barrel (Vincent D. Wright, "Potential State Revenue from the Arctic National Wildlife Reserve" [memorandum to Governor Bill Sheffield], May 15, 1986, p. 1).

Why doesn't the high cost of a long arctic feeder line extinguish the industry's interest in this province altogether? From a theoretical standpoint, four reasons for continued industry interest in the Arctic Refuge can be identified: (1) Discovery of a super-giant field could make Arctic Refuge production highly profitable for the industry, even in the face of high feeder line costs — just as Prudhoe Bay 's size enabled the industry to build TAPS; (2) the possibility of sharply rising prices could make Arctic Refuge production profitable; (3) from the producer's standpoint, the necessity of a high-cost feeder guarantees some profit, even in relatively low-price scenarios; and (4) as Table 17 indicates, the state will absorb a disproportionate share of the reduced value of Arctic Refuge production, compared to development in provinces on state land nearer Prudhoe Bay. All four reasons underscore that Arctic Refuge exploration is a gamble whose principal benefactor may be the industry, not the state.

Finally, there is the TAPS factor. For the TAPS owners guaranteed TAPS profits, continued income from retained DR&R holdings and the deferring of DR&R outlays further strengthen the case for Arctic Refuge development.[76] It should be noted that all three TAPS factors apply equally to development near Prudhoe Bay, as well as to the Arctic Refuge.

B. Implications of Recent Discoveries by Conoco (Badami) and ARCO (Kuvlum)

In 1991 Conoco's Badami well hit oil in near-shore state waters in Mikkelson Bay, about 40 miles from Pump Station 1 and 25 miles from the Endicott Pipeline. The strike, at 4,250 barrels of oil per day, has not yet been determined to be commercially viable.[77] A feeder pipe linkup would be about twice the length of the Milne Point pipeline; to that tariff would be added the Endicott tariff. Because these tariffs would be spread across all barrels produced at Badami, field size will be crucial to determining whether the feeder line tariff will prohibit development. Once again the discoverer, Conoco, does not have an interest in TAPS or other producing fields, with the exception of its Milne Point production. The major TAPS owners therefore stand to share in the benefits of Badami production in continued production at other fields and lower TAPS tariffs. Badami is on state land and

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[76] Estimated anual income from past DR&R collections exceeds $400 million per year; estimated DR&R outlays associated with pipeline shutdown in the year 2011 are approximately $4.5 billion (nominal $) between 2010 and 2015 (Hidden Billions: The TAPS DR&R Provision [op. cit.], pp. 21-26).

[77] Bert Tarrant, "The Elephant Hunters," Anchorage Times, March 22, 1992, p. D-3.

would therefore produce both severance and royalty — if there's anything left after the pipeline tariffs.

ARCO's recent discovery at Kuvlum is reported to be light oil flowing at 3,400 barrels per day. The location is 25 miles east of Badami and 15 miles off shore, in 110 feet of water. The possibility Badami and Union's 1985 discovery at Hammerhead could share freeder line costs increases the likelihood of development. In that event, 60 miles of the pipeline to the Arctic National Wildlife Refuge will be in place. Once again, don't start counting chickens just yet. The prospect of bringing oil through the shifting pack ice to shore is formidable — it has never been done before — and ARCO estimates it will need one to two billion barrels to produce Kuvlum. Until further delineation of both strikes is completed, it is too soon to know whether development is likely. Since Kuvlum is off-shore in federal waters, the state would not collect severance; any income from Kuvlum production would come through revenue sharing.[78]

There's another 300 million barrels of high quality oil sitting right where Kuvlum would come to shore. It's the condensate associated with natural gas discovered by Exxon at Flaxman Island. Flaxman gas, in turn, would be produced and marketed only in conjunction with a major gas sale at Prudhoe Bay.[79]

While the uncertainties are enormous, this possibility exists — at least in theory: If Kuvlum and Badami turn out to be major fields and if a major North Slope gas sale moves forward, the addition of Flaxman's condensate would be a third major oil field in that region, possibly reducing feeder line costs in this region to levels at which the oil in the region would be competetive on the world market. The building of a pipeline 60 miles east from Prudhoe Bay would, in turn, increase the attractiveness of any discovery in the Arctic Refuge by reducing the economic penalties of a stand-alone feeder line from the Arctic Refuge.

C. Effects of Potential Natural Gas Sales on Prudhoe Bay Production

Continued interest in a major sale of North Slope natural gas has focused attention on the question of how gas sales will affect Prudhoe oil production. Information bearing

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[78] Frederick Rose, "Arco Oil Find in Beaufort Sea is Likely To Renew Debate Over Wildlife Refuge," Wall Street Journal, Oct. 15, 1992, p. A-3; Kim Fararo and Hal Bernton, "Arco makes Arctic strike," Anchorage Daily News, Oct. 15, 1992, p. A-1.

[79] Alaska Oil and Gas: Energy Wealth or Vanishing Opportunity? (op. cit.), p. 3-38.

on this question was developed in a hearing held by the Alaska Oil & Gas Conservation Commission in November-December 1991 on the Prudhoe operators' request to lower field pressure requirements. The problem is that gas production will eventually cause the loss of oil at Prudhoe Bay. At what point will the prospect of long-term revenues from gas — say in 2025 — outweigh the loss of oil revenue from Prudhoe Bay in 2015? The upshot of a hearing on this subject before the Alaska Legislature last January was this: The Oil and Gas Conservation Commission, on the basis of its earlier hearing, feels that effects of a natural gas sale can best be analyzed after a proposal is made. In the commission's view, there are too many economic uncertainties to warrant the time and expense of modelling before there is a concrete proposal.[80]

The Oil & Gas Conservation Commission's wait-and-see position on gas line development makes sense. The inherent uncertainties of long-range forecasting mean that tomorrow's model has a greater likelihood of producing meaningful results than today's. However, the Commission's strategy assumes that state knowledge and organization are adequate to handle this complex question when it becomes ripe for consideration. However, several problems identified in this report indicate that the state resource managers might consider reorganizing themselves to define issues and make recommendations on development policy decisions in a timely manner.[81]

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[80] House Finance and House Oil and Gas Committee, Hearing on Prudhoe Bay reservoir Development and Management," Jan. 23, 1992. See also: Alaska Oil & Gas Conservation Commission Hearing on Petition to Amend Conservation Order No. 195 Rule 2 and Approve Significant Expansion of Prudhoe Bay Unit Miscible Gas Project, Nov. 18-20, Dec. 20, 1991, resulting in Order No. 290, Feb. 21, 1992

[81] Production forecasts provide one indication that the state may not be capable of reviewing and making informed policy decisions on North Slope development in a timely manner. The state's consistent upward revision of its forecasts is an indication that public bureaucracy may lag industry's in its understanding of the issues at hand. The Department of Revenue's removal of West Sak from its Spring 1992 forecasts provides a further warning that state agencies may be in a poor position to assimilate and interpret new information when the time comes to judge the economic effects of a major gas sale. Finally, the state's failure to apprehend significant problems imbedded in pipeline tariffs — for example, the give-away in the TAPS DR&R provision — provides an additional indication of problems in resource policy management.

Although detailed discussion of the possible institutional corrections to the problems mentioned here is beyond the scope of this report, some suggested remedies will be briefly mentioned:

Poor inter-agency coordination was "striking" to at least one member of the International Oil Tax Comparison Study Group of the Alaska State Legislature and Department of Revenue (Dr. H. Motamen Scobie; see note 65, above). Better inter-agency coordination can be effected by creation of an oil and gas subcabinet wthin the administration. One way the Legislature can insure that state policy makers are handling oil and gas matters in an appropriately even-handed and far-sighted manner would be to establish direct legislative oversight of key oil and gas policy issues by the Legislative Budget and Audit Committee staff. A third institutional fix would be to transfer pipeline tariff responsibilities from the Deapartment of Law to a line agency — the Department of Revenue or Department of Natural Resources. (The transfer of this executive responsibility is the only recommendation that requires statutory action.)

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

FISCAL YEAR 1992 ANNUAL REPORT

January 21, 1993

OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND
FISCAL YEAR 1992 ANNUAL REPORT

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OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

FISCAL YEAR 1992 ANNUAL REPORT

Section I. INTRODUCTION

The Oil and Hazardous Substance Release Response Fund, generally referred to as the "Response Fund", was created by the Legislature in 1986 to provide adequate funding for the State to investigate, respond and cleanup spills of oil and hazardous substances. Each year, the Department of Environmental Conservation (DEC), the Response Fund administrator, is required to submit a report to the Legislature providing information on Response Fund expenditures, costs recovered, DEC response activities, projected expenditures, and any other information considered significant by the Commissioner (AS 46.08.060).

Section II provides an update of the Department's response to an internal management audit of the Response Fund. The audit was conducted in May 1991 and provided recommendations to improve DEC's management of the Response Fund. During FY92 a number of steps were taken to resolve specific audit issues. Actions taken during FY93 are described here.

Alaska response capability; are we better off this year? Section III offers an assessment of Alaska's ability to prevent and respond to hazardous substances incidents. Section IV provides information on FY92 Response Fund allocations. Response Funded activities are described in Section V.

Section II. RESPONSE FUND MANAGEMENT AUDIT UPDATE

Since the release of the May 1991 audit report, DEC has and continues to take action to improve management of the Response Fund. The conditions described in the audit report, and corrective actions taken by DEC are outlined below.

USE OF THE FUND BY OTHER AGENCIES

Audit issue:

By statute, DEC is the State's designated Response Fund administrator (AS 46.08.010). However, DEC does not have full management and accounting control over Response Funds directly appropriated to other State agencies by the Legislature. There are no requirements to provide DEC with Response Fund accounting information from agencies receiving direct Response Fund appropriations. DEC can only manage, account, and report on Response Fund appropriations made directly to DEC.

Actions Taken by DEC:

DEC has developed and incorporated standard reporting requirements into FY92 Reimbursable Service Agreements (RSAs) between DEC and other agencies that use the Response Fund.

It is clear that the use of RSAs to manage the transfer of Response Funds between agencies has contributed to the difficulty in obtaining information about the expenditures and obligations incurred in this fund. DEC, the Department of Administration-Division of Finance, the Office of Management and Budget and Legislative Finance staff are currently investigating other options to provide reasonable internal controls and reporting while eliminating the reporting difficulties caused by use of RSAs. Recommendations should be available within ninety days.

CLARIFICATION OF DEC ROLES

Audit Issue:

There is no single manager of the Response Fund.

Actions Taken by DEC:

The Assistant Commissioner is the designated Response Fund Manager.
The Director of SPAR serves as Assistant Response Fund Manager providing policy guidance and direction. A second Assistant Response Fund Manager within the Division of Information and Administrative Services is responsible for procedures, internal fiscal

control and Response Fund accounting reports.

COST RECOVERY

Audit Issue:

Full cost recovery on the majority of incidents does not occur.

Actions Taken by DEC:

Procedures for cost recovery by DEC's regional office response staff are being developed the Division of Information and Administrative Services. Draft procedures are expected to be available within ninety days.

EQUIPMENT POLICY AND PROCEDURES

Audit Issue:

The condition, location, and current value of equipment purchased with Response Funds cannot be accurately documented.

Action Taken by DEC:

It is clear that because of inconsistencies in coding equipment purchases on the State Division of General Services and Supply special fund equipment database, it is not possible to determine the current value of all Response Fund purchased equipment.

The Department has established a response gear inventory database program to track and maintain condition and location summaries of all the Department's growing spill response equipment inventory.

Departments that have inventory lists tracking equipment purchased with response fund dollars are as follows:

Department of Environmental Conservation	$ 597,424
Department of Natural Resources	72,335
Department of Administration, Div. Telecommunications	60,324
Department of Fish and Game	991,825
Department of Transportation/Public Facilities	14,678
Department of Military and Veterans Affairs	950,076

Section III. ALASKA RESPONSE CAPABILITY -- "Are we better off this year?"

Progress continues in State programs designed to prevent and respond to hazardous substances incidents. The State Master Oil and Hazardous Substance Discharge Prevention and Contingency Plan (State Master Plan) has been given approval by the State Emergency Response Commission (SERC) and is now effective. All State agencies are obligated to coordinate their responses to emergency hazardous substance incidents as part of the State's Incident Command System (ICS) under the direction of the State On Scene Coordinator (SOSC). During the next year, State agencies will be developing standard operating procedures to describe the procedures to be followed during specific activities related to incident response.

Recently, the Department of Environmental Conservation (DEC) established four programs related to spill prevention and response programs to focus efforts towards improving the State's ability to prevent and respond to incidents. The four program are: (a) Government Preparedness and Response, (b) Contaminated Sites Remediation, (c) Underground Storage Tanks, and (d) Industry Preparedness. These programs are developed and managed by the Director of the Division of Spill Prevention and Response (SPAR) and implemented throughout the State under the direction of the Regional Administrators/SOSCs. Appendix D describes the goals, background, issues, major features, and benefits of these programs.

The Government Preparedness and Response program has several projects that contribute to ensuring the State and local communities have planned for and are equipped to meet the challenges of responses to hazardous substance releases. These projects are: (a) State and Regional Master Planning, (b) SERC and Local Emergency Planning Committee (LEPC) coordination, and (c) Hazardous Substance Response Preparedness.

The State and Regional Master planning process is evolving into a joint effort with the Federal Government. Agreement in concept has been reached among State and Federal agencies charged with preparing contingency plans for government resources. The Alaska Regional Response Team (ARRT) has also approved the concept. The State and Federal government contingency planners will be working together to develop one contingency plan which will be used by all agencies to coordinate responses to hazardous substance releases. This joint plan will be developed from the bottom -- up! Local plans developed by LEPCs will make up Regional plans which will also serve as Area Plans under the National Contingency Plan. The Regional/Area Plans will then be combined to form annexes to the overall Federal and State Contingency (Master) Plan for Alaska. This plan will be approved by the SERC and the ARRT and jointly exercised.

Many LEPCs have been formed and are preparing local community emergency response plans based on hazards analyses. Significant progress has been made

through increased communications, quarterly workshops which coincide with quarterly SERC meetings, and sustainable levels of State funding. There is a need to develop regulations governing the operations of the SERC, especially as it interacts with LEPCs, and to clarify the roles of local governments and LEPCs. For those areas of the State where interest or capability to form LEPCs is insufficient, the State will be developing one Local Emergency Planning District (LEPD) and provide the resources to address problems in those areas. Funding levels for LEPCs for planning purposes should remain constant; however, many LEPCs are requesting additional funds to purchase response equipment to improve the local capability to respond to incidents they are identifying through their local planning process. Funds for this latter purpose may not be forthcoming because these needs are outside of the scope of LEPCs and should be addressed through State depots. See Appendix E for the status of LEPDs and LEPCs as of December 31, 1992.

The capability to prevent and respond to crude oil spills has been vastly improved by State legislation and spill prevention and response program activities. However, there is a big gap in the capability to respond to non-crude oil spills and releases of other hazardous substances. This has been particularly evident by the number of chlorine releases experienced throughout the State and the heightened level of awareness of the deadly hazards of uncontrolled chlorine releases. A special task force was recently formed to rapidly increase the State's information base on the threat of chlorine releases, make the population aware of serious risks associated with chlorine releases, take aggressive steps to prevent releases, and eliminate potential sources of emergency releases (such as those at abandoned canneries). During the near future the threat of hazardous materials releases must be weighed against those of oil -- both crude and non-crude. A study on the transportation of non-crude oil indicates there is a glaring gap in the State's capability to respond to such releases in Western Alaska and Southeast. During FY 93, a strategic plan for depots/corps that addresses the State's needs in 1993 and beyond will be developed. This plan will clarify the need for depots and corps and be used as the basis for a nearshore demonstration project funded by the Legislature for FY 93.

DEC has paid considerable attention to crude oil spill contingency planning in its Industry Preparedness program. Oil pollution prevention and control regulations became effective during fiscal year 1992 and the DEC Regional staffs began reviewing revised contingency plans submitted by the oil industry. While crude oil handling and noncrude delivery in the most populated regions of the State have been significantly upgraded, there is increased awareness of the problems with heating oil and gasoline faced by small communities in remote areas of the State. Many of the facilities that serve these areas are dilapidated and will not last much longer. These facilities are not regulated because of their size (below 10,000 barrels), but are increasingly the source of chronic spills, as well as sudden accidental releases. DEC must continue to work with other State and Federal agencies to prevent spills from these facilities. The Alaska Energy Authority has identified $47 million needed to upgrade 236 facilities to

existing codes. A DEC contractor did a separate study of 293 facilities and estimated a minimum of $161 million would be needed to bring them up to prevention standards required of the regulated facilities. It is only a matter of time before these facilities will start to fail in large numbers requiring numerous emergency responses. Many small communities will be in peril, unless proactive measures are taken. DEC currently does not have the resources to dedicate to a project of this nature without significantly reducing its ability to meet its present statutory obligations for hazardous substance spill prevention and response.

During 1992, the initial strategic plan for contaminated sites, Clean 2000 was developed by the Contaminated Sites Remediation staff. The goal is to initiate a systematic process to clean up or control contaminated sites that pose a threat to the public health or the environment. Targets have been set for implementation of program initiatives necessary to ensure that by the year 2000, corrective actions will be underway at all sites which pose an imminent or substantial threat to the public health or the environment. The plan calls for subdividing the list of contaminated sites (presently over 1,500) into action categories ranging from "immediate action/imminent threat" to "no further action/no threat." Existing staff will focus on the enforcement of responsible party cleanup actions at sites considered to pose an imminent or substantial threat to public health or the environment. Sites of lower risk will be placed in a separate category which will be address with an emphasis on voluntary cleanup. A "certified service provider" program is proposed that will shift much of the voluntary compliance work to the private sector with DEC oversight.

Although the Response Fund has not been the funding source for the Underground Storage Tank (UST) program, it is a valuable program that significantly affects pollution prevention and response. Federal regulations require that new underground storage tank installations meet national standards and that tanks already in operation phase-in to meet those standards. Additionally, each facility must show they have some form of financial responsibility in the event of a spill and must follow standard procedures for reporting and cleaning up of oil spills. State law and regulations mirror the federal program, but also established the State Storage Tank Assistance program which offers grants and loans to owners and operators of UST facilities to test, cleanup, upgrade and close their facilities. The process of grant applications has recently been streamlined to expedite grant dollars to the owners/operators for upgrading/closing existing tanks, cleaning up leaking tank sites, and performing tests which will allow them to obtain insurance for financial responsibility requirements. As of December 1, 1992, a total of 523 grants have been encumbered for a total of $5,554,177. There are 510 applications still on file requesting $26,037,766 for which funds of $5,089,056 are currently available. The application sunset for financial assistance is June 30, 1994; however, funding may be made available after that time by the Legislature to provide financial assistance to owners/operators. DEC has been pursuing program delegation from the Environmental Protection Agency (EPA). DEC will be doing an impact analysis of enforcement programs on small facilities and facilities in remote locations

that provide essential public safety services before going forward with program delegation.

In answer to the question posed several pages ago, DEC has continued to make improvements in its programs funded by the Response Fund. There is much more work to do, but we must continue forward progress and make improvements to the State's capability to prevent and respond to hazardous substance incidents.

Section IV. FY92 ALLOCATIONS

DEC was appropriated $28,500,000 in FY 92 from the oil surcharge account and $30,094 from the mitigation account.

DEC	
State and Regional Contingency Planning	$365,900
Spill Prevention, Response, Planning. et. al.	$4,582,000
State Emergency Response Commission	$329,900
Local Emergency Planning Committees	$900,000
Response Office, Depots, and Corps	$2,453,400
Hazardous Substance Spill Technology Review Council	$236,800
Site Investigation, Safety, Cleanup, and Cost Recovery	$3,396,200
Kenai Cleanup Project	$807,000
Exxon Valdez-Spill Cleanup	$3,954,400
Exxon Valdez-Assessment and Restoration	$12,474,400
Exxon Valdez-Litigation	$3,653,100
Arctic Marine Resources Commission	$100,000
Spill Reserve	$12,62[illegible]00
Prince William Sound Regional Citizens' Advisory Council	$175,000
Completion: Non-crude Oil Tanker/Barge Study	$30,000
Other Agency	
Advisory Council/ Transportation of Oil/Hazardous Substances	$239,800
Fund Transfer to Legislative Council	$237,300
Ferries with Oil Spill Response Ability	$500,000
Total Appropriated from Fund	$47,062,600

Tables are provided at the end of this report with additional financial data as follows:

Table 1:	FY92 Expenditures and Obligations
Table 2:	June 30, 1992 Response Fund Balance Sheet
Table 3:	Summary of Funding Sources and Deposits
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Table 5:	FY93 Allocation Summary
Table 6:	Community Involvement Summary
Table 7:	FY 92 Contractual Payments Exceeding $20,000
Table 8:	FY92 Purchases Exceeding $10,000
Table 9:	DEC Personal Services Expenditures

Section V. FY 92 PROGRAM ACCOMPLISHMENTS

A. State and Regional Contingency Planning

The State Oil and Hazardous Substance Discharge Prevention and Contingency Master Plan relies on the State's Incident Command System for directing State agencies that are responsible for responding to an oil or hazardous substance release. This plan was reviewed by the Emergency Response Committee (ERC) of the State Emergency Response Commission (SERC). The Department extensively revised the ICS described in the Master Plan based on the recommendations of the ERC and an ad hoc ICS Working Group.

$300,000 was allocated to hazards analyses projects undertaken by Local Emergency Planning Committees. Additional hazards studies for areas outside of approved Local Emergency Planning Districts will be conducted during FY 93. When completed, these studies will form the basis for developing regional response plans.

B. Spill Response, Containment, Safety, Cleanup and Cost Recovery

Discharge Prevention and Contingency Plan Review:

AS 46.04.030 requires DEC to review and approve spill prevention and contingency plans for oil terminals, pipelines, tank vessels, barges, and oil and gas exploration and production facilities. The Department routinely reviews each of the approximately 200 plans once every three years. These plans cover approximately 400 individual vessels, barges or facilities. Response funds in this allocation are used for all plan reviews conducted by DEC.

Financial Responsibility:

AS 46.04.040 requires DEC approval of a regulated operation's proof of financial responsibility. Financial Responsibility Program staff reviewed approximately 350 accounts and responded to hundreds of additional requests for technical assistance and other information about the program.

Oil and Hazardous Substance Pollution Control Regulations:

New oil pollution control regulations implementing HB 567 (chapter 191 SLA 1990) became effective in FY92. The regulations describe new contents requirements and planning standards for oil discharge prevention and contingency plans, and the documentation and amounts required for DEC approval of proof of financial responsibility. The new regulations required each operator to submit a revised

prevention and contingency plan to DEC by August 12, 1992. DEC also developed detailed guidelines to accompany the new regulations that facilitate plan preparation and standardize Department review procedures. The guidelines were completed in FY92 and distributed to all planholders.

Inspections and Discharge Exercises:

DEC annually inspects approximately 100 regulated facilities and 100 tank vessels or oil barges. This allocation funds the Department's inspection and spill drill program to verify the effective implementation by industry of their prevention and contingency plans.

Non Catastrophic Response:

Work continued to streamline the administrative procedures by which the State could hire Response Action Contractors to respond on the State's behalf to oil or hazardous substance releases. Investigation began into the feasibility of the State contracting with established Cleanup Cooperatives for additional response capabilities in the event that the State had to take over the management of a large spill release. The Central office, with the support of the Regions, revised and improved the Departments spill notification procedures, establishing the Situation Report (SITREP) form and format. Response staff are being educated on the necessity to share spill information and when to escalate response actions for additional assistance. Safety issues are being stressed to the mid and upper level managers as reminders of the inherent dangers when dispatching personnel to hazardous or unknown situations.

Spill notifications with other State and Federal agencies remained a priority with investigation into the possibility of establishing an electronic link up to the U.S. Coast Guard and the Environmental Protection Agency.

State On Scene Coordinator positions and regional geographic boundary descriptions were defined, eliminating questions on overlapping jurisdictions.

C. State Emergency Response Commission (SERC)

The State Emergency Response Commission (SERC) is responsible for overseeing the development of state and local response plans for oil and hazardous substance releases (AS 46.13.040). The SERC held four quarterly meetings during FY 92.

The first SERC report was completed covering the period 1987-1991. The report contains a brief description of the program, and a comparative analysis of the state [AS 46.13] and federal laws [SARA Title III].

D. Local Emergency Planning Committees (LEPC)

Two new LEPCs were appointed by the SERC during FY 92, bringing the total number of approved LEPCs to twelve.

$600,000 in funding was awarded to Local Emergency Planning Committees and communities forming LEPCs. These funds were used for LEPC formation, LEPC operations, conduction of a hazards analysis, and development of local response plans for oil and hazardous substances.

Two statewide LEPC meetings were held in conjunction with the third and fourth quarter SERC meetings. Approximately fifty representatives from approved LEPCs and Local Emergency Planning Districts which received state funds attended each meeting. The meetings have enhanced communication between program staff and LEPCs, and between the SERC and LEPCs.

Hazards Analysis projects were started for ten Local Emergency Planning Districts. These studies focus on Extremely Hazardous Substances (EHS) as defined in federal law. Local Emergency Planning Committees will use the results in developing local response plans for potential hazardous substance releases. In addition, the results of the studies will provide useful information for policy decisions made by the SERC and DEC related to hazardous substance release prevention and response. The Department will continue the Hazards Analysis project during FY 93 in other areas of the state.

E. Response Office Depots and Corps

The Spill Response Office (SRO) continued a rigorous training regiment in order to become the highly trained oil and hazardous substance spill experts envisioned by the legislature. SRO staff attended numerous advanced and highly technical training courses and spill response drills throughout the United States and Canada. SRO drafted a spill response manual as a cornerstone for training the Department's district and regional response positions. Basic training requirements were established and a database program instituted to track and maintain training records.

SRO safety and training staff conducted numerous refresher and training courses which included an eight hour HAZWOPER refresher course for 130 Department staff, seven state personnel from the Departments of Fish and Game and Natural Resources, and 35 industry personnel associated with Exxon Valdez cleanup activity. Respirator fit test were administered to 133 DEC staff and 30 Fairbanks firefighters. An Incident Command Training (ICS) course was developed and given to 87 DEC personnel. Departmental community involvement training situations included two waste water operators courses given to 55 Kenai Borough personnel detailing safe

handling practices for Chlorine and confined space hazards.

A response gear inventory database program was also established to track and maintain condition and location summaries of all of the Department's growing spill response equipment inventory.

F. Hazardous Substance Spill Technology Review Council

The State Hazardous Substance Spill Technology Review Council (HSSTRC) exists within the SERC, and is responsible for recommending containment and cleanup products and procedures for responding to arctic and subarctic hazardous substance releases (AS 46.13.110). The Council held four formal quarterly meetings and one conference call during FY92. Draft technology protocols were developed and submitted to national and international organizations for public review and comments. An annual report was published by the Council indicating research priorities. During FY92, DEC staff assigned to the HSSTRC obtained membership to and attended the American Society for Testing Materials for F20 Committee on Hazardous Substance and Oil Spill Response meetings. The staff also continues to maintain a vendor/produce database and manages oil and hazardous substance technology information for the HSSTRC and DEC.

G. Contaminated Site Investigation, Safety, Cleanup, and Cost Recovery

The Contaminated Sites Program investigates sites contaminated with oil or hazardous substances and directs cleanup efforts by responsible parties or DEC term contractors. Response Funds are used to hire contractors to investigate and cleanup sites when the responsible party is unable or unwilling to respond. In FY92, DEC had under contract three cleanup contractors and four site assessment contractors. A total of 13 contracts in excess of $1,000 each were issued to these contractors in FY92 for a total expenditure of $394,000.

Five of the 13 contracts were funded from the spill reserve account. These contracts, for a total of $103,400, were for work performed at Benny Benson Lagoon, Aniak Lift Station, Cinnabar Loop, Child's Pad, and Wendell Street cleanup. Each of these sites are described in Appendix A.

Ten other DEC Term Contracts were funded from the contaminated sites non-operating response funds. A description of the site work associated with each of these sites is provided in Appendix B. An eleventh contract, separate from the term contracts, was funded for $77,000 to assess the impact of air pollution from the Alaska Pulp Corporation facility in Sitka. Additional background information on this project can also be found in Appendix B.

FY92 Response Funds were also used to manage and monitor response efforts of

responsible parties. Under this funding, DEC staff provided oversight of over 200 responsible party cleanup actions. The Department of Law was also provided Response Funds for cost recovery and site investigation activities.

The contractual work with Shannon & Wilson to develop a contaminated site database and Alaska Hazard Ranking Model was completed in FY92, with a final payment of $30,100. The final report contained site information and hazard ranking scores for 905 sites. Response Funds were also used for DEC staff to continue the site ranking process in an effort to complete ranking of all the contaminated sites on the database. Additionally, over 400 new sites were added to the list of statewide contaminated sites in FY92.

Other major accomplishments by Contaminated Sites staff funded by Response Funds include: updating guidelines for cleanup of contaminated soils; developing guidance for home heating oil tank owners to address tank leaks; drafting and receiving funding for an Interagency Memorandum of Agreement for cleanup of state-owned contaminated sites; and development of systematic program elements for the Contaminated Sites Program.

H. Kenai Cleanup Project

The purpose of the Kenai Cleanup Project is to implement an intensive effort within the Kenai Peninsula Borough to investigate and cleanup hazardous substances spilled in large part as a result of past industrial practices. Created in May 1988, the project was originally funded out of a separate legislative appropriation obtained through the capital project budget process. Since FY91, the project has been funded through the Response Fund.

FY92 expenditures supported legal assistance to the Kenai Cleanup project from the Department of Law. Response funds were also used by DEC for the cleanup of contaminated sites where the responsible party was not known, unable, or unwilling to respond (Appendix C), and for DEC's oversight of over 100 responsible party cleanups.

I. Exxon Valdez Cleanup

This allocation funded the Department's FY92 cleanup effort in Prince William Sound. During FY92 DEC maintained the Oil Spill Response Center (OSRC) in Anchorage. Reimbursable Service Agreements (RSAs) were issued to other State agencies for either participation or support functions. The Departments of Fish and Game and Natural Resources have specific statute authority requiring their involvement in the cleanup process.

FY92 was the last year of major cleanup activities. The final comprehensive shoreline

monitoring work was completed in late June, science projects were brought to a close with samples sent to laboratories for analysis, and major efforts were centered upon completing reports and making them available to the public. Eleven stations in Prince William Sound were identified as locations for long term monitoring of Exxon Valdez oil spill contaminated sites. The process of classifying all records accumulated during the spill was begun. The OSRC staff worked closely with the Department of Law in providing information for litigation.

RSA#1820019 FY92 Department of Transportation and Public Facilities, M & O Southcentral District

Environmental Conservation leased a building containing a laboratory facility with water, sewer, electricity, trash removal, heat, and snow removal. The RSA amount is $24,000, there were no amendments.

As this was an RSA for space rental and no projects for Exxon Valdez oil spill remediation were involved we did not require a breakdown of the expenditures by the receiving department. It is noted all of the funds were placed in the contractual line. The laboratory was turned back on
June 30 1992.

RSA#1825006 FY92 Department of Military and Veterans Affairs, Division of Emergency Services

Funds were made available in the amount of $5,100 for the final Exxon Valdez closeout activities of the Division. They were intended for repair, shipping, packaging, and storage of equipment issued to Environmental Conservation and related agencies during the oil spill. Emergency Services was able to accomplish these activities without charging against the RSA. A closeout RSA is in process at this time. There were no amendments to this RSA.

RSA#1825007 FY92 Department of Administration, Division of Telecommunications

The Division of Telecommunications used this funding ($71,332--actual expenditures $71,191) to maintain the VHF radio system in Prince William Sound and to close down the system after our response activities were completed. Their support was excellent, we had radio support whenever it was needed. A closeout RSA is in progress.

Personal Services

02N361	Electronic Tech.	$18,000

Contracts > $20.000

Reported in RSA#1821000.

Purchases > $10.000

Reported in RSA#1821000.

RSA#1820018 FY92 University of Alaska Fairbanks, Institute of Northern Engineering

This RSA provided funds ($31,747 payments of $31,747 made) to the University of Alaska to study the presence of hydrocarbons and hydrocarbon-degrading microbes in selected shorelines and shallow subtidal sediments. A determination was to be made to ascertain if the addition of fertilizer would be of continuing benefit to hydrocarbon-degrading microbes. The work was completed timely and the RSA closed.

J. Exxon Valdez Assessment & Restoration

The bulk of the funds for this project were transmitted to the Alaska Department of Fish and Game for distribution to State agencies for projects approved by the Exxon Valdez Trustees. DEC retained a small portion of the funds, Fish and Game utilized the bulk of the funds for its science projects, passing a portion by RSA to the Department of Natural Resources. This is the last year the natural resources damage assessment and restoration efforts will be funded by the Fund, in future years the funding source be the Exxon Civil Settlement monies.

RSA#1820015 FY92 University of Alaska Fairbanks, Institute of Marine Sciences

This RSA provided funds ($14,000--payments of $8416 have been made) to the University of Alaska to conduct a study of sediment grain size. This work is part of a larger project that studies the rate of settling of small sediments and the presence of oil in the water column. The work was completed timely. This RSA will be closed after receipt of a final billing.

RSA#1821000 FY92 Department of Fish & Game, various divisions

This RSA provided the Department of Fish & Game with funds ($11,947,300--payments to date $6,306,190) to participate in the restoration of those portions of Prince William Sound and the Gulf of Alaska affected by the Exxon Valdez oil spill. Some funds were passed on to the Department of Natural Resources via RSA.

Personal Services

See appendix F

Contracts > $20.000

Univ. of Washington	Fisheries study	$ 48,000
Univ. of Calif.-Davis	not stated	162,000
Dept. of Nat. Res.	Restoration work	366,478
Dept. of Nat. Res.	Archaeology	473,246
Dept. of Nat. Res.	Mapping services	583,338
UAF	Subtidal Study # 2	372,800
UAF	Coastal Hab. study	250,000
UAF	Hydrocarbon injury	162,100
UAF	Mammal study	40,800
UAF	Fish analysis	63,882
Woods Hole Inst.	Sample analysis	175,000
NOAA	Sample analysis	100,000
Texas A&M	Sample analysis	55,000
UC-Davis	Sample analysis	157,000
DOL	Litigation mgmt.	645,000
F&G-Comm Fish	M/V Montague	71,250
F&G-Comm Fish	M/V Montague	25,650
UA-SFOS	Pink salmon catches	65,162
UA-Arctic Biol.	River otter injury	121,951
UA-Marine Sci.	Deep water benthos	79,600
Law	Litigation mgmt.	75,000
U.of Arizona	Sample analysis	25,000
Triton Environ.	Incubation exper.	40,000
Dr.Richard Kocan	Herring study	45,000
Dr.Jo Ellen Hose	Herring study	103,800

Purchases > $10.000

Biosonics & HTI	Hydroacoustic equip./ Feasibility study	$150,000
Surveyors Exchange	2 GPS Pathfinders	15,180
Computerland	Computers	23,928
Phoenix Flow Systems	Partec cytometer	55,000
Wildlife Computers	13 satellite depth recorders	52,200
Fortune Marine	Vessel charter	100,000
Ak.Mining/Diving Supp.	Hardbottom inflatable	10,764
Southeast Marine	5 outboard motors	20,000
Jim Faro	Vessel charter	54,000
AK Ship Chandlers	Boat/motor	41,985

RSA#1825025 FY92 University of Alaska Fairbanks, Institute of Arctic Biology

This RSA made available funds ($94,501--payments made $90,302) to determine the numbers of hydrocarbon-oxidizing microorganisms and the oxidation rate potential of sediment samples collected. A final report to be prepared discussing the results. This study was completed and the final report submitted.

K. Exxon Valdez Litigation

RSA#1825008 Department of Law

This RSA made $3,653,100 available to the Department of Law to provide for the services of outside legal counsel necessary to the state to pursue its civil claims against Exxon and Alyeska. There was one amendment reducing the RSA by $500,000. There is a similar RSA for fiscal year 1993. Legal actions are proceeding appropriately.

No RSA monies were expended for personal services or for purchases over $10,000.

Contracts > $20,000

Preston Thorgrimson	Litigation	$1,888,096
Quorum Litigation Serv.	Litigation support	423,969

L. Arctic Marine Resources Commission (AMRC)

The Legislature appropriated $100,000 to fund AMRC through FY 92, with the intent to form a Regional Citizens' Advisory Council for residents of Alaska's Arctic coastal communities. This council would be similar to existing industry-funded councils in Cook Inlet and Prince William Sound organized under the federal Oil Pollution Act of 1990. Absent grant authority, DEC obtained sole-source authority to provide this funding through a contract with AMRC. Contracted services included incorporation and financial organization of AMRC, review of Arctic oil exploration and development issues affecting Alaskans, and efforts to secure federal and industry recognition and support as an Arctic Regional Citizens' Advisory Council.

M. Prince William Sound Regional Citizens' Advisory Council, Ballast Water Treatment Contract

On December 19, 1991, DEC signed the contract for Scientific Studies with the Prince William Sound Regional Citizens Advisory Council (RCAC). The contract authorized RCAC to retain technical experts of its choosing who would review and evaluate three monitoring programs being conducted by DEC at the Alyeska Valdez Marine Terminal. House Bill 75 appropriated a maximum of $175,000 for disbursement by DEC to RCAC for the

performance of the studies.

The three DEC programs under review monitor:

- the influent ballast water to the ballast water treatment facility (BWTF);
- the treated discharge (effluent) from the BWTF;
- sediment hydrocarbon chemistry and sediment toxicity in Port Valdez.

Prior to contract negotiations, RCAC published a Request for Proposals, evaluated responses and contracted with three environmental consulting firms to perform the work. The evaluation of the influent ballast water monitoring program was performed by Beak Consultants, Inc. of Kirkwood, WA and the final report was submitted to RCAC on April 30, 1992. The evaluation of the effluent monitoring program was performed by ISI of Guelph, Ontario, Canada and the final report was submitted to RCAC on August 24, 1992. The evaluation of DEC's toxicity monitoring program was performed by Northwestern Aquatic Sciences of Newport, OR, and the final report was submitted to RCAC on September 16, 1992. Invoices received by DEC to date total $78,884 for the three studies. This total includes RCAC's 10% administrative charges.

RCAC technical staff analyzed the findings and recommendations of the studies and prepared consolidated recommendations to DEC. These recommendations were received by DEC on December 22, 1992. By DEC's receipt of the consolidated recommendations, the December 19, 1991 contract has been fulfilled. DEC will consider RCAC's recommendations and will determine which of the recommendations should be implemented. Decisions on implementation are expected to be made by the end of the first quarter of 1993.

N. Noncrude Tanker Study

As requested by the Legislature, during FY91 DEC surveyed the condition of small (unregulated) noncrude oil terminal facilities with storage capacity between 5,000 and 10,000 barrels. To assist in the survey, a contract was awarded to ECO Engineering, Inc. The report was completed and presented to the Legislature in 1992. The Department utilized an additional $27,000 appropriated for FY 92 to expand this survey by including oil terminals with capacity between 1,000 and 5,000 barrels. A second contract was awarded to ECO Engineering to obtain the data required for this report. A report will be presented to the Legislature at the beginning of the 1993 session.

O. Spill Reserve

In FY92 the spill reserve was used to fund expenditures during the Department's response to releases of hazardous substances which posed an imminent threat to public health,

welfare and safety. A total of $71,383 was expended from the Spill Reserve during FY92. A description of each site on which more than $1,000 was expended can be found in Appendix A.

P. Other Agency Expenditures

The following information was available regarding other agency spending of Response Fund monies through RSAs:

University of Alaska - Research Funding RSA#1820290

Alaska Statute (AS) 46.08.150(3) allows the Oil and Hazardous Substance Response Office to enter into agreements with state and federal government agencies, political subdivisions, the University of Alaska or other entities to conduct research on topics recommended to it by the Hazardous Substance Spill Technology Review Council under AS 46.13.120.

In FY92, a memorandum of agreement was established between the Department and the University of Alaska. The agreement has the intent of expanding cooperative research, using cost effective solutions to environmental problems. A portion of the funding for this agreement is from the Oil and Hazardous Substance Release Response Fund. Use of response funds is limited to research. Each project or proposal should be evaluated with respect to the future economic viability, method and financing of development. The Council will classify projects as "research, development or other". Only those projects classified as research will be further reviewed by the Council.

$100,000 was encumbered in a Reimbursable Service Agreement (RSA) with the University in FY92. No expenditures have been made.

Department of Law RSA#1820025

An encumbrance of $358,000 was made with this RSA to the Department of Law for FY92. The Contaminated Sites Section (DEC) contributed $100,000 from non-operating funds; of this amount, the Kenai Project contributed $40,000 and the Site Investigation Project contributed $60,000. The SPAR Director's Office contributed $8,000 and the remaining $250,000 was from Spill Prevention, Planning and Management.

The funds were primarily used to support legal services required at thirty-five separate cleanup sites. Examples include the Forward Pad Hazardous Substance cleanup on the North Slope, the Skagway Lead Contaminated Cleanup, the Chevron Bulk Plant oil contamination cleanup in Valdez, the Orca Cannery oil contamination cleanup in Cordova, the Marathon/Trading Bay Facility oil contamination cleanup in the Kenai Borough, and the Port of Anchorage contamination assessment.

The funds were also used to a lesser extent to answer policy questions related to strict

liability and lender liability as they apply to hazardous substance releases.

In addition, the funds also provided reimbursement to the Department of Law for normal state legal expenses following the adoption by DEC of the new Oil and Hazardous Substance Pollution Control regulations.

Department of Natural Resources RSA#1820154

The Alaska Department of Natural Resources (DNR) received Response Fund support under an RSA in the amount of $23,900 to perform tasks under two projects, as follows:

Industry Contingency Planning:

DNR began drafting guidelines for review of industry contingency plans. DNR reviewed several industry contingency plans, focusing on oil industry exploration and development projects. Industry contingency plan review also focused on protection or cleanup of historic, archeological or cultural sites. DNR staff participated in meetings of several major planning groups, including the Regional Citizens' Advisory Councils for Cook Inlet and Prince William Sound, and several private cleanup organizations.

State and Regional Contingency Planning:

DNR participated in meetings of the SERC. Staff commented on drafts of the State's master contingency plan. DNR participated in meetings of the State Damage Assessment and Restoration Planning Subcommittee and submitted draft materials to the Department of Law on federal Natural Resources Damage Assessment regulations. DNR monitored activities of the Alaska Regional Response Team and its Response Technology Working Group.

Department of Fish and Game RSA#1825010

The Alaska Department of Fish and Game (ADF&G) received Response Fund monies under an RSA to perform tasks under two projects, as follows:

Industry Contingency Planning:

ADF&G developed internal contingency plan review booklets, reviewed and commented on 29 oil spill contingency plans, monitored the progress of Alyeska activities being conducted under the 1991 Trans-Alaska Pipeline System contingency plan, and made recommendations to DEC regarding implementation of contingency plan improvements. ADF&G participated in six spill response drills to test the provisions of industry contingency plans.

ADF&G participated in major planning forums: the Prince William Sound Steering Committee, Alyeska Pipeline Service Company pipeline committee, Cook Inlet Spill

Prevention and Response Inc. committees, and the Prince William Sound and Cook Inlet Regional Citizen's Advisory Councils. ADF&G represented state interests on the federal Alaska Regional Response Team working groups related to wildlife protection and response technology.

Personal services were paid as follows:

PCN 6102	$20,276
PCN 6061	5,694
PCN 6010	2,365
PCN 6041	15,748
PCN 6064	15,319
PCN 6104	7,955
PCN 6060	6,189
PCN 6048	2,019
PCN 6036	2,096
PCN 6027	977
PCN 6008	1,008
PCN 6138	205
PCN 6136	467
PCN 6110	165
PCN 6007	155
PCN 6087	158
PCN 6128	338
Total	$81,136

State and Regional Contingency Planning:

ADF&G participated in meetings of the SERC and SERC committees. ADF&G commented on drafts of the state master contingency plan and completed the draft environmental sections of the Arctic and Interior regional plans. Staff chaired meetings of the Damage Assessment and Restoration Planning Subcommittee and submitted draft materials to DEC on Natural Resource Damage Assessment (NRDA) issues and tasks necessary to initiate and NRDA program.

Personal services were paid as follows:

PCN 6102	$7,282
PCN 6041	26,480
PCN 6064	8,094
PCN 6048	1,819
PCN 6008	1,837
PCN 6124	545

PCN 6007	252
PCN 6027	292
PCN 6136	224
PCN 6098	263
PCN 6028	159
PCN 6138	132
Total	$47,380

Department of Military and Veterans Affairs RSA#1695000

DEC entered into an Reimbursable Services Agreement (RSA) with the Department of Military and Veterans Affairs, Division of Emergency Services (DES) for $2,000,000 (two million) dollars for FY92 activities associated with development of Oil Spill Response Depots and Corps.

The RSA was later amended to reduce the amount by $300,000.00, providing funding to DEC to conduct a statewide hazards analysis necessary in the decision making process for locating response depots and corps. Before locations for depots can be designated in the State Master Plan, there must be a process accomplished -- "a hazards analysis" -- that identifies the hazards in the State, by areas; identifies vulnerabilities, by areas; and evaluates risks taking into account existing capabilities, by area, to respond to those potential hazards. Once the hazards analyses are done for areas around the State, a statewide database will be formed, a priority ranking developed to identify the areas of greatest need; and depots established to meet those needs.

Of the remaining amount, $1,700,000.00, DES spent or obligated $1,638,870.99 and $61,120.01 lapsed returning to the available balance in the Response Fund.

Personal Services:

Personal Services were paid to DES staff as follows:

PCN 0220	Chief of Logistics	$70,166
PCN 0218	Planner III	55,322
PCN 0112	Storekeeper	45,849
PCN 0185	Haz Mat/Emergency Specialist	50,338
PCN 0219	Accounting Clerk III	35,631
PCN N069	Clerk Typist II	1,706
	ASEA Legal Trust	159
	Total	$259,171

Contracts > $20,000

A contract was issued to Incident Management Associates for development of

Incident Command Systems and associated training. The contract was initially issued for $85,000 and later amended to increase this amount by $14,000 to $99,000.

A contract was issued to SPYDR C-4-1 Management Company for $24,720 to provide the initial high level design for the Advanced Integrated Incident Management System (AIIMS).

Purchases > $10,000

No individual items were purchased with a cost greater than $10,000 other than components of the communications system described below.

Equipment Purchases

With the exception of communications equipment detailed separately, equipment purchases were limited to computer equipment required for data processing and administrative work.

Description	Cost
Macintosh Quadra 950 Computer	$6,839
Tektronix Phaser II Printer	6,576
Apple Mac Color Monitor	3,162
Compaq 386/25E Computer	5,298
Compaq VGA Color Monitor	436
Okidata 390 + Printer (3)	1,198
Compaq Amber Monitor	94
Compaq 386/33L Computer	9,498
Compaq VGA Monochrome Monitor	189
Cabletron 12 Port T-Hub	1,445
Unison Monitor	929
Emerald Disk Drive	3,598
External Modem	171
3270 Emulator Software	439

The following projects were initiated during FY92 using funding provided through this RSA.

Incident Command System Training:

The Incident Command System development and training conducted under the contract with Incident Management Associates provided training in the following concentrations:

Course	Number Trained
Introduction to Incident Command Systems	35
Command Section Training	17
Operations Section Training	19
Planning Sections Training	20
Logistics Section Training	25

Course rosters are available for each class.

Oil and Hazardous Substance First Responder Training:

This project was designed to improve the capability of local first responders to respond to an oil or hazardous substance release and was administered through the Local Emergency Planning Committees (LEPCs). Based on local hazards, LEPCs selected the types of oil and hazardous substance releases their first responders might be confronted with in their immediate areas. To meet the training needs, RSAs were entered into with the University of Alaska - Fairbanks and Southeast, Mining and Petroleum Training Services and Alaska Fire Service Training Services to provide training.

Training was provided that addressed the following specific topics:

First Responder Awareness
First Responder Operations
Haz Mat Technician
Decontamination
Incident Command System (Introduction and Advanced)
Liquid Petroleum Gas

Below is a listing of the number of first responders receiving training and the approximate cost of that training by LEPC:

LEPC	Number Trained	Cost
Fairbanks	450	$52,000
Anchorage	35	16,100
Sitka	90	39,484
Kenai	40	34,289
Juneau	120	38,500
Kodiak	90	21,000
Mat-Su	140	15,008
Ketchikan	90	30,000
Yakutat	4	17,616
NW Arctic	60	18,375

Communications System:

Once completed (December 1993) this package will permit emergency responders to deploy into the field with a complete communications package. They will be able to talk to their home office, send facsimile traffic, communicate via hand held radios with other field staff, aircraft and ships in the area. In addition, field staff will be able to transmit and receive video information while in the field.

Finances supporting this package were obtained from two sources. $800,000 was committed from this RSA and matched with federal dollars. To date, approximately $910,000 has been obligated and the balance will be obligated over the next six to twelve months.

Funds have been obligated for the following:

Description	Cost
VHF Radios (40)	$28,134
Voice/ Facsimile Port Module (16)	18,016
Variable Rate Satellite Modems (4)	31,112
Video Teleconferencing Unit (2)	106,236
Field Video Teleconferencing Unit (2)	50,690
Transportable Antenna System (2)	89,528
Satellite Earth Station Antenna System(2)	191,416
Transportable Earth Station (2)	70,526.00
Satellite Terminal Transceiver (2)	29,100
Modular Satellite Terminal Transceiver (2)	122,100
Hand Held Portable Radios (4)	2,694
Telephones with Deployable Units (96)	26,732
VHF Suitcase Repeaters (4)	38,243
In Focus System Panel and Case (1)	5,683
Personnel and Technical Contracting	100,000

In addition, funds totalling $32,500 were granted to the Alaska Public Radio Network (APRN) to establish a portable satellite uplink. APRN will participate in emergency communications exercises and provide substantive support as may be included in the State Emergency Plan in response to actual emergencies.

State Emergency Response Commission:

A total of $8,781 was spent on State Emergency Response Commission (SERC) activities.

Expenditures were limited to travel and per diem.

Geographic Information System:

A total of $2,285 was spent on items related to Geographic Information Systems (GIS). As noted above, a contract was issued to SPYDR C-4-1 Management Company for $24,720 to provide the initial high level design for the Advanced Integrated Incident Management System (AIIMS). This system is not a GIS.

Department of Administration RSA#1821006

The Department of Administration, Division of Risk Management received $21,554 through an RSA to provide insurance coverage for employees who travel on aircraft charters. This expenditure was a direct result of increased air travel due to the Exxon Valdez Project.

Table 1

FY92 EXPENDITURES AND OBLIGATIONS

CURRENT YEAR AUTHORIZATION	Authorized	Expended	Obligated [Note 1]	Total Expended & Obligated
DEC				
State and Regional Contingency Planning	365.9	197.1	64.1	261.3
Spill Prevention, Response, Planning, et. al.	4,582.0	3,846.2	498.6	4,344.8
State Emergency Response Commission	329.9	257.0	11.5	268.5
Local Emergency Planning Committees	900.0	575.2	324.2	899.4
Response Office, Depots, and Corps	2,453.4	863.6	1,496.8	2,360.4
Hazardous Substance Spill Technology Review Co	236.8	112.4	106.2	218.6
Site Investigation, Safety, Cleanup, and Cost Reco	3,396.2	1,036.5	639.1	1,675.6
Kenai Cleanup Project	807.0	458.0	210.0	667.9
Exxon Valdez-Spill Cleanup	3,954.4	2,337.3	418.9	2,756.1
Exxon Valdez-Assessment and Restoration	12,474.4	6,654.4	3,830.0	10,484.4
Exxon Valdez-Litigation	3,653.1	1,576.9	1,571.4	3,148.3
Arctic Marine Resources Commission	100.0	100.0		100.0
Spill Reserve	12,627.4	71.4	75.3	146.7
Prince William Sound Regional Citizens' Advisory	175.0	57.2	117.8	175.0
Completion: Non-crude Oil Tanker/Barge Study	30.0	29.9		29.9
Other Agency				
Advisory Council/ Transportation of Oil/Hazardous	239.8	120.3		120.3
Fund Transfer to Legislative Council	237.3	237.3		237.3
Ferries with Oil Spill Response Ability	500.0	102.4	157.8	260.2
Subtotal Current Year	47,062.6	18,633.1	9,521.7	28,154.8
PRIOR YEAR AUTHORIZATION				
DEC				
Oil/Hazardous Substance Release Responses		(9.9)		(9.9)
Oil Spill Contingency Plans/Requirements		84.2	15.0	99.2
State & Regional Contingency Plan		26.4	5.0	31.4
Response Office, Depots & Corps		261.5		261.5
Spill Response Drills		105.7		105.7
Spill Response, Containment, et.al.		388.4	71.0	459.4
Exxon Valdez Project		1,123.8	309.4	1,433.2
Kenai Clean-up Project		97.9		97.9
Site Investigation, et.al.		225.9	13.1	239.0
Other Agency				
Oil Spill Contingency Plans/Requirements			59.4	59.4
Natural Resource Damage Assessment		1,358.4		1,358.4
Subtotal Prior Year		3,662.3	472.9	4,135.2
Grand Total FY 92	47,062.6	22,295.4	9,994.6	32,289.9

Note 1: Obligations have been reduced by any overobligated amounts on Reimbursable Services Agreements.

Table 2
OIL & HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND
Balance Sheet
June 30, 1992

	June 30, 1992	June 30, 1991
Assets		
Cash	33,062,827.01	29,433,414.35
Accounts Receivable	2,339,939.90	2,697,387.47
Total Assets	35,402,766.91	32,330,801.82
Liabilities		
Payroll Exceptions	0.00	(13,857.66)
Accrued Payable	1,082,600.16	1,100,824.08
Warrants Outstanding	275,408.17	299,110.37
Total Liabilities	1,358,008.33	1,386,076.79
Fund Balance		
Reserve for Encumbrances	13,911,537.91	10,910,943.35
Reserve for PY Authorizations	1,822,446.72	117,748.29
Reserve for Restricted Revenue (Note 1)	(5,641,109.99)	0.00
Unreserved	23,951,883.94	19,916,033.39
Total Fund Balance	34,044,758.58	30,944,725.03
Total Liabilities and Fund Equity	35,402,766.91	32,330,801.82

Note 1: The Reserve for Restricted Revenue represents the uncollected revenue estimate balance for Appropriation # 42895-92, which is an RSA between ADEC and the Department of Fish & Game. Both the requesting and the servicing agency's appropriations report to the Oil and Hazardous Substance Release Response Fund.

Table 3
Summary of OHSRRF Funding Sources and Deposits to Oil Surcharge Account
1986-1992
(In Thousands)

Response Fund Source of Funding

Fiscal Year	General Fund Program Receipts	General Fund Mitigation Revenue	Oil Surcharge Revenue	Other General Fund [Note 2]	Total
FY 87		158.7		522.0	680.7
FY 88		304.3		825.0	1,129.3
FY 89	10,000.0	136.5		10,500.0	20,636.5
FY 90	20,000.0	197.6		32,600.0	52,797.6
FY 91		1,696.1	27,000.0		28,696.1
FY 92		30.1	28,500.0		28,530.1
FY 93		1,823.3	27,000.0		28,823.3
Total:	30,000.0	4,346.6	82,500.0	44,447.0	161,293.6

Revenue Collected Oil Surcharge Account

FY 90	26,932.4
FY 91	27,965.2
FY 92	28,669.0
Total:	83,566.6

TABLE 4

FY 92 Mitigation Account Summary
(In Thousands)

Summary of Revenue by Type

Site	Cost Recovery	Penalty	Settlement	Interest	Total
Citigold: Settlement			14.4		14.4
Wendell St.: Settlement			27.7		27.7
SS Noordam: Cost Recovery	16.5				16.5
Sitka Air Monitoring: Interest				8.2	8.2
Tuboscope: Penalty/Fine		5.4			5.4
Unisea Facility: Penalty/Fine		13.2			13.2
M/V Atlantic Seahorse: Penalty/Fine		3.5			3.5
Lorna B/Steelhead: Settlement			29.0		29.0
F/V Skagit Eagle: Penalty/Fine		4.0			4.0
Alaska Pulp Co.: Settlement			7.0		7.0
Exxon: Settlement (Assessment/Litigation)			3,954.0		3,954.0
Poppy Lane: Settlement			275.0		275.0
Chevron Bulk Plant, Valdez: Settlement			100.0		100.0
Benny Benson: Cost Recovery	29.6				29.6
Cominco (Red Dog Mine): Air Pollution Fine		10.0			10.0
Total	46.1	36.1	4,407.1	8.2	4,497.5

TABLE 5

Summary of FY 93 Appropriations

(In Thousands)

Appropriations From the Response Fund		
DEC		
Spill prevention planning and management		6,021.2
State Emergency Response Commission		350.8
Local emergency planning committees		1,200.0
Spill Response Office		1,318.1
Division of Emergency Services/Response Depots and Corps		800.0
Hazards Analysis		177.3
Geographic Information System		689.3
Contaminated Sites Program		3,528.6
Exxon Valdez Litigation		2,968.0
Exxon Valdez Clean-up and Cost Recovery		350.0
Arctic Marine Resources Commission		100.0
Spill Reserve		23,656.7
Nearshore Strike Team Demonstration Projects		1,200.0
Hazardous Substance Spill Technology Review Council		420.0
Extend to FY 93 the FY 92 Allocation for Site Investigation, Safety, Cleanup, and Cost Recovery		1,582.7
OTHER AGENCIES		
Citizens' Oversight Council on Oil and Other Hazardous Substances		237.3
Alaska Marine Highway System Vessel Replacement Fund		7,500.0
Mt. Edgecumbe-Contaminated Site Cleanup (DOE)		430.0
Peninsula Greenhouse, Soldotna-Contaminated Site Cleanup (DNR)		178.0
Forward Pad-Contaminated Site Cleanup (DNR)		490.0
Childs Pad-Contaminated Site Cleanup (DNR)		300.0
Tok River Campground-Contaminated Site Cleanup (DNR)		38.0
Boniface/Northern Lights, DeBarr-Contaminated Site Assessment (DOT/PF)		250.0
DOT/PF Maintenance Station, Soldotna-Contaminated Site Cleanup (DOT/PF)		157.0
Extend to FY 96 the FY 92 Appropriation for Ferries with Oil Spill Response Cabability (DOT/PF)		239.8
Chatham Strait Fish Company, New Chenega-Contaminated Site Cleanup (DCRA)		30.0
Soldotna Fire Training-Contaminated Site Cleanup (UAA)		320.0
Total Appropriated From Fund For FY 1993		54,532.8
Appropriated to Response Fund		
From General Fund	27,000.0	
July 1, 1992 Balance of Mitigation Account Fund	1 823.3	
Total Appropriated to Fund for FY 1993		28,823.3
Unreserved Fund Balance (Table 2)		23,951.9
Total Available to Appropriate		52,775.2

Table 6
FY92 Community Involvement Summary
(In Thousands)

Community	Exxon Project	LEPC[1]	Response
City of Anchorage	0.0	46.0	100.0
City of Bethel	0.0	50.0	0.0
City of Chenega	42.1	0.0	0.0
City of Cordova	148.1	0.0	0.0
Denali Borough	0.0	10.0	0.0
City of Fairbanks	0.0	0.0	29.2
City and Borough of Juneau	0.0	96.2	0.0
Kenai Peninsula Borough	7.0	44.0	0.0
Ketchikan Gateway Borough	0.0	32.0	0.0
City of Kodiak	0.0	47.4	0.0
Kodiak Island Borough	88.0	0.0	0.0
Lake and Peninsula Borough	0.0	50.0	0.0
Mat-Su Borough	0.0	17.0	0.0
City of Nome	0.0	30.0	0.0
Northwest Arctic Borough	0.0	28.5	0.0
City of Petersberg	0.0	3.5	0.0
Prudhoe Bay	0.0	.5	0.0
City and Borough of Sitka	0.0	40.1	0.0
City of Unalaska	0.0	20.0	0.0
City of Valdez	34.0	5.0	0.0
City of Whittier	110.8	0.0	0.0
City of Yakutat	0.0	62.2	0.0
TOTAL	430.0	582.9	129.2

[1]Local Emergency Planning Committee

Table 7
FY92 CONTRACTUAL PAYMENTS EXCEEDING $20,000
(In Thousands)

Contractor	FY 92 Payments	Purpose
Direct OHSRRF Contractual Payments:		
Arctic Marine Resources	100.0	Arctic Marine Resources Comm.
Eco Engineering	57.1	HB 567 Prevention Requirements
Eco Engineering	33.0	Non Crude Facility Report
Harding & Lawson	92.0	Marshall Groundwater
Martech USA	41.7	Aniak Sewer Spill
Northwest Environmental	22.9	Benny Benson Lagoon
Raven Technical	77.0	Sitka Air Monitoring
Shannon & Wilson	30.1	Sites Database
Shannon & Wilson	23.4	Tetlin Site Assessment
Shannon & Wilson	95.2	Coastal Drilling Assess. Phase II
VRCA	25.9	208 Wendall Street
VRCA	51.0	Tetlin Village Cleanup
Exxon Contractual Payments:		
Kenai Air	54.0	Aircraft Charter/EVOS
Ketchum Air	23.6	Aircraft Charter/EVOS
Dean & Rose Rand	27.6	Vessel Charter
Hoffman Commercial	85.6	OSRO Office Lease
Alaska Renown Charters	45.3	EVOS Vessel Charter
Richard Podolsky, PHD	21.0	Remote Sensing-Marbled Murrele
Total	906.4	

Table 8
FY92 PURCHASES EXCEEDING $10,000
(In Thousands)

Vendor	Amount	Item(s) Purchased
Tesoro Alaska Petroleum Corp.	10.6	Fuel
Sunshine Plaza	10.2	Data Communications

TABLE 9

PERSONAL SERVICES EXPENDITURES

(In Dollars)

State and Regional Contingency Planning	87,015.15
Spill Prevention, Response, Planning, Safety, Cleanup and Cost Recovery	2,636,007.66
State Emergency Response Commission	167,935.52
Response Office, Depots, and Corps	473,740.71
Hazardous Substance Spill Technology Review Council	127,363.37
Site Investigation, Safety, Cleanup, and Cost Recovery	548,585.87
Kenai Cleanup Project	295,861.14
Exxon Valdez-Spill Cleanup	1,253,594.19
Exxon Valdez-Assessment and Restoration	80,990.88
Spill Reserve	4,318.89
Administrative Services	327,841.75
Response Fund Shared Costs	142,990.89
	6,146,246.02

PCN	Job Description	Total *
10 1087	Administrative Assistant I	42.60
12 1164	Clerk V	87.43
06 1634	Health Program Specialist I	(22.96)
18 2135	Environmental Specialist I	(655.74)
25 2221	Equipment Operator WG IV	813.22
25 2373	Analyst Programmer	(47.28)
12 4510	Clerk Typist III	(251.64)
07 5553	Employment Security Specialist	(44.67)
18 7005	Environmental Manager I	3,318.09
18 7010	Environmental Manager III	12,165.88
18 7010	Environmental Manager III	1,192.67
18 7026	Environmental Specialist II	17,283.20
18 7035	Division Director	7,663.56
18 7043	Clerk Typist III	1,324.81
18 7043	Clerk Typist III	313.10
18 7051	Environmental Manager III	10,867.00
18 7052	Accountant IV	7,662.36
18 7052	Accountant IV	442.40
18 7053	Personnel Specialist I	7,790.00
18 7054	Accounting Clerk II	5,260.49
18 7055	Secretary I	2,714.82
18 7055	Secretary II	1,549.98
18 7057	Environmental Specialist II	401.25
18 7062	Procurement Specialist II	6,829.13
18 7062	Supply Officer II	1,148.43
18 7063	Clerk Typist III	6,404.88
18 7064	Administrative Assistant III	11,882.20
18 7072	Environmental Engineer Associate	22.05
18 7075	Environmental Specialist III	11,632.93
18 7075	Environmental Specialist III	864.46

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7080	Environmental Manager II	9,423.20
18 7081	Environmental Specialist III	52,614.42
18 7086	Accounting Technician II	5,378.60
18 7108	Environmental Specialist III	12,065.19
18 7111	Environmental Engineer Assistant	115.60
11 7112	Personnel Asst. I	137.04
18 7113	Environmental Manager I	15,056.23
18 7113	Environmental Manager I	4,444.99
18 7117	Accounting Technician I	5,985.13
18 7121	Environmental Engineer II	6,262.47
18 7121	Environmental Engineer II	5,362.21
18 7121	Environmental Engineer II	2,481.43
18 7125	Environmental Engineer I	4,352.17
18 7133	Environmental Manager I	12,149.97
18 7134	Clerk Typist II	4,167.20
18 7134	Clerk Typist II	1,973.78
18 7137	Environmental Manager I	10,941.93
18 7137	Environmental Manager I	2,404.67
18 7139	Environmental Specialist III	9,288.24
18 7139	Environmental Specialist III	6,187.42
18 7140	Environmental Manager I	15,369.68
18 7140	Environmental Manager I	689.65
18 7142	Environmental Specialist III	3,783.89
18 7149	Analyst Programmer	(104.09)
18 7149	Analyst Programmer III	1,234.80
18 7149	Analyst Programmer IV	8,990.08
18 7150	Paralegal Assistant II	477.81
18 7155	Planner III	16,550.29
18 7157	Environmental Manager I	10,657.33
18 7158	Environmental Specialist III	2,432.29
18 7159	Clerk Typist III	3,693.89
18 7159	Clerk Typist III	1,617.07
18 7159	Clerk Typist III	297.83
18 7159	Clerk Typist III	223.88
18 7161	Environmental Specialist IV	74,518.18
18 7162	Accounting Supervisor III	6,818.49
18 7168	Environmental Specialist IV	368.88
18 7169	Environmental Specialist	(201.08)
18 7178	Clerk Typist III	13,656.63
18 7180	Clerk Typist III	1,277.03
18 7180	Clerk Typist III	431.09
18 7180	Clerk Typist III	159.68
18 7181	Clerk Typist II	(10.98)
18 7181	Clerk Typist II	2,244.39
18 7183	Document Processor IV	664.09
18 7186	Clerk Typist III	4,073.04
18 7191	Environmental Specialist II	18,588.66
18 7191	Environmental Specialist II	6,472.71
18 7195	Accounting Technician II	3,506.21
18 7201	Clerk Typist III	2,447.75

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7201	Clerk Typist III	1,171.34
18 7203	Field Office Assistant	2,337.03
18 7203	Field Office Assistant	1,674.68
18 7208	Administrative Assistant III	4,754.19
18 7208	Administrative Assistant III	1,182.12
18 7209	Environmental Conservationist	(1,322.35)
18 7221	Mail Clerk Carrier III	5,795.99
18 7226	Analyst Programmer III	234.89
18 7227	Clerk Typist III	2,431.03
18 7227	Clerk Typist III	1,896.34
18 7233	Environmental Microbiologist	245.41
18 7237	Chemist III	(25.08)
18 7244	Environmental Health Officer	(221.40)
18 7250	Clerk Typist III	3,141.74
18 7250	Clerk Typist III	557.24
18 7252	Clerk Typist III	5,157.87
18 7252	Clerk Typist III	2,299.21
18 7258	Analyst Programmer III	8,119.79
18 7264	Environmental Specialist III	56,857.17
18 7264	Environmental Specialist III	188.02
18 7265	Environmental Specialist III	23,812.59
18 7265	Environmental Specialist III	20,487.84
18 7265	Environmental Specialist III	8,483.17
18 7268	Personnel Asst I	1,075.41
18 7271	Environmental Manager I	4,096.50
18 7271	Environmental Manager I	2,506.51
18 7272	Project Assistant	62,091.02
18 7279	Clerk Typist III	2,415.35
18 7286	Clerk Typist III	1,590.71
18 7286	Clerk Typist III	85.44
18 7292	Environmental Specialist IV	1,445.57
18 7293	Environmental Specialist III	16,628.36
18 7298	Environmental Field Officer IV	39,668.00
18 7298	Environmental Field Officer IV	10,782.37
18 7299	Environmental Specialist III	2,741.73
18 7310	Environmental Manager I	16,550.62
18 7310	Environmental Manager I	7,204.90
18 7317	Environmental Engineer I	3,405.31
18 7318	Clerk Typist III	8,101.62
18 7318	Clerk Typist III	1,908.25
18 7318	Clerk Typist III	1,645.83
18 7319	Clerk Typist III	3,523.50
18 7321	Environmental Manager II	2,531.03
18 7324	Environmental Engineer II	2,300.37
18 7326	Environmental Specialist	(2,152.50)
18 7329	Environmental Engineer Assistant II	3,143.96
18 7329	Environmental Engineer Assistant II	392.28
18 7330	Environmental Engineer Assistant	8,627.47
18 7330	Environmental Engineer Assistant	8,429.12
18 7339	Analyst Programmer IV	4,873.79

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7347	Internal Auditor III	35,576.12
18 7352	Environmental Engineer I	3,747.24
18 7352	Environmetal Engineer I	779.24
18 7352	Environmetal Engineer I	219.69
18 7354	Environmental Engineer Assistant	5,085.36
18 7354	Environmental Engineer Assistant	1,637.37
18 7356	Environmental Specialist II	1,705.78
18 7358	Clerk Typist III	2,372.60
18 7358	Clerk Typist III	30.41
18 7360	Environmental Specialist	(900.00)
18 7368	Environmental Engineer Assistant	82.74
18 7368	Environmental Engineer Assistant	62.46
18 7375	Environmental Specialist III	5,414.67
18 7379	Envirnmental Engineer I	19,421.66
18 7383	Environmental Specialist IV	21,220.15
18 7383	Environmental Specialist IV	(1,178.10)
18 7389	Environmental Engineer Assistant II	995.43
18 7393	Clerk Typist III	1,236.56
18 7395	Environmental Manager III	13,651.29
18 7395	Environmental Manager III	9,709.41
18 7399	Administrative Officer III	50.61
18 7400	Environmental Specialist II	48,009.51
18 7401	Environmental Specialist III	21,644.30
18 7404	Personnel Assistant I	11,103.03
18 7404	Personnel Assistant I	1,050.40
18 7404	Personnel Asst. I	4,631.06
18 7406	Administrative officer II	1,036.18
18 7406	Program Budget Analyst	6,832.93
18 7408	Risk Management Officer III	60,358.49
18 7410	Clerk Typist III	1,232.49
18 7410	Clerk Typist III	1,119.06
18 7410	Clerk Typist III	936.95
18 7425	Hydrologist III	5,525.80
18 7425	Hydrologist III	2,441.00
18 7425	Hydrologist III	951.24
18 7427	Ecologist I	(124.56)
18 7427	Environmental Specialist II	19,869.43
18 7427	Environmental Specialist II	2,024.53
18 7427	Environmental Specialist II	1,674.84
18 7431	Environmental Field Officer II	859.75
18 7431	Environmental Specialist II	2,408.75
18 7431	Environmental Specialist II	1,672.08
18 7432	Clerk Typist III	5,266.59
18 7433	Managment Analyst II	15,137.79
18 7433	Managment Analyst II	426.35
18 7434	Clerk Typist III	9,847.46
18 7434	Clerk Typist III	3,595.72
18 7434	Clerk Typist III	885.65
18 7435	Division Director	29,844.92
18 7437	Environmental Engineer I	1,110.54

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7438	Environmental Engineer Asclstant II	5,094.00
18 7439	Clerk Typist III	6,151.26
18 7439	Clerk Typist III	997.54
18 7441	Environmental Engineer III	2,336.28
18 7442	Environmental Specialist III	58,122.57
18 7443	Environmental Specialist III	55,886.79
18 7443	Environmental Specialist III	2,886.73
18 7444	Hydrologist II	6,435.63
18 7452	Environmental Engineer Assistant	24,236.92
18 7454	Administrative Assistant I	3,036.74
18 7455	Administrative Assistant I	12,210.39
18 7455	Administrative Assistant I	8,816.64
18 7455	Administrative Assistant I	5,802.45
18 7455	Administrative Assistant I	1,227.25
18 7455	Administrative Assistant I	1,157.90
18 7456	Clerk Typist II	11,604.40
18 7456	Clerk Typist II	794.89
18 7456	Clerk Typist II	87.96
18 7456	Clerk Typist II	65.95
18 7456	Clerk Typist II	65.95
18 7456	Clerk Typist II	(65.95)
18 7457	Information Officer II	30,498.00
18 7457	Information Officer II	4,711.31
18 7459	Environmental Specialist I	41,402.39
18 7459	Environmental Specialist I	2,014.91
18 7460	Environmental Engineer Assistant II	48,486.53
18 7461	Environmental Engineer Assistant II	53,727.45
18 7461	Environmental Engineer Assistant II	2,729.52
18 7461	Environmental Engineer Assistant II	179.38
18 7462	Personnel Officer III	11,357.12
18 7465	Environmental Specialist III	1,646.94
18 7465	Environmental Specialist III	679.92
18 7465	Environmental Specialist III	217.37
18 7467	Administrative Assistant III	3,568.02
18 7470	Environmental Specialist III	61,784.68
18 7471	Analyst Programmer III	7,904.82
18 7472	Environmental Specialist III	55,202.72
18 7475	Environmental Engineer Assistant II	15,911.15
18 7476	Environmental Engineer Assistant	35,140.67
18 7476	Environmental Engineer Assistant	1,936.08
18 7477	Environmental Specialist III	30,970.58
18 7478	Chief Environmental Program Analyst	27,772.45
18 7480	Environmental Specialist III	884.46
18 7485	Environmental Engineer Assistant II	949.19
18 7485	Environmental Engineer Assistant II	788.74
18 7486	Environmental Specialist II	7,290.25
18 7486	Environmental Specialist II	661.21
18 7486	Environmental Specialist II	(184.91)
18 7487	Supply Technician I	7,369.99
18 7489	Environmental Engineer I	12,464.67

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7489	Environmental Engineer I	1,335.21
18 7491	Environmental Specialist III	23,752.40
18 7492	Environmental Specialist III	12,728.17
18 7493	Environmental Specialist III	778.69
18 7495	Procurement Specialist I	6,268.34
18 7495	Procurement Specialist I	5,462.81
18 7497	Environmental Engineer Assistant III	4,944.42
18 7498	Environmental Specialist II	504.75
18 7500	Accounting Clerk II	4,936.97
18 7511	Clerk Typist III	878.67
18 7514	Clerk Typist III	10,928.18
18 7514	Clerk Typist III	8,517.40
18 7514	Clerk Typist III	(75.10)
18 7515	Environmental Specialist IV	18,715.81
18 7515	Environmental Specialist IV	2,795.76
18 7515	Environmental Specialist IV	1,304.00
18 7515	Environmental Specialist IV	1,268.74
18 7515	Environmental Specialist IV	(421.05)
18 7517	Environmental Specialist III	44,816.96
18 7520	Clerk Typist III	14,903.00
18 7521	Environmental Field Officer III	53,235.85
18 7521	Environmental Field Officer III	3,497.61
18 7524	Environmental Specialist III	59,728.04
18 7524	Environmental Specialist III	1,978.13
18 7525	Environmental Specialist II	34,383.22
18 7526	Environmental Specialist IV	64,387.25
18 7526	Environmental Specialist IV	2,014.99
18 7527	Environmental Manager III	76,945.00
18 7527	Environmental Manager III	3,458.78
18 7528	Environmental Specialist II	36,980.26
18 7531	Environmental Manager I	22,205.08
18 7532	Environmental Specialist III	60,413.29
18 7538	Environmental Technician	(134.14)
18 7539	Personnel Asst. I	6,269.75
18 7539	Personnel Asst. I	(13.36)
18 7540	Environmental Specialist IV	47,601.02
18 7540	Environmental Specialist IV	19,242.37
18 7541	Environmental Manager II	293.94
18 7542	Clerk III	4,302.00
18 7542	Clerk III	215.41
18 7543	Analyst Programmer II	6,156.34
18 7543	Analyst Programmer II	1,240.70
18 7545	Environmental Specialist IV	22,681.26
18 7546	Administrative Assistant I	1,209.64
18 7547	Accounting Technician I	5,776.88
18 7550	Environmental Specialist III	213.46
18 7550	Environmental Specialist III	(458.66)
18 7551	Administrative Assistant II	38,520.93
18 7551	Administrative Assistant II	5,395.97
18 7552	Administrative Officer II	24,794.45

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7553	Accounting Technician II	44,366.75
18 7554	Administrative Assistant III	26,375.96
18 7555	Accounting Technician II	12,127.24
18 7556	Environmental Specialist III	25.34
18 7557	Environmental Specialist III	718.98
18 7559	Environmental Specialist II	39,348.24
18 7559	Environmental Specialist II	(192.41)
18 7559	Environmental Specialist II	(2,310.36)
18 7560	Environmental Specialist III	40,735.55
18 7561	Environmental Specialist IV	25,735.79
18 7561	Environmental Specialist IV	135.17
18 7564	Accounting Clerk I	3,584.72
18 7564	Accounting Clerk II	30,265.85
18 7564	Accounting Clerk II	(1,226.07)
18 7565	Environmental Specialist III	58,172.11
18 7566	Environmental Specialist IV	62,611.44
18 7568	Environmental Specialist III	60,413.26
18 7569	Environmental Specialist II	42,398.80
18 7570	Environmental Specialist III	35,487.16
18 7570	Environmental Specialist III	11,944.38
18 7571	Environmental Specialist II	50,226.77
18 7572	Environmental Specialist I	42,800.98
18 7572	Environmental Specialist I	469.42
18 7572	Environmental Specialist I	231.42
18 7572	Environmental Specialist I	112.12
18 7573	Environmental Specialist II	24,241.46
18 7574	Environmental Specialist III	34,934.04
18 7574	Environmental Specialist III	2,176.79
18 7574	Environmental Specialist III	1,307.57
18 7575	Environmental Specialist III	53,413.70
18 7577	Environmental Specialist III	30,801.36
18 7577	Environmental Specialist III	11,184.17
18 7578	Environmental Specialist II	49,521.74
18 7579	Environmental Specialist II	41,859.79
18 7580	Environmental Specialist I	31,621.67
18 7580	Environmental Specialist I	4,075.63
18 7580	Environmental Specialist I	980.56
18 7580	Environmental Specialist I	290.64
18 7580	Environmental Specialist I	237.50
18 7581	Environmental Specialist III	29,301.57
18 7581	Environmental Specialist III	11,174.99
18 7581	Environmental Specialist III	2,540.00
18 7581	Environmental Specialist III	2,162.19
18 7582	Environmental Specialist III	26,587.65
18 7583	Environmental Specialist II	42,546.37
18 7583	Environmental Specialist II	2,418.41
18 7585	Environmental Specialist I	45,446.94
18 7585	Environmental Specialist I	2,156.06
18 7585	Environmental Specialist III	4,223.47
18 7586	Environmental Specialist III	35,186.85

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7586	Environmental Specialist III	11,548.88
18 7587	Environmental Specialist II	52,500.63
18 7587	Environmental Specialist II	1,483.11
18 7588	Environmental Specialist III	58,476.74
18 7591	Environmental Specialist IV	67,321.88
18 7592	Environmental Specialist III	59,517.34
18 7592	Environmental Specialist III	865.75
18 7592	Environmental Specialist III	(278.56)
18 7593	Environmental Specialist III	18,893.14
18 7593	Environmental Specialist III	17,932.64
18 7593	Environmental Specialist III	1,299.44
18 7595	Environmental Specialist IV	41,027.48
18 7595	Environmental Specialist IV	2,950.18
18 7596	Analyst Programmer I	46,370.53
18 7597	Environmental Specialist II	57,846.97
18 7598	Environmental Engineer Assistant	22,730.24
18 7598	Environmental Engineer Assistant	6,073.35
18 7599	Environmental Engineer Assistant	58,663.38
18 7601	Environmental Specialist III	57,552.09
18 7602	Environmental Specialist II	39,799.28
18 7602	Environmental Specialist II	6,627.08
18 7602	Environmental Specialist II	(147.92)
18 7604	Clerk Typist III	14,579.19
18 7604	Clerk Typist III	10,103.16
18 7604	Clerk Typist III	9,341.70
18 7605	Clerk Typist III	25,222.70
18 7606	Clerk Typist III	20,463.86
18 7609	Environmental Specialist IV	65,481.85
18 7614	Environmental Specialist III	11,129.85
18 7614	Environmental Specialist III	159.85
18 7620	Administrative Officer II	29,099.47
18 7620	Administrative Officer II	(53.06)
18 7623	Investigator III	2,848.77
18 7624	Investigator III	7,217.26
18 7624	Investigator III	6,388.46
18 7625	Clerk Typist III	3,187.71
18 7625	Clerk Typist III	2,152.53
18 7625	Clerk Typist III	768.69
18 7626	Investigator III	32,948.04
18 7626	Investigator III	719.16
18 7626	Investigator III	686.84
18 7628	Clerk Typist III	2,698.81
18 7628	Clerk Typist III	348.16
18 7632	Administrative assistant I	1,712.54
18 7634	Accounting Clerk III	5,205.80
18 7634	Secretary I	8,958.27
18 7643	Accounting Technician III	5,929.24
18 7643	Accounting Technician III	788.84
18 7643	Accounting Technician III	181.18
18 7646	Accountant III	22,227.25

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 7652	Administrative Assistant I	2,754.24
18 7655	Environmental Manager	440.00
18 7657	Administrative Asst. II	6,295.92
18 7658	Risk Management Officer II	50,967.42
18 7659	Publication Specialist III	7,850.53
18 7659	Publication Specialist III	1,281.63
20 8015	Edcucational Coordinator	(107.85)
18 0002	On Scene Coordinator	61,229.83
25 0046	Personnel Specialist II	(233.74)
18 0074	Assistant Director	1,548.20
31 0460	Moderator	(32.93)
25 0712	Right of Way Agent II	82.50
18 EM05	Laborer WG VIII	52.06
18 K055	College Intern III	1,188.77
18 M335	Environmental Specialist I	28,250.51
18 N104	Personnel Assistant I	30,471.88
18 N105	Information Officer	172.03
18 N109	Personnel Asst. I	3,413.54
18 N113	Analyst Programmer	(1,660.26)
18 N115	Clerk Typist III	17,216.23
18 N115	Clerk Typist III	4,562.16
18 N116	Clerk Typist III	28,684.55
18 N131	Accounting Clerk I	5,351.57
18 N142	Environmental Field Officer II	28,384.91
18 N143	Environmental Specialist II	49,839.01
18 N150	Environmental Field Officer II	510.35
18 N157	Environmental Technician II	34,044.81
18 N162	Environmental Technician	695.02
18 N173	Environmental Technician	22,114.79
18 N180	Environmental Technician	20,669.26
18 N194	Environmental Technician	12,938.22
18 N198	Environmental Technician II	11,409.50
18 N208	Environmental Technician II	43,264.25
18 N216	Environmental Specialist II	26.65
18 N222	Environmental Specialist III	54,359.53
18 N225	Environmental Specialist I	46,506.55
18 N245	Paralegal Assistant I	16,112.53
18 N246	Clerk Typist III	14,143.81
18 N251	Supply Officer II	(193.97)
18 N255	Information Officer	31.11
18 N277	Environmental Technician	1,605.60
18 N277	Environmental Technician	(201.98)
18 N283	Environmental Technician	8,179.28
18 N299	Environmental Specialist IV	42,647.52
18 N301	Environmental Specialist	27,435.01
18 N307	Environmental Specialist	6,468.95
18 N309	Environmental Specialist I	48,243.73
18 N310	Environmental Specialist I	41,426.23
18 N312	Environmental Specialist	8,813.19
18 N315	Environmental Field Officer I	33,780.43

* Negative indicates a payroll adjustment for prior overpayment.

PCN	Job Description	Total *
18 N315	Environmental Specialist I	41,235.17
18 N356	Analyst Programmer III	54,136.29
18 N357	Analyst Programmer III	56,187.25
18 N379	Visual Information Specialist	56,223.22
18 N379	Visual Information Specialist	1,429.19
18 N386	Clerk Typist III	4,832.32
18 N389	Clerk Typist III	5,179.08
18 N403	Analyst Programmer II	34,031.57
18 N421	Personnel Assistant I	37,819.04
18 N424	Clerk Typist III	27.42
18 N431	Environmental Field Officer I	82.09
18 N432	Environmental Field Officer	(146.04)
18 N432	Environmental Specialist	3,586.36
18 N453	Student Intern Ii	8,005.12
18 N453	Sudent Intern II	1,991.48
18 N453	Sudent Intern II	117.68
18 N454	Management Analyst	47,825.55
18 N462	Accounting Technician I	30,994.56
18 N469	Administrative Officer II	(62.97)
18 N515	Personnel Specialist I	1,222.88
18 N530	Environmental Specialist IV	56,981.99
18 N541	Student Intern I	3,089.33
18 N541	Student Intern I	2,720.72
18 N541	Student Intern I	244.26
18 N541	Student Intern I	(224.14)
18 N546	Student Intern II	7,033.83
18 N548	College Intern IV	16,125.56
18 N548	College Intern IV	(490.51)
18 N549	College Intern III	4,503.41
18 N550	College Intern I	3,402.85
18 N551	College Intern I	2,561.16
18 N562	Studnet Intern II	1,095.54
18 N564	Clerk Typist III	1,284.53
18 N564	Clerk Typist III	710.76
18 N572	Environmental Specialist I	8,247.96
18 N572	Environmental Specialist I	419.20
18 N573	Environmental Specialist I	4,107.82
18 N573	Environmental Specialist I	2,684.07
18 N587	Sudent Intern III	2,219.17
18 N588	Environmental Technician II	19,428.82
18 N589	Environmental Technician II	18,984.25
18 N589	Environmental Technician II	16,729.83
18 X002	Restoration Planning Project Manager	79,012.75
18 X007	Policy Analyst	14,135.45
	Total:	6,146,246.02

* Negative indicates a payroll adjustment for prior overypayment.

Section VI. INFORMATION ON THREATS TO PUBLIC HEALTH

Appendices A, B, and C contain site summaries of spills and contaminated sites for which Response Fund dollars have been expended in an effort to contain, cleanup or take corrective action to mitigate or eliminate threats to public health or the environment. The primary tool used by the Contaminated Sites program to prioritize the case load of sites is the Alaska Hazard Ranking Model. The ranking model works in concert with the Contaminated Sites database to evaluate the relative exposure risk posed by a site from the air, water and soil pathways. Although the ranking model is considered to be our primary tool for prioritization of site work, there are also other valid criteria that are appropriately factored in on a case-by-case basis. Criteria that may elevate a site in importance in addition to the ranking model score may include unusual contaminants that are not otherwise addressed by the model or valid socioeconomic factors, such as potential interruption of public works projects. The spill sites also have information available that addresses the public health threats.

This information is available by contacting the Department.

APPENDIX A

SPILL RESPONSE SUMMARIES

This appendix includes detailed explanations of hazardous substance releases, including oil spills, on which $1,000 or more was spent from the Response Fund during FY92 for response control, containment, safety, cleanup, and cost recovery.

The DEC State On Scene Coordinator is responsible for ensuring appropriate actions are taken to control, contain, and cleanup hazardous substance releases, and recover Response Fund expenditures.

Title: Wendell Street

Location: City of Fairbanks

Site ID: 91-3-1-1-104-1

DEC Region: Northern

Election District: HD: 31 SD: P

Ledger Code: 49425

Project Manager: Leslie Simmons, Northern Region Office, Fairbanks, 451-2360

Situation:

Ponding breakup melt water drained into a buried, abandoned hearing fuel tank. The water displaced the fuel which flowed out of the tank across the ground surface into the gutters of Wendell Street. Because the storm drains empty directly into the Chena River, a threat to an anadromous stream existed.

FY92 Actions:

Containment and recovery of the spilled fuel was completed by the contractor. Recovery efforts accumulated approximately 10,000 gallons of fuel contaminated water and approximately 10 drums of fuel contaminated gravel and debris from cleaning the street. Costs were recovered through the responsible property owners.

FY92 Expenditures: $26,826

Title:	Neka Bay Fish Kill
Location:	Neka Bay, Chichigof Island (40 miles west of Juneau)
Site I.D.:	92-1-1-0-166-4
DEC Region:	Southeast
Election District:	HD: 5 SD: C
Ledger Code:	49278
Project Manager:	Steven Haavig South East Regional Office, Juneau, 465-5356

Situation:

A fish kill affecting primarily bottom dwelling fish, estimated in the tens of thousands located in Neka Bay, was reported in June, 1992. A determination needed to be made of whether or not the marine resources in Neka Bay are safe to eat by the local residents who traditionally depend on the area for commercial and subsistence purposes.

FY92 Actions:

A contractor, Oceanus Alaska, was hired to investigate the cause of fish kill and to determine if marine resources in Neka Bay are safe to eat. The contractor completed field sampling of water quality, dive reconnaissance to check for contaminated sources , and collection of fish samples. Department investigators interviewed Hoonah residents as part of the investigation. At present, the cause of the fish kill remains undetermined and no responsible party has been identified. Cost recovery is not anticipated at this time unless new information on the case becomes available.

FY92 Expenditures: $13,793 An encumbrance of $25,360 was made in FY92.

Title: Child's Pad

Location: Deadhorse

Site ID: 91-3-6-0-113-1

DEC Region: Pipeline Corridor

Election District: H: 37 S: S

Ledger Code: 49424

Project Manager: Mehrdad Nadem, Pipeline Corridor Regional Office, Fairbanks, 451-2766

Situation:

Floating petroleum hydrocarbons were observed in ponded water on the gravel pad during 1990. The product was suspected to be diesel oil from an above ground storage tank which has since has been relocated off-site. The objective of this response was to abate the threat of release of the liquid petroleum product from causing environmental damage to lands and waters of the state, including wetlands, by containing, removing, and disposing of the fugitive oil.

FY92 Actions:

Contaminated water and free floating diesel product was vacuumed at Child's pad and stored in a three thousand gallon tank. Contents of the drum were then analyzed prior to disposal at ARCO's Pad three injection facility. In addition, sorbant pads were placed at various locations around the pad to collect hydrocarbon floating products from puddles on the pad.

The prior site lessee is in bankruptcy and the State manages the land by default. Cost recovery is not anticipated.

FY 92 Expenditures: $ 257 An encumbrance of $3,387 was made in FY92.

Title: East Sound Spill

Location: Unalaska

Site ID: 92-2-5-1-142-1

DEC Region: Southcentral

Election District: H: 40 S: T

Ledger Code: 49426

Project Manager: Eileen Olson, Western District Office, Anchorage, 349-7755

Situation:

A plant manager of a docked processor reported a waste-oil spill in Iliuliuk Harbor to the Department on May 22, 1991. More than 3000 gallons of waste oil mixture were spilled into the Harbor from an unknown source.

FY92 Actions:

Approximately 3000 gallon spill of waste oil was recovered from the water in Iliuliuk Harbor. The clean-up was completed in June 1992, under DEC Western District Office supervision. The Coast Guard continues to investigate the spill. A responsible party has not been identified yet.

The National Pollution Fund has reimbursed the State $13,339 in expenses.

FY92 Expenditures: $5,926

Title: North Kenai Air

Location: Nikiski

Site ID: 92-2-3-6-001-1

DEC Region: Southcentral

Election District: H: 9 S: E

Ledger Code: 49293

Project Manager: Gerry Guay, Air Quality Management, Juneau, 465-5100

Situation:

This project was initiated during FY89 in response to numerous public complaints concerning the frequent ammonia upsets and general poor air quality in the vicinity of the North Kenai industrial facilities. During the course of the project two monitoring sites have been operated in the North Kenai area. During FY92 only one site has been operational. This site monitors for ambient ammonia concentrations and is located near the Unocal facility. The data collected at the site is compared to the state ambient standard for ammonia to determine potential threats to public health.

FY92 Actions:

The Air Quality Management Section monitored for ambient ammonia concentrations at one maximum impact site located near the Unocal plant in Nikiski. Air quality monitoring staff operated this monitoring site in FY92 from July 1, 1991 through September 30, 1991 and restarted the site in May of 1992 through the end of FY92. During the summer of 1991 three elevated eight-hour ammonia concentrations were observed.

Cost recovery for this has not been established for several reasons. First, DEC has entered into a joint, air quality monitoring project (UTAMP) with Unocal and Tesoro, and it was felt that Unocal ($700,000 monitoring project) would not be willing to reimburse the DEC for the state's cost. Secondly, there were a number of air contaminant emitting facilities in the North Kenai area, and it was difficult to segregate their relative culpability and consequent proportional share of the project costs. Third, although some facilities may have been operating with minor infractions relative to the air quality regulations, no facility was causing a known environmental threat to public health.

It is the Department's intention to reduce the State's direct involvement in the Nikiski

ambient monitoring program. This can be accomplished when a sufficient level of confidence exists in Unocal's ammonia monitoring program. At present, minor differences in monitoring instrumentation and methodology have resulted in the State's detecting higher concentrations of ambient ammonia. To protect public health, the State must continue to monitor and have an approved monitoring methodology. Further funding of this project for FY93/FY94 has been requested.

FY92 Expenditures: $20,295 An encumbrance of $18,402 was made in FY92.

Title: Middle Ground Shoal Oil Spill

Location: Cook Inlet, Alaska

Site ID: 92-2-3-1-127-1

DEC Region: Southcentral

Election District: H: 7 S: D

Ledger Code: 49291

Project Manager: Mark Sienkiewicz, Kenai District Office, Soldotna, 262-5210

Situation:

An oil spill in the middle of Cook Inlet was reported to the Department during May, 1992. An overflight of the spill was conducted by the Department and the US Coast Guard. A large band of black oil was observed in several areas.

FY92 Actions:

Emergency response funding was approved for this spill for the collection of a sample of the oil and other investigative activities. DEC personnel monitored the spill, the oil dissipated and no further action was taken. No responsible party was determined.

FY92 Expenditures: $1,320

Title: Kodiak Landslide Spill

Location: Downtown Kodiak

Site ID: 91-2-5-1-304-1

DEC Region: Southcentral

Election District: H: 6 S: C

Ledger Code: 49322

Project Manager: Arnie Shryock, Kodiak Field Office, Kodiak, 486-6760

Situation:

Landslides in late October, '91 caused fuel spills to enter the downtown Kodiak storm drain system and discharg into the Kodiak small boat harbor. Continued landslide threats prevented homeowners from returning to their homes to control leaks. The Governor declared an emergency.

FY92 Actions:

The Kodiak DEC field office supervised interception of these oils at the storm drain discharge. Free product generated was delivered to the City of Kodiak Marpol reception facility for energy recovery marketing and oily sorbants are being disposed of by Northwest Enviroservices. Generated wastes were screened and repacked. Oils were delivered to the marketer and sorbants were characterized for disposal and prepared for shipping.

Because the event was a natural disaster, cost recovery is not feasible for this spill.

FY92 Expenditures: $6,188

Title: Kodiak Abandoned Drums

Location: Pillar Creek Drainage, adjacent to City of Kodiak

Site ID: 92-2-5-9-094-1

DEC Region: Southcentral

Election District: H: 6 S: C

Ledger Code: 49300

Project Manager: Phase 1 - Arnie Shryock, Kodiak Field Office, 486-6760
Phase 2 - Max Schwenne, Southcentral Regional Office, 563-6529

Situation:

Six drums were abandoned in the Pillar Creek drainage in April '92. Three were next to Pillar Creek and were leaking oils and solvents into the creek.

