

UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE

AN OILSPILL RISK ANALYSIS
FOR THE GULF OF ALASKA/COOK INLET
LEASE OFFERING (OCTOBER 1984)

by Robert P. LaBelle, Anastase Nakassis,
and Kenneth J. Lanfear

Minerals Management Service
Environmental Modeling Group

U.S. GEOLOGICAL SURVEY
MINERALS MANAGEMENT SERVICE
OPEN-FILE REPORT #83-882

August 1983

Contents

	<u>Page</u>
Introduction -----	1
Summary of the proposed action -----	2
Environmental resources -----	2
Estimated quantity of oil resources -----	3
Probability of oilspills occurring -----	4
Oilspill trajectory simulations -----	6
Combined analysis of oilspill occurrence and oilspill trajectory simulations -----	9
Conclusions -----	11
References cited -----	13
List of Illustrations -----	15
List of Tables -----	25
Appendix A -----	68

Introduction

The Federal Government has proposed to offer Outer Continental Shelf (OCS) lands off the Gulf of Alaska and Cook Inlet coasts for oil and gas leasing. This report examines what could happen if leases are issued and oil is found, and attempts to compare relative risks of future leasing with risks of existing leases and existing transportation of oil in the study area.

Oilspills are a major concern associated with offshore oil production. An important fact that stands out when one attempts to evaluate the significance of possible accidental oilspills is that the problem is fundamentally probabilistic. Uncertainty exists about the amount of oil that will be produced from the leases and the number and size of spills that might occur during the life of production, as well as the wind and current conditions that would exist at the time of a spill occurrence giving movement and direction to the oil slick. Although some of the uncertainty reflects incomplete and imperfect data, considerable uncertainty is simply inherent in the problem of describing future events over which complete control cannot be exercised. It cannot be predicted with certainty that a probabilistic event such as an oilspill will occur, but the likelihood of occurrence can be quantified, and the range of possible effects that may accompany a decision related to oil and gas production considered. In attempting to maintain perspective on the problem, one must associate each potential effect with a quantitative estimate of its probability of occurrence.

This report summarizes results of an oilspill risk analysis conducted for the proposed Gulf of Alaska/Cook Inlet Lease Offering (October 1984). The study had the objective of determining relative risks associated with oil and gas production in different regions of the proposed lease area. The study was undertaken for consideration in the draft Environmental Impact Statement (EIS), which is prepared for the area by the Minerals Management Service (MMS), and to aid in the final selection of tracts to be offered for sale. A description of the oilspill trajectory analysis model used in this analysis can be found in previous papers (Lanfear and others, 1979; Smith and others, 1982; Lanfear and Samuels, 1981). The analysis was conducted in three parts corresponding to different aspects of the overall problem. The first part dealt with the probability of oilspill occurrence and the second with the trajectories of oilspills from potential launch points to various targets. Results of these first two parts of the analysis were then combined to give estimates of the overall oilspill risk associated with oil and gas production in the lease area.

Summary of the Proposed Action

The proposed action is to offer Outer Continental Shelf lands off Gulf of Alaska and Cook Inlet coasts for oil and gas leasing. The study area for this analysis extends from latitude 52° N. to 61° N., and from longitude 132° W. to 157° W. (figure 1). The study area also includes existing Federal leases in the Gulf of Alaska and Cook Inlet-Shelikof Strait.

For purposes of this analysis, the leasing area was divided into the proposed leasing areas (P1-P38) shown numbered in figures 2 and 2a. The existing Federal lease tract groups in the study area are shown in figure 3; E1-E3 are from OCS sale No. 55, while T1 represents tracts from OCS sale No. 60.

If oil is discovered and the area is developed for production, there are a number of ways in which oil may be transported to shore. Proposed and existing transportation routes are shown in figures 4 and 4a. In the most likely transportation scheme, any oil found in upper Cook Inlet would be transported via pipeline to the Nikiski terminal for refining. Oil found in the Barren Islands area and in Shelikof Strait would be pipelined to a terminal on the west side of Afognak Island. From there it would then be tankered out of the study area to refineries in the south. Oil found in the Gulf of Alaska would be tankered directly from platforms to refineries in the south, with the additional assumption that oil found in area P4 (see figure 2) would first be pipelined ashore at Cape Suckling. Also, oil found in area P7 (figure 2) would first be pipelined ashore at Yakutat, then tankered to the south.