FY92 Actions:

Phase 1 - A contractor overpacked the drums and contained contaminated soils to mitigate environmental and public health risks. Drums and one cubic yard of contaminated soils were secured at the Kodiak DOT facility to ensure public safety and secure the drums as evidence. The Alaska State Troopers conducted an investigation of ownership and dumping of the drums. A suspect has been identified, although they do not know whether they will be able to develop a case.

Phase 2 - A complete hazardous waste determination was performed on the drum contents and contaminated soil. The product was removed from the drums, drums were cleaned and sent to Anchorage to be held as evidence. The contents of the drums and soils were characterized for disposal and packed for shipping. The evidence gathered by the State Troopers is under evaluation. Cost recovery is pending results of the investigation.

FY92 Expenditures: $10,448

Title: Hyundai #12

Location: Nagai Strait near Unga Island

Site ID: 91-2-5-1-275-1

DEC Region: Southcentral

Election District: H: 40 S: T

Ledger Code: 49303

Project Manager: Bruce E. Erickson, Western District Office, Anchorage, 349-7755

Situation:

The M/V Hyundai #12 was a grain ship which went aground in Twelve Fathom Straight near Simonof Island. The ship contained large amounts of #6 diesel. The potential for a major release of oil into a sensitive marine environment existed.

FY92 Actions:

DEC worked with the United States Coast Guard and the owners to pump grain from the vessel to free it. The vessel was re-floated with minimal damage and very little oil spilled. The fuel from the damaged bottom tanks was transferred and the vessel towed to Sand Point for further repairs. The remaining cargo was off loaded, the vessel received temporary repairs, and then proceeded to Singapore for dry dock repairs.

Cost recovery is being pursued.

FY92 Expenditures: $9,342

Title: Cinnabar Loop

Location: 2231 Cinnabar Loop, Anchorage

Site ID: 92-2-1-9-127-1

DEC Region: Southcentral

Election District: H: 17 S: I

Ledger Code: 49282

Project Manager: Max Schwenne, Southcentral Regional Office, Anchorage,563-6529

Situation:

An observer reported fifteen drums in poor condition with unknown contents, a crate of potentially hazardous materials and stained soil at an apparently abandoned site. Conditions at the site were considered hazardous enough to warrant DEC response.

FY92 Actions:

A DEC contractor, Martech, was hired to perform site stabilization and characterize the drum contents. The following tasks were performed: over-packing of 13 drums, over-packing of hazardous materials, excavation of contaminated soil and storage of the soil in super sacks, field screening of all drums, collection of samples from all drums, and select laboratory analysis. The drums and the crate materials are currently over-packed and staged on site. The potential for additional releases of hazardous material to the environment is low.

The investigation is still in progress. Investigation activities are being coordinated by the Department of Law.

FY92 Expenditures: $8173

Title: Benny Benson Lagoon Diesel Fuel Release

Location: Benny Benson Lagoon, Seward, Alaska

Site ID: 91-2-3-1-189-1

DEC Region: Southcentral

Election District: HD: 8 SD: D

Ledger Code: 49427

Project Manager: Mark Sienkiewicz, Kenai District Office, Soldotna, 262-5210

Situation:

A diesel spill was reported to DEC on July 8, 1991 near the city of Seward. Investigation of the spill determined that diesel fuel was coming from a spring near a house located adjacent to the Benny Benson Lagoon, causing a widespread oil slick on the water.

Further investigation was conducted and it was determined that the release was caused by an improperly installed diesel fuel supply line which ran from a relocated fuel tank to a furnace. The actual amount of the fuel spill is estimated at between 500 to 1000 gallons.

FY92 Actions:

Actions included investigation of the spill, and containment and cleanup of the released diesel fuel. DEC personnel initially deployed a containment and absorbent boom and later contracted a cleanup firm to continue product recovery after the potential responsible party failed to take action. Costs expended consisted of equipment, personnel services, and contractual costs.

Cost recovery of expenditures was pursued by DEC against the heating company that improperly installed the fuel supply line. The Department received reimbursement from their insurance company of all expenditures. This project has been subsequently closed.

FY92 Expenditures: $26,635

Title: 79277 Aniak Lift Station

Location: Aniak, Alaska

Site ID: 92-2-5-9-176-1

DEC Region: Southcentral

Election District: H: 36 S: R

Ledger Code: 49277

Project Manager: Bruce E. Erickson, Western District Office, Anchorage, 349-7755

Situation:

There was a hazardous material spill into the Aniak sewer system. The material consisted of aviation gasoline and rolyarathane foam agents containing Methyl Ethyl Disocyanate. This spill was trapped in a lift station and presented an extreme danger to public safety, health and welfare.

FY92 Actions:

A DEC contractor secured the site, pumped the floating petroleum product, and monitored the atmosphere around the lift station for explosive vapors. The material was removed from the lift station and sewer line. Presently a criminal investigation by the State Troopers is in progress to help identify a responsible party.

FY92 Expenditures: $3,938 An encumbrance of $48,890 was made in FY92.

Title: Milepost 285 Drum Discharge

Location: Mile 285 Parks Highway

Site ID: 92-311-147-1

DEC Region: Northern

Election District: H: 36 S: R

Ledger Code: 49503

Project Manager: Larry Katkin, Northern Region Office, Fairbanks, 451-2127

Situation:

Fifteen 55 gallon drums were found at an abandoned gravel pit located one-quarter mile to the west of Milepost 285 of the Parks Highway. A portion of the drum contents had been discharged to the land.

FY92 Actions:

A contractor sampled, removed and disposed of the fifteen abandoned drums found to contain petroleum products with a chlorinated solvent. The area around the drums was cleaned. An investigation into the determination of the responsible party was conducted, but no determination was made. The project is complete.

FY92 Expenditures: $2,567 An encumbrance of $1,400 was made in FY92.

Title: Soldotna Chlorine Release

Location: Soldotna Waste Water Treatment Plant

Site ID: 92-2-3-9-030-1

DEC Region: Southcentral

Election District: H: 8 S: D

Ledger Code: 49312

Project Manager: Svend Brandt-Erichsen, Southcentral Region, Anchorage, 563-6529

Situation:

Failure of a plastic pipe resulted in the release of chlorine gas from the Soldotna Waste Water Treatment Plant on January 30, 1992. Local residents were evacuated until it could be confirmed that the gas cloud had dispersed. DEC staff lead the effort to screen areas and homes in close proximity to the release for the presence of chlorine gas.

FY92 Actions:

Following the initial response to the incident, substantial DEC effort was put into determining likely causes of the release as well as investigating issues related to operation of the facility, which became apparent during the course of the chlorine release investigation. Cost recovery will be sought during fiscal year 1993 against the City of Soldotna, owner of the facility.

FY92 Expenditures:

Title: Chevron Kenai Pipeline Oil Spill

Location: Nikiski, Rig Tenders Dock, Cook Inlet

Site ID: 92-2-3-1-004-1

DEC Region: Southcentral

Election District: H: 9 S: E

Ledger Code: 49315

Project Manager: Joe Saunter, Southcentral Regional Office, Anchorage, 563-6529

Situation:

On the morning of January 4, 1992 workers on Rig Tenders Dock in Nikiski, reported a large amount of crude oil on the surface waters of Cook Inlet. The source of the product was later attributed to a ruptured ballast water line located approximately midway on the Kenai Pipeline Company (KPL) dock. The cause has been attributed to the freezing and expansion of ballast water that was left in the pipeline KPL assumed responsibility for the spill and estimated the release at 400 barrels. The spill was later downgraded to 31 barrels by KPL. KPL initiated a response to the spill utilizing the resources of Cook Inlet Spill Prevention and Response (CISPRI).

FY 92 Actions:

DEC mobilized a response team in support of KPL's efforts and coordinated with the responsible party during the initial stages of the spill. DEC also conducted oversight and monitoring to collect information for later cost recovery and other enforcement actions. This was the first crude oil spill since the Exxon/Valdez in which DEC implemented the Incident Command System and coordinated with industry and the Coast Guard in utilizing a Unified Command for the response. This resulted in a coordinated and organized effort by all parties involved in the response. The initial cleanup was completed during the first several days of the spill and surveillance flights to track the oil were discontinued on January 13, 1992.

DEC is currently working with the Department of Law on cost recovery for this spill and assessing other appropriate enforcement action.

FY 92 Expenditures: $35,395

APPENDIX B

CONTAMINATED SITE SUMMARIES

This appendix includes detailed explanations of sites on which $1,000 or more was spent from the Response Fund during FY92 for contaminated site investigation, safety, cleanup and cost recovery.

The Director of the Division of Spill Prevention and Response has been delegated authority by the Commissioner's Office to expend Response Funds on a specific site investigation or remediation project. A Project Manager is assigned to each project as the site is discovered and manages all activities pertaining to investigation and cleanup of the site, including, cost tracking, approval of all project funds and cost recovery.

Title: 84th & Spruce

Location: 84th & Spruce St., Anchorage

Site ID: 91-2-1-9-115-1

DEC Region: Southcentral

Election District: H: 17 S: I

Ledger Code: 49366

Project Manager: Scott Bailey, South Central Regional Office, Anchorage, 349-7755

Situation:

A former scrap yard at this location had a presale site assessment completed in the spring of 1991. The sample results showed PCB and lead contamination above acceptable levels at the site.

FY92 Action:

A DEC contractor installed approximately 1,150 feet of chain link fence, with a 20 foot gate to secure the site prior to a complete site investigation by the U. S. EPA. The area occupied by the fence was mechanically cleared prior to installing the fence.

An initial site cleanup has been performed by the EPA. To date, EPA has expended approximately $1.8 million on site cleanup. Another field season on site is planned to remove lead and PCB contaminants

On October 16, 1991 AS 46.08.075 liens were filed on all property of the deceased responsible party's estate. On October 23, 1991, claims were made in probate court against the estate for past and future response costs, natural resource damages and civil assessments. No further cost recovery actions have taken place because of the present lack of liquid assets.

FY92 Expenditures: $29,418 An encumbrance of $5,168 was made in FY92.

Title: All Alaskan

Location: St. Paul Island

Site ID: 87-2-1-1-078-1

DEC Region: Southcentral

Election District: H: 40 S: T

Ledger Code: 49657

Project Manager: Bruce E. Erickson, Western District Office, Anchorage, 349-7755

Situation:

The fish processor, All Alaskan, went aground on St. Paul Island which resulted in a sizable oil spill. The owners refused to take any action except to abandon the ship along with its frozen crab cargo. The United States Coast Guard removed the oil from the vessel and left it aground. The vessel presented an environmental and health hazard to the people of St. Paul because of its rotting cargo and hazardous materials left on the ship.

FY92 Actions:

Through litigation, the owners of the All Alaskan have agreed to cut the ship up and remove it from the Island. Operations are scheduled to begin in 1993. Cost recovery is also being pursued.

FY92 Expenditures: $13,200

Title: Chil Bo San #6

Location: Unalaska Island

Site ID: 89-2-1-1-011-1

DEC Region: Southcentral

Election District: H: 40 S: T

Ledger Code: 49533

Project Manager: Bruce E. Erickson, Western District Office, Anchorage, 349-7755

Situation:

The M/V Chil Bo San was a Korean Refer Vessel which went aground on Unalaska Island near Dutch Harbor in 1989. There was a large oil spill as a result. The remaining oil was removed by the United States Coast Guard. The ship was left aground with oil barrels on it as well as other hazardous materials, such as 4.5 tons of ammonia in the vessel's refrigerator system. The responsible party has refused to remove the hazardous materials and the wreck.

FY92 Actions:

The Department of Law is pursuing litigation to recover oil spill penalties and to force the owners to remove the vessel and the hazardous material on the beach because the ship is breaking up. A site visit was made by the Department to collect evidence of the current condition of the wreck as well as assess removal options.

FY92 Expenditures: $2,725

Title: Engine and Gear

Site ID: 91-2-1-1-283-1

Location: 2130 E. Dimond, Anchorage

DEC Region: Southcentral

Election District: H: 17 S: I

Ledger Code: 49327

Project Manager: Joe LeBeau, Environmental Enforcement, Anchorage, 563-6529

Situation:

Witnesses identified potential violations of state hazardous waste storage and petroleum contamination on property known as Engine and Gear at 2130 E. Dimond in Anchorage. Subsequent field investigation discovered hazardous waste storage violations, petroleum contamination in the surrounding surface soils and ground water.

FY92 Actions:

A search warrant was obtained for collection of samples on the property. DEC staff obtained soil samples from the property. Laboratory analysis of the samples confirmed witness allegations. This case has been referred to the District Attorney for legal action and cost recovery.

FY92 Expenditures: $2,530

Title: FMUS Off-Site Investigation

Location: Fairbanks

Site ID: 91-3-5-3-154-1

DEC Region: Northern

Election District: H: 31 S: P

Ledger Code: 49328

Project Manager: Kalu A.Kalu, Northern Region Office, Fairbanks, 451-2181

Situation:

Fairbanks Municipal Utilities System (FMUS) requested assistance for containment, cleanup, and investigation of off-site containment plumes affecting the water quality of the city of Fairbanks drinking water wells. The intent of the project is to conduct a preliminary site investigation to determine the source of potential off-site contamination of FMUS's drinking water wells.

FY92 Actions:

Site investigations included the installation of six monitor wells, soil and water sampling, a historical land use survey, and an on-site survey for underground storage tanks and other contaminant sources. Water samples from off-site monitor wells revealed a potential off-site source of petroleum hydrocarbon contamination. The former service station identified will be investigated in FY93. Additional off-site investigations may be necessary following the completion of the service station assessment.

Cost recovery is not being sought at present due to insufficient information. The potential for cost recovery will improve greatly upon completion of FMUS off-site investigation.

FY92 Expenditures: $ 29,243

Title: Government Hill

Location: Anchorage

Site ID: N/A

DEC Region: Southcentral

Election District: H: 14 S: G

Ledger Code: 49280

Project Manager: Gerry Guay, Air Quality Management Section, Juneau, 465-5100

Situation:

The Government Hill project was initiated in response to public concern regarding the health effects of ambient emissions of volatile organic compounds, especially benzene. In FY92 a monitoring plan was developed to conduct sampling of ambient air in Government Hill and Anchorage for volatile organic compounds.

FY92 Actions:

The Department has taken the lead on the project by working with the community and industries located in Government Hill. DEC staff developed a monitoring plan which outlines a cooperative agreement with the Municipality of Anchorage. Department air quality modelling analyses have predicted extremely high, ground level concentrations of hydrocarbon emissions as the result of fugitive emissions from the Port of Anchorage tank farm.

The Municipality of Anchorage will conduct a volatile organic compound canister sampling program during FY93.

Cost recovery is not being pursued for this project at this time since there is no evidence of a violation.

FY92 Expenditures: An encumbrance of $100,095 was made during FY92.

Title: Kodiak USCG Hanger I Spill/ Kodiak CG Women's Bay

Location: Kodiak Island- USCG Base- Hanger I area

Site ID: 92-2-5-1-099-1

DEC Region: Southcentral

Election District: H: 6 S: C

Ledger Code: 49299

Project Manager: Bill Rieth, Anchorage Western District Office, Kodiak, 486-6760

Situation:

The United States Coast Guard lost 41,000 gallons of JP-5 in the area beneath the apron of Hanger I.

FY92 Actions:

Recovery of the spill was pursued by the Coast Guard using recovery wells. Activities are to recover as much of the available product as possible. The responsible party is continuing spill cleanup. DEC is monitoring actions and checking on cleanup activities.

FY92 Expenditures: $1,383

Title: Kodiak Small Boat Harbor

Location: Kodiak

Site ID: 89-2-5-0-193-1

DEC Region: Southcentral

Election District: H: 6 S: C

Ledger Code: 49481

Project Manager: William Rieth, Kodiak Field Office, Kodiak, 486-6760

Situation:

During June 1989, fuel was reported seeping into the Kodiak small boat harbor. DEC hired a contractor in January 1990 to find the source of the seep. The results of the field investigation indicated that the fuel plume was coming from a supermarket. The owner of the supermarket had the fuel tank removed and the entire system pressure tested. The return backup line failed the pressure test and residual contamination was found in the area. The responsible party (RP) maintained that the tank and associated lines were not the source of the harbor seep contamination. Consequently, the RP refused to take over the cleanup of the spill.

FY 92 Actions:

The RP had been unwilling to perform cleanup; consequently, DEC took over and maintained the effort to contain the fuel and remove it from the harbor. The Department of Law has initiated a cost-recovery action in court against the RP. At present, the seep into the harbor has stopped. As a result of additional site investigation performed by the RP, the RP has agreed to perform certain future monitoring and response in the event the seep reappears.

RP funds have been placed in an escrow as a result of Department cost recovery actions. The escrow funds are not sufficient to cover the Department's costs and further cost recovery is being pursued in court.

FY 92 Expenditures: $8,608 An encumbrance of $8,882 was made during FY92.

Title: Marshall Groundwater

Location: Marshall

Site ID: 92-2-5-1-351-1

DEC Region: Southcentral

Election District: H: 38 S: S

Ledger Code: 49441

Project Manager: Eileen Olson, Western District Office, Anchorage, 349-7755

Situation:

The drinking water supply at the City of Marshall was contaminated with petroleum hydrocarbon. The source has been identified as a leaking fuel transfer line going from the village corporation gas station to the bulk fuel tanks for the water treatment plant.

FY92 Actions:

The Public Health Service completed an alternative drinking waster well for the City of Marshall in September 1991. Meetings between Department personnel and the PRPs for continued throughout FY92. A Letter of Agreement has been negotiated between the Department and the two PRPs to excavate and begin remediation of the contaminated site that was the source of the groundwater contamination. On June 22, 1992 EPA Region X issued an Emergency Hazardous Waste Management Facility Permit for the proposed remediation site. Work was scheduled to begin in early FY93.

FY92 Expenditures: $4,116 An encumbrance of $91,571 was made in FY92.

Title: Parcel Spill

Site ID: 91-2-1-1-321-1

Location: 16425 Landings Circle, Anchorage

DEC Region: Southcentral

Election District: H: 10 S: E

Ledger Code: 49320

Project Manager: Joe LeBeau, Environmental Enforcement, Anchorage, 563-6529

Situation:

During November of 1991, a witness reported a discharge of oil onto Municipality of Anchorage property by Mr. Parcel.

FY-92 Actions:

On 11/18/91 Parcel was contacted by DEC staff and confessed to dumping 70 gallons of waste home heating oil into land adjacent to wetlands. Parcel began cleanup of his oil spill and contaminated soils. Parcel hired a contractor to cleanup the contaminated soils. Expenses incurred by DEC have been referred to the Attorney General for cost recovery.

FY92 Expenditures: $3,147

Title: Sitka Air Monitoring

Location: Sitka

Site ID: 89-1-2-6-251-1

DEC Region: Southeast

Election District: H: 2 S: A

Ledger Code: 49538

Project Manager: Gerry Guay, Air Quality Management, Juneau, 465-5100

Situation:

The Sitka monitoring project was initiated to assess the impact of air pollution from the Alaska Pulp Corporation (APC) facility in Sitka. The basis for concern regarding air pollution in the Sitka area stems from numerous citizen complaints and department performed computer projections identifying a strong possibility that facility emissions are producing extremely high ground-level concentrations of airborne pollutants which will exceed public health standards. A monitoring site at Heart Lake was constructed and put into operation.

FY92 Actions:

The Heart Lake air monitoring site collected air quality monitoring data during FY92. The pollutants monitored at the site were sulfur dioxide and particulate matter. No observed values exceeded the National Ambient Air Quality Standards for sulfur dioxide or particulate matter.

Cost recovery has been pursued for this project and Alaska Pulp Corporation has paid the entire cost of FY92 monitoring activities. The air monitoring site is currently active. In an agreement between DEC and APC, APC has agreed to pay for future site operations. Response fund monies will not be used to fund the project in FY93.

FY92 Expenditures: $52,298 An encumbrance of $3,249 was made in FY92.

Title: Tweed Excavating

Site ID: 91-2-1-1-284-1

Location: Eagle River

DEC Region: Southcentral

Election District: H: 25 S: M

Ledger Code: 49326

Project Manager: Joe LeBeau, Environmental Enforcement, Anchorage, 563-6529

Situation:

Witnesses identified potential oil and hazardous substance contamination on property on Springbrook Drive in Eagle River. Residual fuel was reportedly spilled upon the surface of the land during a tank crushing operation on the property. Subsequent field investigation discovered contamination in the near surface soils.

FY92 Actions:

A search warrant was obtained to investigate and collect samples from the property. DEC laboratory analysis confirmed witness allegations. This case has been referred to the District Attorney for legal action and cost recovery.

FY92 Expenditures: $3,237

Title: Volatile Organic Chemical Survey

Location: State-wide

Site ID: N/A

DEC Region: Southeast

Election District: State-wide

Ledger Code: 49414

Project Manager: Deena Henkins, Environmental Quality, Juneau, 465-5312

Situation:

In May, 1991, the Department began a project to analyze four quarterly samples for Volatile Organic Chemicals (VOCs) from Class A public water systems serving fewer than 500 persons. This survey would identify potential contaminated sites and would provide the analyses required by the federal drinking water regulations for small water systems. VOCs can cause health effects including liver damage and cancer. Nation-wide, 20% of public water supplies are contaminated by VOCs. Small water systems in Alaska are vulnerable to VOC contamination because fuel is routinely stored close to the water source, leaking fuel lines are common place and often not identified for long periods of time, the area around fuel storage tanks is not impermeable and fuel handling practices are poor in small communities.

FY 92 Actions:

A total of 1,947 samples were analyzed for Volatile Organic Chemicals, including eight regulated and 51 unregulated compounds. One or more VOCs were detected (concentration greater than one part per billion) in 222 water systems. Of those 222 water systems, one or more VOCs were detected above the maximum contaminant level in 53 of the water systems.

FY 92 Expenditures: $5,283

Title: Nikiski Airstrip

Location: Nikiski Beach Road

Site ID: 89-2-3-1-217-1

DEC Region: Southcentral

Election District: H: 9 S: E

Ledger Code: 49496

Project Manager: Don Fritz, Southcentral Regional Office, Soldotna, 262-5210

Situation:

There are two separate areas adjacent to the airstrip which were used as solid waste disposal sites for many years. On or about 1980, one of the pits was used to dispose of bunker C fuel or other weathered petroleum products.

In 1985, the Kenai Peninsula Borough removed the majority of the solid waste, much of the surface oil, and conducted some soil remediation. However, the extent of contaminated soil remaining on-site is unknown.

In June of 1990, DEC contracted Shannon & Wilson to conduct a site assessment. Analytical test results of soil samples indicated highly elevated levels of petroleum hydrocarbon constituents in the soil. Test results of the groundwater samples established the presence of free product on the watertable.

FY92 ACTIONS:

DEC staff prepared a contract draft, designing the scope of work to be done on the site. Additional site assessment will be conducted.

The decision to recover costs from former responsible parties will be made after further case evaluation.

FY92 Expenditures: $2,145

Title: Tetlin Soil Excavation

Location: 20 miles southeast of Tok

Site ID: 89-3-3-1-340-1

DEC Region: Northern

Election District: H: 36 S: R

Ledger Code: 49468

Project Manager: Daniel Basketfield, Northern Regional Office, Fairbanks, 451-2182

Situation:

In response to 1989 reports of surface releases of petroleum product from the Tetlin village aboveground storage tank (AST) farm, improper stockpiling of 55-gallon drums of unknown contents, and the presence of a potentially contaminated pond adjacent to the village school building, the Interior District Office Contaminated Sites staff requested and received approval for allocation of Response Fund monies to excavate and contain contaminated materials, and perform site assessment activities.

FY92 Actions:

VRCA, Inc., was contracted to perform the following response actions: undertake excavation and containment of diesel-contaminated surface soils in the vicinity of the AST farm and village drinking water well; temporarily stockpile excavated contaminated soils to await ultimate remediation during the 1992 field season; and sample, secure, and remove 55-gallon drums of fluid from the former AST site to a secure location.

Additionally, Shannon & Wilson, Inc. was contracted to assess the contamination problem and recommend options for remediating the soil and ground water contamination.

An exhaustive study of potentially responsible parties concluded that cost recovery actions were not feasible.

FY 92 Expenditures: $78,117

Title: Peters Creek Tesoro Phase II

Location: Chugiak

Site ID: 86-2-1-1-062-1

DEC Region: Southcentral

Election District: H: 25 S: M

Ledger Code: 49726

Project Manager: Keven Kleweno, Anchorage District Office, Anchorage, 349-7755

Situation:

Gasoline spills of unknown quantities and duration contaminated the Peters Creek groundwater. In April 1986, thirty-six residential wells were abandoned because of benzene levels and gasoline taste in the water.

In 1986 a new community water system was installed with DEC grant assistance. DEC contractors installed seventeen test wells to determine the source and extent of the contamination. Monitor wells and a vapor extraction system were installed and approximately 24,500 pounds of contamination were removed between May 1989 and January 1990.

FY92 Actions:

Work conducted during FY92 included sampling of several drinking water wells in the area, sampling and analyzing groundwater from monitoring wells associated with the project and operating the vapor extraction system in-house. Results from the monitoring and vapor extraction programs show a reduction in the concentration of benzene and other gasoline constituents in the plume around the known release site. However, the results are showing that perhaps a second source may be possible. The contamination at the known source is slowly reaching acceptable levels, but the plume is migrating and is slowly contaminating other areas of the affected aquifer. Additional information is being collected on a possible second source.

FY92 Expenditures: $28,668 An encumbrance of $5,405 was made in FY92.

Title: Cook's Tesoro

Location: Sterling

Site ID: 89-2-3-1-137-1

DEC Region: Southcentral

Election District: H: 8 S: D

Ledger Code: 49515

Project Manager: Svend Brandt-Erichsen, Southcentral Region, Anchorage, 563-6529

Situation:

During the summer and fall of 1990, DEC conducted an investigation of contamination at this service station and determined that soil and groundwater contamination were the result of releases from the fuel dispensing equipment. DEC subsequently conducted a site remediation, excavating approximately 3,000 cubic yds. of contaminated soil from the area around the fuel dispensing system. Cost recovery negotiations began early in calendar year 1991 and continued throughout the year. Investigation of ground water contamination at the site began in late 1991 funded under the storage tank assistance program.

FY92 Actions:

A Compliance Order By Consent was entered into between the Department and John and Carol Cook on October 11, 1991. This agreement provided for cost recovery and settled responsibility for the excavated soils and any subsequent work necessary at the site. The agreement also allowed the Cook's access to funds paid to the Cooks for condemnation of a portion of their property for the Sterling Highway improvement project. These funds were put into an escrow account to be used for limited purposes, primarily to allow re-opening of the service station. Ground water monitoring was initiated during FY92 and continued into FY93. FY92 expenditures consisted of the Department of Law's cost recovery efforts.

FY92 Expenditures: $1,570

Title: Forward Pad

Location: Deadhorse

Site ID: 89-3-6-9-018-1

DEC Region: Pipeline Corridor

Election District: H: 37 S: S

Ledger Code: 49467

Project Manager: Mehrdad Nadem, Pipeline Corridor Regional Office, Fairbanks, 451-2766

Situation:

Forward Pad is directly adjacent to the Deadhorse drinking water supply. Over 800 tanks, drums, and containers of waste were abandoned on-site.

FY92 Actions:

In order to eliminate the potential spill of any of these drums on the pad, the Department decided to composite, and properly dispose of the content of these containers. The removal of the drums eliminated the potential threat of hazardous chemicals being spilled onto the pad, and therefore, potentially affecting the integrity of the Deadhorse Drinking water supply. The Department chose Northwest Enviroservices, Inc. for the project. This project was initiated in July 1992 and was completed in September 1992.

The Department of Law is investigating cost recovery against the responsible party, but has not filed a case at this point in time.

FY92 Expenditures: $1,083 An encumbrance of $144,248 was made in FY92.

Title: Comet Enterprises/Terminator

Location: St. Paul Island

Site ID: 89-2-1-1-086-1

DEC Region: Southcentral

Election District: H: 40 S: T

Ledger Code: 49530

Project Manager: Svend Brandt-Erichsen, Southcentral Regional Office, Anchorage, 563-6529

Situation:

On March 26, 1989, the crab vessel F/V Terminator grounded on St. Paul Island. As a result of the grounding, approximately 30,000 gallons of diesel fuel was discharged into the Bering Sea.

FY92 Actions:

The case was referred to the Attorney General's office for initiation of an enforcement action. On March 4, 1991, the State filed suit against Comet. Comet has conducted a survey of the vessel and has removed all hazardous substances and oil from the vessel. A tentative settlement has been reached between Comet, Comet's pollution insurers and the State for settlement of the pollution related claims. Comet continues to dispute its obligation to remove the wreck and as a result, further legal action is likely.

FY92 Expenditures: $2,311

Title: Marathon Trading

Location: West Foreland Point, Cook Inlet

Site ID: 88-2-3-01-053-02

DEC Region: Southcentral

Election District: H: 36 S: R

Ledger Code: 49563

Project Manager: Bryson Twidwell, Kenai District Office, Soldotna, 262-5210

Situation:

The Marathon - Trading Bay Facility is a site with petroleum contamination extending from the ground surface to the water table in most areas in the facility. The responsible party, Marathon Oil Co., has conducted several site assessments to determine the vertical and horizontal level and extent of contamination.

FY92 Actions:

The Department provided oversight of the responsible party's site assessment and cleanup. Marathon conducted two extensive site assessments to further determine the extent of contamination at the facility. They are also conducting extensive pipe and tank testing to eliminate sources of contamination. Several tanks were cleaned out and repaired. The Department is waiting for results of the site assessment which was finished in September 1992.

The Department of Law has begun drafting a compliance order by consent.

FY92 Expenditures: $13,265

Title: Shee Ski

Location: 132 mile Denali Highway

Site ID: 92-3-3-0-112-1

DEC Region: Northern

Election District: H: 35 S: R

Ledger Code: 49286

Project Manager: Deborah Alberg, Northern Regional Office, Fairbanks, 451-2175

Situation:

On April 30, 1992, the Northern Regional Office received a complaint regarding sloppy fuel handling at a staging area at mile post 132 on the Denali Highway near Cantwell. From a video of the contaminated area, one could see Shee Ski's sloppy fuel handling practices with their equipment. By the time DEC staff followed up on the complaint, the responsible party, Shee Ski, had already been there to perform a clean-up. It appeared that a bulldozer had spread out a lot of the material, making it difficult to determine the extent of the contamination. There was at least one predominantly stained area.

FY92 Actions:

A Notice of Violation was issued on May 5, 1992 against Shee Ski, Inc. for not reporting the spill and failure to clean up the unknown amount of petroleum products spilled in the staging area. As a result, Shee Ski, Inc. hired Rusher's Environmental to do a clean-up and assessment of the area.

After several site visits, it appeared that most of the visible contaminants, 80-90 lube oil, had been removed. Samples were collected from the stained area. All but one sample fell below the cleanup levels. The responsible party and Rusher s Environmental excavated more material.

Final DEC assessment of the clean-up is difficult to determine because of the amount of material in the staging area and the lack of clarity in the number of products and their amounts spilled. This site has been put on the Contaminated Sites database for ranking and will be dealt with according to its ranking. No cost recovery is being pursued or anticipated.

FY92 Expenditures: $1,877

Title: Former Copper River Railroad

Location: Cordova

Site ID: 90-2-4-1-095-4

DEC Region: Southcentral

Election District: H: 35 S: R

Ledger Code: 49437

Project Manager: Max Schwenne, Southcentral Regional Office, Anchorage, 563-6529

Situation:

Petroleum contaminated soil and ground water are present at this site, associated with operations of a former railroad roadhouse. The railroad was operated in support of the Kennecott Mine prior to World War II when it was taken over by the federal government to support military operations. The property was converged to other parties after the war.

FY92 Actions:

DEC, with the assistance of the Department of Law, is working with public and private potentially responsible parties to facilitate contamination assessment. A state lead action will be undertaken if the those potentially responsible fail to take responsibility and perform a cleanup.

FY92 Expenditures: $3,237

Title: Chevron Valdez Bulk Plant

Location: Valdez

Site ID: 89-2-4-1-010-1

DEC Region: Southcentral

Election District: H: 35 S: R

Ledger Code: 49486

Project Manager: Mike Krieber, Mat-Su District Office, Wasilla, 376-5038

Situation:

Petroleum contaminated soil and ground water associated with facility operations are present at this site.

FY92 Actions:

DEC, with the assistance of the Department of Law, negotiated a Compliance Order by Consent with Chevron U.S.A., Inc. The compliance order was signed in November 1991. Chevron U.S.A. agreed to clean up contaminated bulk plants soils and ground water. A risk assessment was undertaken to establish site cleanup levels. Cleanup is underway.

Chevron U.S.A. paid the State of Alaska $100,000 for civil assessments, damages, penalties and costs, including Department of Law costs.

FY92 Expenditures: $1,199

APPENDIX C

KENAI CONTAMINATED SITE SUMMARIES

Title: Rabbit Run Road Drums

Location: Rabbit Run Subdivision; T05N R09W S25

Site ID: 88-2-3-1-304-05

DEC Region: Southcentral

Election District: HD: 8 SD: D

Ledger Code: 49325

Project Manager: Deric Marcorelle, Kenai District Office, Soldotna, 262-5210

Situation:

Citizen complaints lead to the discovery of fourteen drums of waste oil in poor condition and leaking. The property owner was not willing to accept clean-up responsibility.

FY92 Actions:

A contractor was hired and all drums were tested. Oil on the ground was contained with sorbant pads, and a sorbant boom was placed across the runoff pathway. Drums were removed from the site and disposed at the Alaska Pollution Control facility. Contaminated soil remains at the site and needs to be addressed. The responsible party lives in Idaho and will not accept responsibility for cleanup costs. The Attorney General's office has filed a lien on the property and will add all testing and disposal costs to that lien.

FY92 Expenditures: $1,840 An encumbrance of $3,203 was made in FY92.

Title: Dresser Atlas Site

Location: Mile 22.5 North Kenai Road, Kenai

Site ID: 86-2-3-1-140-01

DEC Region: South Central

Election District: HD: 9 SD: E

Ledger Code: 49710

Project Manager: Monica T. English, Kenai District Office, Soldotna, 262-5210

Situation:

In 1986, employees of the Atlas Wireline business complained of a gasoline taste in their drinking water. DEC analyzed water samples for the drinking water well and found benzene and xylene contamination. A new well was drilled in a deeper, confined aquifer in 1988. It was determined that a possible source of contamination in the original well was from a service station that was located on the site previously. The underground storage tanks were drained and removed in June 1988. DEC conducted assessment work in 1988, 1989 and 1990. This assessment work indicates that a dissolved benzene, toluene, ethylbenzene, and xylene (BTEX) plume is present. Water quality data suggests a primary source of dissolved BTEX near the former underground storage tank site. A sheen on purged groundwater in several monitoring wells indicates that a floating hydrocarbon layer was likely present some time in the past.

FY 92 Actions:

The primary objective is to remediate the majority of petroleum contaminated soils at this site, thereby minimizing additional contamination of the groundwater through leaching of contaminants from the soils. High concentrations of petroleum hydrocarbons were identified in the soils adjacent to the water bearing zone and in the groundwater. In June 1992, Martech, under Term Contract agreement with DEC, began installation of a Vapor Extraction/Air Sparging System to remediate the petroleum contaminated soils.
The Kenai Peninsula Borough leases this property to Jesse Wade, who in turn leases it to the Atlas Wireline Services. It would be very difficult, if not impossible to prove that any contamination occurred after the borough took title of the property from the state. No cost recovery actions are anticipated at this time.

FY92 Expenditures: $1,796 An encumbrance of $153,231 was made in FY92.

Title: Lamplight Chevron

Location: Mile 28.8 Kenai Spur Highway, North Kenai

Site ID: 89-2-3-1-177-3

DEC Region: Southcentral

Election District: H: 9 S: E

Ledger Code: 49333

Project Manager: Don Fritz, Southcentral Regional Office, Soldotna, 262-5210

Situation:

The site is presently owned by Alaska USA Federal Credit Union (AKUSA), who acquired the property through foreclosure in 1987. An anonymous complaint was received by the Department in June of 1989 regarding excavation activities at the site. A Notice of Violation was issued to Alaska USA Federal Credit Union in August of 1989. Alaska USA Federal Credit Union subsequently hired Woodward-Clyde Consultants (WCC) to assist in addressing environmental issues at this site. In February of 1991 the Kenai District Office received WCC's Site Assessment Report covering the October 1990 removal of three underground storage tanks (UST), and the Site Investigation Report covering all assessment activities at this site. The Department has been involved with the review of this project for the past 2 years and has raised numerous comments and concerns with the responsible party and WCC. The Department subsequently received information from an outside source that petroleum contamination remained at the bottom of the excavation. This information conflicts with information provided for the site by WCC.

FY92 Actions:

In order to confirm the existence of and the general extent of petroleum hydrocarbon soil contamination remaining after an UST closure at the Lamplight Chevron site, a request for investigation activities was filed and approved.The department gained permission from AKUSA to conduct an investigation at the site. A backhoe was utilized to perform limited excavation within the former tank excavation. The presence of petroleum contamination was confirmed by the department. Cost recovery is expected to be pursued.

FY92 Expenditures: $9,622

Title: Coastal Drilling

Location: Soldotna

Site ID: 88-2-3-9-183-3

DEC Region: Southcentral

Election District: H: 9 S: E

Ledger Code: 49329

Project Manager: Bryson Twidwell, Kenai District Office, Soldotna, 262-5210

Situation:

The Coastal Drilling site was an oil field drilling and field service company which ceased operations in the early eighties. Oil field related wastes were disposed into two pits on this property. One pit has been covered up with fill and the other pit is still open. Several drinking water wells are located near the site. The most important wells are a Class A well located about 50 feet away from these pits which supports the Karston's Mall and another Class A well next to a public school to the south-west about three blocks away. Perched water in the closed pit is contaminated, however, sampling has not shown contamination in local wells or the water table. Both Class A wells are down gradient from the contaminated pits.

FY 92 Actions:

Field explorations conducted at the Coastal Drilling facility consisted of a two-phase effort that was accomplished in November and December, 1991 and May and June, 1992. The 1991 field explorations consisted of digging backhoe pits, drilling exploratory borings, installing monitoring wells and collection of surface and subsurface soil and water samples. In 1992, additional monitoring wells were developed and more soil and groundwater samples were collected.

DEC's contractor for the site assessment was Shannon & Wilson (S & W). S & W sampled all of the old and new monitor wells, took soil samples from the borings, and collected water and sediment samples from the open pit. S & W also found several new areas of contamination after review of aerial photographs. Areas in the photographs which appeared to show stained soil were investigated by soil borings and sample collection. Potential health risks associated with exposure to contaminated surface soil

prompted the department to fence the area in December 1991.

The following excerpt from the S & W report describes current conditions at the site.

"The covered pit at the site has been used to dispose of miscellaneous debris as well as a drain field for wastes that are discharged into a metal grate located between Hydrotest and the concrete slab. The metal grate is connected to the covered pit by a 6 inch steel pipe. Elevated concentrations of petroleum hydrocarbons, chlorinated solvents and hazardous substances at the site were found in the sump box below this grate and in the soils surrounding this grate. The highest levels of contaminants, however, were encountered at the discharge end of the effluent pipe for the metal grate sump box located at the western edge of the covered pit. Several new areas of oil stained soils as well as where tanks and drums were stored in the past were visible in the aerial photographs acquired during this assessment. The unconfined groundwater table, with static levels at about 35 feet below the surface is in our opinion apparently being recharged by surface water collecting above and infiltrating downward through the covered and open disposal pits. The soils are relatively permeable beneath the disposal pits and provide little resistance to the downward migration of fluids. The continuous boring showed highly permeable soils adjacent to the pit. The bottom of the pit may be lined with emulsified petroleum or fine grained drilling muds. However, we feel that this artificial lining of the bottom of the pits will only cause infiltrating water to migrate laterally until in contact with more permeable soils and then continue on its downward decent."

Sufficient information regarding the site has been collected to begin development of a remedial action plan. The department plans to solicit public input during the first quarter of 1993 before selecting a particular remedial action plan.

FY 92 Expenditures: $97,805 An encumbrance of $3,161 was made in FY92.

Title: Caribou Island

Location: Caribou Island Subdivision, Lot 16, Block 12

Site ID: 91-2-3-1-172-2

DEC Region: Southcentral

Election District: HD: 9 SD: E

Ledger Code: 49323

Project Manager: Deric Marcorelle, Kenai District Office, Soldotna, 262-5210

Situation:

A large storage tank had been cut in half with the top left exposed to the elements. Approximately one inch of emulsified oil was observed floating on the surface. Rain water caused the level of the tank to rise with danger of oil over flowing and entering the Kenai River system.

FY92 Actions:

Sludge was removed from the tank and overpacked by DEC staff. Water from the tank was filtered using the 3M filter bag system and a 55-gallon charcoal filter. Sludge and sorbant pads were incinerated at Chumley's, a permitted facility in Sterling, AK. The large tank was turned over to prevent it from filling with water again.

There are approximately 15 full 55-gallon drums presently on the property. None of the drums are leaking. The owner of the property is currently incarcerated in a federal prison. Although, the site has been cleaned to ADEC satisfaction, there is a threat of an oil spill due to no supervision at the site. The Attorney General's Office will be filing a lien on the property to recoup cleanup cost.

FY92 Expenditures: $3,897

Title: Clear Creek Salvage

Location: Seward

Site ID: 86-2-3-9-183-1

DEC Region: Southcentral

Election District H: 8 S: D

Ledger Code: 49704

Project Manager: Svend Brandt-Erichsen, Southcentral Regional Office, Anchorage, 563-6529

Situation:

This site is being closed as sampling has not detected contamination. The site is a junkyard that was run by Mr. Walter Shymkewicz for 10 years prior to his death in 1987. The estate is still unsettled as to ownership. A complaint was called in to the Department in March of 1986 concerning the potential for hazardous wastes at the junkyard. Due to lack of responsible parties and information obtained during a DEC site visit in 1988, DEC contracted to have hazardous waste removed from the site in 1989. No pesticides or PCBs were detected. Waste oil contamination on the ground surface exists in several locations. There is a lot of solid waste remaining on-site.

FY92 Actions:

Department personnel installed four sand-point monitor wells around the site and took water samples. The well points and water levels were surveyed to establish groundwater directional flow. Soil samples and groundwater samples were taken. Test results were nondetect for volatiles, semivoiatiles, pesticides, and aroclor PCB compounds for soil and groundwater. Metals were also tested and were within normal levels found in nature.

FY92 Expenditures: $1,155

APPENDIX D

DEC DEPARTMENT GOALS AND SUMMARY OF PROGRAMS

Excerpts

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response

Government Preparedness and Response

410 Willoughby Avenue,
Suite 105
Juneau Alaska 99801
465-5050

John A Sandor
Commissioner

Mead Treadwell
Deputy
Commissioner

Janice Adair
Assistant
Commissioner
Legislative Liason

Mike Conway
Director, Division of
Spill Prevention and
Response

Lynn Kent
Chief, Government
Preparedness and
Response Program
456-5220

Goal

To protect public health and the environment by ensuring a planned and safe response to releases or threatened releases of oil or hazardous substances.

Program Background

The Alaska Department of Environmental Conservation (DEC) is responsible for responding to all oil and hazardous substance spills and ensuring their containment, control and cleanup. DEC also defines the extent of contamination and assesses damages and recovery of costs to the state. Title 46 of the Alaska Statutes and Title III of the federal Superfund Amendments and Reauthorization Act (SARA) tasked DEC with facilitating local, regional and statewide response preparedness for oil and hazardous substance releases in order to minimize the impact on human health and the environment. DEC's Government Preparedness and Response program facilitates this planning and also prepares, reviews and revises the state and regional plans for oil and hazardous substance discharge prevention and response. The program provides staff support to the State Emergency Response Commission (SERC) and funding, staff support, and administration to Local Emergency Planning Committees (LEPCs).

Issues

DEC must work with local government agencies and the public to establish 26 LEPCs. Training and guidance will be provided to the LEPCs for the development of response plans for oil and hazardous substance releases. The Department will develop State and Regional plans to insure responding personnel from all state and local agencies understand their roles and responsibilities when responding to a release. In addition, the Department must train response teams and improve the response resources available for a major spill.

Major Features

- Develop regulations and guidelines for the SERC and LEPCs and hold quarterly meetings with each.
- Ensure that up to 26 local plans under development are coordinated and integrated with other relevant plans and comply with requirements specified in state and federal law.
- Complete compilation of hazards analysis for the state.
- Revise the State and Regional response plans and conduct drills to test adequacy.
- Identify the Department's responsibilities and establish a response structure to safely carry out those responsibilities.
- Mobilize the Department resources upon request to support regional response activities.
- Establish and maintain minimum training standards for responders and the positions in the Incident Command System (ICS).

Program Benefits

Prevention and response plans constructed on the local, regional and state level, as well as response training for responders, help prevent spills and improve the response quality, time, and cost.

Alaska - Department of Environmental Conservation
Division of Spill Prevention and Response

Industry Preparedness Program

410 Willoughby Avenue,
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465-5050

John A. Sandor
Commissioner

Mead Treadwell
Deputy Commissioner

Janice Adair
Assistant
Commissioner
Legislative Liason

Mike Conway
Director, Division of
Spill Prevention and
Response

Mike Mansker
Chief, Industry
Preparedness and
Response Program
456-5250

Goal

To safeguard the environment by ensuring that oil industry operators take specific steps to prevent and respond to releases or threatened releases of oil.

Program Background

Title 46 of the Alaska Statutes and Title 18, Chapter 75 of the Alaska Administrative Code set forth requirements for oil spill prevention, financial responsibility and oil discharge prevention and contingency planning for the oil industry. The requirements apply to oil terminal facilities, oil tank vessels and barges, crude oil pipelines and onshore and offshore oil exploration and production facilities throughout the state. The Department of Environmental Conservation, through the Industry Preparedness Program, applies and enforces these statutes and regulations. Primary program services include administration and development of the oil discharge prevention and contingency plan review program, facility and vessel spill drill and inspection programs, and a financial responsibility program.

Issues

The effective implementation of revised statutes and regulations relating to oil pollution prevention and response is a continuing program priority. Regulations are being written to implement and administer a Response Action Contractor Registration Program mandated by House Bill 540 (1992). The final adoption of revised 18 AAC 75 regulations has compelled development of comprehensive new guidelines to prepare, apply for and review oil discharge prevention and contingency plans. New requirements for these industry-prepared plans ensure that industry has taken proper steps to prevent oil spills and is sufficiently prepared to respond in the event of a spill. Changes in the financial responsibility requirements have resulted in the need for rigorous review of existing and proposed insurance policies to ensure that they meet new and stricter requirements.

Major Features

- Provide technical assistance, conduct program development and monitoring, and ensure statewide consistency in:
  - the review by regional office staff of approximately 175 oil discharge prevention and contingency plans for oil operations statewide;
  - facility and vessel inspections and spill drills, including participation in major Department- and industry-initiated drills; and
  - the application of prevention requirements to oil industry operations and the use of prevention credits to modify the response planning standard for contingency plan holders.
- Administer the statewide Financial Responsibility program to ensure that oil operators in the state demonstrate sufficient proof of financial resources to respond to releases or threatened releases of oil.
- Provide interagency coordination in activities relating to oil pollution control, including implementation of the Federal Oil Pollution Act of 1990, cooperative review of

contingency plans with other State and federal resource agencies, monitoring of the activities of citizens' advisory councils and oil spill response cooperatives, and other concerns.

Program Benefits

By upgrading the state's regulation and inspection of oil and hazardous substances facilities, and review of industry contingency plans, the program can prevent spills, improve response and reduce cleanup costs.

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response

Contaminated Sites Remediation

410 Willoughby Avenue, Suite 105
Juneau Alaska 99801
465-5050

John A. Sandor
Commissioner

Mead Treadwell
Deputy Commissioner

Janice Adair
Assistant Commissioner
Legislative Liason

Mike Conway
Director, Division of Spill Prevention and Response

Rich Cormack
Chief, Contaminated Sites Remediation Program
456-5200

Goal

To abate threats to human health and the environment posed by sites contaminated by past improper disposal or discharges of hazardous substances.

Program Background

The Contaminated Sites program was enabled in 1986, when House Bill 470 established the Oil and Hazardous Substance Release Response Fund and broadened the use of the previously existing response fund to hazardous substances. The program had ad hoc beginnings as the department began to draw information on known contaminated sites from various programs and began to compile an inventory database in 1988. The program was officially designated in January 1990, when it was split from the Oil and Hazardous Substance Spill Response Section. The program also now encompasses activities under cooperative agreements with the Department of Defense and EPA, which allow funding of staff oversight of military restoration activity and Superfund site projects respectively. The universe of historical contaminated sites under the jurisdiction of the program are defined using the contaminated sites database inclusion criteria, excluding leaking underground storage tanks, which are managed under a separate program.

Issues

The Contaminated Sites program faces the reality of a large and increasing universe of contaminated sites and the likelihood of diminishing human and fiscal resources over time to address these sites. A "Certified Service Provider" initiative will be developed to allow licensing of assessment and cleanup contractors to conduct work on low priority sites without direct department oversight, thereby freeing staff to oversee high priority sites posing imminent and substantial threat. The program is currently operating with guidance documents and has not promulgated hazardous substance cleanup regulations that would help to solve some of the ambiguity currently experienced by the regulated community. The program will be putting major focus on development of regulations to address cleanup standards and program structure. The regulations will also stress cost-effectiveness, encourage innovative technologies, and ensure public involvement.

Major Features

- Identifiy and assess sites to determine their potential threat to public health and the environment and rank sites to determine the priority in which they should be addressed.
- Ensure that contaminated sites undergo investigation and cleanup in a priority order.
- Use term contractors and the Oil and Hazardous Substance Spill Response fund to assess or clean up sites of imminent and substantial threat where a responsible party is not available.
- Develop hazardous substance cleanup regulations and standard operating procedures for all phases of contaminated sites work.
- Negotiate cooperative agreements with the Department of Defense and EPA to enable staff oversight of DOD and CERCLA (Comprehensive Environmental Restoration,

Compensation & Liability Act — federal) sites and participation of staff in assessmen of sites within the Superfund system.

- Chairs the State agency MOA working group.
- Negotiate and oversee term contracts.

Program Benefits

The rapid cleanup of contaminated sites before pollutants have reached aquifers is vital to the health of Alaskans and our wildlife.

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response

Underground Storage Tank Program

410 Willoughby Avenue,
Suite 105
Juneau Alaska 99801
465-5050

John A. Sandor
Commissioner

Mead Treadwell
Deputy Commissioner

Janice Adair
Assistant Commissioner
Legislative Liason

Mike Conway
Director, Division of
Spill Prevention and
Response

Jim Hayden
Chief, Underground
Storage Tank Program
456-5200

Goal

To protect public health and the environment from the consequences of leaking fuel from underground storage tanks and to assist underground storage tank owners and operators in tank cleanup, upgrade, and closure by providing state-funded grants and loans.

Program Background

In 1984, Subtitle I of the federal Resource Conservation and Recovery Act established a regulatory program for the control of underground storage tanks (USTs). The governor of Alaska designated the Department of Environmental Conservation to participate in the program and to receive federal grants to support both the prevention of spills and the cleanup of leaking underground storage tanks. The federal regulations require that new tank installations meet national standards and that tanks already in operation "phase-in" to meet those standards. Additionally, each facility must show that they have some form of "financial responsibility" in the event of a spill, and must follow standard procedures for reporting and cleanup of spills. Alaska's Petroleum Underground Storage Tank Bill (HB 220) became effective in 1990, and the following year Alaska UST regulations were approved (18 AAC 78). The state law and regulations mirror the federal program but also established the State Tank Assistance program, which offers grants and loans to owners and operators of UST facilities to test, cleanup, upgrade and close their facilities.

Issues

The Underground Storage Tank Program has a diverse set of objectives, funding sources, standards and regulations, and interested parties making a number of issues relevant. Prevention of leaking tanks is a great priority, accomplished through upgrading existing tanks to new standards and making the Financial Assistance program accessible to tank owners. The processing of grant applications has recently been streamlined to expedite grant dollars to the owners/operators. Financial assistance also includes providing tank owners with the financial capability to clean up and upgrade tanks, as well as perform tests on their tanks which will allow them to obtain insurance and thus meet financial responsibility requirements. Response to leaking tanks is the program's other main focus, through cleanup of leaking tank sites. Also important is training of personnel to perform work on tanks according to state and federal regulations while following all standard safety practices. Regulations are currently being developed for approval of private testing laboratories. DEC is now seeking program delegation from the federal government: although DEC has its own regulations, EPA still has full authority in Alaska, particularly for enforcement.

Major Features

- Immediately respond to reports of leaking underground tanks and set their priority for further departmental action.
- Provide financial assistance grants and loans to upgrade/close, cleanup and test tanks and facilities.
- Conduct annual tank registration/invoicing program, including late fee collection.

- Facilitate worker certification/training/testing with the Alaska Department of Commerce and Economic Development.
- Maintain UST database of all tanks in operation and their current status.
- Provide public and technical information concerning installation, closure, upgrading of tanks as well as up-to-date information on the latest cleanup technologies. Mechanisms include UST hotline, quarterly newsletter, lending library (13 locations) and to day-to-day technical assistance.
- Conduct expedited enforcement pilot project.
- Coordinate with the Board of Storage Tank Assistance.
- Promote, develop and participate in numerous workshops for the public and tank owners/operators.

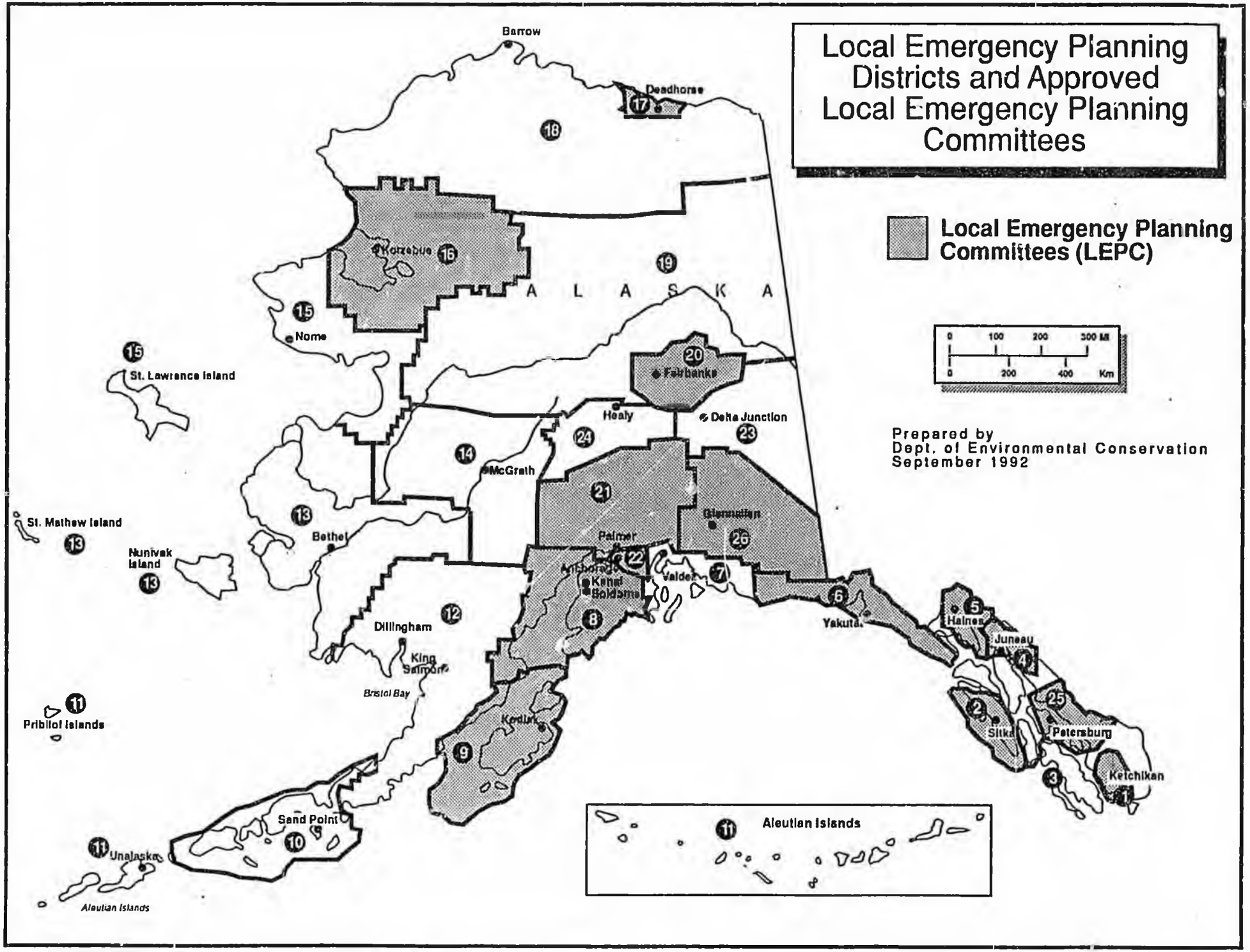
Program Benefits

Underground storage tanks which leak oil and other hazardous substances endanger the safety, health and well-being of humans and other life which live in or visit the area. Prevention of leaks and the spread of contamination help prevent protect aquifers vital to the health of Alaskans and environment.

APPENDIX E

LOCAL EMERGENCY PLANNING COMMITTEES

Status


Local Emergency Planning Districts and Approved Local Emergency Planning Committees
Local Emergency Planning Committees (LEPC)
Prepared by
Dept. of Environmental Conservation
September 1992
0 100 200 300 Mi
0 200 400 Km
A L A S K A
Barrow
Deadhorse
Kotzebue
Nome
St. Lawrence Island
Fairbanks
Healy
Delta Junction
McGrath
St. Mathew Island
Nunivak Island
Bethel
Palmer
Glennallen
Valdez
Yakutat
Haines
Juneau
Sitka
Petersburg
Ketchikan
Dillingham
King Salmon
Bristol Bay
Kodiak
Pribilof Islands
Sand Point
Unalaska
Aleutian Islands
Aleutian Islands

Map Key	Local Emergency Planning District (LEPD)	LEPC approved
1	Ketchikan Gateway Borough	4/4/90
2	City and Borough of Sitka	5/14/90
3	Southern Southeast	
4	City and Borough of Juneau	1/29/92
5	Lynn Canal	9/25/92
6	City of Yakutat	9/18/89
7	Prince William Sound	
8	Kenai Peninsula Borough	6/9/89
9	Kodiak Island Borough	6/9/89
10	Aleutians East Borough	
11	Aleutian Islands	
12	Bristol Bay	
13	Yukon Delta	
14	Southwestern Interior	
15	Northwestern	
16	Northwest Arctic Borough	6/14 /91
17	Prudhoe Bay	6/14 /91
18	North Slope Borough	
19	Interior Alaska	
20	Fairbanks North Star Borough	6/9/89
21	Matanuska-Susitna Borough	6/14 /91
22	Municipality of Anchorage	6/14 /91
23	Southeastern Interior	
24	Denali Borough	
25	Petersburg/Wrangell	9/25/92
26	Copper River	6/18/92

Prepared by the Department of Environmental Conservation
revised September 25, 1992

APPENDIX F

DEPARTMENT OF FISH AND GAME

RSA Personal Services Expenditures

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
DIVISION OF ADMINISTRATION

SUMMARY RESPONSE EMPLOYMENT PAYMENT --- RSA 1825005
JULY 1991 - JUNE 1992

COLLOCATION CODE	FCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT
11870308	11N226	GUSTIN,RICHARD L	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	9988.57	11988.79
	111354	BARNHART,JEFFREY P	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	3003.39	3471.90
	116019	KUWADA,MARK N	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	14038.50	19017.66
	116053	MAGNUS,NANCY L	P1123	CLERK TYPIST III	EBA	ANCHORAGE	6355.80	9355.04
	116093	SUNDET,KATHRIN H	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	10258.50	14366.93
	116118	BARNHILL,CAROL A	P8416	CARTOGRAPHER III	EBA	ANCHORAGE	5055.23	7092.78
	117600	FINK,MARK J	P6165	HABITAT BIOLOGIST I	EBA	ANCHORAGE	20272.23	28793.24
	117604	DUDIAK,NORMA A	P6166	HABITAT BIOLOGIST II	CYB	HOMER	12188.36	17260.58
	117608	WESEMAN,AIMEE JO	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	10394.22	14567.45
	117610	BURCHELL,DEBORAHA A	P1123	CLERK TYPIST III	EBA	ANCHORAGE	4371.96	6798.87
	117613	HILL,DOUGLAS D	P6114	FISH & WILDLIFE TECHNICIAN III	CYB	HOMER	9998.66	13854.58
	57R1	GLENN,LELAND F	R0000		EBA	ANCHORAGE	14531.51	17547.44
	57R1	MIDDLETON,KENNETH R	R0000		EBA	ANCHORAGE	10769.88	13257.12
	57R1	MIDDLETON,MARY JANE	R0000		CYB	HOMER	11448.80	12682.94
TOTAL COLLOCATION CODE 11870308 :							142675.61	190055.32
11870318	116053	MAGNUS,NANCY L	P1123	CLERK TYPIST III	EBA	ANCHORAGE	15840.50	23684.99
	116093	SUNDET,KATHRIN H	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	21072.30	29781.48
	117095	MICHAEL,ROBIN D.T.	P3571	LIBRARY ASSISTANT II	EBA	ANCHORAGE	5106.00	7265.70
TOTAL COLLOCATION CODE 11870318 :							42018.80	60732.17
11870338	117600	FINK,MARK J	P6165	HABITAT BIOLOGIST I	EBA	ANCHORAGE	5491.46	7845.09
TOTAL COLLOCATION CODE 11870338 :							5491.46	7845.09
11870358	116019	KUWADA,MARK N	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	28355.88	38643.26
	116029	TRASKY,LANCE L	P6164	FISH & GAME REGIONAL SUPERVISO	EBA	ANCHORAGE	8470.52	11276.02
	116030	ROTEN,CAROL L	P1913	ADMINISTRATIVE ASSISTANT II	EBA	ANCHORAGE	6340.00	8769.76
	116064	SLATER,CLAUDIA L	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	1046.27	1507.86
	116115	GILMORE,D'BRIANNE	P1202	ACCOUNTING CLERK II	EBA	ANCHORAGE	3982.00	5659.50
	117600	FINK,MARK J	P6165	HABITAT BIOLOGIST I	EBA	ANCHORAGE	5490.32	7831.25
	117610	BURCHELL,DEBORAHA A	P1123	CLERK TYPIST III	EBA	ANCHORAGE	285.60	285.60
	57R1	MIDDLETON,KENNETH R	R0000		EBA	ANCHORAGE	2148.66	2817.06
TOTAL COLLOCATION CODE 11870358 :							56119.25	76990.31

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STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
DIVISION OF ADMINISTRATION

11/24/92
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SUMMARY RESPONSE EMPLOYMENT PAYMENT --- RSA 1825005
JULY 1991 - JUNE 1992

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COLLOCATION CODE	PCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT
11870367	11N684	MIRAGLIA,RITA A	P6194	SUBSISTENCE RESOURCE SPECIALIS	EBA	ANCHORAGE	19506.78	23985.79
TOTAL COLLOCATION CODE 11870367 :							19506.78	23985.79

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
DIVISION OF ADMINISTRATION

SUMMARY RESPONSE EMPLOYMENT PAYMENT TOTALS --- RSA 1825005
JULY 1991 - JUNE 1992

COLLOCATION CODE	FCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT

TOTAL GROSS AMOUNT: 265811.90

TOTAL TRANS AMOUNT: 359608.68

TOTAL JUL 91 - JUN 92 TRANSACTIONS PROCESSED: 4194

REPORT DATA IS TAKEN FROM DEPARTMENT OF ADMINISTRATION, DIVISION OF FINANCE'S LABOR DISTRIBUTION DETAIL FILE FOR CALENDAR YEAR 1991 AND 1992.

LOCATION AND JOB TITLE INFORMATION ARE OBTAINED FROM DEPARTMENT OF FISH & GAME'S FAB-TABLE FILE.

DATA SELECTION CRITERIA:

PAY PERIODS SELECTED: 14 - 24 OF 1991
PAY PERIODS SELECTED: 01 - 13 OF 1992

RSA 1825005 IS BASED ON: COLLOCATION CODES 11870000 - 11879999 -- EXCLUDING 11875308

GROSS AMOUNT IS BASED ON: ETV CODES E001 - E413

TRANSACTION AMOUNT IS BASED ON: ALL ETV CODES

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
DIVISION OF ADMINISTRATION

11/24/92
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JULY 1991 - JUNE 1992

COLLOCATION CODE	PCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT
11822108	116019	KUWADA,MARK N	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	6295.62	8449.42
	116093	SUNDET,KATHRIN H	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	4562.70	6353.34
	117600	FINK,MARK J	P6165	HABITAT BIOLOGIST I	EBA	ANCHORAGE	391.87	610.62
	117608	WEEMAN,AIMEE JO	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	2793.11	4150.22
TOTAL COLLOCATION CODE 11822108 :							14043.30	19563.60
11822301	11K786	BODEEN,STEVEN J	P6955	COLLEGE INTERN II	DWA	CORDOVA	10121.03	11212.09
	11N1[illegible]	LANDEEN,PAMELA R	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	510.96	565.70
	11N188	GRAY,NATHANIEL A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	4442.14	5757.88
	11N196	VARTAN,KENNETH K	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	12438.22	15114.85
	11N198	MILLER,ALBERT W	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6528.59	8074.90
	11N199	LINDLEY,THEODORE D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3546.62	3966.30
	11N201	BAKER,VICTORIA N	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2216.62	2497.71
	11N201	KELLY,PATRICK F	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2765.27	3488.58
	11N204	COUCH,DUANE R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10434.49	12522.15
	11N205	TERZI,PETER R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6403.96	7573.69
	11N207	KINZER,VERA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5767.24	7287.20
	11N208	HUELSKAMP,CRAIG M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7686.71	9005.19
	11N209	STAUDER,NICOLA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7696.33	9015.84
	11N210	CAMPBELL,RODNEY D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5692.85	6769.61
	11N211	HIGBEE,JANICE A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	8697.83	10415.90
	11N224	BALOG,KAREN K	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	13987.34	16411.17
	11N232	DUNBAR,ROGER D	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	8890.26	10677.64
	11N534	STACK,CECILIA T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	89.74	240.11
	11N535	WOLTERS,GEORGE J	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7164.49	8020.73
	11N537	ESTASSI,SAMIA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	12957.29	15259.43
	11N538	LANHAM,DEBORAH K	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10364.59	12392.56
	11N540	WHITTON,KELLIE S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10983.31	13076.64
	11N541	EBERT,NANCY L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3384.25	3798.94
	11N542	HAMEL,CHARLES D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6030.16	6752.14
	11N543	HOLTON,GARY M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	13246.89	15594.67
	11N544	CONNOLLY,DAN E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7820.77	9534.77
	11N545	DOUGAN,CHARLES R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	8933.86	10392.09
	11N546	PETERS,EZEKIEL O	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3461.41	4269.76
	11N547	RAMOS,AMADO T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	16892.21	20053.32
	11N548	DEVERAUX,ELIZABETH N	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5911.99	6618.31
	11N549	NORRIS,JOHN S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	11398.74	13536.62
	11N551	TALBOT,LYNN M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3260.24	3653.01
	11N552	PAAVO,ERIC S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10092.75	12095.00
	11N553	MORELAND,STEPHANIE M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	12894.80	14781.17
	11N554	MORELAND,JONATHAN A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	9522.21	11421.88
	11N555	ALFONSI,KRISTOFER	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5666.85	7115.63

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
DIVISION OF ADMINISTRATION

SUMMARY OSIAR EMPLOYMENT PAYMENT --- RSA 1821000
JULY 1991 - JUNE 1992

COLLOCATION CODE	PCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT
11822301	11N556	HOUGHTON,MICHAEL A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	9341.42	11226.93
	11N557	GOTTHARDT,TRACEY A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	8583.40	10408.42
	11N558	WOLFF,WHITNEY L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	0.00	386.31
	11N559	BEN-DOV,RUTH	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	11830.96	14019.09
	11N667	KVALE,JAMES N	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	335.10	483.03
	11N859	SNEDGEN,JEFF W	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	12541.85	14813.31
	11N865	WILSON,KRISTI A	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	8212.83	9882.10
	11N866	BUCHANAN,JOHN D	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	17831.31	21525.76
	11N867	ANTONUCCI,KIMBERLY A	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	8826.58	10659.97
	11N878	RAUSCHER,STEPHANIE R	P6957	COLLEGE INTERN IV	DWA	CORDOVA	444.81	489.11
	11N898	LAPIDES,MARK H	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10731.98	12409.42
	11N899	CAMBER,WENDY R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	13594.82	15978.97
	11N900	PIGHINI,RICHARD P	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10478.90	12122.65
	11N901	CRAIG,ANDREW K	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10105.67	11806.49
	11N902	COEN,CLAUDIA E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	12220.96	14481.30
	11N903	POWELL,MARGARET R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	8972.59	10426.22
	11N904	O'CONNELL,AMANDA W	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	9417.21	10941.63
	11N905	SCHURMAN,RONALD M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	9359.72	10862.41
	11N913	HEIDBRINK,MARK S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3259.09	3653.59
	11N914	ECHAVARRIA,CLAUDIA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3065.79	3443.75
	111496	DUNBAR,ROGER D	P6113	FISH & WILDLIFE TECHNICIAN II	CKC	KING SALMON	2940.32	3868.92
	111515	PHIPPS,DIANE C	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	778.14	1055.81
	111527	SCOTTON,BRADLEY D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	230.12	302.26
	111559	MENARD,JAMES A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7402.34	10146.21
	111658	ATKINSON,DARYL J	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	309.05	400.52
	111925	MORELAND,STEPHANIE M	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	0.00	107.58
	117023	CHALK,KENNETH H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	7369.86	10404.30
	117043	SHARP,DANIEL G,JR	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	6118.27	8239.82
TOTAL COLLOCATION CODE 11822301 :							472206.10	563809.06
11822351	11N204	COUCH,DUANE R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2302.68	2905.95
	11N241	CRAIG,ANDREW K	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	17089.14	20796.67
	11N470	MCLEOD,ANDREE M	P6956	COLLEGE INTERN III	EBA	ANCHORAGE	8724.96	9665.47
	11N547	RAMOS,AMADO T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	557.67	736.48
	11N667	KVALE,JAMES N	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	2171.72	2726.62
	11N866	BUCHANAN,JOHN D	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	706.39	795.80
	11N901	CRAIG,ANDREW K	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7704.22	10143.33
	11N902	COEN,CLAUDIA E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	865.35	1189.79
	111337	MOFFITT,STEVEN D	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	948.68	1331.77
	111484	VICARY,CLYDE R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5001.73	6549.67
	111909	RICH,CECIL E	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	1665.32	2347.36
	117023	CHALK,KENNETH H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	7369.86	10404.26

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COLLOCATION CODE	PCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT
11822351	117092	MOFFITT,STEVEN D	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	14643.00	20392.10
TOTAL COLLOCATION CODE 11822351 :							69750.72	89985.27
11822401	11N179	BROWN,WILMA L	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	5344.74	6777.96
	11N180	HINDMAN,WILLIAM D	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	5383.55	6377.80
	11N181	CURRIER,ANICA A	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	3475.92	4737.77
	11N182	LINDLEY,MATTHEW B	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	3445.07	4265.85
	11N185	ROSEN,KELLY T	P1792	RESEARCH ANALYST I	DWA	CORDOVA	1370.52	1552.82
	11N186	ALLEN,JANE M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	16948.94	21749.62
	11N186	CARR,CHERI L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	4721.21	5690.78
	11N187	TRAUTMAN,PATRICIA M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2652.22	2946.77
	11N188	CLAPSADDLE,PENNY S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	948.68	1057.55
	11N189	CROSS,MICHAEL A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6319.14	7041.33
	11N190	DEUTSCHMAN,MIKE V	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	9677.66	11624.08
	11N192	ARMSTEAD,TUWANA D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10047.59	12002.94
	11N194	STACK,CECILIA T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1387.70	1538.77
	11N195	LIPORACE,PETER V	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3052.04	3418.41
	11N197	OSTROWSKI,DAVID S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7408.64	8274.16
	11N202	MERRITT,JEANNE M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	4007.25	4486.20
	11N207	KINZER,VERA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10235.12	13902.93
	11N212	RIDAO,RUSSEL P	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	11088.56	13187.89
	11N213	ROSS,LISA A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	224.35	256.41
	11N216	COX,ALLEN C	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	13251.19	15568.33
	11N217	STEVENSON,DANIEL V	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	10451.23	12459.83
	11N219	SCHEER,WILLIAM J	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	11054.59	13134.10
	11N219	THOMAS,MARILOU	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	1103.01	1218.94
	11N227	SADDLER,PENELOPE L	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	27605.75	35247.27
	11N228	SPEER,NANCY J	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	29708.62	37544.14
	11N230	PECKHAM,CAROL J	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	40539.34	50023.09
	11N233	SMITH,JODI L	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	21156.46	26205.07
	11N534	STACK,CECILIA T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1691.45	2081.69
	11N536	CLAPSADDLE,PENNY S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	7007.91	8668.53
	11N544	GUERRERO,MELANIE G	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1042.02	1160.70
	11N547	RAMOS,AMADO T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1131.69	1423.80
	11N550	GRIFFITH,SHEILA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2052.80	2355.47
	11N665	JOHNSON,TERESA I	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	5516.56	6974.88
	11N666	DEVITO,JEFFREY T	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	2593.38	2833.68
	11N666	RICE,BETHANY L	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	2815.07	3163.73
	11N667	GOODALE,GREGORY L	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	1279.17	1441.76
	11N667	KVALE,JAMES N	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	6310.17	7454.60
	11N668	CAMPBELL,BRENT N	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	11433.45	13555.96
	11N669	ROETMAN,PAUL A	P6112	FISH & WILDLIFE TECHNICIAN I	EAA	VALDEZ	6053.12	7568.68

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11822401	11N808	GOODYEAR,DANIEL M	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	7908.03	9236.71
	11N808	RICE,BETHANY L	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	1018.60	1129.86
	11N809	GONDEK,LARRY D	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	919.72	1021.09
	11N809	THOMAS,MARILOU	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	11292.75	13825.46
	11N810	TORVINEN,KYLE H	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	6734.89	7924.35
	11N810	WILLIS,MARTIN W	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	844.12	937.46
	11N864	SEPEZ,JENIFFER A	P6114	FISH & WILDLIFE TECHNICIAN III	EAA	VALDEZ	27882.65	34332.06
	11N902	COEN,CLAUDIA E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	13681.02	17774.97
	11N906	CURRIER,ANICA A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	409.20	409.20
	11N907	HINDMAN,WILLIAM D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	4153.63	5093.04
	11N908	KITTO,STEPHEN M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10665.44	12696.71
	11N909	GUERRERO,MELANIE G	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6516.03	7672.46
	11N910	PAPENFUSS,TRACEY L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	9542.61	11457.86
	11N911	O'ROURKE,JAMES R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	13048.60	15363.12
	11N912	CARLMAS,KALYNN	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	13323.91	14763.25
	11N915	HOLMES,CHRISTINE E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1432.64	1632.72
	11N970	DEVITO,JEFFREY T	P6113	FISH & WILDLIFE TECHNICIAN II	EAA	VALDEZ	4367.51	5738.24
	11N971	REGNART,ROBERT C	P6113	FISH & WILDLIFE TECHNICIAN II	EBA	ANCHORAGE	361.59	404.09
	111210	SHARR,SAMUEL	P6164	FISHERY BIOLOGIST III	DWA	CORDOVA	26712.03	36344.29
	111527	SCOTTON,BRADLEY D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3171.79	4367.62
	111532	BRACKEN,SHERYL L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6742.50	9282.46
	111552	GILMAN,JEAN M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	839.04	1293.73
	111575	WHITEHURST,BRIAN P	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	4999.85	7115.66
	111612	CARLMAS,KALYNN	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	0.00	896.18
	111909	RICH,CECIL F	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	940.02	1111.35
	112072	CLAPSADDLE,AGNES S	P1109	FIELD OFFICE ASSISTANT	DWA	CORDOVA	1177.00	1897.81
	117023	CHALK,KENNETH H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	7369.86	10404.27
TOTAL COLLOCATION CODE 11822401 :							497290.91	615100.33
11822403	11N233	SMITH,JODI L	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	1709.77	1912.90
	11N411	KOSEY,BRENT G	P6995	COLLEGE INTERN II	AWA	JUNEAU	957.83	1040.01
	11N411	VOSE,REGINA M	P6995	COLLEGE INTERN II	AWA	JUNEAU	641.47	693.10
	11N962	SHERIDAN,CYNTHIA F	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	2032.82	2276.61
	112072	CLAPSADDLE,AGNES S	P1109	FIELD OFFICE ASSISTANT	DWA	CORDOVA	10493.97	15064.11
	115251	SCOTT,JAMES R	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	3915.81	5720.25
	115306	BARTON,CRAIG M	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	1450.41	1839.21
	115352	MADDEN,MARIO J	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	3754.00	5610.54
	117031	MURPHY,DENNIS L	P1623	ANALYST/PROGRAMMER III	AWA	JUNEAU	40416.11	56269.21
	117038	ACHTEN,ANNE S	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	6555.30	9794.67
	117039	CANNON,APRIL L	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	1450.41	1839.21
	117039	COCHRAN,JACQUELINE	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	11204.64	15784.16
	117040	COLE,ADAM J	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	3875.28	5763.86

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11822403	117040	GRABBE,KIM M	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	1877.00	2763.97
	117041	LANDINGHAM,LORAN L	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	6259.21	8773.88
	117042	BUETTNER,DETLEF	P6114	FISH & WILDLIFE TECHNICIAN III	AWA	JUNEAU	24610.18	35601.11
	117043	SHARP,DANIEL G,JR	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	871.75	975.37
	117052	HEIDERSDORF,HAROLD E	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	938.50	1188.83
	117054	CARROLL,JOSEPH M	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	1450.41	1839.21
	117054	RAIRICK,SARA A	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	7647.68	10958.69
	117055	CLARK,JAMISON D	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	6725.43	10146.77
TOTAL COLLOCATION CODE 11822403 :							138837.98	195855.67
11822413	11N185	ROSEN,KELLY J	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10318.54	12732.85
	11N188	GRAY,NATHANIEL A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1778.78	2000.18
	11N198	MILLER,ALBERT W	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1778.78	2000.18
	11N201	KELLY,PATRICK F	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1974.44	2216.93
	11N233	SMITH,JODI L	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	7925.56	9454.36
	11N539	ROBINSON,MICHELE R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	8857.57	10603.63
	11N555	ALFONSI,KRISTOFER	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1778.78	2000.18
	11N556	HOUGHTON,MICHAEL A	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	674.01	768.63
	11N865	WILSON,KRISTI A	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	2010.49	2259.62
	11N867	ANTONUCCI,KIMBERLY A	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	2010.49	2259.62
	117043	SHARP,DANIEL G,JR	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	5246.67	7264.57
TOTAL COLLOCATION CODE 11822413 :							44354.11	53560.75
11822453	11N192	PETERS,EZEKIEL O	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1951.85	2149.71
	11N538	EBERT,NANCY L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3014.54	3320.16
	11N539	DEVEREAUX,ELIZABETH	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3020.95	3326.85
	11N543	LANDEEN,PAMELA R	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1634.55	1815.99
	11N546	PETERS,EZEKIEL O	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1942.23	2584.87
	111391	GLICK,WILLIAM J	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	9216.51	13120.44
	112072	CLAPSADDLE,AGNES S	P1109	FIELD OFFICE ASSISTANT	DWA	CORDOVA	2279.00	3321.51
	115187	SHIELDS,PATRICK A	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	18583.15	26411.79
	115200	FABISZEWSKI,DON E	P9554	STOREKEEPER WG IV	EBA	ANCHORAGE	1685.48	2489.28
	115274	CARPENTER,GREG S	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	11507.75	15726.25
	115300	KEMPF,LAURIE F	P6114	FISH & WILDLIFE TECHNICIAN III	DQD	SOLDOTNA	1109.70	1417.48
	115342	HELMINSKI,ALOYSIUS D	P6113	FISH & WILDLIFE TECHNICIAN II	DQH	KASILOF	5453.05	7738.58
	115357	EDMUNDSON,JOHN M	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	6282.00	8662.25
	117038	ACHTEN,ANNE S	P6113	FISH & WILDLIFE TECHNICIAN II	AWA	JUNEAU	3133.11	4145.76
	117085	VINING,IVAN W	P6135	BIOMETRICIAN I	EBA	ANCHORAGE	3141.00	4359.39
TOTAL COLLOCATION CODE 11822453 :							73954.87	100590.31

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11822501	11N175	LANDEEN,PAMELA R	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	4325.72	5273.00
	11N185	ROSEN,KELLY T	P1792	RESEARCH ANALYST I	DWA	CORDOVA	122.55	139.16
	11N186	ALLEN,JANE M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	69.83	75.99
	11N229	MILLER,MATTHEW G	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	1302.67	1472.65
	11N868	RICH,CECIL F	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	717.26	808.93
	11N916	DECKER,KARL E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	11832.09	15712.68
	111365	MCCRACKEN,BETSY W	P6160	FISHERY BIOLOGIST I	EBA	ANCHORAGE	4405.20	5958.91
	111394	HALEY,BETH E	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	3375.19	5041.79
	111552	GILMAN,JEAN M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	12333.08	18182.97
	111658	ATKINSON,DARYL J	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	191.97	274.89
	117019	WILCOCK,JOHN A	P6162	FISHERY BIOLOGIST III	DWA	CORDOVA	27323.76	37144.95
	117023	CHALK,KENNETH H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	1900.83	2500.96
	117044	BIGGS,EVELYN D	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	45339.81	61829.92
	117057	MILLER,MATTHEW G	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	5190.79	6920.75
TOTAL COLLOCATION CODE 11822501 :							118430.75	161337.55
11822651	11N196	VARTAN,KENNETH K	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	565.41	627.17
	11N207	KINZER,VERA	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3394.25	4617.60
	11N534	STACK,CECILIA T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	348.30	574.06
	11N916	BECKER,KARL E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3577.58	4237.89
	11N918	SANDY,WILLIAM B	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6283.88	8010.08
	111346	URBAN,JOSEPH D	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	6155.65	8375.78
	111961	URBAN,JOSEPH D	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	0.00	0.73
	111970	TROWBRIDGE,CHARLES E	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	4155.96	5710.51
	117020	TROWBRIDGE,CHARLES E	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	7963.74	11007.05
	117085	VINING,IVAN W	P6135	BIOMETRICIAN I	EBA	ANCHORAGE	1570.50	2368.60
TOTAL COLLOCATION CODE 11822651 :							34015.27	45529.47
11822702	114137	BEGICH,ROBERT N	P6160	FISHERY BIOLOGIST I	EBA	ANCHORAGE	2553.00	3645.29
	117057	MILLER,MATTHEW G	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	8540.33	11729.82
TOTAL COLLOCATION CODE 11822702 :							11093.33	15375.11
11823205	11N193	PORTER,BOYD	P6113	FISH & WILDLIFE TECHNICIAN II	EBA	ANCHORAGE	3109.85	3474.38
	111393	BROWNING,JAMES B	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	1764.34	2269.44
	112196	KOENEN,KIANA K	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	1556.64	2034.65
	117027	FARO,JAMES B	P6143	WILDLIFE BIOLOGIST III	DQD	SOLDOTNA	70514.04	93825.99

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11823205	117071	VANDENBOSCH,DAVID P	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	23476.09	30905.76
TOTAL COLLOCATION CODE 11823205 :							100420.96	132510.22
11823235	112073	TAYLOR,WILLIAM P,JR	P6143	WILDLIFE BIOLOGIST III	EBA	ANCHORAGE	2440.66	2440.66
	117071	VANDENBOSCH,DAVID P	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	13133.60	17556.87
TOTAL COLLOCATION CODE 11823235 :							15574.26	19997.53
11823255	112125	MCALLISTER,DENNIS C	P6116	FISH & WILDLIFE TECHNICIAN V	EBA	ANCHORAGE	165.41	216.71
TOTAL COLLOCATION CODE 11823255 :							165.41	216.71
11823402	11N173	WEISS,BILLIE J	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	114.50	137.64
	11N220	SAIGET,DAVID	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	4213.49	5121.32
	11N225	HECKART,ALAN G	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	5379.43	6734.31
	11N229	MILLER,MATTHEW G	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	1433.65	1433.65
	114038	HEPLER,KELLY R	P6162	FISHERY BIOLOGIST III	EBA	ANCHORAGE	36085.75	49238.27
	114124	CAPPIELLO,THOMAS A	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	2203.12	3192.50
	114159	SWEET,DANA E	P6160	FISHERY BIOLOGIST I	ECF	PALMER	1535.71	2130.08
	114207	BERNARD,DAVID R	P6138	BIOMETRICIAN IV	EBA	ANCHORAGE	17237.50	23307.28
	114208	HOFFMANN,ANDREW G	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	26414.77	36756.02
	117057	MILLER,MATTHEW G	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	2372.69	3647.20
	117064	HOFFMANN,ANDREW G	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	2454.26	2454.26
TOTAL COLLOCATION CODE 11823402 :							99444.87	134161.53
11823422	111674	MONACO,CRAIG D	P6113	FISH & WILDLIFE TECHNICIAN II	DAA	DILLINGHAM	1248.68	1597.61
	114122	HECKART,ALAN G	P6113	FISH & WILDLIFE TECHNICIAN II	EBA	ANCHORAGE	1729.80	2181.15
	114124	CAPPIELLO,THOMAS A	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	2449.69	3486.12
	114208	HOFFMANN,ANDREW G	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	6998.00	9614.10
	117057	MILLER,MATTHEW G	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	3964.03	5813.42
	117068	MCCARRON,SUZANNE H	P6160	FISHERY BIOLOGIST I	EBA	ANCHORAGE	5106.00	7234.42
TOTAL COLLOCATION CODE 11823422 :							21496.20	29926.82

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11823505	11N226	GUSTIN,RICHARD L	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	7957.28	10484.43
	117069	HASTINGS,CHARLIE W	P6115	FISH & WILDLIFE TECHNICIAN IV	EBA	ANCHORAGE	8880.76	12052.64
	117074	SYDER,JONATHAN L	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	2873.15	3661.94
TOTAL COLLOCATION CODE 11823505 :							19711.19	26199.01
11823511	111417	ROCHE,PATRICIA A	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	50.00	50.00
	117018	SWANTON,CHARLES O	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	1711.99	2547.19
TOTAL COLLOCATION CODE 11823511 :							1761.99	2597.19
11823561	111418	PILLIFANT,LAURA L	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	155.35	193.88
	117018	SWANTON,CHARLES O	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	3424.00	4338.78
TOTAL COLLOCATION CODE 11823561 :							3579.35	4532.66
11823605	11N193	PORTER,BOYD	P6113	FISH & WILDLIFE TECHNICIAN II	EBA	ANCHORAGE	7030.35	8626.05
	111393	BROWNING,JAMES B	P6160	FISHERY BIOLOGIST I	DOD	SOLDOTNA	11538.76	15302.61
	117063	LEWIS,JONATHAN P	P6142	WILDLIFE BIOLOGIST II	EBA	ANCHORAGE	29650.94	40671.33
	117073	BOWEN,SUZAN D	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	10050.55	14465.10
	117086	CALKINS,DONALD B	P6144	WILDLIFE BIOLOGIST IV	EBA	ANCHORAGE	39903.50	53689.71
TOTAL COLLOCATION CODE 11823605 :							98174.10	132754.80
11823655	112113	LOWRY,LLOYD F	P6143	WILDLIFE BIOLOGIST III	JBA	FAIRBANKS	4459.97	6116.95
	112115	FROST,KATHRYN J	P6143	WILDLIFE BIOLOGIST III	JBA	FAIRBANKS	16684.00	22562.08
	112125	MCALLISTER,DENNIS C	P6116	FISH & WILDLIFE TECHNICIAN V	EBA	ANCHORAGE	1127.80	1448.64
TOTAL COLLOCATION CODE 11823655 :							22271.77	30127.67
11823701	11N534	STACK,CECILIA I	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1358.30	2255.19
	11N921	TUCCIO,MARIA TS	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2778.50	3535.96
	11N922	COBBETT,NICHOLAS J	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	3996.48	4897.92
	111649	JOHNSON,J D	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	29409.53	41448.12
	111649	MCCRACKEN,BETSY W	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	944.15	1112.00

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11823701	111970	TROWBRIDGE,CHARLES E	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	6892.36	9560.63
TOTAL COLLOCATION CODE 11823701 :							45379.32	62809.82
11824050	11M015	SHELLEY,SAVANAH	P6951	STUDENT INTERN I	AWA	JUNEAU	138.90	138.90
	11M030	WINDOM,MONICA M	P1202	ACCOUNTING CLERK II	AWA	JUNEAU	2786.46	3103.83
	11M084	MATHIS,LARRY A	P1123	CLERK TYPIST III	AWA	JUNEAU	4965.87	5388.00
	11N348	DILBECK,MICHELLE M	P6951	STUDENT INTERN I	AWA	JUNEAU	2361.40	2611.43
	11N493	HOCKER,CAROL L	P6955	COLLEGE INTERN II	AWA	JUNEAU	1309.03	1407.39
	11N624	FITZSIMONDS,RONALD L	P6951	STUDENT INTERN I	AWA	JUNEAU	1030.18	1133.81
	11N625	MCPHETRES,WENDY K	P6954	COLLEGE INTERN I	AWA	JUNEAU	3109.70	3404.85
	11N774	SMITH,SARAH E	P6954	COLLEGE INTERN I	AWA	JUNEAU	1408.53	1559.71
	11N849	MAYFIELD,COURTNEY M	P6954	COLLEGE INTERN I	AWA	JUNEAU	3499.35	3780.48
	11N880	GREEK,MELINA L	P6954	COLLEGE INTERN I	AWA	JUNEAU	579.82	642.34
	110054	ERICKSON,JEAN M	P1123	CLERK TYPIST III	AWA	JUNEAU	735.08	814.30
	110205	MARQUARDT,TUULA K	P1292	INTERNAL AUDITOR III	AWA	JUNEAU	1665.51	2354.15
	110212	DURAN,JOSETTE M	P1912	ADMINISTRATIVE ASSISTANT I	AWA	JUNEAU	15031.88	21660.08
	110215	RANSOM,CARMELA F	P1211	ACCOUNTING TECHNICIAN II	AWA	JUNEAU	2830.00	4029.11
	110219	CHILDRESS,JENIFER L	P1210	ACCOUNTING TECHNICIAN I	AWA	JUNEAU	6476.86	9479.71
	110225	OSTROWSKI,STANLEY	P1203	ACCOUNTING CLERK III	AWA	JUNEAU	4505.06	6549.46
	110234	LEAMER,VICTOR A	P1311	SUPPLY TECHNICIAN II	AWA	JUNEAU	1196.01	1750.63
	110243	DALE,MARK A	P1205	ACCOUNTANT II	AWA	JUNEAU	1610.54	2254.83
	110245	KUNZ,STEPHEN F	P1123	CLERK TYPIST III	AWA	JUNEAU	5494.49	7954.82
	110270	BAPTISTE,MARGARET M	P1463	PROGRAM BUDGET ANAL III	AWA	JUNEAU	17097.30	23254.23
	110274	HOBBS,JULIE A	P1403	PERSONNEL ASSISTANT I	AWA	JUNEAU	9257.90	13424.40
	110285	RADACH,KIRK A	P1612	DATA PROCESSING TECHNICIAN II	AWA	JUNEAU	10291.84	14517.50
	110286	BURTON,MARYLOU D	P1293	INTERNAL AUDITOR IV	AWA	JUNEAU	4164.00	5642.11
	110291	NICOLLS,CONSTANCE	P1403	PERSONNEL ASSISTANT I	AWA	JUNEAU	9501.40	13927.23
	110606	KENNEDY,VALERIE J	P1123	CLERK TYPIST III	JBA	FAIRBANKS	1901.64	2836.69
	117060	EVANS,LEDA D	P1108	CLERK V	EBA	ANCHORAGE	11496.51	16836.47
	117060	GOODWIN,ELIZABETH	P1403	PERSONNEL ASSISTANT I	EBA	ANCHORAGE	2315.00	3385.79
	117081	JONES,BONNIE J	P1106	CLERK III	CAA	KODIAK	2297.52	3536.27
	117081	JONES,BONNIE J	P1106	CLERK III	CAA	KODIAK	5292.04	7880.60
	117089	CLEMETSON,TODD A	P1123	CLERK TYPIST III	AWA	JUNEAU	1655.29	1757.12
	117089	ERICKSON,JEAN M	P1123	CLERK TYPIST III	AWA	JUNEAU	209.63	264.58
	117089	JAMES-LEE,EUNICE E	P1123	CLERK TYPIST III	AWA	JUNEAU	2159.53	3773.23
	117104	KUNZ,STEPHEN F	P1123	CLERK TYPIST III	AWA	JUNEAU	100.33	100.33
	117107	EVANS,LEDA D	P1123	CLERK TYPIST III	EBA	ANCHORAGE	5580.69	8280.69
	117107	JOHNSON,JANICE R	P1123	CLERK TYPIST III	EBA	ANCHORAGE	8255.42	12081.31
	117108	BOWE,SHEILA M	P1912	ADMINISTRATIVE ASSISTANT I	EBA	ANCHORAGE	15174.00	21512.42
	117109	PETERSON,KAREN M	P1107	CLERK IV	DWA	CORDOVA	19464.01	28177.92
	117111	COLRUD,CORRINE	P1203	ACCOUNTING CLERK III	EBA	ANCHORAGE	17684.45	25722.93
	117112	RANDALL,STEPHANIE	P1403	PERSONNEL ASSISTANT I	AWA	JUNEAU	16808.81	24298.76

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11824050	117112	RIGGINS,EMILY E	P1403	PERSONNEL ASSISTANT I	AWA	JUNEAU	0.00	28.21
TOTAL COLLOCATION CODE 11824050 :							221421.98	311256 ?
11824051	111271	BUE,BRIAN G	P6136	BIOMETRICIAN II	EBA	ANCHORAGE	40721.61	55852.12
	111365	MCCRACKEN,BETSY W	P6160	FISHERY BIOLOGIST I	EBA	ANCHORAGE	5531.50	8223.32
	111395	BAKER,TIMOTHY T	P6135	BIOMETRICIAN I	EBA	ANCHORAGE	34296.38	47705.27
	117072	EVANS,DAVID G	P6135	BIOMETRICIAN I	EBA	ANCHORAGE	25236.98	35227.41
	117085	VINING,IVAN W	P6135	BIOMETRICIAN I	EBA	ANCHORAGE	21098.12	29234.04
TOTAL COLLOCATION CODE 11824051 :							126884.59	176246.66
11824052	117012	HANSEN,PATRICIA A	P6136	BIOMETRICIAN II	EBA	ANCHORAGE	28856.60	40026.63
TOTAL COLLOCATION CODE 11824052 :							28856.60	40026.63
11824053	11N471	SIMMONS,JAMIE E	P6955	COLLEGE INTERN II	EBA	ANCHORAGE	19778.13	21691.55
	115200	FABISZEWSKI,DON E	P9554	STOREKEEPER WG IV	EBA	ANCHORAGE	3524.19	4864.91
	117030	HASBROUCK,JAMES J	P6136	BIOMETRICIAN II	EBA	ANCHORAGE	31938.50	44056.18
	117082	JEAN,YVETTE D	P1123	CLERK TYPIST III	EBA	ANCHORAGE	22862.62	33886.32
TOTAL COLLOCATION CODE 11824053 :							78103.44	104498.96
11824055	112125	MCALLISTER,DENNIS C	P6116	FISH & WILDLIFE TECHNICIAN V	EBA	ANCHORAGE	270.67	346.93
	112196	KOENEN,KIANA K	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	1825.28	2715.56
TOTAL COLLOCATION CODE 11824055 :							2095.95	3062.49
11824059	11K033	BLUMENSHINE,TREVA A	P6951	STUDENT INTERN I	AWA	JUNEAU	148.16	161.29
	11M017	CLEMETSON,TODD A	P6954	COLLEGE INTERN I	AWA	JUNEAU	8543.26	9319.01
	11M084	MATHIS,LARRY A	P1123	CLERK TYPIST III	AWA	JUNEAU	0.00	615.45
	11N493	HOCKER,CAROL L	P6955	COLLEGE INTERN II	AWA	JUNEAU	232.20	257.64
	11N618	KEHRER,MARGARET A	P6959	GRADUATE INTERN II	AWA	JUNEAU	1680.57	1836.23
	11N849	MAYFIELD,COURTNEY M	P6955	COLLEGE INTERN II	AWA	JUNEAU	853.37	945.35
	11N946	TWAIT,PAUL B	P6954	COLLEGE INTERN I	EBA	ANCHORAGE	5415.31	5950.41

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11824059	110276	LAROCQUE,DIANE C	P3570	LIBRARY ASSISTANT I	AWA	JUNEAU	5233.80	7597.94
	114150	KOENEN,KIANA K	P6114	FISH & WILDLIFE TECHNICIAN III	ECF	PALMER	109.60	109.60
	116028	SUNDBERG,KIMBAL A	P6168	HABITAT BIOLOGIST IV	EBA	ANCHORAGE	2461.31	3335.05
	116041	SWENSON,CHRISTOPHER	P6166	HABITAT BIOLOGIST II	EDA	ANCHORAGE	1521.12	2117.36
	116137	HUGHES,DEAN W	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	0.00	802.81
	117001	MONTAGUE,J JEROME	X0823	DIVISION DIRECTOR	AWA	JUNEAU	43505.00	58779.16
	117002	DEAN,MICHAEL R	X0825	DEPUTY DIRECTOR	AWA	JUNEAU	41323.00	55166.90
	117003	FRAKER,MARK A	X0907	WILDLIFE/HABITAT PROGRAM M	EBA	ANCHORAGE	44771.70	60084.30
	117003	NOWLIN,ROY A	X0907	WILDLIFE/HABITAT PROGRAM M	EBA	ANCHORAGE	9850.80	13411.04
	117004	SULLIVAN,JOSEPH R	X0913	FISHERY PROGRAM MANAGER	EBA	ANCHORAGE	42199.00	57092.67
	117021	SULLIVAN,JOSEPH R	X0908	FISHERY MANAGER	EBA	ANCHORAGE	11840.31	15988.71
	117023	CHALK,KENNETH H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	3042.00	4234.41
	117064	HUGHES,DEAN W	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	21103.20	29129.81
	117078	JOSEPH,VENITA F	P1151	SECRETARY I	AWA	JUNEAU	16661.07	23884.32
	117078	WELLARD,MONICA J	P1151	SECRETARY I	AWA	JUNEAU	5919.25	8656.05
	117089	CLEMETSON,TODD A	P1123	CLERK TYPIST III	AWA	JUNEAU	1682.51	1872.38
	117094	KEHRER,MARGARET A	P4229	PROJECT ASSISTANT	AWA	JUNEAU	27188.13	37710.29
	117095	MICHAEL,ROBIN D.T.	P3571	LIBRARY ASSISTANT II	EBA	ANCHORAGE	17262.00	24931.55
	117104	MATHIS,LARRY A	P1123	CLERK TYPIST III	AWA	JUNEAU	2878.82	3421.31
	117107	JOHNSON,JANICE R	P1123	CLERK TYPIST III	EBA	ANCHORAGE	5189.63	7155.28
	117108	BOWE,SHEILA M	P1912	ADMINISTRATIVE ASSISTANT I	EBA	ANCHORAGE	9154.17	13016.15
	117111	JOHNSON,JANICE R	P1203	ACCOUNTING CLERK III	EBA	ANCHORAGE	0.00	516.15
TOTAL COLLOCATION CODE 11824059 :							329769.29	448098.62
11824071	11N796	HOVEN,LINDA A	P9655	BOAT OFFICER I	AWA	JUNEAU	15066.79	17756.96
	11N797	VINCENT,STUART A	P9656	BOAT OFFICER II	AWA	JUNEAU	23960.19	28206.88
	111102	FORREST,CRAIG MK	P9655	BOAT OFFICER I	CYB	HOMER	1851.63	2252.29
TOTAL COLLOCATION CODE 11824071 :							40878.61	48216.13
11824753	111328	COFSKE,JAMES P	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	2592.02	3094.86
	111391	GLICK,WILLIAM J	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	10076.19	14457.99
	115187	SHIELDS,PATRICK A	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	1365.50	1730.41
	115296	CIALEK,DENISE M	P6114	FISH & WILDLIFE TECHNICIAN III	DQD	SOLDOTNA	18408.21	26249.50
	115342	HELMINSKI,ALOYSIUS D	P6113	FISH & WILDLIFE TECHNICIAN II	DQH	KASILOF	5593.50	8320.73
	115357	EDMUNDSON,JOHN M	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	5282.58	7491.51
	117045	HONNOLD,STEVEN G	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	19888.89	27753.26
TOTAL COLLOCATION CODE 11824753 :							63206.89	89098.26

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11824859	11N618	KEHRER,MARGARET A	P6955	GRADUATE INTERN II	AWA	JUNEAU	4542.67	5032.38
TOTAL COLLOCATION CODE 11824859 :							4542.67	5032.38
11825051	111328	COFSKE,JAMES P	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	762.36	1030.29
	111333	DAVIS,RANDALL Z	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	7218.34	10325.52
	111374	BRANNEN-PEZZENT,JENN	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	6072.93	8473.42
	111381	WESTERMAN,DAVID L	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	12752.91	17859.94
	111391	GLICK,WILLIAM J	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	2473.85	3500.01
	111393	BROWNING,JAMES B	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	3164.17	4371.90
	111406	BELIVEAU,DENNIS H	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	6895.37	9925.91
	111418	PILLIFANT,LAURA L	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	6703.02	9552.78
	111514	MORIN,PHILLIP R	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	243.29	314.88
	111518	DERNING,KERRI B	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	4107.91	6002.42
	111536	SHOWALTER,JENNIFER F	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	1653.99	2478.40
	111615	STANLEY,TRENNIS B	P6112	FISH & WILDLIFE TECHNICIAN I	DQD	SOLDOTNA	2931.58	4477.25
	111621	WALKER,STANLEY C	P6114	FISH & WILDLIFE TECHNICIAN III	DQD	SOLDOTNA	96.41	157.70
	111642	SCHLENKER,MARK W	P6114	FISH & WILDLIFE TECHNICIAN III	DQD	SOLDOTNA	10485.00	14831.69
	111820	LAMBDIN,MORRIS A	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	1872.44	2747.01
	115266	TODD,GARY L	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	1570.50	2023.45
TOTAL COLLOCATION CODE 11825051 :							69004.07	98072.57
11825101	11M154	POPE,JONATHAN R	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	3300.50	3596.42
	11M155	BOWERS,FORREST R	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	1501.21	1609.96
	11M155	SALMON,DANIEL J	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	3854.15	4197.58
	11M156	BRIGHENTI JR,JAMES M	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	2737.70	2981.08
	11M157	GLAMANN,DAVID A	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	2828.06	3079.20
	11N210	CAMPBELL,RODNEY D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	0.00	923.45
	11N833	CARTMELL,BRAM	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	3676.35	3958.97
	11N834	HICKS,CHRISTIAN	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	5004.55	5418.54
	11N835	MARX,SCOTT O	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	4674.06	5052.42
	11N837	GIEGERICH,TERRY D	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	4162.29	4627.97
	111118	SCOTT,LESLIE D	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	4691.29	6421.90
	111413	CAMPBELL,RODNEY D	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	7965.85	9881.97
	111417	ROCHE,PATRICIA A	P6160	FISHERY BIOLOGIST I	CAA	KODIAK	3225.08	4857.29
	111521	LARRISON,MARK F	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	1526.28	2314.93
	111594	MCINTOSH,BRUCE C	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	4156.35	5956.26
	111597	KAPLAN,DAVID F	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	3659.98	4561.97
	111598	PEARSON,THOMAS W	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	870.51	1119.66
	111601	BOWERS,FORREST R	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	0.00	78.35

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11825101	111601	PEARSON,THOMAS W	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	3356.30	4774.04
	111825	PHILLIPS,KIMBERLY	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	5173.65	7284.08
	111827	PITCHER,DONALD C	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	6512.50	8978.27
	111836	BOUWENS,KENNETH A	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	5010.36	7086.02
	111842	WADLE,JEFF A	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	5317.69	7473.39
	115266	TODD,GARY L	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	942.30	1193.35
	115342	HELMINSKI,ALOYSIUS D	P6113	FISH & WILDLIFE TECHNICIAN II	DQH	KASILOF	497.75	636.77
	117018	SWANTON,CHARLES O	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	1712.00	2207.05
TOTAL COLLOCATION CODE 11825101 :							86356.76	110270.89
11825151	11M188	WIBLE,KEITH	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	735.67	803.05
	111326	LEHTINEN,MARION Y	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	900.54	1522.76
	111328	COFSKE,JAMES P	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	2544.20	3599.32
	111333	DAVIS,RANDALL Z	P6160	FISHERY BIOLOGIST I	DQD	SOLDOTNA	6197.22	8602.75
	111514	MORIN,PHILLIP R	P6113	FISH & WILDLIFE TECHNICIAN II	DQD	SOLDOTNA	1928.13	2825.75
	111843	RUDGE,KIMBERLY K	P6114	FISH & WILDLIFE TECHNICIAN III	DQD	SOLDOTNA	1269.72	1990.94
TOTAL COLLOCATION CODE 11825151 :							13575.48	19344.57
11825159	11M085	QUINTO,ROBERT F	P6951	STUDENT INTERN I	AWA	JUNEAU	833.40	904.91
	116060	THOMPSON,FREDERICK	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	267.39	365.29
	117023	CHALK,KENNETH H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	6989.80	9822.91
	117095	MICHAEL,ROBIN D.T.	P3571	LIBRARY ASSISTANT II	EBA	ANCHORAGE	6426.00	8909.00
	57R1	MIDDLETON,KENNETH R	R0000		EBA	ANCHORAGE	10298.58	13171.53
TOTAL COLLOCATION CODE 11825159 :							24815.17	33173.64
11825308	116007	MUHLBERG,GAY A	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	122.79	155.51
	116008	WILLIS,ROBERTA M	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	675.40	1008.71
	116010	OTT,ALVIN G	P6164	FISH & GAME REGIONAL SUPERVISO	JBA	FAIRBANKS	1405.95	1815.54
	116027	DOLEZAL,CLAUDE W	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	364.64	461.36
	116036	GILLELAND,CEVIN L	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	1484.07	1977.53
	116041	SWENSON,CHRISTOPHER	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	1331.55	1812.82
	116048	GNATH,DENNIS G	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	928.97	1287.28
	116060	THOMPSON,FREDERICK	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	4561.03	6196.03
	116061	POST,ROGER A	P6167	HABITAT BIOLOGIST III	JBA	FAIRBANKS	202.73	256.42
	116064	SLATER,CLAUDIA L	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	9900.09	13517.54
	116087	WALLIS,FRANCIS A	P1624	ANALYST/PROGRAMMER IV	EBA	ANCHORAGE	124.77	157.77

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11825308	116102	WINTERS,JACK F,JR	P6166	HABITAT BIOLOGIST II	JBA	FAIRBANKS	6808.83	9613.37
	116104	BRNA,PHILIP J	P6164	FISH & GAME REGIONAL SUPERVISO	EBA	ANCHORAGE	4714.66	6296.11
	116110	ROZEN,CELIA M	P3574	LIBRARIAN II	EBA	ANCHORAGE	110.28	165.24
	116136	WIEDMER,MICHAEL	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	169.75	238.97
	116138	ALBERT,STEVEN W	P6167	HABITAT BIOLOGIST III	EBA	ANCHORAGE	154.64	205.18
TOTAL COLLOCATION CODE 11825308 :							33059.15	45165.38
11825429	111652	NEFF,CORT B	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	829.51	1061.73
	111676	SCHWENZFEIER,MARY C	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2270.41	3228.10
	115243	DICKSON,MARK S	P6114	FISH & WILDLIFE TECHNICIAN III	CYB	HOMER	6208.11	8731.68
	115268	BALLAND,D THOMAS	P6160	FISHERY BIOLOGIST I	CYB	HOMER	1570.50	1988.90
	115269	BOYLE,LAWRENCE R	P6160	FISHERY BIOLOGIST I	CYB	HOMER	8091.74	10908.49
	115274	CARPENTER,GREG S	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	2929.00	4156.25
	115362	HOLMAN,MICHAEL K	P6113	FISH & WILDLIFE TECHNICIAN II	CYB	HOMER	993.10	1261.31
	116041	SWENSON,CHRISTOPHER	P6166	HABITAT BIOLOGIST II	EBA	ANCHORAGE	2281.71	3272.66
	117001	MONTAGUE,J JEROME	X0823	DIVISION DIRECTOR	AWA	JUNEAU	22600.00	29958.25
	117002	DEAN,MICHAEL R	X0825	DEPUTY DIRECTOR	AWA	JUNEAU	21370.80	28297.10
	117009	FRAKER,MARK A	X0985	RESTORATION PROGRAM MANAGE	EBA	ANCHORAGE	2542.00	3594.92
	117009	SENNER,STAN' EY E	X0985	RESTORATION PROGRAM MANAGE	EBA	ANCHORAGE	53171.22	71436.53
	117023	CHALK,KENNE,H H	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	1521.00	2310.39
	117045	HONNOLD,STEVEN G	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	9596.06	13280.39
	117068	MCCARRON,SUZANNE H	P6160	FISHERY BIOLOGIST I	EBA	ANCHORAGE	26555.09	37739.65
	117601	CROWE,THOMAS W	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	5235.78	7057.49
TOTAL COLLOCATION CODE 11825429 :							167766.03	228283.74
11825435	112115	FROST,KATHRYN J	P6143	WILDLIFE BIOLOGIST III	JBA	FAIRBANKS	6450.00	8918.85
TOTAL COLLOCATION CODE 11825435 :							6450.00	8918.85
11825439	112075	LENART,ELIZABETH	P6115	FISH & WILDLIFE TECHNICIAN IV	JBA	FAIRBANKS	2565.00	3688.81
	112081	MCCARTHY,LAURA A	P1107	CLERK IV	JBA	FAIRBANKS	1133:50	1800.58
	112113	LOWRY,LLOYD F	P6143	WILDLIFE BIOLOGIST III	JBA	FAIRBANKS	4460.00	6116.99
	112115	FROST,KATHRYN J	P6143	WILDLIFE BIOLOGIST III	JBA	FAIRBANKS	10492.00	14116.07
	112137	DELONG,ROBERT A	P1623	ANALYST/PROGRAMMER III	JBA	FAIRBANKS	3267.00	4518.43
TOTAL COLLOCATION CODE 11825439 :							21917.50	30240.88

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11825445	11M190	COEN,CLAUDIA E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	6625.54	7206.76
	11M191	EAST,MICHAEL W	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5214.91	5670.85
	11M192	LIVINGSTON,LARRY	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	8830.98	10076.09
	11M193	HILL,DOUGLAS D	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	8505.35	10116.39
	11M194	PETRULA,MICHAEL J	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	8456.45	9676.64
	11N226	GUSTIN,RICHARD L	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	12208.76	14982.93
	112196	KOENEN,KIANA K	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	56.67	56.67
	115278	LIVINGSTON,LARRY	P6113	FISH & WILDLIFE TECHNICIAN II	DOH	KASILOF	-9.04	-9.04
	117029	PATTEN,SAMUEL M,JR	P6143	WILDLIFE BIOLOGIST III	EBA	ANCHORAGE	16149.59	21316.83
	117069	HASTINGS,CHARLIE W	P6115	FISH & WILDLIFE TECHNICIAN IV	EBA	ANCHORAGE	12984.81	17462.01
	117070	CROWLEY,DAVID W	P6115	FISH & WILDLIFE TECHNICIAN IV	DWA	CORDOVA	12544.72	16896.01
	117601	CROWE,THOMAS W	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	13599.01	18196.03
TOTAL COLLOCATION CODE 11825445 :							105167.75	131648.17
11825449	117029	PATTEN,SAMUEL M,JR	P6143	WILDLIFE BIOLOGIST III	EBA	ANCHORAGE	40024.07	54138.31
	117070	CROWLEY,DAVID W	P6115	FISH & WILDLIFE TECHNICIAN IV	DWA	CORDOVA	35795.79	49151.22
	117074	SYDER,JONATHAN L	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	9114.90	12316.26
	117601	CROWE,THOMAS W	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	14055.87	18959.09
TOTAL COLLOCATION CODE 11825449 :							98990.63	134564.88
11825459	11N165	SAIGET,DAVID	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	0.00	571.32
	11N166	KEOWN,SARAH L	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	8030.57	10201.72
	11N169	MITTELSTADT,KONRAD W	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	5033.17	6443.99
	11N220	SAIGET,DAVID	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	8978.69	10699.18
	11N221	MOTIS,TIMOTHY J	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	3737.26	4598.92
	111365	MCCRACKEN,BETSY W	P6160	FISHERY BIOLOGIST I	EBA	ANCHORAGE	2901.14	4065.13
	114141	HREBAR,ANTHONY E	P6113	FISH & WILDLIFE TECHNICIAN II	ECF	PALMER	1892.49	2573.45
	114157	ROMBERG,WILLIAM J	P6114	FISH & WILDLIFE TECHNICIAN III	DSA	SEWARD	1559.67	2310.39
	114208	HOFFMANN,ANDREW G	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	1224a.50	17056.32
	115244	STARKEY,DIANE P	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	624.22	798.39
	115278	LIVINGSTON,LARRY	P6113	FISH & WILDLIFE TECHNICIAN II	HCE	GLENALLEN	1194.87	1531.49
TOTAL COLLOCATION CODE 11825459 :							46198.58	60850.30
11825471	11N186	ALLEN,JANE M	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2182.61	2806.98
	11N192	PETERS,EZEKIEL D	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	160.25	178.79
	11N205	PAAVO,ERIC S	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	589.72	656.36

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11825471	11N208	WOLTERS,GEORGE J	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	716.24	796.12
	11N209	SNELL,PETER J	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	576.90	642.19
	11N220	NORRIS,JOHN S	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	2538.38	2801.62
	11N221	MILLER,ALBERT W	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	1342.59	1486.96
	11N223	RAMOS,AMADO T	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	2021.36	2611.00
	11N225	COMERFORD,JOHN P	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	1749.59	1938.95
	11N227	SADDLER,PENELOPE L	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	2390.86	3038.61
	11N228	SPEER,NANCY J	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	2773.03	3453.30
	11N231	WHITTON,KELLIE S	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	732.48	814.22
	11N232	DUNBAR,ROGER D	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	9607.86	11627.92
	11N233	SMITH,JODI L	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	4481.10	5320.21
	11N241	CRAIG,ANDREW K	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	3932.63	4743.26
	11N536	MOONEY,DELANA L	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1187.85	1316.07
	11N547	RAMOS,AMADO T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	5467.17	6506.09
	11N866	BUCHANAN,JOHN D	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	5266.19	6573.88
	11N867	WILSON,KRISTI A	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	1332.45	1475.65
	11N868	ESTASSI,SAMIA	P6114	FISH & WILDLIFE TECHNICIAN III	DWA	CORDOVA	838.52	931.31
	111571	VARTAN,KENNETH K	P6112	FISH & WILDLIFE TECHNICIAN I	DWA	CORDOVA	1077.35	1367.31
	117043	SHARP,DANIEL G,JR	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	8083.50	11371.95
TOTAL COLLOCATION CODE 11825471 :							59048.63	72458.75
11825479	11N196	VARTAN,KENNETH K	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2837.14	3592.85
	11N232	DUNBAR,ROGER D	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	19950.64	23955.29
	11N546	PETERS,EZEKIEL O	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2778.74	3269.54
	11N547	RAMOS,AMADO T	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	10647.36	13806.47
	11N915	HOLMES,CHRISTINE E	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1692.24	2300.26
	111496	DUNBAR,ROGER D	P6113	FISH & WILDLIFE TECHNICIAN II	CKC	KING SALMON	0.00	564.15
	117043	SHARP,DANIEL G,JR	P6161	FISHERY BIOLOGIST II	DWA	CORDOVA	12355.84	16732.65
TOTAL COLLOCATION CODE 11825479 :							50261.96	64221.21
11825483	11N185	ROSEN,KELLY T	P1792	RESEARCH ANALYST I	DWA	CORDOVA	24.51	30.49
	11N233	SMITH,JODI L	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	1547.80	2099.76
	112072	CLAPSADDLE,AGNES S	P1109	FIELD OFFICE ASSISTANT	DWA	CORDOVA	2061.92	2995.93
	115125	WHITE,LORNE E	P6162	FISHERY BIOLOGIST III	CAA	KODIAK	2926.92	4081.41
	115243	DICKSON,MARK S	P6114	FISH & WILDLIFE TECHNICIAN III	CYB	HOMER	1276.50	2000.23
	115274	CARPENTER,GREG S	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	1230.79	1941.65
	115340	WEIMER,SCOTT R	P6113	FISH & WILDLIFE TECHNICIAN II	CAA	KODIAK	3104.41	4703.04
	117045	HONNOLD,STEVEN G	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	1658.00	2483.29
TOTAL COLLOCATION CODE 11825483 :							13830.85	20335.80

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11825489	11N.33	SMITH,JODI L	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	8292.72	9941.52
	11N546	PETERS,EZEKIEL O	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	2379.71	2925.37
	111652	NEFF,CORT B	P6114	FISH & WILDLIFE TECHNICIAN III	CAA	KODIAK	3217.91	4442.34
	111676	SCHWENZFEIER,MARY C	P6113	FISH & WILDLIFE TECHNICIAN II	DWA	CORDOVA	1021.73	1221.22
	115243	DICKSON,MARK S	P6114	FISH & WILDLIFE TECHNICIAN III	CYB	HOMER	4531.58	6114.04
	115269	BOYLE,LAWRENCE R	P6160	FISHERY BIOLOGIST I	CYB	HOMER	778.26	994.79
	115274	CARPENTER,GREG S	P6160	FISHERY BIOLOGIST I	DWA	CORDOVA	20849.46	29060.78
	117045	HONNOLD,STEVEN G	P6161	FISHERY BIOLOGIST II	CAA	KODIAK	6874.00	9466.00
TOTAL COLLOCATION CODE 11825489 :							47945.37	64166.06
11825701	11N185	ROSEN,KELLY T	P1792	RESEARCH ANALYST I	DWA	CORDOVA	22514.36	28637.68
	117033	SIMONSON,BRUCE P	P1624	ANALYST/PROGRAMMER IV	AWA	JUNEAU	31904.18	43744.61
	117034	LOVELADY,MURIEL J	P1621	ANALYST/PROGRAMMER I	AWA	JUNEAU	29736.83	42642.49
	117036	SAVIKKO,KURT E	P3605	PUBLICATIONS TECHNICIAN	AWA	JUNEAU	32789.00	46527.35
TOTAL COLLOCATION CODE 11825701 :							116944.37	161552.13
11825751	111928	GEIGER,HAROLD J	P6136	BIOMETRICIAN II	AWA	JUNEAU	2209.00	2842.65
	117011	GATES,RICHARD B	P6135	BIOMETRICIAN I	AWA	JUNEAU	36163.40	50609.36
TOTAL COLLOCATION CODE 11825751 :							38372.40	53452.01
11825761	111916	CRANE,PENELOPE A	P6161	FISHERY BIOLOGIST II	EBA	ANCHORAGE	8793.00	12287.24
	111964	SEEB,LISA W	P6163	FISHERY BIOLOGIST IV	EBA	ANCHORAGE	9665.00	13379.33
	117011	GATES,RICHARD B	P6135	BIOMETRICIAN I	EBA	ANCHORAGE	2172.10	3004.80
	117607	FISH,JAMES T	P6114	FISH & WILDLIFE TECHNICIAN III	EBA	ANCHORAGE	1060.50	1729.13
TOTAL COLLOCATION CODE 11825761 :							21690.60	30400.50

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
DIVISION OF ADMINISTRATION

11/24/92
FPS6003P

SUMMARY OSIAR EMPLOYMENT PAYMENT TOTALS --- RSA 1821000
JULY 1991 - JUNE 1992

COLLOCATION CODE	PCN	NAME	JOB CLASS	JOB TITLE	LOCATION CODE	LOCATION	GROSS AMOUNT	TRANSACTION AMOUNT

TOTAL GROSS AMOUNT: 3819112.08

TOTAL TRANS AMOUNT: 5029198.16

TOTAL JUL 91 - JUN 92 TRANSACTIONS PROCESSED: 33298

REPORT DATA IS TAKEN FROM DEPARTMENT OF ADMINISTRATION, DIVISION OF FINANCE'S LABOR DISTRIBUTION DETAIL FILE FOR CALENDAR YEAR 1991 AND 1992.

LOCATION AND JOB TITLE INFORMATION ARE OBTAINED FROM DEPARTMENT OF FISH & GAME'S FAB-TABLE FILE.

DATA SELECTION CRITERIA:

PAY PERIODS SELECTED: 14 - 24 OF 1991
PAY PERIODS SELECTED: 01 - 13 OF 1992

RSA 1821000 IS BASED ON: COLLOCATION CODES 11820000 - 11829999

GROSS AMOUNT IS BASED ON: ETV CODES E001 - E413

TRANSACTION AMOUNT IS BASED ON: ALL ETV CODES

Rep. Bill Williams

STATE OF ALASKA / WALTER J. HICKEL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

OFFICE OF THE COMMISSIONER
410 WILLOUGHBY AVENUE, SUITE 105
JUNEAU, AK 99801-1795

Phone: (907) 465-5000
Fax: (907) 465-5070

January 21, 1993

JAN 20 1993

The Honorable Ramona Barnes
Speaker, Alaska House of Representatives
State Capitol, Room 208
Juneau, AK 99801

For Hand Delivery

Dear Representative Barnes:

Today I am transmitting to you the fiscal year 1992 Annual Report on the Oil and Hazardous Substance Release Response Fund (Response Fund) pursuant to AS 46.08.060.

This year, we were able to obtain a significant increase in information from other agencies that are authorized to expend Response Fund dollars. This success is in part due to new reporting requirements written into the Reimbursable Service Agreements between DEC and these other agencies.

In addition, we are continually striving to take actions which improve management of the Response Fund. A draft manual of Proposed Cost Recovery Policy and Procedures has been developed by the Division of Information and Administrative Services and will be available within ninety days. In the FY92 Report you will also find an estimated value for equipment ourchased with Response Fund dollars, listed by department. A copy of the inventory databases are available by contacting the Department. This response gear inventory tracking database is an important component of our spill response capability.

Last year, in my transmittal letter, I mentioned that the spill reserve had dipped below $12 million. Currently, considering the FY 94 budget proposals, the spill reserve is just over $22 million, considerably closer to the $30 million we believe it should be. However, I urge the Legislature to closely scrutinize and evaluate any additional proposals which would impact this reserve account. A stable spill reserve account is vital to the State's response capability in the event of another major spill incident.

Please contact me if you would like additional information or have any questions regarding the Response Fund and its management. Thank you.

Sincerely,

John A. Sandor
Commissioner

CMU\rb (ASDIR\RFAR.MEM)

Enclosure: FY92 Response Fund Annual Report

cc: All Representatives w/enclosure

Sorted by Region, by Company

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS

03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
Alaska Pulp Corporation	Alaska Pulp Corporation	4600 Sawmill Creek Road	Sitka	AK	99835-9801	1
Anderes Oil Company	Anderes Oil Company	900 Stedman Street	Ketchikan	AK	99901	1
CALLAPOOYA	Boyer Towing, Inc.	7318 4th Avenue, South	Seattle	WA	98108	1
KOOTZNAHOO	Boyer Towing, Inc.	7318 4th Avenue, South	Seattle	WA	98108	1
Brix Maritime Barging, Inc.	Brix Maritime Barging, Inc.	P.O. Box 3505	Seattle	WA	98124	1
Delta Western Yakutat Bulk Plant	Delta Western, Inc.	P.O. Box 29	Yakutat	AK	99689	1
Delta Western Juneau Bulk Plant	Delta Western, Inc.	449 Willoughby Avenue	Juneau	AK	99801	1
Ketchikan Pulp Company	Ketchikan Pulp Company	P.O. Box 6600	Ketchikan	AK	99901	1
KFP Petroleum Tank Farm	Klukwan Forest Products	P.O. Box 34659	Juneau	AK	99803	1
ALASKAN SPIRIT	Maritime North, Ltd.	P.O. Box 435	Skagway	AK	99840	1
CHILKAT WARRIOR	North Pacific Expediting	1541-A South 92nd Place	Seattle	WA	98108	1
ANNAHOOTZ	Samson Tug & Barge, Inc.	P.O. Box 559	Sitka	AK	99835	1
Sitka Fuels Bulk Transfer Facility	Sitka Fuels, Inc.	P.O. Box 1947	Sitka	AK	99835	1
Totem Oil Bulk Plant	Totem Oil Products Supply, Inc.	P.O. Box 355	Haines	AK	99827	1
Unocal Juneau/ Taku Oil Sales	Union Oil Company of California	P.O. Box 769	Juneau	AK	99802	1
Unocal Ketchikan Bulk Plant	Union Oil Company of California	P.O. Box 7660	Ketchikan	AK	99901	1
West Coast Shipping	West Coast Shipping	P.O. Box 4258	Los Angeles	CA	90051-2258	1
White Pass Sitka Bulk Plant	White Pass Alaska	P.O. Box 418	Sitka	AK	99835	1
White Pass Petersburg Bulk Plant	White Pass Alaska	P.O. Box 769	Petersburg	AK	99833	1

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
White Pass Ketchikan Bulk Plant	White Pass Alaska	P.O. Box 7398	Ketchikan	AK	99901	1
White Pass Skagway Bulk Plant	White Pass Alaska	P.O. Box 435	Skagway	AK	99840	1
White Pass Haines Bulk Plant	White Pass Alaska	P.O. Box 590	Haines	AK	99827	1
FRANK H. BROWN	White Pass Transportation, Ltd.	P.O. Box 86190	North Vancouver	BC	V7L 4J9	1
Alaska Marine Charters	Alaska Marine Charters, Inc.	106 110th Place S.E.	Bellevue	WA	98004	2
Anchorage Fueling & Service Co./Butler Aviation	Anchorage Fueling and Service Co.			AK	995	2
Anchorage Municipal Light & Power #2	Anchorage Municipal Light and Power					2
ARCO Sunfish #1/North Forelands-Exploration Well	Arco Alaska	P.O. BOX 100360	Anchorage	AK	99510-0360	2
Bering Sea Fisheries	Bering Sea Fisheries	Winter-4413 - 83 Ave. S.E.	Everett, WA 98025			2
Bethel Fuel Sales	Bethel Fuel Sales, Inc,	P.O. Box 266	Bethel	AK	99559	2
Bethel Fuel Sales	Bethel Fuel Sales, Inc., Bethel Ak					2
Chevron Marine Companies-Cook Inlet	Chevron Shipping Company	P.O. Box 7000	San Francisco	CA	94120-7000	2
Chevron Anchorage Terminal	Chevron U.S.A. Inc	-	Anchorage	AK	995	2
Chevron Anchorage Terminal	Chevron U.S.A. Inc	P.O.Box 101580	Anchorage	AK	99510	2
Kustatan Exploration Well	Chevron U.S.A. Inc.					2
St. Paul Bulk Fuel Storage Facility	City of St. Paul	P.O. Box 29	St. Paul Island	AK	99660	2

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	St	Zipcode	Region
Cook Inlet Pipeline Co.	Cook Inlet Pipeline Co.	P.O. Box 191009	Anchorage	AK	99519	2
Crowely Marine Services-Captains Bay Tank Farm	Crowley Marine Services, Inc.			AK	99-0-	2
Crowley Marine Services-Captains Bay Tank Farm	Crowley Marine Services, Inc.	P.O. Box 2287	Seattle	WA	98111-2287	2
Crowley Barges	Crowley Maritime					2
Daitoh Trading Company Vessels - Cook Inlet	Daitoh Trading Co. Tokoyo					2
U.S. Defense Fuels-Whittier Terminal	Defense Logistics Agency, Defense Fuels	Cameron Station	Alexandria	VA	22304-6160	2
Delta Western - Dillingham Bulk Plant	Delta Western Barge Lines					2
Delta Western Barges	Delta Western Barge Lines					2
Delta Western Naknek	Delta Western Barge Lines	P.O. Box 70438	Seattle	WA	98017	2
Delta Western-Dutch Harbor Tank Farm	Delta Western Barge Lines, Seattle					2
Delta Western - Dillingham Bulk Plant	Delta Western, Seattle, WA					2
Flyums Barge Service	Flyums Barge Service					2
Forty Niner Transportation, Inc. (FNT)	FNT, Inc. (aka Petro Marine)	1600 A street, Suite 308	Anchorage	AK	99501	2
Forty Niner B-340	Forty Niner Transportation, Inc.					2
Forty-Niner, B-180	Forty-Niner Transportation					2
Foss Maritime Barges	Foss Maritime	660 West Ewing Street	Seattle	WA	98119	2
Kenai Pipeline Company	Kenai Pipe Line Co., Kenai, AK	P.O. Box 5555	Kenai	AK	99611	2

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY P' 'S 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
Kenai Pipe Line Company Terminal	Kenai Pipe Line Company	P.O. Box 5555	Kenai	AK	99611	2
Kipnuk Fuel Services	Kipnuk Fuel Services, Kipnik, AK					2
Kodiak Oil Sales Bulk Plant	Kodiak Oil Sales, Inc					2
Mapco Charter Vessels - Cook Inlet	Mapco Alaska Petroleum	1076 Ocean Dock Road	Anchorage	ak	99501-4100	2
MAPCO Anchorage Terminal	MAPCO Alaska Petroleum, Inc.					2
MAPCO Anchorage Terminal	MAPCO Petroleum Company		Anchorage	AK	995	2
Marathon LNG -Polar Alaska/S.S. Arctic Tokyo	Marathon Oil Co. Houston, TX					2
Marathon Vessel- M/S Scotland	Marathon Oil Company	539 South Main Street	Findlay	Oil	45840	2
Marathon Facilities-Cook Inlet	Marathon Oil Company, Anc	P.O. Box 190168	Anchorage	AK	99519	2
Moody Sea Lighterage	Moody Sea Lighterage					2
Naknek Electric	Naknek Electric Assc., Naknek, AK	P.O. Box 118	Naknek	AK	99633	2
Nushagak Electric-Dillingham	Nushagak Electric Co-Op, Inc, Dillingham					2
Nushagak Electric-Dillingham	Nushagak Electric Co-Op, Inc. Dillingham					2
Ocean Marine Services Vessels-Cook Inlet	Ocean Marine Services, Inc.	570 Kirkland Way, Suite 200	Kirkland	WA	99635	2
Ocean Ships, Inc.	Ocean Ships, Inc.					2
Offshore Systems-Port Lekanoff Facility	Offshore Systems, Inc. Captains Bay AK					2
Orca Oil Company Bulk Plant Operations	Orca Oil Company, Inc., Cordova					2
Peter Pan Seafoods - King Cove	Peter Pan Seafoods, Inc., Seattle					2

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
Petro-Marine Resoff Dock	Petro Marine Services	1600 A Street, Suite 307	Anchorage	AK	99501	2
Petro Marine Services - Kodiak Bulk Plant	Petro Marine Services			AK		2
Shoreside Petroleum-Seward Marine Industrial Ctr.	Petro Marine Services	P.O. Box 1189	Seward	AK	99664	2
Petro Marine- Ballyhoo B[illegible] Plant	Petro Marine Services, Anc					2
Petro Marine-Westward Seafoods, Captains Bay	Petro Marine Services, ANC					2
Petro Marine - Resoff Dock	Petro Marine Services, Inc					2
Phillips Tyonek Platform Drilling Program	Phillips Petroleum Company	P.O. Drawer 66	Kenai	AK	99611	2
Reeve Aleutian Airways; Frosty Fuel-Cold Bay	Reeve Aleutian Airways, Inc.	4700 W. International Airport Road	Anchorage	AK	99502-1091	2
SEACOR Marine- M/V Mustang Island	SEACOR Marine Inc.	P.O. Box 2291	Morgan City	LA	70381	2
Shell Cook Inlet Middle Ground Shoal	Shell Western E&P, Inc.	601 West 5th Ave.	Anchorage	AK	99501	2
Shoreside Petroleum-Harbor Bulk Plant-Seward	Shoreside Petroleum, Inc., Seward	P.O. Box 1189	Seward	AK	99664	2
Signature Service Co. (Butler Oil Co)	Signature SErvice ???		Anchorage	AK	995	2
Silver Bay Logging, Inc.-M/V Silver Bay III	Silver Bay Logging, Inc.	P.O. Box 509	Kodiak	AK	99615	2
Smith Lighterage Co.	Smith Lightering Company					2
St George Delta Fuel Company	St George Delta Fuel Company	4000 Old Seward Highway, Suite 302	Anchorage	AK	99503	2

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
West McArthur River Unit Drilling and Production	Stewart Petroleum Company	3111 "C" Street	Anchorage	AK	99503	2
Terminal Oil Sales-Homer	Terminal Oil Sales, Inc.	4755 Homer Spit Road	Homer	AK	99603	2
Terminal Oil Sales -Homer	Terminal Oil Sales,Inc., Homer, AK 99603	4755 Homer Spit Road	Homer	AK	99603	2
Tesoro Alaska Kenai Refinery	Tesoro Alaska Petroleum	P.O. Box 3690	Kenai	AK	99611-3690	2
Tesoro Alaska Anchorage Terminal	Tesoro Alaska Petroleum					2
Tesoro Alaska Valdez Terminal	Tesoro Alaska Petroleum	P.O. Box 3690	Kenai	AK	99611-3690	2
Tesoro Cook Inlet Vessel Operations	Tesoro Alaska Petroleum Company	P.O. Box 3690	Kenai	AK	99611-3690	2
Tesoro Charter Vessels - Cook Inlet	Tesoro Alaska Petroleum Company	P.O. Box 3690	Kenai	AK	99611-3690	2
Texaco Anchorage Terminal	Texaco Refining & Marketing Inc. Seattle	1601 Tidewater Road	Anchorage	AK	99501	2
Texaco Anchorage Terminal	Texaco Refining & Marketing, Inc.	P.O. Box 34041	Seattle	WA	98124-1041	2
Tidewater Pacific Vessels-CI	Tidewater Pacific, Inc.	1440 Canal Street	New Orleans	LA	70112	2
Trident Seafoods - Sandpoint	Trident Seafoods Corp, Sand Point, Ak					2
Trident Seafoods - Akutan	Trident Seafoods, Inc.					2
U.S. Army- Fort Richardson	U.S. Army	6th Infantry Div(Lgt), APVR-DE-PSE	Fort Richardson	AK	99505	2
U.S. Defense Fuels-Anchorage Terminal & Pipeline	U.S. Defense Logistics Agency-DFSC	Cameron Station, DFSC-FQ	Alexandria	VA	22304-6160	2
U.S. Navy - Adak	U.S. Naval Air Station	PSC 486, Box 1201	FPO Seattle	WA	98791	2

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
U.S. Navy Amchitka	U.S. Navy Fleet Surveillance Spt Cmd,					2
U.S. Navy-Military Sealift Command Vessels	U.S. Navy, Washington, D.C.	Commander Military Sealift Command	Washington	DC	203908-510	2
U.S.A.F.-King Salmon Airport	U.S.A.F, 11th Aircraft Control Wing	6900 9th Street, Suite 301	Elmendorf AFB	AK	99506-2270	2
U.S.A.F, Shemya AFB	U.S.A.F., 11th Aircraft Control Wing	6900 9th Street, Suite 301	Elmendorf AFB	AK	99506-2270	2
U.S.A.F.-Elmendorf AFB	U.S.A.F.-21st Tactical Fighter Wing,EAFB	22-040 Maple Street	Elmendorf AFB	AK	99506-3240	2
U.S.C.G Kodiak	U.S.C.G., Kodiak	USCG Port Center, P.O. Box 14	Kodiak	AK	99619	2
Unocal Cook Inlet Production Facilities	Union Oil Company of California	P.O. Box 190247	Anchorage	AK	99519-0247	2
Swanson River Field Production	Unocal North American Oil & Gas Division	P.O. Box 190247	Anchorage	AK	99519-0247	2
West Coast Shipping-Cook Inlet	West Coast Shipping Company	P.O. Box 4258	Los Angeles	CA	90051-2258	2
Delta Western Naknek	Western Pioneer dba Delta Western					2
Tesoro Anchorage Terminal						2
City of Galena Power Plant Tank Farm	City of Galena	P.O. BOX 149	GALENA	AK	99741	3
Red Dog Mine Project	Cominco-Red Dog	P.O. BOX 1230	KOTZEBUE	AK	99752	3
Ft. Wainwright Tank Farm	Defense Fuel (Region FBKS)	6920 12th St.	ELMENDORF AFB	AK	99506-2570	3
Eskimo's, Inc. Wainwright	Eskimo's, Inc.	P.O. Box 536	Barrow	Ak	99723	3
Block B Tank Farm	Eskimos Inc.	P.O. BOX 536	BARROW	AK	99723	3
Golden Valley Electric North Pole Plant	Golden Valley Electric Association	BOX 71249	FAIRBANKS	AK	99707	3
Kotzebue Electric Association	Kotzebue Electric	BOX 44	KOTZEBUE	AK	99752	3

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
Mapco Petroleum Inc. Airport Facility	Mapco	1100 H&H LANE	NORTH POLE	AK	99705	3
North Pole Refinery Mapco	Mapco	1100 H&H LANE	NORTH POLE	AK	99705	3
Nenana Fuel Company	Mapco	2090 VAN HORN ROAD	FAIRBANKS	AK	99701	3
Nome Joint Utility	Nome Joint Utility	BOX 70	NOME	AK	99762	3
Wainwright Fuel Storage	North Slope Borough	P.O. Box 69	Barrow	AK	99723	3
Barrow Oil Terminal	North Slope Borough	P.O. Box 69	Barrow	AK	99723	3
Pt. Hope Fuel Storage	North Slope Borough	P.O. Box 69	Barrow	AK	99723	3
Northern Transportation	Northern Transportation	P.O. BOX 250	HAY RIVER, CANADA, NWT		XOE ORO	3
PAFS-Nome Bulk Plant	Pacific Alaska Fuel Services	BOX 700	NOME	AK	99762	3
PAFS-Kotzebue Bulk Plant	Pacific Alaska Fuel Services	P.O. BOX 261	KOTZEBUE	AK	99752	3
Petro Star	Petro Star Inc.	BOX 56239	NORTH POLE	AK	99705	3
Chevron Fairbanks Bulk Plant	Saupe Chevron	P.O. Box 510	Fairbanks	AK	99707	3
Tesoro Airport Facility	Tesoro-Alaska Petroleum	P.O. BOX 60722	FAIRBANKS	AK	99706	3
Eielson AFB	U. S. Air Force	343 CES/DEV,2258 CENTRAL AVE SUITE #1	EIELSON AFB	AK	99702	3
BAR - Main	U.S. Air Force	GE GOV SERVICES 32156 CEDAR AVE.,BLDG 32-156	ELMENDORF	AK	99506-3060	3
Galena AFB	U.S. Air Force	5072 CSS/DED, APO	SEATTLE	WA	98723-5000	3
Tin City	U.S. Air Force	GE GOV. SERVICES, BLDG 32-156	ELMENDORF AFB	AK	99506-5000	3
Cape Lisburne ACWS	U.S. Air Force	GE GOV SERVICES,BLDG 32-156	ELMENDORF AFB	AK	99506-5000	3
Fort Wainwright Facility	U.S. Army	DEH-ENVIRONMENTAL OFFICE	FT RICHARDSON	AK	99505-5500	3
Fort Greely Army Base	U.S. Army	DIRECTORATE OF ENGINEERING & HOUSING	FT GREELY	AK	98733-5500	3

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
UIC Fuel Terminal	Ukpeagvik Inupiat Corporation	5300 "A" STREET	ANCHORAGE	AK	99518	3
U.N.C.	Unalakleet Native Corporation					3
Yutana Barge Lines	Yutana Barge Lines	P.O. BOX 00220	KENANA	AK	99760	3
Yukon Fuel Company (GZ)	Yutana Barge Lines	P.O. BOX 89	FT YUKON	AK	99740	3
St. Michael Bulk Plant	Yutana Barge Lines	P.O. BOX 110	ST. MICHAEL	AK	99659	3
Trans Alaska Pipeline Valdez Marine Terminal	Alyeska Pipeline Service Co.	P.O. Box 300	Valdez	Ak	99686	4
Trans Alaska Pipeline Valdez Marine Terminal	Alyeska Pipeline Service Co.	P.O. Box 300	Valdez	Ak	99686	4
Alyeska Trans Alaska Pipeline	Alyeska Pipeline Service Co.	1835 South Bragaw Street	Anchorage	AK	99512	4
Alyeska Trans Alaska Pipeline	Alyeska Pipeline Service Co.	1835 South Bragaw Street	Anchorage	AK	99512	4
Amerada Hess Corporation - Marine	Amerada Hess					4
Amerada Hess Corporation - Marine	Amerada Hess					4
Amerada Hess Barrier Islands Exploration Program	Amerada Hess Corporation	1201 Louisiana, Suite 700	Houston	TX	77002	4
Amerada Hess Jones Island Exploration Program	Amerada Hess Corporation	1201 Louisiana, Suite 700	Houston	TX	77002	4
American Trading Transportation-Chesapeak e Trader	American Trading Transportation Co. Inc					4
American Trading Transportation-Chesapeak e Trader	American Trading Transportation Co. Inc					4
American Trading Transportatior American Trader	American Trading Transportation Co. Inc.					4

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
American Trading Transportation-American Trader	American Trading Transportation Co. Inc.					4
Amoco Galahad	Amoco Production Co.	P.O. Box 100779	Anchorage	AK	99510-0779	4
Amoco Galahad	Amoco Production Co.	P.O. Box 100779	Anchorage	AK	99510-0779	4
ARCO Cabot Prospect	ARCO Alaska Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
ARCO Prudhoe Bay & Lisburne Units	ARCO Alaska Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
Arco Fireweed Prospect	Arco Alaska Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
ARCO Prudhoe Bay & Lisburne Units	ARCO Alaska Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
Arco Fireweed Prospect	Arco Alaska Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
ARCO Cabot Prospect	ARCO Alaska Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
ARCO Kuvlum Prospect	ARCO Alaska, Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
ARCO Kuparuk Field and Pipeline	ARCO Alaska, Inc.	P.O. Box 196105	Anchorage	AK	99510-6105	4
ARCO Kuvlum Prospect	ARCO Alaska, Inc.	P.O. Box 100360	Anchorage	AK	99510-0360	4
ARCO Kuparuk Field and Pipeline	ARCO Alaska, Inc.	P.O. Box 196105	Anchorage	AK	99510-6105	4
Arco Marine - Prince William Sound	Arco Marine, Inc.					4
Arco Marine - Prince William Sound	Arco Marine, Inc.					4
BPX Endicott	BP Exploration (Alaska) Inc.	P. O. Box 196612	Anchorage	AK	99519-6612	4
BPX Prudhoe Bay Unit	BP Exploration (Alaska) Inc.	P.O. 196612	Anchorage	AK	99519-6612	4
BPX Endicott	BP Exploration (Alaska) Inc.	P. O. Box 196612	Anchorage	AK	99519-6612	4
BPX Sag Delta Well #12	BP Exploration (Alaska) Inc.	P.O. Box 196612	Anchorage	AK	99519-6612	4
BPX Pt. [illegible]atyre	BP Exploration (Alaska) Inc.	P.O. Box 196612	Anchorage	AK	99519-6612	4
[illegible]e Bay Unit	BP Exploration (Alaska) Inc.	P.O. 196612	Anchorage	AK	99519-6612	4

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
BPX Kuparuk Uplands	BP Exploration (Alaska) Incorporated	P.O. Box 196612	Anchorage	AK	99519-6612	4
BPX Kuparuk Uplands	BP Exploration (Alaska) Incorporated	P.O. Box 196612	Anchorage	AK	99519-6612	4
T/V OVERSEAS BOSTON.	Lambridge Tankers Corp.					4
T/V OVERSEAS BOSTON.	Cambridge Tankers Corp.					4
Chevron Shipping Company	Chevron Shipping Company					4
Chevron Shipping Company	Chevron Shipping Company					4
Chevron Canvasback Prospect	Chevron USA	P.O. Box 107839	Anchorage	AK	99510-7839	4
Chevron Canvasback Prospect	Chevron USA	P.O. Box 107839	Anchorage	AK	99510-7839	4
Conoco Badami Exploration Project	Conoco Inc.	3201 C Street, Suite 200	Anchorage, AK	AK	99503-3999	4
Conoco Milne Point	Conoco Inc.	3201 C Street, Suite 200	Anchorage	AK	99503-3999	4
Conoco Badami Exploration Project	Conoco Inc.	3201 C Street, Suite 200	Anchorage, AK	AK	99503-3999	4
Conoco Sequoia Exploration Project	Conoco Inc.	3201 C Street, Suite 200	Anchorage	AK	99503-3999	4
Conoco Milne Point	Conoco Inc.	3201 C Street, Suite 200	Anchorage	AK	99503-3999	4
Conoco Sequoia Exploration Project	Conoco Inc.	3201 C Street, Suite 200	Anchorage	AK	99503-3999	4
Exxon Thetis Island #1 Exploratory Well	Exxon Exploration Company	P.O. Box 196601	Anchorage	AK	99510-6601	4
Exxon Shipping Company	Exxon Shipping Company					4
Exxon Shipping Company	Exxon Shipping Company					4
T/V OVERSEAS CHICAGO	First Shipmor Asssociates					4

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

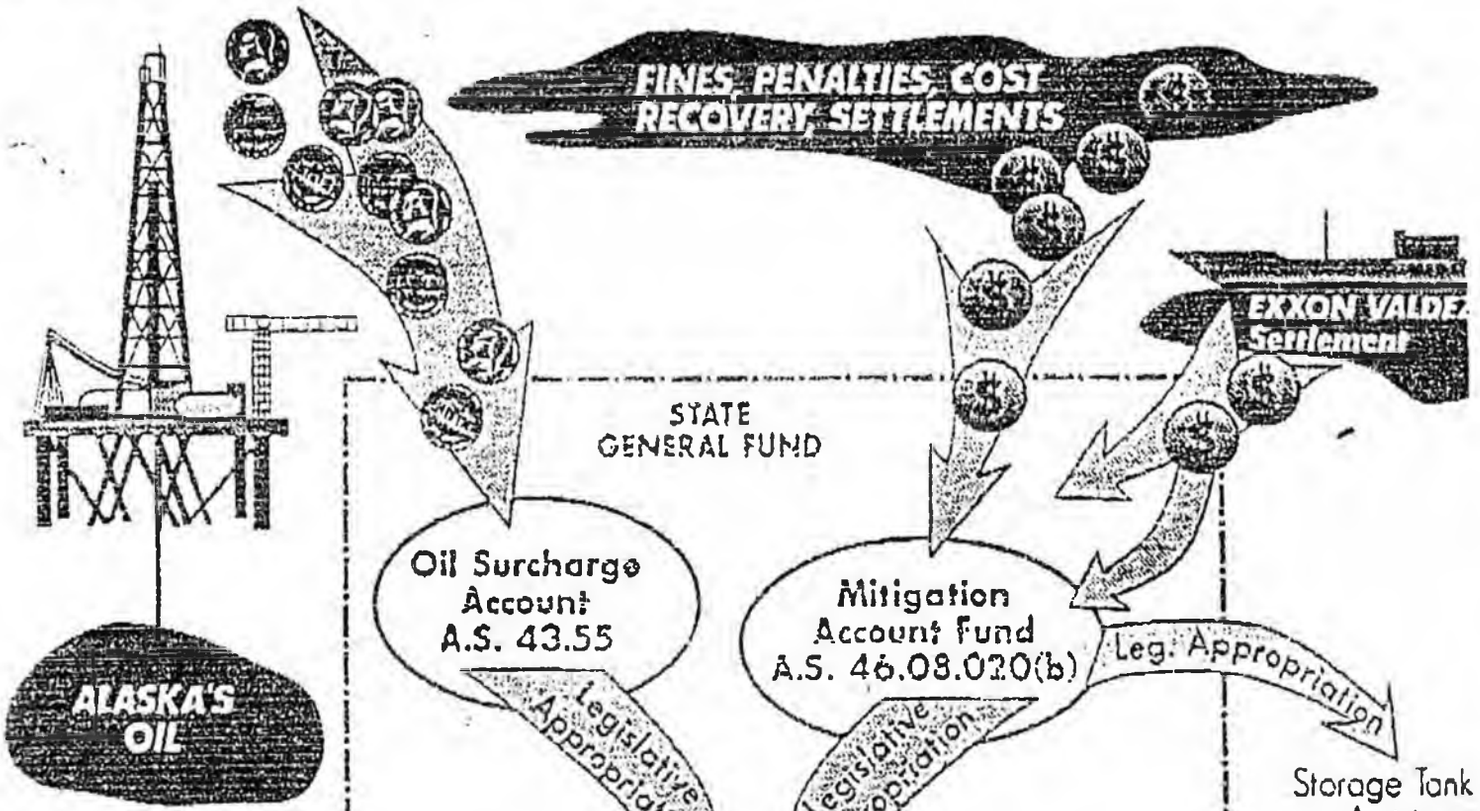
Plantitle	Company	Address	City	ST	Zipcode	Region
T/V OVERSEAS CHICAGO	First Shipmor Asssociates					4
T/V WESTERN LION	First United Shipping					4
T/V WESTERN LION	First United Shipping					4
T/V OVERSEAS WASHINGTON	FOURTH SHIPMOR ASSOCIATES					4
T/V OVERSEAS WASHINGTON	FOURTH SHIPMOR ASSOCIATES					4
T/V OVERSEAS ALASKA	Intercontinental Bulk Tank Corp.					4
T/V OVERSEAS ALASKA	Intercontinental Bulk Tank Corp.					4
Interocean Management Corp.	Interocean Management Corp.					4
Interocean Management Corp.	Interocean Management Corp.					4
T/V SOUTHERN LION	INTEROCEAN TANKER CORPORATION					4
T/V SOUTHERN LION	INTEROCEAN TANKER CORPORATION					4
T/V OVERSEAS JUNEAU	Juneau Tanker Corp.					4
T/V OVERSEAS JUNEAU	Juneau Tanker Corp.					4
Keystone Shipping Company	Keystone Shipping Co.					4
Keystone Shipping Company	Keystone Shipping Co.					4
MARINE TRANSPORT LINES	Marine Transport Lines, Inc.					4
MARINE TRANSPORT LINES	Marine Transport Lines, Inc.					4
T/V OMI COLUMBIA	OMI CHALLENGER TRANSPORT, INC.					4
T/V OMI COLUMBIA	OMI CHALLENGER TRANSPORT, INC.					4

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
T/V OVERSEAS ARCTIC	OVERSEAS BULKTANK CORPORATION					4
T/V OVERSEAS ARCTIC	OVERSEAS BULKTANK CORPORATION					4
PETRO STAR TANK FARM & BARGE LOADING FACILITY	PETRO STAR JOINT VENTURE	P.O. BOX 3389	VALDEZ	AK	99686	4
PETRO STAR TANK FARM & BARGE LOADING FACILITY	PETRO STAR JOINT VENTURE	P.O. BOX 3389	VALDEZ	AK	99686	4
PETRO STAR VALDEZ REFINERY	PETRO STAR JOINT VETURE	P.O. BOX 3389	VALDEZ	AK	99686	4
PETRO STAR VALDEZ REFINERY	PETRO STAR JOINT VETURE	P.O. BOX 3389	VALDEZ	AK	99686	4
PETRO STAR VALDEZ REFINERY	PETRO STAR VALDEZ JOINT VENTURE	P.O. BOX 3389	VALDEZ	AK	99686	4
PETRO STAR VALDEZ TANK FARM & BARGE LOADING FACILI	PETRO STAR VALDEZ JOINT VENTURE	P.O. BOX 3389	VALDEZ	AK	99686	4
T/V OVERSEAS PHILADELPHIA	PHILADELPHIA TANKER CORPORATION					4
T/V OVERSEAS PHILADELPHIA	PHILADELPHIA TANKER CORPORATION					4
T/V OVERSEAS OHIO	Second Shipmor Associates					4
T/V OVERSEAS OHIO	Second Shipmor Associates					4
T/V NORTHERN LION	Second United Shipping					4
T/V NORTHERN LION	Second United Shipping					4
Texaco Chukchi Sea	Texaco Producing Inc.	550 West Seventh Avenue	Anchorage	AK	99501	4
Texaco Chukchi Sea	Texaco Producing Inc.	550 West Seventh Avenue	Anchorage	AK	99501	4
T/V OVERSEAS NEW YORK	Third Shipmor Associates					4
T/V OVERSEAS NEW YORK	Third Shipmor Associates					4

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS 03/23/93

Plantitle	Company	Address	City	ST	Zipcode	Region
T/V EASTERN LION	Third United Shipping					4
T/V EASTERN LION	Third United Shipping					4
TRINIDAD CORPORATION	TRINIDAD CORPORATION					4
TRINIDAD CORPORATION	TRINIDAD CORPORATION					4
Unocal Alpenglow Exploration Drilling Program	Unocal Corporation	P.O. Box 190247	Anchorage	AK	99519	4
Unocal Alpenglow Exploration Drilling Program	Unocal Corporation	P.O. Box 190247	Anchorage	AK	99519	4



OTHER AGENCIES

Military and Veterans Affairs (DES)
- Response Preparedness & Planning
- Response Depots & Corps
- Hazards Analysis

Transportation and Public Facilities
- Oil Response Ferries

Law
- Regulations/Guidance

Public Safety
- Environmental Crimes
- 24-Hour Dispatch

Fish and Game
- Contingency Plan Reviews

Natural Resources
- Contingency Plan Reviews

Administration
- Telecommunications Installation/Maintenance

State Emergency Response Commission
Citizens' Oversight Council

ENVIROMENTAL CONSERVATION

State Emergency Response Commission
Local Emergency Planning Committees
Hazardous Substance Spill Technology Review Council
Contaminated Sites
Government Preparedness and Response
Industry Preparedness and Response
Underground Storage Tank Program
Pollution Prevention
Geographic Information System

SPILL RESERVE
(Emergency Reserve)

Alaska's Oil and Hazardous Substance Release Response Fund — Prepared by ADEC 2/93

Oil and Hazardous Substance Prevention and Response Fund			g:\spar\hearings\238projA.xls				
Revision Date: 04/14/93	FY94	FY95	FY96	FY97	FY98	FY99	FY2000
Balance Forward Catasatrophic Response Account		30,573.3	45,873.3	50,000.0	50,000.0	50,000.0	50,000.0
Balance Forward Contingency and Abatement Account		6,055.2	2,228.2	.0	.0	.0	.0
Revenue from .03 Surcharge		15,300.0	4,126.7	.0	.0	.0	.0
Revenue from .02 Surcharge		10,200.0	9,840.0	9,040.0	8,240.0	7,560.0	6,800.0
Catastrophic Mitigation Account		.0	.0	.0	.0	.0	.0
Contingency/Abatement Mitigation Account		300.0	300.0	600.0	900.0	1,000.0	1,000.0
TOTAL AVAILABLE IN FUND	50,955.5	62,428.5	62,368.2	59,340.0	59,140.0	58,560.0	57,800.0
DISTRIBUTION BETWEEN ACCOUNTS							
Catastrophic Response Account	30,573.3	45,873.3	50,000.0	50,000.0	50,000.0	50,000.0	50,000.0
Contingency and Abatement Account	20,382.2	16,555.2	12,368.2	9,640.0	9,140.0	8,560.0	7,800.0
TOTAL IN ACCOUNTS	50,955.5	62,428.5	62,368.2	59,640.0	59,140.0	58,560.0	57,800.0
PROJECTED EXPENDITURES							
SPAR Director's Office	1,098.8	1,098.8	1,098.8	1,098.8	1,098.8	1,098.8	1,098.8
Industry Preparedness Program	2,346.0	2,346.0	2,346.0	2,346.0	2,346.0	2,346.0	2,346.0
Government Preparedness and Response Program	4,040.7	4,040.7	4,040.7	4,040.7	4,040.7	4,040.7	4,040.7
Contaminated Sites Program	2,852.1	2,852.1	2,852.1	2,852.1	2,852.1	2,852.1	2,852.1
Underground Storage Tank Program	75.9	75.9	75.9	75.9	75.9	75.9	75.9
Division of Information and Administrative Services	740.6	740.6	740.6	740.6	740.6	740.6	740.6
Division of Environmental Quality	303.5	303.5	303.5	303.5	303.5	303.5	303.5
Response Fund Administration (Other Agencies)							
Fish and Game	190.7	190.7	190.7	190.7	190.7	190.7	190.7
Natural Resources	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Law	1,360.2	1,360.2	1,360.2	1,360.2	1,360.2	1,360.2	1,360.2
Labor	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Community and Regional Affairs	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Health and Social Services	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Public Safety	58.0	58.0	58.0	58.0	58.0	58.0	58.0
Legislative Affairs	.0	.0	.0	.0	.0	.0	.0
DOT/Pf	6.5	6.5	6.5	6.5	6.5	6.5	6.5
DMVA	611.0	611.0	611.0	611.0	611.0	611.0	611.0
Administration	.0	.0	.0	.0	.0	.0	.0
University of Alaska	.0	.0	.0	.0	.0	.0	.0
Capital Budget							
Response Ferry	.0	.0	.0	.0	.0	.0	.0
State Owned Site Cleanup	.0	.0	.0	.0	.0	.0	.0
SUBTOTAL PROJECTED EXPENDITURES	13,827.0	13,827.0	13,827.0	13,827.0	13,827.0	13,827.0	13,827.0
Non Catastrophic Response (available)	6,555.2	2,728.2	-1,458.8	-4,187.0	-4,687.0	-5,267.0	-6,027.0
Non Catastrophic Response (expended)	500.0	500.0	500.0	500.0	500.0	500.0	500.0
TOTAL	20,382.2	16,555.2	12,368.2	9,640.0	9,140.0	8,560.0	7,800.0
Assumptions:							
Bill is effective 7/1, thus Ferry and R and D will not be funded in FY 94.							
FY94 available balance will be allocated 60% to catastrophic and 40% to contingency and abatement.							
FY94 authorized is based on the House scenario.							
None of the funding for Contaminated Sites is used for restoration.							
Contingency and Abatement Mitigation Account will receive funding from cost recovery, fines, settlements and penalties for Non Catastrophic Response.							
Cost recovery will begin to increase based on enhanced procedures and efforts in FY97.							
State Owned Sites must be cleaned up using General Funds							
Average annual expenditures for non catastrophic response will be 500.0.							

Books

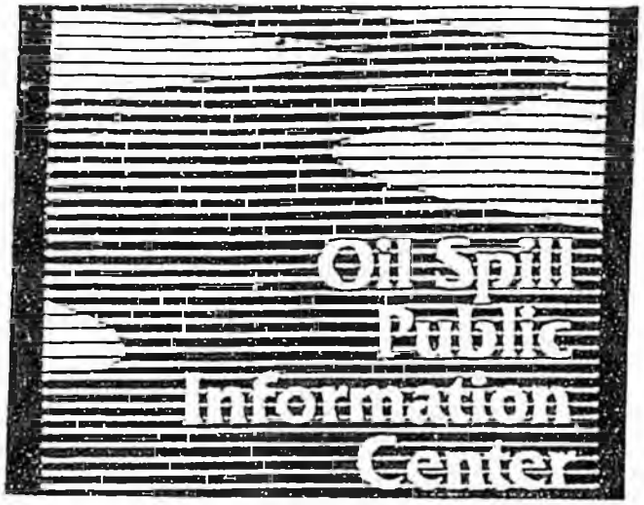
Technical Reports

Audiotapes

Videotapes

Slides

Maps



Oil Spill Public Information Center

645 G street
Anchorage, Alaska 99501

(907) 278-8008
(907) 276-7178 Fax
800-478-7745 In Alaska
800-283-7745 Outside Alaska

The Oil Spill Public Information Center (OSPIC) provides public access to information on the *Exxon Valdez* oil spill. Located in Anchorage, Alaska, the OSPIC welcomes requests from patrons around the world.

The OSPIC's Origin On March 24, 1989, the tanker *Exxon Valdez* spilled almost 11 million gallons of oil into Prince William Sound. Cleanup, damage assessment, and restoration efforts that followed continue to generate large amounts of scientific and economic information.

Recognizing the value of this information to the public, the U.S. Department of Justice established the Oil Spill Public Information Center. Administration of the OSPIC currently falls under the auspices of the *Exxon Valdez* Oil Spill Trustee Council, a six member panel representing three Federal and three State of Alaska agencies.

Resources and Services The OSPIC collection includes information for numerous disciplines of the natural and social sciences, economics, and law. Visitors to the OSPIC will find technical reports, books, maps, audio and videotapes, slides, and computerized databases.

To serve users from outside the Anchorage area, the OSPIC's professional library staff has established systems for sharing information by telephone, fax, mail, or interlibrary loan. In addition, the OSPIC is a contributing member of the Western Library Network (WLN). Through WLN, the OSPIC's resources are made available throughout the United States, Canada, and other countries.

Special Collections Included in the OSPIC's reference and circulating collection are the following special collections:

Natural Resource Damage Assessment Studies - The OSPIC serves as a repository for these interim and final reports.

Newspaper Clippings - This comprehensive collection of newspaper articles pertaining to the *Exxon Valdez* oil spill is indexed in an inhouse database and in WLN's PolarPak.

Shoreline Evaluations - Produced by multi-agency teams, these reports detail oiling conditions and cleanup recommendations.

Trustee Council Public Record - The OSPIC serves as a repository for documents produced for and by the Trustee Council, including meeting transcripts, budgets, and public comments.

THE FOLLOWING DOCUMENT
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ORIGINAL FILE

The Magazine of the Alaska Department of Fish and Game

ALASKA'S WILDLIFE

Volume 23, No. 1
$5.00

The Exxon Valdez Oil Spill

What Have We Learned?

Special Issue

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Cheryl Hull, Assist. Editor/Business Manager
John B. Hyde, Photography Editor

COVER: Although oil is no longer visible from a distance on shorelines such as these in Lower Herring Bay, it can still be found under the surface (inset photo, May 1992) in some previously oiled areas.

ALASKA'S WILDLIFE

The Magazine of the Alaska Department of Fish and Game
Volume 25, No. 1 January-February 1993

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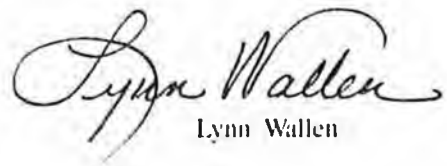
From the New Editor...

I feel privileged to begin my new job as editor of *Alaska's Wildlife* with this issue, devoted exclusively to the scientific work related to the March 1989 *Exxon Valdez* oil spill.

Normally, scientific findings are first published in professional journals where they undergo outside peer review to ensure credibility and accuracy. However, it is usually a long time before information submitted to professional journals filters out to the public. For several reasons, the department and other trustee agencies decided to release some of the oil spill findings in this issue of *Alaska's Wildlife*. First, when the legal settlement removed strict confidentiality on oil spill research, the department realized that it would be difficult to sequester the findings until the scientific publication process was complete. Second, this research has already undergone extensive internal peer review. Third, the world has waited for over three years to hear from scientists about the effects of the oil spill on Alaska's natural resources, and the department wanted to ensure that the most accurate and current information is released. Some of the information presented is preliminary, and conclusions could change with further analysis and interpretation.

The issue was conceived by Jerome Montague and Michelle Sydeman, and publication has required extensive cooperation between Trustee agencies, scientists, and legal counsel of the Departments of Law and Justice. Within the Department of Fish and Game, we have received enormous help from reviewers in many sections and at all levels. Perhaps more than any issue in our history, this one represents a department-wide effort.



Lynn Wallen

EDITORIAL

J. Jerome Montague

Throughout history, catastrophic events have caused rapid, sometimes beneficial, changes in philosophy and brought out the best in human endeavor and spirit. This has been particularly true of ecological disasters. At the close of the 19th century, in the span of one lifetime, Americans had deforested an area of our country the size of Europe. The future of our forests looked bleak. In response, Congress passed an act in 1891 which started the federal forest reserves, an ineffective stop-gap effort. The unresolved problem inspired Gifford Pinchot to develop a philosophy of conservation (meaning wise use) that now directs the activities of most biological resource agencies. Theodore Roosevelt changed the forest reserves into a National Forest System in 1905, creating in the process the U.S. Forest Service. He put Pinchot at its head and charged it with scientific forest management and multiple use. The Chugach National Forest in the Prince William Sound area was created in this process.

In the 1930s, a drastic reduction in the nation's wildlife, which resulted from unscientific management of wildlife or no management at all, and the ecological horror of the "dust bowl" years, inspired the creation of the new field of scientific wildlife management by Aldo Leopold. The proliferation of the pesticide DDT and its disastrous effects on an ecosystem's food chain prompted Rachel Carson to write *Silent Spring* in 1962, a book credited with propelling concern about the environment into the world-wide movement that is still growing today.

In 1989, the grounding of the *TV Exxon Valdez* resulted in the largest oil spill in U.S. history. This catastrophe in the nation's most pristine temperate marine ecosystem was another milestone in environmental history, and, like earlier environmental disasters, is resulting in change. The *Exxon Valdez* Trustees and the scientists and managers serving them have conducted the most comprehensive research into the effects of an oil spill ever undertaken: a $100 million effort spanning three years. The result, in a nutshell, is that we are rewriting the book on the effects of oil. We want to ensure that no one will have to relearn what was learned here. This issue of *Alaska's Wildlife*, dedicated to presenting some of the research findings, is one of the ways Trustee agencies are beginning to provide this information to the public.

The oil spill has been, and continues to be, a media event extraordinaire. Consequently, the words *Exxon Valdez* are infamous throughout the world. Yet because the investigations conducted by the Trustees have been litigation-sensitive, official scientific inquiry had to be conducted with severe restrictions on dissemination of information. Scientists generally prefer to do their research openly with a free exchange of information with colleagues. Thus, it was difficult for them to work secretly for three years. Nevertheless, the principal investigators remained dedicated to the well-being of the resources and enthusiastic about working on the most famous environmental project of our time.

At the urgings of Governor Walter Hickel, Alaska's Attorney General, Charles Cole, and others negotiated a settlement between the State of Alaska, the Federal Government, and the responsible party in the spring of 1991. This settlement required approval of the Alaska legislature, which was not granted. The Attorney General was again tasked with pursuing a settlement, which was successful that fall, and the cloak of secrecy began to be lifted. The spill was an Alaska-size disaster, and resulted in an Alaska-size settlement: $1.03 billion, the largest criminal fine and civil judgment for an environmental case in history. Without this agreement, the results of scientific research may have been kept secret even longer, and, more importantly, restoration efforts could have been further delayed.

In this issue investigators will share their story with you for the first time. They tell of the difficulties of conducting outstanding research under emergency conditions and schedules, in secrecy, and on topics for which there had been no precedent. Many results may startle you, allowing you to feel the prospector-like excitement of scientific discovery. You may be surprised to learn that, except for river otters, few land mammals were significantly affected by the spill. Even more surprising is that sockeye salmon in the Kenai River, some 400 water miles from the site of the spill, may well be the most seriously injured of all species by the spill; the population in 1995 is predicted to be less than ten percent of the 1989 level. Who in 1989 would have guessed that such an injury would happen so far from the spill site and not be evident until six years after the spill? You will find out why it is thought that harlequin ducks have not reproduced in western Prince William Sound in any year since the spill and the scientists' hypotheses as to why pink salmon eggs and fry suffered higher mortalities in oiled areas in 1991 than they did in the year of the spill. Most importantly, you will learn the opinions of the experts on how restoration should proceed.

I tip my hat to all of those people with mist nets, plankton tows, radio and coded wire tags, optical scanners, cameras, and zodiacs who used their expertise, ingenuity, and tenacity to find out what happened to our natural resources. The public and the Trustees will use this information to define a path for restoration that will turn calamity into benefit for fish, wildlife, and the people of Alaska.

Jerome Montague is Chief of Restoration in the Habitat and Restoration Division, ADF&G, Juneau.

In the Wake of the Spill: Injury Assessment and Restoration

by Mark Fraker

On March 24, 1989, the supertanker *Exxon Valdez* spilled an estimated 11.2 million gallons of crude oil into the pristine waters of Prince William Sound, Alaska. This was the largest spill in U.S. history, and little was known about the effects of a spill this size on an ecosystem. The State of Alaska and the Federal Government undertook more than 100 studies to determine the extent of injury or loss of natural resources that resulted. In addition to documenting injury, these studies will help guide restoration. In fact, some of these studies were specifically directed toward gaining information needed for restoration. These studies were conducted in accordance with Natural Resource Damage Assessment (NRDA) regulations which outline a process that may be used to determine proper compensation to the public for injuries to natural resources. NRDA regulations find their basis in the Comprehensive Environmental Response, Compensation, and Liability Act, and in the Clean Water Act. These acts, along with the Consent Decree issued by the U.S. District Court in the settlement of government claims against Exxon and the accompanying memorandum of agreement (August 28, 1991) between the governments, provide the basic framework for injury assessment and restoration.

In September 1991, the United States and Exxon entered a criminal plea agreement. Pursuant to that agreement, Exxon was convicted of four criminal offenses, assessed substantial fines, and ordered to pay restitution in the amount of $100 million equally shared with the State of Alaska and the United States. The criminal settlement states that monies are to be managed independently by the two governments, and must be used "...exclusively for restoration projects, within the State of Alaska, relating to the *Exxon Valdez* oil spill." In this settlement,

> ...restoration includes restoration, replacement and enhancement of affected resources, acquisition of equivalent resources and services, and long-term environmental monitoring and research programs directed to the prevention, containment, cleanup and amelioration of oil spills.

Concurrent with the criminal plea agreement, Alaska, the federal government, and Exxon arrived at a civil settlement which provides for the payment of $900 million to the state and federal governments over a period of 11 years. An initial payment of $90 million was made in December 1991, with a second installment of $150 million (less allowable cleanup costs incurred by Exxon) in December 1992. Another $100 million is due in September 1993, with $70 million due annually from 1994 through 2001. The civil settlement monies are to be managed by a Trustee Council comprised of the Commissioners of the Alaska departments of Environmental Conservation, and Fish and Game, the Alaska Attorney General, and the Secretaries (or their designees) of the U.S. Departments of Agriculture, Commerce, and the Interior.

The civil monies can be used to reimburse both governments for costs related to response, cleanup, litigation, and NRDA studies. Under the civil settlement, restoration means any action that endeavors to restore any natural resource that was injured, lost, or destroyed as a result of the oil spill. Restoration also includes returning services that had been provided by the affected resources to their pre-spill condition. In addition, restoration may include all phases of injury assessment, restoration, replacement, and enhancement of natural resources, and the acquisition of resources and services that are equivalent to those that were lost or injured by the spill.

Late in 1989, an interagency Restoration Planning Work Group was created to develop a restoration plan that will guide the spending of the civil monies. The Work Group is comprised of representatives of the Alaska departments of Fish and Game, Environmental Conservation, and Natural Resources, and the U.S. Forest Service, National Marine Fisheries Ser-

(Continued on page 47.)

Subsistence Uses of Fish and Wildlife

by James A. Fall

The *Exxon Valdez* oil spill covered lands and waters that have been used for subsistence hunting, fishing, and gathering for at least 7,000 years. Communities in the spill area range in size from relatively large towns to small, predominantly Alaska Native (Alutiiq or "Aleut") communities. Subsistence uses of wild resources remain an important aspect of the economy, culture, and way of life of many families within these communities.

Before the spill, subsistence harvests in these communities, especially in the 15 small communities, were relatively large and diverse. These harvests included many kinds of fish, marine invertebrates, land mammals, marine mammals, birds and eggs, and wild plants. Spring and summer are particularly important seasons, when large quantities of resources are harvested and preserved for later use.

After the spill, many people wondered whether subsistence foods were still safe to eat. Although health officials advised that a smell and taste test (called an "organoleptic test") was a reliable way to determine if a resource had been contaminated by oil, many people remained skeptical. Some consequences of the spill were obvious; hundreds of mammals and thousands of birds had died, and hundreds of miles of beaches were oiled. On the other hand, the spill's effects on other resources, such as fish and shellfish, were not so clear. If these animals ingested small amounts of oil, could this render them unsafe to eat? This was of special concern to subsistence users who consume large quantities of fish and shellfish. For people whose survival has always depended upon traditional knowledge and observations of the natural environment, the oil spill created completely unfamiliar conditions. Their skills in understanding their environment and making informed decisions had been undermined. "We don't want to eat them [subsistence foods] until we find out what's really going on," explained a resident of Chenega Bay. Furthermore, with reduced populations of some resources, hunters felt a reluctance to add to the mortality. As a Tatitlek man said, "When you hear thousands of them [waterfowl] are dying everyday, it's tough to harvest them."

Consequently, subsistence harvests in some communities virtually ceased soon after the spill. As documented in Division of Subsistence interviews, in 10 communities subsistence harvests declined between 14% and 77% compared to pre-spill averages. For example, in the mid 1980s, the residents of Chenega Bay averaged a subsistence harvest of about 342 pounds per person per year. This dropped to 148 pounds in the year following the spill. In 1987, Nanwalek (English Bay) households harvested 289 pounds of wild foods per person, but in 1989 this fell to 141 pounds.

Other aspects of subsistence uses were affected as well. For

After the spill, many people wondered whether subsistence foods were still safe to eat.

Subsistence harvests by residents of Chenega Bay are still reduced, due to their concerns over food safety.

example, on average, households in Tatitlek used 23 varieties of wild foods in the 12 months preceding the oil spill. For the 12 months after the spill, this average dropped to 12 kinds of resources. Declines in the variety of wild foods shared between households and in the percentage of people engaging in subsistence harvesting were also documented for many communities.

The primary response to the issue of subsistence foods contamination was directed by the Oil Spill Health Task Force. This group included the Indian Health Service; the Alaska departments of Fish and Game, Environmental Conservation, and Health and Social Services; the National Oceanic and Atmospheric Administration; Exxon; and two regional Alaska Native service organizations, the North Pacific Rim and the Kodiak Area Native Association. The task force coordinated and reviewed research on subsistence food safety, developed a consensus on health issues, and communicated the findings of the studies to the communities.

As part of this response effort, in 1989, 365 samples of fish and marine invertebrates were collected from known harvest areas recommended by local residents in Prince William Sound, lower Cook Inlet, and the Kodiak Island area. These resources were collected by teams of task force members along with residents of the communities. The samples were tested for signs of oil contamination at the National Marine Fisheries Service's Northwest Fisheries Center in Seattle. These highly sensitive tests measure the levels of polycyclic aromatic hydrocarbons (PAHs) in edible tissues. The findings were reviewed twice by a panel of toxicologists who provided a health assessment. In September 1989 and again in early 1990, this expert panel concluded that the levels of PAHs found in the fish samples were very low and of no health concern. The panel noted that fish are able to rid themselves quickly of oil by breaking it down in their livers, concentrating it in their gall bladders, and passing it out in their bile. Although this process may cause injury to the fish, it prevents dangerous levels of PAHs from building up in their flesh.

Most of the shellfish tested as part of this program were also safe, but some from oiled beaches such as Windy Bay on the lower Kenai Peninsula had relatively high levels of PAHs, which raised concerns for the toxicologists. The expert panel concluded that shellfish "should not be collected from obviously oil-contaminated areas." Unlike fish, marine invertebrates such as clams, mussels, and chitons are unable to quickly clean themselves of PAHs; as long as exposure to hydrocarbons continues, these toxins will build up (bioaccumulate) in these animals.

The task force organized a series of community meetings in October 1989 to inform subsistence users about the earliest study findings and the health advice. Although community residents were appreciative of this effort, many questions remained. How could users be sure that resources were safe based upon the limited number of samples and sites examined up to that point? Also, little or no specific information was available about other important resources, such as deer, waterfowl, and marine mammals. The communities strongly urged that studies continue and that communication of findings and health advice be expanded.

© Photos by Andy Williams

In response, an expanded program of subsistence resource collection and testing occurred in 1990 and 1991, funded by the State of Alaska and Exxon. Sites were added near Alaska Peninsula communities, and reference samples were collected near Yakutat.

All together, 309 samples of fish and 1,080 samples of shellfish from 146 sites were tested over the three years of the project. Although some of the fish have shown evidence of exposure to hydrocarbons in the bile or tissue samples, none of the samples had PAH levels so high as to be a human health concern. The vast majority of shellfish from most sites have also been determined to be safe to eat. However, even in 1991, PAH levels remained elevated at Windy Bay. Therefore, the task force's advice has remained cautious: fish from the oil spill area are safe to eat, but people should still avoid using marine invertebrates from beaches with obvious oiling.

As part of the expanded program, samples of ducks, deer, and

marine mammals were also tested for evidence of exposure to hydrocarbons. A total of 19 duck livers (Barrow's goldeneye, common goldeneye, and harlequin) were tested at Texas A&M University. These were collected by the Alaska Department of Fish and Game (ADF&G) near Chenega Bay and at Uyak Bay off Kodiak Island in early 1990. Although evidence of exposure to oil was found in some of the ducks from Prince William Sound, all PAH levels were well within levels considered safe for human consumption.

Muscle and liver samples from 16 deer collected by ADF&G near oiled beaches in Prince William Sound and Kodiak in August and September 1989 and March 1990 were also tested by Texas A&M University. Four of the livers showed signs that the deer had been exposed to oil, but the PAH levels were far below those considered dangerous by health experts.

Tests were also run on blubber, liver, kidney, and muscle samples from 33 harbor seals and 10 sea lions. The sample included 18 seals collected by ADF&G in 1989 and 1990 from heavily oiled areas of Prince William Sound. Eight of these seals, taken within the first three months of the spill, had large amounts of oil on their skin. Except for the blubber, tests on these 18 seals revealed low to non-detectable levels of PAHs. Readings for the blubber were higher, because oil-based contaminants are attracted to fat. These readings were highest (up to 800 parts per billion of PAHs) for the oiled seals. The blubber samples from animals taken in the same areas in 1990 revealed reduced levels, although these were still higher than samples from seals from unoiled areas. Members of the task force advised that these readings were well below those considered to be of concern for subsistence users. In March and April of 1990, hunters from Chenega Bay, Tatitlek, and Nanwalek took seven seals and a sea lion that were also tested for this program. None of these animals had visible signs of oiling. Tests on muscle, liver, kidneys, and blubber detected no PAHs higher than six parts per billion, which is considered to be a background level.

Communication efforts were also expanded. The Division of Subsistence produced newsletters and, with the assistance of the Governor's Office, a video on subsistence foods safety issues. The video was provided to communities and was aired on the Rural Alaska Television Network. In June 1992, the task force organized a second round of community meetings to update residents on study results and conclusions. Household interviews conducted in seven communities by the Division of Subsistence in April 1991 found that in the second year after the spill, subsistence harvests increased in the Lower Cook Inlet and Kodiak areas, but in some cases still remained below pre-spill averages. However, subsistence harvests in the Prince William Sound communities of Tatitlek and Chenega Bay showed few signs of recovery. This was primarily due to continued concerns about the safety of using subsistence foods, as well as a perceived decline in the numbers of some resources such as marine mammals, sea ducks, and marine invertebrates. Some families who had returned to using subsistence foods had done so despite misgivings.

Restoration

Clearly, restoration of subsistence uses is essential to the well-being and, indeed, the survival of these communities. Restoration efforts should concentrate on providing subsistence users with reliable information which they can use to make informed decisions about their harvest activities. This includes information about the continued presence of oil in harvest areas and wildlife habitats and the results of injury assessment programs. The continued monitoring of PAH levels in marine invertebrates and other resources which might be exposed to oil should be considered.

Towards this end, a restoration project including the collection and testing of samples of subsistence foods from representative sites in the oil spill area and communication of information from oil spill studies would be useful. As in the past, local residents would be encouraged to participate in the collection of the samples. The results of the tests, along with findings from other injury assessment and restoration studies, will be interpreted by staff of the Trustee Council and reported in additional newsletters and community meetings. In addition, observations by subsistence users would be shared with both scientists studying the effects of the oil spill and with other affected communities. The option of replacing injured populations by enhancing marine invertebrate resources in nonoiled areas will also be evaluated. It is hoped that, with time, these programs will bring to subsistence users a renewed confidence in their abilities to understand their natural environment and restored opportunities to continue their way of life.

James A. Fall is Subsistence Regional Program Manager with the Division of Subsistence, ADF&G, in Anchorage.

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Season's Greetings

Season's Greetings

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Deer by Jon Lewis

Sitka black-tailed deer are the most abundant large mammals in Prince William Sound and the Kodiak Archipelago. They live at or above timberline during the summer but move to beaches that are free from snow in winter. It is on these beaches that deer feed extensively on kelp and other marine flora to sustain themselves through the most critical part of their annual nutritional cycle. Many beaches used by deer were oiled during the *Exxon Valdez* oil spill.

© Pat Costello

Little evidence of injury exists for Sitka black-tailed deer.

Alaska Department of Fish and Game biologists documented the degree of oil ingestion and the concentrations that remained in deer tissues of 32 deer by analyzing tissue samples for petroleum hydrocarbons. They specifically selected deer on or near oiled beaches. One deer had elevated concentrations of aliphatic (nonvolatile or heavier) hydrocarbons but normal concentrations of aromatics (volatile or lighter) in liver samples. Muscle samples from that deer contained no hydrocarbons of either type that are indicative of exposure. Collectors noted no significant observations of oil ingestion, such as rumen aspirate in the lungs, during gross field necropsies.

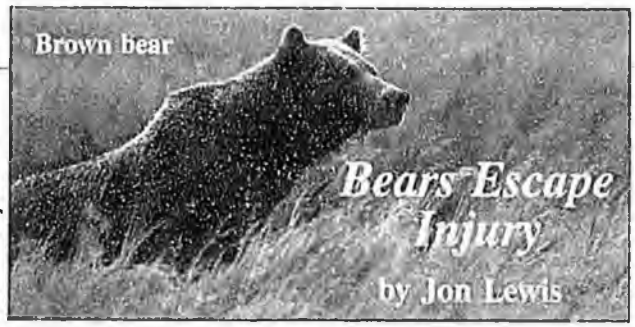
Pathologists investigated physiological abnormalities by submitting tissues from 30 of the same 32 deer to histologic analysis. No oil-related lesions or pathologies were noted. Never was deer meat considered unsafe for human consumption.

Deer mortality was assessed during two searches of winter habitat. A pilot study located 38 dead deer, none of which was determined to have died because of oiling. Bone marrow characteristics indicated that starvation was the primary cause of mortality. It is possible that oiling or human disturbance could have led to increased starvation, however no documentation for this exists.

Biologists from Cordova conducted aerial surveys during the winter of 1989-1990. Deer were observed using oiled and unoiled beaches similarly. Because deer were continuing to use oiled beaches, a second mortality survey of oiled beaches was conducted during the spring of 1990. Seven deer carcasses were located on the 19 Prince William Sound beaches (15.8 km) searched. Again, starvation seemed to be a major source of winter mortality. Three deer died of causes other than starvation, but obvious oil-related mortality was not observed.

While deer biologists and the public alike reported deer on oiled beaches and with oil on their bodies, almost no evidence of oil spill injury to the deer population exists. Had the oil spill occurred earlier in the year, the impact on deer might have been much more serious. But by late winter, deer had access to foods other than the marine vegetation on the beaches. They were able to move away from the beaches and the oil.

Jon Lewis is a Wildlife Biologist with the Division of Wildlife Conservation, ADF&G, Anchorage.



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Bears Escape Injury

by Jon Lewis

Shortly after the *Exxon Valdez* oil spill, biologists observed coastal brown bears in Katmai National Park feeding on oiled bird carcasses and intertidal invertebrates on oiled beaches. Bears also may have ingested oil by grooming their fur or by directly consuming tar balls. Oil ingestion and inhalation could cause immediate death or long-term physiological problems that could result in decreased reproduction or survival.

To document the effects of the oil spill on brown bears, the Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation, in cooperation with the National Park Service, studied (1) the survival and reproduction of radio-collared female bears, (2) the size and density of the bear population along a portion of the Katmai coast, and (3) the concentration of petroleum hydrocarbons in fecal samples from captured brown bears. Biologists then compared results of these studies to data from a control bear population near Black Lake on the north side of the Alaska Peninsula, an area not exposed to crude oil.

Biologists fitted a total of 28 Katmai bears in 1989 and 42 Katmai bears in 1990 with radio-transmitters. We obtained blood, fecal, and hair samples, along with a tooth for aging from most bears. Estimates of population size and density were made in early June 1990 during four intensive aerial surveys of the study area. Each bear seen from the air was recorded, and it was noted whether a sighted bear was marked with a radio-transmitter or not. We calculated that the study area contained 1.4 bears per square mile, the highest brown bear density recorded to date in the state of Alaska.

After making the density estimate, Dick Sellers, the King Salmon area wildlife biologist, spent many hours in the air tracking the survival and reproductive histories of each radio-collared bear over the next two years. When a bear died, Dick landed and conducted a necropsy (animal autopsy) to find the cause of death. He also obtained tissue samples for laboratory testing. He collected information on survival in the Black Lake population in the same manner. Survival of radio-collared females in Katmai was 95% versus 93% (excluding hunting mortalities) at Black Lake. Intra-specific aggression, or bears killing bears, was the primary cause of death in both areas.

In scientific studies of some species, biologists obtain internal tissues for lab analysis by killing a sample of animals. This was not possible for brown bears, and therefore only fecal and blood samples were readily available for analysis. A fecal sample could contain petroleum metabolites expelled in the bile, or it could contain unmetabolized petroleum hydrocarbons from the digestive tract. At Black Lake, none of the 22 samples submitted showed indications of exposure. Of 27 samples analyzed from

Impacts of Oil on R

River otters are more than cute, playful water animals; they are also incredibly tough. That toughness was tested in Prince William Sound following the *Exxon Valdez* oil spill. In the Sound, the name "river otters" is misleading because they feed in the shallow near shore marine waters and don't have alternative freshwater feeding areas. In the early days of the spill, otters in the spill zone faced oil-covered waters when they entered the ocean to feed. Nobody will ever know how many otters died directly from oil coating or toxic crude oil fumes. Some speculate that most of these animals left the water and took refuge in underground dens where their bodies were never found. Only eleven river otters were picked up by beach clean-up crews.

Following the oil spill, otters were left with a drastically altered environment containing new and sometimes invisible hazards. Even with the crude oil seemingly gone from the water's surface, the otter's daily activities placed them at risk. Some of their foods were contaminated by hydrocarbons; the otters could be coated by a thin sheen of oil as they surfaced to eat. Unlike seals, river otters do not have insulating fat but rely on air trapped within their fur for insulation. Otters clean their fur by licking it. As late as the summer 1992, sheens of oil were present that could coat the fur of a swimming otter, and in grooming their fur, otters would consume oil.

the Katmai bears, four (15%) contained concentrations of hydrocarbons that showed exposure to crude oil. Interestingly, one of those bears was a mother bear whose yearling cub was found dead. Dead less than 24 hours, the yearling displayed no obvious cause of death. In addition to the yearling found dead, this female had also lost her other yearling during the preceding week, but the carcass was never found. Hydrocarbon analysis of bile from the dead yearling bear documented naphthalene and phenanthrene concentrations of 160,000 and 18,000 parts per billion respectively. Chemists considered these concentrations highly elevated: pathologists have documented physical symptoms of exposure in other mammals when similar hydrocarbon concentrations were found in the bile.

While one yearling bear may have died from the oil spill and four bears of a sample of 24 were exposed to crude oil, the significance of exposure does not appear to be great in the bear population. Survival of the bears for the first two years after the oil spill was not greatly affected. Investigations of Katmai bears that are specific to the oil spill have been discontinued, but ADF&G and the National Park Service are continuing research on the survival and reproduction of radio-collared Katmai bears.

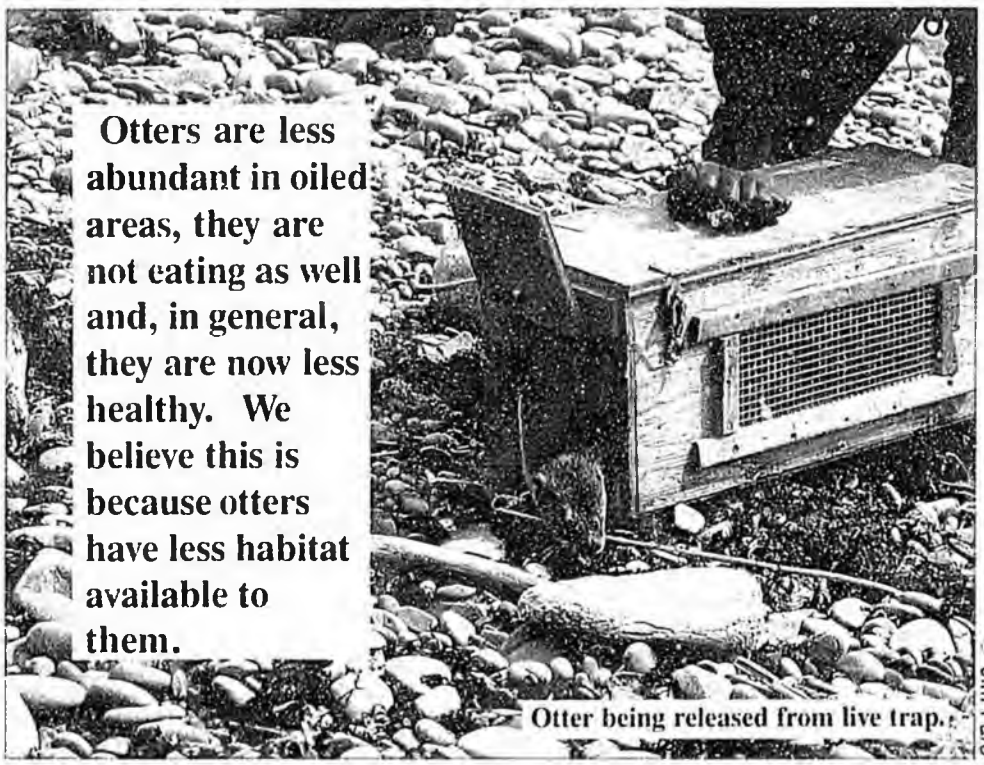
Jon Lewis is a Wildlife Biologist with the Division of Wildlife Conservation, ADF&G, Anchorage.

ver Otters

by Jim Faro

Because dead oiled otters were seldom found, our project concentrated on live otters. Our assumption was that otters never exposed to oil were normal, and differences we might find would be the result of oil. We then asked whether otters in oiled areas were doing as well as those in nonoiled areas. Both otters and their habitats were examined. The area immediately north of Bligh Reef provided "clean data." But "oiled data" came from some of the most heavily polluted shorelines immediately to the south.