For existing leases, oil found in Shelikof Strait follows the same route as in the proposal above, while any oil from existing leases in the Gulf of Alaska is assumed to be pipelined ashore to a facility in Yakutat and then tankered south.

Existing transportation in the study area includes tankering of crude oil from Valdez out of the area to the south and to Cook Inlet refineries, as well as tankering of refined products out of Cook Inlet to the south.

This analysis also considers an alternative in which all lease areas in Shelikof Strait are deleted from the proposal.

Environmental Resources

The locations of 31 categories of environmental resources (or targets, as they are designated in this paper) were digitized in the same coordinate system, or base map, as that used in trajectory simulations. Targets (shown in figure 5) were selected by MMS analysts in the Alaska OCS Region Office, who prepare the EIS. The biological concentration areas represent such resources as sea lions, birds, seals, fish, whales, and sea otters. All targets are considered to be vulnerable year-round in this analysis.

Because the trajectory model simulates an oilspill as a point, most targets have been given a slightly greater areal extent than they actually occupy. For example, some shoreline targets extend a short distance offshore; this allows the model to simulate a spill that approaches land, makes contact with the target, withdraws, and continues on its way.

To provide a more detailed analysis for land or land-based targets, the model includes a feature that allows subdividing the coastline into land segments. Figure 6 shows the coastline divided into 140 segments of approximately equal lengths.

Estimated Quantity of Oil Resources

Benefits and risks (as well as many environmental impacts) are functions of the volume of oil and are not independent of each other. Greater risks are associated with greater volumes of oil and greater economic benefits. If benefits are evaluated by assuming production of a specific amount of oil, then the corresponding risks should be stated in a conditional form such as, "the risks are ..., given that the volume is ...". If benefits are evaluated for a number of discrete volumes, then risks should likewise be calculated for the same volumes. Any statements about the likelihood of the presence of a particular volume of oil apply equally well to the likelihood of the corresponding benefits and risks.

The estimated oil resources used for oilspill risk calculations in this report correspond to those used by MMS in preparing the draft EIS for the lease offering. If oil is present in the proposal area, a conditional mean resource of 650 million barrels is estimated (Rioux, 1983). This volume is an estimate of the total undiscovered recoverable oil, given that hydrocarbons are indeed present and excluding State waters, previously leased tracts, and other areas excluded from the proposal. The conditional mean resource estimate for existing Federal leases is 205 million barrels (McMullin, 1983). We cannot overemphasize that both these estimates are based on the assumption that oil is present. If it is not present then, obviously, no oilspill risks exist from the proposed lease offering. The remainder of this analysis is designed to answer the question, "What are the risks if oil is found?"

In addition to the crude oil estimated to be produced over the 25-year expected life of the proposed leases, MMS estimates that 10.5 billion barrels of crude oil will be transported through the region by tankers from Valdez, and 70 million barrels of refined products will be tankered out of Cook Inlet to the south

Probability of Oilspills Occurring

The probability of oilspills occurring (given that oil is present) is based on the assumption that spills occur independently of each other as a Poisson process and with a rate derived from past OCS experience and dependent upon the volume of oil produced and transported. All types of accidental spills of 1,000 barrels or larger were considered in this analysis, including not only well blowouts, but also other accidents on platforms, and accidents during the transportation of oil to shore, and, in some cases, the further transportation of oil from an intermediate terminus to refineries. These types of accidents were classified as either platform, pipeline, or tanker spills. By including all of these risks, the risks of the proposal can be compared to those of the other alternatives.

Lanfear and Amstutz (1983) examined oilspill occurrence rates applicable to the U.S. OCS. Basing their results upon new, more recent, and more complete data bases than were available for earlier OSTA models, they recommended updated spill rates for pipeline spills and some significant changes in the spill rates for platforms and tankers. This analysis uses the new spill rates for all accident categories.