Because there is little scientific literature on river otters and crude oil, the study had to develop techniques and gather data simultaneously. A statistically valid pattern of injury emerged from nearly all lines of inquiry. Otters are less abundant in oiled areas, they are not eating as well, and in general, are now less healthy.



Otters are less abundant in oiled areas, they are not eating as well and, in general, they are now less healthy. We believe this is because otters have less habitat available to them.

Otter being released from live trap.

© Jim Faro

We believe this is because otters now have less usable habitat available to them. Otters have preferred latrine sites scattered along their home ranges, and these were examined to see if post-oil changes had occurred. In the summer of 1989, otters avoided sites with shallow slopes that tended to have the greatest impact from oil, even though they preferred such areas in clean habitat. In the summer of 1991, nearly four times as many latrine sites were abandoned by otters in oiled habitat as nonoiled. This indicates otters may have continued to lose habitat into the third summer following the spill. If habitat is not being lost, then there must now be fewer otters in the population to explain this lack of use. Neither conclusion bodes well for otters. The latrine sites also provided additional information. Seats (otter droppings) were collected and washed to leave only the hard materials behind. The remains were examined and the food identified by species. In the summer of 1990, otter seats from the oiled study area contained nearly 50 fewer species when compared to the previous year. In the nonoiled area, no significant decline in the number of summer species was documented. Oiled habitat no longer seems to have the diversity of diet that was present in the pre-oil days. This also supports the premise that otters in the oiled areas were not finding food as easily.

In 1989 and 1990, river otters were live-captured and surgically implanted with radio transmitters. Transmitters allowed the otters to be tracked even when they could not be seen. By plotting all the positions on a map, the summer home ranges of individual animals were established. Although intensive examination showed otter habitat in the oiled and nonoiled study areas to be basically identical, home ranges were nearly twice the size in the oiled area. If oil had made food scarce or some areas of habitat now unusable, otters would need a greater search area to meet their daily needs. Indeed, the tracking study demonstrated that the oiled otters' daily movements were extensive. Nonoiled otters tended to focus their activities in a specific area for several days, then moved on.

Live-captured otters were carefully measured and weighed. The data showed that adult otters in oiled areas weighed significantly less than their nonoiled counterparts.

Blood samples were drawn from captured otters and submitted to a series of lab tests much the same as those used to evaluate human health. Without supporting captive-animal studies, these tests cannot tell the exact nature or cause of a problem, but researchers view them as a general indicator of health. The blood samples provided definite health warnings for oiled otters. Indications are that significant sublethal problems are present: hydrocarbon toxins seem to be affecting body organs and the otters' ability to fight disease or infection.

Restoration

Unfortunately little hands-on restoration can be done. The factors that appear to be driving the population down are not ones easily addressed with modern technology. Toxins in the water or concentrated in the food eaten by otters must be flushed naturally from the ecosystem. With their position high on the food chain, the links below otters must recover before otters can be expected to respond.

Jim Faro is a Wildlife Biologist with the Division of Wildlife Conservation, ADF&G, Soldotna.

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The Oil Spill and Seabirds: Three Years Later

by John Piatt

May 5, 1989: We stared in disbelief at the thick carpet of mousse (a mixture of oil, air, and water) that stretched for miles into the mist. It seems that events in Alaska occur on a grand scale, and the *Exxon Valdez* oil spill was no exception. Here, on a deserted expanse of sandy beach in Puale Bay, over 500 miles southwest of Bligh Reef in Prince William Sound, and six weeks after the *Exxon Valdez* disgorged its cargo, we found thousands of seabird corpses. With grim resolve, we slowly plucked rotting, mousse-caked corpses from the muck. By the end of summer 1989, this scene had been repeated at hundreds of Alaskan beaches. Over 37,000 bird corpses were retrieved and identified. Most, however, sank at sea or were eaten by gulls, bald eagles, and other scavengers on the beaches. From a variety of field studies, we estimate that about 375,000 birds were actually killed. The exact toll will never be known. We do know, however, that in all the 80-year history of oil pollution at sea, this was the highest toll of bird life ever documented.

This story of bird devastation has been widely reported since the *Exxon Valdez* ran aground on March 24, 1989. But because of a legal shroud of secrecy, principal scientific investigators of the spill have only just begun the process of providing their data and conclusions to the scientific community at large for peer review and criticism. This time-consuming process is the mechanism by which scientific conclusions are validated and qualified (or discarded for lack of evidence), facts are distinguished from conjecture, and hypotheses are put forward for testing. We are still years away from a scientific consensus on the effects of the *Exxon Valdez* spill on marine life.

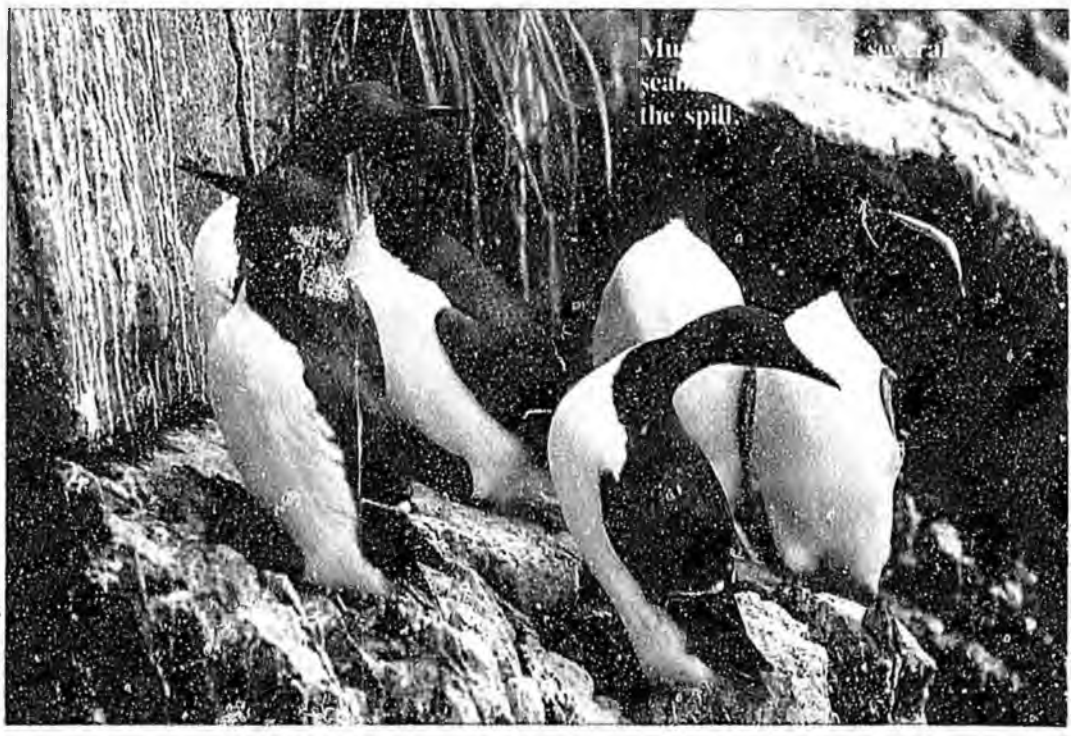
What do we know with reasonable certainty?

On the positive side, productive marine waters of Alaska continue to support a truly staggering abundance and diversity of marine birds. Large seabird colonies are widely distributed throughout Alaska. Fortunately, no species was so rare or locally concentrated that it was threatened with extinction at the time of the spill. And no seabird population is in imminent danger of extinction as a result of the spill. We can be optimistic about the future because many seabirds are resilient to occasional man-made and natural catastrophes.

On the negative side, the spill did serious injury to local populations of some seabirds. Yellow-billed loons, horned grebes, Kittlitz's murrelets, marbled murrelets, pigeon guillemots, and harlequin ducks were all relatively scarce before the spill, with numbers in the thousands to low hundreds of thousands. Although it did not eliminate any of those populations, the spill added to existing stresses from chronic oil pollution, gillnet mortality, hunting, loss of breeding habitat, and other factors. In the absence of additional negative changes in the marine environment, or more human disturbances, we can calculate that these populations should be able to return to "normal" in 20 to 70 years. Unfortunately, the marine environment does not seem to favor seabirds at the moment; many species appear to be food-limited, and populations are declining in the Gulf of Alaska and Bering Sea.

What constitutes a "normal" population?

We can answer this question by considering common murres, the species hardest hit by the spill. Murres are long-lived members of the Alcid family of colonial, diving seabirds that includes puffins, marbled murrelets, auklets, and the extinct great auk. Murres produce only one egg annually, and 40 to 60% of pairs breeding at a colony in Alaska might fledge a chick in any



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given year. Of those chicks, only 10 to 30% might actually survive to the age of 4 or 5 years, when they attempt to breed for the first time. After a few years of experience at the breeding colony, murres are at their reproductive prime and may breed successfully for many more years before dying of old age at 15 to 20 years old. Thus a normal murre population consists of juveniles born in each year (most of which die), immature birds (1 to 3 years old) that are incapable of breeding, adolescents (4 to 6 years) that are sexually mature but lacking in the knowledge and skills required to successfully rear young, and experienced adults (7 to 20 years) that form the backbone of the breeding population.

How did the spill affect murre populations?

Data suggest that about 10 to 20% of the entire northern Gulf of Alaska population of murres was killed in the spill. Local effects were more severe. Colonies at the Barren Islands and along the path of the spill declined in 1989 by 50 to 70% from pre-spill counts. Injury assessment studies conducted by the Alaska Maritime National Wildlife Refuge in 1989-1992 revealed that not only have numbers remained low, but breeding activity of remaining birds has been unusual in all these years. Very few chicks were produced in any year (0 to 20% success), and the timing of breeding was delayed by 30 to 45 days in all years. The timing and success of breeding in murres can vary widely under natural conditions in Alaska, but such a sequential run of bad years has never before been documented. Toxicological effects of oil might account for some of the unusual breeding biology in 1989, but it is improbable that toxic effects would have continued for three more summers.

The exact toll will never be known. We do know...that in all the 80-year history of oil pollution at sea, this was the highest toll of bird life ever documented.

One theory is that the oil spill dramatically altered the age-structure of murre populations at affected colonies. Experienced adults typically return earlier to breeding colonies than adolescents. Most seabird mortality from the spill occurred in April, when adult murres were concentrating at colonies to breed. It is possible that a large fraction of the experienced adult population of murres was destroyed by the spill, leaving inexperienced adolescents to carry on with the job of replenishing the population. Such an effect would be felt for decades until the "normal" age structure of the population is re-established. Other species of seabirds killed in the spill, most of which are also long-lived and exhibit delayed sexual maturity, may have been similarly affected.

How can seabird populations be restored?

Efforts have shifted from trying to document injuries from the spill to assessing how we might restore or enhance the recovery of affected populations. This is not a trivial task. Most seabirds breed on remote, inaccessible islands and forage over vast ocean areas. Most colonies are already protected as National Wildlife Refuges, but private lands containing a few small colonies could be purchased. It might be possible to manipulate prey stocks to enhance seabird feeding and breeding success, but we understand little about the ecology of prey that seabirds consume. Few, if any, prey species are presently managed with consideration for other consumers besides humans. At colonies, it might be possible to improve the breeding success of seabirds by manipulating breeding habitat or predator populations.

In some cases removing predators from breeding colonies could help. For example, the removal of arctic foxes from islands where they were artificially introduced years ago for farming is a proven management tool. Released from unnatural predation, seabird populations can quickly rebound. This approach is most effective for ground-nesting species like eiders, puffins, and auklets, but cliff-nesting species like murres may benefit little from fox removals. However, introduced foxes are not present on islands in the oil spill area, so predator control would not have a direct restorative benefit there.

What seabird species can we help now?

Marbled murrelets are unique among Alaskan seabirds in that they nest in trees. Habitat studies conducted over the last few years in Prince William Sound by the U.S. Fish and Wildlife Service are beginning to confirm what has already been established in California, Oregon, and Washington: marbled murrelets prefer to breed in dense stands of old-growth coastal rain forest. Marbled murrelets are now listed as a threatened species in the lower states because populations face extinction from the destruction of remnant ancient forests. Populations are healthier in Alaska, but harvesting of old-growth forests in Alaska is proceeding rapidly. For example, over 40% of high-volume old-growth forest in the Tongass National Forest has already been cut. The marbled murrelet could benefit from protection of old-growth forest. Biologists from the Fish and Wildlife Service, the Forest Service, and the Restoration Team are all working hard to determine which forests in Prince William Sound and elsewhere support breeding marbled murrelets.

John F. Piatt is a Research Biologist with the U.S. Fish and Wildlife Service Research Center in Anchorage.

Bald Eagles: After the Spill

by Timothy Bowman

About 8,000 bald eagles inhabit coastal areas from Prince William Sound to the Alaska Peninsula, the area affected by the oil spill. Because bald eagles nest along shorelines and feed mostly in intertidal areas, the habitats most contaminated by oil, significant injury to eagle populations was expected. A three-year study was initiated soon after the spill to examine unhatched eggs and prey remains for evidence of oil exposure, to determine numbers of eagles, and to determine effects on bald eagle nesting and survival of adults and fledglings.

Bald eagle injury was serious, but recovery prospects are excellent.

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Greatest injury to bald eagles occurred during the summer immediately after the spill. An estimated 900 bald eagles throughout the spill area (about 11% of the population) died, and reproduction was significantly reduced. Laboratory analysis of eggs and prey remains collected from eagle nests confirmed that they were contaminated by oil. Reproductive failures were directly related to the extent and intensity of shoreline oiling near bald eagle nests, but these effects seem to have been limited to Prince William Sound alone, not to other areas to the west. Poor reproduction could have been caused by the death of one or both of the adults or by death of the embryo as a result of oiled eggs. Adult eagles with oiled feathers probably transferred oil to eggshells as they incubated eggs. Studies have shown that even small amounts of oil in contact with the eggshell can kill the developing embryo. Nesting success of eagles in Prince William Sound was better in 1990; the production of young eagles was thought to be near normal levels for this area.

Biologists counted eagles from airplanes during the spring of 1989, 1990, and 1991 to see if there was a decrease in bald eagle numbers. These visual surveys focused on Prince William Sound. No recent pre-spill survey of bald eagles had been conducted that would allow a good comparison of pre- and post-spill population size. Although there was a slight decrease in the numbers of eagles counted in 1990, one year after the spill, it was within the margin of error expected for that type of survey and therefore not statistically significant. The number of eagles counted in 1991 was the same as in 1989.

Another aspect of the study was to look at survival of both fledglings and adults after the spill to see if survival was different between eagles tagged in oiled areas of western Prince William Sound and eagles tagged in unoiled areas of eastern Prince William Sound. During the summers of 1989 and 1990, biologists tagged 62 young eagles with backpack-type radio transmitters in Prince William Sound. About 100 adult eagles were also trapped and radio-tagged. These tagged eagles were tracked by airplane. Biologists could tell whether the bird was alive or dead by the signal its transmitter emitted; if a bird died and the transmitter remained motionless for more than six hours, it emitted a signal with a faster pulse rate. After three years of

monitoring, biologists found no differences in survival between eagles from oiled and unoiled areas. It seems that the lethal effects of the spill occurred immediately after the spill, before transmitters had been attached to eagles. The continued high survival noted after 1989 suggests that there were no long-term effects of the spill on eagle survival.

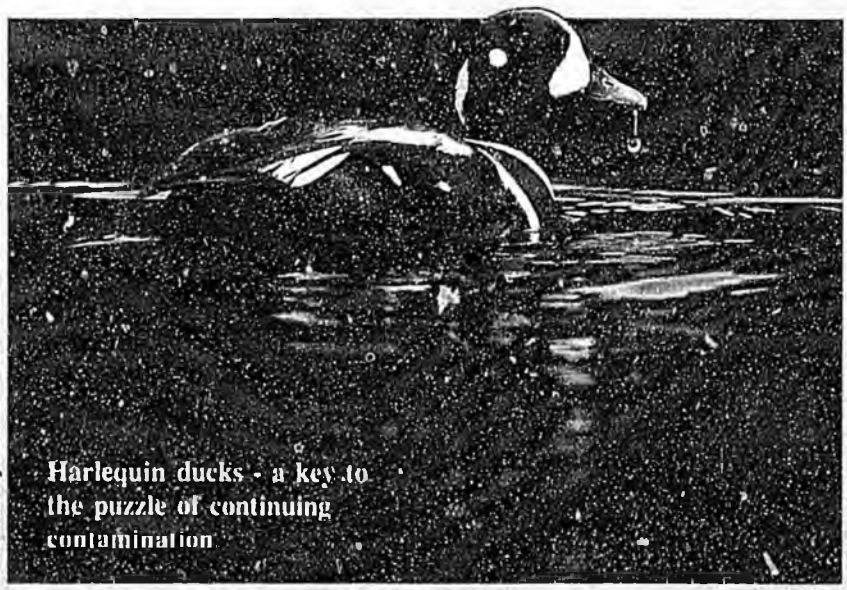
The bald eagle seems to be a fairly resilient bird, at least at the population level. Densities of eagles in Alaska are higher than anywhere else and are thought to be at saturation levels in many areas. Because of their high densities and the abundance of productive nesting and feeding habitat in Alaska, bald eagle populations were apparently able to endure the effects of the oil spill with only a short-term negative impact.

A population model of bald eagles in Prince William Sound indicates that the population was increasing before the spill at a rate of about 2% per year. The cumulative effects of the direct mortality and reduced productivity in 1989 will probably set the population in Prince William Sound back by about five years, but population growth should continue.

Restoration

Land management that incorporates an awareness of the habitat needs of bald eagles is essential to the maintenance of bald eagle populations. However, eagle habitats within coastal Southcentral Alaska have been identified in development plans. One way to enhance the recovery of bald eagle populations is to protect the old growth forests, particularly beach fringe and streamside habitats which are important to eagles for nesting and feeding, and to protect salmon spawning areas, a key food resource.

Timothy D. Bowman is a Wildlife Biologist with the U.S. Fish and Wildlife Service, Raptor Management Studies Program, Cordova.



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Harlequin ducks - a key to the puzzle of continuing contamination

...in oiled areas, there was not only direct mortality of at least 400 harlequins, there was also a nearly complete reproductive failure from 1990 to 1992.

Harlequin ducks are small, colorful seaducks that feed in intertidal areas. When we began research into the effects of the oil spill on harlequin ducks in September 1989, we knew many had been killed, but little did we know that our studies would lead us to the discovery that the effects are much more significant and long-term than we expected. Injury assessment studies of harlequin ducks through 1992 related to the *Exxon Valdez* oil spill have been focused on Prince William Sound. Harlequin ducks reproduced normally in unoiled areas of Prince William Sound, but in the oiled areas, there was not only direct mortality of at least 400 harlequins, there was also a nearly complete reproductive failure from 1990 to 1992.

The harlequin population in the Prince William Sound, Kenai, and Afognak areas contains both resident and wintering individuals. The residents molt in secluded bays and lagoons, roost on offshore rocks, and breed along forested streams within a few kilometers of salt water. Broods are found with hens on salt water in late summer. Non-resident harlequin ducks, which winter on the south coast of Alaska, breed elsewhere on mountain streams, arrive in the south coastal area in October, and depart in May. Harlequin ducks return to the same breeding and wintering areas year after year. Before the oil spill, harlequin ducks were distributed throughout Prince William Sound, with broods commonly observed in shoreline habitats. Because some harlequins spend their entire lives in the oil spill area, where they breed, feed, and overwinter, it is possible to detect and study the impact of the spill. Non-resident harlequins and other seaducks that overwinter in oiled areas may be similarly affected, but because they breed in areas remote from the spill, it is impractical to study them.

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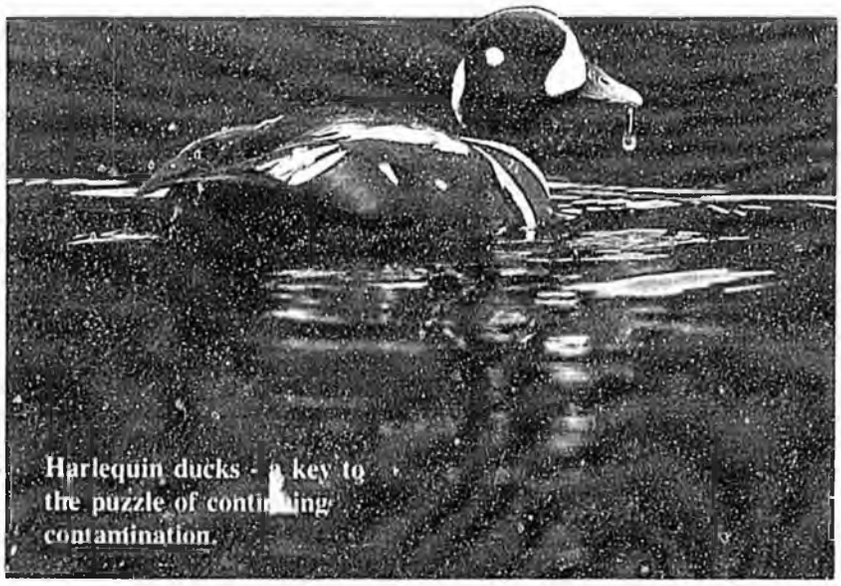

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Reproductive Failure of Harlequin Ducks

by Sam Patten

The reproductive failure of harlequin ducks in the oil spill area is postulated to be a chronic effect of petroleum exposure through contaminated intertidal food. Blue mussels appear to be the most likely source of contamination. Blue mussels concentrate and hold pollutants in their tissues. Restoration studies have documented high concentrations of petroleum compounds known as polynuclear aromatic hydrocarbons (PAHs) remaining in mussels, in the byssal thread mats which anchor the mussels to the bottom, and in the underlying substrates in western Prince William Sound in 1991. Because harlequin ducks consume entire mussels, they ingest petroleum hydrocarbons in mussel tissue, on the shell surface, and in attached byssal threads and sediments. Harlequin ducks collected in 1989-1990 in western Prince William Sound and Southwest Kodiak contained oiled food items in their gullets as well as petroleum residues in liver tissue and bile. Experimental studies have demonstrated that single small doses of petroleum can cause reproductive failure in some seabirds. Searches of U.S. Coast Guard files revealed that approximately 90 blue mussel beds may retain *Exxon Valdez* oil in western Prince William Sound. Field checks indicate additional previously unreported oiled mussel beds in the Sound and along the Kenai coast. Oil also remains associated with dispersed blue mussels in a number of sheltered locations currently under investigation. Extensive oiling of Kenai Fjords National Park is also well documented, and it is reasonable to suspect that there has been some degree of injury to harlequin ducks there.

Restoration

The ultimate goal of current research is the restoration of breeding harlequin ducks to the oil spill area. To achieve this, scientists should determine the geographic extent of the reproductive failure, define the breeding habitat requirements of harlequins, and determine whether hydrocarbon residues are currently present in harlequins in order to clarify the link to persistent oil contamination. If the observed failure of reproduction is related to the contaminated food chain, remaining oil pollution should be removed before restoration can take place, otherwise measures to increase productivity will be fruitless. In some cases these mussel beds remain grossly contaminated. Knowledge of habitat requirements of breeding harlequin ducks may prove valuable for restoration actions such as habitat acquisition and mitigation measures, protection of non-federal lands, and development of marine sanctuaries.

A proposed restoration project would continue to monitor harlequin reproductive success and document the characteristics of harlequin duck nesting habitat. Biologists would conduct surveys to locate harlequin pairs at stream mouths in late spring. This would be followed by trapping in selected stream estuaries. Harlequin females flying to streamside nest sites in early summer would be mist-netted and radio-tagged. Nest sites, broods, and feeding areas will be located by following the radio-tagged hens through the summer nesting and brood-rearing period. Brood count surveys would be conducted in shoreline habitats in late summer in western Prince William Sound and selected areas of the Kenai coast and Afognak. If nests are located in the Sound, Afognak or Kenai areas, researchers would note harlequin nesting habit characteristics in these areas. Results from the oil spill areas would be compared to unoiled control areas on Afognak Island.

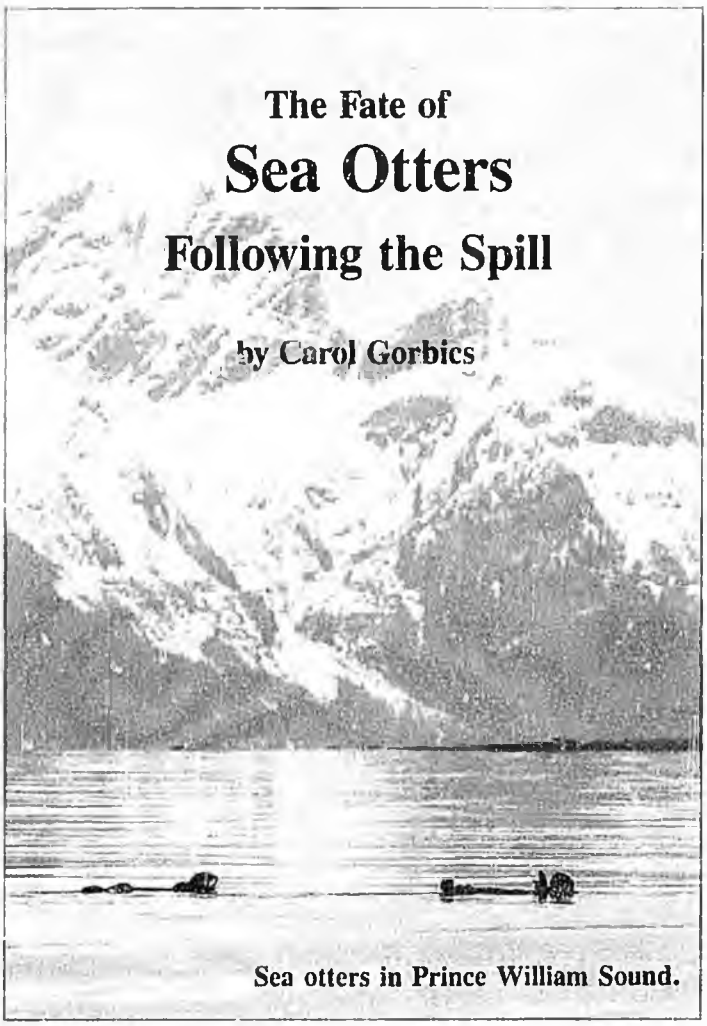
Blood samples would also be collected from breeding harlequins in unoiled areas and from molting harlequins in oiled areas. Blood and tissue samples may also be taken from collected ducks. These samples would be analyzed for normal blood parameters and presence of elevated levels of haptaglobins and interleukins, blood proteins indicating stress and suppressed immune systems. Tissue samples (i.e. fat, liver, and bile) would be analyzed for presence of petroleum hydrocarbons. Feather samples would be examined for presence of vanadium, a trace metal indicating petroleum exposure. Fecal samples from flightless birds trapped during the molt would be collected to determine presence or absence of petroleum exposure by means of florescence testing. The proportion of mussels in the harlequin diet would be investigated by dissection of set-aside harlequin carcasses from the "spill bird morgue" in Anchorage and examination of their gullet contents. The information gathered in this study could be used in developing measures to restore breeding harlequin ducks to the oil spill area.

The contaminated food chain remains a significant concern. Because of anoxic conditions created by the dense byssal thread mat in mussel beds, crude oil is trapped and remains unweathered. Thus it retains toxic components. Harlequins eating oiled mussels will remain exposed to contaminated food unless some action is taken to clean oiled mussel beds. If this exposure is sufficient to cause reproductive impairment in these seaducks for many years, local extinction may result in spill areas. Continuing to explore the relationship between the consumption of oiled foods by harlequin ducks and reproductive impairment should be considered.

Sam Patten is a Wildlife Biologist with the Division of Wildlife Conservation, ADF&G, in Anchorage.

The Fate of Sea Otters Following the Spill

by Carol Gorbics



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Sea otters in Prince William Sound.

Sea otters (*Enhydra lutris*) were the most abundant marine mammal in the path of the *Exxon Valdez* oil spill and, unfortunately, were particularly vulnerable to the effects of the spill. Not only were many sea otters killed in the months following the spill, but they are still showing the effects of the spill three years later.

Reduced to near extinction by over hunting during the late nineteenth century, sea otter populations rebounded following enactment of a 1911 international treaty providing for their protection and conservation. Sea otter numbers in Alaskan waters grew as sea otters expanded their range along the coasts of Alaska. Otters inhabit the entire area affected by the oil spill including Prince William Sound, the Kenai Peninsula, the Kodiak archipelago, and the south side of the Alaska Peninsula.

In 1972 the federal Marine Mammal Protection Act transferred authority for management and conservation of the sea otter from the State of Alaska to the U.S. Fish and Wildlife Service (USFWS), an agency of the U.S. Department of the Interior. The USFWS had the major responsibility for managing the response, rehabilitation and injury assessment of sea otters during and following the oil spill. Biologists Brenda Ballachey, Jim Bodkin, and Tony DeGange led the USFWS efforts to determine the extent of injury to sea otters following the spill.

Initial Exposure to Oil

Sea otters spend most of their time on the surface of the water, often in large numbers, making them susceptible to floating oil. Since they have neither blubber, like many marine mammals, nor much subcutaneous fat, they depend on rapid metabolism to generate heat. Their luxurious pelage (fur) and an entrapped air layer within the dense, water-resistant underfur prevent heat loss to the cold Alaskan waters. To maintain the insulating properties of their fur, otters must groom constantly. When sea otters became fouled with oil during the spill, grooming became obsessive, resulting in the ingestion of oil.

Many sea otters died as a result of the spill, but an exact number is difficult to determine and will probably never be known. Our knowledge of the number of sea otters potentially at risk is sketchy; previous surveys were up to five years old. In addition, censusing sea otters continues to be an inexact science. USFWS biologists did, however, take several approaches to estimate the total number of sea otters that died within the months following the spill.

The most visible effort was the collection and cataloguing of sea otter carcasses. Dead otters were collected by spill workers, including volunteers, wildlife collection boats, and oil cleanup crews. More than one thousand sea otter carcasses were collected, some of these were animals that died during capture and rehabilitation efforts. Of this total, it was determined by veterinarians performing necropsies (animal autopsies) that up to 95% of the deaths were potentially attributable to oil. The likelihood of finding carcasses was also estimated using the results of a marking and recovery study and a drift experiment. Resulting estimates suggested that the recovered carcasses represented 25% of the total potential sea otter deaths.

A second approach involved comparison of sea otter abundance before and after the spill. Boat surveys completed in 1984 and 1985 were compared to similar surveys conducted by USFWS biologist Doug Burn following the spill in 1989, 1990, and 1991. In 1989 following the spill, there was a 35% decline in sea otter abundance in oiled areas. Surveys in 1990 and 1991 showed continued low numbers with no significant change or recovery. Pre-spill surveys outside Prince William Sound were not available.

A third method, developed by USFWS biologist Jim Bodkin and biostatistician Mark Udevitz, used a computer model to

estimate the number and fate of sea otters potentially exposed to oil based on the spill's path and the chance of survival due to the predicted degree of oiling. Computer simulations with this model indicated that about 52% of sea otters along the Kenai Peninsula were potentially exposed to oil.

Results of all these studies suggest that initial injuries were extensive, killing between 3,500 and 5,500 sea otters in the first months following the spill.

Continuing Exposure to Oil

Injuries to sea otters were not limited to the spring and summer after the 1989 spill. USFWS studies have documented that currently, over three years after the spill, sea otters are still being injured by oil remaining in the environment.

Studies by the National Marine Fisheries Service during the summer of 1992 show that there are still hydrocarbons in mussels and other marine invertebrates and still unweathered oil buried within mussel beds. Mussels accumulate and store hydrocarbons in their tissues and also provide an oxygen-free microhabitat that allows the oil to stay in an unweathered and toxic state. Sea otters are potentially doubly at risk from eating these contaminated staples of their diet and from release of toxic hydrocarbons into their environment by disturbing contaminated substrate while foraging for food.

But have sea otters changed their eating habits since the spill to avoid contaminated prey? USFWS sea otter biologist Angela Doroff concluded they have not. During 1991, prey species eaten by sea otters in oiled areas and unoiled areas of Prince William Sound were compared with prey species eaten by sea otters in the 1970s and 1980s. There was no apparent change in eating patterns. Sea otters continue to rely heavily on clams and mussels as prey regardless of the oiling status. Therefore, Doroff concluded that continued exposure to hydrocarbons through the food chain was likely in oiled areas.

Long-Term Injury Assessment

Scientists remain concerned about the implications both from the initial exposure and continued exposure to oil via the food chain. Will these effects have implications to the overall health and survival of sea otters now and in the future? Unfortunately, several studies do indicate that portions of the Alaska sea otter population continue to be stressed and are experiencing decreased survival, although the ramifications of these effects on a population level are uncertain.

One study is considering the proportions of sea otters dying as juveniles, as adults, and as aged animals. Prior to the spill, between 1974 and 1986, USFWS researchers collected sea otter carcasses from beaches in the Sound to determine the age distributions of dying animals in a nonoil spill situation. As one would expect, the carcasses were mostly from very young and very old sea otters. Since the spill, mortality patterns have changed dramatically. Prime-age animals between 2 and 8 years of age, which were rarely found dead before the spill, have represented a much higher proportion of the carcasses in all three years since the spill.

Analysis of sea otter blood collected in 1990 and 1991 indicates slight but significant differences in several blood parameters between oil-exposed and non-exposed animals. Higher eosinophil counts, total hemocrits and hemoglobin concentrations occurred in male sea otters in the spill area. We are unsure what this means to the health of the sea otter. Some researchers believe the changes are insufficient to indicate health problems which are likely to result in death.

All these indications increase our concern that there continue to be prolonged, spill-related effects on sea otters in areas affected by the spill even three years after the spill.

So what's right with the sea otter? Prior to the oil spill, little was known about how sea otters might respond to a massive oil spill. We did look at many other factors of sea otter growth and survival, trying to pinpoint areas of concern. Not all the indications were negative. We learned, for example, that reproduction, as indicated by the proportion of pups and adult females in the population and survival of tagged adult females, is high throughout the Sound.

The Future of Sea Otters in the Spill Area

The extent to which the Prince William Sound sea otter population is recovering is unclear. Even less clear is the extent of injury and recovery within the spill area outside the Sound. Without pre-spill baseline data for comparison, we will probably never know exactly what happened to sea otters along the Kenai Peninsula, Kodiak Archipelago, and Alaska Peninsula.

Sea otters are important indicators of the health of the environment. Recovery of sea otter populations will signal that prey species upon which sea otters depend are also recovering. Conversely, continued spill effects will show up as physiological abnormalities, slower than expected population recovery, or continued population declines. Long term protection of habitat, reduction of various habitat perturbations which may hinder recovery, and monitoring sea otter populations and vulnerable life stages could all be important in assuring and documenting the recovery of the sea otter populations injured by the oil spill.

Carol Gorbics is the Exxon Valdez Oil Spill Coordinator, U.S. Fish and Wildlife Service, Anchorage.

Killer Whale Investigations

by Marilyn E. Dahlheim and Bruce A. Wright

Biologists photographing killer whales for identification.

© Mandy Merklein

Since the 1970s, more than 300 different killer whales have been documented entering the waters of Prince William Sound. However, the number of whales entering the Sound in any given year varies. Little is known about the movements of killer whales, but they are undoubtedly related to movements in prey. Although numerous cetacean species (whales, dolphins, and porpoises) are found in the Sound, few had been routinely studied prior to the oil spill.

The photo-identification research on killer whales prior to 1989 formed the basis for injury assessment studies after the spill. The National Oceanic and Atmospheric Administration (NOAA) contracted with North Gulf Oceanic Society to research Prince William Sound killer whales for the years 1989 through 1991. This represented the most intensive research effort to date on Alaska killer whales.

Two types of killer whale pods (groups) are known from the area: residents and transients. Resident whales are frequently observed in large pods, apparently have a smaller home range, consume mostly fish, are usually easier to approach than transient whales, and form more stable groups. Resident pods are so stable that if an individual is listed as missing for at least one year, the missing whale is presumed dead. Unfortunately, due to the highly variable nature of transient pods, pod structure and mortality rates are difficult to determine. Therefore, injury assessment studies were targeted on resident groups.

During the field seasons of 1989, 1990, and 1991, biologists conducted surveys of areas frequented by killer whales. When whales were located, they were approached by boat and photographed. The photographs were analyzed for individual whale identification. Photo-identification studies rely on the fact that individual killer whales can be recognized by distinguishable scars, dorsal fin shapes, and coloration patterns of saddle patches. Each identified whale was compared to the historical photographic database. Once all photographs had been evaluated, it was possible to determine if all members were present and if pod structure or integrity was similar to previous years.

Given the current age and sex structure of (one) pod and the rate of calf production, recovery (to pre-spill population levels) is expected to take at least 15 years.

Photographic analysis of killer whale pods indicated a large number of whales missing from one of the resident groups, named AB pod. In 1988, AB pod consisted of 36 members. Results from the 1989 investigation documented seven missing AB pod members. Six additional whales were missing from AB pod in 1990, and in 1991, one whale was missing. An average annual natural mortality rate of approximately 2% has been estimated for North Pacific killer whales. The 1988-1989 mortality rate for AB pod was 19.4%, ten times the expected rate for resident pods based on 24 years of research. The 1989-1990 mortality rate was 20.7%. The cause of these assumed mortality rates is unknown. The 1990-1991 mortality rate dropped to 4.3%.

The loss of 14 members from AB pod over a three-year period caused significant changes in the pod's social structure. As a consequence, mixing of maternal sub-groups was documented.

Physiological abnormalities have been observed in AB pod. The dorsal fins of two adult males have collapsed. The cause of fin collapse is not understood but may be related to nutrition or physical damage to the dorsal fin.

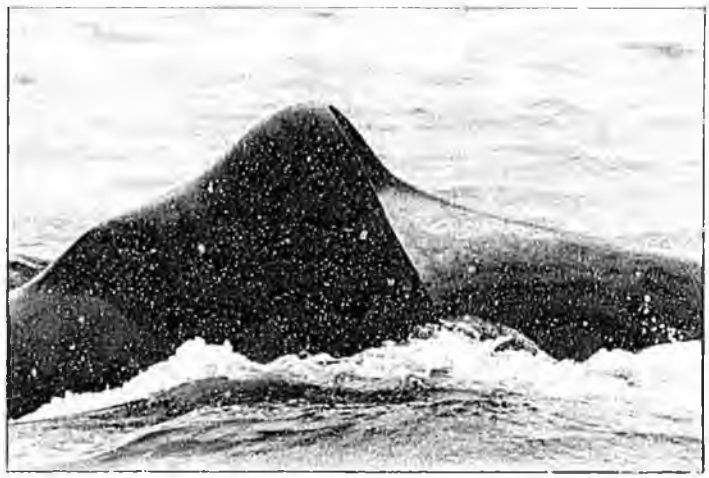
Dead killer whales usually sink, thus it is rare to find their carcasses washed ashore. For example, from 1975 to 1987 only six killer whales were reported stranded for the entire Gulf of Alaska, and none occurred in Prince William Sound. In 1990, three killer whales were found dead on the beaches of Prince William Sound. Another whale was found on Kayak Island in the spring of 1991. The four killer whales found stranded in 1990 and 1991 in Prince William Sound represent an unusually high stranding rate for the area. The cause of death of the four whales is unknown.

Restoration

If mortality rates remain at low levels, AB pod may recover to pre-1989 numbers. However, it is difficult to predict when, or if, AB pod will recover to the 36 members it contained in 1988. (We presume that 36 was the stable pod size). Recovery may be further delayed by the loss of reproductively-active members and changes observed in the pod's social structure. Since 1989, only one new calf has been born into AB pod, whereas five calves were born into AB pod during the 1987-1988 season. Given the current age and sex structure of AB pod and the rate of calf production, recovery to 36 whales is expected to take at least 15 years.

Restoration options which may help AB pod recover include protection of sensitive habitats, minimizing fishery interactions, reducing or redirecting other human-use impacts, and promoting public education. As the monitoring of AB pod continues, additional restoration measures may be instituted. We hope that killer whales will continue to inhabit the waters of Prince William Sound and contribute to the complex diversity of life in this area.

Marilyn E. Dahlheim is an Oceanographer with the National Marine Mammal Laboratory, NOAA, Seattle; Bruce A. Wright is Program Manager with the Office of Oil Spill Damage Assessment and Restoration, NOAA, Juneau.



© Kathy Heise

Collapsed dorsal fin believed to be due to physiological stress (AB pod).

Normal dorsal position of another male from the same pod.

© Lance Barrett-Lennard

Harbor Seals: Were They Injured and Wi

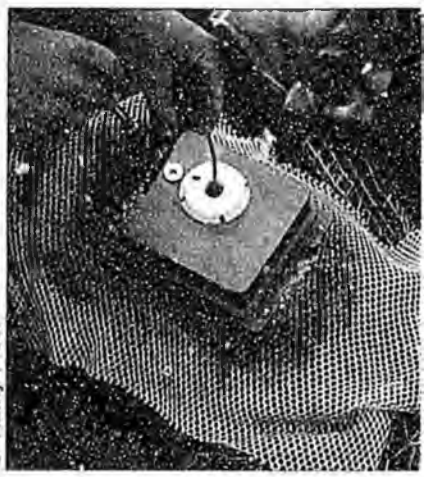
Some of the largest harbor seal haulouts in Prince William Sound and the waters adjacent to them were directly exposed to substantial amounts of oil when the *Exxon Valdez* ran aground. Oil affected seal habitat in the Gulf of Alaska at least as far as Tugidak Island. Some people had speculated that seals would avoid spilled oil and therefore would not be affected. However, in the early weeks of the spill, seals swam through oil and inhaled aromatic hydrocarbons as they breathed at the surface. On haulouts in oiled areas, seals crawled through and rested on oiled rocks and algae throughout the spring and summer. Pups were born in May and June, and in some cases both their haulouts and their mothers were covered with oil. Throughout the area, seals were exposed to greatly increased human activity as a result of cleanup projects.

An injury assessment study was initiated to investigate and quantify effects of the oil spill on the distribution, abundance, and health of harbor seals. Almost all of the work was done in Prince William Sound because seals and their habitats were heavily oiled there, and baseline information was available for comparison with data collected during and after the spill. The study included observations of seals in oiled and unoiled areas, examination and sampling of carcasses of seals found dead and collected, and aerial surveys of trend count sites during pupping and molting.

From April to July 1989, we saw no oiled seals in unoiled areas that were not close to oiled sites. However in oiled areas, 50 to 100% of the seals were oiled, most of them heavily. Many were coated over their entire bodies with thick, tarry oil to such a degree that people used to seeing clean harbor seals had difficulty recognizing them. Seal pups born in oiled areas became oiled shortly after birth. Most of the seals shed their oily coats during the August molt, and in 1990 there was no sign of external oiling observed on any seals.

About 20 seal carcasses were reported or turned in during the first few months after the oil spill. The number of dead animals found probably greatly underestimates the number that died because dead harbor seals do not float like sea otters and birds, but rather, sink to the bottom. As an example, two dead newborn pups we found in Herring Bay were underwater and could only be seen when the current moved the algae that was covering them. Most of the carcasses were too decomposed to examine and sample properly. Two seals had broken bones and other injuries that suggested they had been hit by boats. Some dead pups appeared to have suffered from malnutrition and stress.

Analysis of tissues from collected seals clearly showed that animals in oiled areas had been exposed to and assimilated hydrocarbons. Values for hydrocarbon metabolites in bile were 7 to 13 times higher in seals from oiled parts of Prince William Sound than in those from the unoiled areas of the Gulf of Alaska, and these high levels persisted at least through April 1990. This indicated that in spring 1990 seals were still encountering oil in the environment or that they were metabolizing stored fat reserves that had elevated levels of hydrocarbons. Because seals have enzyme systems that allow them to detoxify and excrete hydrocarbons, the levels found in most tissues were not very high. The levels in muscle, which is a staple in the diet of residents of Tatitlek, Chenega Bay, and some other villages, ranged from very low to undetectable. Highest levels of aromatic hydrocarbons occurred in the blubber of animals found dead and collected in Prince William Sound. Relatively high levels were also found in mammary tissue and milk.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Harbor seals are known for being wary and difficult to approach. However, in the weeks immediately following the spill, oiled seals behaved very oddly and were reported as being sick, lethargic, or unusually tame. Seals often stayed on haulouts when aircraft flew over at low altitudes, and people were sometimes able to approach them to within a few yards. Not until we microscopically examined brain tissue did we have an explanation for this behavior. We found debilitating lesions within the brain tissues of many of the oiled seals collected. Exposure to aromatic hydrocarbons caused swelling and degeneration of the nerve axons, which would have interfered with nerve transmissions. The lesions were mostly in the thalamus, a region of the brain that serves as a primary relay center for incoming and outgoing nerve impulses. This brain damage would have made it very difficult for seals to perform normal tasks such as swimming, diving, feeding, and escaping from predators. It explains the unusual behavior of seals immediately after the spill, and probably made them more susceptible to drowning, being hit by boats, or being caught by predators such as killer whales. Injury that could have resulted from oil was also found in the eyes, skin, and liver of oiled seals.

Aerial surveys showed that pup production was lower in oiled areas in 1989 than in 1990 or 1991, while in unoiled areas the ratio of pups to non-pups was the same in all three years. Together with the dead fetuses and pups found following the spill, this suggests that pup mortality was higher than normal in oiled areas in 1989.

Largely because of their wide distribution, the actual number

They Recover?

by Lloyd F. Lowry and Kathryn J. Frost

of harbor seals in Alaska has never been accurately estimated. As a means of keeping track of population trends, the Alaska Department of Fish and Game (ADF&G) has made repetitive counts of seals at locations such as Tugidak Island and Prince William Sound. By 1988 the trend counts were indicating a major decline in harbor seal numbers. Analysis of counts made in Prince William Sound from 1983 through 1992 show that the only year in which there was a statistical difference in trend between oiled and unoiled sites was 1989, immediately after the oil spill. Calculations indicate that there were about 345 fewer seals at the oiled sites we studied than would have been expected if the spill had not occurred. Our calculation of the number of missing seals provides some indication of the number that were killed, but it is very conservative because it includes only animals that disappeared from parts of Prince William Sound.

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Restoration

It is difficult to assess whether or when harbor seals will recover from the effects of the oil spill. We do not know why their numbers were dropping before the spill and therefore cannot predict how the additional mortality may affect the ongoing decline. The trend in Prince William Sound since 1989 is equivocal: pupping counts show continued declines, but molting counts appear to have stabilized. Seal numbers have increased somewhat in the oiled area and decreased in the unoiled area. However, molting counts in 1992 were still 34% lower at oiled sites than they were in 1988 before the spill, while counts at unoiled sites were only 18% lower. At Tugidak Island the count for 1992 was 44% lower than in 1988.

As part of monitoring natural recovery, we have suggested annual aerial surveys of harbor seals at trend count areas in Prince William Sound both during pupping and molting, at least through 1994. In addition, we have proposed continuation of a study using satellite-linked transmitters to investigate distribution, movements, habitat use, and behavior of harbor seals in Prince William Sound. Preliminary results from eight seals satellite-tagged in 1991 and 1992 showed that, at least during the summer and early autumn, some seals range much more widely than we had expected. One tagged seal swam from Herring Bay on Knight Island to the Yale Glacier in College Fiord, then back to Herring Bay, a minimum distance of 110 miles. Another moved from Applegate Rocks to the Copper River Delta and back, a minimum round trip of 225 miles. The tags also provided the first information on when, where, and how deep harbor seals dive to feed. This type of information can be used to interpret results from injury assessment and popula[illegible] monitoring, and to help design programs for the protectio[illegible] management of important habitats.

If marine ecosystems are healthy and being properly managed, it should be common for people to see harbor seals along Alaska's coast. However, many areas that appear to be good seal habitat are now very sparsely populated. Harbor seals, like other marine mammals, are covered by the federal Marine Mammal Protection Act. Reduced and declining populations are causing national as well as local concern and may result in restrictions on commercial fishing or other activities important to Alaskans. It is critical that we learn what factors have been and are now affecting seal numbers and do whatever is possible to restore the population.

Lloyd F. Lowry and Kathryn J. Frost are Wildlife Biologists with the Division of Wildlife Conservation, ADF&G, Fairbanks.

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Harbor seals occur throughout northern temperate waters, ranging in the North Pacific from southern California, through Alaska, to Japan. They feed mostly in coastal waters on fishes, octopus, and squid. They haul out to rest, to bear and care for their young, and to molt on intertidal reefs, rocky shores, mud bars, beaches, and floating glacial ice. Unlike fur seals and sea lions, harbor seals do not form rookeries during the pupping and breeding season, and pups are born at virtually all of the haulouts.

Far left: A satellite-linked transmitter is attached to a seal for better identification of the seal's range.

Left: A tagged harbor seal re-enters the water.

Coastal Habitat:

Shallow Subtidal Regions

Article and phot

The shallow subtidal habitats of Prince William Sound that were studied extend from the lower edge of the intertidal zone to depths of approximately 60 feet. This zone typically has dense macrophyte (algae) assemblages and is critical habitat for many commercially and ecologically important animals. The region is most noted as a nursery for salmon, king crab, Dungeness crab, and some shrimps; as a spawning ground for Pacific herring; and as feeding grounds for sea otters, river otters, and many marine birds. As a primary food source, the benthic (or bottom dwelling) marine macroscopic plant life is probably at least as important as the seasonal phytoplankton blooms. Seaweeds are used as a main source for several marine invertebrates, including commercially important sea urchins. Subtidal eelgrass beds, as well as intertidal beds, are extremely important feeding grounds for migratory waterfowl. Many of the algal aggregations contain large numbers of small mussels. These shallow subtidal regions typically contain numerous marine worms, small snails and clams, small crustaceans such as amphipods, sea urchins, and sea stars, many of which serve as food for coastal-feeding otters, birds, fishes, crabs, and shrimps.

It was expected that a certain proportion of oil from the *Exxon Valdez* spill would reach the bottom by physical and biological processes. Shallow subtidal data collected in oiled waters elsewhere indicate that changes in species number, abundance, and diversity occur if sizable quantities of oil flow to the bottom. Changes in composition of bottom-dwelling fauna and flora can have serious implications for the food chain. Further, larvae of most bottom-dwelling organisms in Prince William Sound move into the water column (March through June) and are used as food by large zooplankton and larval and juvenile stages of ocean fishes, salmon fry, and herring. Thus, injury to the benthic system by hydrocarbons could affect feeding interactions of important species on the bottom, as well as in the water column.

It was expected that a certain proportion of oil from the *Exxon Valdez* would reach the bottom by physical and biological processes.

As part of a larger Coastal Habitat Program, an initial shallow subtidal survey in western Prince William Sound was conducted in October 1989. Effects on fish, invertebrates, and plants were evaluated in five sheltered rocky habitat sites. In 1990 subtidal sampling was uncoupled from the two intertidal and supratidal components of the larger study. Sampling and experimental efforts for the subtidal study were concentrated on selected habitat types, chosen according to their ecological importance, their risk to injury from oil, and their proportion of total habitat in the oiled area. The habitats examined were silled fjords (where a shallow ridge divides deeper fjord and ocean waters) and four other habitats: kelp (*Nereocystis*), eelgrass (*Zostera*), kelp in bays (*Laminaria/Agarum*), and kelp on points (*Laminaria/Agarum*). Again, hydrocarbon effects on plants, invertebrates, and fishes were examined.

Shotgun kelp, *Agarum cribosum*, from an oiled region being examined by a U.A.F. scientific diver.

During the summers of 1990 and 1991, between May and August, divers made more than 1,500 dives in the shallow subtidal region of western Prince William Sound to assess the injury from the oil spill. Because of the large volume of benthic samples collected across all habitats, a management decision was made to process mainly the samples from those habitats where most injury was expected - in protected embayments that tend to have less wave action and fine soil particles, i.e., silled fjords, eelgrass, and *Laminaria/Agarum* bays.

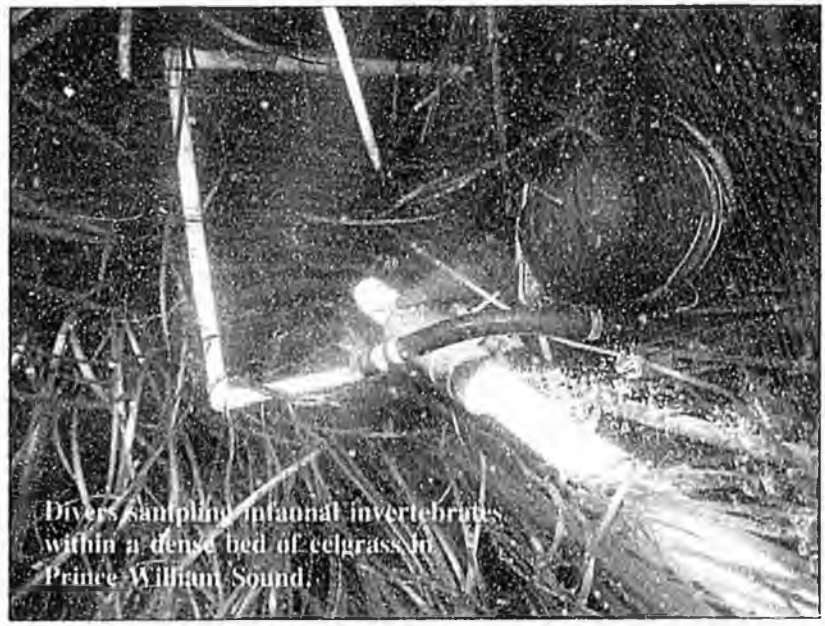
The effects of oil were most pronounced within the silled fjord habitat. In one closely monitored site in Herring Bay, an almost complete devastation of the benthic community was observed in 1990, but a tremendous repopulation was observed there in 1991. This habitat, however, represents a small proportion of the Sound's shallow-water habitat, and although dramatic, the results probably have limited significance when viewed on the larger scale of the Prince William Sound ecosystem.

Effects on subtidal communities were also observed within other habitats, including relatively protected rocky reefs dominated by the smaller kelps (*Laminaria sacharrina* and *Agarum cribosum*) and more exposed reefs dominated by the bull kelp, *Nereocystis*. The commercially important spot shrimp, *Pandalus platyceros*, presumably uses these shallow kelp regions of Prince William Sound as major nursery grounds, as has been documented in Southeast Alaska.

The dominant plant within the soft-bottom habitats is eelgrass, which generally occurs at a shallow depth of less than 9 feet. Attached to the eelgrass are a variety of small invertebrates

by Stephen C. Jewett

including the small mussel, *Musculus* spp. Fishes (mostly juvenile Pacific cod) and larger invertebrates (e.g., the leather star *Dermasterias imbricata* and sunflower sea star *Pycnopodia helianthoides*, and the helmet crab *Telmessus cheiragonus*) live in association with the eelgrass and feed on the infauna (invertebrates that live below the surface of the bottom) and epifauna (invertebrates that live on or above the bottom) within the eelgrass habitat. The sand or mud bottom extending beyond the eelgrass is also rich in infauna and epifauna that are food to a variety of fish species.



Divers sampling infaunal invertebrates within a dense bed of eelgrass in Prince William Sound.

Photos © Stephen C. Jewett

Almost all components of the eelgrass habitat sites were affected by the oil spill. Over one third of the dominant infaunal invertebrate families declined at the oiled sites relative to control sites. Many of the species affected were of special significance to species higher on the food chain. For example, there was significant decline in the quantity of one type of bivalve (Veneridae) at the oiled sites. The principal members of this family are clams (*Saxidomus* and *Protothaca*) that make up a portion of the diet of sea otters. Another important result within the eelgrass habitat was the decline in amphipod (a small crustacean) abundance at oiled sites. Bottom-dwelling amphipods are highly sensitive to petroleum hydrocarbons, and massive declines in one type of amphipod (ampeliscid) were observed following the *Amoco Cadiz* oil spill off the coast of France.

When the 1990-1991 data from the eelgrass beds were analyzed, it was determined that, in general, the health of this community was better in unoiled than oiled sites and better in 1991 than in 1990. At the deeper depths (10-60 feet) on mud/sand bottom adjacent to the eelgrass bed, the unoiled sites had significantly greater invertebrate diversity, total biomass, and abundances of two dominant polychaete families. Also, sampling from this depth revealed total invertebrate abundance, number of families, and the abundance of six dominant families (three polychaetes, two snails, and one brittle star) to be greater in 1991 than 1990.

Within the eelgrass bed, the analyses revealed invertebrate diversity, abundance, biomass, and abundance of four dominant families (a snail, a crab, an amphipod and a sea star) to be greater at unoiled sites. Furthermore, invertebrate abundance, number of families, and abundances of dominant families (three polychaetes, one snail, one mussel, and one sea star) were greater in 1991 than 1990 within the eelgrass bed. Some increases were apparent at oiled sites, for example, juvenile Pacific cod and one of the cod's primary food, *Musculus* mussels.

We know from prior studies and from this work that many of the affected species or families interact and are important links to higher food chain levels. For example, benthic amphipods are important prey to a variety of sea birds and fishes, including Pacific halibut *(Hippoglossus stenolepis)*. Helmet crabs feed on eelgrass, mussels, and other plants which grow on the eelgrass. In turn, helmet crabs serve as prey for a variety of vertebrates, including sea otters, river otters, and birds.

Since no baseline information was available for this region prior to the spill, it would be necessary to obtain long-term data in order to determine the rate and extent of natural recovery to pre-spill conditions or to a stable community. Because conditions vary over individual years, most subtidal environmental studies done elsewhere after oil spills have been at least three to five years in duration. To date, we have only two years of data (1990 and 1991) for the eelgrass, *Laminaria/Agarum* bays, and silled fjord habitats. No surveys were conducted during 1992. By the summer of 1993, when resampling is anticipated, most components of the benthic environment should have passed through the toxic phase of the *Exxon Valdez* oil spill, and it is reasonable to assume that recovery will be well along. It may be useful to continue to monitor the natural recovery process for an additional two or three years.

Stephen C. Jewett is the Shallow Subtidal Project Coordinator, School of Fisheries and Ocean Sciences, University of Alaska, Fairbanks.

In Brief...Major Impacts

Archaeological Resources
Injuries to 19 known sites. Increased knowledge of many sites puts them at greater risk of damage.

SUBSISTENCE HARVESTS In year after spill, harvests declined up to 77% in villages in oiled areas. Types of foods harvested in Tatitlek dropped by half. By 1991 some recovery in Kodiak and Lower Cook Inlet, but little in Tatitlek or Chenega Bay.

TERRESTRIAL MAMMALS Evidence of exposure to oil, but no conclusive injury for brown and black bear or Sitka black-tailed deer.

River Otter 12 dead recovered, estimated mortality much higher; hydrocarbon evidence in blood and bile; otters in oiled areas show reduced diversity in diet, a need to forage over much larger areas, and (as late as 1991) decreased body lengths and weights.

BIRDS 36,000 dead recovered - between 300,000 and 645,000 killed in first months - more losses in later years from chronic effects and decreased reproduction

Common Murres 175,000 to 300,000 estimated killed. Oiled colonies show disruption of the normal synchronized breeding pattern. Complete failure to reproduce at several large colonies in 1989, 1990, 1991. Minimum of 300,000 chicks lost.

Bald Eagles 151 found dead, with estimates of total mortalities as high as 900. 1989 egg failure rate of 85% in Prince William Sound; return to normal reproduction in 1990. Few long-term effects expected.

Harlequin Ducks
Approximately 1,000 mortalities, 200 found dead. In 1989-1990, 33% of harlequins had poor body condition, with near total reproductive failure in 1990, 1991, 1992.

Other Sea Birds Between 375,000 and 435,000 estimated dead. Declines in 16 of 39 species when compared with 1972-1973 data. Black oystercatchers, murres, pigeon guillemots, Arctic terns, and tufted puffins also show clear declines when compared with pre-spill 1984 data. Total seabird recovery has not been measured.

MARINE MAMMALS

Sea Otters 1,013 found dead. Estimated 3,500 to 5,500 killed. Numbers in oiled areas in Prince William Sound declined 34.6%, compared to a 13.5% increase in unoiled areas. Of 45 tagged and released "rehabilitated" otters, 30 are dead or missing. Higher prime age and weanling mortality means a significant change in age distribution of dying otters. 1990 and 1991 boat surveys showed no significant recovery.

Killer Whales Prince William Sound's "AB pod" numbers down from 36 (1988) to 29 (post-spill) to 23 (1990). The pod's average mortality before the spill was 6%. Unusual loss of females with calves means a significantly changed social structure; collapsed male dorsal fins. Recovery to pod size of 36 may take 15 years, despite 2 births since 1990. Linkage of injury to oil spill is unclear.

Harbor Seals Estimated 200 killed. High values for hydrocarbons in bile persisted through spring 1991, showing continued oiling. Brain lesions in many seals collected possibly relate to abnormal post-spill behavior. Numbers remain lower in 1991, with some recovery.

Other Marine Life In 1989 disruption of humpback whales from preferred habitat and injuries to sea lions were not conclusively documented.

HABITAT

Intertidal Habitat Portions of 1,565 miles of coastline were oiled. Decreased numbers and densities of intertidal organisms of all types except mussels, which increased but were smaller. Oil continues to be removed from beaches naturally, but is being transported subtidally - thus continuing exposure. The high concentrations of oil found in mussels and their underlying mats in 1991 make mussels the prime suspect in spread of oil to other animals. Percentage of area covered by fucus decreased, while opportunistic plant species increased.

Subtidal Habitat From 1989 to 1991 oil concentrations in intertidal sediments decreased, but in shallow subtidal sediments remained the same or rose slightly. Oiled sediments found down to 330 feet in 1990. Injury to eelgrass beds reflected in reduction in shallow bottom invertebrates such as crabs and amphipods and by an increase in scavenger species. Some population recovery by 1991. Animals on or near the sea floor continue to be exposed to hydrocarbons at unnatural levels. Clams show reduced growth. Large numbers of clams were destroyed in cleaning of beaches.

FISH Some direct adult mortality, but more significant injury was to eggs and larvae, especially of species that inhabit and spawn in intertidal zone (salmon) and subtidal zone (herring) or forage in shallow water (Dolly varden and cutthroat trout).

Pink and Chum Salmon

Mortality of eggs from oiled streams ranged from 67% greater than in unoiled (1989) to 51% (1990) to 96% (1991). In 1991 increased mortality was found in upstream spawning areas untouched by oil - possibly the result of genetic damage. Slower juvenile growth rate (up to 25% less) and survival to adults (43% less). Gross abnormalities in alevins and fry in some oiled streams in 1989. Some analysis shows 1990 record harvest was 20-25% lower than the expected harvest. 1992 harvest fell to about 25% of previous year.

Pacific Herring

In 1989 and 1990, egg and larval mortality, incidence of lesions and parasites in adults, and physical deformities were much greater in oiled areas. In 1991, no significant differences in these indicators between oiled and unoiled areas, but 3-year-old herring were noticeably lacking in 1992 spawn migration.

Dolly Varden/Cutthroat Trout

Dolly Varden adult survival 38% lower in oiled areas 1989 to 1990. Cutthroat survival 29% lower. For both species, growth approximately 43% less than normal in 1989-1990, with lower but improved growth in 1991. 1991 survival still decreased in oiled areas despite decrease in exposure to oil.

Sockeye Salmon

Overescapement in Kenai and Kodiak areas resulted in too little food and, therefore, poor juvenile survival. Predicted to cause 20 to 50% decline in Kodiak and 90% decline in Kenai adult returns in 1994, 1995, and perhaps beyond.

Rockfish and Other Marine Fish

Rockfish showed some mortality in 1989 (200 observed dead) and sublethal injuries, such as lesions. Hydrocarbons in bile of halibut; pollack; rock, yellowfin, and flathead sole; herring; pacific cod; and, in 1990, sablefish, and Dover sole.

The Spill's Effect on People

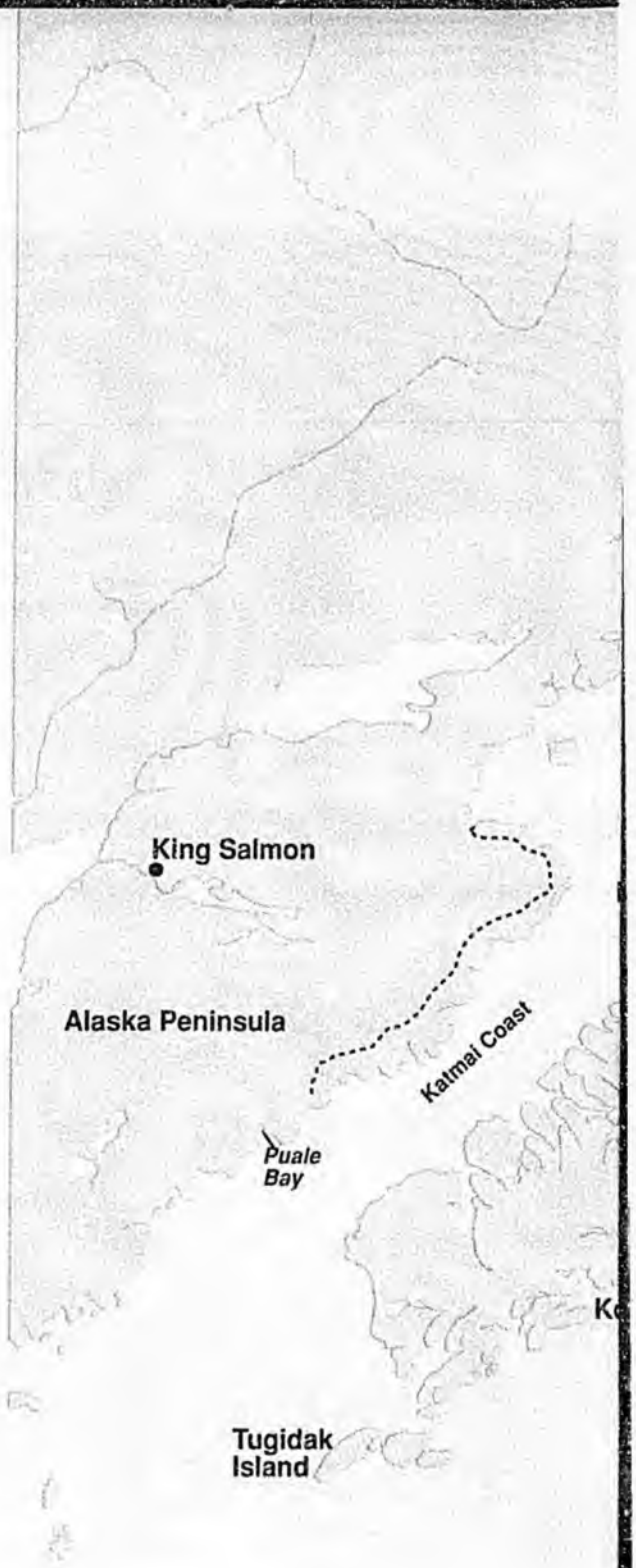
The *Exxon Valdez* oil spill injured not only fish and wildlife populations and their habitats, but also human use of the affected areas. Some people, such as fishers and recreation guides, could no longer work at their regular occupations. Others no longer took vacations in the spill area, or went, but failed to see as much wildlife. Some people's whole lifestyle changed, especially those who relied on subsistence in the spill area. Finally, many people who have never been to the spill area, even people who have never been to Alaska, felt a loss because a pristine area was degraded. In the language of the oil spill settlement, these are damaged services.

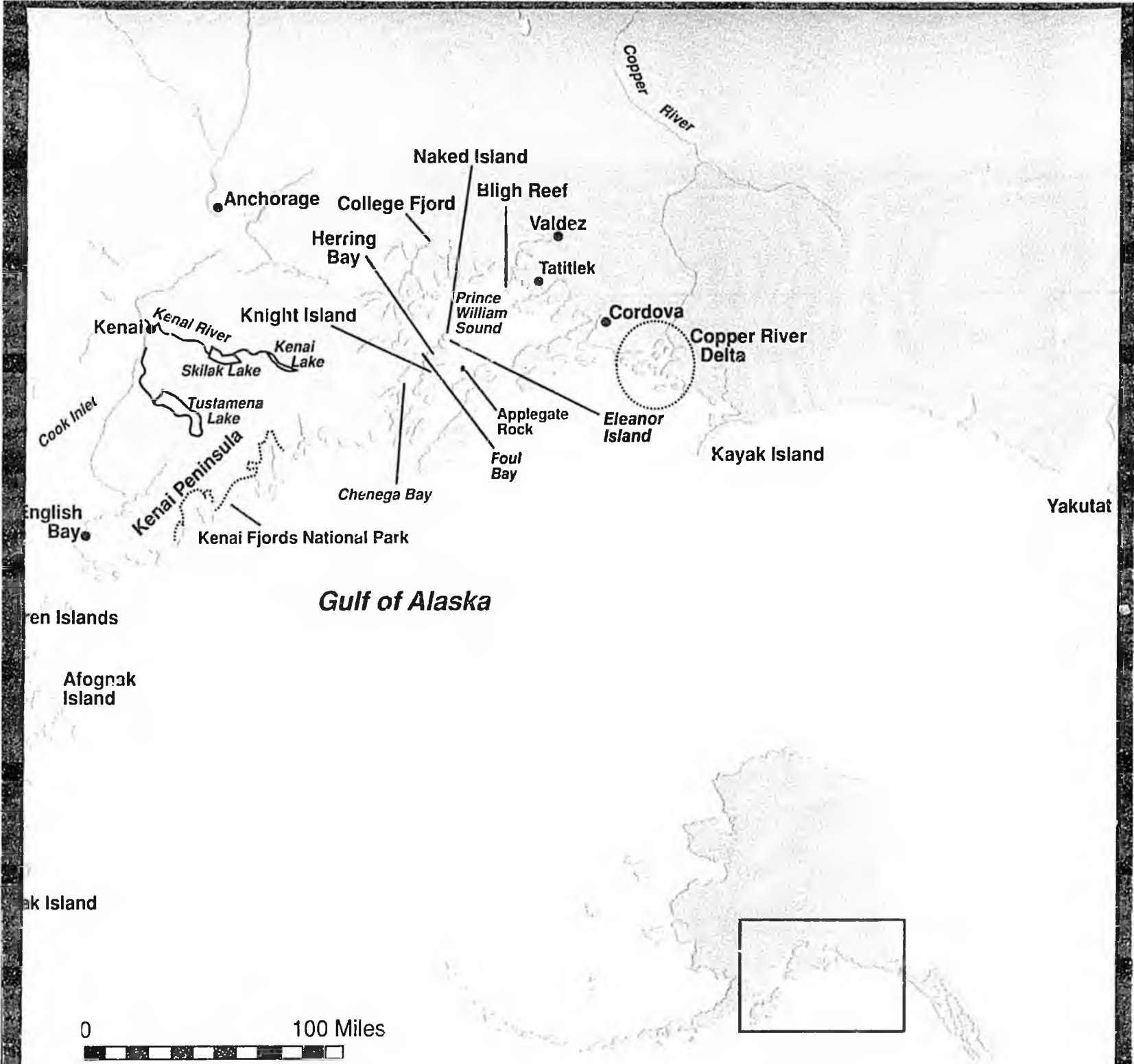
Damaged services include subsistence harvesting, sport and commercial fishing, hunting, trapping, wildlife viewing, and recreation. Services also include the passive use of natural resources. An example of passive use is enjoyment of the aesthetic value of wilderness, the satisfaction people find in the mere existence of a pristine environment. People may value such an environment even though they do not expect to see it or use it.

The most direct way to restore damaged services is by restoring the natural resources on which they depend. This restoration will be accomplished when fishers can return to their pre-spill catch, subsistence hunters can as easily feed their families, and people in the area can see the rich bird and sea life that existed before the spill.

While restoring the natural resources is one way to restore damaged services, it is not the only way. Restoration funds from the oil spill settlement can be used to create alternative services or opportunities or to enhance existing ones. New recreation opportunities can be created on what is now private land, and new fish runs can be established where none exist now. Settlement funds can be used to educate Alaskans and tourists about what was not damaged and what is recovering. Also, state and federal land management agencies may change the way they manage the land. Perhaps in some areas they may maintain more wilderness, and in others they may allow more facilities like public-use cabins or lodges.

The most difficult thing to restore, however, is the feeling that a special place was damaged. It may help to publish the successes, what is recovering and how the areas remain special and worth visiting. But only time will tell whether the feeling of loss will ever completely go away.

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Bligh Reef
Anchorage
College Fjord
Valdez
Herring Bay
Tatitlek
Prince William Sound
Cordova
Knight Island
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Kenai Lake
Skilak Lake
Copper River Delta
Tustamena Lake
Cook Inlet
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Oiled Mussel Beds: A Lasting Effect

by Stanley D. Rice, Christine C. Brodersen,
Patricia A. Rounds, and Malin M. Babcock

Mussels are very common in coastal Alaska, and Prince William Sound is no exception. Most of us take mussels for granted. We see them extensively throughout Alaska, yet very few people harvest them. Nobody ever brags about the huge blue mussel caught over the weekend! Even avid environmentalists were more concerned about otters and birds when the 1989 oil spill occurred. In 1991 and 1992, biologists became more concerned about oiled mussels, not for the mussels themselves but because they were suspected to be the primary vehicle for transporting oil to other animals such as harlequin ducks, black oystercatchers, and juvenile otters, all of which feed on mussels.

Concern in 1989 for Oiled Mussels

In 1989 cleaning up and removing *Exxon Valdez* oil was a high priority. Mussels were in the mid-intertidal zone, where large amounts of oil washed ashore; but mussels are very tolerant organisms, and if the bulk of the oil floated off, many of the oiled mussels survived. Most mussel beds were spared the high-pressure, high-temperature treatments for cleaning (which would have destroyed them) because they inhabit high energy zones that were expected to cleanse themselves in time. It was recognized that if very many mussel beds were destroyed, it would be a long time before they were recolonized by new mussels and longer still before the re-created mussel bed habitat could be recolonized by the other small inhabitants that find refuge there.

© Pat Rounds

Contamination Continues Through 1992

In 1991 oil contamination in a few mussel beds was examined to determine if there was a lingering problem. Were the mussel beds being cleaned of oil by natural processes? Scientists found that the contrary was true: the highest levels of oil in sediments and tissues (mussels) found since 1989 were at the few sites examined. Some mussels contained as much as 5 parts per million of total aromatic hydrocarbons (the most toxic fraction of oil), and some of the underlying sediments held up to 50 parts per million. The underlying sediments were probably the source for continuing contamination in the mussels. The fine sand grains hold oil, and the overlying mussels protect the sediments from tidal flushing. The sediments underlying mussel beds are often anaerobic, that is, they have little exposure to oxygen from air or water. Unfortunately, anaerobic sediments have low levels of biodegradation of oil by bacteria.

In 1992 more mussel beds were examined, and more oil contamination was found. Furthermore, the relatively high levels of oil found in 1991 were still present at the same sites, indicating that another winter of storms and tides had not flushed the oil from the mussel beds. Natural processes do not appear to be cleaning the mussel beds very fast.

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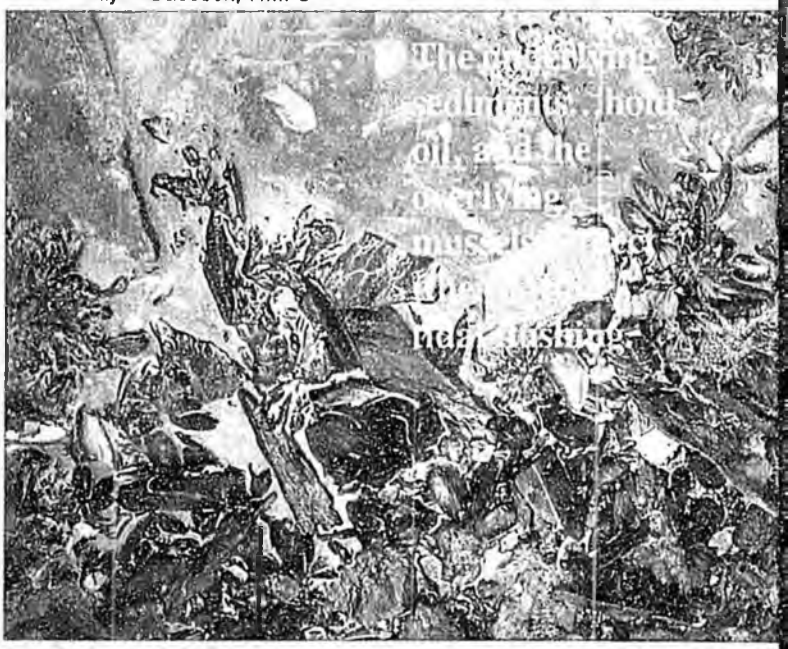


Species Linked to Mussel Beds Recover Slowly

Although we see little direct effect of the oil on mussels themselves, other species that feed on mussels still show signs of poor recovery. Harlequin ducks are not breeding in the western part of Prince William Sound (see Patten's article on harlequin ducks in this issue). Juvenile otters have a poor survival rate in western Prince William Sound, possibly because juveniles are not yet the capable predators that adults are and consequently feed more on mussels. Recovery of most habitats and most species is progressing in the Sound, but those species linked to mussel beds appear to have the slowest recovery rates.

Left and below: Foul Bay August 1992

How Can Oiled Mussel Beds Be Cleaned?

Destroying the mussel beds through clean up is a controversial option. Some would argue that the species continuing to show injury would recover at faster rates if contaminated beds were removed. Conversely, contaminated mussels may be better than not enough mussels. Frankly, we do not know if we would do more harm than good. This problem was not perceived in 1989, and studies to determine the severity of the oil contamination and the geographic spread of the problem were not initiated until 1992. It is too early to justify large scale treatment.

Some small scale experimental mitigation is underway. Scientists from the National Marine Fisheries Services Laboratory at Auke Bay and from the Alaska Department of Environmental Conservation are testing physical trenching treatments to open the mussel beds, which may help nature clean the beds through flushing without destroying the beds. Follow-up studies in 1993 would help determine if natural cleaning rates were enhanced by this method.

Stanley D. Rice, Christine C. Brodersen, Patricia A. Rounds, and Malin M. Babcock are Fisheries Biologists with the National Marine Fisheries Service, Auke Bay Laboratory in Juneau.

Far left: An experiment to test "trenching" as a technique to speed mussel bed recovery.

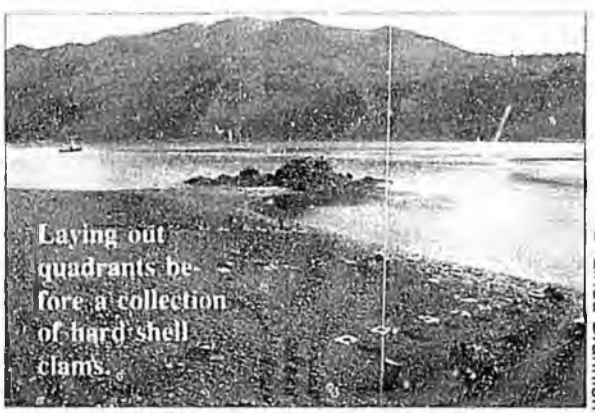
Prince William Sound Shellfish

by Linda Brannian and Stephen Fried

Commercially important shellfish stocks in Prince William Sound were already at low levels of abundance when the grounding of the *Exxon Valdez* resulted in a massive oil spill in 1989. Fishermen had not been allowed to fish for red king crab since 1985, blue king crab since 1986, or Tanner crab since 1988. Dungeness crab were last harvested in eastern Prince William Sound in 1979, and few Dungeness and brown king crab live in the western portion. Pink and spot shrimp numbers were depressed in southwestern Prince William Sound, and the 1964 earthquake destroyed most prime razor clam habitat in eastern Prince William Sound. Only spot shrimp in northern Prince William Sound and sidestripe shrimp in the northwest were at high population levels prior to the oil spill.

Many Are Called, Few Are Chosen

Following the oil spill, fisheries researchers rushed to Cordova to help local biologists assess the injury to Prince William Sound's shellfish resources. To serve as good subjects to study, shellfish species had to meet four



Laying out quadrants before a collection of hard shell clams.

© Linda Brannion

criteria. First, the subject populations must have been studied prior to the oil spill to allow comparisons with post-spill abundance, distribution, growth, or reproduction. Second, organisms chosen must have occurred in

Left and below: Foul Bay August 1992

How Can Oiled Mussel Beds Be Cleaned?

Destroying the mussel beds through clean up is a controversial option. Some would argue that the species continuing to show injury would recover at faster rates if contaminated beds were removed. Conversely, contaminated mussels may be better than not enough mussels. Frankly, we do not know if we would do more harm than good. This problem was not perceived in 1989, and studies to determine the severity of the oil contamination and the geographic spread of the problem were not initiated until 1992. It is too early to justify large scale treatment.

Some small scale experimental mitigation is underway. Scientists from the National Marine Fisheries Services Laboratory at Auke Bay and from the Alaska Department of Environmental Conservation are testing physical trenching treatments to open the mussel beds, which may help nature clean the beds through flushing without destroying the beds. Follow-up studies in 1993 would help determine if natural cleaning rates were enhanced by this method.

Stanley D. Rice, Christine C. Brodersen, Patricia A. Rounds, and Malin M. Babcock are Fisheries Biologists with the National Marine Fisheries Service, Auke Bay Laboratory in Juneau.

Far left: An experiment to test "trenching" as a technique to speed mussel bed recovery.

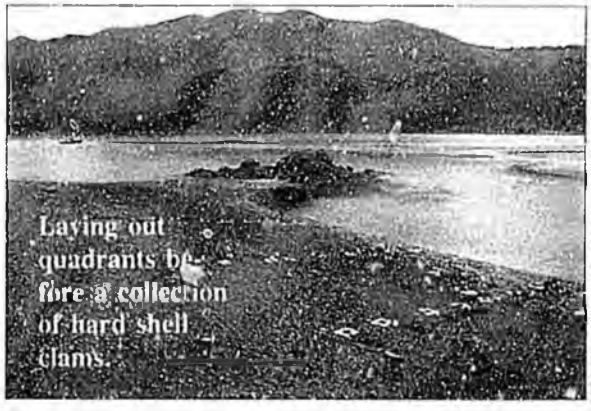
Prince William Sound Shellfish

by Linda Brannian and Stephen Fried

Commercially important shellfish stocks in Prince William Sound were already at low levels of abundance when the grounding of the *Exxon Valdez* resulted in a massive oil spill in 1989. Fishermen had not been allowed to fish for red king crab since 1985, blue king crab since 1986, or Tanner crab since 1988. Dungeness crab were last harvested in eastern Prince William Sound in 1979, and few Dungeness and brown king crab live in the western portion. Pink and spot shrimp numbers were depressed in southwestern Prince William Sound, and the 1964 earthquake destroyed most prime razor clam habitat in eastern Prince William Sound. Only spot shrimp in northern Prince William Sound and sidestripe shrimp in the northwest were at high population levels prior to the oil spill.

Many Are Called, Few Are Chosen

Following the oil spill, fisheries researchers rushed to Cordova to help local biologists assess the injury to Prince William Sound's shellfish resources. To serve as good subjects to study, shellfish species had to meet four



Laying out quadrants before a collection of hard shell clams.

© Linda Brannion

criteria. First, the subject populations must have been studied prior to the oil spill to allow comparisons with post-spill abundance, distribution, growth, or reproduction. Second, organisms chosen must have occurred in

comparable areas affected and unaffected by oil. Third, scientists needed to understand the species' life history and sensitivity to oil. Lastly, cost-benefit considerations dictated that species be important to the ecosystem and humans.

For Commercial Fisheries division staff, the natural choice of study subjects were shellfish species important to commercial, recreational, or subsistence fishermen. These species were abundant, at least in the past, and therefore probably played an important role in the ecosystem of Prince William Sound. We directed our studies toward Dungeness, Tanner, and king crab; spot, sidestripe, and pink shrimp; and hardshell clams. Because few of us had experience with oil spills, we were particularly interested in the future of these resources and how their management would be affected. Should, for example, shellfish in oiled areas be managed differently from those in unoiled areas?

Photos © Patrick Enders

Clams face smothering and decreased feeding opportunities on beaches such as this one on Eleanor Island (August 1991) which still contain oil.

Oil and Shellfish Don't Mix

The oil spill occurred just prior to a critical time of the year for shellfish in Prince William Sound. Eggs that female shrimp and crabs had been carrying all winter were hatching and releasing young shellfish into the plankton community, which ranges widely through the water column. Clams would be releasing eggs into the water column through July. By the end of summer, larval shrimp and crabs would settle into shallow areas that were possibly more contaminated with oil. Older crabs replacing their shells (molting) in order to grow, mate, and produce eggs could possibly be exposed to oil during this sensitive period. By fall, shrimp would also molt, mate, and extrude eggs to carry over the winter.

The scientific literature contains many studies which show how crude oil can harm shellfish. Shellfish larvae are extremely sensitive to water soluble parts of crude oil and can suffer death or genetic damage. Adults exposed to crude oil have reduced fecundity, slower growth, limb loss, and molting difficulties. Oil can also irritate their outer surfaces or cause internal injuries to tissues and organs.

Delving Deep for Damages

Bottom trawling was used to measure density and collect samples of shellfish species that live on the floor of Prince William Sound: Tanner crab, red king crab, sidestripe shrimp, and pink shrimp. In areas too rocky, uneven, or deep to drag a trawl, traps were used to capture spot shrimp, Dungeness crab, and brown king crab. Beach surveys were conducted at low tide to collect clams and assess mortality and growth. Researchers noted shell and limb injury, size of egg clutches, number of eggs, and size and sex of the animals captured. Samples of tissues, eggs, or complete animals were sent to laboratories to be analyzed for oil contamination or oil injury to tissues and organs. Sediment samples and physical oceanography data were also collected.

Ideally, in hindsight, other investigators would have been sampling the plankton to determine the abundance and health of shellfish hatched right after the oil spill. Others would have been studying nearshore areas to provide information on the survival

of juvenile shellfish born in 1988. Unfortunately, this did not occur; trawl and pot surveys would be the only available measures of health for these stocks. This meant that survival of shellfish hatched after 1988 could not be determined until they began joining adult populations in 1991.

Oil spill experts were surprised when evidence began to accumulate on the depth that the oil had reached. Oil-contaminated sediment samples and oil-degrading bacteria were found down to 330 feet in 1989 and 1990. Over time, the oil seemed to move deeper. So, while all investigators agreed that intertidal clams and shallow, nearshore Dungeness crabs lived in areas vulnerable to oil injury, few initially thought that oil would reach the depths at which other shellfish species live. However, adult spot shrimp, which occur at 60 to 700 feet, and Tanner, red king, and blue king crabs, which generally live at depths greater that 60 feet, could all have been exposed to oil. Only brown king crab, which generally live below 900 feet, may have escaped exposure.

The Dungeness crab study had to be discontinued after one survey in 1989 because too few crabs could be found in oiled areas of western Prince William Sound. Historically, this area has not contained many Dungeness crabs, and recent low population numbers were attributed to sea otter predation. The brown king crab study was also discontinued, in part because too few crab were caught and also because it was considered unlikely that oil would affect such a deep dwelling species. Tanner crab surveys were more successful. Information on distribution and density of this species in oiled and unoiled areas was collected in May and August 1989. Although additional sampling for oil contamination continued in 1990, the trawl survey was discontinued because of its high cost and concern for the reliability of the data collected. Reviewers felt that, due to the nature of trawl sampling, population estimates have so much year-to-year variability that researchers would not detect anything less than catastrophic declines in abundance.

The spot shrimp survey, continued through 1991, showed that numbers of this species in unoiled areas declined steadily from 1989 through 1991. Also, spot shrimp were less abundant in oiled than in unoiled areas in 1989, and even more so in 1990. In 1991 they showed a slight recovery. However, fewer females have been found in oiled areas, where they compose less than 3% of the population; by comparison, in unoiled areas they compose about 16% of the population. Unfortunately, we are not able to determine whether the decline in spot shrimp abundance is due to the oil spill or other factors. Yet the survey provided valuable information needed to restrict fishing throughout the Sound to protect this resource.

On beaches chosen for clam studies, no massive mortality of clams was observed. This is not surprising because the initial reaction of these animals to oil would be to "clam-up." However, keeping its shell closed means the clam can't feed on suspended material in the water column or take in oxygen through its gills. Eventually clams have to open up, becoming more vulnerable to oil exposure. Clams living in oiled beaches had a slower growth rate than those living in unoiled beaches. We don't know whether this will affect either long-term survival or reproductive success. Finally, fewer parasites were found in clams from oiled sites than in those from unoiled sites. All animals, healthy or not, have some parasites. Lack of parasites has commonly been noted for host organisms exposed to oil. Parasites may migrate into host body areas in which they are not normally found, leave the contaminated host in search of another host, or be killed directly by the oil.

Although no sign of oil contamination was found in 10 samples of crab and shrimp muscle and eggs, experts noted that

this result was not unexpected. Enzyme systems in crab and shrimp muscle break down oil very quickly, so it is difficult to detect oil contamination in this way. In contrast, oil contamination was documented in clam samples, although injury to tissues and organs was not found to be greater in oiled areas.

Too Little, Too Late?

Though little injury to shellfish stocks was measured, we may not have put our yardsticks in the right places. We do know that areas inhabited by juvenile and adult shellfish were affected by oil. Deep benthic studies have shown a loss of favored food for Tanner crabs. Gill lesions similar to those observed on shrimp from other polluted areas were detected on spot and pink shrimp in Prince William Sound. Whereas these lesions were found on shrimp from oiled and unoiled areas in 1989, samples from 1990, when oil may have had a greater effect in these deep waters, have not been analyzed.

Restoration?

Fishery managers will have to take a cautious approach in managing Prince William Sound shellfish stocks. However, without a better understanding of major factors influencing future survival, human intervention to either speed recovery, or at least to protect injured stocks, may not be effective. After four years of protection from commercial harvest, the Tanner crab population is still too small to support a commercial fishery. A trial commercial fishery for king crab in western Prince William Sound in 1991 was unsuccessful. The spot shrimp fishery has been greatly restricted since the oil spill. We are still uncertain if young shellfish hatched after the spill have fared any better than their parents. Since these shellfish are relatively long-lived, the identification of oil effects would be a long-term endeavor. It is mostly just a waiting game because our understanding of these depressed resources is so limited.

Linda Brannian is the Regional Biometrician and Stephen Fried is the Regional Research Biologist with the Division of Commercial Fisheries, ADF&G, Anchorage. *Contribution PP-062 of the Alaska Department of Fish and Game, Division of Commercial Fisheries.*

Alaska's Wildlife 1993 Magazine Photo Contest

Submissions will be accepted during the month of February. All entries must be postmarked by February 28, 1993. Entries must be 35 mm color slides and must have been taken in Alaska. Up to 8 slides will be accepted from each entrant. Winning entries will be kept on file for use by the Alaska Department of Fish and Game until December 1993.

Send entries to:
Alaska Department of Fish and Game
Alaska's Wildlife Photo Contest
Box 25526
Juneau, Alaska 99802-5526

Or bring to:
Public Communications Section
Alaska Department of Fish and Game
1255 West 8th Street
Juneau, Alaska 99801

Please be certain to include your name and address on each entry and include a self-addressed envelope. The Alaska Department of Fish and Game will make a reasonable effort to protect entries but cannot be responsible for loss or damage. Photographs taken by department employees or their immediate families are not eligible.

The grand prize is $250.00 with a first prize of $150.00, a second prize of $100.00, and a third prize of $50.00. Ten honorable mentions will also be awarded. All winning photos will be reproduced in a following issue of *Alaska's Wildlife* and will be eligible for the annual Alaska Fish and Wildlife Safeguard poster contest, which includes a first place prize of $500.00.

Reflections on an Oil Spill

C. Meacham

My flight into Cordova from Anchorage was calm and uneventful—in stark contrast to events that would soon follow. A multi-agency team, of which I was a part, had been mobilized to develop injury assessment projects for an oil spill in Prince William Sound, one of the nations' most pristine and biologically active marine environments.

The Commissioner of the Alaska Department of Fish and Game was one of the first on the scene. The bureaucracy caught up with him sometime thereafter and he was named lead state trustee for injury assessment. Organizational tasks were assigned to biologist Dr. John Clark, who traveled down from Fairbanks. The next 10 days and nights were largely sleepless as the spill continued and the crisis assumed gargantuan proportions. This unprecedented event extracted the best each person had to offer, and, under guidance from Dr. Clark, individual and state/federal agency efforts were meshed into a very credible injury assessment program.

The spill further enveloped me shortly thereafter when I left the Division of Commercial Fisheries and accepted a position as Fisheries Program Manager with the new Oil Spill Impact Assessment and Restoration Division. This is the perspective from which I offer my reflections on the largest oil spill in this nation's history.

In this editorial I want to move beyond injuries and into restoration. First, however, credit must be given Alaska's Governor Hickel, the U.S. Department of Justice, and Exxon Corporation for pursuing an early settlement which provided over one BILLION dollars, largely for restoration and enhancement activities, rather than legal fees.

Restoration and enhancement can be accomplished in many ways. I want to address restoration through resource management—in my view one of the most rapid, most cost effective, but least appreciated approaches. One of the most important natural resources injured was pink salmon (be sure to read "Pinks in Peril," in this issue). Pink salmon leave fresh water streams as minnows, and sixteen months later return from ocean feeding areas as full size adult salmon. Pink salmon are one of the primary drivers of the ecosystem, providing food for a variety of other fish species, marine and terrestrial mammals, and numerous bird species. Those fish that escape predators and fisheries spawn and die—adding great quantities of nutrients to the freshwater and nearshore marine environment.

There are approximately one thousand pink salmon streams and four major hatcheries in Prince William Sound, each of which experience different levels of annual production. In years of low abundance, fisheries are managed almost to the total exclusion of commercial fisheries. In years of high abundance, harvests can reach forty million fish. Just as pink salmon are drivers of the ecosystem, so are commercial fisheries the economic drivers of most Prince William Sound communities.

How can salmon production from those of the one thousand salmon streams that suffered reduced production due to the oil spill most effectively be restored or enhanced? Two general approaches exist. One approach, particularly useful in heavily injured streams, is through such methods as artificial spawning of salmon and placement of eggs into streamside incubators. Another approach is through refinement of fisheries management practices. The former should be done on a stream-by-stream basis and would be somewhat environmentally intrusive, labor intensive, and relatively expensive. The latter approach, in my view, can be accomplished in a more environmentally benign manner, and is more economical. Additionally, refinements to management practices should create a more biologically healthy and economically stronger fishery in the long term.

Prior to the time of the oil spill, pink salmon fisheries were generally managed by large aggregations of wild stocks. Increasing hatchery production complicated wild stock management. Management was further complicated by the oil spill which appears to have reduced production from a number of wild stock streams. Ideally, management could be refined to allow a higher exploitation rate for the more productive hatchery stocks, an intermediate exploitation rate for healthy wild stocks, and a reduced (at times to zero) exploitation of those wild stocks whose productivity was reduced due to oiling. This could be accomplished through (1) continuation of injury assessment activities to identify oiled stream locations and levels of production, (2) conducting a stock identification project to distinguish between stocks of salmon, (3) identifying salmon migratory time/area corridors, and (4) directing fishing effort as appropriate through an inseason monitoring program. Much of the framework for such an approach already exists.

Pink salmon are but one of the injured natural resources managed by state or federal agencies that are so important to the people and economy of the spill-affected area. Refinements to all extractive use management programs deserve consideration along with other options in any restoration or enhancement program. Such an approach would also provide significant long term spin-off benefits to the resource, the user, and the nation.

Chuck Meacham is Deputy Commissioner of ADF&G.

Pinks In Peril: Declining Wild Stocks in Prince Willi

Prince William Sound is Pink Salmon!

Prince William Sound without wild pink salmon would be a very different place indeed. While both wild and hatchery pink salmon provide the basis for large fisheries which are vital to the local and statewide economy, wild pink salmon also play a crucial role in the ecosystem. A host of birds, including gulls, kittiwakes, cormorants, loons, mergansers, murres, auklets, puffins, kingfishers, and dippers, and small terrestrial mammals, such as mink, renew their energy stores as they feed upon migrating juvenile salmon in the spring. Numerous predatory fishes such as cod, pollack, rockfish, and sculpins also feed on juvenile salmon in marine waters.

Adult salmon returning to spawn fall prey to killer whales, porpoises, sea lions, harbor seals, and salmon sharks. In the spawning streams, adult salmon provide a pre-winter feast for bears, land otters, mink, wolverines, wolves, coyotes, eagles, ravens, and gulls. Still later, the decomposing salmon carcasses enrich the estuaries for young fish, crab, shrimp, mussels, and many other invertebrates. In fact, most animals in Prince William Sound rely on wild pink salmon in one form or another for their continued survival.

Oil in the Life Cycle

Pink salmon have a short life cycle: their entire life span, from egg to spawning adult, lasts only two years. However, they can be extremely prolific, spawning in many areas other Pacific salmon cannot use. Up to 75% of wild pink salmon which spawn within the Sound do so in intertidal areas. Unfortunately, extensive use of intertidal areas by spawners, as well as use of nearshore marine areas by rearing juveniles, made this abundant renewable resource very susceptible to the 11-million gallon crude oil spill from the *Exxon Valdez*. The oil drifted with water currents along the Naked and Knight Island areas and finally exited Prince William Sound through southwestern straits and passages. In its wake, the massive slick deposited oily layers of varying thicknesses within intertidal areas of headlands, beaches, and stream mouths. Floating oil remained in the Sound through the fall of 1989. Oil residues can still be found clinging to rocks and buried in sediments today, three years later.

Developmental abnormalities in newly-emergent pink salmon from oiled areas.

© Mike Wiedmer

Although adult pink salmon returning to spawn were not killed by the oil or deterred from spawning within oil contaminated streams, their eggs, fry, and juveniles were affected.

Oiled Eggs

Pink salmon egg survival in 10 oiled and 15 unoiled streams has been studied since 1989. Unoiled streams examined were close to and of similar type to oiled streams in the study. Each fall, survey crews collected eggs from the stream gravel with a special pump. Results were striking: eggs incubating in oiled streams had mortalities 67% greater in 1989 than eggs incubated in unoiled streams, 51% greater in 1990, and 96% greater in 1991. In both 1989 and 1990 this increased egg mortality in oiled streams was confined to oil-contaminated intertidal areas. However, in 1991 increased egg mortality was noted in upstream spawning areas untouched by oil. Although greatly increased egg mortality in oiled streams two years after the spill was cause for concern, the upstream mortality of eggs in oiled streams in 1991 had investigators completely puzzled.

The answer to this riddle may lie in the salmon's reproductive cells. Pink salmon spawners in 1991 hatched from eggs incubated in oiled intertidal areas during the fall of 1989 and spring of 1990. Exposure to crude oil during early development may have caused genetic damage in pink salmon which did hatch. Several controlled experiments are presently underway to investigate this possibility. If genetic damage is to blame, many generations may have to pass before the damages are weeded out of the population.

You Are What You Eat - Feast of Oil in 1989

Many juvenile pink salmon migrated through and grew in oil-contaminated areas. Juveniles sampled from oiled locations had measurable levels of oil-contamination in their internal organs, as well as elevated levels of special enzymes which are produced in response to oil exposure. Researchers believe that the main route of contamination was ingestion of whole oil by these juveniles, either from contaminated prey organisms or small particles of oil which were swallowed. While eating oil did not appear to cause massive deaths of juveniles, it did affect their growth rates and, indirectly, survival. Pink salmon juveniles in

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There are approximately one thousand pink salmon streams and four major hatcheries in Prince William Sound, each of which experience different levels of annual production. In years of low abundance, fisheries are managed almost to the total exclusion of commercial fisheries. In years of high abundance, harvests can reach forty million fish. Just as pink salmon are drivers of the ecosystem, so are commercial fisheries the economic drivers of most Prince William Sound communities.

How can salmon production from those of the one thousand salmon streams that suffered reduced production due to the oil spill most effectively be restored or enhanced? Two general approaches exist. One approach, particularly useful in heavily injured streams, is through such methods as artificial spawning of salmon and placement of eggs into streamside incubators. Another approach is through refinement of fisheries management practices. The former should be done on a stream-by-stream basis and would be somewhat environmentally intrusive, labor intensive, and relatively expensive. The latter approach, in my view, can be accomplished in a more environmentally benign manner, and is more economical. Additionally, refinements to management practices should create a more biologically healthy and economically stronger fishery in the long term.

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Chuck Meacham is Deputy Commissioner of ADF&G.

n Sound

by Brian Bue, Stephen Fried, Samuel Sharr, and Mark Willette

heavy to moderately oiled areas grew 25% more slowly than those captured in either unoiled or lightly oiled locations. Because juvenile salmon survival diminishes with reduced growth rate, individuals reared in oiled areas probably survived less well than those in unoiled areas. In addition, recovery patterns of tagged fry indicate that most wild and hatchery pink salmon juveniles migrated into the Gulf of Alaska through the oiled area; thus most of the 1 billion juveniles emigrating from the sound in 1989 were probably exposed to and may have been injured by oil.

Bumper Crops and Run Failures

In spite of the oil spill, 1990 and 1991 produced record harvests of pink salmon: 44 million in 1990 and 37 million in 1991. Both these years greatly exceeded the previous 10-year average harvest of 22 million. Why did such spectacular runs occur the first two years after the spill? Elevated ocean temperatures and abundant food allowed fry to grow very well in 1989 and 1990 and led to large adult runs in 1990 and 1991. Nevertheless, the 1990 and 1991 runs could have been even greater in the absence of spill injuries. Also, more than 85% of the 1990 and 1991 pink salmon runs were produced by hatcheries where eggs and pre-emergent fry were protected from the oil spill. Wild pink salmon, ecologically more important, were not at record levels. Although spawning escapement goals were achieved in most areas, wild stocks with early run timing were not abundant either year.

The 1992 season was very different. The total run was extremely poor, and the harvest was less than 10 million pink salmon. Both wild and hatchery stocks were well below anticipated levels, and wild stock escapements were less than half of desired levels in most systems. Both ocean temperatures and fry food abundance were low during the 1991 early marine rearing period, and fry growth rates were the lowest measured in Prince William Sound since 1989. Wild fry populations also migrated from creeks much later than usual due to cold stream temperatures the previous winter. These fry may not have survived well due to increased predation later in the spring. However, unfavorable natural conditions in Prince William Sound in 1991 may not entirely account for the very poor 1992 pink salmon run. Ongoing studies will try to determine whether injuries from the oil spill also contributed to the poor run.

Although adult pink salmon returning to spawn were not killed by the oil or deterred from spawning within oil-contaminated streams, their eggs, fry, and juveniles were affected.

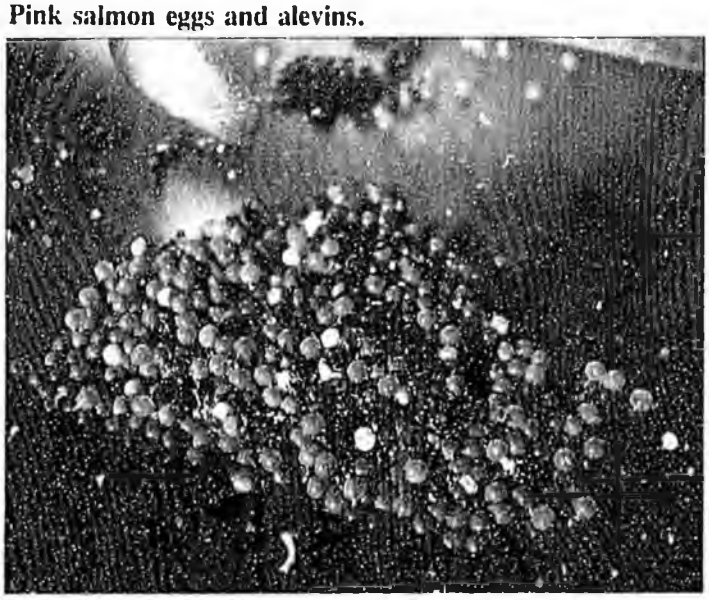
Hatcheries and Wild Stocks

Several private nonprofit hatcheries operate in Prince William Sound. Production from these facilities has grown tremendously over the years, and annual returns have totaled more than 30 million pink salmon. Although there are obvious economic benefits from this hatchery program, we must ensure that wild stocks injured by the oil spill are not further injured by interactions with hatchery salmon. Detrimental effects of large hatchery releases of Pacific salmon on wild stocks pose three potential threats.

First, large numbers of tagged hatchery pink salmon were found to be spawning in many wild salmon streams. Studies from other areas suggest that offspring of interbreeding wild and hatchery salmon may survive less well than offspring of wild salmon. Therefore, hatchery offspring straying into wild systems could further reduce production in stocks injured by oil.

Second, wild and hatchery salmon mix in nearshore nursery

Pink salmon eggs and alevins.



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areas and probably also in offshore areas. Hatchery fry may be fed and released several weeks before wild fry migrate from streams and are sometimes larger than wild juveniles. Studies elsewhere have shown that some predators prey on smaller salmon in a school, so wild fry may be eaten more often than hatchery fry under certain conditions.

Third, it is becoming increasingly difficult for fishery managers to achieve adequate spawning escapements of wild stocks while allowing for harvest of increasing numbers of hatchery salmon. Hatchery runs are often ten times more abundant than wild runs, and there is increasing pressure to harvest most pink salmon in offshore mixed-stock areas to maximize fish quality for human consumption. If adequate numbers of wild salmon are to spawn, managers will have to be provided with accurate estimates of wild and hatchery pink salmon numbers.

© John Hyde

Preserving runs of wild pink salmon such as these is critical to maintaining genetic diversity.

Tagging and Restoration

The only unequivocal way to recognize different salmon stocks is to mark fry before they leave freshwater spawning areas. This is currently done by inserting a coded sliver of magnetized wire, called a coded wire tag, into their snouts at the time they migrate to sea. It is very expensive to mark and recover sufficient numbers of pink salmon to draw valid conclusions. However, we must be able to distinguish hatchery from wild pink salmon as well as identify wild pink salmon from oiled and unoiled streams if we are to succeed in maintaining wild pink salmon stocks in Prince William Sound.

Although investigators are just beginning to define and quantify injuries to wild pink salmon stocks from the oil spill, they have already been asked to formulate restoration plans. Improvements in management have played an important role in restoring other depressed salmon resources, such as Bristol Bay sockeye salmon, to great abundance in a very cost effective manner. Consequently, present efforts at restoration have focused on intensive fisheries management to direct fishing effort away from injured stocks. Such management requires accurate and timely estimates of escapements for specific systems and the contribution of each stock to catches.

Other restoration techniques may also be needed to enhance pink salmon production. Spawning channels could be a particularly cost-effective restoration tool for glacial river valleys with relatively large drainage basins, extensive deposits of gravel, and stable groundwater aquifers. Prince William Sound has several promising sites, including some which are accessible by road. Egg incubation boxes, fish passes, and hatchery rearing of fry may also be feasible methods of restoring wild pink salmon stocks injured by the oil spill. However, Prince William Sound wild pink salmon production is distributed among hundreds of relatively small systems, and widespread use of these restoration tools would be quite expensive.

Only time will tell how successful we will be in restoring wild pink salmon stocks to their former productivity. The extremely poor pink salmon run in 1992 has placed an even greater urgency to this task. Wild salmon stocks in other areas of the Pacific Northwest have declined dramatically in response to pollution and habitat degradation. Alaska's wild salmon must be spared from suffering the same fate. Try to imagine Prince William Sound without wild salmon - we are sure you'll agree it is worth a great deal to protect and restore.

Brian Bue is a Biometrician, Division of Commercial Fisheries, ADF&G, Anchorage; Stephen Fried is Regional Research Biologist, Division of Commercial Fisheries, ADF&G, Anchorage; Samuel Sharr is Prince William Sound Salmon Research Project Leader, Division of Commercial Fisheries, ADF&G, Cordova; Mark Willette is Prince William Sound Area Biologist, FRED division, ADF&G, Cordova. *Contribution PP-065 of the Division of Commercial Fisheries, ADF&G, Juneau.*

Prince William Sound Herring - What Does Their Future Hold?

by Evelyn Biggs, Tim Baker, Linda Brannian, and Stephen Fried

© Jo. H; de

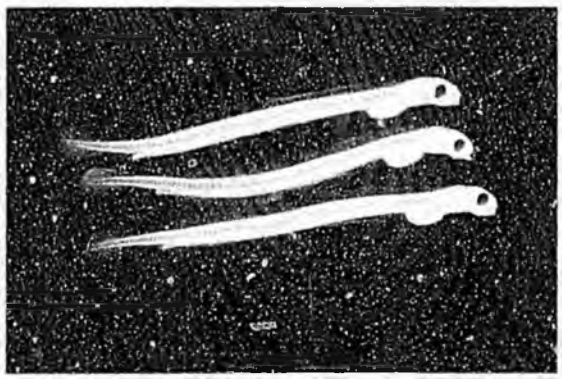
Careful management of the commercial herring harvest is the most likely restoration tool for injured herring populations.

Springtime in Prince William Sound coincides with the arrival of immense schools of Pacific herring, measured in thousands of tons, that come to spawn and deposit their eggs on intertidal and subtidal seaweeds. Attending the spawning herring are a multitude of predators. Sea lions are attracted from as far away as Kodiak Island to feed on this bonanza of fish and eggs. Shore birds traveling north from Central America stop to refuel on herring eggs exposed at low tide. Large flocks of sea birds congregate to dive and feed on eggs and fish. Humpback whales scoop large quantities of herring from the waters of this northernmost point in their annual migration. Even man makes his appearance as the fishing industry arrives, following herring runs north from San Francisco to Norton Sound. The Prince William Sound fishery is lucrative, providing a vital source of income and activity for local fishers, processors, and merchants after the long months of winter. Subsistence users depend on herring roe on seaweed as a nutritious and fresh supply of protein. How many creatures would make such long journeys or stop in the Sound without the reward of a feast of herring?

Oiled Herring

Unfortunately, the grounding of the *Exxon Valdez* on March 24, 1989, and its resulting 11 million gallon oil spill coincided

© Photos by Dr. Jo Ellen Hose



Three normal herring larvae.

Kinked spines

Abnormal lower jaw and short upper jaw

Short nose and lower jaw, kinked spine and small otics, exophthalmia

with the annual spring arrival of herring. Over 40% of the areas used by herring to stage, spawn, or deposit eggs, and over 90% of the areas needed for summer rearing and feeding were lightly to heavily exposed to crude oil. As a result, herring encountered oil as eggs, larvae, juveniles, and adults in 1989 and, to a lesser extent, in 1990. Adult herring traversed oil sheens and mousse (a slurry of oil and water) while traveling towards the northern and eastern shores of the Sound to spawn. Eggs were deposited on oiled shorelines and were periodically dipped in the oily surface sheen through tidal action while incubating. Larvae hatched containing fat-binding petroleum hydrocarbons in their yolk sacs, and they encountered oil near the surface during this most sensitive life history stage. Post-larval and juvenile herring swam through and remained near lightly to heavily oiled shorelines, regularly encountering sheen, mousse, and dissolved oil throughout the summer while feeding in shallow nearshore bays and passes.

Assessing Injuries

Immediately after the oil spill, the Alaska Department of Fish and Game began several studies to examine the injuries done to Prince William Sound herring. A spawn deposition study employed a team of scuba divers to estimate herring egg density along the shore. Estimates of the total number of eggs deposited, along with estimates of the number of eggs produced per female and the sex ratio of the population, allowed investigators to determine the total number of adult herring which spawned. Other studies also focused on herring eggs. Scuba divers collected data to estimate the survival of eggs in oiled and unoiled areas. Live eggs were collected from oiled and unoiled areas and reared under controlled laboratory conditions in the Vancouver Aquarium to examine hatching success and fry survival. In later years, herring eggs collected from the Sound were reared in a laboratory at the University of Washington, where scientists tried to recreate oil conditions encountered during the spill to examine effects on hatching success. Eggs, larvae, and adults were also collected from various areas within the Sound and sent to special laboratories equipped to examine tissue and organ samples for reproductive and genetic damage due to oil exposure.

Results of studies indicate that egg and larval mortality, lethal genetic damage, and physical deformities were much greater in oiled areas than in unoiled areas in 1989 and 1990. While the occurrence and extent of injuries did seem to be less in 1990, this was expected since most of the oil was no longer in the water column. Most documented damages in both 1989 and 1990 were

...although the 1989 herring spawning population was the largest seen since the early 1970s ...(it) produced the fewest offspring ever observed.

similar to those found by investigators studying impacts from other oil spills and from scientists conducting laboratory experiments. In 1989, stress-related hemorrhaging around the vent and enlarged bright gall bladders were found in adult herring, and oil was found in samples of bile and whole herring. Even parasites of adult herring in oiled areas migrated from the gut into muscle tissue to avoid toxic hydrocarbons. Internal tissue damage found in adult herring samples in 1989 and 1990 suggested that this toxic event may have weakened the fish's ability to resist diseases and parasites. Juvenile herring growth was probably stunted during 1989 as a result of having to flush toxins from their tissues after encountering and ingesting oil while feeding.

Reasonable Doubts?

What do these injuries mean to short-term and long-term health of the herring population? There is no doubt that many of the eggs deposited in 1989 did not survive to produce adult herring. Three-year-old herring in the 1992 spawning migration were noticeably lacking, although the 1989 herring spawning population was the largest seen since the early 1970s. In fact, the spawning population in 1989 produced the fewest offspring ever observed. Yet herring survival is known to vary tremendously, even in the absence of man-made disasters. This makes it difficult to cite the oil spill as the main cause of such poor herring production.

The herring population is made up of several age classes, often with offspring of a single spawning year (referred to as a year class) dominating. Large year classes have occurred every four years in Prince William Sound since 1976. The year class currently dominating the Prince William Sound population hatched in 1988 and represented 65% of the herring in 1992. Members of the 1988 year class were one year old during the summer of the oil spill, growing rapidly and feeding voraciously in nearshore bays, many of which were oiled. Juvenile herring, while never directly studied, were caught incidentally during studies on juvenile pink salmon investigations. These studies showed that juvenile pink salmon in oiled areas grew more slowly, and therefore probably survived less well, than juveniles in unoiled areas. Since juvenile herring appear to feed in the same areas as juvenile pink salmon, their growth and survival may have been similarly depressed.

In 1992 four-year-old herring of the 1988 year class were actively spawning. Preliminary investigations show that hatching success of eggs collected from an oiled area was less than half that of eggs collected from an unoiled area. If this difference was due to genetic damage from oil exposure, the herring population's ability to produce offspring will be reduced and may result in a long term decline in abundance.

Is Restoration Needed?

Direct restoration is not reasonable since herring are difficult to culture in large numbers, factors affecting larval survival are not well understood, and cost-effectiveness of any restoration measures would be questionable. Additionally, injuries to the herring population are not totally understood and have not been fully quantified, making targeted restoration measures difficult. The only reasonable restoration tool at this point is manipulation of human use through management of commercial fisheries. This will only work, however, if precise stock assessment tools can be developed and maintained.

We hope we have all learned some valuable lessons from this event. Much of the injury we have documented is sublethal and, therefore, did not result in immediate death of exposed life stages. Such injuries are subtle and not always obvious when looking at the animal. Lethal injuries can only be documented when an animal is found shortly after death. Incredible luck would be required. But we have learned that since eggs and larvae are extremely sensitive to oil, response efforts must be quick and effective to minimize exposure of these life stages to spilled oil and other toxic substances. Agencies have a formidable task in improving oil spill prevention measures as well as developing more effective responses to such emergencies. Response plans should probably include injury assessment studies designed to ensure that the types of data collected will accurately define natural resource injuries. Such plans, similar to Alaska's Emergency Medical System response plan for natural disasters, could focus multi-agency efforts.

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Assessment and Restoration of Dolly Varden and

Two lesser known salmonids that inhabit the Prince William Sound are Dolly Varden and cutthroat trout. Although not as famous as their Pacific salmon cousins, such as pinks and silvers, Dolly Varden and cutthroat trout are vital, renewable resources in their own right. These species provide important diversity in sport fishing opportunity that ranges from kids' catching their first fish at Eyak Lake in Cordova to remote fly-in fishing in pristine wilderness settings. Cutthroat trout are a particularly rare resource in this part of the world; Prince William Sound is the northwestern limit of their range.

Injury Assessment

Injury assessment was a thorny problem for Dolly Varden and cutthroat trout because we had no pre-spill assessment data with which to compare post-spill performance. However, the timing of the spill coincided with an important aspect of the complicated life history of these species. Most Dolly Varden and cutthroat trout in Prince William Sound are *anadromous* which means that they spawn in fresh water but migrate to sea as adults. Both species are born in freshwater streams, and juvenile fish remain in fresh water from one to four years. They migrate to sea during May and June when they attain a length of approximately 6 inches and are referred to as *smolt*. For the remaining years or their lives, (usual life span is 6 to 10 years), these fish enter freshwater in the fall, winter in freshwater lakes, exit freshwater in the spring, and summer in the ocean. Another important aspect of their life history is that these fish return, or *home*, to the same lake to winter. A group of Dolly Varden or cutthroat trout which return to the same lake are referred to as a *stock* or *population*.

Researchers theorized that potential impacts of oiling would be manifested in reduced survival or growth. The assessment program was designed to measure and compare the annual survival and growth of oiled and nonoiled stocks. Immediately following the spill, we selected five freshwater lake systems that were known to contain both Dolly Varden and cutthroat trout: two tributaries to oiled marine waters and three tributaries to nonoiled marine waters. A fence, or *weir*, was constructed on each stream so that all fish exiting the system for ocean waters could be counted and sampled. Each fish was tagged and measured for length, and some were sampled for age. This program was repeated in the spring of 1990 and 1991. From these data, we estimated and compared survival and growth of oiled and nonoiled fish. Adult fish of both of these species naturally suffer higher spawning mortality and exhibit slower growth than do juveniles. Therefore, we estimated survival and growth for adults (fish greater than 270 mm, or 10 1/2 inches) and subadults (fish that have smolted but not yet spawned which are between 200 mm and 270 mm, or 8 and 10 1/2 inches).

Is It Possible to Isolate Impacts from Oiling?

An important consideration in this study design was to determine whether any measured differences between oiled and nonoiled stocks could, in fact, be attributed to the oil spill. Our study design addressed this concern in several ways.

We sampled more than one stock within each of the oiled and nonoiled categories. This is usually referred to as *replicate sampling*. Adherence to this type of sampling allows researchers to apply results from the sampled populations to the rest of the unsampled populations. It makes it possible to test whether differences in attributes, such as survival or growth, are greater among stocks within a category than the level of typical differences between stocks across categories. Replicate sampling also addresses the diversity in lake systems across the Sound. We sampled both large and small mainland and island lakes.

Our sampling of fish as they exited the lake systems in spring 1989 also provided pre-spill growth data. The spill occurred in March, a time at which both juvenile and adult Dolly Varden and cutthroat trout were still in freshwater and had not yet encountered oil. Length-at-age data could be compared to see if there were inherent differences in growth prior to the spill. Finally, there were many other injury assessment studies that provided supporting evidence. Studies were conducted to measure hydrocarbon content of marine waters, sediment, prey items, and the fish themselves.

Results

In the 12 months immediately following the spill (1989-1990), both survival and growth of Dolly Varden and cutthroat trout were significantly lower for stocks from oiled systems. Differences in survival were greatest for Dolly Varden: 37% lower for subadults and 38% lower for adults. Cutthroat trout adults from oiled systems had 29% lower survival than did fish from nonoiled systems. Similar rates of reduced growth for oiled stocks were sustained for both species. For oiled stocks of

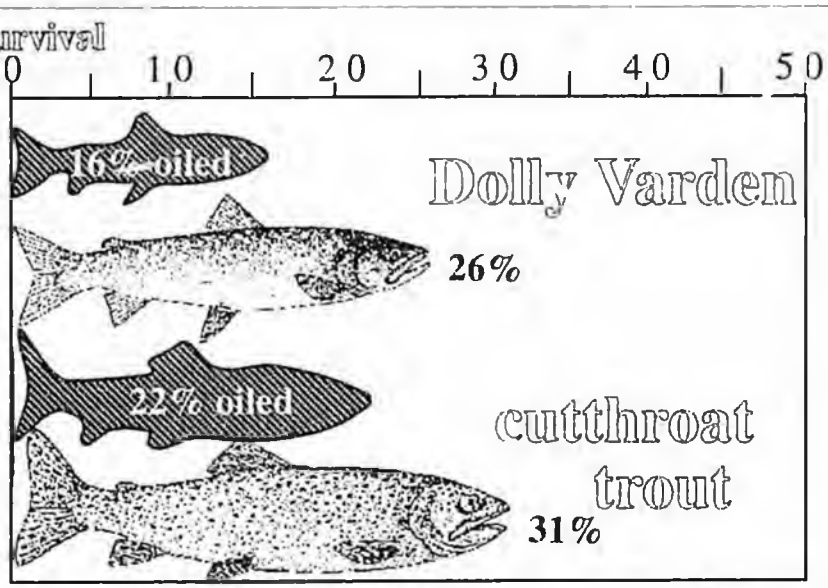
Cutthroat Trout

by Douglas N. McBride and Kelly Hepler

Dolly Varden, growth was reduced 24% for subadults and 22% for adults. Oiled stocks of cutthroat trout exhibited 36% and 43% reduced growth for subadults and adults, respectively.

Interestingly, differences in growth persisted into the next year (1990-1991) for both species. Growth of oiled stocks of subadult and adult Dolly Varden was reduced 7% and 9%, respectively. Reductions in growth for subadult and adult cutthroat trout were greater and were similar to the year immediately following the spill: 30% and 47%, respectively. Incomplete sampling at some of the weirs in 1991 due to flooding precluded estimates of survival for the period 1990 to 1991.

How confident are we in these results? These conclusions are based on large sample sizes: approximately 65,000 Dolly Varden and 4,000 cutthroat trout were sampled and tagged during the 3 years of study. There were no pre-spill differences in growth between any of these stocks as evidenced by the similarity in length-at-age data from the spring 1989 sampling. Differences in survival from 1989 to 1990 cannot likely be attributed to differential commercial fishing due to fishery closures during 1989. Nor can differences in survival be attributed to differential sport fishing: no tagged fish were recovered from creel surveys conducted in 1989, and recreational anglers voluntarily reported catching few tagged fish of either species. Sampling of water, sediment, prey species, and adult Dolly Varden all showed hydrocarbon contamination



Percent survival of adult fish from oiled and nonoiled stocks of Dolly Varden and cutthroat trout in Prince William Sound from 1989 to 1990.

... both survival and growth of Dolly Varden and cutthroat trout were significantly lower for stocks from oiled systems.

How do we think that Dolly Varden and cutthroat trout encountered oil? Direct exposure to lethal levels of crude oil is unlikely. By June 1989, concentrations of soluble aromatic hydrocarbons in marine waters had declined to sublethal levels. We believe some fish ingested oil; most likely through contaminated prey. Other studies also showed that prey items such as small invertebrates declined in abundance in oiled waters. A reduction in the forage base for Dolly Varden and cutthroat trout could also translate into reduced survival and growth.

(Continued on next page)

Restoration

The likelihood that oil impacts will persist for some years compels us to recommend active restoration solutions to alleviate this problem. We identified two approaches to restore oiled Dolly Varden and cutthroat stocks in the Sound: stocking and fishery management.

Stocking

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Stocking fish to increase abundance of impacted populations is appealing in several respects. Technology exists to do it. Also, adding to affected populations should, if successful, provide measurable results — more fish in a timely manner.

However, stocking has several disadvantages that need to be considered. First, the intrinsic value of these resources lies in the wild or natural state in which these populations existed prior to the spill. Introduction of hatchery fish compromises this situation. In some situations outside of Alaska, stocking of salmonids in systems already supporting viable wild stocks has resulted in reduced viability of those wild stocks. Also, stocking is usually an expensive solution in comparison to other options. Stocking as a tool in sport fisheries management in Alaska is usually done to maintain or increase sport fishing effort. To justify the high cost of stocking usually requires extremely high levels of fishing effort.

Fishery Management

Fishery management appears to be the most effective restoration solution. In the absence of a pollutant such as oil, mortality of exploited fish populations is partitioned into fishing mortality and natural mortality. With additional mortality due to oil, we recommend reducing fishing mortality on oiled stocks and responsibly developing alternate recreational fishing opportunities on nonoiled stocks of these species.

How do we reduce fishing mortality on oiled stocks? The most drastic way is to close areas to fishing for affected species. The Alaska Department of Fish and Game has already taken this measure for oiled populations of cutthroat trout due to the fragile nature of cutthroat populations in the Sound; they are the most northern and westerly cutthroat trout in the world, and the natural stocks are small. A conservative management approach will most likely be taken until or unless restoration of these stocks is demonstrated.

How do we responsibly develop fishing opportunities on nonoiled stocks? One way is to conduct similar stock assessment programs for Dolly Varden and cutthroat trout in the nonoiled parts of the Sound with the objective of estimating sustained yield of these populations. We could simultaneously survey potential fishing sites for land status, facilities, and accommodations. Such information will provide the basis for a management plan for Dolly Varden and cutthroat trout fisheries in the Sound. Concerns that must be addressed include conservation of wild stocks, diversity of opportunity, and accessibility to the fishing public. In Alaska, fishery management plans are promulgated through a public process so that all concerns and issues can be thoroughly addressed. Such a management plan should provide a "blueprint" by which orderly fisheries can be responsibly developed and managed for the Sound's wild stocks of Dolly Varden and cutthroat trout.

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Above: An ADF&G biologist with a sea-run Dolly Varden.

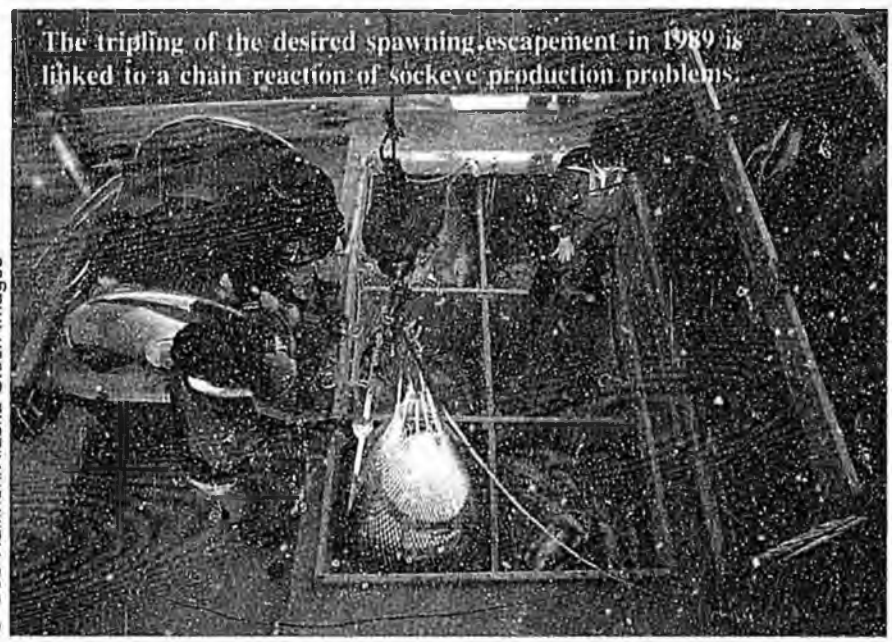
Kenai River Sockeye Salmon - The Problem with Too Many Fish

by Jeffery Koenings, Dana Schmidt, Stephen Fried, Kenneth Tarbox, and Linda Brannian

The Oil Spill

Upper Cook Inlet had previously been subjected to a 0.1 million gallon oil spill from the tanker *Glacier Bay* which ran aground in Cook Inlet during the summer of 1987. When the oil tanker *Exxon Valdez* went aground on Bligh Reef in Prince William Sound in the spring of 1989, few expected that any of the 11 million gallons of oil leaking from the damaged hull would end up in Upper Cook Inlet. Although seas were calm for several days, a large amount of oil was swept out of the Sound and up into Cook Inlet by the prevailing water currents. Soon tar balls and thick mousse (a slurry of oil and water) entered the marine waters of Upper Cook Inlet, forcing commercial fishing activity to be curtailed.

The reduction in commercial fishing potentially allowed 1.4 million sockeye salmon to spawn in the Kenai River system. This was about three times greater than the desired spawning escapement goal of about half a million fish. Similar large escapements had also occurred in the two preceding years: 1.4 million sockeye had spawned in the Kenai in 1987, partly as a result of fishery restrictions after the *Glacier Bay* spill; and 0.9 million sockeye had spawned in 1988. Since excessive numbers of spawners have been linked to lowered adult production in other Alaskan systems, biologists and fishers quickly became concerned about possible adverse effects of over escapements on the valuable Kenai River sockeye resource.



The tripling of the desired spawning escapement in 1989 is linked to a chain reaction of sockeye production problems.

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Dual Ecological Roles of Sockeye

Sockeye salmon have two important ecological roles, as both forager and forage, in freshwater and marine ecosystems. Sockeye salmon returning from their North Pacific feeding grounds to spawn in the Kenai River system are important prey items for marine mammals such as beluga whales, land mammals such as brown bears, and raptors such as bald eagles. Also, over the last several years, approximately 3 out of 4 sockeye salmon have been harvested prior to entering the river so that spawning grounds and food supplies for young salmon were not overtaxed.

The cycle of life continues after spawning: char and rainbow trout feast on sockeye salmon eggs, and even dead and dying adult sockeye serve as food for various insects, birds, land mammals, and fishes. Decomposition of carcasses provides a mechanism to deliver valuable nutrients from the ocean into nutrient-poor freshwater systems. Thus, the distinctive smell of decaying sockeye carcasses in the fall is as much the aroma of new beginnings as it is the smell of death.

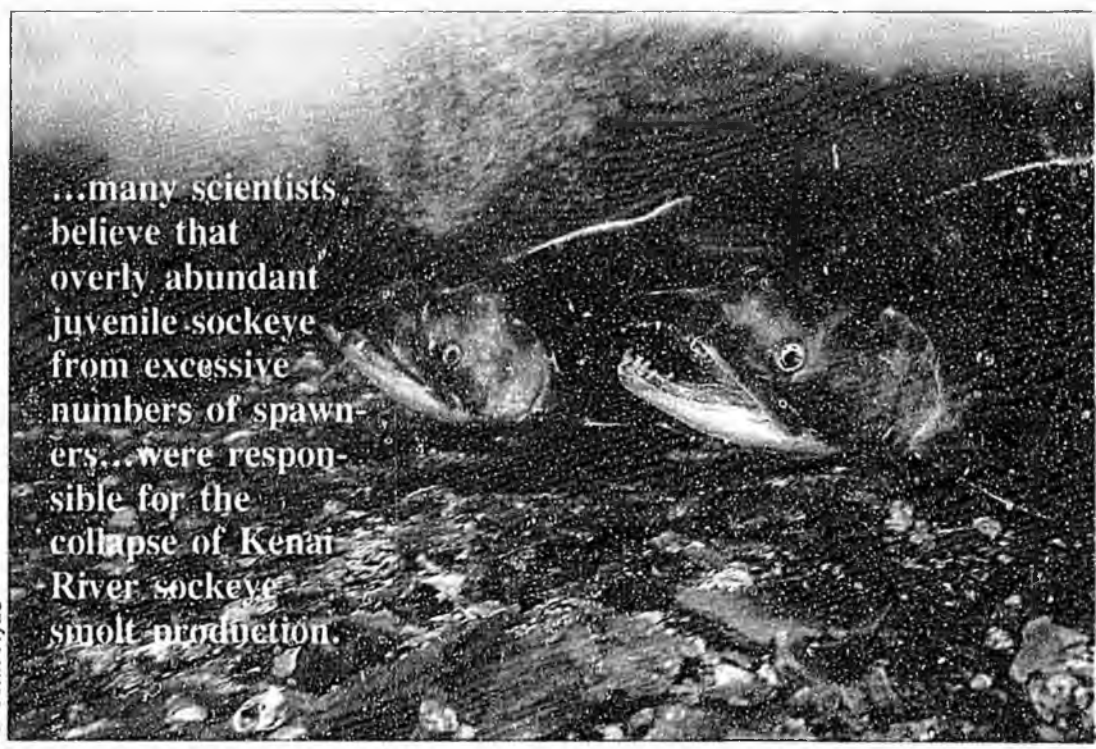
Life for sockeye salmon is an eat-or-be-eaten existence, especially for juvenile salmon in Kenai and Skilak Lakes. Only about 1 out of every 10 eggs survive over the winter. Young sockeye that do hatch feed nearshore on insects prior to moving offshore to forage on zooplankton. Sockeye are voracious feeders that can soon eat up their available food supply if allowed to enter the feeding grounds in uncontrolled numbers. Without sufficient food during the summer, juvenile sockeye die when stressed over winter. Generally, only 1 out 5 juvenile sockeye manage to avoid predators and find enough food during the summer to grow large enough to survive the winter to become smolt and migrate to the ocean.

The Importance of Sockeye to People

While sockeye salmon are fascinating to study in their own right, they have great economic value wherever they occur. The Kenai River system produced the bulk of the 4 to 5 million sockeye harvested annually over the last decade in Cook Inlet commercial fisheries. Indeed, the $30 to $120 million commercial sockeye fisheries provide much of the economic base for several cities and towns on the Kenai Peninsula, while tourism from sport fishing also brings large amounts of money into local economies. Also, subsistence and personal use fisheries for sockeye salmon fulfill food and social needs of many people in the area.

Future Production

Production of adult sockeye can be thought of as a simple function of the number of spawners: increase the number of spawners into the system and reap the reward in future years. But, in fact, ever increasing numbers of spawners do not result in ever increasing adult production since there are limits on available spawning and rearing areas. Finding the limits is very difficult and time consuming, but despite the difficulties, studies have shown that biologically based escapement goals generally produce the greatest sustained production with the least risk to the resource.



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Too Many Sockeye in a Harsh Environment

The dramatic declines in both numbers of rearing juveniles and seaward migrating smolt have been shocking. The nearly 30 million smolt produced from the first escapement of 1.4 million spawners in 1987 has dropped steadily to number fewer than 3 million from the 1989 oil spill year escapement of 1.4 million spawners. Worse yet, a post-spill escapement in 1990 of sockeye nearer the goal has failed to produce even a million smolts. Recovery was not effected by a simple backstepping to a lower escapement for one year. Indications are that most of the annual adult run to the Kenai River in 1994, 1995, and possibly in additional years would be needed just to satisfy the existing escapement goal. At the same time, sockeye smolt production from nearby Tustumena Lake has been relatively stable. This has led many scientists to believe that overly abundant juvenile sockeye from excessive numbers of spawners, not harsh environmental conditions on the Kenai Peninsula, were responsible for the collapse of Kenai River sockeye smolt production.

The collapse of sockeye smolt production pointed to a troublesome problem in the Kenai and Skilak Lakes, the primary nursery grounds for sockeye. Nearby Tustumena Lake fills the same role for sockeye of the Kasilof River watershed. These three lakes are fairly unique in that all receive vast quantities of

ground rock or flour from the meltwater of glaciers making up the Kenai ice fields. The flour turns the lakes turbid, imparting a brilliant whitish-green color. Turbid glacial lakes are uniquely harsh environments for rearing juvenile sockeye, the dynamics of which biologists are just beginning to understand.

Abundant But Unavailable Prey

It was extremely puzzling to limnologists that the overall zooplankton biomass appeared great enough to support a large population of rearing sockeye, yet evidence indicated the young sockeye were dying during the winter! Apparently they did not have enough fat reserves from summer feeding to survive the winter.

Copepods, the only food organism for sockeye in these lakes, are nearly transparent and have evolved other finely tuned responses to escape being eaten. Female copepods with their twin clusters of fatty eggs, perhaps because they are easier to see as well as high in energy, are the most commonly eaten prey of foraging sockeye. Biologists think that most sockeye feeding occurs at the surface during the day where prey are more visible. So it is the surface water component of the total copepod population that is critical for sockeye salmon production.

Limnologists are suggesting that the distribution of egg-bearing copepods in Skilak Lake has recently changed in response to extremely large numbers of foraging juvenile sockeye. Egg-bearing copepods may now avoid sockeye predation by descending deeper into the water column during the day. In darker waters, they would be much less visible to sockeye salmon. If so, then juvenile sockeye are no longer able to eat enough egg-bearing copepods to achieve the growth or body fat stores necessary to survive the long winter months; prey is abundant, but essentially unavailable.

Research and Restoration

Only through research can scientists understand how large escapements caused the decline in Kenai River sockeye salmon production, and how best to reverse this trend. But, even without a full understanding of what factors are at work, better tools will be needed to regulate future spawning escapements. Accurate methods of identifying major sockeye stocks mixed in marine waters may allow the department to better manage human use of this resource by focusing commercial harvest efforts either away from or onto Kenai River sockeye salmon. Scientists also need to determine how many spawners the system can now support and whether the system can return to its former level of sockeye production. If a return to former production levels cannot be quickly effected, it may be necessary to use tools such as lake enrichment or rearing fry in hatcheries for later release as smolts to maintain sockeye salmon harvests by people at reasonable economic and social levels. No matter what future course of action is taken, there is a continued need for monitoring the status of the zooplankton as well as juvenile sockeye and smolt production. A regional salmon planning process, with participants from various user groups, aquaculture associations, and state agencies, was in place prior to the oil spill. Appropriate actions to protect, and restore Kenai River sockeye will be reviewed by the Cook Inlet Regional Planning Team for discussion and recommendations. Can the sockeye salmon of the Kenai River be brought into full production again? It may take a long time to tell, but the answers must be found.

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Above: Copepods from glacial lakes have evolved a pale blue camouflage where they are subject to predation by sockeyes. The contrast with copepods from systems which lack predators is shown here.

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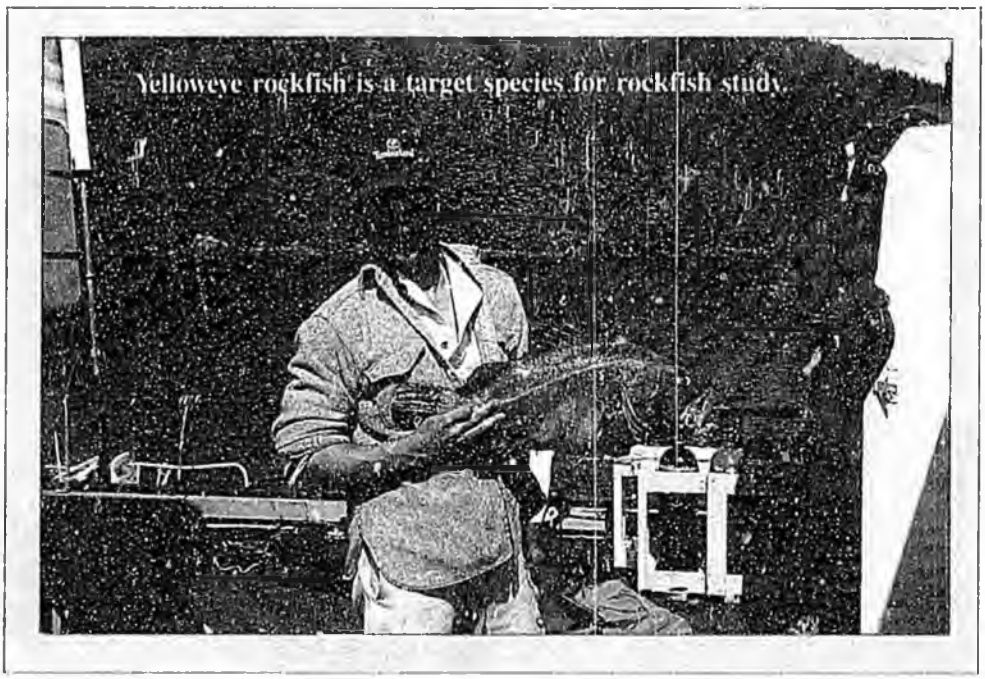
Rockfish: Caught Between a Reef and a H

by Douglas N. McBride, Andrew Hoffmann, a

Why Rockfish? The *Exxon Valdez* oil spill killed thousands of sea birds and marine mammals. But what about fish? With all of the concern expressed for the spill area's fish resources, the only "body count" of dead fish from the oil spill was for rockfish. Under normal conditions, sighting or recovery of rockfish carcasses is rare; however immediately after the spill, fishers and boaters throughout the oiled areas of the Sound reported sightings and recoveries of dead rockfish. Many dead rockfish were refused at collection sites due to limited storage facilities. Nevertheless, twenty adult yelloweye rockfish (commonly called red snappers) were received by biologists after being found dead on the surface in or near oil slicks. Only five of these rockfish were sufficiently preserved to effectively necropsy (autopsy on animals).



Yelloweye rockfish is a target species for rockfish study.

© Julia Breeze

Cause of death: oil ingestion.

That all five fish examined died from oil ingestion is curious when one considers the life history of rockfish. The term rockfish refers to approximately 70 species of the genera *Sebastes* and *Sebastolobus*, approximately half of which are found in Alaskan waters. Commonly known species include yelloweye, black, China, silvergray, quillback, and Pacific ocean perch. Rockfish are late-maturing and extremely long-lived; yelloweye rockfish reach sexual maturity around age 15 and can live for over 100 years. Most rockfish dwell near reefs or other bottom structures at depths of 30 to 1,800 feet and prey on small fish and crustaceans. Why, then, were bottom-dwelling creatures the only fish known to be immediate casualties of the oil spill?

This question compelled biologists with the Alaska Department of Fish and Game (ADF&G) to sample rockfish as part of the oil spill natural resource injury assessment studies. Incompletely understood stock structure and expensive sampling logistics precluded population assessment of the Sound's rockfish resources. However, samples were collected from over thirty locations, including both oiled and nonoiled sites in Prince William Sound and along the outer Kenai Peninsula from 1989 to 1991. Fish were collected by jig, long line, and spear fishing and analyzed by several methods. Liver bile was examined for metabolized hydrocarbons, since fish ingesting non-lethal levels of a toxin, such as crude oil, concentrate the metabolized hydrocarbons in the liver. A more complicated analysis called MFO (mixed function oxidase enzyme system) examined one of the fish's natural defense mechanisms which is activated in response to certain types of pollutants, including oil. A third analysis looked for histological and pathological abnormalities of selected organs. Exposure of organs such as the gills, kidney, or liver to pollutants, such as oil, can result in lesions.

Oil Spill Impacts

Samples from 1989 confirmed that rockfish were being exposed to oil pollution. Over 31% of the samples collected from oiled sites in 1989 and none of the samples from nonoiled sites tested positive for hydrocarbon contamination. In 1990, some

rd Place

Villiam Bechtol

samples from both treatment and control sites tested positive for hydrocarbon contamination, but between-site differences were insignificant. However, the incidence of two of the four types of liver and kidney lesions attributable to oil pollution was significantly greater in fish from oiled sites. By 1991, rates of hydrocarbon contamination were again similar between treatment and control sites; only one type of liver lesion was more common in fish from oiled sites; and some rockfish from both treatment and control sites showed a response to a contaminant detected by the MFO analysis.

How do we interpret these results?

Without question, rockfish were exposed to oil, some at lethal levels. Oil contamination and injury have also persisted for at least 2 years. The concept of nonoiled or control sites, selected on the basis of shore and surface oiling patterns, has probably been compromised in recent years by either subsurface movements of oil or hydrocarbon transport within the food chain. Sub-lethal levels of hydrocarbon contamination have not yet been shown to pose a threat to human health. However, the threat to the rockfish themselves is an open question; other studies have indicated an impact on reproduction. Thus, while the initial slick has dispersed, the effects of oil pollution appear insidious, especially given the long-lived nature of rockfish. The result is a large degree of uncertainty regarding the long-term viability of the rockfish resources. This uncertainty is fueled by questions about the increased harvest of rockfish in Prince William Sound and the outer Kenai Peninsula since the oil spill.

Effective Restoration

In the face of uncertain effects of oil, uncertain stock status, and the life history of these old, slow-growing fish, the Alaska Department of Fish and Game believes that conservative fishery management is the most readily applicable restoration tool. With only limited biological evaluation of the rockfish resources, the department's approach is an attempt to stabilize the harvest.

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In the Wake of the Spill

(Continued from page 3.)

vice, and Department of the Interior. It has worked for the past three years to identify restoration needs, conduct studies to explore and define restoration actions, and to develop a restoration plan.

As a step in the development of a restoration plan, the Trustee Council released the "Restoration Framework" document in April 1992 to inform the public of the progress that was being made toward a restoration plan that will guide restoration activities over the next several years. The Framework describes a number of aspects of the process, including public participation, a summary of injury, and possible restoration options.

By spring 1993, the Trustee Council will release a draft restoration plan and a companion environmental impact statement. The public will be invited to comment on these documents. The Trustee Council will take actions to restore and enhance the resources and services of the spill-affected region according to the approved final restoration plan. This will be done through annual work plans, which will be available for public review and comment.

Mark Fraker is Restoration Program Manager in the Habitat and Restoration Division, ADF&G, Anchorage.

rd Place

illiam Bechtol

samples from both treatment and control sites tested positive for hydrocarbon contamination, but between-site differences were insignificant. However, the incidence of two of the four types of liver and kidney lesions attributable to oil pollution was significantly greater in fish from oiled sites. By 1991, rates of hydrocarbon contamination were again similar between treatment and control sites; only one type of liver lesion was more common in fish from oiled sites; and some rockfish from both treatment and control sites showed a response to a contaminant detected by the MFO analysis.

How do we interpret these results?

Without question, rockfish were exposed to oil, some at lethal levels. Oil contamination and injury have also persisted for at least 2 years. The concept of nonoiled or control sites, selected on the basis of shore and surface oiling patterns, has probably been compromised in recent years by either subsurface movements of oil or hydrocarbon transport within the food chain. Sub-lethal levels of hydrocarbon contamination have not yet been shown to pose a threat to human health. However, the threat to the rockfish themselves is an open question; other studies have indicated an impact on reproduction. Thus, while the initial slick has dispersed, the effects of oil pollution appear insidious, especially given the long-lived nature of rockfish. The result is a large degree of uncertainty regarding the long-term viability of the rockfish resources. This uncertainty is fueled by questions about the increased harvest of rockfish in Prince William Sound and the outer Kenai Peninsula since the oil spill.

Effective Restoration

In the face of uncertain effects of oil, uncertain stock status, and the life history of these old, slow-growing fish, the Alaska Department of Fish and Game believes that conservative fishery management is the most readily applicable restoration tool. With only limited biological evaluation of the rockfish resources, the department's approach is an attempt to stabilize the harvest.

Douglas McBride is Regional Research Supervisor for Southcentral Alaska, Division of Sport Fish, ADF&G, Anchorage; Andrew Hoffmann is a Fishery Biologist with the Division of Sport Fish, ADF&G, Anchorage; William Bechtol is Regional Groundfish Biologist with the Division of Commercial Fisheries, ADF&G, Homer.

In the Wake of the Spill

(Continued from page 3.)

vice, and Department of the Interior. It has worked for the past three years to identify restoration needs, conduct studies to explore and define restoration actions, and to develop a restoration plan.

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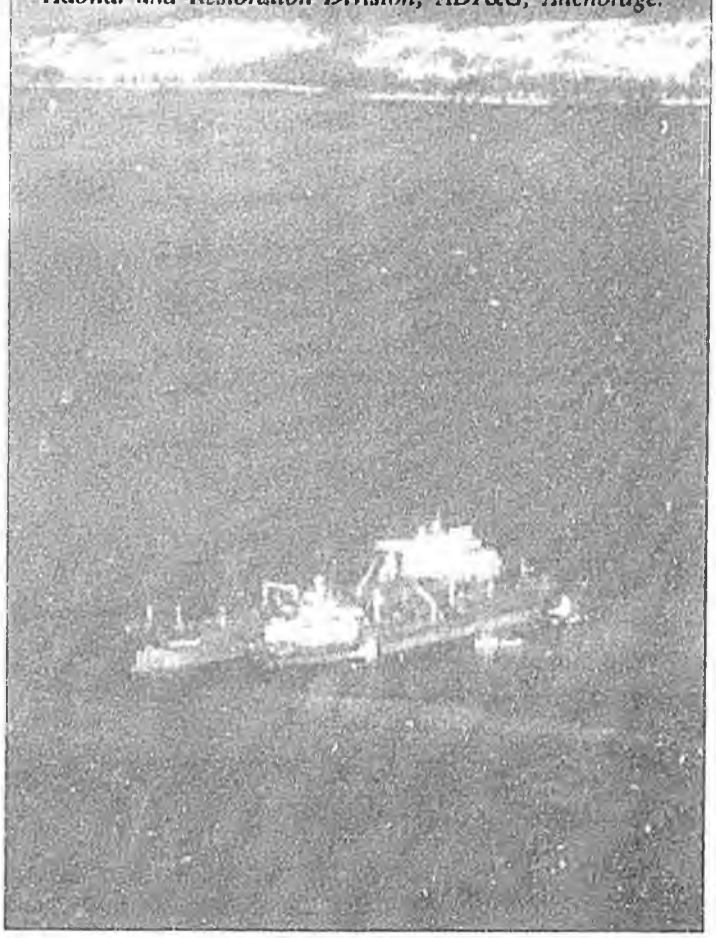


How You Can Get Involved In The Restoration Program

by Peg Kehrer

1. READ

Read information about the findings of the natural resource injury assessment program and about the plans for restoration. Materials which summarize this information are:

Draft Restoration Plan for the *Exxon Valdez* Oil Spill Restoration Program - expected out in the spring of 1993.

Draft Environmental Impact Statement to accompany the draft plan.

Restoration Framework (4/92) and Restoration Framework Supplement (7/92). The supplement provides details on the Habitat Protection and Acquisition Option of the Plan.

Yearly Work Plans. These outline injury assessment studies and restoration projects carried out from 1989 to the present and public comments received on those plans. The 1993 Draft Plan was released October 1992.

Get on the mailing list. If you or your organization has not already been receiving draft documents and notices of public meetings, you can get on the mailing list by contacting the Restoration Program (see addresses at the end of this article).

To obtain more detailed information about an injured resource, a restoration option, or the decision process being followed in planning restoration, you may also contact the Oil Spill Public Information Center (OSPIC). OSPIC is a library created to support ongoing study around the oil spill and to inform the public about the effects of the spill and resource restoration. OSPIC is the repository of all final scientific reports on injured resources and all official documents of the Trustee Council process. The library is located in Anchorage, but documents are available at many public libraries in Alaska and nationally (see listing below) and in other western states through the Western Library Network inter-library loan system.

2. ATTEND

Attend the Oil Spill Symposium in Anchorage, February 2-5, 1993. This will be the first opportunity for all researchers who have worked on natural resource injury assessment projects to discuss their findings with each other and with the public.

Attend the periodic Trustee Council meetings and other public information meetings in spill-affected communities. Meetings are announced in local newspapers. You may obtain the meeting schedule by contacting OS.

3. VIEW

There is available a variety of videos on the oil spill and on restoration. Contact the Oil Spill Public Information Center for information.

4. CONTACT

Contact the members of the newly created 17 member Public Advisory Group (PAG). These individuals were selected from a pool of nominees representing major interest groups affected by oil spill injury to natural resources and services: aquaculture, commercial fishing, commercial tourism, environmental, conservation, subsistence, scientific/academic, recreation users, local government, public at large, native landowners, sport hunting & fishing, and forest products. There are also ex-officio seats for representatives from the Alaska State House of Representatives and the Alaska State Senate.

By contacting those members who represent your particular areas of interest, you can help them advise the Trustee Council on what actions should be taken to restore injured resources and services. All Public Advisory Group meetings will be public and will be advertised. A list of members and the interests they represent is available from the Restoration Program offices or from OSPIC.

5. COMMENT

Tell the trustees what you think. Written public comments on the restoration program are welcome at any time and will be shared with the Trustee Council and with staff working on the issues you address. If you would like to testify in person, you can do so during the public comment period which is scheduled for part of every full meeting of the Trustee Council. Such meetings and the times for public comments are advertised at least one week ahead of time in newspapers in the spill-affected communities, and are usually teleconferenced.

Get involved now - enjoy forever.

PUBLIC PARTICIPATION 1993

February 2-5, 1993, *Exxon Valdez* Oil Spill Symposium, The Egan Center, Anchorage, Alaska.

Public comment periods on the Draft Restoration Plan and related Environmental Impact Statement will run for 45 days following release of these documents, which are due out in March 1993.

In 1993 the public will also be asked for ideas on the projects to be included in the draft 1994 Work Plan and for comments on that draft plan when it is released.

ADDRESSES
Exxon Valdez Oil Spill Restoration Program
645 G St., Anchorage, AK 99501
(907) 278-8012

Oil Spill Public Information Center (OSPIC)
645 G St., Anchorage, AK 99501
(In Anchorage) 278-8008
(In Alaska) 1-800-478-7745
(Outside Alaska) 1-800-283-7745

The Oil Spill Public Information Center (OSPIC) has two sets of the *Exxon Valdez* Oil Spill Science Studies. Additional sets and the basic public documents of the restoration program are available at the following libraries:

Public libraries in Alaska: Anchorage, Kodiak, Cordova, Valdez, as well as Kuskokwim Consortium Library in Bethel, and the University of Alaska libraries on the Fairbanks and Anchorage campuses.

Government agency libraries in Anchorage: ADF&G Habitat and Restoration Division Library; Alaska Resources Library, Bureau of Land Management; Minerals Management Service Library; U.S. Fish and Wildlife Service Library; U.S. District Court Library.

Government agency libraries in Juneau: Alaska State Library; Alaska Department of Environmental Conservation Library; Marine Fisheries Service Library (Auke Bay).

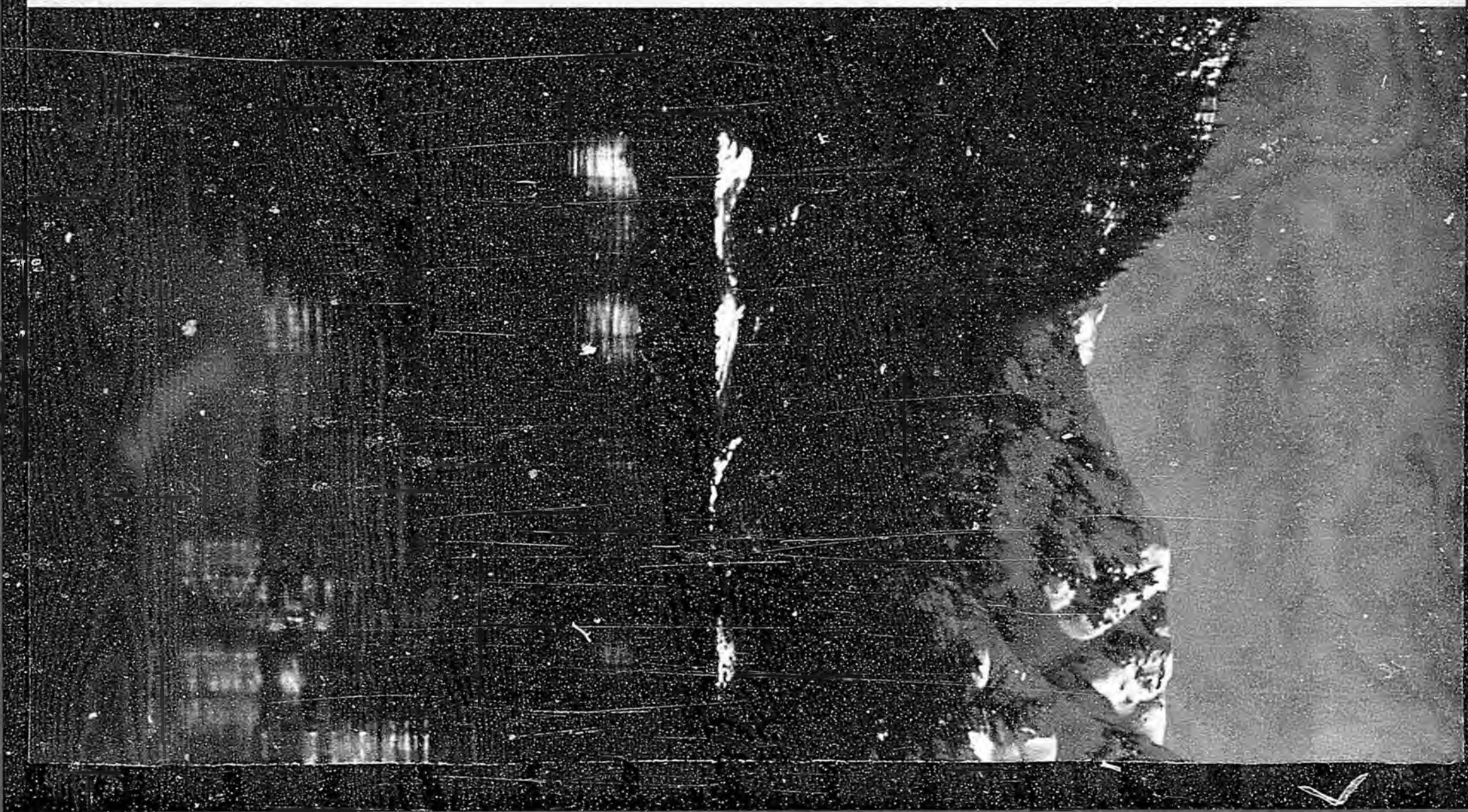
Outside of Alaska: Library of Congress, Exchange & Gifts Division, Washington, D.C.; National Library of Canada, Ottawa; University of Washington Library, Seattle; Washington State Library, Olympia.

Peg Kehrer is a Project Assistant with the Habitat and Restoration Division, ADF&G, Juneau.

The

Exxon Valdez Oil Spill

What Have We Learned?



Division of Spill Prevention and Response

Government Preparedness & Response

Alaska Department of Environmental Conservation

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Juneau Alaska 99801
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Mead Treadwell
Deputy Commissioner

Bob Poe
Director, Information & Administrative Services Legislative Liaison

Mike Conway
Director, Division of Spill Prevention and Response

Lynn Kent
Manager, Government Preparedness and Response Program
456-5220

Issues

The Alaska Department of Environmental Conservation (DEC) is responsible for responding to all oil and hazardous substance spills and ensuring their containment control and cleanup. DEC also defines the extent of contamination and assesses damages and recovery of costs to the state. DEC must work with local government agencies and the public to establish Local Emergency Planning Committees (LEPCs). Training and guidance will be provided to the LEPCs for the development of response plans for oil and hazardous substance releases. The Department will develop State and Regional plans (coordinated with federal agencies) to insure responding personnel from all federal, state and local agencies understand their roles and responsibilities when responding to a release. In addition, the Department must train response teams and improve the response resources available for a major spill.

Major Features

- Mobilize the Department resources to ensure responsible parties respond appropriately to spills. In the absence of adequate responsible party action, respond to, contain, control, and clean up releases and recover the state's costs.
- Establish a response structure to safely carry out the Department's responsibilities for spill response.
- Ensure that local plans under development are coordinated and integrated with other relevant plans and comply with requirements specified in state and federal law.
- Develop guidelines for the State Emergency Response Commission (SERC) and LEPCs and hold quarterly meetings with each.
- Complete compilation of hazards analysis for the state.
- Develop a unified response plan with the federal government and conduct drills to test adequacy.
- Establish and maintain minimum training standards for responders and the positions in the Incident Command System (ICS).

Program Background

Title 46 of the Alaska Statutes and Title III of the federal Superfund Amendments and Reauthorization Act (SARA) tasked DEC with facilitating local, regional and statewide response preparedness for oil and hazardous substance releases to minimize the impact on human health and the environment. DEC's Government Preparedness and Response program assists with local planning and also prepares, reviews and revises the state and regional plans for oil and hazardous substance discharge prevention and response. The program provides staff support to the SERC and funding, staff support, and administration to LEPCs.

Program Benefits

Prevention and response plans constructed on the local, regional and state level, as well as response training for responders, help prevent spills and improve the response quality, time, and cost. Department response to spills decreases adverse impacts to public health and the environment.

Division of Spill Prevention and Response

Industry Preparedness Program

Alaska Department of Environmental Conservation

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Mike Conway
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Mike Mansker
Manager, Industry Preparedness and Response Program
456-5250

Issues

This program ensures that oil industry operators take specific steps to prevent and respond to releases or threatened releases of oil. The effective implementation of laws relating to oil pollution prevention and response is a continuing priority. Regulations establishing a Response Action Contractor Registration Program recently took effect, and work has begun on registration of those contractors listed in industry oil spill prevention and response plans. Review and approval of these plans continues to require extensive technical assistance and consultation with industry, affected Coastal Districts and citizens' groups, and other agencies. Ongoing plan review notwithstanding, DEC emphasis will shift to plan verification through spill drills and inspections during fiscal year 1995. Insurance policies, submitted to demonstrate adequate plan holder financial responsibility for spills, require continuous monitoring as national financial responsibility issues are resolved.

Major Features

- Provide technical assistance, conduct program development and monitoring, and ensure statewide consistency in:
  - the review by regional office staff of approximately 175 oil discharge prevention and contingency plans for oil operations statewide;
  - facility and vessel inspections and spill drills, including participation in major Department- and industry-initiated drills; and
  - application of prevention requirements to oil industry operations and use of prevention credits to modify the response planning standard for contingency plan holders.
- Administer the statewide Financial Responsibility program to ensure that oil operators in the state demonstrate sufficient proof of financial resources to respond to releases or threatened releases of oil.

Program Background

Title 46 of the Alaska Statutes and Title 18, Chapter 75 of the Alaska Administrative Code set forth requirements for oil spill prevention, financial responsibility and oil discharge prevention and contingency planning for the oil industry. The requirements apply to oil terminal facilities, oil tank vessels and barges, crude oil pipelines and onshore and offshore oil exploration and production facilities throughout the state. The Department of Environmental Conservation, through the Industry Preparedness Program, applies and enforces these statutes and regulations. Primary program services include administration and development of the oil discharge prevention and contingency plan review program, facility and vessel spill drill and inspection programs, and a financial responsibility program.

Program Benefits

By upgrading the state's regulation and inspection of oil industry vessels and facility prevention measures and response preparedness, the program can prevent spills, improve response and reduce cleanup costs.

Division of Spill Prevention and Response

Contaminated Sites Remediation

Costs federal $ & misc some 470 $

Alaska Department of Environmental Conservation

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Rich Cormack
Manager,
Contaminated Sites Remediation Program
456-5200

Issues

The Contaminated Sites program abates threats to human health and the environment posed by past improper disposal or discharges of hazardous substances. The program has begun to develop hazardous substance cleanup regulations that would help solve some of the ambiguity currently experienced by the regulated community. In consultation with an external advisory working group composed of the public stakeholders who will be most affected, the program will put major focus on development of regulations to address cleanup standards and program structure. DEC intends that the regulations will encourage voluntary cleanup, minimize the need for Department oversight, stress cost-effectiveness, encourage innovative technologies, and ensure public involvement.

Major Features

- Identify and assess sites to determine their potential threat to public health and the environment and rank sites to determine the priority in which they should be addressed.
- Ensure that contaminated sites undergo investigation and cleanup in a priority order.
- Use term contractors and the Oil and Hazardous Substance Spill Response fund to assess or clean up sites of imminent and substantial threat and which lack a responsible party.
- Develop hazardous substance cleanup regulations and standard operating procedures for all phases of contaminated sites work.
- Negotiate cooperative agreements with the Department of Defense and U.S. Environmental Protection Agency to enable staff oversight of DOD and CERCLA (federal Comprehensive Environmental Restoration, Compensation & Liability Act) sites and participation of staff in assessment of sites within the Superfund system.
- Chairs the State agency MOA working group.
- Negotiate and oversee term contracts.

Program Background

The Contaminated Sites program began 1986, when House Bill 470 established the Oil and Hazardous Substance Release Response Fund and broadened the use of the previously existing response fund to include hazardous substances. The department drew information on known contaminated sites from various programs and began to compile an inventory database in 1988. The program was officially designated in January 1990. It also now encompasses activities under cooperative agreements with the Department of Defense and EPA, which allow funding of staff oversight of military restoration activity and Superfund site projects. The universe of historical contaminated sites under the jurisdiction of the program are defined using the contaminated sites database inclusion criteria, excluding leaking underground storage tanks, which are managed under a separate program.

Program Benefits

The rapid cleanup of contaminated sites before pollutants have reached aquifers is vital to the health of Alaskans and our wildlife.

Division of Spill Prevention and Response

Underground Storage Tank Program

about 1/100.0 of the funding for this comes from 470 Fund

Alaska Department of Environmental Conservation

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Jim Hayden
Manager, Underground Storage Tank Program
456-5200

Issues

The Underground Storage Tank Program protects public health and the environment from the consequences of leaking fuel from underground storage tanks and assists underground storage tank owners and operators in tank cleanup, upgrade, and closure by providing state-funded grants and loans. The program has a diverse set of objectives, funding sources, standards and regulations, and interested parties. Prevention of leaking tanks is a great priority, accomplished through upgrading existing tanks to new standards and making the Financial Assistance program accessible to tank owners. The grant application process has recently been streamlined to expedite dollars to the owners/operators. Financial assistance also assists tank owners with cleanup and upgrade of tanks, as well as tank testing. This allows them to obtain insurance and thus meet financial responsibility requirements. Response to leaking tanks is the program's other main focus, through cleanup of leaking tank sites. Also important is training of personnel to perform work on tanks according to state and federal regulations while following all standard safety practices. Regulations are currently being developed for accreditation of private testing laboratories. DEC is now seeking full UST program delegation from the federal government: although DEC has its own regulations, EPA still has full authority in Alaska, particularly for enforcement.

Major Features

- Immediately respond to reports of leaking underground tanks and set their priority for further departmental action.
- Provide financial assistance grants and loans to upgrade/close, cleanup and test tanks and facilities.
- Facilitate worker certification/training/testing with the Alaska Department of Commerce and Economic Development.
- Provide public and technical information concerning installation, closure, upgrading of tanks as well as up-to-date information on the latest cleanup technologies. Mechanisms include UST hotline, quarterly newsletter, lending library (13 locations) and to day-to-day technical assistance.
- Conduct enforcement pilot project.
- Coordinate with the Board of Storage Tank Assistance.
- Conduct annual tank registration/invoicing program, including late fee collection.
- Promote, develop and participate in numerous workshops for the public, tank owners/operators and contractors.
- Maintain UST database of all tanks in operation and their current status.

Program Background

In 1984, Subtitle I of the federal Resource Conservation and Recovery Act established a regulatory program for the control of underground storage tanks (USTs). The Department of Environmental Conservation participates in the program and receives federal grants to support both the prevention of spills and the cleanup of leaking underground storage tanks. The federal regulations require that new tank installations meet national standards and that

tanks already in operation "phase-in" to meet those standards. Additionally, each facility must show that they have some form of "financial responsibility" in the event of a spill, and must follow standard procedures for reporting and cleanup of spills. Alaska's Petroleum Underground Storage Tank Bill (HB 220) became effective in 1990, and the following year Alaska UST regulations were approved (18 AAC 78). The state law and regulations mirror the federal program but also established the State Tank Assistance program, which offers grants and loans to owners and operators of UST facilities to test, cleanup, upgrade and close their facilities.

Program Benefits

Underground storage tanks which leak oil and other hazardous substances endanger the safety, health and well-being of humans and other life which live in or visit the area. Prevention of leaks and the spread of contamination help protect water supplies vital to the health of Alaskans and their environment.

AS 46.08.030

Says:

It is the intent of the legislature and declared to be the public policy of the state that funds for the abatement of a release of oil or a hazardous substance will always be available. (§ 1 ch 59 SLA 1986)

Sec. 46.08.040. Purposes of the fund. (a) The commissioner may use money from the fund to

(1) investigate and evaluate the release or threatened release of oil or a hazardous substance, and contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) pay all costs incurred to

(A) establish and maintain the oil and hazardous substance response office;

(B) review oil discharge prevention and contingency plans submitted under AS 46.04.030;

(C) conduct training, response exercises, inspections, and tests, in order to verify equipment inventories and ability to prevent and respond to oil and hazardous substance release emergencies, and to undertake other activities intended to verify or establish the preparedness of the state, a municipality, or a party required by AS 46.04.030 to have an approved contingency plan to act in accordance with that plan; and

(D) verify or establish proof of financial responsibility required by AS 46.04.040;

(3) pay the expenses incurred by the Alaska division of emergency services for the oil and hazardous substance response corps and the oil and hazardous substance response depots when presented with appropriate documentation by the division;

(4) provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 — 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980);

(5) recover the cost to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance;

(6) prepare, review, and revise

(A) the state's master oil and hazardous substance discharge prevention and contingency plan required by AS 46.04.200; and

(B) a regional master oil and hazardous substance discharge prevention and contingency plan required by AS 46.04.210; and

(7) restore the environment by addressing the effects of an oil or hazardous substance release.

(b) When the governor declares a disaster related to an oil or hazardous substance discharge emergency under AS 26.23.020(c), the governor may, during the effective period of the disaster emergency, use money from the fund to respond to the disaster emergency.

(c) Notwithstanding other provisions of this section, money from the fund may not be used for a purpose specified in (a)(2)-(7) of this section unless funds are available from an appropriation made specifically for that purpose.

(d) Upon a request from the Alaska Legislative Council, the commissioner shall use money from the fund to reimburse the Alaska Legislative Council for expenditures that it makes for the operation of the Citizens' Oversight Council on Oil and Other Hazardous Substances, established under AS 24.20.600. (§ 1 ch 59 SLA 1986; am § 3 ch 90 SLA 1989; am § 2 ch 113 SLA 1989; am §§ 14, 15 ch 190 SLA 1990; am § 28 ch 191 SLA 1990; am § 3 ch 199 SLA 1990)

Funding History - Division of Spill Prevention and Response

Prior to Fiscal Year 91 no permanent staff of DEC were charged directly to the Oil andd Hazardous Substance Release Response Fund (Response Fund). In FY90 and 91 DEC experienced large staff growth bringing existing programs to core level and adding additional staff associated with new legislation. Beginning in FY 91 and continuing to present, general funding of the Spill Prevention and Response functions has been gradually eliminated. In addition, regional staff have been shifted from other projects to the Spill Prevention and Response projects commensurate with the work load in the respective regions.

STAFFING - FISCAL YEAR 89

FY 89 (est)	FTEs	Gen Fund	Resp Fund	Other Funds
SPPM	19.5	758.5	0.0	226.2
Csites	24.8	1,213.8	0.0	1,457.1
Total	44.3	1,972.3	0.0	1,683.3

LEGISLATION ENACTED 89 SESSION

SLA89 Chapter 29 SB256

Required Department of Law to seek cost recovery at the request of DEC.
Clarified Municipal reimbursements from Response Fund.

SLA 89 Chapter 39 HB68

Authorized DEC to use liens against property as security for State expenditures.

SLA 89 Chapter 112 SB260

Established nickel a barrel surcharge on regulated industry production.

SLA 89 Chapter 90 SB261

Required DEC to prepare and annually revise State Master Plan and Regional Plans.
Authorized DEC to use Response Fund to pay costs of State Master Plan and Regional Plans.
Expanded the uses of the Response Fund to include restoration of the environment by addressing the effects of a release or threatened release.

SLA 89 Chapter 113 SB264

Established Response Office in DEC for catastrophic or declared emergency spills.
Established emergency response equipment depots in DEC's response office.
Established emergency response volunteer corps in DEC's response office.
Expanded uses of Response Fund to pay for Response Office and Depot and Corps.

SLA 89 Chapter 41 SB271

Clarified civil penalty for the unpermitted discharge of oil and the failure to implement an oil discharge contingency plan.

STAFFING - FISCAL YEAR 90

FY 90 (est)	FTEs	Gen Fund	Resp Fund	Other Funds
SPPM	25.0	1,013.3	0.0	235.6
Csites	36.3	876.4	0.0	1,863.5
Total	61.3	1,889.7	0.0	2,099.1

Analysis of Staffing Change from FY 89 to FY 90

The FY90 operating budget request included a structural change from multiple components for individual programs such as Air, Oil, Water to the large single component Environmental Quality (EQ) Projects. The SPPM and Csites projects were included in the EQ Projects component.

Staff increased in the SPPM project in FY 90 due to DEC implementation of a multi year plan to increase staffing to core level necessary to meet statutory, regulatory and legislative intent requirements. Prior to these increases, DEC was not meeting those requirements. The FY 90 increment established a small capacity for spill response and seasonal positions to inspect tankers and facilities for compliance with contingency plan requirements.

Contaminated Sites staff increased in FY 90 due to inclusion of Kenai cleanup project staff previously funded as non permanent or in the CIP budget in the operating budget request. These staff identify and cleanup existing contaminated sites on the Kenai Peninsula which pose a threat to public health.

LEGISLATION ENACTED 90 SESSION

SLA90 Chapter 141 HB315

Categorized environmental crimes and determined appropriate level of criminal behavior for each.

SLA90 Chapter 142 HB316

Established the level of criminal damages to be assessed in fines against organizations for damages caused by environmental crimes.

SLA90 Chapter 190 HB566

Added incident command system requirement to State and Regional Plans.
Required DEC to use the State plan to designate depot and response corps locations .
Required DEC to submit the State master and Regional plans and revisions to the State Emergency Response Commission for review and approval.

Transferred responsibility to establish depots and corps to Division of Emergency Services.
Expanded uses of Response Fund to include DES reimbursement for depots and corps.
Established State Emergency Response Commission (SERC).
Established Local Emergency Planning Committees(LEPCs).
Established Hazardous Substance Spill Technology Review Council (HSSTRC).

* SLA90 Chapter 191 HB567

Required industry contingency plans to include prevention measures.
Added certification requirement for approved contingency plans.
Clarified proof of financial responsibility and limits liability for tank vessel or oil barge operations.
Clarified DEC inspections of regulated industries.
Established DEC participation in structural integrity of vessels, barges, pipelines and facilities.
Expanded uses of Response Fund to include:

Review of oil discharge prevention and contingency plans
Conduct training, response exercises, inspections and tests to verify inventories and ability of state, municipality or parties required to have an approved contingency plan
Verification of financial responsibility

SLA90 Chapter 199 HB578

Established Citizen's Oversight Council
Expanded uses of Response Fund to include Oversight Council costs.

STAFFING - FISCAL YEAR 91

FY 91 (est)	FTEs	Gen Fund	Resp Fund.	Other Funds
SPPM	72.0	1,860.1	3,203.6	0.0
SRO	14.0	0.0	2,703.5	0.0
Csites	41.0	457.8	715.1	1,804.3
Stg Tank Program	11.0	6,009.2	0.0	0.0
Total	138.0	8,327.1	6,622.2	1,804.3

Analysis of Staffing Change from FY 90 to FY 91

FY 91 was the final year of increments to bring the Spill Prevention and Response projects to core level funding. An increment was requested and approved for both the SPPM and Contaminated Sites projects.

The Spill Response Office and Storage Tank Assistance Program were identified as separate projects.

Funding was requested and approved for the Environmental Investigation and Enforcement unit. This unit is responsible for the specialized investigatory and legal resources associated with determination of responsible parties for a release or a contaminated site.

Fiscal notes were attached to HB 566 and HB 567 increasing staffing an additional 22 FTEs to provide resources to perform the additional work necessary to meet the statutory obligations enacted in HB 566 and HB 567.

Additiional staff were approved for the Prince William Sound District Office.

LEGISLATION ENACTED 91 SESSION

SLA91 Chapter 48 SB165

Expanded uses of Response Fund to include refurbishment or construction of marine response vessels.

SLA91 Chapter 83 SB25

Expanded uses of Response Fund to municipal grants.

SLA91 Chapter 31 HB194

Required the Board of Marine Pilots to cooperate with DEC in the review and approval of training programs for pilots of tanker vessels.

SLA91 Chapter 92 HB196

Required the Citizen's Oversight Council to submit a report on whether State laws for response action contractor civil liability and vessel contingency plan requirements should be amended.

SLA91 Chapter 09 SB263

Provided a one-year delay to June 1, 1992 for compliance of non crude oil operations with the financial responsibilities in AS 46.04.040.

Authorized DEC to issue interim approval for contingency plan amendments that substantially comply with the requirements of Chapter 191, SLA90.

STAFFING - FISCAL YEAR 92

FY 92 (est)	FTEs	Gen Fund	Resp Fund	Other Funds
Director	6.0	248.7	182.1	0.0
SPPM	69.0	981.8	4,661.5	77.0
SRO	14.0	0.0	1,107.5	0.0
Csites	40.0	414.8	1,182.4	1,949.4
Stg Tank Program	9.0	0.0	0.0	6,700.0
Total	138.0	1,645.3	7,133.5	8,726.4

Analysis of Staffing Change from FY 91 to FY 92

FY 92 budget structure recognized the creation of the Division of Spill Prevention and Response. The Director's Office and Storage Tank Program were separate components in the FY 92 budget request, but, the projects (SPPM, SRO and Csites) continued as a part of the EQ projects budget request.

Overall staffing levels did not increase, but, were re-aligned commensurate with the needed level of effort in the two components and three projects. The process of shifting funding for Spill Prevention and Response work from General Funds to Response Funds began in FY 92 with central office staff.

LEGISLATION ENACTED 92 SESSION

SLA92 Chapter 83 SB540

Required DEC to develop regulations governing the registration and approval of oil spill primary action contractors.

Required DEC to collect fees in the amount necessary to cover the costs of this program.

STAFFING - FISCAL YEAR 93

FY 93 (actual)	FTEs	Gen Fund	Resp Fund	Other Funds
Director	12.0	115.6	1,459.2	0.0
SPPM	72.5	90.8	9,027.5	0.0
Csites	53.5	351.8	4,717.1	2,582.7
Stg Tank Program	7.0	0.0	0.0	3,822.7
Total	145.0	558.2	15,203.8	6,405.4

Analysis of Staffing Change from FY 92 to FY 93

The FY 93 budget structure established the Division of Spill Prevention and Response as a separate BRU with the projects above as separate components. The Spill Response Office was decentralized with expert spill responders in each region. Administrative Support, Safety and Data Management were transferred from the programs to the Director's Office.

Staff were added for Response Fund Management (1), the Department of Defense cooperative agreement (2), Geographic Information Systems (1 - non perm) and the Leaking Underground Storage Tank program (1 - non perm).

Conversion of the Spill Prevention and Response effort from General Funds to Response Funds continued focusing on regional efforts leaving the Division with 393.0 in General Funds and 165.2 in General Fund Match.

STAFFING - FISCAL YEAR 94

FY 94 (request)	FTEs	Gen Fund	Resp Fund	Other Funds
Director	13.0	0.0	1,296.7	36.4
SPPM	75.2	0.0	8,105.2	225.0
CSites	57.2	165.2	3,727.5	2,225.0
Stg Tank Program	10.0	0.0	0.0	6,621.9
Total	155.4	165.2	13,129.4	9,108.3

Analysis of Staffing Change from FY 93 to FY 94

Non permanent staff previously off budget were included in the FY 94 budget request. Historically the department had not included those positions in budget requests and requested revised programs to move monies from contractual to personal services to pay for non perms.

Non permanent staff are included in the FY 94 operating budget request as follows:

Director's Office - 1 Non Perm Student Intern
Spill Prevention Planning and Management - 1 Non Perm Environmental Specialist
Contaminated Sites - 3 Non Permanent Environmental Specialists
Storage Tank Program - 2 Environmental Specialists (seasonal) and 1 Clerk Typist (seasonal)

A permanent position was added in the Contaminated Sites Program (Site Discovery) and a long term non permanent position in the Underground Storage Tank Program was brought on budget as a permanent part time position.

Regional budgets included an additional .4 FTEs not previously assigned to Spill Prevention and Response projects.

All general funds were eliminated leaving 165.2 in general fund match in the budget request.

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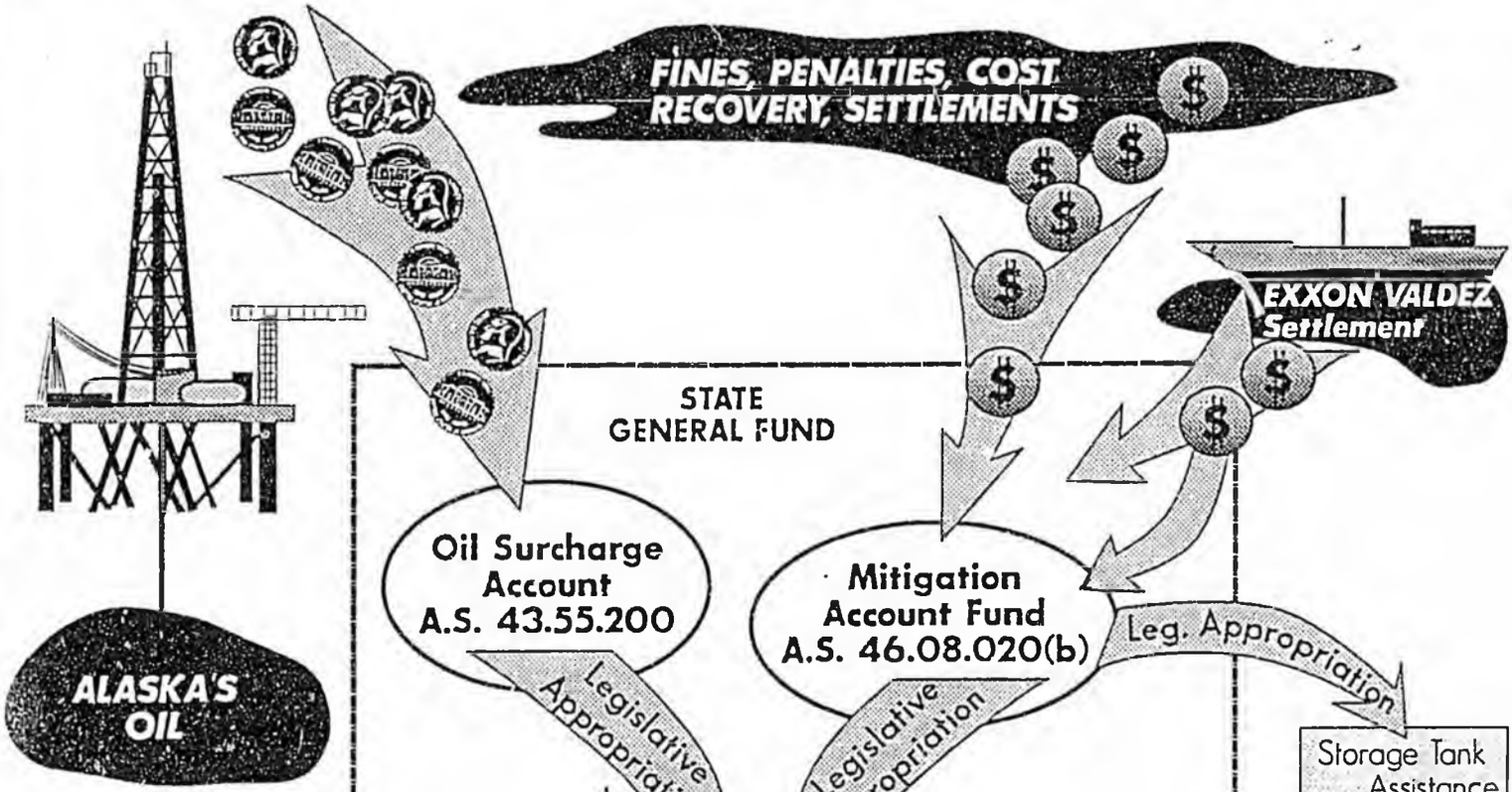

OTHER AGENCIES

Military and Veterans Affairs (DES)
- Response Preparedness & Planning
- Response Depots & Corps
- Hazards Analysis

Transportation and Public Facilities
- Oil Response Ferries

Law
- Cost Recovery
- Regulations/Guidance

Public Safety
- Environmental Crimes
- 24-Hour Dispatch

Fish and Game
- Contingency Plan Reviews

Natural Resources
- Contingency Plan Reviews.

Administration
- Telecommunications Installation/Maintenance

State Emergency Response Commission

Citizens' Oversight Council - not funded in FY94

ENVIRONMENTAL CONSERVATION

State Emergency Response Commission
Local Emergency Planning Committees
Hazardous Substance Spill Technology Review Council
Contaminated Sites
Government Preparedness and Response
Industry Preparedness and Response
Pollution Prevention
Geographic Information Systems

SPILL RESERVE (Emergency Reserve)

Alaska's Oil and Hazardous Substance Release Response Fund — Prepared by ADEC 4/93

SPILL RESERVE EXPENDITURES BY FISCAL YEAR

(in thousands)

	FY 90	245.5
	FY 91	256.8
	FY 92	71.4
	FY 93	299.3
(to date 11/22)	FY 94	272.5
	TOTAL	1,145.5

*note: Expenditures for FY 94 include 156.7 for Project Chariot which will be reimbursed by a federal grant.