Spill rates for OCS platforms are based on the record for the U.S. OCS (Gulf of Mexico, and California) from 1964 through 1980, in which 5 spills of 10,000 barrels or larger are noted, along with 7 spills of 1,000 to 10,000 barrels in size. Nakassis (1982) conducted a statistical analysis of the record, 1964-1979, and concluded that the platform spill rate did not remain constant since 1964, but had decreased significantly. Using this trend analysis and updating for the 1980 data, the spill rate for platform spills of 1,000 barrels or larger is 1.0 spills per billion barrels produced; and the spill rate for platform spills of 10,000 barrels or larger is 0.44 spills per billion barrels produced. The rate for spills 1,000 to 10,000 barrels in size can be determined by subtraction, (0.56 spills per billion barrels produced).

As with platform spills, the spill rate for pipelines is based on the record for the U.S. OCS from 1964 through 1980. Two spills of 10,000 barrels or larger are in the data base, along with 6 spills of 1,000 to 10,000 barrels in size. No trend in the pipeline spill rate is evident. The spill rate for pipeline spills of 1,000 barrels or larger is 1.6 spills per billion barrels transported, and the rate for spills of 10,000 barrels or larger is 0.67 spills per billion barrels transported.

For tanker spill rates, earlier OSTA models for Alaska (LaBelle and others, 1980; Lanfear and others, 1979) used data for years prior to 1973. Using a new data base (The Futures Group, and World Information Systems, 1982) covering the years 1974 through 1980, Lanfear and Amstutz (1983) concluded that the tanker spill rate (expressed as spills per billion barrels transported) since 1974 was only about a third of that found prior to 1973. Thus, this oilspill analysis uses a significantly lower tanker spill rate than the earlier models. From 1974 through 1980, the data base contains records of 57 tanker spills of crude oil of

10,000 barrels or larger and another 57 spills of 1,000 to 10,000 barrels. During this period, approximately 88 billion barrels of oil were transported. Therefore, the spill rate for tanker spills of 1,000 barrels or larger is 1.3 spills per billion barrels transported; and the rate for spills of 10,000 barrels or larger is 0.65 spills per billion barrels transported.

In summary, the spill rates, expressed as number of spills per billion barrels produced or transported, used in this report are:

	$\geq 1,000$ bbl	$\geq 10,000$ bbl	1,000-10,000 bbl
Platforms	1.0	0.44	0.56
Pipelines	1.6	0.67	0.93
Tankers	1.3	0.65	0.65
At Sea	0.9	0.50	0.40
In Port	0.4	0.15	0.25

Oilspills ($\geq 1,000$ bbls) are considered to be governed by a Poisson process (Smith, and others, 1982, Lanfear and Amstutz, 1983); thus the probability of a specific number of spills ($p(n)$) occurring is described by the Poisson distribution:

$$p(n) = e^{-\lambda} \lambda^n / n!$$

where n is the specific number of spills (0, 1, 2, ..., n), e is the base of the natural logarithm and λ is the parameter of the Poisson distribution. In the case of oilspills, the Poisson parameter is equal to the product of the spill rate and the volume of oil to be produced or transported. The spill rate has dimensions of number of spills per billion barrels and the volume is expressed in billion barrels. Therefore, λ denotes the mean number of spills estimated to occur as a result of production or transportation of a specific volume of oil.

Oilspill occurrence estimates for spills greater than 1,000 barrels and for greater than 10,000 barrels were calculated for production and transportation of oil over the 25-year expected production life of proposed leases (table 1). Similar estimates were also calculated for production and transportation of oil from existing leases and for existing transportation of oil through the area. The assumption was made that only one-half of the spills from existing tanker transportation of oil would occur within the study area and that the other half of the spills would occur as tankers traveled beyond the study area. Table 1 shows the mean number of spills estimated to occur in the study area over the expected production life of the lease area, along with the probabilities of one or more such spills occurring.