SPILL RESERVE AS A PERCENTAGE OF TOTAL RESPONSE FUND EXPENDITURES

0.9 %

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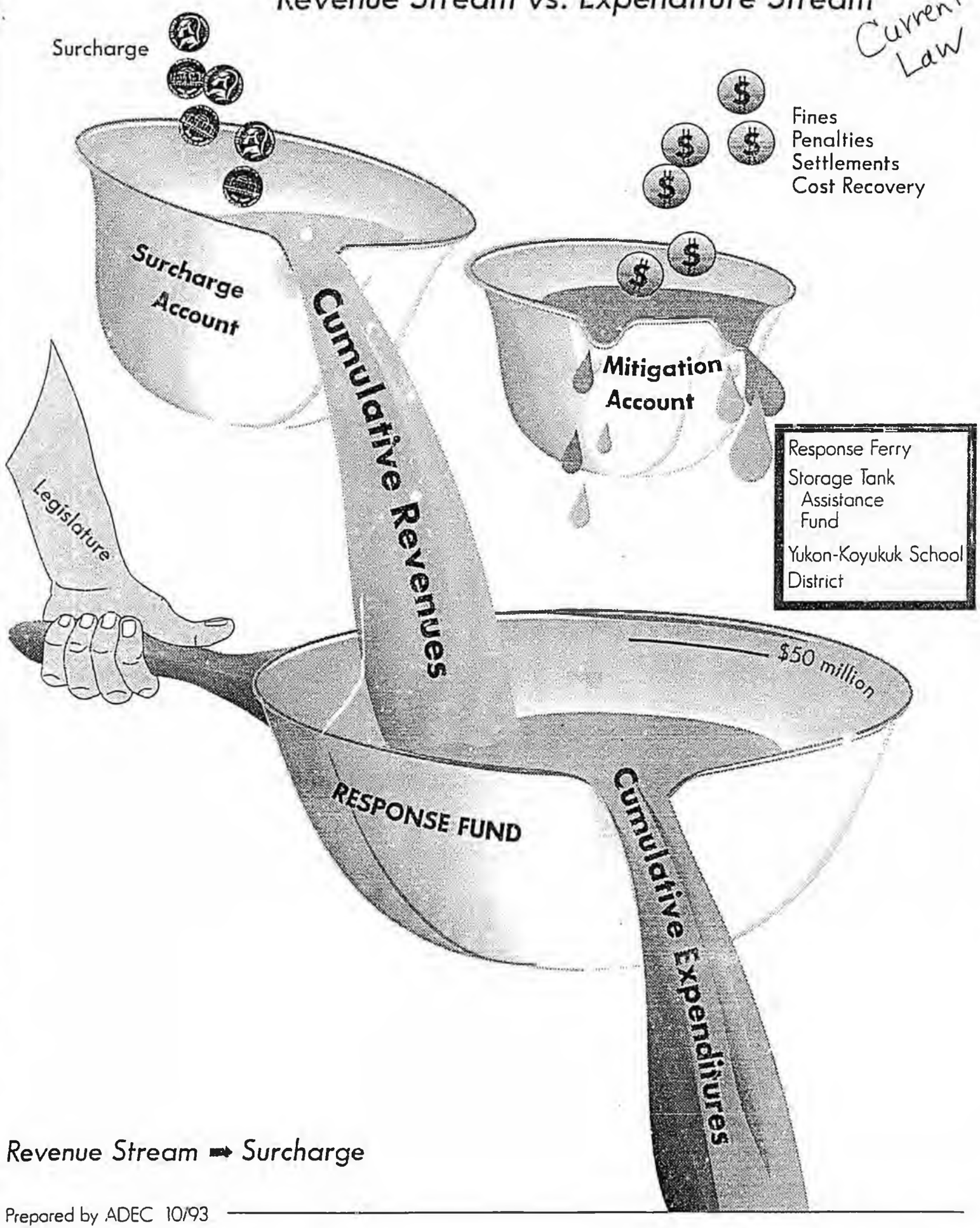
Response Fund Summary as of November 5, 1993

	AS 43.55.230(b) Calculation	Response Fund
Cummulative Surcharge Collected	112,086,145	109,200,000
Cummulative Expenditures	-127,190,873	-127,190,873
Difference	-15,105,728	-17,990,873
Cummulative Other Deposits		
General Fund	0	44,447,000
Program Receipts	0	30,000,000
Mitigation Account	0	5,007,800
Miscellanous/Accounts Receivable	0	-3,048,952
Reserve For Encumbrances	0	-8,880,862
Reserve For Capital Appropriations	0	-3,181,125
Reserve for FY 94 Operating Appropriations (Excluding Spill Reserve Appropriation)	0	-9,302,318
Balance or Spill Reserve	-15,105,728	37,229,869

OIL CONSERVATION SURCHARGE TAX

Revenue Stream vs. Expenditure Stream

Current Law



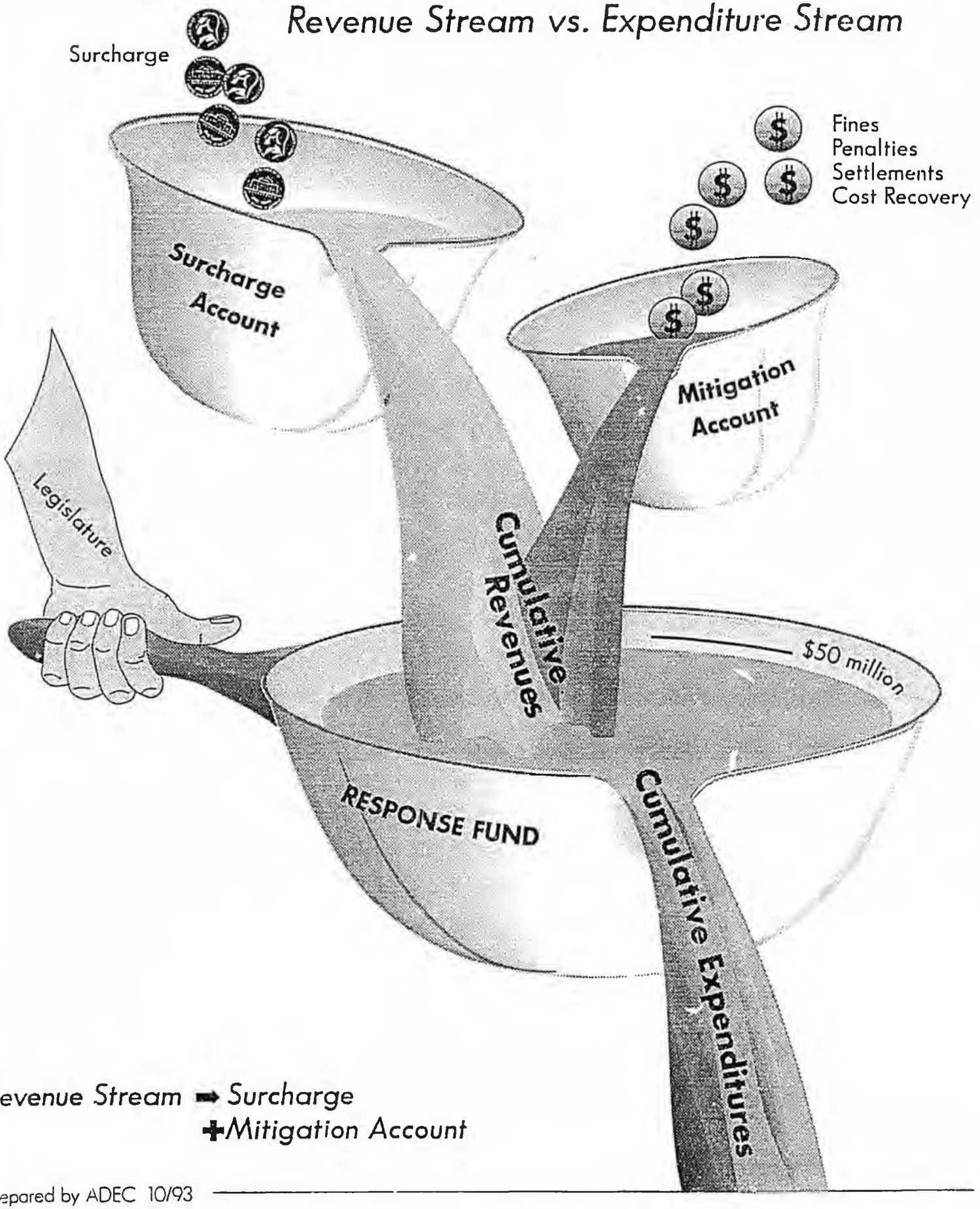
Revenue Stream ➡ Surcharge

Prepared by ADEC 10/93

Proposed Statutory Change (DEC's ~~new~~ proposal)

OIL CONSERVATION SURCHARGE TAX

Revenue Stream vs. Expenditure Stream

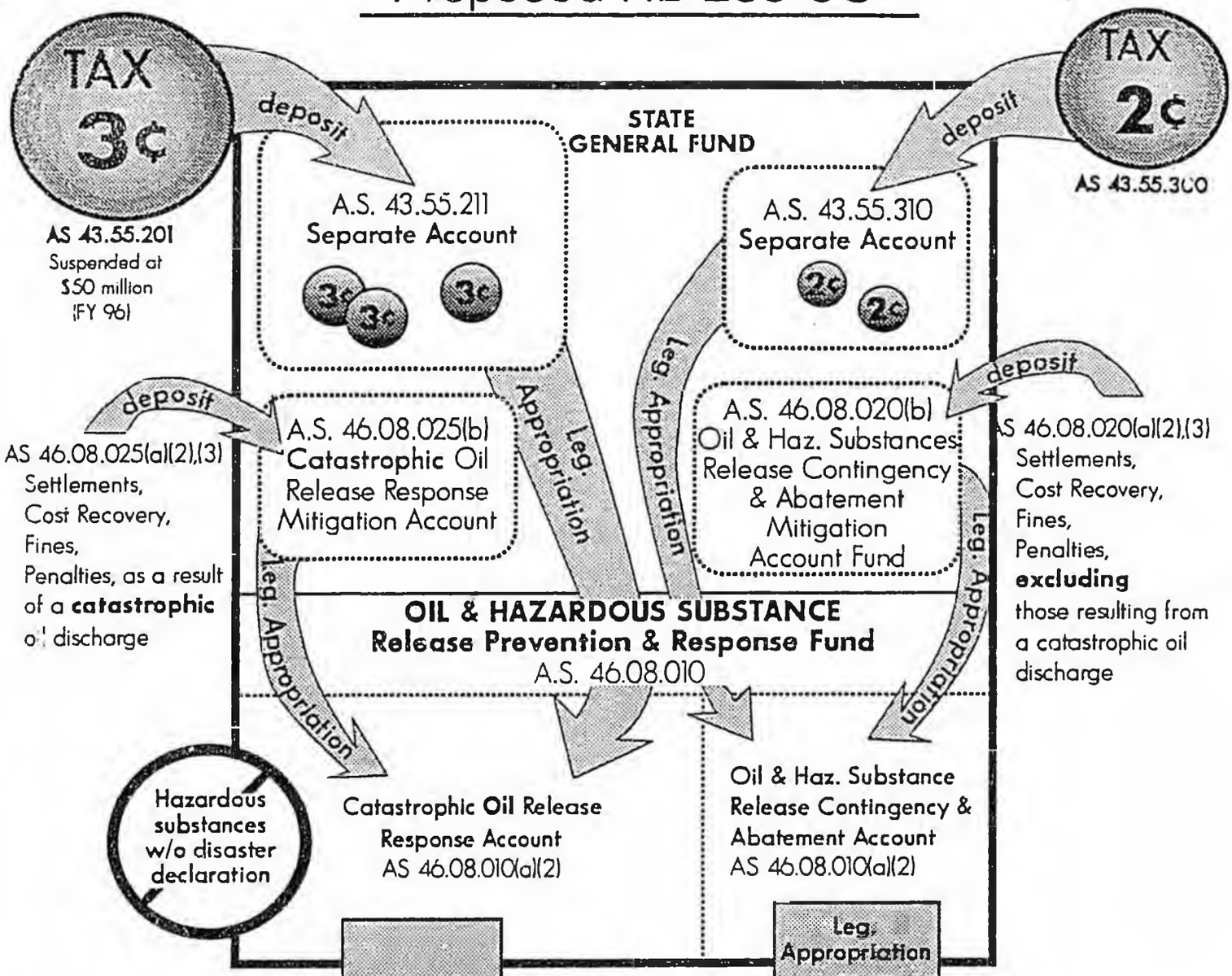


Revenue Stream ➡ Surcharge
➕Mitigation Account

Prepared by ADEC 10/93

HB 238 version D

Proposed HB 238 CS



4,200,000 gallons

30 day max. w/o concurrent resolution; may require special session

Accessed ONLY in the event of a catastrophic oil spill - over 100,000 barrels AS 46.04.900(2)(a)

OR

Declaration of a disaster emergency by the Governor - oil and hazardous substances AS 46.04.900(2)(b)

RESTORATION ???

~~RESEARCH & DEVELOPMENT~~

- Investigate and evaluate release or threatened release of oil or a hazardous substance (non-catastrophic)
- Cost recovery
- State master plan
- Oil and Hazardous Substance Response Office
- Contingency plan review
- Response preparedness and training
- Depots & corps DMVA/DES

RESTORATION ???

~~RESEARCH & DEVELOPMENT~~

Prepared by ADEC 4/93

Talking paper for House Resources Committee Workshop on Response Fund Issues

November 12, 1993
Mead Treadwell, Deputy Commissioner, ADEC
Opening statement

Mr. Chairman, at the end of the last session of the legislature, we and the Committee agreed to work during the interim on improvements to the laws behind the Oil and Hazardous Substance Spill Respond Fund.

With this statement is a talking paper. It represents an attempt to put the facts on the table, and to work to build consensus in an otherwise contentious issue.

We have met with members of public interest groups who were established by law to serve as "watchdogs" to keep spill prevention and response programs strong. We have also met with representatives of those companies who are primary taxpayers of the tax. In both cases, we agreed to continue these discussions toward a consensus, which may be possible.

Alaska's spill prevention and response programs are vital to our health, safety, environment, and economic future. The size of DEC programs to meet these end is one debate. The perception today of secure but unequitable funding is another debate. We believe that finding secure, equitable, and appropriate funding for needed spill prevention and response programs is an achievable goal.

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Principles for concensus on Response Fund Funding

Goals:

*Maintain strong State-led spill prevention and response program.

*Build and maintain $50 million spill reserve.

*Attempt to achieve greater equity in funding sources for non-crude/hazardous substance prevention and response.

Strategy:

*Expand Response Fund Sources, including cost recovery.

*Simplify accounting mechanism to impose/suspend crude oil surcharge.

*Don't diminish the Response Fund's capability to fund necessary programs until other sources are in place for non-crude/hazardous substance prevention and response.

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Specific concerns to meet when applying the Strategy:

*Even though the Spill Reserve approaches $37 million, and thus just $13 million would be necessary to reach a reserve figure of $50 million, the formula for suspending the tax requires at least $65 million more be collected, above additional expeditures, before the tax is suspended.

*There are now no built-in incentives for the legislature to credit repayments to the state from fund expenditures to the fund in collecting the tax.

*There is a perception that some authorized fund expenditures should be unauthorized or further limited. Further checks and balances may be necessary.

*The size of the spill prevention and response program seems to grow to match funds available from the tax, and should instead be set to meet needs for the environment and safety and funded from an equitable series of sources on the "polluter pays" principle.

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Other possible funding sources:

*Receipts from cost recovery/reimbursement

*Mitigation: damages, fines, etc.

*Fees: possible fee for contingency plan review by non-crude facilities, financial responsibility submissions, etc. Loading fees have been discussed as possible UST funding source.

*Substitution of general funds -- interest on the spill reserve, use of other tax revenues.

Method to suspend the tax and include other sources:

*Amend the tax law to state, simply, that the tax is collected when the balance of the fund, less obligations appropriated by the legislature or spent from the spill reserve as provided by law, is less than $50 million.

*Consider an incentive clause to state that the tax will not be collected in such a year unless other named sources (any the legislature chooses from the list above) are also appropriated to the fund.

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Method to further limit fund expenditures:

*Remove full funding for the SERC by making an all-hazards SERC.

*Repeal the provision that allows ferries to be built with the Fund.

*Further checks and balances, such as requiring review of capital and operating expenditures by a body such as the SERC in case of spill prevention and response plans, and the HSSTRC in case of research.

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Projected trends in current cost components:

SPAR Director -- Maintain Response Fund; some GF.

Industry Preparedness -- Program may need to grow to cover unregulated facilities or substances, as evidenced by Indian Spill and chlorine leaks statewide that required evacuation. Non-crude facilities could be asked to pay a fee for c-plan review.

Government Preparedness -- Convert SERC to Disaster Planning; primarily GF/Federal Funds. Other agencies' funding for SERC participation would follow suit.

Contaminated Sites -- Program attempts cost recovery; loading fees or other GF could increase equity; EPA is considering allowing states access to superfund; Coast Guard has given state access to oil pollution fund.

UST Program Administration -- Costs could be borne by same source as the UST grant program. Program should have reduced grant requirements as insurance deadlines take hold late in decade. General funds, loading fees are possible sources. Mitigation account is current source for grant program.

Other DEC Divisions -- Maintain Response Fund.

Other Departments -- Maintain Response Fund or alternate funding source for c-plan review by ADF&G, DNR. Maintain Response Fund for Dept. of Law, DMVA on cost sharing, Public Safety for investigations.

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If surcharge is split ($.03/.02), what is available?

[At a nickel a barrel, revenue estimates are $25 million collected in 1993 available for FY 1995]

	.02	.03
FY 95	$10,400	$15,600
FY 96	9,840	14,760
FY 97	9,040	13,560
FY 98	8,240	12,360
FY 99	7,560	11,340
FY 00	6,800	10,200

Spill Reserve Projected at end of FY 1994: $36,588.3

Mitigation account revenues projected:

FY95	FY96	FY97	FY98	FY99	FY00
5,300	8,300	8,600	8,900	9,000	1,000

Funding need:
$14.1 million/yr.

UKAH

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Oil and Hazardous Substances Prevention and Response Fund

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DEC Proposal 11/93

Revised 11/9/93

	FY94	FY95	FY96	FY97	FY98	FY99	FY2000
Revenue (In Thousands)							
Balance Forward Unreserved/Undesignated Spill Reserve	27,034.1	36,688.3	53,705.3	47,622.3	50,000.0	50,000.0	50,000.0
.05 Surcharge Necessary to Maintain Spill Reserve	26,700.0	26,000.0	0	7,760.7	5,283.0	5,183.0	13,183.0
Mitigation Account Transfers	661.2	5,300.0	8,300.0	8,600.0	8,900.0	9,000.0	1,000.0
TOTAL AVAILABLE IN FUND	54,445.3	67,988.3	62,005.3	64,183.0	64,183.0	64,183.0	64,183.0
PROJECTED EXPENDITURES							
SPAR Director's Office	985.7	992.0	992.0	992.0	992.0	992.0	992.0
Industry Preparedness Program	2,221.8	2,579.0	2,579.0	2,579.0	2,579.0	2,579.0	2,579.0
Government Preparedness and Response Program	4,097.4	3,682.3	3,682.3	3,682.3	3,682.3	3,682.3	3,682.3
Contaminated Sites Program	2,949.3	2,939.0	2,939.0	2,939.0	2,939.0	2,939.0	2,939.0
Underground Storage Tank Program	103.3	108.0	108.0	108.0	108.0	108.0	108.0
Division of Information and Administrative Services	748.5	748.5	748.5	748.5	748.5	748.5	748.5
Division of Environmental Quality (Lab, Ped Prev.)	309.5	334.0	334.0	334.0	334.0	334.0	334.0
Response Fund Administration (Other Agencies)							
Fish and Game	180.7	184.2	184.2	184.2	184.2	184.2	184.2
Natural Resources	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Law (Cost Recovery, Prosecution, Enforcement)	1,360.2	750.0	750.0	750.0	750.0	750.0	750.0
Labor	9.5	0	0	0	0	0	0
Community and Regional Affairs	13.5	0	0	0	0	0	0
Health and Social Services	12.0	0	0	0	0	0	0
Public Safety	59.0	50.0	50.0	50.0	50.0	50.0	50.0
DOT/PF	8.5	0	0	0	0	0	0
DMVA	611.0	210.0	210.0	210.0	210.0	210.0	210.0
University of Alaska/Research	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Capital Budget:	2,774.0	400.0	400.0	400.0	400.0	400.0	400.0
Estimate of Spill Reserve Use	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
SUBTOTAL PROJECTED EXPENDITURES	17,757.0	14,183.0	14,183.0	14,183.0	14,183.0	14,183.0	14,183.0
Spill Reserve Balance	36,688.3	53,705.3	47,822.3	50,000.0	50,000.0	50,000.0	50,000.0

ASSUMPTIONS:

FY93 Revenues are based on appropriations made in FY94 budget.

FY94 projected is based on FY94 Adjusted Budget.

Transfers from Mitigation Account from Exxon settlement are $8.0 million/yr for FY93-FY99.

Cost recovery will begin to increase based on enhanced procedures and efforts.

Mitigation Account is appropriated to the Response Fund.

State Owned Sites are cleaned up using General Funds (19% in projected FY95 Cost).

Average annual expenditures for emergency response from the spill reserve will be 1,000.0.

FY95 Other sources cover 400.0 of SERC in Govt. Preparedness Program and in other agencies.

FY95 reduce DOL $180.0 eliminate Exxon Project. Dept. of Law expenditures will fall or some, as needed, from Spill Reserve.

Total Surcharge Collected reflects amount needed to cover Projected Expenditures. The Mitigation Account transfers count toward the 350.0 million spill reserve balance. The Mitigation Account transfers are estimates projected.

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OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

HB 238 Version "M" work draft
compared to
DEC proposed changes

HB 238 Features	DEC Proposal (11/93)
◆Change name of fund to include "prevention" (sec. 1,4,6,7, 28,37,42)	☞ Include this change
◆Amend the Alaska Disaster Act by changing the pricrity in which the Governor may have access to money to respond to a disaster (sec. 2,3)	☒ Leave current statute which gives first recourse to money regularly appropriated to state agencies
◆Create catastrophic oil release fund and contingency abatement fund to replace response fund (sec. 27,28)	☒ Leave current statute which establishes OHSRR Fund as a single account
◆create separate mitigation account for each account above (sec. 31,32)	☒ Leave current statute which establishes a single mitigation account
◆divide surcharge - 2¢ and 3¢ with 2¢ to be deposited into the abatement account and 3¢ to be deposited into the catastrophic acct. (sec. 9,11,14)	☒ Leave surcharge at 5¢ whole ☒ Include provision which would allow any other fund sources appropriated to be used for the prevention and response program, so as to increase equity on the "polluter pays" principle.
◆catastrophic acct. cap $50.0 m (sec. 12,13)	☒ Amends provision that suspends the surcharge to includ[illegible]ounts recovered as reimbursement for monies

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page

previously expended from the fund, considers spill reserve balance. (Tax in a given year is amount needed to replenish spill reserve to $50.0 million after reimbursements are put in and annual funding requirement is taken out.)

☞begin calculating the balance of the spill reserve with a "clean slate"

◆remove requirement that DEC annually revise the statewide master plan, commissioner makes the determination when revision is necessary (sec. 21)

☞Include this change

◆remove requirement that the statewide master plan be submitted to the public, Legislature and SERC for annual review (sec. 22)

☞Include this change

◆when DEC revises the statewide master plan that it go through public comment and SERC approval (sec. 23)

☞Include this change

◆remove requirement that DEC annually revise the regional contingency plans, commissioner makes the determination when revision is necessary (sec. 24)

☞Include this change

◆provides same procedures for review and revision of statewide plans apply to regional plans (sec. 25)

☞Include this change

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◆amend definition of "catastrophic oil discharge" as >100,000 barrels or a release for which the governor has declared a disaster (sec. 26)	☞Include a portion of the change which adds the term "release" as well as "discharge", a disaster declaration is not necessary to access spill reserve for spills and contaminated sites ☒Include technical amendment to ensure that the definition of "containment and cleanup" includes other permutations of these words
◆delete restoration, and research and development as authorized uses of the fund (sec. 41)	☒Leave current statute which allows these uses ☒Delete provision for the fund to pay for the ferry
◆repeals use of fund for the Citizen's Oversight Council (sec. 48)	☞Include this provision
◆clarify equipment purchase for depots and corps as authorized use of the fund (sec. 30)	☞Include a definition elsewhere in statute to make certain these equipment purchases are included as a use of the fund
◆deletes the following reporting requirements: PCNs, contracts>20.0, purchases>10.0 (sec. 36)	☞Include deletion of PCN reporting requirement
◆amend definition of "threatened release" to require a determination by the commissioner if it is not impending (sec. 44,46)	☒Leave current definition which defines "threatened release" to mean there is an imminent danger that a release will occur
◆move SERC to DMVA (sec. 47)	☒Leave current status

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11/5/93

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Response Fund Summary as of November 5, 1993

	AS 43.55.230(b) Calculation	Response Fund
Cummulative Surcharge Collected	112,085,145	109,200,000
Cummulative Expenditures	-127,190,873	-127,190,873
Difference	-15,105,728	-17,990,873
Cummulative Other Deposits		
General Fund	0	44,447,000
Program Receipts	0	30,000,000
Mitigation Account	0	5,007,800
Miscellenous/Accounts Receivable	0	-3,049,862
Reserve For Encumbrances	0	-8,890,862
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Reserve for FY 94 Operating Appropriations (Excluding Spill Reserve Appropriation)	0	-6,302,319
Balance or Spill Reserve	-15,105,728	37,229,869

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MEMORANDUM

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STATE OF ALASKA
Department of Administration

To: Darrel J. Rehvinkel
Commissioner
Department of Revenue

Date: November 10, 1993

File No:

From: Nancy Burr Ubera
Commissioner
Department of Administration

Phone: 465-2200

Subject: Third Quarter 1993 Report for the Oil Surcharge Account

AS 43.55.230(b) requires that I report to you the difference between the cumulative amount received in the General Fund Oil Surcharge account and the cumulative amount expended from the Oil and Hazardous Substance Release Response Fund (OHSRRF) on a quarterly basis.

AS 43.55.230(c) provides that you suspend imposition and collection of the surcharge when the cumulative revenue of the General Fund Surcharge account equals or exceeds the cumulative amount expended from the OHSRRF by $80,000,000. As of September 30, 1993, the cumulative expenditures of the OHSRRF exceeded the cumulative revenue of the General Fund Oil Surcharge account by $13,014,244. The calculation is as follows:

Oil Surcharge Account cumulative revenue	$111,083,145
Oil and Hazardous Substance Release Response Fund cumulative expenditures	125,098,389
Difference AS 43.55.230 (b)	($ 13,014,244)

If you have any questions, please call Weldon Blackwell of the Division of Finance at 465-3340.

cc: John A. Sandor
Commissioner
Department of Environmental Conservation

Don Wania, Director
Division of Finance
Department of Administration

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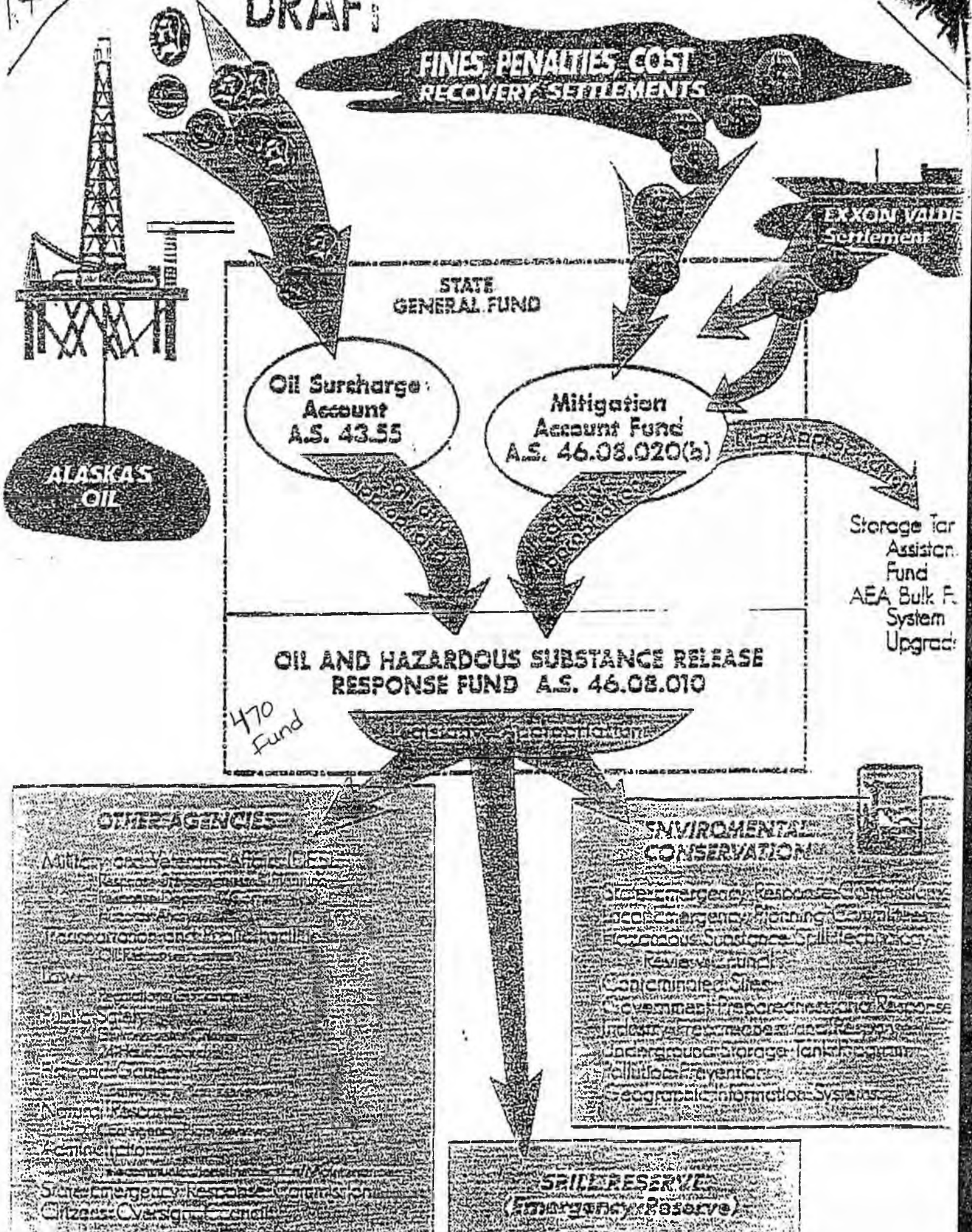
FINES, PENALTIES, COST RECOVERY, SETTLEMENTS
EXXON VALDE Settlement
STATE GENERAL FUND
Oil Surcharge Account A.S. 43.55
Mitigation Account Fund A.S. 46.08.020(b)
ALASKAS OIL
Storage Tar Assistan Fund AEA Bulk F. System Upgrad
OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND A.S. 46.08.010
470 Fund
OTHER AGENCIES
ENVIROMENTAL CONSERVATION
SPILL RESERVE (Emergency Reserve)

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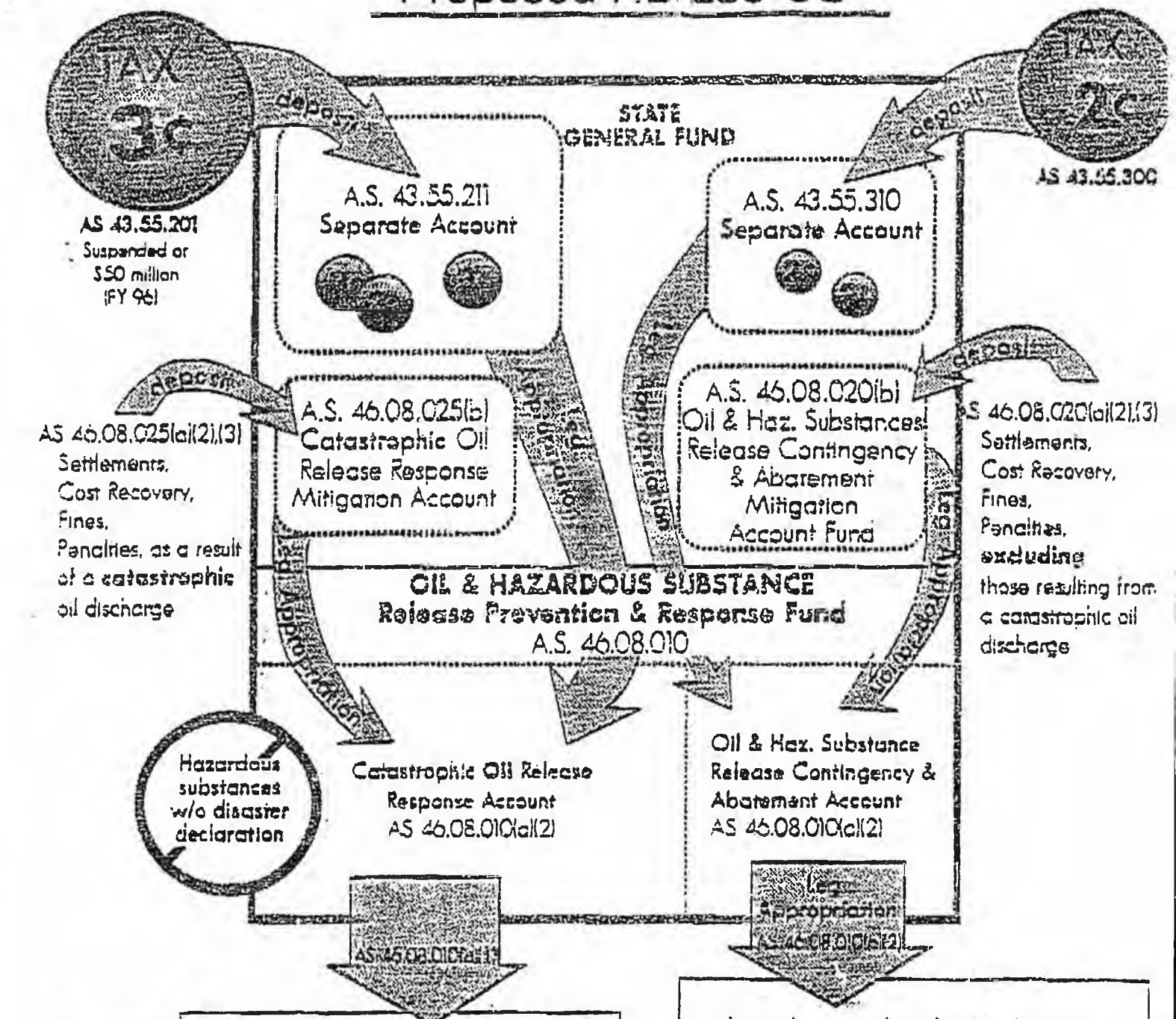
Proposed HB 238 CS



4,200,000 gallons!

30 day max. w/o concurrent resolution; may require special session

Accessed ONLY in the event of a catastrophic oil spill - over 100,000 barrels AS 46.04.900(2)(a)

OR

Declaration of a disaster emergency by the Governor - oil and hazardous substances AS 46.04.900(2)(b)

RESTORATION???

~~RESEARCH & DEVELOPMENT~~

- Investigate and evaluate release or threatened release of oil or a hazardous substance (non-catastrophic)
- Cost recovery
- State master plan
- Oil and Hazardous Substance Response Office
- Contingency plan review
- Response preparedness and training
- Depots & corps DMVA/DES

RESTORATION???

~~RESEARCH & DEVELOPMENT~~

Prepared by ADEC 4/93

MEMORANDUM

STATE OF ALASKA
Department of Administration

To: Darrel J. Rexwinkel
Commissioner
Department of Revenue

Date: April 2, 1993

File Ref:

From: Nancy Bear Usera
Commissioner
Department of Administration

Phone: 465-2200

Subject: First Quarter 1993 Report for the Oil Surcharge Account

AS 43.55.230(b) requires that I report to you the difference between the cumulative amount received in the General Fund Oil Surcharge account and the cumulative amount expended from the Oil and Hazardous Substance Release Response Fund (OHSRRF) on a quarterly basis.

AS 43.55.230(c) provides that you suspend imposition and collection of the surcharge when the cumulative revenue of the General Fund Surcharge account equals or exceeds the cumulative amount expended from the OHSRRF by $50,000,000. For the quarter ended March 31, 1993, the amount expended from the OHSRRF exceeded the revenue of the General Fund Oil Surcharge account by $12,001,425. The calculation is as follows:

Oil Surcharge Account cumulative revenue	$100,830,066
Oil and Hazardous Substance Release Response Fund cumulative expenditures	112,831,491
Difference AS 43.55.230 (b)	-$ 12,001,425

If you have any questions, please call Weldon Blackwell of the Division of Finance at 465-2240.

cc: John A. Sandor
Commissioner
Department of Environmental Conservation

Don Wanie, Director
Division of Finance
Department of Administration

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To	From
Co.	Co.
Dept.	Phone #
Fax #	Fax #

MEMORANDUM

STATE OF ALASKA
Department of Administration

To: Darrel J. Rexwinkel
Commissioner
Department of Revenue

Date: August 20, 1993

File Ref:

From: Nancy Bear Usera
Commissioner
Department of Administration

Phone: 465-2200

Subject: Second Quarter 1993 Report for the Oil Surcharge Account

AS 43.55.230(b) requires that I report to you the difference between the cumulative amount received in the General Fund Oil Surcharge account and the cumulative amount expended from the Oil and Hazardous Substance Release Response Fund (OHSRRF) on a quarterly basis.

AS 43.55.230(c) provides that you suspend imposition and collection of the surcharge when the cumulative revenue of the General Fund Surcharge account equals or exceeds the cumulative amount expended from the OHSRRF by $50,000,000. As of June 30, 1993, the cumulative expenditures of the OHSRRF exceeded the cumulative revenue of the General Fund Oil Surcharge account by $8,543,087. The calculation is as follows:

Oil Surcharge Account cumulative revenue	$109,709,198
Oil and Hazardous Substance Release Response Fund cumulative expenditures	118,252,285
Difference AS 43.55.230 (b)	($ 8,543,087)

If you have any questions, please call Weldon Blackwell of the Division of Finance at 465-2240.

cc: John A. Sandor
Commissioner
Department of Environmental Conservation

Don Wanie, Director
Division of Finance
Department of Administration

Alyeska pipeline SERVICE COMPANY

1835 SOUTH BRAGAW STREET, ANCHORAGE, ALASKA 99512. TELEPHONE (907) 278-1611. TELEX 090 25-127

August 6, 1993

The Honorable Bill Williams
House of Representatives
352 Front Street
Ketchikan, Alaska 99901

Dear Representative Williams:

I would like to inform you about a recent announcement by the Coast Guard concerning recommendations to meet OPA-90 regulations within Alaska Waters which I felt should be of particular interest to you.

These recommendations and alternative proposals reached by Captain of Ports, Regional Citizen Advisory Councils and DEC and TAPS tanker owners help reduce oil spill risks plus increase response capacity.

The following paragraphs were taken from the most recent Response Bulletin dated July 29, 1993:

"Agency Activity "-

ALASKA - COAST GUARD headquarters is reviewing proposed alternative means of complying with OPA 90 for tankers and barges serving Alaska. Because of Alaska's remoteness and weather, both crude and non-crude operators have asked for waivers from the tank vessel response plan regulation requirements. The alternative proposals have been worked out with the Department of Environmental Quality, The Regional Citizens Advisory Councils and Captains of the Ports. The 17th District Coast Guard has recommended approval. The alternatives include measures to reduce risks and increase response capacity.

For example, the TAPS tankers have agreed to route further (100-150 miles) off shore. The crude carriers also agree to fund stand by aircraft for delivery of dispersants in the Gulf of Alaska within 12 hours at an estimated cost of $150,000 per month. Equipment in Prince William Sound would be somewhat modified to go beyond the 50 mile mark to enhance its open water response, additional equipment would be cached in Southeast Alaska to create a tier 1 response capacity. Additional prevention measures identified in the disabled tanker study would be incorporated.

The non-crude operators have promised steps to reduce the spill threat, increase immediate response and augment shore -based capacity. Oil barges would only be towed by twin screw tugs, with extra emergency tow wires. Extra inspectors for tow wires would be employed. Hardware and training would be required for insuring retrieval capacity. A skimmer lightering pump and boom would be carried on board the vessels. Finally, extra equipment would be stationed with SEA PRO in Southeast Alaska, added in Prince William Sound and Dutch Harbor and stored for emergency shipment in Anchorage.

The proposals are likely to be approved as meeting the "Spirit" of OPA 90. However, RCAC's maintain reservations about the reliance on dispersants in the Gulf of Alaska.

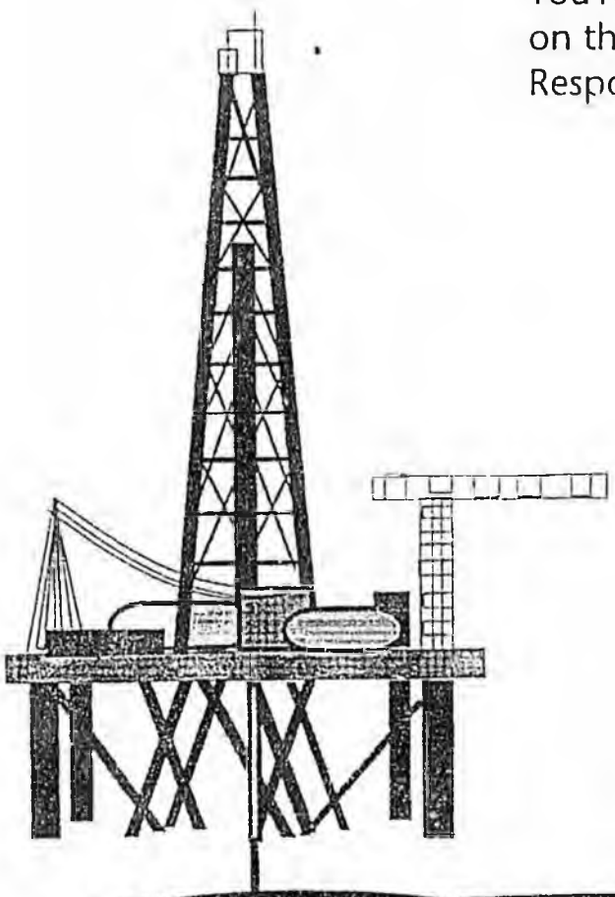
I hope this information helps you better understand the continued effort by all those involved within Alaska (Federal , State, Citizens, and Industry) all working to meet the new federal requirements and my commitment to keep you informed during the interim.

Sincerely,

Paul M. Richards
Manager
Government Relations

To: Legislators, Staff and Press

Alaska's Response Fund



You're invited to an informational workshop on the Oil and Hazardous Substance Spill Response Fund:

- The Fund's history
- How the Fund works...how money goes in and out, and what it's used for
- How the Fund is managed
- The budget process
- Upcoming legislative issues

Tuesday, January 18th,
1:30 to 3:30 PM at
Governor's Conference Room
Capitol Building, 3rd floor

The purpose of this session is to provide nuts and bolts information on the Fund, and to answer any questions you may have. Any information or comments you wish to share will also be welcome.

— Public welcome —

The Alaska Department of Environmental Conservation

For more information call Joe Ferguson at 465-5060

Alaska State Legislature

Legislative Research Agency

130 Seward Street, Suite 218
Juneau, Alaska 99801-2196

Phone: (907) 465-3991
Fax: (907) 463-3351

December 28, 1992

MEMORANDUM

TO: Senator Rick Halford

FROM: Maria Gladziszewski
Legislative Analyst

RE: **Alaska's Oil and Hazardous Substance Release Response Fund: History, Expenditures and Reimbursements**
Research Request 93.062

You asked for the following information about the Oil and Hazardous Substance Release Response Fund (the "470 Fund"):

1. legislative history of the 470 Fund and a brief summary of all legislation passed since 1989 affecting the 470 Fund;

2. current balance of all accounts associated with the 470 Fund and the amount spent annually from the 470 Fund since 1989;

3. status of all expenditures from the 470 Fund associated with the state's response to the *Exxon Valdez* spill, reimbursement to the state of these funds from Exxon under the settlement, and reimbursement to the 470 Fund of this money as it is received by the state; and

4. procedure for reimbursing the fund for expenditures made from it.

Each question is discussed briefly below. Additional information is included in the attached tables and information. Question one is covered in Legislative Research Agency Memorandum 92.236 (Attachment A). In addition, sections of a draft report prepared by the Alaska Department of Environmental Conservation (DEC) chronicle the 470 Fund history (Attachment B, "*A Strategic Plan for the Oil & Hazardous Substance Release Response Fund*"). Tables One and Two address question two. Question three is addressed in Table Three and accompanying notes. Question four, regarding reimbursement procedures, is addressed at the end of this memorandum.

QUESTION ONE: Response Fund History

The Oil and Hazardous Substance Release Response Fund, dubbed the "470 Fund" after the house bill that established it in 1986, originally was used only for containment, cleanup or monitoring of oil or hazardous substance spills. After the 1989 *Exxon Valdez* oil spill, the legislature expanded the use of the fund to finance such additional functions as spill response training, response exercises, and inspections; preparation and review of spill contingency plans; operation of the spill response office, response corps and response depots; environmental restoration after an oil or hazardous substance release; and refurbishment of one or more vessels that have spill response capability.

The 470 Fund began in 1986 as the balance of the Spill Expense Reserve Account (an account established by the legislature in FY 81 and funded with a $1 million appropriation), the balance in the Oil Spill Mitigation Account (a general fund account established in 1982 to accept deposits from oil discharge penalty payments[1]) and an additional $300,000 appropriation.

Between 1986 and 1989, 470 Fund deposits came from general fund appropriations and appropriations of money recovered from parties responsible for oil and hazardous substance spills. In 1989, new legislation required oil producers to pay a conservation surcharge of $0.05 per barrel of oil produced from each lease of state property (AS 43.55.200). The commissioner of the Department of Administration was directed to account separately for all proceeds of the oil surcharge. Since FY 91, the primary funding source for the 470 Fund has been appropriations of receipts from this conservation surcharge.

See Legislative Research Agency Memorandum 92.236 (Attachment A) for a more detailed response fund history. In addition, sections of a draft report prepared by the Alaska Department of Environmental Conservation (DEC) chronicle 470 Fund history (Attachment B).

QUESTION TWO: Current Balance and Amount Spent from the 470 Fund

The lower portion of table 1A shows that on June 30, 1993, the end of FY 93, if all the appropriated money is spent and no additional deposits are made to the fund, the balance in the 470 Fund will be approximately $100,000. This is based on an available fund balance at the beginning of FY 93 of $52.8 million and FY 93 appropriations of $52.7 million.

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[1]This account was repealed by the 1986 legislation establishing the 470 Fund and replaced with the Oil and Hazardous Substance Release Mitigation Account.

According to DEC, FY 93 expenditures as of December 9, 1992 were approximately $13.3 million.

Table 1B includes information about the two primary sources of 470 Fund deposits--the oil and hazardous substance release mitigation account and the account containing deposits from the $.05 per barrel conservation surcharge. Table 1B shows that the available balance in the oil and hazardous substance release mitigation account as of December 18, 1992 was $194,000. The table also shows that from July 1, 1992, to December 18, 1992, the revenue collected by the state from the $0.05 per barrel surcharge on oil has been approximately $8.5 million. Total revenue collected from the surcharge (inception to date) is approximately $92 million.

Table Two shows that during the fiscal years 1987 - 1992, 470 Fund expenditures totaled approximately $94.9 million. This with FY 93 expenditures to date of approximately $13.3 million brings the total expenditures from the 470 Fund to $108.2 million. Table Two also shows that *Exxon Valdez* oil spill-related expenditures for the same period totaled approximately $76 million, or 80 percent of total fund expenditures through FY 92.

QUESTION THREE: Status of *Exxon Valdez* Expenditures

Table Three and accompanying notes show that approximately $36.5 million, or 48 percent of the amount spent from the 470 Fund on *Exxon Valdez* oil spill-related expenditures, has been reimbursed to the fund from payments by Exxon. This amount includes the $4 million that was deposited into the 470 Fund as a result of the first settlement payment made to the state from Exxon in December 1991.

Exxon made a second settlement payment of approximately $29 million to the state in December 1992. Additional reimbursements to the fund are expected as a result of this payment. Assistant Attorney General Craig Tillery reports that preliminary calculations indicate that approximately $12.3 million will be deposited into the mitigation account. If all $12.3 million from the mitigation account were appropriated to the 470 Fund, payments from Exxon will have reimbursed the 470 Fund for approximately 64 percent of 470 Fund *Exxon Valdez* oil spill-related expenditures.

QUESTION FOUR: Procedures for Reimbursing the 470 Fund

Alaska Statute 46.04.010 states that DEC shall promptly seek reimbursement for expenses it incurs in cleaning up or containing an oil spill. "Money received by the department under this section shall be deposited in the general fund and credited to a special account called

the 'oil and hazardous substance release mitigation account'." Christine Underwood, administrative officer with DEC's Division of Administrative Services, reports that all reimbursements received are deposited according to this statute. Deposits may be made to the mitigation account but the legislature must then appropriate that money to the 470 Fund.

The legislature authorized program receipt authority to the 470 Fund in 1989 and 1990. Special appropriations were made to the response fund in March of 1989, $10 million of which were program receipts from Exxon. To date, the state has received $7.7 million in payments on the promised $10 million and the 470 Fund accounts still carry a $2.3 million accounts receivable for these funds.

I hope this information is useful to you. Please do not hesitate to contact this office with additional questions.

Attachments

TABLE 1A:
OIL & HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND
BALANCE SHEET, FY 91 and FY 92

	JUNE 30, 1992	JUNE 30, 1991
Reserve for Encumbrances	$13,911,537.91	$10,910,943.35
Reserve for Prior Year Authorizations	$ 1,822,446.72	$ 117,748.29
Reserve for Restricted Revenue	(5,641,109.99)	0.00
Unreserved	$23,951,883.94	$19,916,033.39
TOTAL FUND BALANCE	**$34,044,758.58**	**$30,944,725.03**

OIL & HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND
BALANCE SHEET, CURRENT and FY 93

Unreserved as of June 30, 1992	$24,000,000 (rounded)
Deposit July 1, 1992 from General Fund (Oil Surcharge Account Revenue)	$27,000,000
Deposit July 1, 1992 from General Fund (Mitigation Account Revenue)	$ 1,800,000
TOTAL UNRESERVED + DEPOSITS (July 1, 1992)	$52,800,000
Fiscal Year 1993 Authorized Expenditures	$52,700,000
Expenditures As of 12/09/92	$13,300,000
BALANCE AS OF 12/09/92	$39,500,000
BALANCE, END OF FY 93*	$ 100,000

*This assumes that all authorized expenditures are made and there are no additional deposits.

SOURCE:

Alaska Department of Environmental Conservation, Division of Administrative Services

Prepared by the Legislative Research Agency, December 1992 (93.062).

TABLE 1B
SOURCES OF REVENUE FOR THE 470 FUND:
MITIGATION ACCOUNT BALANCE AND OIL SURCHARGE REVENUE

Oil & Hazardous Substance Release Mitigation Account
Balance as of 12/18/92

Cash Balance	$2,016,000
Obligations	$1,822,000
Available Balance*	**$ 194,000**

*Exxon made a second settlement payment to the state in December 1992. Assistant Attorney General Craig Tillery expects that approximately $12.3 million of the $29 million payment will be deposited into the mitigation account as payment to the state for unreimbursed response costs.

Unrestricted General Revenue--Oil Surcharge Account
REVENUE COLLECTED

Fiscal Year 1990	$26,932,000
Fiscal Year 1991	$27,965,000
Fiscal Year 1992	$28,669,000
July 1, 1992 - December 18, 1992	$ 8,463,000
TOTAL REVENUE COLLECTED (Inception to 12/18/92)	**$92,029,000**

TOTAL 470 FUND EXPENDITURES
Inception to December 9, 1992

Expenditures FY 87 - 92	**$ 94,894,300**
Expenditures FY 93 as of 12/09/92	**$ 13,300,000**
TOTAL Expenditures*	**$108,194,300**

NOTE:

* This figure is according to the Department of Environmental Conservation. According to Response Fund Annual Reports, 470 Fund actual expenditures for FY 87 to FY 92 total $94.9 million. According to DEC, additional expenditures and obligations of $13.3 million for July 1, 1992 to December 9, 1992 bring the total expenditures (inception to December 9, 1992) to $108.2 million. Total 470 Fund expenditures recorded by the Department of Administration (DOA) vary slightly from DEC records. According to DOA, total expenditures from inception to December 18, 1992 are $107,146,000.

SOURCE:

Department of Administration, Division of Finance (Mitigation and Oil Surcharge accounts); Department of Environmental Conservation (Total 470 Fund expenditures).

Prepared by the Legislative Research Agency, December 1992 (93.062).

TABLE TWO
THE OIL & HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND ("470 Fund"):
ACTUAL EXPENDITURES, FISCAL YEARS 1987 – 1992

	FY 92	FY 91	FY 90	FY 89	FY 88	FY 87	FY 87 – 92 TOTAL
State & Regional Contingency Plans/Requirements	$307.7	$556.7	$158.4				
Spill Response Office, Depots & Corps	$1,125.1	$967.7	$199.8				
Spill Response Containment, Safety, Cleanup & Cost Recovery	$4,224.7	$690.2	$211.0	$246.8 *	$330.0	$428.8	
State Emergency Response Commission & LEPCs (HB 566)	$832.2	$399.6					
Spill Response Drills	$105.7	$448.5					
Exxon Valdez Project – General	$3,461.1	$11,977.7					
Litigation	$1,576.9	$4,100.0					
Damage Assessment	$8,012.8	$8,834.4					***EXXON***
DEC Response			$24,005.4	$5,456.3			***VALDEZ***
Interagency Response			$4,560.0	$609.7			**Subtotal**
Local Response			$3,210.2	$205.6			$76,010.1
Contaminated Site Investigation, Safety, Cleanup & Cost Recovery	$1,262.4	$1,671.7	$774.5				
Kenai Cleanup Project (Contaminated Sites)	$555.9	$583.7					
Spill Prevention & Response Preparedness (HB567)		$1,176.0					
Spill Reserve	$71.4	$313.6	$245.5				
Other	$759.5	$124.3	$112.8				
TOTAL FY 87 – FY 92	**$22,295.4**	**$31,844.1**	**$33,477.6**	**$6,518.4 ***	**$330.0**	**$428.8**	**$94,894.3**
FY 93 Expenditures through December 9, 1992							**$13,300.0**
TOTAL							**$108,194.3**

NOTES:

Response Fund Annual Reports have not consistently reported all the categories listed above for the years 1988 – 1992.

LEPCs = Local Emergency Planning Committees

* By direction of DEC officials, these figures have been slightly modified from the FY 89 Response Fund Annual Report.

SOURCES:

Alaska Department of Environmental Conservation, Response Fund Annual Reports for the years 1987 – 1991; and
Alaska Department of Environmental Conservation, Division of Administrative Services, for 1992, 1993 and modified 1989 data.

Prepared by the Legislative Research Agency, December 1992 (93.062).

TABLE THREE:
REIMBURSEMENTS TO THE 470 FUND RELATING TO THE *EXXON VALDEZ* OIL SPILL
(Inception to June 30, 1992)

Actual Expenditures from the 470 Fund	$76.0 million
Revenue Deposited into the 470 Fund from the Mitigation Account (not including settlement payment deposits)	$32 5 million
Deposit from First Settlement Payment, December 1991	$ 4.0 million
TOTAL DEPOSITS TO DATE *	**$36.5 million** (48% of Fund expenditures on Exxon Valdez)
UNREIMBURSED EXPENDITURES	$39.5 million

SOURCE: Alaska Department of Environmental Conservation

* Assistant Attorney General Craig Tillery reports that settlement money to be received by the state from Exxon can be divided into reimbursements for litigation, damage assessment, and response costs. The first two, litigation and assessment costs, were addressed first because it was reasoned that these types of expenses were not likely to be recovered from Alyeska in subsequent litigation. According to a memorandum from Attorney General Charles Cole to OMB Director Shelby Stastny (dated January 21, 1992), approximately $38.2 million was due to the state from Exxon for litigation and assessment costs--86.5 percent for litigation costs and 13.5 percent for 470 Fund expenditures on damage assessment. Approximately $25.3 million (or 86.5 percent) of Exxon's first $29.3 million settlement payment to the state (in December 1991), therefore, was deposited into the general fund as reimbursement for litigation costs (account #64030-Legal Services). The remaining $4 million was deposited into the 470 Fund (see Attachment C, January 21, 1992 memorandum).

According to Assistant Attorney General Craig Tillery, Exxon made a second settlement payment a few weeks ago (December 1, 1992). As is specified in statute, that second payment (approximately $29 million) has been deposited in the general fund until it can be determined into which other accounts deposits should be made. Legislation passed in June 1992 (Section 1 Chapter 1 FSSLA 1992, included as Attachment D) specifies that money received by the state as reimbursement for state expenses related to the *Exxon Valdez* oil spill be deposited into the general fund. The law also specifies how to determine the percentage of a given settlement payment to be deposited into the mitigation account.

Mr. Tillery reports that the state's oil spill accounting firm, the Seattle-based Peterson and Company, is in the process of determining how much of the second settlement payment should be deposited into the 470 Fund as reimbursement for response costs. Mr. Tillery expects that approximately $12.3 million of the $29 million will be deposited into the mitigation account. If all $12.3 million is then deposited into the 470 Fund, reimbursements to the 470 Fund as a result of payments from Exxon would total $48.8 million (64 percent of 470 Fund expenditures on *Exxon Valdez*) and the total 470 Fund unreimbursed expenditures would be reduced to $27.2 million.

ATTACHMENT A

"History of the Oil & Hazardous Substance Release Response Fund"
Legislative Research Agency Memorandum 92.236

Alaska State Legislature

Legislative Research Agency

130 Seward Street, Suite 218
Juneau, Alaska 99801-2196

Phone: (907) 465-3991
Fax: (907) 463-3351

May 4, 1992

MEMORANDUM

TO: Representative Kevin "Pat" Parnell

FROM: Glenn T. Gray GTG
Legislative Analyst

RE: History of the Oil and Hazardous Substance Release Response Fund
Research Request 92.236

You asked for a history of the Oil and Hazardous Substance Release Response Fund, hereafter referred to as the Response Fund. The fund is also known as the "470 Fund" after HB 470 which established the fund in 1986. We obtained the information for this memorandum from session laws (Attachment A), from a draft document currently being prepared by the Department of Environmental Conservation (Attachment B), and from annual reports to the Alaska State Legislature (Attachment C).

Summary

The legislature created the Response Fund in 1986 with the intent that money would always be available to respond to oil and hazardous materials spills. While initially the primary intent of the fund was to finance spill clean up and monitoring, legislative changes after the 1989 *Exxon Valdez* oil spill expanded the use of the fund and its source of financing. The fund may now be used for certain state agency operating expenses related to spills and for certain capital expenses, such as construction of oil spill response vessels and spill response depots.

The fund was originally financed from the general fund but now is primarily funded by a $0.05 per barrel conservation surcharge.

Original Intent of the Fund

The legislature replaced the Spill Expense Reserve Account (Reserve Account) in 1986 when it created the Oil and Hazardous Substance Release Response Fund. Chapter 59 SLA 86 created the Response Fund for "payment of the expenses incurred by the Department of Environmental Conservation in the protection of

Amendments to the Fund

The legislature made changes to the fund in 1989, 1990 and 1991.[2] These changes expanded uses of the Response Fund to include funding for:

- grants issued by the Department of Community and Regional Affairs;
- operation of the Citizens' Oversight Council;
- spill response during disasters declared by the governor;
- operation of the spill response office;
- review of discharge prevention and contingency plans;
- completion of training and response exercises;
- verification of proof of financial responsibility;
- operation of the response corps and response depots managed by the state Division of Emergency Services, Department of Military and Veterans' Affairs ;
- preparation of state and regional discharge prevention and contingency plans; and
- refurbishment of vessels for oil spill response by the state Department of Transportation and Public Facilities.

These uses of the funds are described in more detail in Attachment B and Attachment C.

I hope that this information answers your questions about how use of the Response Fund has changed since its inception. Please contact this office if we may be of additional service.

Attachments

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[2]Session laws containing these changes are: Chapters 29, 39, 90 and 113 SLA 89; Chapters 190, 191 and 199 SLA 90; and Chapters 48 and 83 SLA 91.

ATTACHMENT A
Session Laws Affecting the Response Fund

1986

Chapter 59

AN ACT

Relating to the release of oil and hazardous substances; repealing the oil spill mitigation account; and providing for an effective date.

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* Section 1. AS 46 is amended by adding a new chapter to read:

CHAPTER 08. OIL AND HAZARDOUS SUBSTANCE RELEASES.

Sec. 46.08.005. PURPOSE. The legislature finds and declares that the release of oil or hazardous substances into the environment presents a real and substantial threat to the public health and welfare, to the environment, and to the economy of the state. The legislature therefore concludes that it is in the best interest of the state and its citizens to provide a readily available fund for the payment of the expenses incurred by the Department of Environmental Conservation in the protection of the environment of the state from the release of oil or hazardous substances.

Sec. 46.08.010. FUND ESTABLISHED. (a) There is established in the state general fund the oil and hazardous substance release response fund. The fund shall be administered by the commissioner of environmental conservation.

(b) Money from an appropriation made to the fund remaining in the fund at the end of a fiscal year remains available for expenditure in successive fiscal years.

(c) The fund shall be used for actual expenses incurred under AS 46.08.040. The fund may not be used for capital improvements.

Sec. 46.08.020. FINANCING OF THE FUND. (a) The legislature may appropriate from the following sources to the fund:

(1) money received from federal, state, or other sources or from a private donor;

(2) money recovered or otherwise received from parties responsible for the containment and cleanup of oil or a hazardous substance at a specific site, but excluding funds from performance bonds and other forms of financial responsibility held in escrow pending satisfactory performance of a privately financed response action;

(3) fines, penalties, or damages recovered under this chapter or other law for costs incurred by the state as a result of the release or threatened release of oil or a hazardous substance.

(b) Money received by the state under (a)(2) and (a)(3) of this section shall be deposited in the general fund and credited to a special account called the "oil and hazardous substance release mitigation account." The legislature may annually appropriate to the fund from this account a sum equal to the amount received under (a)(2) and (a)(3) of this section during the calendar year preceding the legislative session in which the appropriations are to be made.

Sec. 46.08.030. FINANCING THE ABATEMENT OF OIL OR HAZARDOUS SUBSTANCE RELEASES. It is the intent of the legislature and declared to be the public policy of the state that funds for the abatement of a release of oil or a hazardous substance will always be available.

Sec. 46.08.040. PURPOSES OF THE FUND. The commissioner may use money from the fund to

(1) contain, clean up, and take other necessary action, such as monitoring, assessing, investigating, and evaluating the release or threatened release of oil or a hazardous substance that

poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); and

(3) recover the cost to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance.

Sec. 46.08.050. RECORDS OF THE FUND. (a) The department shall maintain accounting records showing the income and expenses of the fund.

(b) The department shall develop procedures governing the expenditure of, and accounting for, money expended from the fund, and may not delay implementation of this chapter pending the effective date of the procedures.

Sec. 46.08.060. REPORT TO THE LEGISLATURE. (a) The commissioner shall submit a report to the legislature not later than the 10th day following the convening of each regular session of the legislature. The report may include information considered significant by the commissioner but must include:

(1) the amount of money expended under AS 46.08.040 during the preceding fiscal year;

(2) the amount and source of money received and money recovered during the preceding fiscal year as specified in AS 46.08.020;

(3) a summary of municipal participation in responses funded by the fund;

(4) a detailed summary of department activities in

responses funded by the fund during the preceding fiscal year, including response descriptions and statements outlining the nature of the threat; and

(5) the projected cost for the next fiscal year of monitoring, operating, and maintaining sites where response has been completed or is expected to be continued during the fiscal year.

(b) As part of the department's on-going identification efforts associated with oil spill or hazardous waste sites, the commissioner shall include in the report under this section

(1) a summary of the sites identified by the department;

(2) the immediate and long-term threats to the public health or welfare or to the environment posed by these sites; and

(3) the appropriate actions needed to abate these threats and their estimated cost.

Sec. 46.08.070. REIMBURSEMENT FOR CONTAINMENT AND CLEANUP. (a) The commissioner shall seek reimbursement promptly under this section, AS 46.03.760(e), or federal law for the cost incurred in the cleanup or containment of oil or a hazardous substance that has been released.

(b) The attorney general, at the request of the commissioner, may seek to recover money expended by the department under this chapter or other law to contain and clean up oil or a hazardous substance that has been released or to control the threatened release of oil or a hazardous substance.

(c) The department may reimburse a municipality for actual expenses, other than normal operating expenses, incurred in the abatement of a release or threatened release of oil or a hazardous substance if

(1) the municipality has entered into an agreement with the commissioner under AS 46.09.020(e) before incurring the expenses for

which reimbursement is sought; and

(2) the commissioner determines that the expenses were for a necessary emergency first response to a release or threatened release that posed an imminent and substantial threat to the public health or welfare, or to the environment.

Sec. 46.08.080. REGULATIONS. The commissioner shall periodically review the minimum quantities of hazardous substances established under federal law and may adopt regulations establishing minimum quantities of substances for all or any portion of the substances to which this chapter otherwise applies. The commissioner may otherwise adopt only those regulations that are expressly required to implement the specific purposes of this chapter.

Sec. 46.08.900. DEFINITIONS. In this chapter

(1) "capital improvement" includes construction, renovation, repair of, and improvement to, a building, but does not include other improvements to real property, such as construction of a dike or retaining wall;

(2) "commissioner" means the commissioner of environmental conservation;

(3) "containment and cleanup" includes the direct and indirect efforts associated with the prevention, abatement, containment, or removal of oil or a hazardous substance, the restoration of the environment, and incidental administrative costs;

(4) "department" means the Department of Environmental Conservation;

(5) "fund" means the oil and hazardous substance release response fund;

(6) "hazardous substance" means

(A) an element or compound that, when it enters into

or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or

B) a substance defined as a hazardous substance under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980);

(C) "hazardous substance" does not include uncontaminated crude oil or uncontaminated refined oil in an amount of 10 gallons or less;

(7) "oil" means petroleum products of any kind and in any form, whether crude, refined, or a petroleum by-product, including petroleum, fuel oil, gasoline, lubricating oils, oily sludge, oily refuse, oil mixed with other wastes, liquified natural gas, propane, butane, and other liquid hydrocarbons regardless of specific gravity;

(8) "permitted release" means a release occurring under the authority of a valid permit issued by the department or by the Environmental Protection Agency;

(9) "release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, except that "release" does not include a permitted release or an act of nature;

(10) "threatened release" means an imminent danger that a release will occur.

* Sec. 2. AS 46 is amended by adding a new chapter to read:

CHAPTER 09. HAZARDOUS SUBSTANCE RELEASE CONTROL.

Sec. 46.09.010. REPORT OF HAZARDOUS SUBSTANCE RELEASES. (a) Except as provided in (b) of this section, a person in charge of a

vehicle, vessel or container from which, or a place at which, a hazardous substance is released shall report the release to the department and appropriate public safety agencies promptly after learning of the release.

(b) The commissioner may enter into an agreement with a person for the periodic reporting of a controlled release of a hazardous substance if the release is not into water.

Sec. 46.09.020. CONTAINMENT AND CLEANUP OF A RELEASED HAZARDOUS SUBSTANCE. (a) A person who causes a release of a hazardous substance shall make reasonable efforts to contain and clean up the hazardous substance promptly after learning of the release, unless the commissioner determines

(1) after consulting the Environmental Protection Agency or appropriate public safety agencies, that containment or cleanup is technically infeasible;

(2) that containment or cleanup would cause greater environmental damage than if the release were not contained or cleaned up; or

(3) that containment or cleanup would pose a greater threat to human life or health than if the release were not contained or cleaned up.

(b) The commissioner shall develop guidelines prescribing general procedures and methods to be used in the containment and cleanup of a hazardous substance. The guidelines shall be consistent with the national contingency plan revised and republished under 42 U.S.C. 9605.

(c) If the commissioner determines that the containment or cleanup of a hazardous substance undertaken is inadequate, the commissioner may direct the person undertaking the containment or cleanup to

cease and may undertake the containment or cleanup directly or by contract.

(d) If it appears to the commissioner that the cause or responsibility for the release of a hazardous substance is unclear or unexplained, the commissioner may immediately undertake the containment and cleanup of the release unless the commissioner determines

(1) after consulting the Environmental Protection Agency or appropriate public safety agencies, that containment or cleanup is technically infeasible;

(2) that containment or cleanup would cause greater environmental damage than if the release were not contained or cleaned up; or

(3) that containment or cleanup would pose a greater threat to human life or health than if the release were not contained or cleaned up.

(e) The commissioner shall enter into agreement with the Environmental Protection Agency, and may enter into agreements with other persons and municipalities, in order to

(1) facilitate a coordinated and effective hazardous substance release response in the state;

(2) provide for cooperative hazardous substance release notification procedures; or

(3) provide for cooperative review of hazardous substance release response contingency plans submitted to the department.

Sec. 46.09.030. DISASTER EMERGENCIES. The commissioner may request the governor to determine that an actual or imminent release of a hazardous substance constitutes a disaster emergency under AS 26.23. If the governor declares a disaster emergency under AS 26.23, the commissioner may assist the adjutant general in the relief of

the emergency.

Sec. 46.09.040. HAZARDOUS SUBSTANCES CONTAINMENT AND CLEANUP. The commissioner may contract with a person or a municipality for personnel, equipment, or services that may be useful to carry out the requirements of this chapter. If the commissioner determines that it is infeasible to contract with a person or a municipality, the commissioner may establish and maintain containment and cleanup personnel, equipment, and supplies necessary to carry out the requirements of this chapter.

Sec. 46.09.050. COMPACTS AUTHORIZED. The governor may enter into supplementary agreements, reciprocal arrangements, and compacts with another state or country for the implementation of this chapter subject to the approval of the Congress of the United States, if required, under the Constitution of the United States.

Sec. 46.09.060. MUNICIPALITIES. (a) If a provision of this chapter or of a regulation adopted by the commissioner under this chapter conflicts with the charter, ordinance, or regulation of a municipality, the provision of this chapter or of the regulation adopted by the commissioner under this chapter prevails.

(b) Authority to contain, clean up, or prevent a release or threatened release of oil or of a hazardous substance, and to exercise other powers necessary to implement this chapter and AS 46.08, are granted to municipalities that do not otherwise have that authority. Except as provided in (a) of this section, a municipality may exercise its police power within the area of the municipality.

Sec. 46.09.070. REGULATIONS. The commissioner shall periodically review the minimum quantities of hazardous substances established under federal law and may adopt regulations establishing minimum quantities of substances for all or any portion of the substances to

which this chapter otherwise applies. The commissioner shall adopt only those regulations that are expressly required to implement the specific purposes of this chapter.

Sec. 46.09.900. DEFINITIONS. In this chapter

(1) "commissioner" means the commissioner of environmental conservation;

(2) "containment and cleanup" includes the direct and indirect efforts associated with the prevention, abatement, containment, or removal of a hazardous substance, the restoration of the environment, and incidental administrative costs;

(3) "department" means the Department of Environmental Conservation;

(4) "hazardous substance" means

(A) an element or compound that, when it enters into or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or

(B) a substance defined as a hazardous substance under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980);

(C) "hazardous substance" does not include uncontaminated crude oil or uncontaminated refined oil;

(5) "permitted release" means a release occurring under the authority of a valid permit issued by the department or by the Environmental Protection Agency;

(6) "release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, except that "release" does not include a permitted release or an act of nature;

(7) "threatened release" means an imminent danger that a release will occur.

Sec. 3. AS 26.23.050(b) is amended to read:

(b) Whenever, and to the extent that, money is needed to cope with a disaster, the first recourse shall be to funds regularly appropriated to state and local agencies. The second recourse shall be to funds available in the disaster relief fund or the oil and hazardous substance release response fund, as appropriate. If money available from these sources is insufficient, and if the governor finds that other sources of money to cope with the disaster are not available or are insufficient, the governor may, notwithstanding any limitation imposed by AS 37.07.080(e), transfer and spend money appropriated for other purposes or, in situations involving natural disasters, borrow from the United States government or other public or private sources for a term not to exceed two years.

Sec. 4. AS 26.23.230(1) is amended to read:

(1) "disaster" means the occurrence or imminent threat of widespread or severe damage, injury, or loss of life or property resulting from any natural or nonmilitary man made cause including, but not limited to, fire, flood, earthquake, landslide, mudslide, avalanche, wind-driven water, weather condition, tsunami, [OIL SPILL OR OTHER WATER CONTAMINATION REQUIRING EMERGENCY ACTION TO AVERT DANGER OR DAMAGE], volcanic activity, epidemic, air contamination, blight, infestation, explosion, riot, equipment failure, or shortage of food, water, fuel, or clothing, or the release of oil or a hazardous substance requiring prompt action to avert environmental danger or damage;

* Sec. 5. AS 44.19.050 is amended to read:

Sec. 44.19.050. DEFINITION. In AS 44.19.048 and 44.19.00[illegible] "disaster" means the occurrence or imminent threat of widespread o[illegible] severe damage, injury, or loss of life or property resulting from a[illegible] natural or man-made cause including, but not limited to, fire, flood[illegible] earthquake, landslide, avalanche, wind-driven water, weather condi[illegible] tion, tsunami, [OIL SPILL OR OTHER WATER CONTAMINATION REQUIRIN[illegible] EMERGENCY ACTION TO AVERT DAMAGE,] volcanic activity, epidemic, a[illegible] contamination, blight, infestation, explosion, [OR] riot, or the release of oil or a hazardous substance requiring prompt action to avert environmental danger or damage.

* Sec. 6. AS 45.45.900 is amended to read:

Sec. 45.45.900. INDEMNIFICATION AGREEMENTS CONTRA TO PUBLIC POLICY. A provision, clause, covenant, or agreement contained in, collateral to, or affecting a [ANY] construction contract that [WHICH] purports to indemnify the promisee against liability for damages for (1) death or bodily injury to persons, (2) injury to property, (3) design defects or (4) [ANY] other loss, damage or expense arising under (1), (2), or (3) of this section from the sole negligence or wilful misconduct of the promisee or the promisee's agents, servants or independent contractors who are directly responsible to the promisee, is against public policy and is void and unenforceable; however, this provision does not affect the validity of an [ANY] insurance contract, workers' compensation, or agreement issued by an insurer subject to the provisions of AS 21, or a provision, clause, covenant or agreement of indemnification respecting the handling, containment or cleanup of oil or hazardous substances as defined in AS 46.

* Sec. 7. AS 46.03.290(a) is amended to read:

(a) When the department finds that an actual or imminent

discharge of oil, a hazardous substance, or low level radioactive materials to the air, water, land or subsurface land of the state poses an immediate threat to the public health or welfare, or the environment of the state, it may issue an order declaring an emergency and directing a person or persons to take action the department believes necessary to meet the emergency, and protect the public health, welfare, or environment.

* Sec. 8. AS 46.03 is amended by adding a new section to read:

Sec. 46.03.745. HAZARDOUS SUBSTANCE RELEASE. Except for a controlled release, the reporting of which is the subject of an agreement with the commissioner under AS 46.09.010(b), a person may not cause or permit the release of a hazardous substance as defined in AS 46.09.900.

* Sec. 9. AS 46.03.760(a) is amended to read:

(a) A person who violates or causes or permits to be violated a provision of this chapter other than AS 46.03.250 - 46.03.314, or a provision of AS 46.04 or AS 46.09, or a regulation, a lawful order of the department, or a permit, approval, or acceptance, or term or condition of a permit, approval, or acceptance issued under this chapter or AS 46.04 or AS 46.09 is liable, in a civil action, to the state for a sum to be assessed by the court of not less than $500 nor more than $100,000 for the initial violation, nor more than $5,000 for each day after that on which the violation continues, and that shall reflect, when applicable,

(1) reasonable compensation in the nature of liquidated damages for any adverse environmental effects caused by the violation, that shall be determined by the court according to the toxicity, degradability and dispersal characteristics of the substance discharged, the sensitivity of the receiving environment, and the degree

to which the discharge degrades existing environmental quality;

(2) reasonable costs incurred by the state in detection, investigation, and attempted correction of the violation;

(3) the economic savings realized by the person in not complying with the requirement for which a violation is charged.

* Sec. 10. AS 46.03.765 is amended to read:

Sec. 46.03.765. INJUNCTIONS. The superior court has jurisdiction to enjoin a violation of this chapter, [OR] AS 46.04, or AS 46.09 or of a regulation, a lawful order of the department, or permit, approval, or acceptance, or term or condition of a permit, approval, or acceptance issued under this chapter, [OR] AS 46.04, or AS 46.09. In actions brought under this section, temporary or preliminary relief may be obtained upon a showing of an imminent threat of continued violation, and probable success on the merits, without the necessity of demonstrating physical irreparable harm. The balance of equities in actions under this section may affect the timing of compliance, but not the necessity of compliance within a reasonable period of time.

* Sec. 11. AS 46.03.780(a) is amended to read:

(a) A person who violates a provision of this chapter, [OR] AS 46.04, or AS 46.09, or who fails to perform a duty imposed by this chapter, [OR] AS 46.04, or AS 46.09, or violates or disregards an order, permit, or other determination of the department made under the provisions of this chapter, [OR] AS 46.04, or AS 46.09, respectively, and thereby causes the death of fish, animals, or vegetation or otherwise injures or degrades the environment of the state is liable to the state for damages.

* Sec. 12. AS 46.03.790(a) is amended to read:

(a) Except as provided in (d) - (f) of this section, a person who negligently violates a provision of this chapter, [OR] AS 46.04, or AS 46.09, or of a regulation, lawful order of the department, or permit, approval, or acceptance, or term or condition of a permit, approval, or acceptance issued under this chapter, [OR] AS 46.04, or AS 46.09 is guilty of a class B misdemeanor.

* Sec. 13. AS 46.03.790(b) is amended to read:

(b) Except as provided in (d) - (f) of this section, a person who knowingly violates a provision of this chapter, [OR] AS 46.04, or AS 46.09, or of a regulation, lawful order of the department, or permit, approval, or acceptance, or term or condition of a permit, approval, or acceptance issued under this chapter, [OR] AS 46.04, or AS 46.09 is guilty of a class A misdemeanor.

* Sec. 14. AS 46.03.790(d) is amended to read:

(d) Notwithstanding (a) and (b) of this section, a person who fails to provide or falsely states information required under AS 46.03.755, [OR] AS 46.04, or AS 46.09 is guilty of a misdemeanor and, upon conviction, is punishable by a fine of not more than $25,000, or by imprisonment for not more than one year, or by both. Each unlawful act constitutes a separate offense.

* Sec. 15. AS 46.04.010 is amended to read:

Sec. 46.04.010. REIMBURSEMENT FOR CLEANUP EXPENSES. The department shall promptly seek reimbursement [, EITHER] under AS 46.03.760(e), AS 46.08.070, or from an applicable federal fund, for the expenses it incurs in cleaning up or containing a discharge of oil. If the department obtains reimbursement for a portion of its expenses from a federal fund, the remainder of the expenses incurred may be recovered under AS 46.03.760(e) or AS 46.08.070. Money received by the department under this section shall be deposited in the general fund and credited to a special account called the "oil and hazardous substance release mitigation account".

Chapter 59

* Sec. 16. AS 46.04.090(b) is amended to read:

(b) Inspection and enforcement employees of the department designated by the commissioner are peace officers in the performance of their duties under this chapter, AS 46.09, and AS 46.03.

* Sec. 17. Not later than January 1, 1987, the commissioner of environmental conservation shall develop guidelines under AS 46.09.020, added by sec. 2 of this Act.

* Sec. 18. Not later than October 1, 1987, the commissioner of environmental conservation shall adopt regulations under AS 46.09.070, added by sec. 2 of this Act.

* Sec. 19. AS 46.03.758(k) is repealed.

* Sec. 20. This Act takes effect immediately in accordance with AS 01.10.070(c).

LAWS OF ALASKA

1986

Source
HCS CSSB 278(Fin)

Chapter No.
60

AN ACT

Relating to impoundment and registration of motor vehicles; senior citizen motor vehicle tax exemptions; licensing of certain drivers; fees for driver's licenses and permits; refusal to submit to a chemical test for intoxication; and the driver's license compact.

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

THE ACT FOLLOWS ON PAGE 1, LINE 13

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: June 3, 1986
Actual Effective Date: September 1, 1986

ıship 21 North, Range 3 West, Seward Meridian
:ion I
:ions 11 - 14
ions 23 - 26
ions 35 - 36
ship 22 North, Range 2 West, Seward Meridian
ions 19 - 21
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anding AS 16.20.510 - 16.20.530, the commissioner
in consultation with the commissioner of natura
epare a management plan for the Willow Mountain
ea. The commissioner of fish and game and the
ural resources shall exercise their respective
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agement plan is developed under AS 16.20.620(b),
Act, management decisions for the Willow Mountain
: reflect the intent of the Willow Mountain Sub-
anagement Plan adopted in October, 1986.
es effect immediately under AS 01.10.070(c).

LAWS OF ALASKA

1989

Source
CSSB 256(CLRA)

Chapter No.
29

AN ACT

Relating to reimbursement for costs incurred and recovery of money expended as a result of a released hazardous substance; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1, LINE 11

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: May 11, 1989
Actual Effective Date: May 12, 1989, retroactive to March 24, 1989

Chapter 29

AN ACT

Relating to reimbursement for costs incurred and recovery of money expended as a result of a released hazardous substance; and providing for an effective date.

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* Section 1. AS 46.08.070(b) is amended to read:

(b) The attorney general, at the request of the commissioner, shall immediately [MAY] seek to recover money expended by the department under this chapter or other law to contain and clean up oil or a hazardous substance that has been released or to control the threatened release of oil or a hazardous substance.

* Sec. 2. AS 46.08.070(c) is amended to read:

(c) The department may reimburse a municipality for actual expenses, other than normal operating expenses, incurred in the abatement of a release or threatened release of oil or a hazardous substance if

(1) the municipality has entered into an agreement with the commissioner under AS 46.09.020(e) [BEFORE INCURRING THE EXPENSES FOR WHICH REIMBURSEMENT IS SOUGHT]; and

(2) the commisioner determines that the expenses were for a necessary emergency first response to a release or threatened release that posed an imminent and substantial threat to the public health or welfare, or to the environment.

* Sec. 3. This Act is retroactive to March 24, 1989.

Chapter 29

* Sec. 4. This Act takes effect immediately under AS 01.10.070(c).

LAWS OF ALASKA

1989

Source

SCS CSHB 68(Jud)

Chapter No.

39

AN ACT

Relating to liability for the release or threatened release of a hazardous substance; recovery of state costs for an oil or hazardous substance release; liability of response action contractors; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1, LINE 12

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: May 12, 1989
Actual Effective Date: May 13, 1989

Chapter 39

AN ACT

Relating to liability for the release or threatened release of a hazardous substance; recovery of state costs for an oil or hazardous substance release; liability of response action contractors; and providing for an effective date.

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* Section 1. AS 40.17.110(b) is amended by adding a new paragraph to read:

(60) a certificate relating to a lien under AS 46.08.075.

* Sec. 2. AS 46.03.822 is repealed and reenacted to read:

Sec. 46.03.822. STRICT LIABILITY FOR THE RELEASE OF HAZARDOUS SUBSTANCES. (a) Notwithstanding any other provision or rule of law and subject only to the defenses set out in (b) of this section and the exception set out in (i) of this section, the following persons are strictly liable, jointly and severally, for damages to persons or property, whether public or private, including damage to the natural resources of the state or a municipality, and for the costs of response, containment, removal, or remedial action incurred by the state or a municipality, resulting from an unpermitted release of a hazardous substance or, with respect to response costs, the substantial threat of an unpermitted release of a hazardous substance:

(1) the owner of, and the person having control over, the hazardous substance at the time of the release or threatened release; this paragraph does not apply to a consumer product in consumer use;

(2) the owner and the operator of a vessel or facility, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance;

(3) any person who at the time of disposal of any hazardous substance owned or operated any facility or vessel at which the hazardous substances were disposed of, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance;

(4) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by the person, other than domestic sewage, or by any other party or entity, at any facility or vessel owned or operated by another party or entity and containing hazardous substances, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance;

(5) any person who accepts or accepted any hazardous substances, other than refined oil, for transport to disposal or treatment facilities, vessels or sites selected by the person, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance.

(b) In an action to recover damages or costs, a person otherwise liable under this section is relieved from liability under this section if the person proves

(1) that the release or threatened release of the hazardous substance to which the damages relate occurred solely as a result of

(A) an act of war;

(B) except as provided under AS 46.03.823(c), an intentional or negligent act or omission of a third party, other

than a party or its agents in privity of contract with, or employed by, the person, and that the person

(i) exercised due care with respect to the hazardous substance; and

(ii) took reasonable precautions against the act or omission of the third party and against the consequences of the act or omission; or

(C) an act of God; and

(2) in relation to (1)(B) or (C) of this subsection, that the person, within a reasonable period of time after the act occurred,

(A) discovered the release or threatened release of the hazardous substance; and

(B) began operations to contain and clean up the hazardous substance.

(c) For purposes of (b)(1)(B) of this section, a third party or an agent of a third party is in privity of contract with the person who is otherwise liable, if the third party or its agent and the person are parties to a land contract, deed, or other instrument transferring title or possession of the real property on which the facility in question is located, unless that property was acquired by the person after the disposal or placement of the hazardous substance on, in, or at the facility, and the person establishes that the person has satisfied the requirements of (b)(1)(B) of this section and establishes that

(1) at the time the person acquired the facility the person did not know and had no reason to know that a hazardous substance that is the subject of the release or threatened release was disposed of on, in, or at the facility;

(2) the person is a governmental entity that acquired the

facility by escheat, or through another involuntary transfer or acqu
sition, or through the exercise of eminent domain authority by pu
chase or condemnation;

(3) the person is a corporation organized under 43 U.S.C
1601 - 1628 (Alaska Native Claims Settlement Act) that acquired th
facility under those sections;

(4) the person acquired the facility by inheritance o
bequest; or

(5) the person is a state governmental entity and the sta
acquired the facility under Public Law 85 - 508 (Alaska Statehoo
Act).

(d) To establish that a person had no reason to know that th
hazardous substance was disposed of on, in, or at the facility, a
provided in (c)(1) of this section, the person must have undertaken
at the time of acquisition, all reasonable inquir o the previo
ownership and uses of the property consistent with g commercial p
customary practice in an effort to minimize liability. For purpos
of this subsection a court shall take into account all relevant facts
including

(1) any specialized knowledge or experience the person ha

(2) the relationship of the purchase price to the value o
the property if it were uncontaminated;

(3) commonly known or reasonably ascertainable informatio
about the property;

(4) the obviousness of the presence or likely presence o
contamination at the property; and

(5) the ability to detect contamination by appropriate
inspection.

(e) This section does not diminish the liability of a person wh

previously owned or operated a facility or vessel and who would otherwise be liable. If the person obtained actual knowledge of the release or threatened release of a hazardous substance at the facility or vessel and subsequently transferred ownership to another without disclosing that knowledge, the person is liable under (a)(2) of this section, and a defense under (b)(1)(B) of this section is not available to the person.

(f) This section does not diminish the liability of a person who, by an act or omission, caused or contributed to the release or threatened release of a hazardous substance that is the subject of the action relating to the facility or vessel.

(g) An indemnification, hold harmless, or similar agreement, or conveyance of any nature is not effective to transfer liability under this section from the owner or operator of a facility or vessel or from a person who might be liable for a release or substantial threat of a release under this section. This subsection does not bar an agreement to insure, hold harmless, or indemnify a party to the agreement for liability under this section. This subsection does not bar a cause of action that an owner, operator, or other person subject to liability under this section, or a guarantor, has or would have, by reason of subrogation or otherwise against another person.

(h) The state or a municipality is not liable under this section for costs or damages as a result of actions taken in response to an emergency created by a release or threatened release of a hazardous substance generated by or from a facility or vessel owned by another person unless the actions taken by the state or municipality constitute gross negligence or intentional misconduct.

(i) In an action to recover damages and costs, a person otherwise jointly and severally liable under this section is relieved of

joint liability and is liable severally for damages and costs attributable to that person if the person proves that

(1) the harm caused by the release or threatened release is divisible; and

(2) there is a reasonable basis for apportionment of cost and damages to that person.

(j) A person may seek contribution from any other person who is liable under (a) of this section during or after a civil action under (a) of this section. Actions under this subsection shall be brought under the Alaska Rules of Civil Procedure and are governed by state law. In resolving claims for contribution under this section, the court may allocate damages and costs among liable parties using equitable factors determined to be appropriate by the court. This subsection does not diminish the right of a person to bring an action for contribution in the absence of a civil action under (a) of this section.

* Sec. 3. AS 46.03 is amended by adding a new section to read:

Sec. 46.03.823. HAZARDOUS SUBSTANCE RESPONSE ACTION CONTRACTORS (a) A person who is a response action contractor with respect to a release or threatened release of a hazardous substance is not civilly liable for injuries, costs, damages, expenses, or other liability that results from the release or threatened release unless the release or threatened release is caused by an act or omission of the response action contractor that is negligent or grossly negligent or constitutes intentional misconduct. To show negligence by a response action contractor, a claimant must show that the acts or omissions of the contractor under the response action contract were not in accordance with generally accepted professional standards and practices at the time the response action services were performed.

(b) The liability limitation under (a) of this section does not apply to a response action contractor who would otherwise be strictly liable under this section.

(c) The defense provided in AS 46.03.822(b)(1)(B) is not available to a potentially liable person with respect to costs or damages caused by an act or omission of a response action contractor.

(d) Except as provided in (c) of this section, this section does not affect the liability under this chapter or under any other state law of a person other than a response action contractor.

(e) This section does not affect the liability of a response action contractor that may arise from the response action contractor's failure to comply with the terms or conditions of a response action contract or a remedial action plan if one has been approved by the department.

(f) This section does not affect the liability of an employer who is a response action contractor with respect to an employee of the employer under any provision of law, including a law related to workers' compensation.

(g) In this section,

(1) "response action" means an action taken in connection with the mitigation or cleanup of a hazardous substance release or threatened release, including investigation, evaluation, plan development, mapping and surveying, engineering, design and construction, removal, and equipment provision;

(2) "response action contract" means a written contract or agreement to provide response action with respect to a release or threatened release of a hazardous substance, entered into by a person with

(A) the department; or

(B) another person who has entered into an agreement with the department that provides for response action subject to the department's oversight and control;

(3) "response action contractor" means

(A) a person who enters into a response action contract with respect to a release or threatened release of a hazardous substance and who is carrying out the contract; and

(B) a person who is retained or hired by and is under the control of a person described in (A) of this paragraph to provide services related to the response action contract.

* Sec. 4. AS 46.03.826(3) is amended to read:

(3) "having control over a hazardous substance" means producing, handling, storing, transporting, or refining a hazardous substance for commercial purposes immediately before entry of the hazardous substance <u>into the atmosphere or</u> in or upon the water, surface, or subsurface land of the state, and specifically includes bailees and carriers of a hazardous substance;

* Sec. 5. AS 46.03.826(4) is amended to read:

(4) "hazardous substance" means

(A) an element or compound which, when it enters <u>into the atmosphere or</u> in or upon the water or surface or subsurface land of the state, presents an imminent and substantial danger to the public health or welfare, including but not limited to fish, animals, vegetation, or any part of the natural habitat in which they are found; [OR]

(B) oil; <u>or</u>

<u>(C) a substance defined as a hazardous substance under 42 U.S.C. 9601(14);</u>

* Sec. 6. AS 46.03.826 is amended by adding new paragraphs to read:

(8) "facility"

(A) includes a

(i) building, structure, installation, equipment, well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, aircraft, or pipe or pipeline, including a pipe into a sewer or publicly-owned treatment works;

(ii) site or area at which a hazardous substance has been deposited, stored, disposed of, placed, or otherwise located;

(B) does not include any consumer product in consumer use;

(9) "natural resources" means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the state or a municipality;

(10) "owner" and "operator"

(A) mean

(i) in the case of a vessel, any person owning, operating, or chartering by demise, a vessel;

(ii) in the case of facility, any person owning or operating the facility;

(iii) in the case of an abandoned facility or vessel, any person who owned, operated, or otherwise controlled activities at the facility or vessel immediately before the abandonment; and

(iv) in the case of a facility or vessel, title or control of which was conveyed due to bankruptcy, foreclosure, tax delinquency, abandonment, or similar means to a

unit of the state or a political subdivision of the state, any person who owned, operated, or otherwise controlled the facility or vessel immediately beforehand;

(B) do not include a person who, without participating in the management of a vessel or facility, holds indicia of ownership primarily to protect that person's security interest in the vessel or facility;

(11) "release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, but excluding

(A) any release that results in exposure to persons solely within a workplace, with respect to a claim that those persons may assert against the persons' employer; and

(B) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, or vessel;

(12) "transport" means the movement of a hazardous substance by any mode, including pipeline; in the case of a hazardous substance that has been accepted for transportation by a common or contract carrier, "transport" includes any stoppage in transit that is temporary, incidental to the transportation movement, and at the ordinary operating convenience of a common or contract carrier, and any stoppage of this type shall be considered as a continuity of movement and not as the storage of a hazardous substance;

(13) "vessel" means every description of watercraft or other artificial contrivance that is used, or is capable of being used, as a means of transportation on water, or that carries hazardous substances for the purpose of incineration of the hazardous substances.

* Sec. 7. AS 46.08 is amended by adding a new section to read:

Sec. 46.08.075. LIENS AGAINST PROPERTY AS SECURITY FOR STATE EXPENDITURES. (a) The state has a lien for expenditures by the state from the oil and hazardous substance release response fund or from any other state fund, for the costs of response, containment, removal, or remedial action resulting from an oil or hazardous substance spill, or, with respect to response costs, the substantial threat of a release of oil or a hazardous substance against all property owned by a person who is determined by the commissioner to be liable for the expenditures under this chapter, AS 46.03, AS 46.04, 42 U.S.C. 9607, or other state or federal law. The lien includes interest, at the maximum rate allowable under AS 45.45.010(a), from the date of the expenditures. The state may file an action in a court of competent jurisdiction in order to foreclose on the lien.

(b) A lien established under this section against real property is not effective until

(1) a certificate of lien is recorded in the district recorder's office for the district in which the property is located, describing the property and stating the amount of the lien, the name of the owner as grantor, and, if known, the name of the person causing the oil or hazardous substance release; and

(2) the commissioner sends a copy of the certificate of lien by certified mail return receipt requested, or actually delivers a copy of the certificate of lien, to the persons described in (1) of this subsection and to all other persons of record holding an interest in the property.

(c) When any amount with respect to which a lien has been recorded under this section has been paid or reduced, the commissioner shall, upon request of the property owner, issue a certificate

discharging or partially releasing the lien. That certificate m
recorded in the office in which the certificate of lien was record

(d) The commissioner may, in the commissioner's discreti
reduce, discharge or partially release a lien under this section if
bond, or other security, in a form and an amount satisfactory to
commissioner is posted. The bond or other security must include
amount sufficient to cover the cost of execution, collection,
foreclosure, including attorney fees. A reduction, discharge,
partial release may not be granted under this subsection if it wou
be contrary to the public interest. When a lien is reduced, di
charged, or partially released under this subsection, the commissio
shall, at the request of the property owner, issue a certificate t
that effect.

(e) A person with an ownership interest in property agains
which a lien is recorded may bring an action in a court of competen
jurisdiction to require that the lien be released. The lien may be
released to the extent of that person's ownership interest if the
court finds that the person is not liable for the expenses incurred by
the state in connection with the costs of response, containment,
removal, or remedial action resulting from the oil or hazardous sub-
stance release or threat of release of oil or a hazardous substance.

* Sec. 8. AS 46.03.822, as amended by sec. 2 of this Act, applies to liability for releases and substantial threats of releases that occurred before the effective date of this Act, and therefore, AS 46.03.822, as amended by sec. 2 of this Act, is retroactive in its effect. However, AS 46.03.822, as amended by sec. 2 of this Act, does not apply to an action in which final judgment no longer subject to appeal has been entered before the effective date of this Act.

* Sec. 9. This Act takes effect immediately under AS 01.10.070(c).

LAWS OF ALASKA

1989

Source
CSSB 261(Fin)

Chapter No.
90

AN ACT

Requiring the Department of Environmental Conservation to prepare and to annually review and revise a master oil and hazardous substance discharge and prevention contingency plan for the state and regional oil and hazardous substance discharge and prevention contingency plans for certain regions of the state, and to the implementation of those plans; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1, LINE 15

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: June 2, 1989
Actual Effective Date: June 3, 1989

Chapter 90

AN ACT

Requiring the Department of Environmental Conservation to prepare and to annually review and revise a master oil and hazardous substance discharge and prevention contingency plan for the state and regional oil and hazardous substance discharge and prevention contingency plans for certain regions of the state, and to the implementation of those plans; and providing for an effective date.

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* Section 1. FINDINGS AND PURPOSE. (a) The legislature finds that the March 24, 1989, oil spill disaster in Prince William Sound demonstrates a need for the state to have an independent spill containment and cleanup capability in the event of future discharges of oil or a hazardous substance.

(b) It is the purpose of this Act to provide assurance to the people of the state that their health, safety, and well-being will be protected from the adverse consequences of oil and hazardous substance releases of a magnitude that presents a grave and substantial threat to the economy and the environment of the state.

* Sec. 2. AS 46.04 is amended by adding new sections to read:

ARTICLE 2. OIL AND HAZARDOUS SUBSTANCE DISCHARGE AND PREVENTION CONTINGENCY PLANS.

Sec. 46.04.200. STATE MASTER PLAN. (a) The department shall prepare and annually review and revise a statewide master oil and

hazardous substance discharge and prevention contingency plan.

(b) The state master plan prepared under this section must

(1) take into consideration the elements of an oil discharge contingency plan approved or submitted for approval under AS 46.04.030;

(2) clarify and specify the respective responsibilities of each of the following in the assessment, containment, and cleanup of a catastrophic oil discharge or of a significant discharge of a hazardous substance into the environment of the state:

(A) agencies of the state;

(B) municipalities of the state;

(C) appropriate federal agencies;

(D) operators of facilities;

(E) private parties whose land and other property may be affected by the oil or hazardous substance discharge; and

(F) other parties identified by the commissioner as having an interest in or the resources to assist in the containment and cleanup of an oil or hazardous substance discharge;

(3) specify the respective responsibilities of parties identified in (2) of this subsection in an emergency response; and

(4) identify actions necessary to reduce the likelihood of catastrophic oil discharges and significant discharges of hazardous substances.

(c) In preparing and annually reviewing the state master plan, the commissioner shall

(1) consult with municipal and community officials, and with representatives of affected regional organizations;

(2) submit the draft plan to the public for review and comment;

(3) submit to the legislature for review, not later than the 10th day following the convening of each regular session, the plan and any annual revision of the plan; and

(4) require or schedule unannounced oil spill drills to test the sufficiency of an oil discharge contingency plan approved under AS 46.04.030 or of the cleanup plans of a party identified under (b)(2) of this section.

Sec. 46.04.210. REGIONAL MASTER PLAN. (a) For any region of the state, the boundaries of which are determined by the commissioner by regulation, in which the department is required to review and approve an oil discharge contingency plan submitted by a person under AS 46.04.030, the department shall prepare and annually review and revise a regional master oil and hazardous substance discharge and prevention contingency plan.

(b) The provisions of AS 46.04.200(b) and (c) apply to preparation and review of a regional master plan under this section.

* Sec. 3. AS 46.08.040 is amended to read:

Sec. 46.08.040. PURPOSES OF THE FUND. The commissioner may use money from the fund to

(1) <u>investigate and evaluate the release or threatened release of oil or a hazardous substance, and</u> contain, clean up, and take other necessary action, such as monitoring <u>and</u> [,] assessing, <u>to address a</u> [INVESTIGATING, AND EVALUATING THE] release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of

1980); [ ]

(3) recover the cost to the state or to a municipality of containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance;

(4) prepare, review, and revise

(A) the state's master oil and hazardous substance discharge and prevention contingency plan required by AS 46.04.200; and

(B) a regional master oil and hazardous substance discharge and prevention contingency plan required by AS 46.04.210; and

(5) restore the environment by addressing the effects of an oil or hazardous substance release.

* Sec. 4. PREPARATION OF INITIAL PLANS. The commissioner of environmental conservation shall present the initial statewide master plan prepared under AS 46.04.200, enacted by sec. 2 of this Act, and any initial regional master plans required by AS 46.04.210, enacted by sec. 2 of this Act, to the governor by July 1, 1990, and to the legislature in January, 1991, in accordance with AS 46.04.200(c)(3), added by sec. 2 of this Act.

* Sec. 5. APPLICABILITY OF ACT. This Act does not relieve a person responsible for an oil terminal facility, offshore exploration or production facility, or a vessel that transports crude oil, or a person who has control of a hazardous substance, from the responsibility for containing and cleaning up a discharge of oil or the hazardous substance as required by law.

* Sec. 6. This Act takes effect immediately under AS 01.10.070(c).

LAWS OF ALASKA

1989

Source

HCS CSSB 264(Fin)

Chapter No.

113

AN ACT

Establishing an oil and hazardous substance response office, corps, and depots; authorizing use of money in the oil and hazardous substance release response fund for certain related expenses; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1, LINE 12

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: June 15, 1989
Actual Effective Date: June 16, 1989

Chapter 113

AN ACT

Establishing an oil and hazardous substance response office, corps, and depots; authorizing use of money in the oil and hazardous substance release response fund for certain related expenses; and providing for an effective date.

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* Section 1. FINDINGS AND PURPOSE. (a) The legislature finds that the March 24, 1989, oil spill disaster in Prince William Sound demonstrates a need for the state to have an independent spill containment and cleanup capability in the event of future discharges of oil or a hazardous substance.

(b) It is the purpose of this Act to provide assurance to the people of the state that their health, safety, and well-being will be protected from the adverse consequences of oil and hazardous substance releases of a magnitude that presents a grave and substantial threat to the economy and the environment of the state.

* Sec. 2. AS 46.08.040 is amended to read:

Sec. 46.08.040. PURPOSES OF THE FUND. The commissioner may use money from the fund to

(1) contain, clean up, and take other necessary action, such as monitoring, assessing, investigating, and evaluating the release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) pay all costs incurred to establish and maintain the oil and hazardous substance response office and for the expenses of the oil and hazardous substance response corps and the oil and hazardous substance response depots established by that office;

(3) provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); and

(4) [(3)] recover the cost to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance.

* Sec. 3. AS 46.08 is amended by adding new sections to read:

ARTICLE 2. OIL AND HAZARDOUS SUBSTANCE RESPONSE OFFICE.

Sec. 46.08.100. OFFICE ESTABLISHED. There is established in the department the oil and hazardous substance response office. The office shall include a director and employees who are specially trained in programs and technologies related to the containment and cleanup of releases or threatened releases of oil and hazardous substances.

Sec. 46.08.110. RESPONSE CORPS. (a) The office shall establish an oil and hazardous substance response corps.

(b) The corps consists of volunteers who register with the office and agree to be trained by the office in techniques for containment and cleanup and to be available on short notice to assist the office in containment and cleanup.

(c) Members of the corps are entitled to per diem and expenses as determined by the commissioner for training and for days spent in service to the state in containment and cleanup actions.

Sec. 46.08.120. RESPONSE DEPOTS. The office shall maintain

emergency response depots in areas of the state determined by the director to be potential sites of releases or threatened releases of oil or hazardous substances. The depots shall be equipped and staffed in a manner that ensures prompt response when containment and cleanup actions are necessary.

Sec. 46.08.130. DUTIES OF THE OFFICE. (a) The office shall be prepared to respond promptly to a discharge of oil or a hazardous substance.

(b) The office may respond under (a) of this section to an oil or hazardous substance discharge only if:

(1) the oil discharge is a catastrophic oil discharge that constitutes an emergency under AS 46.04.080(a);

(2) the discharge of oil or a hazardous substance is declared to be an emergency under AS 46.03.865;

(3) the governor declares the discharge an emergency under AS 26.23;

(4) the commissioner reasonably believes that there has been a discharge of oil or a hazardous substance, or that there is a potential discharge of oil or a hazardous substance, and the discharge may qualify under (1) - (3) of this subsection; or

(5) the commissioner reasonably believes that the discharge or potential discharge poses an imminent and substantial threat to public health or welfare or to the environment.

Sec. 46.08.140. EMERGENCY POWERS. (a) When the office has reasonable grounds to believe that a release of oil or a hazardous substance has occurred or is threatened to occur which, in the judgment of its director, presents an imminent or present danger to the health or welfare of the people of the state or would result in or is likely to result in irreversible or irreparable damage to the natural

resources or environment, and it appears to be prejudicial to the interest of the people of the state to delay action until an opportunity for a hearing can be provided, state employees or members of the corps may, with permission of the director and without prior hearing, enter private property for the purpose of containment or cleanup.

(b) The property owner affected by a response action taken under (a) of this section has the right to be heard as soon as practicable and to present proof to the office that the containment or cleanup action is unnecessary or that it is not necessary to enter the person's property for the containment or cleanup action.

Sec. 46.08.150. CONTRACTS. The office may enter into agreements with agencies of the state and federal government, political subdivisions, the University of Alaska, or private entities to

(1) establish and maintain regional oil and hazardous substances depots and to acquire the supplies and equipment necessary for response readiness;

(2) train members of response corps; and

(3) conduct research into oil and hazardous substances spill technology.

Sec. 46.08.160. LIMITATION OF LIABILITY. The state, an employee of the state, and a member of the corps are not liable for costs or damages as a result of actions taken under AS 46.08.100 - 46.08.190 in response to a release or threatened release unless the actions taken by the state, the employee, or the member of the corps constitute gross negligence or intentional misconduct.

Sec. 46.08.190. DEFINITIONS. In AS 46.08.100 - 46.08.190

(1) "corps" means the oil and hazardous substance response corps;

(2) "depots" means the oil and hazardous substance supply and equipment storage depots;

(3) "office" means the oil and hazardous substance response office.

* Sec. 4. APPLICABILITY OF ACT. (a) This Act does not relieve a person responsible for an oil terminal facility, offshore exploration or production facility, or a vessel that transports crude oil, or a person who has control of a hazardous substance from the responsibility for containing and cleaning up a discharge of oil or the hazardous substance as required by law.

(b) This Act does not add to or detract from the authority under law of a municipality to impose taxes on oil and gas property or other properties for the purpose of establishing or maintaining services and facilities to minimize the risk of or respond to a release of oil or a hazardous substance.

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

earm on which the manufacturer's seria
ed, altered, or destroyed, knowing that
moved, covered, altered, or destroyed
e firearm untraceable;
.46.320 or 11.46.330 by entering or
es or in a propelled vehicle in viola-
r issued under AS 25.35.010(b) or 25.-
on, possesses on the person a deadly
pocketknife; or
person with another in violation of
the communication, possesses on the
an an ordinary pocketknife.

LAWS OF ALASKA

1990

Chapter No.
190

Source
SCS CSHB 566(Fin)(efd fld H)

AN ACT

Relating to state response actions and planning involving the release or threatened release of oil or a hazardous substance; and establishing the Alaska State Emergency Response Commission.

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

THE ACT FOLLOWS ON PAGE 1, LINE 11

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: June 26, 1990
Actual Effective Date: September 24, 1990

Chapter 190

AN ACT

Relating to state response actions and planning involving the release or threatened release of oil or a hazardous substance; and establishing the Alaska State Emergency Response Commission.

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* Section 1. AS 26.23.020(g) is amended by adding a new paragraph to read:

(11) use money from the oil and hazardous substance release response fund, established by AS 46.08.010, to respond to a declared disaster emergency related to an oil or hazardous substance discharge.

* Sec. 2. AS 26.23.050(b) is amended to read:

(b) Whenever, and to the extent that, money is needed to cope with a disaster, the first recourse shall be to funds regularly appropriated to state and local agencies. The second recourse shall be to funds available in the disaster relief fund or, for oil or hazardous substances discharges, the oil and hazardous substance release response fund, as the governor determines appropriate. If money available from these sources is insufficient, and if the governor finds that other sources of money to cope with the disaster are not available or are insufficient, the governor may, notwithstanding any limitation imposed by AS 37.07.080(e), transfer and spend money appropriated for other purposes or, in situations involving natural disasters, borrow from the United States government or other public or private sources for a term not to exceed two years.

* Sec. 3. AS 26.23.190 is amended by adding a new subsection to read:

(b) When performing responsibilities assigned to it under an incident command system established under this chapter, AS 46.04.200 - 46.04.210, or AS 46.13, the Alaska division of emergency services may, in a situation involving an actual or imminent discharge of oil or a hazardous substance, issue an order directing persons and governmental agencies to take action the division believes necessary to carry out its assigned responsibilities.

* Sec. 4. AS 26.23 is amended by adding a new section to read:

Sec. 26.23.195. DISCHARGE RESPONSE ACTIONS. (a) The Alaska division of emergency services shall perform the responsibilities assigned to it under an incident command system established under this chapter, AS 46.04.200 - 46.04.210, or AS 46.13 in a state response to a release or threatened release of oil or a hazardous substance.

(b) The Alaska division of emergency services may contract with persons to provide personnel, including members of the emergency response corps, to assist them with a nongovernmental response to a release or threatened release of oil or a hazardous substance.

(c) Within the limit of appropriations made specifically for the purpose, the Alaska division of emergency services may assist persons with mobilization of personnel and resources, communications, transportation planning, and other logistics involved in a nongovernmental response to a release or threatened release of oil or a hazardous substance when to do so would be consistent with the duties assigned to it under an incident command system established under this chapter, AS 46.04.200 - 46.04.210, or AS 46.13.

* Sec. 5. AS 26.23 is amended by adding a new section to read:

Sec. 26.23.215. RELATIONSHIP TO OTHER PLANNING STATUTES. To the extent that the state emergency plan, interjurisdictional plans, and

local plans prepared under this chapter relate to action required to avert damage from a release of oil or a hazardous substance, the plans must be substantially equivalent in relevant respects to the local emergency plans prepared under AS 46.13 and the state and regional master plans prepared by the Department of Environmental Conservation under AS 46.04.200 - 46.04.210, use the same incident command systems used in those plans, and be approved by the Alaska State Emergency Response Commission under AS 46.13.045.

* Sec. 6. AS 39.50.200(b) is amended by adding a new paragraph to read:

(51) Hazardous Substance Spill Technology Review Council (AS 46.13.110).

* Sec. 7. AS 44.66.010(a) is amended by adding a new paragraph to read:

(17) Hazardous Substance Spill Technology Review Council (AS 46.13.110) -- June 30, 1994.

* Sec. 8. AS 46.03.865(a) is amended to read:

(a) When the department finds that an actual or imminent discharge of oil, a hazardous substance, or low level radioactive materials to the air, water, land, or subsurface land of the state poses an immediate threat to the public health or welfare [,] or the environment of the state, it may issue an order declaring an emergency and directing a person or persons to take action the department believes necessary to meet the emergency, and protect the public health, welfare, or environment. <u>If there is an incident command system established under AS 26.23, AS 46.04.200 - 46.04.210, or AS 46.13 that is applicable to the situation for which the department issues an order under this subsection, the department's exercise of authority under this subsection shall be guided by the relevant provisions of the incident command system.</u>

* Sec. 9. AS 46.03.865(c) is amended to read:

(c) During a period of emergency declared under (a) of this section, each state agency [, INCLUDING, WHEN APPROPRIATE, THE DEPARTMENT OF MILITARY AND VETERANS' AFFAIRS UNDER THE AUTHORITY CONFERRED BY AS 26.20,] shall take whatever action the department finds necessary to meet the emergency [,] and to protect the public health, welfare, or environment, consistent with the responsibilities assigned to them under an incident command system established under AS 26.23, AS 46.04.200 - 46.04.210, or AS 46.13 if one is applicable to the situation.

* Sec. 10. AS 46.04.080(a) is amended to read:

(a) The actual or imminent occurrence of a catastrophic oil discharge constitutes a disaster emergency under AS 26.23 without a declaration of disaster by the governor under AS 26.23.020. The [. HOWEVER, THE] department and [SHALL PERFORM THE DUTIES OF] the Alaska division of emergency services, Department of Military and Veterans' Affairs, shall coordinate their duties under AS 26.23.040 and AS 46.-08.100 - 46.08.190 as they apply to catastrophic oil discharges, consistent with the responsibilities assigned to them under applicable incident command systems. [THE DEPARTMENT SHALL CONSULT AND COORDINATE ITS DUTIES UNDER THIS SECTION WITH THE ALASKA DIVISION OF EMERGENCY SERVICES.]

* Sec. 11. AS 46.04.090(a) is amended to read:

(a) The department, when feasible, shall enter into contracts with persons or private organizations to provide the personnel, equipment, or other services or supplies that [WHICH] may be required to carry out this chapter. Contracts under this section are governed by AS 36.30 (State Procurement Code). When private contracting is not feasible, the department may establish and maintain at ports, harbors, or other locations in the state, the cleanup personnel, equipment, and

supplies that [WHICH], in its judgment, are necessary to carry out this chapter. When exercising its authority under this subsection, the department shall coordinate with the Department of Military and Veterans' Affairs to avoid duplication of efforts.

* Sec. 12. AS 46.04.200(b) is amended to read:

(b) The state master plan prepared under this section must

(1) take into consideration the elements of an oil discharge contingency plan approved or submitted for approval under AS 46.04.030;

(2) include incident command systems that clarify and specify the respective responsibilities of each of the following in the assessment, containment, and cleanup of various types and sizes of discharges [A CATASTROPHIC OIL DISCHARGE OR OF A SIGNIFICANT DISCHARGE] of oil or a hazardous substance into the environment of the state:

(A) the Department of Environmental Conservation, the division of emergency services in the Department of Military and Veterans' Affairs, and other agencies of the state; responsibilities assigned to each agency must be consistent with its statutory authority;

(B) municipalities of the state;

(C) appropriate federal agencies;

(D) operators of facilities;

(E) private parties whose land and other property may be affected by the oil or hazardous substance discharge; and

(F) other parties identified by the commission [COMMISSIONER] as having an interest in or the resources to assist in the containment and cleanup of an oil or hazardous substance discharge;

(3) include incident command systems that specify the respective responsibilities of parties identified in (2) of this subsection in an emergency response under AS 26.23, AS 46.03.865, or AS 46.04.080; responsibilities assigned to each state agency must be consistent with its statutory authority; [AND]

(4) identify actions necessary to reduce the likelihood of catastrophic oil discharges and significant discharges of hazardous substances; and

(5) designate the locations where oil and hazardous substance emergency response depots should be established in the state and where emergency response corps personnel should be available.

* Sec. 13. AS 46.04.200(c) is amended to read:

(c) In preparing and annually reviewing the state master plan, the commissioner shall

(1) consult with municipal and community officials, and with representatives of affected regional organizations;

(2) submit the draft plan to the public for review and comment;

(3) submit to the legislature for review, not later than the 10th day following the convening of each regular session, the plan and any annual revision of the plan; [AND]

(4) require or schedule unannounced oil spill drills to test the sufficiency of an oil discharge contingency plan approved under AS 46.04.030 or of the cleanup plans of a party identified under (b)(2) of this section; and

(5) submit the plan and any annual revision to the Alaska State Emergency Response Commission for its review and approval under AS 46.13.045.

* Sec. 14. AS 46.08.040 is amended to read:

Sec. 46.08.040. PURPOSES OF THE FUND. The commissioner may use money from the fund to

(1) investigate and evaluate the release or threatened release of oil or a hazardous substance, and contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) pay all costs incurred to establish and maintain the oil and hazardous substance response office;

(3) pay [AND FOR] the expenses incurred by the Alaska division of emergency services for [OF] the oil and hazardous substance response corps and the oil and hazardous substance response depots when presented with appropriate documentation by the division [ESTABLISHED BY THAT OFFICE];

(4) [(3)] provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); [AND]

(5) [(4)] recover the cost to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance; [.]

(6) [(5)] prepare, review, and revise

(A) the state's master oil and hazardous substance discharge and prevention contingency plan required by AS 46.04.-200; and

(B) a regional master oil and hazardous substance discharge and prevention contingency plan required by AS 46.04.-210; and

(7) [(6)] restore the environment by addressing the effects of an oil or hazardous substance release.

* Sec. 15. AS 46.08.040 is amended by adding new subsections to read:

(b) When the governor declares a disaster related to an oil or hazardous substance discharge emergency under AS 26.23.020(c), the governor may, during the effective period of the disaster emergency, use money from the fund to respond to the disaster emergency.

(c) Notwithstanding other provisions of this section, money from the fund may not be used for a purpose specified in (a)(2) - (7) of this section unless funds are available from an appropriation made specifically for that purpose.

* Sec. 16. AS 46.08.060(a) is amended to read:

(a) The commissioner shall submit a report to the legislature not later than the 10th day following the convening of each regular session of the legislature. The report may include information considered significant by the commissioner but must include:

(1) the amount of money expended by the department under AS 46.08.040(a) [AS 46.08.040] during the preceding fiscal year;

(2) the amount and source of money received and money recovered by or on behalf of the department during the preceding fiscal year as specified in AS 46.08.020;

(3) a summary of municipal participation in the department's responses that were funded by the fund;

(4) a detailed summary of department activities in responses funded by the fund during the preceding fiscal year, including response descriptions and statements outlining the nature of the threat; and

(5) the projected cost to the department for the next fiscal year of monitoring, operating, and maintaining sites where

response has been completed or is expected to be continued during the fiscal year.

* Sec. 17. AS 46.08.060 is amended by adding a new subsection to read:

(c) In addition to the department's report required under (a) of this section, the governor shall submit a report about use of the fund during the previous fiscal year to the legislature not later than the 10th day following the convening of each regular session of the legislature. In the report, the governor shall describe in detail the governor's use of money from the fund, with separate explanations, by agency, of the activities that were funded under the authority of AS 46.08.040(b).

* Sec. 18. AS 46.08.110 is amended to read:

Sec. 46.08.110. RESPONSE CORPS. (a) The division of emergency services, Department of Military and Veterans' Affairs, [OFFICE] shall establish an oil and hazardous substance response corps.

(b) The corps consists of volunteers who register with the division [OFFICE] and agree to be trained by the division [OFFICE] in techniques for containment and cleanup and to be available on short notice to assist [THE OFFICE] in containment and cleanup consistent with the responsibilities assigned to the corps under an applicable incident command system.

(c) Members of the corps are entitled to per diem and expenses as determined by the division [COMMISSIONER] for training and for days spent in service to the state in containment and cleanup actions.

* Sec. 19. AS 46.08.120 is amended to read:

Sec. 46.08.120. RESPONSE DEPOTS. The division [OFFICE] shall maintain emergency response depots in areas of the state determined in the plans prepared under AS 46.04.200 - 46.04.210 [BY THE DIRECTOR] to be potential sites of releases or threatened releases of oil or

hazardous substances. The depots shall be equipped and staffed in a manner that ensures prompt response when containment and cleanup actions are necessary.

* Sec. 20. AS 46.08.130 is amended by adding a new subsection to read:

(c) When the office or corps responds to an oil or hazardous substance discharge under this section, its activities shall be guided by the relevant provisions of the incident command system applicable to the type of discharge to which it is responding.

* Sec. 21. AS 46.08.150 is amended to read:

Sec. 46.08.150. CONTRACTS. The office or the division, as applicable, may enter into agreements with agencies of the state and federal government, political subdivisions, the University of Alaska, or private persons or entities to

(1) provide the personnel, equipment, or other services or supplies necessary to establish and maintain regional oil and hazardous substances depots and as [TO ACQUIRE THE SUPPLIES AND EQUIPMENT] necessary for response readiness;

(2) train members of response corps; and

(3) conduct research into oil and hazardous substances spill technology; the office shall include in the research topics for which it conducts or contracts for research, the research topics recommended to it by the Hazardous Substance Spill Technology Review Council under AS 46.13.120.

* Sec. 22. AS 46.08.190 is amended by adding a new paragraph to read:

(4) "division" means the division of emergency services, Department of Military and Veterans' Affairs.

* Sec. 23. AS 46.09.030 is amended to read:

Sec. 46.09.030. DISASTER EMERGENCIES. The commissioner of environmental conservation or the director of the division of

emergency services, Department of Military and Veterans' Affairs, may request the governor to determine that an actual or imminent release of a hazardous substance constitutes a disaster emergency under AS 26.23. If the governor declares a disaster emergency under AS 26.23, the commissioner and [MAY ASSIST] the division of emergency services, Department of Military and Veterans' Affairs, shall respond appropriately [ADJUTANT GENERAL] in the relief of the emergency, in accordance with the relevant provisions of the applicable incident command system.

* Sec. 24. AS 46 is amended by adding a new chapter to read:

CHAPTER 13. ALASKA STATE EMERGENCY RESPONSE COMMISSION.

Sec. 46.13.010. ALASKA STATE EMERGENCY RESPONSE COMMISSION ESTABLISHED. (a) There is established in the Department of Environmental Conservation the Alaska State Emergency Response Commission.

(b) The oil and hazardous substance response office established under AS 46.08.100 shall serve as staff for the commission.

Sec. 46.13.020. COMPOSITION OF THE COMMISSION. The commission consists of the commissioners of community and regional affairs, environmental conservation, fish and game, health and social services, labor, natural resources, public safety, and transportation and public facilities, or the designees of the commissioners, the adjutant general of the Department of Military and Veterans' Affairs or a designee, and seven public members to be appointed by the governor. To the extent practicable, the commission must include members with expertise in the emergency response field.

Sec. 46.13.030. OFFICERS, TERMS, AND COMPENSATION. The commissioner of environmental conservation, or the commissioner's designee, shall chair the commission. The adjutant general of the Department of Military and Veterans' Affairs, or the adjutant general's designee,

shall serve as vice-chair. Members of the commission other than those from the designated state departments serve at the pleasure of the governor for staggered terms of three years. Members of the commission serve without compensation but are entitled to per diem and travel expenses authorized for members of boards and commissions under AS 39.20.180.

Sec. 46.13.040. POWERS AND DUTIES OF COMMISSION. The commission shall

(1) serve as the state emergency response commission required under 42 U.S.C. 11001 - 11005;

(2) designate, and revise as necessary, the boundaries of emergency planning districts, using the boundaries of regions established under AS 46.04.200 - 46.04.210 and of political subdivisions where appropriate;

(3) facilitate the preparation and implementation of emergency plans for hazardous substance response, including the statewide, interjurisdictional, and local plans prepared under AS 26.23, state and regional plans prepared under AS 46.04.200 - 46.04.210, and plans prepared under this chapter;

(4) review and approve or disapprove the plans described in (3) of this section according to the criteria established in AS 46.-13.045;

(5) establish a local emergency planning committee for each emergency planning district, and appoint, and revise as necessary, the membership of each committee;

(6) supervise and coordinate the activities of local emergency planning committees;

(7) establish procedures for receiving and processing requests from the public for information under 42 U.S.C. 11044,

including tier II information under 42 U.S.C. 11022;

(8) perform other coordinating, advisory, or planning tasks related to hazardous substance emergency planning and preparedness, community right-to-know reporting, toxic chemical release reporting, or management of hazardous substances;

(9) recommend procedures to integrate, as appropriate, hazardous substance response planning under 42 U.S.C. 11001 - 11005, federal contingency planning under 33 U.S.C. 1321 and other federal laws applicable to hazardous substance discharges, and state, regional, and local hazardous substance contingency planning under AS 26.23 and AS 46.04.200 - 46.04.210;

(10) to the extent consistent with the constitution and law of the state, perform all other functions prescribed for state emergency response commissions under 42 U.S.C. 11001 - 11005; and

(11) adopt regulations necessary to carry out the purposes of this chapter and 42 U.S.C. 11001 - 11005.

Sec. 46.13.045. PLAN APPROVAL; INCIDENT COMMAND SYSTEMS. (a) The commission shall review and exercise approval authority over local, interjurisdictional, regional, and state plans for hazardous substance discharge response, including plans prepared under AS 26.23, AS 46.04.200 - 46.04.210, and this chapter.

(b) Before approving a plan, the commission shall ensure that the plan includes an incident command system that describes the respective roles of affected persons and agencies in a clear and specific manner and that the respective roles of state agencies are consistent with their statutory duties. The commission shall also ensure that the plans are well-integrated with related plans.

(c) To the extent consistent with other law, an incident command system approved under this section must provide that the Alaska

division of emergency services has a major role in mobilization of personnel and resources, communications, transportation planning, and other logistics involved in a state response to an imminent or actual hazardous substance discharge.

Sec. 46.13.050. AGENCY COOPERATION. The commission may request data, reports, or other information from a state agency. To the extent feasible and not otherwise prohibited by laws making specific information confidential and nondisclosable, a state agency shall cooperate with the commission and furnish the commission with the information and assistance necessary to accomplish the purposes of 42 U.S.C. 11001 - 11005 and this chapter.

Sec. 46.13.060. EMERGENCY PLANNING DISTRICT BOUNDARIES. Boundaries for emergency planning districts are the regions designated by the Department of Environmental Conservation under AS 46.04.210, unless otherwise designated by the commission.

Sec. 46.13.070. LOCAL EMERGENCY PLANNING COMMITTEES. The commission shall establish and appoint the members of a local emergency planning committee for each emergency planning district. Each committee must include, at a minimum, representatives from each of the following groups or organizations: elected state and local officials; law enforcement; civil defense; fire fighting; first aid; health; local environmental, hospital, and transportation personnel; broadcast and print media; community groups; and owners and operators of facilities subject to the requirements of 42 U.S.C. 11001 - 11005.

Sec. 46.13.080. DUTIES OF LOCAL EMERGENCY PLANNING COMMITTEES. Each local emergency planning committee shall

(1) establish procedures for receiving and processing requests from the public for information under 42 U.S.C. 11044, including tier II information under 42 U.S.C. 11022;

(2) appoint a chair and establish rules by which the committee shall function, including provisions for public notification of committee activities, public meetings to discuss the emergency plan, public comments, response to the comments by the committee, distribution of the emergency plan, and designation of an official to serve as coordinator for information;

(3) prepare and periodically review an emergency plan in accordance with 42 U.S.C. 11003(a);

(4) evaluate the need for resources necessary to develop, implement, and exercise the emergency plan, and make recommendations with respect to additional resources that may be required and the means for providing the additional resources;

(5) to the extent consistent with the constitution and law of the state, perform all other functions prescribed for emergency planning committees in 42 U.S.C. 11001 - 11005; and

(6) participate as a local advisory committee in the preparation of statewide regional contingency plans.

Sec. 46.13.090. EMERGENCY PLANS. (a) An emergency plan prepared under AS 46.13.080 must include

(1) identification of facilities subject to the requirements of 42 U.S.C. 11001 - 11005 that are within the emergency planning district, identification of routes likely to be used for the transportation of substances on the list of extremely hazardous substances referred to in 42 U.S.C. 302(a), and identification of additional facilities contributing or subjected to additional risk due to their proximity to facilities subject to the requirements of 42 U.S.C. 11001 - 11005 such as hospitals or natural gas facilities;

(2) methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to

respond to a release of hazardous substances, and to a release of substances on the list of extremely hazardous substances referred to in 42 U.S.C. 302(a);

(3) designation of a community emergency coordinator and facility emergency coordinators, who shall make determinations necessary to implement the emergency plan;

(4) procedures providing reliable, effective, and timely notification by the facility emergency coordinators to persons designated in the emergency plan, and to the public, that a release has occurred, consistent with the emergency notification requirements of 42 U.S.C. 11004;

(5) methods for determining the occurrence of a release, and the area or population likely to be affected by that release;

(6) a description of emergency equipment and facilities in the community and at each facility in the community subject to the requirements of 42 U.S.C. 11001 - 11005, and an identification of the persons responsible for the equipment and facilities;

(7) evacuation plans, including provisions for a precautionary evacuation and alternative traffic routes;

(8) training programs, including schedules for training of local emergency response and medical personnel; and

(9) methods and schedules for exercising the emergency plan.

(b) Each emergency plan prepared under AS 46.13.080 must incorporate within it an incident command system. The incident command system must be substantially equivalent in relevant respects to the incident command systems established under AS 46.04.200 - 46.04.210 and meet the requirements of AS 46.13.045.

Sec. 46.13.100. FINDINGS AND PURPOSE. The legislature

(1) finds and declares that there exists a lack of scientific knowledge concerning the availability, properties, and effectiveness of various hazardous substance containment and cleanup technologies; and

(2) concludes that it is in the best interest of the state and its citizens to establish a Hazardous Substance Spill Technology Review Council in the Alaska State Emergency Response Commission to assist in the identification of containment and cleanup products and procedures for arctic and sub-arctic hazardous substance releases and make recommendations to the departments and agencies of the state regarding their use and deployment.

Sec. 46.13.110. HAZARDOUS SUBSTANCE SPILL TECHNOLOGY REVIEW COUNCIL. (a) There is established in the Alaska State Emergency Response Commission the Hazardous Substance Spill Technology Review Council.

(b) The council consists of the commissioner of environmental conservation, the adjutant general of the Department of Military and Veterans' Affairs, a representative of the University of Alaska appointed by the governor, the governor's senior science advisor, a representative of the Prince William Sound Science Center in Cordova appointed by the governor, and four other members, one from each judicial district of the state, appointed by the governor, with broad experience or expertise in one or more of the following areas: physical or biological science; oil technology, transportation, or management; fisheries; economics; environmental engineering; or law. The U.S. Coast Guard and the Environmental Protection Agency may each appoint a federal employee to the council to represent their agencies as nonvoting members. Appointed state members of the council serve overlapping three-year terms.

(c) The council members shall elect from among themselves a chair and vice-chair.

(d) The oil and hazardous substance response office established under AS 46.08.100 shall serve as staff for the council.

(e) State and federal members of the council serve without compensation, but are entitled to per diem and travel expenses authorized for boards and commissions under AS 39.20.180.

(f) The council shall meet regularly at the call of the commission or the chair of the council.

(g) State members of the council are subject to AS 39.50.

Sec. 46.13.120. DUTIES OF THE COUNCIL The council shall

(1) review and recommend to the Department of Environmental Conservation research topics for it to pursue;

(2) establish testing protocols to be used by the Department of Environmental Conservation to evaluate the effectiveness of hazardous substance spill technologies for use in the state;

(3) identify sources of money that may be available for discharge-related research;

(4) make proposals to the governor, commission, and other entities to encourage and fund prevention, response, cleanup, and mitigation of future discharges of hazardous substances;

(5) compile and maintain information relating to

(A) containment and cleanup technology that is available in the event of a hazardous substance discharge, the extent to which current containment and cleanup technology is available and may be applied in the state, and ways to improve hazardous substance spill response technology and procedures;

(B) steps that should be taken by government and industry to ensure proper management, handling, and

transportation of hazardous substances and to improve the statewide ability of industry and governmental agencies to respond to discharges of hazardous substances;

(C) the extent to which industry practices and governmental practices or laws should be changed to reduce or minimize the potential for hazardous substance discharges;

(D) hazardous substances spill technology research conducted by the Department of Environmental Conservation; and

(6) perform other functions as may be requested by the commission.

Sec. 46.13.130. INVESTIGATIONS; HEARINGS. (a) The council may issue subpoenas, administer oaths, and conduct investigations related to its duties.

(b) The council may compel the attendance of witnesses and production of papers, books, records, accounts, documents, and testimony, and may have the deposition of witnesses taken in a manner prescribed by court rule or law for the taking of depositions in civil actions when consistent with the duties assigned to the council.

(c) On a majority vote of the council, subpoenas and subpoenas duces tecum may be issued and served in the manner prescribed by AS 44.62.430(b) and (c) and court rule. The failure, refusal, or neglect to obey a subpoena is punishable as contempt in the manner prescribed by law or court rule. The superior court may compel obedience to the council's subpoena in the same manner as prescribed for obedience to a subpoena issued by the court.

(d) State agencies shall, to the extent permitted by law, cooperate with the council and provide it with information it requests for carrying out its duties.

Sec. 46.13.900. DEFINITIONS. In this chapter,

(1) "commission" means the Alaska State Emergency Response Commission;

(2) "council" means the Hazardous Substance Spill Technology Review Council;

(3) "hazardous substance" has the meaning given in AS 46.03.826.

* Sec. 25. TRANSITIONAL PROVISION. The Alaska State Emergency Response Commission established under AS 46.13, enacted by sec. 24 of this Act, is a continuation of the Alaska State Emergency Response Commission established by Administrative Order No. 103. The terms of the public members of the commission who are serving terms on the effective date of this section continue until the date that was scheduled for their expiration before the effective date of this section.

* Sec. 26. TESTING PROTOCOLS. The Hazardous Substance Spill Technology Review Council shall establish the initial testing protocols required under AS 46.13.120(2), enacted by sec. 24 of this Act, by January 1, 1991.

* Sec. 27. APPROVAL OF SPILL TECHNOLOGY. The Department of Environmental Conservation shall, by March 1, 1991, report to the legislature its recommendations about the feasibility of establishing a process under which all types of oil and hazardous substance spill technology would have to be submitted to the department for approval before they could be used in the state.

LAWS OF ALASKA

1990

Source
SCS CSHB 567(Fin)

Chapter No.
191

AN ACT

Relating to oil discharge prevention and contingency plan requirements, financial responsibility requirements related to oil, penalties, and inspection authority of the Department of Environmental Conservation; relating to the oil and hazardous substance release response fund and responses to oil and hazardous substance emergencies; authorizing the Department of Environmental Conservation and municipalities to enter into agreements pertaining to vessel traffic control and monitoring systems; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1, LINE 18

UNDERLINED MATERIAL INDICATES TEXT THAT IS BEING ADDED TO THE LAW AND BRACKETED MATERIAL IN CAPITAL LETTERS INDICATES DELETIONS FROM THE LAW; COMPLETELY NEW TEXT OR MATERIAL REPEALED AND RE-ENACTED IS IDENTIFIED IN THE INTRODUCTORY LINE OF EACH BILL SECTION.

Approved by the Governor: June 26, 1990
Actual Effective Date: June 27, 1990

AN ACT

Relating to oil discharge prevention and contingency plan requirements, financial responsibility requirements related to oil, penalties, and inspection authority of the Department of Environmental Conservation; relating to the oil and hazardous substance release response fund and responses to oil and hazardous substance emergencies; authorizing the Department of Environmental Conservation and municipalities to enter into agreements pertaining to vessel traffic control and monitoring systems; and providing for an effective date.

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* Section 1. AS 29.35.020 is amended by adding a new subsection to read:

(d) A municipality may enter into agreements with the United States Coast Guard, the United States Environmental Protection Agency, and other persons relating to development and enforcement of vessel traffic control and monitoring systems for oil barges and tank vessels carrying oil operating in or near the waters of the state.

* Sec. 2. AS 46.03.759(c) is amended to read:

(c) Subject to the $500,000,000 maximum set under (a) of this section the court shall assess four times the penalty set out in (a) of this section if the court finds

(1) the discharge was caused by the gross negligence or

intentional act of the defendant;

(2) the defendant did not take reasonable measures to contain and clean up the discharged oil; or

(3) the defendant did not act or respond in accordance with an approved oil discharge prevention and contingency plan.

* Sec. 3. AS 46.03.823(a) is amended to read:

(a) A person who is a response action contractor with respect to a release or threatened release of a hazardous substance whose acts or omissions are not contrary to a response plan or order by a state or federal agency having jurisdiction over the release or threatened release is not civilly liable for injuries, costs, damages, expenses, or other liability that results from the release or threatened release unless the release or threatened release is caused by an act or omission of the response action contractor that is negligent or grossly negligent or constitutes intentional misconduct. To show negligence by a response action contractor, a claimant must show that the acts or omissions of the contractor under the response action contract were not in accordance with generally accepted professional standards and practices at the time the response action services were performed.

* Sec. 4. AS 46.03.823(b) is amended to read:

(b) The liability limitation under (a) of this section

(1) does not apply to a response action contractor who would otherwise be liable for the release or threatened release under state or federal law even if that person had not carried out a response action with respect to the release or threatened release; and

(2) does apply only to releases for which notification to the department was provided and received in the manner prescribed under state law [STRICTLY LIABLE UNDER THIS SECTION].

* Sec. 5. AS 46.03.823(e) is amended to read:

(e) This section does not affect the liability of a response action contractor that may arise from the response action contractor's failure to comply with the terms or conditions of a

(1) response action contract or a remedial action plan if one has been approved by the department; or

(2) contingency plan approved by the department where the response action contractor is the plan holder.

* Sec. 6. AS 46.03.823(g)(2) is amended to read:

(2) "response action contract" means a written contract or agreement to provide response action with respect to a release or threatened release of a hazardous substance, entered into by a person with

(A) the department; [OR]

(B) another person who has entered into an agreement with the department that provides for response action subject to the department's oversight and control;

(C) a federal agency with jurisdiction over the release or threatened release; or

(D) another person potentially liable for the release or threatened release under state or federal law;

* Sec. 7. AS 46.03.823(g)(3) is amended to read:

(3) "response action contractor" means

(A) a person who enters into a response action contract with respect to a release or threatened release of a hazardous substance and who is carrying out the contract, including a cooperative organization formed to maintain and supply response equipment and materials that enters into a response action contract relating to a release or threatened release; and

(B) a person who is retained or hired by and is under

the control of a person described in (A) of this paragraph to provide services related to the response action contract.

* Sec. 8. AS 46.04.020(e) is amended to read:

(e) The department shall enter into negotiations for memoranda of understanding or cooperative agreements with the United States Coast Guard, the United States Environmental Protection Agency, and other persons in order to

(1) facilitate coordinated and effective oil discharge prevention and response in the state, including agreements relating to development and enforcement of vessel traffic control and monitoring systems for tank vessels and oil barges operating in or near the waters of the state;

(2) provide for cooperative review of oil discharge prevention and contingency plans submitted to the department under AS 46.04.030;

(3) provide for cooperative inspections of oil terminal facilities by the department and the United States Coast Guard or United States Environmental Protection Agency; and

(4) provide for cooperative oil discharge notification procedures.

* Sec. 9. AS 46.04.030 is amended to read:

Sec. 46.04.030. OIL DISCHARGE PREVENTION AND CONTINGENCY PLANS. (a) A person may not cause or permit the operation of an oil terminal facility in the state unless an oil discharge prevention and contingency plan for the facility has been approved by the department and the person is in compliance with the plan [. THE DEPARTMENT IS THE ONLY STATE AGENCY WHICH HAS THE POWER TO APPROVE AN OIL DISCHARGE CONTINGENCY PLAN FOR THE PURPOSES OF THIS SECTION].

(b) A [AFTER JANUARY 1, 1981, A] person may not cause or permit

the operation of a pipeline or an [OFFSHORE] exploration or production facility in the state unless an oil discharge prevention and contingency plan for the pipeline or facility has been approved by the department and the person is in compliance with the plan.

(c) Except as provided in (n) of this section, a [A] person may not operate a tank vessel or an oil barge within the waters of the state, or cause or permit the transfer of oil to or from a tank vessel or [, OR, AFTER JANUARY 1, 1981, TO OR FROM] an oil barge, unless an oil discharge prevention and contingency plan for the tank vessel or oil barge has been approved by the department and the person is in compliance with the plan [EXCEPT FOR PROSECUTIONS UNDER AS 46.03.790(b), IT IS NOT A DEFENSE TO AN ACTION BROUGHT FOR VIOLATION OF THIS SUBSECTION THAT THE PERSON CHARGED BELIEVED THAT A CURRENT OIL DISCHARGE CONTINGENCY PLAN FOR THE TANK VESSEL OR OIL BARGE HAD BEEN APPROVED BY THE DEPARTMENT].

(d) Upon approval of a contingency plan, the department shall issue to the plan holder a certificate stating that the contingency plan has been approved by the department. The certificate must include the name of the facility, pipeline, tank vessel, or oil barge for which it is issued, the effective date of the contingency plan, and the date by which the contingency plan must be submitted for renewal. A [AN OIL DISCHARGE] contingency plan must be submitted for renewal [RENEWED AT LEAST] every three years.

(e) The department may attach reasonable terms and conditions to its approval or modification of a [AN OIL DISCHARGE] contingency plan that the department [WHICH IT] determines are necessary to ensure [INSURE] that the applicant for a [AN OIL DISCHARGE] contingency plan has access to sufficient resources to protect environmentally sensitive areas and to contain, clean up, and mitigate potential oil

discharges from the facility or vessel as provided in (k) of this section, and to ensure that the applicant complies with the contingency plan [WITHIN THE SHORTEST FEASIBLE TIME]. The [OIL DISCHARGE] contingency plan must provide for the use [OF THE BEST AVAILABLE TECHNOLOGY] by the applicant of the best technology that was available at the time the contingency plan was submitted or renewed. The department may require an applicant or holder of an approved contingency plan to take steps necessary to demonstrate its ability to carry out the contingency plan, including

(1) periodic training;

(2) response team exercises; and

(3) verifying access to inventories of [AVAILABLE] equipment, supplies, and personnel identified as available in the approved contingency plan.

(f) Upon request of a plan holder or on the department's own initiative, the [THE] department, after notice and opportunity for hearing, may modify its approval of a [AN OIL DISCHARGE] contingency plan if the department [IT] determines that a change has occurred in the operation of a facility [, MARINA] or vessel necessitating an amended or supplemented plan, or the operator's discharge experience demonstrates a necessity for modification. The department, after notice and opportunity for hearing, may revoke its approval of a [AN OIL DISCHARGE] contingency plan if the department [IT] determines that

(1) approval was obtained by fraud or misrepresentation;

(2) the operator does not have access to the quality or quantity of resources identified in the plan; [OR]

(3) a term or condition of approval or modification has been violated; or

(4) the person is not in compliance with the contingency

plan and the deficiency materially affects the plan holder's response capability.

(g) Failure of a holder of an approved or modified [OIL DISCHARGE] contingency plan to comply with the plan, or to have access to the quality or quantity of resources identified in the plan or [AND, IN THE EVENT OF A SPILL,] to respond with those resources within the shortest possible [FEASIBLE] time in the event of a spill is a violation of this chapter for purposes of AS 46.03.760(a), 46.03.765, 46.03.790, and any other applicable law. If the holder of an approved or modified [OIL DISCHARGE] contingency plan fails to respond to and conduct cleanup operations of an unpermitted discharge of crude oil with the quality and quantity of resources identified in the plan and in a manner required under the plan, the holder is strictly liable, jointly and severally, for the civil penalty assessed under AS 46.03.758, 46.03.759, or 46.03.760 against any other person for that discharge.

* Sec. 10. AS 46.04.030 is amended by adding new subsections to read:

(h) The department is the only state agency that has the power to approve, modify, or revoke a contingency plan for the purposes of this section. The department shall exercise its power under this section in a timely manner. Except for prosecutions under AS 46.03.790(b) and except as provided in (i) of this section, it is not a defense to an action brought for a violation of (a) - (c) of this section that the person charged believed that a current contingency plan had been approved by the department.

(i) It is a defense to an action brought for a violation of (a) - (c) of this section that the person charged relied on a certificate of approval issued by the department under (d) of this section unless the person knew or had reason to know at the time of the

alleged violation that approval of the plan had been revoked or that the holder of the plan was not capable of carrying out the plan.

(j) Before the department approves or modifies a contingency plan under this section, the department shall provide a copy of the contingency plan to the Department of Fish and Game and to the Department of Natural Resources for their review. The department shall by regulation establish the procedures and time limits applicable to agency review of contingency plans.

(k) Except as provided in (m) and (o) of this section, the holder of an approved contingency plan required under this section shall maintain, or have available under contract, in its region of operation or in another region of operation approved by the department, singly or in conjunction with other operators, sufficient oil discharge containment, storage, transfer, and cleanup equipment, personnel, and resources to meet the following response planning standards:

(1) for a discharge from an oil terminal facility, the plan holder shall plan to be able to contain or control, and clean up a discharge equal to the capacity of the largest oil storage tank at the facility within 72 hours, except that if the department determines that the facility is located in an area of high risk because of natural or man-made conditions outside of the facility, it may increase the volume requirement under this paragraph so that the contingency plan must be designed for a response that is greater in amount than the capacity of the largest oil storage tank at the facility;

(2) for a discharge from an exploration or production facility or a pipeline, the plan holder shall plan to be able to contain or control, and clean up the realistic maximum oil discharge within 72 hours;

(3) for a discharge of crude oil from a tank vessel or oil barge, the plan holder shall plan to be able to contain or control, and clean up a realistic maximum oil discharge as provided in (A), (B), and (C) of this paragraph:

(A) for tank vessels and oil barges having a cargo volume of less than 500,000 barrels, the plan holder shall maintain at a minimum in the region of operation, equipment, personnel, and other resources sufficient to contain or control, and clean up a 50,000 barrel discharge within 72 hours;

(B) for tank vessels and oil barges having a cargo volume of 500,000 barrels or more, the plan holder shall maintain at a minimum in its region of operation, equipment, personnel, and other resources sufficient to contain or control, and clean up a 300,000 barrel discharge within 72 hours;

(C) in addition to the minimum equipment, personnel, and other resources required to be maintained within the region of operation by (A) or (B) of this paragraph, a plan holder shall maintain, either within or outside of the plan holder's region of operation, additional equipment, personnel, and other resources sufficient to contain or control, and clean up a realistic maximum discharge within the shortest possible time; the plan holder must demonstrate that the equipment, personnel, and other resources maintained outside the plan holder's region of operation are accessible to the plan holder and will be deployed and operating at the discharge site within 72 hours;

(4) for a discharge from a tank vessel or oil barge carrying noncrude oil in bulk as cargo, the plan holder shall plan to be able to contain or control 15 percent of the maximum capacity of the vessel or barge or the realistic maximum oil discharge, whichever is

greater, within 48 hours and clean up the discharge within the shortest possible time consistent with minimizing damage to the environment;

(5) for a discharge subject to the provisions of (1) - (3) of this subsection that enters a receiving environment other than open water, the time requirement for clean up of the portion of the discharge that enters the receiving environment may, in the department's discretion, be within the shortest possible time consistent with minimizing damage to the environment.

(l) The provisions of (k) of this section do not constitute cleanup standards that must be met by the holder of a contingency plan. Notwithstanding (k) of this section, failure to remove a discharge within the time periods set out in (k) of this section does not constitute failure to comply with a contingency plan for purposes of (g) of this section or for the purpose of imposing administrative, civil, or criminal penalties under any other law.

(m) When considering whether to approve or modify a contingency plan, the department may consider evidence that oil discharge prevention measures such as double hulls or double bottoms on vessels or barges, secondary containment systems, hydrostatic testing, enhanced vessel traffic systems, or enhanced crew or staffing levels have been implemented, and, in its discretion, may make exceptions to the requirements of (k) of this section to reflect the reduced risk of oil discharges from the facility, pipeline, vessel, or barge for which the plan is submitted or being modified.

(n) A tank vessel or oil barge that is conducting, or is available only for conducting, oil discharge response operations is exempt from the requirements of (c) of this section if the tank vessel or oil barge has received prior approval of the department. The department

may approve exemptions under this subsection upon application and presentation of information required by the department.

(o) A holder of an approved contingency plan does not violate the terms of the contingency plan by furnishing to another plan holder, with the approval of the department, equipment, materials, or personnel to assist the other plan holder in a response to an oil discharge. The plan holder shall replace or return the transferred equipment, materials, and personnel as soon as feasible. The department shall by regulation determine the maximum amount of equipment, materials, or personnel and the maximum amount of time for which it will approve a transfer.

(p) The department shall approve or disapprove a proposed contingency plan within 65 days after it receives a complete application for approval under this section.

(q) In this section,

(1) "contingency plan" means an oil discharge prevention and contingency plan required under this section;

(2) "in compliance with the plan" means, with respect to a contingency plan, to

(A) establish and carry out procedures identified in the plan as being the responsibility of the holder of the plan;

(B) have access to and have on hand the quantity and quality of equipment, personnel, and other resources identified as being accessible or on hand in the plan;

(C) fulfill the assurances espoused in the plan in the manner described in the plan;

(D) comply with terms and conditions attached to the plan by the department under the authority of (e) of this section; and

(E) successfully demonstrate the ability to carry out the plan when required by the department under (e) of this section;

(3) "realistic maximum oil discharge" means the maximum and most damaging oil discharge that the department estimates could occur during the lifetime of the tank vessel, oil barge, facility, or pipeline based on the size, location, and capacity of the tank vessel, oil barge, facility, or pipeline; on the department's knowledge and experience with the tank vessel, oil barge, facility, or pipeline or with similar tank vessels, oil barges, facilities, or pipelines; and on the department's analysis of possible mishaps to the tank vessel or oil barge or at the facility or pipeline or to similar tank vessels or oil barges or at similar facilities or pipelines;

(4) "region of operation," with respect to the holder of a contingency plan, means the area where the operations of the holder that require a contingency plan are located, the boundaries of which correspond to the regional boundaries established by the commissioner for regional master planning purposes under AS 46.04.210.

* Sec. 11. AS 46.04.040(a) is amended to read:

(a) A person may not cause or permit the operation of an oil terminal facility in the state unless the person has furnished to the department, and the department has approved, proof of financial ability to respond in damages. Proof of financial responsibility required for a crude oil terminal is $50,000,000 per incident. Proof of financial responsibility required for a noncrude oil terminal is $25, per incident, for each barrel of total noncrude oil storage capacity at the terminal or [WHICH HAS BEEN ACCEPTED BY THE DEPARTMENT. ABILITY TO RESPOND IN DAMAGES NEED NOT EXCEED $50,000,000 BUT MUST BE IN AN AMOUNT (1) NOT LESS THAN $10, PER INCIDENT, FOR EACH BARREL OF STORAGE

CAPACITY AT THE OIL TERMINAL FACILITY; OR (2)] $1,000,000, whichever is greater, subject to a maximum of $50,000,000. For purposes of this subsection, an oil terminal facility that stores both crude oil and noncrude oil is subject to the financial responsibility requirements applicable to the type of facility that corresponds to the type of oil storage that predominates at the facility. However, if the facility stores more noncrude oil than crude oil, the $25 per incident, per barrel requirement of this subsection applies to each barrel of oil storage capacity at the facility.

* Sec. 12. AS 46.04.040(b) is amended to read:

(b) A [AFTER JULY 1, 1981, A] person may not cause or permit the operation of a pipeline or an [OFFSHORE] exploration or production facility in the state unless the person has furnished to the department, and the department has approved, proof of financial ability to respond in damages [HAS BEEN ACCEPTED BY THE DEPARTMENT]. Proof of financial responsibility required for a pipeline or an offshore exploration or production facility is $50,000,000 [MAY NOT BE LESS THAN $35,000,000] per incident. Proof of financial responsibility required for an onshore production facility is $20,000,000 per incident. Proof of financial responsibility required for an onshore exploration facility is $5,000,000 per incident.

* Sec. 13. AS 46.04.040(c) is amended to read:

(c) Except as provided in (m) of this section, a [A] person may not operate a tank vessel or an oil barge within the waters of the state, or cause or permit the transfer of oil to or from a tank vessel [,] or [, AFTER JANUARY 1, 1981, TO OR FROM] an oil barge, unless the person operating the tank vessel or oil barge has furnished to the department, and the department has approved, proof of financial ability to respond in damages. Proof of financial responsibility required

under this subsection is

(1) $300, per incident, for each barrel of storage capacity or $100,000,000, whichever is greater, for a tank vessel or barge carrying crude oil;

(2) $100, per incident, for each barrel of storage capacity or $1,000,000, whichever is greater, subject to a maximum of $35,000,000, for a tank vessel or barge carrying noncrude oil [RESPONSIBILITY FOR THE TANK VESSEL OR BARGE HAS BEEN ACCEPTED BY THE DEPARTMENT. FINANCIAL RESPONSIBILITY UNDER THIS SUBSECTION SHALL BE IN THE FOLLOWING AMOUNTS:

(1) FOR A TANK VESSEL OR OIL BARGE INVOLVED IN THE TRANSPORTATION OF TRANS-ALASKA PIPELINE OIL, THE AMOUNT REQUIRED BY THE FEDERAL MARITIME COMMISSION UNDER 43 U.S.C. 1653(c)(3) (SEC. 204 (c)(3), TRANS-ALASKA PIPELINE AUTHORIZATION ACT);

(2) FOR ANY OTHER OIL BARGE, THE AMOUNT REQUIRED BY SEC. 311(p)(1) OF THE CLEAN WATER ACT, OR $1,000,000, WHICHEVER IS GREATER;

(3) FOR ANY OTHER TANK VESSELS, THE AMOUNT REQUIRED BY SEC. 311(p)(1) OF THE CLEAN WATER ACT, OR $20,000,000, WHICHEVER IS GREATER].

* Sec. 14. AS 46.04.040(d) is amended to read:

(d) Except for prosecutions under AS 46.03 790(b) and except as provided in (k) of this section, it is not a defense to an action brought for violation of (a) - (c) [(c)] of this section that the person charged believed in good faith that proof of financial ability to respond in damages had been furnished to, and approved by, the department [THE VESSEL OPERATOR POSSESSED PROOF OF FINANCIAL RESPONSIBILITY ACCEPTED BY THE DEPARTMENT].

* Sec. 15. AS 46.04.040(e) is amended to read:

(e) Financial responsibility may be demonstrated by (1) self-

insurance, (2) insurance, (3) surety, (4) [OR] guarantee, (5) letter of credit approved by the department, or (6) other proof of financial responsibility approved by the department, including proof of financial responsibility provided by a group of insureds who have agreed to cover pollution risks of members of the group under terms the department may prescribe. An action brought under AS 46.03.758, 46.03.759, 46.03.760(a) or (e), 46.03.822, or AS 46.04.030(g) [OR TO COLLECT PENALTIES IMPOSED UNDER AS 46.03.759] may be brought in a state court directly against the insurer, the group, or another person providing evidence of financial responsibility. The applicant, and an insurer, surety, [OR] guarantor, person furnishing an approved letter of credit, or other group or person providing proof of financial responsibility approved by the department shall appoint an agent for service of process in the state. For purposes of this subsection, an [AN] insurer, other than a group of insureds whose agreement has been approved by the department, must either be authorized by the Department of Commerce and Economic Development to sell insurance in the state or be an unauthorized insurer listed by the Department of Commerce and Economic Development as not disapproved for use in the state.

* Sec. 16. AS 46.04.040(f) is amended to read:

(f) Acceptance of proof of financial responsibility expires

(1) one year from its issuance for self-insurance;

(2) on the effective date of a change in the surety bond, guarantee, [OR] insurance agreement, letter of credit, or other proof of financial responsibility; or

(3) on the expiration or cancellation of the surety bond, guarantee, [OR] insurance agreement, letter of credit, or other proof of financial responsibility.

* Sec. 17. AS 46.04.040(g) is amended to read:

(g) The person whose proof of financial responsibility is accepted by the department under this section shall notify the department at least 30 days before the effective date of a change, expiration or cancellation in the surety bond, guarantee, [OR] insurance agreement, letter of credit, or other proof of financial responsibility. Application for renewal of acceptance of proof of financial responsibility under this section must be filed at least 30 days before the date of expiration.

* Sec. 18. AS 46.04.040 is amended by adding new subsections to read:

(j) Upon acceptance and approval of proof of financial responsibility under this section, the department shall issue to the applicant a certificate stating that the state's financial responsibility requirements have been satisfied. The certificate must include the name of the facility, pipeline, tank vessel, or oil barge for which it is issued and the expiration date of the certificate.

(k) It is a defense to an action brought for violation of (a) - (c) of this section that the person charged relied on a certificate of approval issued under (j) of this section unless the person knew or had reason to know at the time of the alleged violation that the approval had been revoked or was expired.

(l) Notwithstanding the requirements of (e) of this section, the applicant may provide evidence of financial responsibility provided by an insurer or other person who does not agree to be subject to direct action in state courts or to appoint an agent for service of process if

(1) the department is satisfied that the insurance or other form of financial responsibility covers judgments under the statutes listed in (e) of this section;

(2) the applicant provides proof of $50,000,000, or the amount required by (a) - (c) of this section, whichever is less, in insurance or other form of financial responsibility that meets the requirements of (e) of this section; and

(3) the applicant provides a sworn statement or affidavit that insurance or other form of financial responsibility that meets the requirements of (e) of this section is not available in greater amounts.

(m) A tank vessel or oil barge that is conducting, or is available only for conducting, oil discharge response operations is exempt from the requirements of (c) of this section if the tank vessel or oil barge has received prior approval of the department. The department may approve an exemption under this subsection upon application and presentation of information required by the department.

* Sec. 19. AS 46.04 is amended by adding a new section to read:

Sec. 46.04.045. ADJUSTMENT OF DOLLAR AMOUNTS. (a) The dollar amounts in AS 46.04.040 change, as provided in this section, according to and to the extent of changes in the Consumer Price Index for all urban consumers for the Anchorage metropolitan area compiled by the Bureau of Labor Statistics, United States Department of Labor (th index). The index for January of the year in which this section becomes effective is the reference base index.

(b) The dollar amounts change on October 1 of each third year according to the percentage change between the index for January of that year and the most recent index used to determine whether to change the dollar amounts. After calculation of the new amounts, the resulting amounts shall be rounded to the nearest cent.

(c) If the index is revised, the percentage of change is calculated on the basis of the revised index. If a revision of the index

changes the reference base index, a revised reference base index is determined by multiplying the reference base index applicable by the rebasing factor furnished by the United States Bureau of Labor Statistics. If the index is superseded, the index referred to in this section is the one represented by the Bureau of Labor Statistics as reflecting most accurately changes in the purchasing power of the dollar for Alaskan consumers.

(d) The department shall adopt a regulation announcing

(1) on or before June 30 of each third year, the changes in dollar amounts required by (b) of this section; and

(2) promptly after the changes occur, changes in the index required by (c) of this section, including, if applicable, the numerical equivalent of the reference base index under a revised reference base index and the designation or title of any index superseding the index.

(e) The department shall also provide notification of a change in dollar amounts required under (b) of this section to the clerks of court in each judicial district of the state.

* Sec. 20. AS 46.04.050 is amended to read:

Sec. 46.04.050. EXEMPTIONS. The provisions of [BECAUSE OF THE RESTRICTED NATURE OF THE OPERATIONS AND THE MINIMAL DANGER TO THE ENVIRONMENT POSED BY THE ACTIVITIES,] AS 46.04.030, 46.04.040, and 46.04.060 do not apply to an oil terminal facility that has an effective storage capacity of less than 5,000 [10,000] barrels of crude oil or less than 10,000 barrels of noncrude oil.

* Sec. 21. AS 46.04.060 is amended to read:

Sec. 46.04.060. INSPECTIONS. In addition to other rights of access or inspection conferred upon the department by law or otherwise, the department may at reasonable times and in a safe manner

enter and inspect oil [OIL] terminal facilities, pipelines, [OFFSHORE] exploration and production facilities, tank vessels, and oil barges in order [ARE SUBJECT TO INSPECTION BY THE DEPARTMENT] to

(1) ensure compliance with the provisions of this chapter; or

(2) participate in an examination of the structural integrity and the operating and mechanical systems of those vessels, barges, pipelines, and facilities by federal and state agencies with jurisdiction.

* Sec. 22. AS 46.04.060 is amended by adding a new subsection to read:

(b) When the department determines that no federal or state agencies with jurisdiction are performing timely and adequate inspections of an oil terminal facility, pipeline, exploration or production facility, tank vessel, or oil barge, it may perform its own inspection of the structural integrity and operating and mechanical systems of a facility, pipeline, tank vessel, or oil barge by using personnel with qualifications in the areas being inspected.

* Sec. 23. AS 46.04.200 is amended to read:

Sec. 46.04.200. STATE MASTER PLAN. (a) The department shall prepare and annually review and revise a statewide master oil an hazardous substance discharge [AND] prevention and contingency plan.

(b) The state master plan prepared under this section must

(1) take into consideration the elements of an oil discharge prevention and contingency plan approved or submitted for approval under AS 46.04.030;

(2) clarify and specify the respective responsibilities of each of the following in the assessment, containment, and cleanup of a catastrophic oil discharge or of a significant discharge of a hazardous substance into the environment of the state:

(A) agencies of the state;

(B) municipalities of the state;

(C) appropriate federal agencies;

(D) operators of facilities;

(E) private parties whose land and other property may be affected by the oil or hazardous substance discharge; and

(F) other parties identified by the commissioner as having an interest in or the resources to assist in the containment and cleanup of an oil or hazardous substance discharge;

(3) specify the respective responsibilities of parties identified in (2) of this subsection in an emergency response; and

(4) identify actions necessary to reduce the likelihood of catastrophic oil discharges and significant discharges of hazardous substances.

(c) In preparing and annually reviewing the state master plan, the commissioner shall

(1) consult with municipal and community officials, and with representatives of affected regional organizations;

(2) submit the draft plan to the public for review and comment;

(3) submit to the legislature for review, not later than the 10th day following the convening of each regular session, the plan and any annual revision of the plan; and

(4) require or schedule unannounced oil spill drills to test the sufficiency of an oil discharge prevention and contingency plan approved under AS 46.04.030 or of the cleanup plans of a party identified under (b)(2) of this section.

* Sec. 24. AS 46.04.210(a) is amended to read:

(a) For any region of the state, the boundaries of which are

determined by the commissioner by regulation, in which the department is required to review and approve an oil discharge prevention and contingency plan submitted by a person under AS 46.04.030, the department shall prepare and annually review and revise a regional master oil and hazardous substance discharge [AND] prevention and contingency plan.

* Sec. 25. AS 46.04.900(8) is amended to read:

(8) "[OFFSHORE] exploration [OR PRODUCTION] facility" means a platform, vessel, or other facility used to explore for [OR PRODUCE] hydrocarbons in or on the waters of the state or in or on land in the state; the term does not include platforms or vessels used for stratigraphic drilling or other operations that [WHICH] are not authorized or intended to drill to a producing formation;

* Sec. 26. AS 46.04.900(15) is amended to read:

(15) "tank vessel" means a self-propelled waterborne vessel that is constructed or converted to carry liquid bulk cargo in tanks and includes tankers, tankships, and combination carriers when carrying oil; the term does not include vessels carrying oil in drums, barrels, or other packages, or vessels carrying oil as fuel or stores for that vessel;

* Sec. 27. AS 46.04.900 is amended by adding new paragraphs to read:

(18) "pipeline" means the facilities, including piping, compressors, pump stations, and storage tanks, used to transport crude oil and associated hydrocarbons between production facilities or from one or more production facilities to marine vessels;

(19) "production facility" means a drilling rig, drill site, flow station, gathering center, pump station, storage tank, well, and related appurtenances on other facilities to produce, gather, clean, dehydrate, condition, or store crude oil and associated hydrocarbons

in or on the water of the state or on land in the state, and gathering and flow lines used to transport crude oil and associated hydrocarbons to the inlet of a pipeline system for delivery to a marine facility, refinery, or other production facility.

* Sec. 28. AS 46.08.040 is amended to read:

Sec. 46.08.040. PURPOSES OF THE FUND. The commissioner may use money from the fund to

(1) investigate and evaluate the release or threatened release of oil or a hazardous substance, and contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) pay all costs incurred

(A) to establish and maintain the oil and hazardous substance response office and for the expenses of the oil and hazardous substance response corps and the oil and hazardous substance response depots established by that office;

(B) to review oil discharge prevention and contingency plans submitted under AS 46.04.030;

(C) to conduct training, response exercises, inspections, and tests, in order to verify equipment inventories and ability to prevent and respond to oil and hazardous substance release emergencies, and to undertake other activities intended to verify or establish the preparedness of the state, a municipality, or a party required by AS 46.04.030 to have an approved contingency plan to act in accordance with that plan; and

(D) to verify or establish proof of financial responsibility required by AS 46.04.040;

(3) provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); [AND]

(4) recover the costs to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance; [.]

(5) prepare, review, and revise

(A) the state's master oil and hazardous substance discharge [AND] prevention and contingency plan required by AS 46.04.200; and

(B) a regional master oil and hazardous substance discharge [AND] prevention and contingency plan required by AS 46.04.210; and

(6) restore the environment by addressing the effects of an oil or hazardous substance release.

* Sec. 29. AS 46.08.060(a) is amended to read:

(a) The commissioner shall submit a report to the legislature not later than the 10th day following the convening of each regular session of the legislature. The report may include information considered significant by the commissioner but must include:

(1) the amount of money expended under AS 46.08.040 during the preceding fiscal year;

(2) the amount and source of money received and money recovered during the preceding fiscal year as specified in AS 46.08.020;

(3) a summary of municipal participation in responses funded by the fund;

(4) a detailed summary of department activities in

responses funded by the fund during the preceding fiscal year, including response descriptions and statements outlining the nature of the threat; in this paragraph, "detailed" includes information describing each personal services position and total compensation for that position, each contract in excess of $20,000, and each purchase in excess of $10,000; and

(5) the projected cost for the next fiscal year of monitoring, operating, and maintaining sites where response has been completed or is expected to be continued during the fiscal year.

* Sec. 30. SURVEY OF SMALL NONCRUDE OIL TERMINAL FACILITIES. (a) By January 31, 1992, the Department of Environmental Conservation shall survey, inspect, and prepare an inventory of noncrude oil terminal facilities in the state with an effective storage capacity of 5,000 to 10,000 barrels in order to determine for each facility

(1) its actual storage capacity;

(2) the type of noncrude oil products stored;

(3) its age, design, construction, and general condition;

(4) the design and construction standards applicable or relevant;

(5) the presence or absence of containment structures and equipment;

(6) its ability to respond to a release or threatened release;

(7) the environmental sensitivity of the surrounding area and the potential risk to the environment if a release occurs;

(8) the presence or absence of surface and subsurface pipelines and storage tanks; and

(9) other appropriate information.

(b) By January 31, 1992, the Department of Environmental Conservation shall report to the legislature the results of the survey required under

(a) of this section and its written recommendations concerning discharge prevention and contingency requirements or design review requirements that should be enacted for noncrude oil terminal facilities with storage capacities of less than 10,000 barrels.

(c) Upon completion of the survey required under (a) of this section, the Department of Environmental Conservation may

(1) notify each facility of the results of the facility's inspection; and

(2) provide each facility with recommendations and technical assistance concerning identified deficiencies.

(d) The Department of Environmental Conservation may conduct the inspections required under this section notwithstanding the provisions of AS 46.04.050. The department shall conduct the inspections at reasonable times.

* Sec. 31. STUDY RELATING TO NONCRUDE OIL TANKERS AND BARGES. By July 1, 1991, the Department of Environmental Conservation shall conduct a study and report to the legislature its recommendations concerning the following issues related to oil discharge prevention and contingency planning for tank vessels and oil barges carrying noncrude oil in bulk as cargo:

(1) appropriate locations for regional response depots, based on an assessment of historical evidence of where noncrude oil discharges are most likely to occur and the needs of remote areas of the state such as western and northern Alaska and the Aleutians;

(2) appropriate discharge response times;

(3) requirements for personnel and equipment that should be imposed on contingency plan holders;

(4) appropriate roles for industry and state and local governments in the purchase, ownership, and positioning of discharge response

efforts.

* Sec. 32. TRANSITIONAL PROVISIONS. (a) AS 46.04.030(k) - (m), enacted by sec. 10 of this Act, do not apply to oil discharge prevention and contingency plans until June 1, 1991. On and after June 1, 1991, a contingency plan must comply with AS 46.04.030(k) - (m), enacted by sec. 10 of this Act, regardless of whether the contingency plan is due for renewal under AS 46.04.030(d), as amended by sec. 9 of this Act.

(b) The amendments to AS 46.04.040, made by secs. 11 - 18 of this Act, do not apply to persons required to show proof of financial responsibility until June 1, 1991. On and after June 1, 1991, proof of financial responsibility must comply with AS 46.04.040, as amended by secs. 11 - 18 of this Act, regardless of whether acceptance of proof of financial responsibility has expired under AS 46.04.040(f), as amended by sec. 16 of this Act.

* Sec. 33. This Act takes effect immediately under AS 01.10.070(c).

LAWS OF ALASKA

1990

Source

SCS CSHB 578(Fin)

Chapter No.

199

AN ACT

Creating a citizens' oversight council on oil and other hazardous substances; and authorizing funding of the council through the oil and hazardous substance release response fund."

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

THE ACT FOLLOWS ON PAGE 1, LINE 11

Approved by the Governor: June 27, 1990
Actual Effective Date: September 25, 1990

Chapter 199

AN ACT

Creating a citizens' oversight council on oil and other hazardous substances; and authorizing funding of the council through the oil and hazardous substance release response fund.

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* Section 1. LEGISLATIVE FINDINGS. The legislature finds that

(1) a pervasive contributing factor to the Exxon Valdez disaster was the complacency of the oil industry and the federal and state agencies responsible for monitoring the operation of the Valdez oil terminal and oil tanker traffic in Valdez Arm and Prince William Sound;

(2) it is essential to involve local citizens to help ensure compliance with environmental laws and regulations relating to the production, transport, and storage of oil and other hazardous substances in order to overcome this complacency;

(3) a state oversight council will provide a valuable mechanism for citizen participation and an opportunity for citizens to express their concerns to the legislature and the governor about environmental safety in production, transport, and storage of oil and other hazardous substances.

* Sec. 2. AS 24.20 is amended by adding new sections to read:

ARTICLE 4. CITIZENS' OVERSIGHT COUNCIL ON OIL AND OTHER HAZARDOUS SUBSTANCES.

Sec. 24.20.600. CITIZENS' OVERSIGHT COUNCIL ON OIL AND OTHER HAZARDOUS SUBSTANCES. (a) There is created in the legislature the Citizens' Oversight Council on Oil and Other Hazardous Substances.

The oversight council consists of five members appointed by the Alaska Legislative Council. The Alaska Legislative Council shall notify members of the public throughout the state that nominations for membership are being sought. Members of the oversight council serve without compensation but are entitled to per diem and travel expenses authorized for boards and commissions under AS 39.20.180.

(b) The oversight council shall elect a chair and other officers that the oversight council finds necessary to carry out its responsibilities.

(c) Members of the oversight council serve staggered terms of four years and, upon expiration of their terms, continue to serve until their successors qualify and are appointed. A member may serve no more than two consecutive terms.

(d) A member of the oversight council may not work as an independent contractor for or be employed by a federal, state, or municipal agency directly or indirectly involved in the oversight or regulation of industries engaged in the production, transport, or storage of oil or other hazardous substances; be an elected official of the state or of a political subdivision; or work as an independent contractor for or be employed by a person engaged in the production, transport, or storage of oil or other hazardous substances. The Alaska Legislative Council shall appoint as members of the oversight council persons who have an interest in and commitment to preventing oil and hazardous substance releases in the state.

(e) The oversight council shall make a formal request to the Alaska Legislative Council for money it considers necessary for staff, per diem, travel, and contractual expenses. Money distributed to the oversight council is to be disbursed and accounted for under procedures required by the Legislative Affairs Agency. The chair of the

oversight council shall approve all expenditure documents.

Sec. 24.20.610. POWERS AND DUTIES OF THE OVERSIGHT COUNCIL. (a) The oversight council shall

(1) determine whether state and federal agencies responsible for the prevention of the release of oil and other hazardous substances, and for responding to releases, are carrying out their duties in these areas;

(2) recommend to the legislature, the governor, agencies of the federal government, and private entities appropriate policies and actions to prevent releases of oil and other hazardous substances;

(3) assist the legislature and the governor in the development of interstate compacts and policy recommendations to the federal government regarding the prevention of releases of oil and other hazardous substances;

(4) file an annual report with the legislature and the governor assessing the status of major areas of risk, the performance of state and federal regulatory agencies, and changes in the long-term options for improving environmental safety;

(5) request the attorney general to bring or request the attorney general to move to intervene in legal actions in order to ensure compliance with state laws and regulations regarding the release of oil and other hazardous substances;

(6) make recommendations to the legislature, the governor, and the federal government on the creation, funding, and composition of regional or local advisory committees and on the relationship between the oversight council, local advisory committees, and other citizens' oversight groups on oil and other hazardous substances; and

(7) schedule regular meetings with local and regional advisory committees as they are created to make sure that they

complement each other and avoid overlap in oversight and advisory functions.

(b) The oversight council may

(1) hire an administrator and additional administrative staff, and enter into contracts for personal services that the oversight council finds necessary to carry out its responsibilities under this section; all employees of the oversight council are in the exempt service under AS 39.25.110;

(2) subpoena witnesses, administer oaths, take testimony, and require the production for examination and copying of books or papers relating to matters within the responsibility of the oversight council; and

(3) conduct investigations, studies, and analyses necessary to enable the oversight council to carry out its duties under (a) of this section; and

(4) appoint advisory panels in specialized areas to include representatives of appropriate groups such as state and municipal regulatory agencies, oil spill prevention and response authorities, fishing and environmental groups, residents of areas of risk, scientists, and shippers and owners of oil and other hazardous substances produced or transported in the state.

Sec. 24.20.620. COOPERATION BY STATE AGENCIES. Each agency of the executive branch of state government shall, to the extent permitted by state or federal law, cooperate fully with the oversight council by providing information and assistance, including disclosure of records relating to the agency's enforcement of laws and regulations for the prevention of and response to releases of oil and other hazardous substances.

Sec. 24.20.630. DEFINITIONS. In AS 24.20.600 - 24.20.630,

(1) "hazardous substance" has the meaning given in AS 46.08.900;

(2) "oil" has the meaning given in AS 46.08.900; and

(3) "oversight council" means the Citizens' Oversight Council on Oil and Other Hazardous Substances.

* Sec. 3. AS 46.08.040 is amended by adding a new subsection to read:

(b) Upon a request from the Alaska Legislative Council, the commissioner shall use money from the fund to reimburse the Alaska Legislative Council for expenditures that it makes for the operation of the Citizens' Oversight Council on Oil and Other Hazardous Substances, established under AS 24.20.600.

* Sec. 4. INITIAL APPOINTMENTS. Notwithstanding AS 24.20.600(c), as enacted by sec. 2 of this Act, one initial member of the Citizens' Oversight Council on Oil and Other Hazardous Substances shall be appointed to a term of one year, one initial member shall be appointed to a term of two years, one initial member shall be appointed to a term of three years, and two initial members shall be appointed to terms of four years. The members appointed to terms of one and two years are eligible to serve two full terms following the completion of their initial shortened terms.

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ns' land discount authorized by sec. 2 of this Act unless the
he veterans' land discount not later than one year after the

ly under AS 01.10.070(c).

LAWS OF ALASKA

1991

Source
CSSSSB 25(CRA)

Chapter No.
83

AN ACT

Concerning the exercise of authority by the state and its municipalities, and the recovery of damages by the state and its municipalities and villages, in matters relating to environmental conservation; relating to the liability of villages for environmental response actions and to state assistance to municipalities and villages for expenses for prevention and abatement of environmental degradation; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1

Approved by the Governor: June 27, 1991
Actual Effective Date: June 28, 1991

AN ACT

Concerning the exercise of authority by the state and its municipalities, and the recovery of damages by the state and its municipalities and villages, in matters relating to environmental conservation; relating to the liability of villages for environmental response actions and to state assistance to municipalities and villages for expenses for prevention and abatement of environmental degradation; and providing for an effective date.

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* Section 1. INTENT. The provisions of AS 29.60.500 - 29.60.599, added by sec. 7 of this Act, are not intended by the legislature to confirm long-term benefits on municipalities receiving financial assistance under those provisions.

* Sec. 2. AS 29.35.020(b) is amended to read:

(b) A municipality may adopt an ordinance to exercise a power authorized by this subsection [PROTECT ITS WATER SUPPLY AND WATERSHED,] and may enforce the ordinance outside its boundaries. Before a [THIS] power authorized by this subsection may be exercised inside the boundaries of another municipality, the approval of the other municipality must be given by ordinance, and before a power authorized by this subsection may be exercised inside a village, as that term is defined by AS 46.08.900, the approval of the village must be given by resolution. A municipality intending to exercise its authority under this subsection shall act by ordinance, and may adopt an ordinance under this subsection

to

(1) protect its water supply and watershed; or

(2) contain, clean up, or prevent the release or threatened release of oil or a hazardous substance that may pose an imminent or substantial threat to persons, property, or natural resources within the municipality's boundaries; however, this paragraph does not authorize a municipality to enforce an ordinance outside its boundaries to regulate exploration, development, production, or transportation of oil, gas, or minerals in a manner inconsistent with the state's management of those resources, and enforcement of the ordinance must be consistent with a regional master plan prepared by the Department of Environmental Conservation under AS 46.04.210; in this paragraph, "natural resources" has the meaning given in AS 46.03.826.

* Sec. 3. AS 29.35.020 is amended by adding a new subsection to read:

(e) In this section, "village"

(1) means the area within a five-mile radius of the village post office or, if there is no post office, another site designated by the commissioner;

(2) does not include an area described in (1) of this subsection that is within a city or another village.

* Sec. 4. AS 29.35.200 is amended by adding a new subsection to read:

(d) A first class borough that exercises power necessary to contain, clean up, or prevent a release or threatened release of oil or a hazardous substance, and exercise a power granted to a municipality under AS 46.04, AS 46.08, or AS 46.09 shall exercise its authority in a manner that is consistent with a regional master plan prepared by the Department of Environmental Conservation under AS 46.04.210.

* Sec. 5. AS 29.35.210(a) is amended by adding a new paragraph to read:

(13) contain, clean up, or prevent a release or threatened release of oil or a hazardous substance, and exercise a power granted to a municipality under AS 46.04, AS 46.08, or AS 46.09; the borough shall exercise its authority under this paragraph in a manner that is consistent with a regional master plan prepared by the Department of Environmental Conservation under AS 46.04.210.

* Sec. 6. AS 29.35.220 is amended by adding a new subsection to read:

(e) A third class borough may by ordinance exercise power necessary to contain, clean up, or prevent a release or threatened release of oil or a hazardous substance, and exercise a power granted to a municipality under AS 46.04, AS 46.08, or AS 46.09, but the power authorized by this subsection may be exercised only on a nonareawide basis. The borough shall exercise its authority under this subsection in a manner that is consistent with a regional master plan prepared by the Department of Environmental Conservation under AS 46.04.210.

* Sec. 7. AS 29.60 is amended by adding new sections to read:

ARTICLE 6. OIL AND HAZARDOUS SUBSTANCE MUNICIPAL IMPACT ASSISTANCE.

Sec. 29.60.500. PURPOSE AND POLICY. (a) The legislature finds and declares that a major release of oil or hazardous substances into the environment presents a real and substantial threat to the economy and public welfare of the municipalities and villages that are affected by the release and the resultant activities to contain and clean up the release.

(b) The legislature concludes that it is in the best interest of the state and its citizens to provide a readily available fund for the payment of the expenses incurred by municipalities and villages to mitigate the social and economic effects that arise out of a major release of oil or hazardous substances and resultant cleanup activities.

(c) It is the intent of the legislature and declared to be the public policy of the state that money to defray the cost of social and economic effects on municipalities and villages arising from a major release of oil or a hazardous substance and resultant cleanup activities and to pay for efforts to abate that release will be immediately available upon

(1) a determination by the governor that the release exceeds 2,500 barrels of oil, or exceeds an amount of a hazardous substance that when released into the environment presents a real and substantial threat to the economy and public welfare of the municipalities or villages affected by it;

(2) the declaration by the governor of a disaster emergency relating to the release; and

(3) a finding by the governor that

(A) the release of the oil or hazardous substance into the environment presents a real and substantial threat to the economy and public welfare of the

municipalities and villages that are affected by the release and by the resultant activities to contain and clean up the release; and

(B) it is in the best interest of the state to pay the expenses incurred by municipalities and villages to mitigate the social and economic effects that arise out of the release of the oil or the hazardous substance and the resultant cleanup activities.

Sec. 29.60.510. MUNICIPAL IMPACT GRANTS AUTHORIZED. (a) The commissioner may use money from the oil and hazardous substance release response fund to make grants to a municipality or village that is affected by the release or by the response to the release and that demonstrates that the release or response to the release involves extraordinary expenditures that are beyond the reasonable capability of the municipality or village to meet from the current revenue sources of the municipality or village if

(1) the governor determines that a release of oil or a hazardous substance exceeds 2,500 barrels of oil, or exceeds an amount of a hazardous substance that, when released into the environment, presents a threat to the economy and public welfare of the municipalities and villages affected by it at least equivalent in effect to the effect of a release of oil in an amount defined by this paragraph;

(2) the release has been proclaimed a disaster emergency by the governor under AS 26.23.020; and

(3) the governor finds that

(A) the release of the oil or hazardous substance into the environment presents a real and substantial threat to the economy and public welfare of the municipalities and villages that are affected by the release and by the resultant activities to contain and clean up the release; and

(B) it is in the best interest of the state to pay the expenses incurred by municipalities and villages to mitigate the social and economic effects that arise out of the release of the oil or the hazardous substance and the resultant cleanup activities.

(b) For each disaster emergency declared by the governor under AS 26.23.020, and subject to agreement with the commissioner of environmental conservation as to the amount of money in the fund that may be used by the department to make grants, the commissioner may expend not more than $10,000,000 of the balance of the fund that is appropriated to the spill

reserve or of the unrestricted balance of the fund for grants authorized under this section. If the commissioner and the commissioner of environmental conservation do not agree on the amount of money in the fund that may be used by the department to make grants under AS 29.60.500 - 29.60.599, the governor shall make the determination.

(c) Notwithstanding the limitation of AS 37.07.080(e) against the transfer of money between appropriations, when the commissioner and the commissioner of environmental conservation have agreed to the amount of money in the fund that may be used by the department to make grants, or when that determination has been made by the governor, the commissioner of environmental conservation shall promptly transfer that amount to the department for use under AS 29.60.500 - 29.60.599.

(d) For money that has been transferred under (c) of this section, if within any one-ye. period thereafter the commissioner does not use the money to make a grant under AS 29.60.500 - 29.60.599, the commissioner shall, at the direction of the governor or the request of the commissioner of environmental conservation, return the unexpended amount transferred under (c) of this section to the fund.

Sec. 29.60.520. PURPOSES OF MUNICIPAL IMPACT GRANTS. (a) A grant made under AS 29.60.510 may be made

(1) only for

(A) provision of subsistence resources on which the residents of the municipality or village rely for subsistence needs;

(B) the additional costs of a reasonable and appropriate function or service, including administrative expenses for the incremental costs of providing the function or service, limited to:

(i) public health and welfare functions and services, including hospital, clinic, and emergency medical services; alcohol, drug abuse, and mental health services; family support services; and the operation of waste disposal systems and water quality improvement systems;

(ii) public safety functions and services, including police protection, search and rescue, and fire protection;

(iii) public utility functions and services, including the operation

of electric generating plants and distribution systems, water supply systems, telephone systems, and fuel distribution systems; and

(iv) housing functions and services, limited to leasing or making other arrangements for temporary housing to be occupied by persons associated with containment or clean up of the release;

(C) costs associated with leasing transportation facilities for use in activities associated with the containment or clean up;

(D) costs of repair or replacement of equipment or a capital asset associated with a function or service set out in (B) of this paragraph the useful life of which has been substantially reduced by use associated with the containment or clean up; and

(2) to compensate the municipality or village for

(A) the reduction of revenue attributable to the release of the oil or hazardous substance; and

(B) the costs of projects or activities that are delayed or lost because of the efforts of the municipality or village responding to the release or associated with the containment or cleanup of oil or the hazardous substance.

(b) If money received under this section is used for a capital expenditure the commissioner may require the municipality or village that acquired the item as a capital expenditure to transfer it to the state at the end of the period during which the item is actually used for spill response if the commissioner finds that retention of the item would confer an inappropriate benefit on the municipality or village.

Sec. 29.60.530. CRITERIA TO EVALUATE GRANT APPLICATIONS. (a) In determining whether an expenditure or proposed expenditure by a municipality or village is eligible for a grant under AS 29.60.510, the department shall consider

(1) the degree to which the effect on the municipality or village is directly caused by the oil or hazardous substance release or the response to the release;

(2) the availability of money to the recipient from other sources that can meet the costs of providing the functions or services; and

(3) the severity of the effect addressed in the grant application.

(b) The department may reject an application for a grant under AS 29.60.510 or approve an application for a grant in an amount that is less than the amount requested by a municipality or village if the department determines that payment of the amount requested is not warranted under (a) of this section.

(c) The department shall adopt, by regulation, criteria by which to rank all or a portion of applications for the purpose of establishing the priority order of awarding grants if money requested by eligible municipalities and villages under this section exceeds the amount available. The criteria must be based on the elements set out in (a) of this section. If the total amount of money requested by eligible municipalities and villages under this section exceeds the amount available, the department shall rank applications for the purpose of establishing the priority of awarding grants in accordance with the regulations.

Sec. 29.60.540. LIMITATIONS ON USES OF GRANTS BY MUNICIPALITIES AND VILLAGES. (a) A municipality may not use a grant made under AS 29.60.510 to reduce current municipal tax rates or to retire its existing bonded indebtedness.

(b) Money received by a municipality or village under AS 29.60.500 - 29.60.599 may not be used for a capital improvement, as that term is defined by AS 46.08.900(1).

Sec. 29.60.550. RECORDS. The department shall maintain records showing the income and expenses of grants made under AS 29.60.510, and shall develop procedures governing the expenditure of, and accounting for, money expended.

Sec. 29.60.560. IMPACT ASSESSMENT AND REMEDIAL PLANS. (a) For each disaster emergency declared by the governor under AS 26.23.020 based on a release of oil or a hazardous substance, the commissioner, after consulting with and securing the written approval of the attorney general and after consulting with other state agencies, shall

(1) make an assessment of the social and economic effects of the release of the oil or hazardous substance;

(2) develop a plan to

(A) recover the cost of release-related expenditures; and

(B) mitigate the social and economic effects of the release of the oil or hazardous substance on the municipalities, the villages, and the region in which the discharge occurs;

(b) The commissioner may make the assessment and plans required by (a) of this section by

(1) using staff of the department;

(2) contracting with a municipality or other entity; or

(3) authorizing a municipality or other entity to perform that work and supporting that effort by a grant.

(c) Only one assessment and one plan may be completed under this section for each declaration of a disaster emergency.

(d) The commissioner may pay the costs of the assessment, the plan, and the recovery of the cost of release related expenditures from money available in the fund.

(e) Expenditures made under this section may be made only from the amount transferred to the commissioner under AS 29.60.510(c), unless

(1) the commissioner and the commissioner of environmental conservation mutually agree that payment may be made from money in the oil and hazardous substance release response fund not transferred under AS 29.60.510(c); or

(2) the commissioner pays them from another source.

Sec. 29.60.590. REGULATIONS. The commissioner and the commissioner of environmental conservation shall jointly develop and adopt regulations that are necessary to implement the purposes of AS 29.60.500 - 29.60.599.

Sec. 29.60.599. DEFINITIONS. In AS 29.60.500 - 29.60.599,

(1) "barrel" when used with reference to oil has the meaning given by AS 43.20.072;

(2) "containment and cleanup" has the meaning given in AS 46.08.900;

(3) "disaster emergency" means a disaster declared by the governor under AS 26.23.020;

(4) "fund" means the oil and hazardous substance release response fund established by AS 46.08.010;

(5) "hazardous substance" has the meaning given in AS 46.09.900;

(6) "oil" and "release" have the meanings given in AS 46.08.900;

(7) "service"

(A) means a function performed or service provided by a municipality under a duty or power authorized by this title or by another provision of law authorizing a municipality to perform functions or provide services, or a comparable function performed or service provided by a village;

(B) includes functions not previously performed and services not previously provided by the municipality or village;

(8) "village" means a place within the unorganized borough or within a borough if the power, function, or service for which a grant application is submitted under AS 29.60.500 - 29.60.599 is not exercised or provided by the borough on an areawide or nonareawide basis at the time the grant application is submitted, that

(A) has irrevocably waived, in a form approved by the Department of Law, any claim of sovereign immunity that might arise in connection with the use of grant money under this chapter; and

(B) has

(i) a council organized under 25 U.S.C. 476 (sec. 16 of the Indian Reorganization Act);

(ii) a traditional village council recognized by the United States as eligible for federal aid to Indians; or

(iii) a council recognized by the commissioner under regulations adopted by the department to determine and give official recognition of village entities under AS 44.47.150(b).

* Sec. 8. AS 46.03.760(e) is amended to read:

(e) In addition to liability under (a) - (d) of this section, a person who violates or causes or permits to be violated a provision of AS 46.03.740 - 46.03.750 is liable to the state, in a civil action brought under AS 46.03.822, for the full amount of actual damages caused to the state by the violation, including

(1) direct and indirect costs associated with the abatement, containment, or removal of the pollutant;

(2) [,] restoration of the environment to its former state;

(3) amounts paid as grants under AS 29.60.510 - 29.60.599 and as emergency

first response advances and reimbursements under AS 46.08.070(c); [,] and

(4) all incidental administrative costs.

* Sec. 9. AS 46.03.822(a) is amended to read:

(a) Notwithstanding any other provision or rule of law and subject only to the defenses set out in (b) of this section and the exception set out in (i) of this section, the following persons are strictly liable, jointly and severally, for damages to persons or property, whether public or private, including damage to the natural resources of the state or municipality, [AND] for the costs of response, containment, removal, or remedial action incurred by the state, [OR] a municipality, or a village, and for the additional costs of a function or service, including administrative expenses for the incremental costs of providing the function or service, that are incurred by the state, a municipality, or a village, and the costs of projects or activities that are delayed or lost because of the efforts of the state, the municipality, or the village, resulting from an unpermitted release of a hazardous substance or, with respect to response costs, the substantial threat of an unpermitted release of a hazardous substance:

(1) the owner of, and the person having control over, the hazardous substance at the time of the release or threatened release; this paragraph does not apply to a consumer product in consumer use;

(2) the owner and the operator of a vessel or facility, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance;

(3) any person who at the time of disposal of any hazardous substance owned or operated any facility or vessel at which the hazardous substances were disposed of, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance;

(4) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by the person, other than domestic sewage, or by any other party or entity, at any facility or vessel owned or operated by another party or entity and containing hazardous substances, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance;

(5) any person who accepts or accepted any hazardous substances, other than refined oil, for transport to disposal or treatment facilities, vessels or sites selected by the person, from which there is a release, or a threatened release that causes the incurrence of response costs, of a hazardous substance.

* Sec. 10. AS 46.03.822(h) is amended to read:

(h) The state, [OR] a municipality, or a village is not liable under this section for costs or damages as a result of actions taken in response to an emergency created by a release or threatened release of a hazardous substance generated by or from a facility or vessel owned by another person unless the actions taken by the state, the [OR] municipality, or the village constitute gross negligence or intentional misconduct.

* Sec. 11. AS 46.03.900 is amended by adding new paragraphs to read:

(35) "service" means a function performed or service provided by the state or by a municipality under a duty or power authorized by AS 29 or other provision of law authorizing a municipality to perform functions or provide services, or a comparable function performed or service provided by a village; "service" includes functions not previously performed and services not previously provided;

(36) "village" means a place within the unorganized borough or within a borough as to a power, function, or service that is not exercised or provided by the borough on an areawide or nonareawide basis that

(A) has irrevocably waived, in a form approved by the Department of Law, any claim of sovereign immunity that might arise under this chapter; and

(B) has

(i) a council organized under 25 U.S.C. 476 (sec. 16 of the Indian Reorganization Act);

(ii) a traditional village council recognized by the United States as eligible for federal aid to Indians; or

(iii) a council recognized by the commissioner of community and regional affairs under regulations adopted by the Department of Community and Regional Affairs to determine and give official recognition of village entities under AS 44.47.150(b).

* Sec. 12. AS 46.04.020 is amended by adding a new subsection to read:

(f) In fulfilling its responsibilities under (e) of this section, the department shall consult with the governing bodies of municipalities and villages.

* Sec. 13. AS 46.04.900(5) is amended to read:

(5) "containment and cleanup" includes all direct and indirect efforts associated with the prevention, abatement, containment, or removal of a pollutant, and the restoration of the environment to its former state; when applied to expenses, the term includes the additional costs of providing a reasonable and appropriate function or service incurred in response to the discharge of a pollutant, including [, AND ALL INCIDENTAL] administrative expenses for the incremental costs of providing the function or service;

* Sec. 14. AS 46.04.900 is amended by adding new paragraphs to read:

(20) "service" means a function performed or service provided by the state, including functions not previously performed and services not previously provided by the state;

(21) "village" means a place within the unorganized borough or within a borough as to a power, function, or service that is not exercised or provided by the borough on an areawide or nonareawide basis that

(A) has irrevocably waived, in a form approved by the Department of Law, any claim of sovereign immunity that might arise under this chapter; and

(B) has

(i) a council organized under 25 U.S.C. 476 (sec. 16 of the Indian Reorganization Act);

(ii) a traditional village council recognized by the United States as eligible for federal aid to Indians; or

(iii) a council recognized by the commissioner of community and regional affairs under regulations adopted by the Department of Community and Regional Affairs to determined and give official recognition of village entities under AS 44.47.150(b).

* Sec. 15. AS 46.08.040(a) is amended to read:

(a) In addition to money in the fund that is transferred to the commissioner of community and regional affairs to make grants under AS 29.60.510 and to pay for impact

assessments under AS 29.60.560, the [THE] commissioner of environmental conservation may use money from the fund to

(1) investigate and evaluate the release or threatened release of oil or a hazardous substance, and contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment;

(2) pay all costs incurred to

(A) establish and maintain the oil and hazardous substance response office;

(B) review oil discharge prevention and contingency plans submitted under AS 46.04.030;

(C) conduct training, response exercises, inspections, and tests, in order to verify equipment inventories and ability to prevent and respond to oil and hazardous substance release emergencies, and to undertake other activities intended to verify or establish the preparedness of the state, a municipality, or a party required by AS 46.04.030 to have an approved contingency plan to act in accordance with that plan; and

(D) verify or establish proof of financial responsibility required by AS 46.04.040;

(3) pay the expenses incurred by the Alaska division of emergency services for the oil and hazardous substance response corps and the oil and hazardous substance response depots when presented with appropriate documentation by the division;

(4) provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980);

(5) recover the costs [COST] to the state, [OR TO] a municipality, or a village of a containment and cleanup resulting from the release or the threatened release of oil or hazardous substance;

(6) prepare, review, and revise

(A) the state's master oil and hazardous substance discharge prevention and contingency plan required by AS 46.04.200; and

(D) a regional master oil and hazardous substance discharge prevention and contingency plan required by AS 46.04.210; and

(7) restore the environment by addressing the effects of an oil or hazardous substance release.

* Sec. 16. AS 46.08.070(c) is amended to read:

(c) The department shall [MAY] reimburse a municipality or village for actual expenses, other than normal operating expenses, incurred in the abatement of a release or threatened release and may advance money to a municipality or village to carry out an emergency first response to a release or threatened release of oil or a hazardous substance if

(1) the municipality or village has entered into an agreement with the commissioner under AS 46.04.020(c) or AS 46.09.020(c); and

(2) the commissioner determines that

(A) the expenses to be reimbursed were for a necessary emergency first response to a release or threatened release that, at the time of the release or threatened release, posed an imminent and substantial threat to the public health or welfare, or to the environment;

(B) the municipality or village has demonstrated a need for financial assistance, and the money to be advanced is necessary to enable the municipality or village to carry out an emergency first response to a release or threatened release that, at the time of the release or threatened release, poses an imminent and substantial threat to the public health or welfare, or to the environment; and

(C) containment and cleanup efforts paid for in whole or in part by a reimbursement or an advance made under this section were consistent with the regional master plan for the region in which the municipality or village is located if a plan has been prepared by the department under AS 46.04.210.