In this report the "at sea" tanker spill rate (noted above) has been used in all computations. Thus, this oilspill risk analysis treats only

those tanker related spills that might occur within the oceanic portion of the study area. Tanker spills "in port" include all of those that might occur within bays, estuaries, harbors, and at pier sites. The estimated mean number of spills and probabilities of one or more spills from tankers "in port" are:

Source	Estimated Number		Probability of one or more	
	$\geq 1,000$ bbls	$\geq 10,000$ bbls	$\geq 1,000$ bbls	$\geq 10,000$ bbls
Proposal	0.06	0.02	0.06	0.02
Shelikof Del. Alt.	0.03	0.01	0.03	0.01
Existing Leases	0.04	0.02	0.04	0.02
Existing Tankering	2.15	0.80	0.88	0.55

Oilspill Trajectory Simulations

The trajectory simulation portion of the model consists of a large number of hypothetical oilspill trajectories that collectively represent both the general trend and the variability of winds and currents and that can be described in statistical terms. To simulate oilspill movement in the complex wind and current regime of the study area, two trajectory models were mathematically linked. The first was a model developed by Dames and Moore (1976) under the MMS (formerly BLM) Environmental Studies Program, specifically for the Cook Inlet area. This model was used in the present study to calculate trajectories within the boundaries shown in figure 7. Due to the coastal semi-enclosed nature of the study area, tidal forcing was considered to be a significant factor in surface transport behavior. The Dames and Moore model was employed because it had the capability to incorporate tidal currents in trajectory calculations. The model uses spatially dependent deterministic wind and current patterns to provide the driving force for trajectory movement. Tidal currents in Cook Inlet were represented by unidirectional tidal current constituents that were based on harmonic analyses of current measurements in combination with results of a tidal flow hydrodynamic model (Mungall and Matthews, 1973; Mungall, 1973). As such, the tidal currents in the model approximate "average" tidal current velocities throughout the study area. The net surface circulation was represented by winter and summer net current patterns derived from analyses of current measurements, published literature, and a previously developed net circulation pattern (Dames and Moore, 1979). Wind fields in the area were defined by five spatially dependent flow patterns and six intensity factors. The wind fields and intensity factors were correlated by the Pacific Marine Environmental Laboratory of NOAA to the 22 baric weather patterns developed by Putnins (1966). A catalog of approximately 19 continuous years of daily baric weather patterns (Putnins, P., Unpublished tabulation of daily weather types for Alaska from January 1, 1945 to March 31, 1963, University of Alaska) was converted to a corresponding wind pattern and intensity catalog.

A trajectory was initiated in the Dames and Moore model by randomly selecting a day/month/year within the desired season and entering the wind pattern and intensity catalog for that date. The wind field was

then sequenced every 24 hours according to the observed wind catalog. The net current pattern for that season was held constant for the duration of the trajectory simulation. The tidal current pattern was time-dependent with the initial tidal phase incremented 30° for each sequential trajectory. The wind-induced velocity vector of the slick centroid was taken to be colinear with the wind velocity and proportional to the wind speed. The proportionality constant was taken to be 3 percent. The current-induced velocity vector of the slick centroid was equal to the sum of the underlying net and tidal current velocity vectors. Each trajectory was simulated using a 30-minute time step to update wind and current velocity vectors. A complete description of the methodology, input data, and conclusions of this portion of the study are presented in Schleuter and Rauw (1980).

The second trajectory model was the MMS Oilspill Trajectory Analysis (OSTA) model, which was used to simulate the movement of any oilspills moving outside the boundaries of the Dames and Moore model and any spills originating in the Gulf of Alaska. The linking of the two models was essentially the same as used by LaBelle and others (1980) for an oilspill risk analysis of OCS sale 60, Cook Inlet/Shelikof Strait. The grid system of the OSTA model included the entire study area of the Dames and Moore model, and equations were derived to readily convert oilspill locations between the two coordinate systems. As the simulated oilspills were moved within either model, the tracking system of the OSTA model was used to record any contacts with targets. Oilspill movement continued until the spill hit land, moved off the map, or aged more than 30 days.