* Sec. 17. AS 46.08.900(3) is amended to read:

(3) "containment and cleanup" includes the direct and indirect efforts associated with the prevention, abatement, containment, or removal of oil or a hazardous substance, and the restoration of the environment; when applied to expenses, the term includes the additional costs of providing a reasonable and appropriate function or service incurred in response to

the release of the oil or hazardous substance, including [, AND INCIDENTAL] administrative expenses for the incremental costs of providing the function or service;

* Sec. 18. AS 46.08.900 is amended by adding new paragraphs to read:

(11) "service"

(A) means a function performed or service provided by a municipality under a duty or power authorized by AS 29 or by another provision of law authorizing a municipality to perform functions or provide services, or a comparable function performed or service provided by a village;

(B) includes functions not previously performed and services not previously provided by the municipality or village;

(12) "village" means a place within the unorganized borough or within a borough if the power, function, or service for which a grant application under AS 29.60.510 is submitted is not exercised or provided by the borough on an areawide or nonareawide basis at the time the grant application is submitted that

(A) has irrevocably waived, in a form approved by the Department of Law, any claim of sovereign immunity that might arise in connection with the use of grant money under this chapter; and

(B) has

(i) a council organized under 25 U.S.C. 476 (sec. 16 of the Indian Reorganization Act);

(ii) a traditional village council recognized by the United States as eligible for federal aid to Indians; or

(iii) a council recognized by the commissioner of community and regional affairs under regulations adopted by the Department of Community and Regional Affairs to determine and give official recognition of village en[illegible] under AS 44.47.150(b).

* Sec. 19. AS 46.09.060(b) is amended to read:

(b) Authority to contain, clean up, or prevent a release or threatened release of oil or of a hazardous substance, and to exercise other powers necessary to implement this chapter, AS 46.04, and AS 46.08, are granted to municipalities that do not otherwise have that authority.

Except as provided in (a) of this section, a municipality may exercise its police power within the area of the municipality.

* Sec. 20. AS 46.09.900(2) is amended to read:

(2) "containment and cleanup" includes the direct and indirect efforts associated with the prevention, abatement, containment, or removal of a hazardous substance, and the restoration of the environment; when applied to expenses, the term includes the additional costs of providing a reasonable and appropriate function or service incurred in response to the release of the hazardous substance, including [, AND INCIDENTAL] administrative expenses for the incremental costs of providing the function or service;

* Sec. 21. AS 46.09.900 is amended by adding a new paragraph to read:

(8) "service" means a function performed or service provided by the state, including functions not previously performed and services not previously provided by the state.

* Sec. 22. Sections 9 and 11 of this Act are retroactive to March 24, 1989.

* Sec. 23. APPLICABILITY. The amendments made by secs. 7, 8, 15, and 16 of this Act do not apply to a release of oil or a hazardous substance and resultant cleanup activities or to efforts to respond to or abate that release if the release occurred before the effective date of this Act.

* Sec. 24. This Act takes effect immediately under AS 01.10.070(c).

regulations under the Administrative Procedure Act

means holding a certificate of public convenience and
tilities Commission under AS 42.05.

LAWS OF ALASKA

1991

Source: CSSB 92(FIN)

Chapter No.: 39

AN ACT

Relating to the lending authority and loans of the Commercial Fishing and Agriculture Bank and to the use of limited entry permits as security for those loans; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1

Approved by the Governor: June 12, 1991
Actual Effective Date: June 13, 1991

AN ACT

Relating to the lending authority and loans of the Commercial Fishing and Agriculture Bank and to the use of limited entry permits as security for those loans; and providing for an effective date.

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* Section 1. AS 16.43.150(g) is amended to read:

(g) Except as provided in AS 16.10.333 - 16.10.337, AS 44.81.210, 44.81.225, and 44.81.230 - 44.81.250, an entry permit may not be

(1) pledged, mortgaged, leased, or encumbered in any way;

(2) transferred with any retained right of repossession or foreclosure, or on any condition requiring a subsequent transfer; or

(3) attached, distrained, or sold on execution of judgment or under any other process or order of any court.

* Sec. 2. AS 44.81 is amended by adding a new section to read:

Sec. 44.81.225. SMALL LOANS. (a) To facilitate the development of commercial fisheries in geographic areas in which factors such as geographic considerations, uncertainties of communication, or limited demands do not encourage normal lending activities, the bank may make small loans to qualified borrowers who are not members of the bank.

(b) The provisions of this chapter apply to loans authorized by this section except that

(1) the borrower is not required to be a member of the bank at the time the loan

is approved; and

(2) the principal amount of the portion of the loan made by the bank may not exceed $25,000.

(c) The total amount of money that may be loaned under this section may not exceed eight percent of the total capital of the bank.

(d) To service loans made under this section, the bank may contract or make other arrangements with a public agency or with a legal entity that the bank determines to be responsible and competent to administer the loan.

* Sec. 3. AS 44.81.230(a) is amended to read:

(a) A loan under AS 44.81.210(a)(20) or 44.81.225 for the purchase of a limited entry permit may be made only upon certification by the commission that the fisherman is a person who qualifies as a transferee for the permit under AS 16.43 and the regulations adopted by the commission.

* Sec. 4. AS 44.81.230(b) is amended to read:

(b) Upon approval by the bank, a [THE] permit [TO BE PURCHASED] may be pledged as security for a loan made under (a) of this section, AS 44.81.225, or 44.81.235 [,] if

(1) the certificate for the pledged permit lists the bank as the legal owner of the permit;

(2) the certificate for the pledged permit lists the debtor as the equitable owner of the permit;

(3) all annual permit cards issued under the pledged permit list the name of the debtor;

(4) all obligations and responsibilities of a permit owner are assumed by the debtor;

(5) co-signers or other sureties for performance under the note are not vested with any rights in the pledged permit and their obligation is limited to satisfaction of the note and payment of costs directly incurred by the bank in administering the loan.

* Sec. 5. AS 44.81.230(f) is amended to read:

(f) In anticipation of possible foreclosure on an entry permit under AS 44.81.250, the debtor may nominate a person to assume a note for a loan made [GIVEN] under

AS 44.81.210(a)(20), 44.81.225, or 44.81.235. If the person nominated qualifies under (a) of this section at the time of the foreclosure, the person may assume all rights and liabilities of the debtor in the event the bank forecloses on the entry permit.

* Sec. 6. AS 44.81.250(d) is amended to read:

(d) Nothing in this section affects the right of the bank to institute legal action for a deficiency resulting from a default on a note for a loan made [GIVEN] under AS 44.81.210(a)(20), 44.81.225, [OR] 44.81.230, or 44.81.235. In addition to any deficiency, the debtor is liable for the costs of administering the note and for costs and attorney fees.

* Sec. 7. This Act takes effect immediately under AS 01.10.070(c).

ATTACHMENT B
Draft Report by the Department of Environmental Conservation
About the History of the Response Fund

DRAFT

Oil and Hazardous Substance Release Response Fund

- Establishment of Response Fund

  Prior to 1986 the Department of Environmental Conservation (DEC) utilized the Spill Expense Reserve Account (Reserve Account) to pay costs directly involved in the abatement, containment, and removal of a discharge of oil or hazardous substances. The initial appropriation to this account was $1,000,000 in FY81. Subsequent appropriations were made in FY82 and FY84, each totalling $250,000. During the period FY81 through FY86, $1,278,000 was expended.

  In 1986, the Alaska Legislature established the Oil and Hazardous Substance Release Response Fund (Response Fund). The Response Fund was to provide a readily available source to pay expenses incurred by DEC in the protection of the environment from the release of oil or hazardous substances. It was the intent of the Legislature and declared to be public policy of the State that funds for the abatement of a release of oil or a hazardous substance will always be available.

- Funding History

  The remaining balance in the Reserve Account ($222,000), the balance in the mitigation account ($159,000) and the FY87 appropriation ($300,000) provided the initial funding for the Response Fund of $681,000. Table 1 provides a funding history.

Table 1

Summary of Funding by Fiscal Year

(In Thousands)

FY87	681.0
FY88	1,129.3
FY89	20,636.5
FY90	52,797.6
FY91	28,696.1
FY92	28,500.0

Until FY89, funding came from general fund appropriations and appropriations of cost recovered monies deposited in the mitigation account. In March 89, the Exxon Valdez incident occurred and special appropriations were made to the response fund. Of those appropriations 10 million was program receipts. This was the first time program receipts authority was granted to the Response Fund. Additional program receipts were authorized in FY90. Beginning in FY91, the primary funding for the Response Fund has been a conservation surcharge of $.05 per barrel on oil subject to the oil and gas properties production act.

- Use of the Response Fund

Initially, use of the Response Fund was limited to:

Containment, cleanup and other necessary action such as monitoring, assessing, investigating, and evaluating the release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment.

Provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601-9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1990).

Recover the cost to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance.

- Changes in Use of the Response Fund

Subsequent legislation added to the uses of the Response Fund. Two types of uses were established; those where legislative appropriation for the purpose is expressly required and a second where legislative appropriation is not directly required. The latter uses are summarized first:

Transfer money to the commissioner of Community and Regional Affairs to make grants. [Chapter 83 SLA81 Section 15] [Reference 29.60.510 and 29.60.580]

Investigate, evaluate, contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment [Chapter 90 SLA88 Section 3]

Upon request of Legislature, fund Citizens' Oversight Council [Chapter 199 SLA90 Section 3] [Reference 24.20.600]

When the Governor declares a disaster related to an oil or hazardous substance discharge emergency use money from the fund to respond to the disaster emergency [Chapter 199 SLA90 Section 15] [Reference 23.23.020(c)]

Other uses which may not be funded unless funds are available from an appropriation made specifically for that purpose are [Chapter 48 SLA91 Section 4]:

Establish and maintain the response office [Chapter 113 SLA89 Section 2]

Review oil discharge prevention and contingency plans [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Conduct training, response exercises, inspections, and tests in order to verify equipment inventories and ability to prevent and respond to oil and hazardous substance release emergencies, other activities to verify or establish the preparedness of the state, a municipality, or a party required to have an approved contingency plan to act in accordance with that plan [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Verify or establish proof of financial responsibility [Chapter 191 SLA90 Section 28] [Reference 46.04.040]

Pay the expenses incurred by the Alaska division of emergency services for response corps and response depots when presented with appropriate documentation [Chapter 190 SLA90 Section 14]

Provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601-9657 (CERCLA Act of 1980) [Chapter 59 SLA86 Section 1]

Recover the costs to the state, municipality or to a village of a containment and cleanup [Chapter 83 SLA91 Section 15]

Prepare, review, and revise the state's master or a regional oil and hazardous substance discharge prevention and contingency plan [Chapter 90 SLA89 Section 3] [Reference 46.04.200 and 46.04.210]

Restore the environment by addressing the effects of an oil or hazardous substance release [Chapter 90 SLA89 Section 3]

Upon request from the commissioner of DOTPF transfer monies to DOT to fund construction or refurbishment of one of more vessels that have the capability of responding to spills of oil or hazardous substances [Chapter 48 SLA91 Section 5] [Reference 19.65.025]

- Types of Use of the Response Fund

Response Fund expenditures can be categorized in four types:

Operating:

These costs are the on going costs of operation of the Division of Spill Prevention and Response within the Department of Environmental Conservation. With the exception of costs for specific spill response and contaminated site projects, these costs are generally not recoverable. Until FY90, these costs were primarily funded by appropriations from the general fund. Beginning in FY91, the operating costs were mostly converted from general fund to the Response Fund. In addition, costs of the Department of Law are included in on going operating costs, particularly regulation review, legal opinions and guidance. Law's efforts at cost recovery for specific spill response and contaminated site projects are generally recoverable.

Cost Recoverable:

Costs for specific spill response and contaminated site projects, these costs are generally recoverable. Law's efforts at cost recovery for specific spill response and contaminated site projects are generally recoverable. Exceptions occur when a responsible party can not be identified, is not financially able to reimburse the State for its costs, or when the State is the property owner.

Spill Reserve:

Spill Reserve is a reserve of funds with two primary purposes. DEC has a goal of depositing and maintaining 30 million in Spill Reserve to be used 10 million for Communities, Municipalities and Villages and 20 million in reserve for the State costs in response to major incidents. The State will continue to fund on going minor and medium spill response efforts from Spill Reserve.

Other:

One time expenditures and special projects can be classified as other. Examples of these type of expenditures are funding for Regional Citizen's Advisory Councils, Air Monitoring, Volcanic Eruptions, Construction of Oil Response Ferries, One Time Contracts or Surveys and the Storage Tank Assistance Program. While some of the projects may receive funding in multiple years, typically these are not on going operational costs, cost recoverable or eligible for spill reserve funding. Technological costs, such as the funding costs of the Oil and Hazardous Substance Spill Technology Review Council and its staff are also categorized as other costs.

• Operating Costs

Prevention

Reduce the potential for oil and hazardous substance spills through design, development, planning, coordination, implementation and administration of Statewide programs to reduce the potential and severity of spills, leaks and releases of oil and other hazardous substances. Included in the prevention activities are education, training, information distribution, analysis of contingency plans, inspections, discharge exercises, and financial responsibility.

Planning

DEC will complete a ten-year cleanup management plan for approximately 1100 reported sites. The plan will lay out a systematic process for closing out all sites by the year 2002. That process will include a detailed review to confirm reported sites are contaminated, and remove reported sites from the list that are found not to pose a risk. The remaining confirmed sites will be ranked based on risk. The list will be further subdivided based on whether the responsible party for the spill is able to cleanup the site, or if the State must assume responsibility by default of the responsible party.

Fund the State Emergency Response Commission (SERC); composed of nine State agency commissioners and seven public members. Implement local emergency planning and community right-to-know programs as mandated by state and federal laws. Assist the State and local governments with the development of oil and hazardous substance spill contingency planning by conducting training workshops and providing information to local communities.

Develop and annually revise Statewide and regional plans to coordinate State and other parties involved in response to hazardous substance incidents including oil spills. Regional plans provide detailed information regarding spill hazards, risk to humans and the environment, and response capability.

Regulation Development and Enforcement

Establish regulations to protect public health and resources; issue authorizations such as plan approval or certificates in accordance with regulations; and monitor and maintain compliance with environmental standards. Provide assistance and guidance to industry and the public on spill response matters.

Preparedness (Training, Drills, Medical Monitoring and Equipment)

Maintain a highly trained group responsible for immediate response to catastrophic spills, declared emergency discharges of oil and hazardous substance releases anywhere in Alaska.

Prepare all State responders for such events by improving the State's overall oil and hazardous substance spill response capabilities through education, training on response techniques, equipping responders, addressing life, health, safety issues prior to an incident.

Drills, including unannounced drills, shall be conducted to verify that industry, the State, local government and contractors con perform response activities as planned.

In 1990, the Hazardous Waste Operations and Emergency Response regulations (29 CFR 1910.120) were adopted at the Federal Level. In Alaska, a parallel worker health and safety statute and regulations were implemented. Employees who work in situations which present potential exposure to hazardous substances above permissible limits are required to have comprehensive medical examinations. Preparation for response requires that employees be medically evaluated prior to exposure and monitored on an on going basis to locate and mitigate any effects of exposure.

The State shall purchase equipment with Response Funds. Equipment purchases shall be limited to the equipment needed for first response to control and contain the spill while the responsible party mounts a response effort or a State response action contractor arrives on scene with resources to assume control. This equipment shall be compatible with federal response equipment and located in high risk areas. Local responders shall have access and training in equipment operations.

Legal Costs, Investigation and Cost Recovery

Costs of the Department of Law are included in on going operating costs, particularly regulation review, legal opinions and guidance. Law's efforts at cost recovery for specific spill response and contaminated site projects are generally recoverable.

Investigation costs are also an operating costs. DEC participates with Law and the State Troopers in criminal investigations which are the precursor to identification, cleanup and restorations resulting in a civil action to recover the State's costs.

Administration and Management

Provides overall management and administrative functions for operating programs. Program development and supervision; budget and work plan development; regulation development oversight; regional work plan review; and overall program responsibility. Serve and Response Fund Manager. Collect and distribute legislative, management and public information reports on the Response Fund.

- Recoverable Activities

  Contaminated Sites

  Response Funds will be used to pay for staff to oversee responsible party cleanups, and pay for cleanups directly managed by the DEC using response action contractors. An action schedule will be developed for both the responsible party and state-lead category cleanups. The actual cleanup costs incurred by DEC or its contractors shall be considered cost recoverable where a responsible party is identified and able to reimburse the State.

  Spill Response

  Response Funds are used to hire contractors to initiate responses, or continue clean-up of spills when the spiller (responsible party) is unable or unwilling to respond. The Response Fund supports local response efforts to manage and monitor response efforts of the spiller(s) or other responsible parties.
  The spill response program responds to approximately 3,000 non-catastrophic oil and hazardous substance spills reported to DEC each year. DEC operates on a "first day is free" policy for minor spills. Thus, spill reserve is used on minor spills for costs in excess of that amount and for medium and major spills.

- Spill Reserve

  Communities

  It is the intent of the Legislature and declared to be public policy of the State that funds for the reimbursement of costs of abatement of a release of oil or a hazardous substance which will always be available for municipalities and villages and that in certain instances the State should have monies available to defray the costs of social and economic effects on municipalities and villages arising from a major release and resultant cleanup activities. Those funds are in Spill Reserve. DEC plans to maintain 10 million dollars in spill reserve to fund those expenditures.

  Emergency Response

  It is the intent of the Legislature and declared to be public policy of the State that funds for the abatement of a release of oil or a hazardous substance will always be available. Those funds are in Spill Reserve. DEC plans that 20 million dollars shall be maintained in Spill Reserve for emergency first response on catastrophic spills. This amount is not sufficient to fund all of the State costs in response, containment and clean up of a catastrophic spill, but, provides funding for the time needed to allow the Legislature to consider, approve and appropriate additional funds for catastrophic response.

- Oversight Councils, RCACs

  Response Funds are used for the Citizen's Oversight Council on Oil and Hazardous Substance Releases. The council is responsible for determining whether state and federal agencies responsible for the prevention of and response to releases are carrying out their duties. The council recommends to the Legislature, Governor, agencies and private entities policies to prevent release. The council assists the Legislature and Governor in the development of interstate compacts and policy recommendations to the federal government regarding prevention.

  Response Funds have been used as an initial funding source for the formation of Regional Citizen Advisory Councils such as the Arctic Marine Resource Commission in FY92.

- Tank Program

  Protect the public from contamination resulting from leaking underground storage tanks through regulatory and assistance program which includes prevention, education and cleanup. With guidance from the Board of Storage Tank Assistance, State provide financial assistance for conducting site assessments and testing tanks for leaks, cleanup from leaking tanks, and upgrading or removing tanks. Regulations govern certification of tank workers and site assessors. Installation, registration, maintenance, leak detection, site assessment, upgrade, cleanup and closure of tanks and tanks systems is also governed by regulations under this project.

- Technological

  Provide staff assistance to the Oil and Hazardous Substance Technology Review Council which is composed of the commissioner of DEC, the adjutant general of the Department of Military and Veterans Affairs, a representative from the University of Alaska, the Governor's senior science advisor, a representative of the Prince William Sound Science Center, and four public members appointed by the Governor. The council assists in the identification of containment and cleanup products and procedures for arctic and sub-arctic hazardous substance releases. The council reviews oil and hazardous substance spill cleanup technology research and development activities undertaken by other government agencies and industry spill response groups. The council also makes recommendations to the Department and agencies of the state regarding the use and deployment of these products and procedures.

- Oil Response Ferries

  Response funds are used to pay for the construction or refurbishment or one or more vessels of the Alaska marine highway system that have the capability to assist in responding to spills of oil and hazardous substances.

Oil and Hazardous Substance Release Response Fund
Revised: August 1991
Summary of Legislation and Statutory Effect

DRAFT

Alaska Statute Title 46, Chapter 08

The effect of bills passed in this last session SLA91 are NOT reflected in a statute supplement. Chapter 83 SLA 91 CSSSSB 25 (CRA) (effective 6/28/91) and Chapter 48 SLA 91 (effective 9/13/91) CSSB 165 (TRA) were signed and do effect AS 46.08. The effect of those acts are included in the summary.

The summary is provided for general guidance only. It will direct you to the appropriate section or legislation. When being asked to provide an opinion, the statute, supplement or legislation should be consulted.

Key terms are defined within the statute and legislation, thus, this should be reviewed by all fund users. Those terms are listed in the summary.

Statutes:	AS46.08	September 1987
	AS46.08	1990 Cumulative Supplement, October 1990

Legislation:	Chapter 59	SLA86	SCSCSHB	470	(Fin)
	Chapter 29	SLA89	CSSB	256	(CRA)
	Chapter 39	SLA89	SCSCSHB	68	(Jud)
	Chapter 90	SLA89	CSSB	261	(Fin)
	Chapter 113	SLA89	HCSCSSB	264	(Fin)
	Chapter 190	SLA90	SCSCSHB	566	(Fin)
	Chapter 191	SLA90	SCSCSHB	567	(Fin)
	Chapter 199	SLA90	SCSCSHB	578	(Fin)
(Eff 9/13/91)	Chapter 48	SLA91	CSSB	165	(Tra)
	Chapter 83	SLA91	CSSSSB	25	(CRA)

46.08.005 Purpose

Acknowledges threat to public health, welfare and economy on release and need for fund to pay ADEC and Department of Transportation and Public Facilities costs [Chapter 48 SLA91 Section 2]

46.08.010 Fund established

OHSRRF in General Fund. Administered by Commissioner. Money is continuing. Except as provided in 46.08.040, (DOTPF portion) no capital improvements [Chapter 48 SLA91 Section 3]

46.08.020 Financing of the fund

Legislature may appropriate money from federal, state, other sources or private donor or from mitigation to the OHSRRF. Money received and recovered from responsible parties is put in the mitigation account [Chapter 50 SLA86 Section 1]

Due to addition of 46.08.100 thru 46.08.190 language had to be changed from "chapter" to limit the scope of source for fines, penalties and damages to 46.08.005 thru 48.06.080 [SLA89]

46.08.030 Financing the abatement of oil or hazardous substance releases

Funds for abatement will always be available [Chapter 58 SLA86 Section 1]

46.08.040 Purposes of the fund

Transfer money to the commissioner of CRA to make grants and to pay for impact assessments. [Chapter 83 SLA91 Section 15] (Reference 29.60.510 and 29.60.560)

Investigate, evaluate, contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that <u>poses an imminent and substantial threat</u> to the public health or welfare, or to the environment [Chapter 90 SLA89 Section 3]

Upon request of Legislature, fund Citizens' Oversight Council [Chapter 199 SLA90 Section 3] (Reference 24.20.600)

When the Governor declares a disaster related to an oil or hazardous substance discharge emergency use money from the fund to respond to the disaster emergency [Chapter 190 SLA90 Section 15] (Reference 23.23.020(c))

May not be used for the purposes below unless money is available from an appropriation made **SPECIFICALLY FOR THAT PURPOSE** [Chapter 48 SLA91 Section 4]

Establish and maintain the response office [Chapter 113 SLA89 Section 2]

Review oil discharge prevention and contingency plans [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Conduct training, response exercises, inspections, and tests in order to verify equipment inventories and ability to prevent and response to oil and hazardous substance release emergencies, other activities tc verify or establish the preparedness of the state, a municipality, or a party required to have an approved contingency plan to act in accordance with that plan [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Verify or establish proof of financial responsibility [Chapter 191 SLA90 Section 28] [Reference 46.04.040]

Pay the expenses incurred by the Alaska division of emergency services for response corps and response depots when presented with appropriate documentation [Chapter 190 SLA90 Section 14]

Provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601-9657 (CERCLA Act of 1980) [Chapter 59 SLA88 Section 1]

Recover the costs to the state, municipality or to a village of a containment and cleanup [Chapter 83 SLA91 Section 15]

Prepare, review, and revise the state's master or a regional oil and hazardous substance discharge prevention and contingency plan [Chapter 90 SLA89 Section 3] [Reference 46.04.200 and 46.04.210]

Restore the environment by addressing the effects of an oil or hazardous substance release [Chapter 90 SLA89 Section 3]

Upon request from the commissioner of DOTPF transfer monies to DOT to fund construction or refurbishment of one of more vessels that have the capability of responding to spills of oil or hazardous substances [Chapter 48 SLA91 Section 5] [Reference 19.65.025]

46.08.050 Records of the fund

Maintain accounting records of income and expenses, Develop procedures governing expenditure and accounting [Chapter 59 SLA88 Section 1]

46.08.060 Report to the legislature

No later than 10 days after convening regular session [Chapter 59 SLA 86 Section 1]

Amount expended by department [Chapter 190 SLA90 Section 16]

Amount, source of money received & recovered on behalf of department [Chapter 190 SLA90 Section 16]

Summary of municipal participation in department response [Chapter 190 SLA90 Section 16]

Detailed summary of department activity prior FY including response and nature including each personal services position and total compensation, each contract in excess of $20,000 and each purchase in excess of $10,000 [Chapter 191 SLA90 Section 29]

Projected costs to department for activity continuing next year [Chapter 190 SLA90 Section 16]

Summary of sites identified [Chapter 59 SLA86 Section 1]

Immediate and long term threat [Chapter 59 SLA86 Section 1]

Actions needed to abate threat and estimated cost [Chapter 59 SLA86 Section 1]

Governor's Office is required to report on expenditures incurred under its' authority [Chapter 190 SLA90 Section 17]

46.08.070 Reimbursement for containment and cleanup

Shall seek reimbursement for clean up and containment [Chapter 59 SLA86 Section 1] (Reference 46.03.760(e))

AG office shall immediately seek, at request of Commissioner, to recover monies [Chapter 29 SLA89 Section 1]

Shall reimburse municipality or village for actual expenses other than normal operating and may advance money if municipality or village has agreement and expenditures were for emergency first response at the time of the release or threatened release and a need for advance financial assistance is demonstrated and expenditures reimbursed or advanced were consistent with the region master plan where the municipality or village is located if plan exists [Chapter 83 SLA91 Section 16] (Reference 46.04.020(e), 46.09.020(e), 46.04.210)

46.08.075 Liens against property as a security for state expenditures

The state has a lien for expenditures from all sources against all property owned by a person determined by the Commissioner to be liable [Chapter 39 SLA 89 Section 7]

Lien not effective until certificate is filed and copy sent to all interested parties [Chapter 39 SLA39 Section 7]

Certificate of discharge or reduction shall be issued on request on payment [Chapter 39 SLA89 Section 7]

Lien may be reduced (full or partially) or discharged at Commissioner's discretion if a bond or other security is posted. May not be done if contrary to public interest [Chapter 39 SLA39 Section 7]

Person with ownership may file action in court to have lien released [Chapter 39 SLA89 Section 7]

46.08.080 Regulations

Periodically review minimum quantity under federal law and adopt minimums for application of this law. Others only as expressly required to implement [Chapter 59 SLA88 Section 1]

Scope changed to limit to Article 1 [SLA89]

46.08.900 Definitions

The following terms are defined:

capital improvement
commissioner
containment and cleanup
department
fund
hazardous substance
oil
permitted release
release
threatened release
service
village

Article 2. Oil and Hazardous Substance Response Office

46.08.100 Office established

Establish office with director and employees trained in programs and technologies related to containment and clean up [Chapter 113 SLA89 Section 3]

46.08.110 Response corps

DES (DMVA) shall establish corps. Registered volunteers trained in techniques for cleanup and containment, available on short notice, consistent with roles and responsibilities under an ICS activation. May be paid per diem and expenses while training or in service [Chapter 190 SLA90 Section 18]

46.08.120 Response depots

DES (DMVA) shall maintain emergency response depots in areas determined in plans. Equipped and staffed to ensure prompt response when containment and clean up are necessary [Chapter 190 SLA90 Section 19] (Reference 46.04.200-210).

46.08.130 Duties of the office

Response **ONLY** if the incident is catastrophic, emergency or the commissioner believes it poses an **imminent and substantial threat** to the public health or welfare, or to the environment. Must be guided by the use of ICS [Chapter 190 SLA90 Section 20]

Serve as staff for the **State Emergency Response Commission** and for the **Hazardous Substance Spill Technology Review Council** within the State Emergency Response Commission [Chapter 190 SLA90 Section 24]

46.08.140 Emergency powers

When the office has reasonable grounds to believe release has occurred or is threatened which presents an imminent or present danger to health, welfare, irreversible or irreparable damage to natural resources or environment, and delay would be prejudicial to public interest may enter private property without prior hearing or permission for containment and cleanup [Chapter 113 SLA89 Section 3]

Property owner has right to be heard and to present proof that containment or cleanup is unnecessary and that it is not necessary to enter [Chapter 113 SLA89 Section 3]

46.08.150 Contracts

Contract for (the office or DES, as applicable) personnel, equipment or services to establish and maintain depots; train corps; treatment technology research including topics recommended by the hazardous substance spill technology review council [Chapter 190 SLA90 Section 21]

46.08.160 Limitation of liability

State, its' employee and members of corps are not liable unless gross negligence or intentional misconduct [Chapter 113 SLA89 Section 3]

46.08.190 Definitions

The following terms are defined:

corps
depots
division
office

ATTACHMENT C
Excerpts From Response Fund Annual Reports

FY 1987
(First half)

A REPORT TO THE 15th ALASKA LEGISLATURE

ON THE OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

by the

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Dennis Kelso - Commissioner

January 30, 1987

STATE OF ALASKA

STEVE COWPER - GOVERNOR

Section 1. INTRODUCTION

The 1986 Legislature passed HB 470, a bill relating to the release of oil and hazardous substances. This legislation, in part, established an Oil and Hazardous Substance Release Response Fund. The legislation incorporated the previously existing oil spill reserve account into the Oil and Hazardous Substances Release Response Fund. The department uses money from the Response Fund for the response and cleanup of oil and hazardous substance spills. Section 46.08.060 of the bill requires the department to submit to the Legislature an annual report summarizing information on: spill response activities during the preceding fiscal year; projected costs of cleanup for the next year; expenditures from the fund; and monies recovered from spillers. Since FY 87 is the first year of the fund's existence, this report covers the six month period from July 1, 1986 - January 1, 1987.

Section 2. EXECUTIVE SUMMARY

The Legislature appropriated $680,666 to the Response Fund for FY 87. However, monies in the Fund were subject to a 35 percent restriction on spending that was placed on all capital budget appropriations in July 1986. As a result, $451,327 was released to the department to spend for oil and hazardous spill responses in FY 87. On January 1, 1987, OMB released the remaining balance of the Oil Spill Mitigation Account ($79,338) to the department for additional spill expenditures. As of January 1, 1987, our records show FY 87 expenditures of $206,670 and encumbrances and other obligations of $196,081 (Attachment A), leaving $127,914 remaining in the unrestricted portion of the Fund.

During FY 87, the department reached settlement agreements for damages from three oil spills. These settlements are deposited to the Oil and Hazardous Substance Release Mitigation Account. When final payments are made to the state, total revenue recovered in the Mitigation Account from these three spill settlements will be $307,299. This total may increase as the department proceeds with enforcement actions on other spills in FY 87. As provided in HB 470, these funds are available for appropriation to the Response Fund.

The department has allocated monies from the Fund for several significant oil and hazardous substance spill investigations during the first six months of FY 87. These include the Kotzebue underground spill ($62,638), Nome underground spill ($12,745), West Poppy Lane gravel pit ($15,464), Iron's Subdivision groundwater contamination ($9,041), Peters Creek groundwater contamination ($208,415), Anchor Point groundwater contamination ($10,407), and Crown Point chemical release ($20,000).

The department projects that at least $612,000 will be needed to respond to and clean up existing known oil and hazardous substance spills. These are costs associated with continuing projects. In addition, we estimate that at least $350,000 will be required for new cleanup activities to be initiated during FY 88.

No funds were provided to municipalities for their involvement in oil and hazardous substance spill response activities during FY 87.

Section 3. FUND EXPENDITURES FOR FY 87

The Legislature established the Response Fund on July 1, 1986, with appropriations from three different sources as follows:

FY 86 Oil Spill Mitigation Account balance	$158,677
FY 86 Oil Spill Expense Reserve balance	221,989
FY 87 Capital Budget appropriation	300,000
Total	$680,666

In August, 1986, the Office of Management and Budget (OMB) restricted this appropriation by 35 percent. This reduction was applied to all capital appropriations.

The department responded to a rash of oil and hazardous substances spills during the summer of 1986. By the end of August we had either spent or encumbered a total of $226,669 for oil and hazardous substances spill response and cleanup activities. As a result, the department asked OMB that an exception to the spending restriction be granted.

On September 15, 1986, we were advised by OMB that they would release monies from the following Fund appropriations as follows:

50% of the Oil Spill Mitigation Account balance	$ 79,338
100% of FY 86 Oil Spill Expense Reserve balance	221,989
50% of FY 87 Capital budget appropriation	150,000
Total revised appropriation	$451,327

OMB released the remaining balance of the Oil Spill Mitigation Account ($79,338) on January 1, 1987 for additional spill expenditures. As of January 1, 1987, our records show total spill expenditures, encumbrances and other obligations of $402,751. The balance of the Fund on January 1, 1987, was:

	$530,665 ($451,327 + $79,338)
	402,751
Total	$127,914

FY 1987

A REPORT TO THE 15th ALASKA LEGISLATURE

ON THE OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

by the

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

May 1988

STATE OF ALASKA

STEVE COWPER - GOVERNOR

DENNIS D. KELSO - COMMISSIONER

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Section 1. Executive Summary

The Oil and Hazardous Substances Release Response Fund was established to enable the State to respond to spills and clean up hazardous sites. The legislation requires an annual report to the Legislature on the use of the fund.

A total of $520,665 was available in the Oil and Hazardous Substance Release Response Fund for FY 87. As of June 30, 1987, FY 87 expenditures amounted to $428,815, leaving a balance of $101,850.

During FY 87, the Department reached settlement agreements for damages from five oil spills. These settlements were deposited to the Oil and Hazardous Substance Release Mitigation Account. Total revenue recovered in the Mitigation Account from these five spills was $304,856. As provided for in HB 470, these funds were appropriated to the Response Fund for FY 88.

The Department allocated monies from the Fund for several significant oil and hazardous substance spill investigations during FY 87. These included:

Kotzebue underground spill	$ 75,342
Nome underground spill	1,345
West Poppy Lane gravel pit (in Soldotna)	37,198
Iron's Subdivision groundwater contamination (in Soldotna)	1,159
Peters Creek groundwater contamination in Chugiak (near Anchorage)	258,847
Anchor Point underground spill	10,770
Crown Point chemical release (at Moose Pass)	17,000
M/V Vashon grounding (near Prince of Wales Island)	2,067
Buckingham Well contamination (in Soldotna)	5,299
Toppers Station # 2 underground spill investigation (in Anchorage)	5,486
Child's Pad (in Prudhoe Bay)	3,877
Shoup Property storage of hazardous materials (near Fairbanks)	4,100
Misc. Spills	6,325
Total	$ 428,815

A REPORT TO THE 16TH ALASKA LEGISLATURE

ON THE OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

by the

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

May, 1989

STATE OF ALASKA

STEVE COWPER - GOVERNOR

DENNIS D. KELSO - COMMISSIONER

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SECTION 1. Executive Summary

In 1986 the Legislature passed HB 470, a bill relating to the release of oil and hazardous substances. This legislation established the Oil and Hazardous Substance Release Response Fund. The Department uses the Response Fund to investigate, respond to and clean up releases of oil and hazardous substances. Normally, a balance of $1,000,000 is needed in the fund to be available to respond to emergency events.

Section 46.08.060 of the law requires the Department to submit an annual report to the Legislature summarizing information on spill response activities during the preceding fiscal year; expenditures from the fund; monies recovered from spillers; and projected costs of cleanup for the next fiscal year. FY 88 was the second year of the fund's existence. This report covers FY 88 and the first half of FY 89.

FY 88

A total of $1,381,169 was available in the Oil and Hazardous Substance Release Response Fund at the beginning of FY 88. FY 88 expenditures amounted to $329,977, leaving a balance of $1,051,192.

During FY 88, the Department reached settlement agreements for damages from three oil spills. These settlements were deposited in the Oil and Hazardous Substance Mitigation Account. Total revenue recovered in the Mitigation Account from these three spills was $136,479. As provided for in HB 470, these funds were appropriated to the Response Fund for FY 89.

FIRST HALF FY 89

Authorized funds for FY 89 amounted to $1,687,671. Expenditures during the first half of FY 89 to January 1, 1989 were $94,131, leaving a $1,593,540 balance of all accounts as of January 1, 1989.

A total of $2,607.00, recovered from two spills, has been deposited in the Mitigation Account during the first half of FY 89.

LAST HALF FY 89

Costs for cleanup work for the remainder of FY 89 are projected to be $170,500 for a total project FY 89 expenditure of $264,631.

SECTION 2. Summary of Funds Expended and Recovered

This section summarizes the account's funds using two methods. The first summary presents, by fiscal year, the account balance, appropriations to the account, expenditures from the account and funds that were recovered and returned to the account.

The second summary lists specific sites where Departmental expenditures were greater than $1,000 each. A list is shown for each fiscal year. Totals for small spills and other expenditures are shown by fiscal year as well as costs recovered during FY 88 and the first half of FY 89. More information about these sites is presented in Section 4, which is organized by regions of the state.

FISCAL SUMMARY - EXPENDITURES APPROPRIATIONS AND BALANCES (BY FISCAL YEAR)

FY 88

Authorized Funds for FY 88

July 1, 1987 Balance of Fund	$ 101,850
FY 87 Mitigation Account (CHP.#95 SLA 1987)	304,319
FY 87 Capital Appropriation (CHP.#28 SLA 1986)	150,000
FY 88 Capital Appropriation(CHP.#3 FSSLA 1987)	825,000
Total Beginning Authorization for FY 1988	**$1,381,169**

Expenditures During FY 88

From July 1, 1987 Balance of Fund	$ 101,850
From FY 87 Mitigation Account	228,127
Total FY 1988 Expenditures	**$ 329,977**

Ending Balances for FY 88

July 1, 1987 Balance of Fund Remaining	$ 0
FY 87 Mitigation Account Remaining	76,192
FY 87 Capital Appropriation	150,000
FY 88 Capital Appropriation	825,000
Total Ending Balance for FY 1988	**$1,051,192**

FY 89

Authorized Funds for FY 89

FY 88 Total Ending Balance	$1,051,192
FY 88 Mitigation Account (CHP. 154 SLA 1988)	136,479
FY 89 Capital Appropriation (CHP. 172 SLA 1988)	500,000
Total Beginning Authorization for FY 1989	$1,687,671

Expenditures During First Half FY 89

FY 87 Mitigation Account	$ 69,031
FY 87 Capital Appropriation	25,100
Total FY 89 Expenditures to January 1, 1989	$ 94,131

Mid-Year Balance for FY 89

FY 87 Capital Appropriation	$ 124,900
FY 87 Mitigation Account	7,161
FY 88 Capital Appropriation	825,000
FY 88 Mitigation Account	136,479
FY 89 Capital Appropriation	500,000
Total Mid-Year Balance for FY 89	$1,593,540

Expenditures and Recoveries by Spill (By Fiscal Year)

FY 88

Expenditures/Spills Over $1,000.00 Each

City of Kotzebue Oil Spill	$ 1,070
Poppy Lane Gravel Pit	16,531
Service Station at Peters Creek	22,519
Anchor Point Drinking Water	58,971
O'Malley Rd & Old Seward Hwy	5,037
T/V Glacier Bay Oil Spill	127,715
Fenced Property N. of Farmers Loop	4,890
Water & Soil Contamination-Hooper Bay	2,261
Coast Guard Station Oil Spill-St. Paul	2,610
F/V Tae Woong Oil Spill	2,611

Fish Processing Plant-Togiak	3,5
Mining Company - Wasilla	1,61
Boniface and N. Lights Solvent Spill	3,258
Logging Camp Oil Spill-Hydaburg	1,179
Underground Contaminated Water-Fairbanks	7,057
Total Expenditures for Spills Over $1,000.00 Each FY 88	**$ 260,855**

Other Miscellaneous Expenditures/Spills

51 Small Spills and Other

Expenditures Totaled	**$ 69,122**
Total All Spills/Expenditures For FY 1988	**$ 329,977**

FY 88 Funds Recovered

F/V Tae Woong Oil Spill	$ 8,804
Chena River Spill	2,675
Mining Company - Wasilla	125,000
Total Funds Recovered In FY 1988	**$136,479**

FY 89

Mid-Year FY 89 Expenditures/Spills Over $1,000 Each to January 1, 1989

Service Station at Peters Creek	$ 1,044
Underground Contaminated Water-Fairbanks	6,822
Mining Company - Wasilla	2,282
Anchor Point Drinking Water	40,516
Battery Manufacturer	1,325
Crude Oil Topping Unit in Prudhoe	7,596
King Salmon AFS - Tank Farm	1,049
Cook Inlet Spill	1,811
Ore Terminal at Skagway	6,586
Total Expenditures for Spills over $1,000.00 Each Mid-Year FY 89	**$ 69,031**

Other Miscellaneous Expenditures/Spills

30 Small Spills and Other Expenditures Totalled	$ 25,100
Total All Spills/Expenditures Mid-Year FY 89	$ 94,131

FY 89 Funds Recovered to January 1, 1989

Service Station on Boniface and Northern Lights Blvd. (Diesel)	$ 107
Service Station on Boniface and Northern Lights (Gas & Diesel)	2,500
Total Funds Recovered in FY 1989 to January 1, 1989	$ 2,607

FY 1989

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

RESPONSE FUND ANNUAL REPORT

PRESENTED TO THE

SECOND SESSION OF THE SIXTEENTH ALASKA LEGISLATURE

APRIL 1990

STEVE COWPER - GOVERNOR

DENNIS D. KELSO - COMMISSIONER

RESPONSE FUND ANNUAL REPORT

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION

RESPONSE FUND ANNUAL REPORT

EXECUTIVE SUMMARY

In 1986, the Legislature passed House Bill 470, relating to the release of oil and hazardous substances. This law established the Oil and Hazardous Substance Release Response Fund, known as the Response Fund. The Department of Environmental Conservation (DEC) uses the Response Fund to investigate, respond to, and clean up spills of oil and hazardous substances. In 1989, the Legislature amended this act by passing several laws. Now, the Response Fund may also be used for State and Regional contingency planning, a response office, training for local response corps, and equipment depots.

Section 46.08.060 of the Response Fund law requires the Department to submit an annual report to the Legislature summarizing information on spill response activities during the preceding fiscal year; expenditures from the fund; monies recovered from spillers; and projected costs of cleanup for the next fiscal year. This report covers FY 89 and the first half of FY 90. The report also projects fund activities for the second half of FY 90.

In FY 89, $21,687,700 was authorized of which $10,000,000 in general funds and $10,000,000 in program receipts was specifically earmarked for the EXXON Valdez spill response. A total of $6,592,500 was expended during FY 89 including $6,271,600 for DEC, other agency, and local response to the EXXON Valdez spill. The FY 89 end-of-year Response Fund balance was $15,095,200.

In FY 90, $67,892,900 was authorized including $20,000,000 in program receipts for the EXXON Valdez spill response. During the first half of FY 90, $19,753,100 was expended of which $19,368,800 was for DEC, other agency, and local response to the EXXON Valdez spill. The mid-year balance was $48.139,800. The report projects that $35,786,600 will be expended during the second half of FY 90 including $30,848,400 for DEC, other agency, and local response to the EXXON Valdez spill. The FY 90 end-of-year Response Fund Balance is currently projected at $12,353,200.

In FY 89 and the first half of FY 90, DEC investigated and cleaned up 19 spills or contaminated sites where expenditures exceeded $1,000. This includes the EXXON Valdez spill. The report projects that 10 more spills or sites will be addressed during the second half of FY 90.

INTRODUCTION

In 1986, the Legislature passed HB 470, a bill relating to the release of oil and hazardous substances. In 1989, the Legislature amended this act. This law establishes the Oil and Hazardous Substance Release Response Fund, known as the Response Fund. The Department of Environmental Conservation (DEC) uses the Fund to investigate, respond to and clean up spills of oil and hazardous substances. Section 46.08.060 of the law requires the Department to submit an annual report to the Legislature summarizing information on spill response activities during the preceding fiscal year; expenditures from the fund; monies recovered from spillers; and projected costs of cleanup for the next fiscal year. This report covers FY 89 and the first half of FY 90. The report also projects fund activities for the second half of FY 90.

Typically, DEC uses the Response Fund for the following types of response activities.

Sampling and Testing The type and toxicity of spilled oils and chemical wastes is not always immediately known. DEC must have this information to respond further and to determine what advice should be given to people affected by the spill.

Evidence Collection To find the source and cause of a spill, DEC's lab has sophisticated methods to "fingerprint" spilled oil and compare it to known sources.

Identifying the Responsible Party Many times, the spiller's identity is unknown at first--especially for underground spills in populated areas or for spills at sea. Understandably, people are reluctant to clean up a spill until their responsibility is clearly known. However, most spillers will begin cleanup if DEC's evidence and testing proves them to be the responsible party.

Oversight of Cleanups For responsible party cleanups, DEC provides help and guidance and issues certain permits for disposal. More than 90% of spill cleanups in Alaska are done by the responsible party in negotiated agreements, sometimes formalized as Compliance Orders by Consent.

Cleanup If no responsible party can be identified or if the responsible party is unwilling or unable to clean up, DEC can use the Response Fund to clean up a spill.

Impact Investigation Sometimes DEC may use the fund to determine the effects of spills to human health or the environment, such as blood testing for lead.

Recovery of Expenses DEC is obliged to seek recovery of spill expenses to replenish the Response Fund. The recovery action itself may require use of the Fund, especially for complicated legal proceedings.

The 1989 Legislature passed several laws which related to the Response Fund and response to spills.

Senate Bill 260 *Conservation Surcharge*

This law imposes a conservation surcharge of $.05 per barrel on oil subject to the oil and gas properties production tax. Proceeds from the surcharge may then be appropriated to the Response Fund. The surcharge is imposed when the balance of the Response Fund drops below $50,000,000.

Senate Bill 261 *State and Regional Contingency Plans*

This laws requires DEC to prepare and annually review plans by which the state agencies and local governments respond to spills, both statewide and regionally.

Senate Bill 264 *State Response Office, Corps, and Depots*

This law requires DEC to set up an office and staff with special training for containment and cleanup of spills of oil and hazardous substances. Local response corps would be registered and trained through this office. Depots of cleanup equipment would be cached in certain areas.

RESPONSE FUNDS AUTHORIZED AND EXPENDED

BY FISCAL YEAR

This section summarizes the appropriations to, and expenditures from the Response Fund in FY 89 and the first half of FY 90. Expenditures are also projected for the cond half of FY 90.

Y 89

Authorizations for FY 89

July 1, 1988 Fund Balance		$ 1,051.2
FY 88 Mitigation Account	(CHP154, SLA88)	$ 136.5
FY 89 Capital Appropriation	(CHP172, SLA88)	$ 500.0
EXXON Valdez GF Appropriation	(CHP13, SLA89)	$10,000.0
EXXON Valdez PR Appropriation	(CHP13, SLA89)	$10,000.0
Total FY 89 Authorization		$21,687.7

Expenditures During FY 89

Site Cleanup and Spill Response	$ 320.9
EXXON Valdez DEC Response	$ 5,456.3
EXXON Valdez RSAs	$ 609.7
EXXON Valdez Local Response	$ 205.6
Total FY 89 Expenditures	$ 6,592.5

Ending Balance for FY 89 $15,095.2

FY 90

Authorizations for FY 90

July 1, 1989 Fund Balance		$15,095.2
FY 89 Mitigation Account	(CHP116, SLA89)	$ 197.7
FY 90 Capital Appropriation	(CHP117, SLA89)	$ 600.0
FY 90 GF Appropriation	(CHP117, SLA89)	$32,000.0
EXXON Valdez PR Appropriation	(RP 1890-0041)	$20,000.0
Total FY 90 Authorization		$67,892.9

Expenditures During First Half FY 90	
Site Cleanup and Spill Response	$ 277.4
SB 261/SB 264	$ 106.9
EXXON Valdez Response	$18,547.0
EXXON Valdez RSAs	$ 429.5
EXXON Valdez Local Response	$ 392.3
Total First Half FY 90 Expenditures	$19,753.1
Mid-Year Balance for FY 90	$48,139.8
Projected Expenditures During Second Half FY 90	
Site Cleanup and Spill Response	$ 673.3
SB 261/SB 264	$ 4,264.9
EXXON Valdez Response	$13,800.0
EXXON Valdez RSAs	$ 9,443.3
EXXON Valdez Local Response	$ 7,605.1
Total Projected Expenditures During Second Half FY 90	$35,786.6
Projected Ending Balance for FY 90	$12,353.2*

*This is an estimate. Actual expenditures could vary considerably.

RESPONSE FUNDS RECOVERED BY FISCAL YEAR

Following is a summary of Response Fund costs recovered in FY 89 and the first half of FY 90.

FY 89

Mapco # 7, Anchorage		$ 2.5
Gas Station, Anchorage		$ 0.1
Togiak Fisheries		$180.1
Chugach Electric		$ 15.0
	Total	$197.7

FIRST HALF OF FY 90

White Pass & Yukon		$ 0.7
Peters Creek Tesoro		$ 483.4
Trident, Akutan		$ 50.0
AMOCO East Forelands		$ 60.0
AMOCO Platform Anna		$ 6.5
	Total	$ 600.6

Department of Environmental Conservation • Oil and Hazardous Substance Release

RESPONSE FUND ANNUAL REPORT

FISCAL YEAR 1990

Presented to the First Session of the Seventeenth Alaska Legislature

0, 1991 • Walter J. Hickel, Governor • John A. Sandor, Commissioner

RESOURCES
006772

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I. INTRODUCTION

The Oil and Hazardous Substance Release Response Fund, generally referred to as the "Response Fund," is administered by the Alaska Department of Environmental Conservation (DEC). Each year, the department is required to submit a report to the Legislature summarizing information on fund expenditures for the prior fiscal year, monies recovered from spillers, and projected uses of the fund in the next fiscal year. This report covers FY 1990, and projected uses of the fund for FY 1991.

The Response Fund was originally established by the Legislature to ensure that DEC had adequate funding to investigate, respond to and cleanup spills of oil and hazardous substances. More recent legislation has broadened the uses of the fund to emphasize planning, prevention and response preparedness. In accordance with the purposes of the Response Fund defined in AS 46.08.040, the fund supported the following activities in FY 90 :

1. Planning: The Response Fund is used to improve the state's planning for spills of oil and hazardous substances. In FY 90, Response Funds were used to prepare state and regional contingency plans for spill response.

2. Response Preparedness and Equipment: The Response Fund is used to improve the state's preparedness for spill response. In FY 90, an oil and hazardous substance Spill Response Office was established and given the responsibility to respond to major spills and establish spill response equipment depots and local response corps.

3. Response and Cleanup: The Response Fund is used by DEC for responses to spills of oil and other hazardous substances, from small spills to those the magnitude of the *Exxon Valdez*, and to investigate and cleanup sites previously contaminated by hazardous substances. A Spill Reserve is maintained to ensure adequate funds are available for emergency responses. The types of activities DEC might undertake in spill response and contaminated site cleanup include:

- *Sampling and Testing*: The type and toxicity of spilled oils and chemical wastes are not always immediately known. DEC must have this information to respond further and to determine what advice should be given to people affected by the spill.
- *Evidence Collection*: To find the source and cause of a spill, DEC's lab has sophisticated methods to "fingerprint" spilled oil and compare it to known sources.
- *Identifying the Responsible Party*: Frequently, the spiller's identity is uncertain, at first — especially for underground spills in populated areas or spills at sea. Understandably, people are reluctant to cleanup a spill until their responsibility is clearly known. However, most spillers will begin cleanup if DEC's evidence and testing proves them to be the responsible party.
- *Oversight of Cleanups*: For cleanups conducted by the responsible party, DEC provides help and guidance, and issues certain permits for disposal. More than 90 percent of spill cleanups in Alaska are done by the responsible party in negotiated agreements, sometimes formalized as Compliance Orders by Consent.
- *Cleanup*: If no responsible party can be identified or if the responsible party is unwilling or unable to cleanup,

TABLE 1

RESPONSE FUNDS AUTHORIZED AND EXPENDED FISCAL YEAR 1990

(In Thousands)

		Totals
Authorizations for FY 90:		
Fund Balance	$15,095.2	
Mitigation Account (CHP116, SLA89)	$ 197.7	
FY 90 Capital Appropriation (CHP117, SLA89)	$ 600.0	
FY 90 GF Appropriation (CHP117, SLA89)	$32,000.0	
Exxon Valdez PR Appropriation (RP 1890-0041)	$20,000.0	
Total FY 90 Authorization		$67,892.9
Actual Expenditures for FY 90:		
State & Regional Contingency Plans	$ 158.4	
Spill Response Office, Depots & Corps	$ 199.8	
Spill Response Containment, Safety, Cleanup and Cost Recovery	$ 211.0	
Exxon Valdez Project		
• DEC Response	$24,005.4	
• Interagency Response	$ 4,560.0	
• Local Response	$ 3,210.2*	
Contaminated Site Investigation, Safety, Cleanup and Cost Recovery	$ 774.5	
Other	$ 112.8**	
Spill Reserve	$ 245.5	
Total FY 90 Actual Expenditures		$33,477.6
FY 90 Obligations		$13,788.5***
Ending Balance for FY 90		$20,626.8

*In FY 90, municipal participation in the Response Fund was comprised of Local Response in the *Exxon Valdez* Project, described in Section III.

**Includes expenditures not readily assigned to remaining categories. See Section III, "Discussion of Response Funds Expended in Fiscal Year 1990" for detail.

***FY 90 Response Fund encumbrances as of 9/1/90.

OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

FISCAL YEAR 1991 ANNUAL REPORT

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OIL AND HAZARDOUS SUBSTANCE RELEASE RESPONSE FUND

FISCAL YEAR 1991 ANNUAL REPORT

Section I. INTRODUCTION

The Oil and Hazardous Substance Release Response Fund, generally referred to as the "Response Fund", or "470 Fund" was created by the Legislature to provide a readily available fund for the payment of the expenses incurred by the State in the protection of the environment from the release, or threatened release of oil or hazardous substances" (AS 46.08.005). Each year the Department of Environmental Conservation (DEC), the Response Fund administrator, submits a report to the Legislature summarizing information on Response Fund expenditures, costs recovered, DEC response activities, projected expenditures, and any other information considered significant by the Commissioner (AS 46.08.060).

In May 1991, an internal DEC management audit of the Response Fund was completed which included recommendations for improving administrative procedures governing the Response Fund. Consistent with the recommendations in the audit report, a number of steps were taken in FY 92 to improve DEC's management of the Response Fund. Actions taken by DEC in FY 92 to resolve specific audit issues are described in Section II of this report.

A status report on Alaska's oil and hazardous substance spill response preparedness is given in Section III. Section IV provides information on FY 91 Response Fund allocations. FY 91 Response Funded activities are described in Section V.

Section II. RESPONSE FUND MANAGEMENT AUDIT UPDATE

Since the release of the May 1991 audit report, DEC has taken several actions to improve management of the Response Fund. Although some issues continue to need improvement, many audit recommendations have been implemented and there are ongoing efforts to improve management of the Response Fund. The conditions described in the audit report, and corrective actions taken by DEC are outlined below.

USE OF THE FUND BY OTHER AGENCIES

Audit Issue:

By statute, DEC is the State's designated Response Fund administrator (AS 46.08.010). However, DEC does not have full management and accounting control over Response Funds directly appropriated to other State agencies by the Legislature. There are no requirements to provide DEC with Response Fund accounting information from agencies receiving direct Response Fund appropriations. DEC can only manage, account, and report on Response Fund appropriations made directly to DEC.

Actions Taken by DEC:

DEC took the following actions to facilitate management control and to ensure statutory reporting requirements could be met:

1. Developed and incorporated standard reporting requirements into FY 92 RSAs between DEC and other agencies that use the Response Fund. Servicing agencies are now required to provide DEC with information that meets DEC's Response Fund reporting requirements, including contracts in excess of $20,000, purchases in excess of $10,000, and personal services expenditures.

2. DEC worked with the Department of Administration on fiscal controls to prevent other agencies from increasing an authorization to the Response Fund and "double booking" an appropriation from two Departments.

3. DEC requested that FY 92 Response Funds be appropriated to DEC instead of directly to other agencies. With the exception of two appropriations, all Response Funds went to DEC in FY 92. Direct appropriations were made to the Citizens Oversight Council and the Department of Transportation and Public Facilities.

CLARIFICATION OF DEC ROLES

Audit Issue:

There is no single manager of the Response Fund. Too many people are charged with making decisions that impact the Response Fund. Management and internal control functions are not clearly assigned within DEC's Divisions, and Regional Offices. Uniform policies and procedures for the use and recovery of Response Funds have not been developed.

Actions Taken by DEC:

The Spill Prevention and Response Division (SPAR) was established effective July, 1991. In FY 92, the Commissioner designated the Director of SPAR as DEC's Response Fund Manager. The Division of Administrative Services is responsible for internal fiscal control and Response Fund accounting reports. In FY 92 SPAR and Administrative Services will establish policies and procedures for use of the Response Fund by DEC and other State agencies. As the Response Fund Adminstrator, the Commissioner maintains ultimate oversight and control of the Response Fund.

COST RECOVERY

Audit Issue:

Full cost recovery on the majority of incidents does not occur. Procedures for pursuing and monitoring cost recovery do not exist. Cost recovery information is difficult to obtain since revenue is not tracked by type, multiple identifiers are assigned to the same project, and revenue is not reconciled to incident cost. Cost recovery has not been fully pursued by DEC and information about recovery is difficult to analyze.

Actions Taken by DEC:

Procedures for cost recovery by DEC's regional office response staff are being developed by SPAR and Administrative Services. Current efforts to resolve accounting problems with cost recovery include:

1. Billing legal costs by incident.

2. Charging staff time to incidents.

3. Tracking revenue by recovery, penalty, settlement, interest.

4. Establishing one program and one administrative identifier.

5. Coding recovery to the incident where the cost originated.

EQUIPMENT POLICY AND PROCEDURES

Audit Issue:

The condition, location, and current value of equipment purchased with Response Funds cannot be accurately documented. Ultimate ownership of the equipment is not clear. There are no procedures for managing Response Fund property. The State does not have a central listing of what equipment purchased with Response Funds is available to respond to an oil and hazardous substance release emergency.

Action Taken by DEC:

Equipment purchased by DEC with Response Funds is being identified on the state property system by a special fund coding. In addition, special Response Fund tags

are put on equipment purchased with Response Funds. The Division of Administrative Services maintains a master list of all equipment purchased with Response Funds, and will conduct an audit of the location, condition, and estimated value of Response Fund equipment during the second half of FY 92.

ATTACHMENT B

Sections from

A Strategic Plan for the Oil & Hazardous Substance Release Response Fund

(DRAFT REPORT)

Alaska Department of Environmental Conservation

DRAFT

Oil and Hazardous Substance Release Response Fund

- Establishment of Response Fund

Prior to 1986 the Department of Environmental Conservation (DEC) utilized the Spill Expense Reserve Account (Reserve Account) to pay costs directly involved in the abatement, containment, and removal of a discharge of oil or hazardous substances. The initial appropriation to this account was $1,000,000 in FY81. Subsequent appropriations were made in FY82 and FY84, each totalling $250,000. During the period FY81 through FY86, $1,278,000 was expended.

In 1986, the Alaska Legislature established the Oil and Hazardous Substance Release Response Fund (Response Fund). The Response Fund was to provide a readily available source to pay expenses incurred by DEC in the protection of the environment from the release of oil or hazardous substances. It was the intent of the Legislature and declared to be public policy of the State that funds for the abatement of a release of oil or a hazardous substance will always be available.

- Funding History

The remaining balance in the Reserve Account ($222,000), the balance in the mitigation account ($159,000) and the FY87 appropriation ($300,000) provided the initial funding for the Response Fund of $681,000. Table 1 provides a funding history.

Table 1

Summary of Funding by Fiscal Year

(In Thousands)

FY87	681.0
FY88	1,129.3
FY89	20,636.5
FY90	52,797.6
FY91	28,696.1
FY92	28,500.0

Until FY89, funding came from general fund appropriations and appropriations of cost recovered monies deposited in the mitigation account. In March 89, the Exxon Valdez incident occurred and special appropriations were made to the response fund. Of those appropriations 10 million was program receipts. This was the first time program receipts authority was granted to the Response Fund. Additional program receipts were authorized in FY90. Beginning in FY91, the primary funding for the Response Fund has been a conservation surcharge of $.05 per barrel on oil subject to the oil and gas properties production act.

- Use of the Response Fund

Initially, use of the Response Fund was limited to:

Containment, cleanup and other necessary action such as monitoring, assessing, investigating, and evaluating the release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment.

Provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601-9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1990).

Recover the cost to the state or to a municipality of a containment and cleanup resulting from the release or the threatened release of oil or a hazardous substance.

- Changes in Use of the Response Fund

Subsequent legislation added to the uses of the Response Fund. Two types of uses were established; those where legislative appropriation for the purpose is expressly required and a second where legislative appropriation is not directly required. The latter uses are summarized first:

Transfer money to the commissioner of Community and Regional Affairs to make grants. (Chapter 83 SLA91 Section 15) (Reference 29.60.510 and 29.60.580)

Investigate, evaluate, contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that poses an imminent and substantial threat to the public health or welfare, or to the environment (Chapter 90 SLA88 Section 3)

Upon request of Legislature, fund Citizens' Oversight Council (Chapter 199 SLA90 Section 3) (Reference 24.20.500)

When the Governor declares a disaster related to an oil or hazardous substance discharge emergency use money from the fund to respond to the disaster emergency (Chapter 199 SLA90 Section 15) (Reference 20.23.020(c))

Other uses which may not be funded unless funds are available from an appropriation made specifically for that purpose are [Chapter 48 SLA91 Section 4]:

Establish and maintain the response office [Chapter 113 SLA89 Section 2]

Review oil discharge prevention and contingency plans [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Conduct training, response exercises, inspections, and tests in order to verify equipment inventories and ability to prevent and respond to oil and hazardous substance release emergencies, other activities to verify or establish the preparedness of the state, a municipality, or a party required to have an approved contingency plan to act in accordance with that plan [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Verify or establish proof of financial responsibility [Chapter 191 SLA90 Section 28] [Reference 46.04.040]

Pay the expenses incurred by the Alaska division of emergency services for response corps and response depots when presented with appropriate documentation [Chapter 190 SLA90 Section 14]

Provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601-9657 (CERCLA Act of 1980) [Chapter 59 SLA88 Section 1]

Recover the costs to the state, municipality or to a village of a containment and cleanup [Chapter 83 SLA91 Section 15]

Prepare, review, and revise the state's master or a regional oil and hazardous substance discharge prevention and contingency plan [Chapter 90 SLA89 Section 3] [Reference 46.04.200 and 46.04.210]

Restore the e[illegible]y addressing the effects of an oil or hazardous substance rele[illegible] SLA89 Section 3]

Upon request from the commissioner of DOTPF transfer monies to DOT to fund construction or refurbishment of one of more vessels that have the capability of responding to spills of oil or hazardous substances [Chapter 48 SLA91 Section 5] [Reference 19.65.025]

- Types of Use of the Response Fund

Response Fund expenditures can be categorized in four types:

Operating:

These costs are the on going costs of operation of the Division of Spill Prevention and Response within the Department of Environmental Conservation. With the exception of costs for specific spill response and contaminated site projects, these costs are generally not recoverable. Until FY90, these costs were primarily funded by appropriations from the general fund. Beginning in FY91, the operating costs were mostly converted from general fund to the Response Fund. In addition, costs of the Department of Law are included in on going operating costs, particularly regulation review, legal opinions and guidance. Law's efforts at cost recovery for specific spill response and contaminated site projects are generally recoverable.

Cost Recoverable:

Costs for specific spill response and contaminated site projects, these costs are generally recoverable. Law's efforts at cost recovery for specific spill response and contaminated site projects are generally recoverable. Exceptions occur when a responsible party can not be identified, is not financially able to reimburse the State for its costs, or when the State is the property owner.

Spill Reserve:

Spill Reserve is a reserve of funds with two primary purposes. DEC has a goal of depositing and maintaining 30 million in Spill Reserve to be used 10 million for Communities, Municipalities and Villages and 20 million in reserve for the State costs in response to major incidents. The State will continue to fund on going minor and medium spill response efforts from Spill Reserve.

Other:

One time expenditures and special projects can be classified as other. Examples of these type of expenditures are funding for Regional Citizen's Advisory Councils, Air Monitoring, Volcanic Eruptions, Construction of Oil Response Ferries, One Time Contracts or Surveys and the Storage Tank Assistance Program. While some of the projects may receive funding in multiple years, typically these are not on going operational costs, cost recoverable or eligible for spill reserve funding. Technological costs, such as the funding costs of the Oil and Hazardous Substance Spill Technology Review Council and its staff are also categorized as other costs.

• Operating Costs

Prevention

Reduce the potential for oil and hazardous substance spills through design, development, planning, coordination, implementation and administration of Statewide programs to reduce the potential and severity of spills, leaks and releases of oil and other hazardous substances. Included in the prevention activities are education, training, information distribution, analysis of contingency plans, inspections, discharge exercises, and financial responsibility.

Planning

DEC will complete a ten-year cleanup management plan for approximately 1100 reported sites. The plan will lay out a systematic process for closing out all sites by the year 2002. That process will include a detailed review to confirm reported sites are contaminated, and remove reported sites from the list that are found not to pose a risk. The remaining confirmed sites will be ranked based on risk. The list will be further subdivided based on whether the responsible party for the spill is able to cleanup the site, or if the State must assume responsibility by default of the responsible party.

Fund the State Emergency Response Commission (SERC); composed of nine State agency commissioners and seven public members. Implement local emergency planning and community right-to-know programs as mandated by state and federal laws. Assist the State and local governments with the development of oil and hazardous substance spill contingency planning by conducting training workshops and providing information to local communities.

Develop and annually revise Statewide and regional plans to coordinate State and other parties involved in response to hazardous substance incidents including oil spills. Regional plans provide detailed information regarding spill hazards, risk to humans and the environment, and response capability.

Regulation Development and Enforcement

Establish regulations to protect public health and resources; issue authorizations such as plan approval or certificates in accordance with regulations; and monitor and maintain compliance with environmental standards. Provide assistance and guidance to industry and the public on spill response matters.

Preparedness (Training, Drills, Medical Monitoring and Equipment)

Maintain a highly trained group responsible for immediate response to catastrophic spills, declared emergency discharges of oil and hazardous substance releases anywhere in Alaska.

Prepare all State responders for such events by improving the State's overall oil and hazardous substance spill response capabilities through education, training on response techniques, equipping responders, addressing life, health, safety issues prior to an incident.

Drills, including unannounced drills, shall be conducted to verify that industry, the State, local government and contractors con perfcrm response activities as planned.

In 1990, the Hazardous Waste Operations and Emergency Response regulations (29 CFR 1910.120) were adopted at the Federal Level. In Alaska, a parallel worker health and safety statute and regulations were implemented. Employees who work in situations which present potential exposure to hazardous substances above permissible limits are required to have comprehensive medical examinations. Preparation for response requires employees be medically evaluated prior to exposure and monitored on a going basis to locate and mitigate any effects of exposure.

The State shall purchase equipment with Response Funds. Equipment purchases shall be limited to the equipment needed for first response to control and contain the spill while the responsible party mounts a response effort or a State response action contractor arrives on scene with resources to assume control. This equipment shall be compatible with federal response equipment and located in high risk areas. Local responders shall have access and training in equipment operations.

Legal Costs, Investigation and Cost Recovery

Costs of the Department of Law are included in on going operating costs, particularly regulation review, legal opinions and guidance. Law's efforts at cost recovery for specific spill response and contaminated site projects are generally recoverable.

Investigation costs are also an operating costs. DEC participates with Law and the State Troopers in criminal investigations which are the precursor to identification, cleanup and restorations resulting in a civil action to recover the State's costs.

Administration and Management

Provides overall management and administrative functions for operating programs. Program development and supervision; budget and work plan development; regulation development oversight; regional work plan review; and overall program responsibility. Serve and Response Fund Manager. Collect and distribute legislative, management and public information reports on the Response Fund.

- Recoverable Activities

  Contaminated Sites

  Response Funds will be used to pay for staff to oversee responsible party cleanups, and pay for cleanups directly managed by the DEC using response action contractors. An action schedule will be developed for both the responsible party and state-lead category cleanups. The actual cleanup costs incurred by DEC or its contractors shall be considered cost recoverable where a responsible party is identified and able to reimburse the State.

  Spill Response

  Response Funds are used to hire contractors to initiate responses, or continue clean-up of spills when the spiller (responsible party) is unable or unwilling to respond. The Response Fund supports local response efforts to manage and monitor response efforts of the spiller(s) or other responsible parties.
  The spill response program responds to approximately 3,000 non-catastrophic oil and hazardous substance spills reported to DEC each year. DEC operates on a "first day is free" policy for minor spills. Thus, spill reserve is used on minor spills for costs in excess of that amount and for medium and major spills.

- Spill Reserve

  Communities

  It is the intent of the Legislature and declared to be public policy of the State that funds for the reimbursement of costs of abatement of a release of oil or a hazardous substance which will always be available for municipalities and villages and that in certain instances the State should have monies available to defray the costs of social and economic effects on municipalities and villages arising from a major release and resultant cleanup activities. Those funds are in Spill Reserve. DEC plans to maintain 10 million dollars in spill reserve to fund those expenditures.

  Emergency Response

  It is the intent of the Legislature and declared to be public policy of the State that funds for the abatement of a release of oil or a hazardous substance will always be available. Those funds are in Spill Reserve. DEC plans that 20 million dollars shall be maintained in Spill Reserve for emergency first response on catastrophic spills. This amount is not sufficient to fund all of the State costs in response, containment and clean up of a catastrophic spill, but, provides funding for the time needed to allow the Legislature to consider, approve and appropriate additional funds for catastrophic response.

- Oversight Councils, RCACs

  Response Funds are used for the Citizen's Oversight Council on Oil and Hazardous Substance Releases. The council is responsible for determining whether state and federal agencies responsible for the prevention of and response to releases are carrying out their duties. The council recommends to the Legislature, Governor, agencies and private entities policies to prevent release. The council assists the Legislature and Governor in the development of interstate compacts and policy recommendations to the federal government regarding prevention.

  Response Funds have been used as an initial funding source for the formation of Regional Citizen Advisory Councils such as the Arctic Marine Resource Commission in FY92.

- Tank Program

  Protect the public from contamination resulting from leaking underground storage tanks through regulatory and assistance program which includes prevention, education and cleanup. With guidance from the Board of Storage Tank Assistance, State provide financial assistance for conducting site assessments and testing tanks for leaks, cleanup from leaking tanks, and upgrading or removing tanks. Regulations govern certification of tank workers and site assessors. Installation, registration, maintenance, leak detection, site assessment, upgrade, cleanup and closure of tanks and tanks systems is also governed by regulations under this project.

- Technological

  Provide staff assistance to the Oil and Hazardous Substance Technology Review Council which is composed of the commissioner of DEC, the adjutant general of the Department of Military and Veterans Affairs, a representative from the University of Alaska, the Governor's senior science advisor, a representative of the Prince William Sound Science Center, and four public members appointed by the Governor. The council assists in the identification of containment and cleanup products and procedures for arctic and sub-arctic hazardous substance releases. The council reviews oil and hazardous substance spill cleanup technology research and development activities undertaken by other government agencies and industry spill response groups. The council also makes recommendations to the Department and agencies of the state regarding the use and deployment of these products and procedures.

- Oil Response Ferries

  Response funds are used to pay for the construction or refurbishment or one or more vessels of the Alaska marine highway system that have the capability to assist in responding to spills of oil and hazardous substances.

Oil and Hazardous Substance Release Response Fund
Revised: August 1991
Summary of Legislation and Statutory Effect

DRAFT

Alaska Statute Title 46, Chapter 08

The effect of bills passed in this last session SLA91 are NOT reflected in a statute supplement. Chapter 83 SLA 91 CSSSSB 25 (CRA) (effective 6/28/91) and Chapter 48 SLA 91 (effective 9/13/91) CSSB 165 (TRA) were signed and do effect AS 46.08. The effect of those acts are included in the summary.

The summary is provided for general guidance only. It will direct you to the appropriate section or legislation. When being asked to provide an opinion, the statute, supplement or legislation should be consulted.

Key terms are defined within the statute and legislation, thus, this should be reviewed by all fund users. Those terms are listed in the summary.

Statutes:	AS46.08	September 1987
	AS46.08	1990 Cumulative Supplement, October 1990

Legislation:	Chapter 59	SLA86	SCSCSHB	470 (Fin)
	Chapter 29	SLA89	CSSB	256 (CRA)
	Chapter 39	SLA89	SCSCSHB	68 (Jud)
	Chapter 90	SLA89	CSSB	261 (Fin)
	Chapter 113	SLA89	HCSCSSB	264 (Fin)
	Chapter 190	SLA90	SCSCSHB	566 (Fin)
	Chapter 191	SLA90	SCSCSHB	567 (Fin)
	Chapter 199	SLA90	SCSCSHB	578 (Fin)
(Eff 9/13/91)	Chapter 48	SLA91	CSSB	165 (Tra)
	Chapter 83	SLA91	CSSSSB	25 (CRA)

46.08.005 Purpose

Acknowledges threat to public health, welfare and economy on release and need for fund to pay ADEC and Department of Transportation and Public Facilities costs [Chapter 48 SLA91 Section 2]

46.08.010 Fund established

OHSRRF in General Fund. Administered by Commissioner. Money is continuing. Except as provided in 46.08.040, (DOTPF portion) no capital improvements [Chapter 48 SLA91 Section 3]

46.08.020 Financing of the fund

Legislature may appropriate money from federal, state, other sources or private donor or from mitigation to the OHSRRF. Money received and recovered from responsible parties is put in the mitigation account [Chapter 59 SLA86 Section 1]

Due to addition of 46.08.100 thru 46.08.190 language had to be changed from "chapter" to limit the scope of source for fines, penalties and damages to 46.08.005 thru 48.06.080 [SLA86]

46.08.030 Financing the abatement of oil or hazardous substance releases

Funds for abatement will always be available [Chapter 59 SLA86 Section 1]

46.08.040 Purposes of the fund

Transfer money to the commissioner of CRA to make grants and to pay for impact assessments. [Chapter 83 SLA91 Section 15] [Reference 29.60.510 and 29.60.580]

Investigate, evaluate, contain, clean up, and take other necessary action, such as monitoring and assessing, to address a release or threatened release of oil or a hazardous substance that <u>poses an imminent and substantial threat</u> to the public health or welfare, or to the environment [Chapter 90 SLA89 Section 3]

Upon request of Legislature, fund Citizens' Oversight Council [Chapter 199 SLA90 Section 3] [Reference 24.20.600]

When the Governor declares a disaster related to an oil or hazardous substance discharge emergency use money from the fund to respond to the disaster emergency [Chapter 190 SLA90 Section 15] [Reference 23.23.020(c)]

May not be used for the purposes below unless money is available from an appropriation made **SPECIFICALLY FOR THAT PURPOSE** [Chapter 48 SLA91 Section 4]

Establish and maintain the response office [Chapter 113 SLA89 Section 2]

Review oil discharge prevention and contingency plans [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Conduct training, response exercises, inspections, and tests in order to verify equipment inventories and ability to prevent and response to oil and hazardous substance release emergencies, other activities to verify or establish the preparedness of the state, a municipality, or a party required to have an approved contingency plan to act in accordance with that plan [Chapter 191 SLA90 Section 28] [Reference 46.04.030]

Verify or establish proof of financial responsibility [Chapter 191 SLA90 Section 28] [Reference 46.04.040]

Pay the expenses incurred by the Alaska division of emergency services for response corps and response depots when presented with appropriate documentation [Chapter 190 SLA90 Section 14]

Provide matching funds for participation in federal oil discharge cleanup activities and under 42 U.S.C. 9601-9657 (CERCLA Act of 1980) [Chapter 59 SLA86 Section 1]

Recover the costs to the state, municipality or to a village of a containment and cleanup [Chapter 83 SLA91 Section 15]

Prepare, review, and revise the state's master or a regional oil and hazardous substance discharge prevention and contingency plan [Chapter 90 SLA89 Section 3] [Reference 46.04.200 and 46.04.210]

Restore the environment by addressing the effects of an oil or hazardous substance release [Chapter 90 SLA89 Section 3]

Upon request from the commissioner of DOTPF transfer monies to DOT to fund construction or refurbishment of one of more vessels that have the capability of responding to spills of oil or hazardous substances [Chapter 48 SLA91 Section 5] [Reference 19.65.025]

46.08.050 Records of the fund

Maintain accounting records of income and expenses, Develop procedures governing expenditure and accounting [Chapter 59 SLA86 Section 1]

46.08.060 Report to the legislature

No later than 10 days after convening regular session [Chapter 59 SLA 86 Section 1]

Amount expended by department [Chapter 190 SLA90 Section 16]

Amount, source of money received & recovered on behalf of department [Chapter 190 SLA90 Section 16]

Summary of municipal participation in department response [Chapter 190 SLA90 Section 16]

Detailed summary of department activity prior FY including response and nature including each personal services position and total compensation, each contract in excess of $20,000 and each purchase in excess of $10,000 [Chapter 191 SLA90 Section 29]

Projected costs to department for activity continuing next year [Chapter 190 SLA90 Section 16]

Summary of sites identified [Chapter 59 SLA86 Section 1]

Immediate and long term threat [Chapter 59 SLA86 Section 1]

Actions needed to abate threat and estimated cost [Chapter 59 SLA86 Section 1]

Governor's Office is required to report on expenditures incurred under its' authority [Chapter 190 SLA90 Section 17]

46.08.070 Reimbursement for containment and cleanup

Shall seek reimbursement for clean up and containment [Chapter 59 SLA86 Section 1] [Reference 46.03.760(e)]

AG office shall immediately seek, at request of Commissioner, to recover monies [Chapter 29 SLA89 Section 1]

Shall reimburse municipality or village for actual expenses other than normal operating and may advance money if municipality or village has agreement and expenditures were for emergency first response at the time of the release or threatened release and a need for advance financial assistance is demonstrated and expenditures reimbursed or advanced were consistent with the region master plan where the municipality or village is located if plan exists [Chapter 83 SLA91 Section 16] [Reference 46.04.020(e), 46.09.020(e), 46.04.210]

46.08.075 Liens against property as a security for state expenditures

The state has a lien for expenditures from all sources against all property owned by a person determined by the Commissioner to be liable [Chapter 39 SLA 89 Section 7]

Lien not effective until certificate is filed and copy sent to all interested parties [Chapter 39 SLA89 Section 7]

Certificate of discharge or reduction shall be issued on request on payment [Chapter 39 SLA89 Section 7]

Lien may be reduced (full or partially) or discharged at Commissioner's discretion if a bond or other security is posted. May not be done if contrary to public interest [Chapter 39 SLA89 Section 7]

Person with ownership may file action in court to have lien released [Chapter 39 SLA89 Section 7]

46.08.080 Regulations

Periodically review minimum quantity under federal law and adopt minimums for application of this law. Others only as expressly required to implement [Chapter 59 SLA88 Section 1]

Scope changed to limit to Article 1 [SLA89]

46.08.900 Definitions

The following terms are defined:

capital improvement
commissioner
containment and cleanup
department
fund
hazardous substance
oil
permitted release
release
threatened release
service
village

Article 2. Oil and Hazardous Substance Response Office

46.08.100 Office established

Establish office with director and employees trained in programs and technologies related to containment and clean up [Chapter 113 SLA89 Section 3]

46.08.110 Response corps

DES (DMVA) shall establish corps. Registered volunteers trained in techniques for cleanup and containment, available on short notice, consistent with roles and responsibilities under an ICS activation. May be paid per diem and expenses while training or in service [Chapter 190 SLA90 Section 18]

46.08.120 Response depots

DES (DMVA) shall maintain emergency response depots in areas determined in plans. Equipped and staffed to ensure prompt response when containment and clean up are necessary [Chapter 190 SLA90 Section 19] [Reference 46.04.200-210].

46.08.130 Duties of the office

Response ONLY if the incident is catastrophic, emergency or the commissioner believes it poses an imminent and substantial threat to the public health or welfare, or to the environment. Must be guided by the use of ICS [Chapter 190 SLA90 Section 20]

Serve as staff for the State Emergency Response Commission and for the Hazardous Substance Spill Technology Review Council within the State Emergency Response Commission [Chapter 190 SLA90 Section 24]

46.08.140 Emergency powers

When the office has reasonable grounds to believe release has occurred or is threatened which presents an imminent or present danger to health, welfare, irreversible or irreparable damage to natural resources or environment, and delay would be prejudicial to public interest may enter private property without prior hearing or permission for containment and cleanup [Chapter 113 SLA89 Section 3]

Property owner has right to be heard and to present proof that containment or cleanup is unnecessary and that it is not necessary to enter [Chapter 113 SLA89 Section 3]

46.08.150 Contracts

Contract for (the office or DES, as applicable) personnel, equipment or services to establish and maintain depots; train corps; treatment technology research including topics recommended by the hazardous substance spill technology review council [Chapter 190 SLA90 Section 21]

46.08.160 Limitation of liability

State, its' employee and members of corps are not liable unless gross negligence or intentional misconduct [Chapter 113 SLA89 Section 3]

46.08.190 Definitions

The following terms are defined:

corps
depots
division
office

ATTACHMENT C

Memo from Charles Cole to Shelby Stastny

January 21, 1992

RE: *Exxon Valdez* Litigation Costs Payment

MEMORANDUM

State of Alaska
Department of Law

TO: Shelby Stastny
Director
Office of Management and Budget

DATE: January 21, 1992

FILE NO.:

TEL. NO.: 465-3600

SUBJECT: EXXON VALDEZ Litigation Costs Payment

FROM: Charles E. Cole
Attorney General

On December 17, 1991, the State of Alaska received a payment of $29,267,841.58 ($29,000,000 in principal and $267,841.58 in interest incurred between October 3, 1991, and December 13, 1991) from the Exxon Corporation. This payment was received pursuant to Paragraph 10 of the EXXON VALDEZ oil spill settlement agreement and Section VI(B) of the Memorandum of Understanding between the governments. The payment represents a partial payment of the principal amount of $38,180,000.00 due to the state for damage assessment costs, attorneys fees, experts' fees, and other costs, collectively known as "litigation and assessment costs," incurred by the state on or before March 12, 1991. Future payments will be made in accordance with the schedule of payments of the settlement agreement. The balance of unpaid litigation and settlement costs (incurred on or before March 12, 1991) yet to be reimbursed to the state is now $8,912,159.00.

According to the attached schedule, prepared by the state's oil spill cost accounting firm Peterson and Company, the principal amount due the state for litigation and assessment costs prior to March 12, 1991, is $38,180,000.00. Of this amount, $33,020,000.00, or 86.49 percent of the total amount, is for unreimbursed costs from the state's general fund, and $5,160,000.00, or 13.51 percent of the total amount, is for unreimbursed costs from the state's oil and hazardous substance response fund. Accordingly, 86.49 percent of the current payment, or $25,313,756.18, should be deposited in the general fund as unrestricted receipts, and 13.51 percent of payment, or $3,954,085.40, should be returned to the oil and hazardous substance response fund as restricted receipts.

cc: Max Hodel, Chief of Staff
Darrel J. Rexwinkel, Commissioner,
Dept. of Revenue
John A. Sandor, Commissioner,
Dept. of Environmental Conservation
Don Wanie, Director, Div. of Finance
Craig Tillery, Assistant Attorney General

Attachment

03-002

STATE OF ALASKA
EXXON VALDEZ OIL SPILL
ESTIMATED UNREIMBURSED DAMAGE ASSESSMENT AND LITIGATION COSTS
BY FUNDING SOURCE
THROUGH MARCH 12, 1991

	ESTIMATED RECORDED COSTS	ESTIMATED OVERHEAD AND FINANCING COSTS(1)	ESTIMATED TOTAL	LESS REIMBURSEMENTS	ESTIMATED UNREIMBURSED COSTS
DAMAGE ASSESSMENT					
470 Funding	4.93	0.00	4.93	0.00	4.93
Other Funding	16.82	4.57(1)	21.39	5.74(2)	15.65
TOTAL	21.75	4.57	26.32	5.74	20.58
LITIGATION					
470 Funding	0.23	0.00	0.23	0.00	0.23
Other Funding	17.37	0.00	17.37	0.00	17.37
TOTAL	17.60	0.00	17.60	0.00	17.60

TOTAL ESTIMATED UNREIMBURSED DAMAGE ASSESSMENT AND LITIGATION COSTS	
470 Funding	5.16
Other Funding	33.
TOTAL	$38.18

NOTES:
(1) Overhead and financing costs were allocated in total to other funding. These amounts are not recorded on the state accounting system (AKSAS).
(2) CERCLA Reimbursements
(3) Costs from March 1-12, 1991, were estimated based upon 12/31 of total March costs.

ATTACHMENT D

Session Law Relating to the Exxon Valdez Settlement
(Section 1 Chapter 1 FSSLA 1992)

LAWS OF ALASKA

1992
First Special Session

Source
SB 478

Chapter No.
1

AN ACT

Recognizing the trust established under the Memorandum of Agreement and Consent Decree entered into by the United States and the state in settlement of the parties' claims to money received for injury, loss, or destruction to the natural resources affected by the March 24, 1989, Exxon Valdez oil spill; relating to the requirement of an appropriation before a state agency may expend money received from that trust; relating to a budget and reports to be submitted by the trustees of that trust; relating to the records of that trust; relating to meetings involving trustees of that trust; relating to the definition of "program receipts" in regard to money received by or from that trust; relating to the circumstances under which the trustees of that trust may agree to an expenditure from the trust to a person or entity other than a state or federal agency; placing the state trustees of that trust and certain persons to whom trust duties are delegated in the Alaska Executive Branch Ethics Act; relating to the requirements that money received by the state as reimbursement for state expenses related to the Exxon Valdez oil spill be deposited in the general fund; and providing for an effective date.

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

THE ACT FOLLOWS ON PAGE 1

Approved by the Governor: June 18, 1992
Actual Effective Date: June 19, 1992

AN ACT

Recognizing the trust established under the Memorandum of Agreement and Consent Decree entered into by the United States and the state in settlement of the parties' claims to money received for injury, loss, or destruction to the natural resources affected by the March 24, 1989, Exxon Valdez oil spill; relating to the requirement of an appropriation before a state agency may expend money received from that trust; relating to a budget and reports to be submitted by the trustees of that trust; relating to the records of that trust; relating to meetings involving trustees of that trust; relating to the definition of "prec m receipts" in regard to money received by or from that trust; relating to the circumstances und ich the trustees of that trust may agree to an expenditure from the trust to a person or entity other than a state or federal agency; placing the state trustees of that trust and certain persons to whom trust duties are delegated in the Alaska Executive Branch Ethics Act; relating to the requirements that money received by the state as reimbursement for state expenses related to the Exxon Valdez oil spill be deposited in the general fund; and providing for an effective date.

* Section 1. AS 37.14 is amended by adding new sections to read:

ARTICLE 5. EXXON VALDEZ OIL SPILL TRUST.

Sec. 37.14.400. TRUST RECOGNIZED. The trust established under the Memorandum of Agreement and Consent Decree entered into by the United States and the state in settlement of claims to money received for injury, loss, or destruction of the natural resources affected by the March 24, 1989, Exxon Valdez oil spill, and approved by the United States District Court on August 28, 1991, is recognized. It shall be managed as provided in the Memorandum of Agreement and Consent Decree that established it.

Sec. 37.14.405. APPROPRIATIONS REQUIRED. (a) Notwithstanding any other provision of law, a state agency may not expend money received from the trust unless the expenditure is in accordance with an appropriation made by law.

(b) Appropriations made to satisfy the requirement of (a) of this section may be made by general appropriations of program receipts conditioned on compliance with the program review provisions of AS 37.07.080(h).

(c) The provisions of (b) of this section do not apply to amounts paid as reimbursements to the state, as authorized by the Memorandum of Agreement and Consent Decree establishing the trust, for expenses that are

(1) related to the Exxon Valdez oil spill; and

(2) incurred by the state on or before December 31, 1992.

Sec. 37.14.410. REIMBURSED EXPENDITURES. (a) Amounts received by the state as reimbursement for expenses related to the Exxon Valdez oil spill incurred by the state on or before December 31, 1992, shall be deposited in the general fund and, except as required under (b) of this section, may not be credited to the oil and hazardous substance release mitigation account under AS 46.04.010 or AS 46.08.020.

(b) A percentage of each payment deposited in the general fund under (a) of this section shall be credited to the oil and hazardous substance release mitigation account under AS 46.04.010 or AS 46.08.020. That percentage is determined by dividing

(1) the amount of the expenses for which the state may be reimbursed under (a) of this section that were paid from the oil and hazardous substance release response fund established under AS 46.08.010, by

(2) the total amount of expenses for which the state may be reimbursed under (a) of this section.

Sec. 37.14.415. BUDGET AND REPORTS. The state trustees shall

(1) submit to the governor and the legislature by December 15 of each year a report setting out, for each object or purpose of expenditure, the amounts approved for expenditure from the trust during the preceding fiscal year and the amounts actually expended during the preceding fiscal year;

(2) prepare and submit, under AS 37.07, a budget for the next fiscal year setting out, for each object or purpose of expenditure, the trustees' estimate of the amounts that are, during the next fiscal year, to be funded by the trust and expended by state agencies; and

(3) prepare and submit to the legislature at the same time the budget for state agency expenditures is submitted under (2) of this section, a proposal setting out, for each object or purpose of expenditure, the trustees' estimate of the amounts that are to be funded by the trust in the next fiscal year and that are not included in the budget submitted under (2) of this section.

Sec. 37.14.420. PAYMENTS TO PERSONS OTHER THAN GOVERNMENTS. The state trustees may not agree to an expenditure of money from the trust to a person or entity other than an agency of the state or federal government unless the expenditure is for administrative expenses of the trust and is consistent with the competitive principles of AS 36.30 (State Procurement Code). This section does not prevent an agency receiving trust money from expending the money in accordance with procurement or other law applicable to that agency.

Sec. 37.14.425. PUBLIC RECORDS. For purposes of AS 09.25.120, records of the trust in the custody of or subject to the control of state officers and agencies are public records.

Sec. 37.14.430. APPLICABILITY OF OPEN MEETINGS LAW. (a) The provisions of AS 44.62.310 and 44.62.312 apply to a meeting related to the trust in which

(1) one or more of the state trustees and one or more of the federal trustees participate, except to the extent that applicable federal law conflicts with AS 44.62.310 or 44.62.312, in which case the applicable federal law governs; or

(2) two or more of the state trustees, but none of the federal trustees, participate.

(b) Notwithstanding (a) of this section, the provisions of AS 44.62.310 and 44.62.312 do not apply to a discussion between the trustees outside of a formal meeting about matters related to the trust if, during the discussion, no decision is made and none of the trustees agrees to vote

in a particular way.

(c) The state trustees may discuss the establishment of an official common state position regarding the trust in executive session under AS 44.62.310(b) and (c)(1).

(d) For the purposes of this section,

(1) a person to whom a state trustee has delegated any of the trustee's authority related to the trust is considered a state trustee; and

(2) a person to whom a federal trustee has delegated any of the trustee's authority related to the trust is considered a federal trustee.

Sec. 37.14.450. DEFINITIONS. In AS 37.14.400 - 37.14.450,

(1) "federal trustee" means a person appointed by the President of the United States to serve as a co-trustee of the trust;

(2) "state trustee" means a state officer designated by the governor to serve as a co-trustee of the trust;

(3) "trust" means the trust established for natural resource damage recoveries under the Memorandum of Agreement and Consent Decree entered into by the United States and the state in settlement of claims to money received by the state and federal governments for injury, loss, or destruction to the natural resources affected by the March 24, 1989, Exxon Valdez oil spill, and approved by the court on August 28, 1991.

* Sec. 2. AS 24.20.206 is amended to read:

Sec. 24.20.206. DUTIES. The Legislative Budget and Audit Committee shall

(1) report to the legislature its recommendations relating to the confirmation of appointees to the Board of Trustees of the Alaska Permanent Fund Corporation;

(2) annually review the long-range operating plans of all agencies of the state which perform lending or investment functions;

(3) review periodic reports from all agencies of the state which perform lending or investment functions;

(4) present a complete report of investment programs, plans, performance, and policies of all agencies of the state which perform lending or investment functions to the legislature within 30 days after the convening of each regular session;

(5) present to the legislature within 30 days after the convening of each regular session a review of the report of the governor under AS 37.07.020(d) with recommendations for

needed legislation;

(6) in conjunction with the finance committee of each house recommend annually to the legislature the investment policy for the general fund surplus and for the income from the permanent fund;

(7) provide for an annual post audit and annual operational and performance evaluation of the Alaska Permanent Fund Corporation investments and investment programs;

(8) provide for an annual operational and performance evaluation of the Alaska Housing Finance Corporation and the Alaska Industrial Development and Export Authority; performance evaluation shall include, but is not limited to, a comparison of the effect on various sectors of the economy by public and private lending, the effect on resident and nonresident employment, the effect on real wages, and the effect on state and local operating and capital budgets of the programs of the Alaska Housing Finance Corporation and the Alaska Industrial Development and Export Authority;

(9) provide assistance to the trustees of the trust established in AS 37.14.400 - 37.14.450 in carrying out their duties under AS 37.14.415.

* Sec. 3. AS 37.05.146 is amended to read:

Sec. 37.05.146. DEFINITION OF PROGRAM RECEIPTS. In AS 37.05.142 - 37.05.146 and AS 37.07.080, "program receipts" means fees, charges, income earned on assets, and other state money received by a state agency in connection with the performance of its functions; all program receipts except the following are general fund program receipts:

(1) federal receipts;

(2) University of Alaska receipts (AS 14.40.491);

(3) individual, foundation, or corporation gifts, grants, or bequests that by terms are restricted to a specific purpose;

(4) receipts of the following funds:

(A) highway working capital fund (AS 44.68.210);

(B) correctional industries fund (AS 33.32.020);

(C) loan funds;

(D) international airports revenue fund (AS 37.15.430);

(E) funds managed by the Alaska Aerospace Development Corporation (AS 14.40.821), the Alaska State Housing Authority (AS 18.55.020), the Alaska Housing

Finance Corporation (AS 18.56.020), the Alaska Railroad Corporation (AS 42.40.010), the Municipal Bond Bank Authority (AS 44.85.020), or the Alaska Industrial Development and Export Authority (AS 44.88.020);

(F) fish and game fund (AS 16.05.100);

(G) school fund (AS 43.50.140);

(H) training and building fund (AS 23.20.130);

(I) retirement funds (AS 14.25, AS 22.25, AS 26.05.222, AS 39.35, and former AS 39.37);

(J) permanent fund (art. IX, sec. 15, Alaska Constitution);

(K) public school trust fund (AS 37.14.110);

(L) second injury fund (AS 23.30.040);

(M) fishermen's fund (AS 23.35.060);

(N) FICA administration fund (AS 39.30.050);

(O) mental health trust fund (AS 37.14.031);

(5) receipts of or from the trust established by AS 37.14.400 - 37.14.450, except reimbursements described in AS 37.14.410.

* Sec. 4. AS 39.52.960(21) is amended to read:

(21) "public officer" or "officer" means

(A) a public employee; [AND]

(B) a member of a board or commission; and

(C) a state officer designated by the governor to act as trustee of the trust or a person to whom the trustee has delegated trust duties; in this paragraph, "trust" has the meaning given in AS 37.14.450;

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