For the OSTA model, representations of surface water velocity fields in the Gulf of Alaska were provided by various sources. The diagnostic circulation model developed by Galt (1980) was used to calculate the seasonal surface circulation in portions of the Gulf near Kodiak Island (Galt and Watabayashi, 1980). In this model, the flow is assumed to be quasi-steady, and the dynamics are assumed to be controlled by a combination of geostrophic and Ekman flows and bathymetry. The geostrophic flow is separated into baroclinic and barotropic components. The baroclinic component is forced by the internal mass distribution. The barotropic component represents the large scale effect of wind set-up of the sea surface. These components of the geostrophic flow added together with a simple non-divergent surface Ekman layer are then assumed to represent the regional surface currents. In the northern Gulf, representations of the seasonal surface water velocity field, based on an analysis of hydrographic observations taken in the region, were provided by T. Royer, University of Alaska. Originally used in the oilspill risk analysis for OCS sale 55 (Lanfear and others, 1979), more recent information for the area near Kayak Island was made available for the present oilspill analysis (Royer, 1983). Finally, portions of the study area not covered by the above representations were modeled by use of surface current charts (U.S. Navy, 1977). These charts have been adopted from published atlases based on data compiled from ship drift reports. From these drift observations the sets and average speeds of the prevailing currents were calculated for each 1° quadrangle for the summer and winter seasons.

Also in the OSTA model, short-term patterns in wind variability were

characterized by seasonal probability matrices for successive 3-hour velocity transitions. A first-order Markov process with 41 wind-velocity states (eight compass directions by five wind-speed classes, and a calm condition) was assumed. The elements of this matrix are the probabilities, expressed as percent chance, that a particular wind velocity will be succeeded by another wind velocity in the next time step in a given season. If the present state of the wind is given, then the next wind state is derived by random sampling according to the percentages given in the appropriate row of the matrix. Seasonal wind-transition matrices were calculated from the U.S. Weather Service records from Data Buoy EBO-3 (station number 46001) located about 100 miles south of Kodiak Island; Middleton Island (station number 25402); and Sitka (station number 25333), Alaska. The study area was divided into zones so that a simulated oilspill would, depending upon its location, be directed according to the matrix of the appropriate wind station.

In the Gulf of Alaska, for each of the four seasons, one hundred hypothetical oilspill trajectories were simulated in Monte Carlo fashion from each of the proposed leasing areas shown in figure 2 (P1-P20); from each of the existing Federal lease tract groups shown in figure 3 (E1-E3); and from each of the locations along the transportation network T19-T44, figure 4). Each potential spill source was represented as either a single point, a straight-line with the potential spill sources uniformly distributed along the line (for example, a transportation route), or as an area (for example, the potential spill sources uniformly distributed within the area). Surface transport of the oil slick for each spill was simulated as a series of straight-line displacements of a point under the joint influence of winds and currents in 3-hour increments. The assumptions used are as follows: (1) the effects of wind and currents act independently; (2) only a fraction of the velocity of the wind, as a result of surface shear stress, is imparted to the body of oil; and (3) the direction of oilspill motion induced by the wind is at some angle to the direction of the wind (a result of the combined effects of Ekman, Langmuir, and Stokes drifts). The seasonal wind-transition probability matrix was randomly sampled each 3-hour period for a new wind speed and direction, and the current velocity was updated as the spill changed location or the simulated month changed. The wind-drift factor was taken to be 0.035 with a variable drift angle ranging from 0 to 25° clockwise. The drift angle was computed as a function of wind speed according to the formula in Samuels and others (1982); (the drift angle is inversely related to wind speed). All trajectories in Cook Inlet and Shelikof Strait were simulated by Dames and Moore, and originated at launch points P21-P38 (figure 2a) and T1-T18 (figure 4a). Launch point T1 also served to represent existing Federal leases from OCS sale 60 (see figure 3). From each of these launch points, a total of 400 trajectories were simulated (200 in the winter, October through March, and 200 in the summer, April through September).

The trajectories simulated by the model represent only hypothetical pathways of oil slicks and do not involve any direct consideration of cleanup, dispersion, or weathering processes that could determine the quantity or quality of oil that might eventually come in contact with targets. An implicit analysis of weathering and decay can be considered

by noting the age of simulated oilspills when they contact targets. For this analysis, three time periods were selected: 3, 10, and 30 days, to represent implicit measures of oil weathering, as well as matters relating to containment and cleanup.

When calculating probabilities from Monte Carlo trials, it is desirable to estimate the error associated with this technique. The standard deviation, s , for a particular binomial probability, p , is calculated as follows:

$$s = \text{SQRT}(p(1-p)/N)$$

where N = number of trials. The shape of this distribution approximates the normal curve. For practical purposes, the Monte Carlo error is small when $N = 400$, as in this analysis.

The probability that, if an oilspill occurs at a certain location, or launch point, it will contact a specific target within a given time of-travel (under the circumstances described above) is termed a conditional probability, because it is conditioned on oilspill occurrence. Each entry in tables 2, 3, and 4 represents the probability (expressed as percent chance) that, if a spill occurs at a certain launch point, it will contact a particular target within 3, 10, or 30 days, respectively. Tables 5, 6, and 7 present similar probabilities for land segments.

Combined Analysis of Oilspill Occurrence and Oilspill Trajectory Simulations

In calculating the combined or "overall" probabilities of both spill occurrence and contact, the following steps are taken:

(1) For a set of nt targets and nl launch points, the conditional probabilities can be represented in a matrix form. Let $[C]$ be an $nt \times nl$ matrix, where each element $c(j,k)$ is the probability that an oilspill will hit target j , given that a spill occurs at launch point j . Note that launch points can represent potential spill starting points from production areas on transportation routes.

(2) Spill occurrence can be represented by another matrix $[S]$. With nl launch points and ns production sites; the dimensions of $[S]$ are $nl \times ns$. Let each element $s(j,k)$ be the estimated mean number of spills occurring at launch point j due to production of a unit volume of oil at site k . These spills result from either production or transportation. The $s(j,k)$ can be determined as functions of the volume of oil (spills per billion barrels). Each column of $[S]$ corresponds to one production site and one transportation route. If alternative and mutually exclusive transportation routes are considered for the same production site, they can be represented by additional columns of $[S]$, effectively increasing ns .

(3) Define matrix $[U]$ as:

$$[U] = [C] \times [S].$$

Matrix $[U]$, which has dimensions $n_t \times n_s$, is termed the unit risk matrix because each element $u(i,k)$ corresponds to the estimated mean number of spills occurring and contacting target i owing to the production of a unit volume of oil at site k .

(4) With $[U]$, it is a relatively simple matter to estimate the mean contacts to each target, given a set of oil volumes at each site. Let $[V]$ be a vector of dimension n_s , where each element $v(k)$ corresponds to the volume of oil expected to be found at production site k . Then, if $[L]$ is a vector of dimension n_t , where each element $l(i)$ corresponds to the mean number of contacts to target i :

$$[L] = [U] \times [V].$$

Thus, estimates of the mean number of oilspills that will both occur and contact targets (or land segments) can be calculated. (Note that as a statistical parameter, the mean number can assume a fractional value, even though fractions of oilspills have no physical meaning.)

Using Bayesian techniques, Devanney and Stewart (1974) showed that the probability of n oilspill contacts can be described by a negative binomial distribution. Smith and others (1982), however, noted that when actual exposure is much less than historical exposure, as is the case for most oilspill risk analyses, the negative binomial distribution can be approximated by a Poisson distribution. The Poisson distribution has a significant advantage in calculations because it is defined by only one parameter, the expected (mean) number of spills. The matrix $[L]$ thus contains all the information needed to use the Poisson distribution: if $P(n,i)$ is the probability of exactly n contacts to target i , then:

$$P(n,i) = [l(i)^n \cdot \exp(-l(i))] / n!$$

A critical difference exists between the conditional probabilities calculated in the previous section and the overall probabilities calculated in this section. Conditional probabilities depend only on the winds and currents in the study area -- elements over which the decisionmaker has no control. Overall probabilities, on the other hand, depend not only on the physical conditions, but also on the course of action chosen by the decisionmaker; that is, choosing to sell or not to sell the lease tracts. The overall probabilities for this analysis are presented in the following tables:

Tables 8 and 9 compare the probabilities of one or more oilspills (greater than 1,000 barrels) and the expected numbers (means) of such oil spills occurring and contacting targets and land segments within periods 3, 10, and 30 days over the expected production life of the lease area, based on the conditional mean volume scenario previously discussed (0.65 billion barrels). For each time period, the tables present an analysis of: (1) the proposed action; (2) existing leases and existing tankering of oil over the assumed production life of 25 years; and (3) a cumulative analysis of all three factors. It is useful to compare the probabilities of spills occurring and contacting targets

over the expected production life of the proposed area with the risks from existing leases and existing tanker transportation of oil. In this way the relative effect of adding proposed tracts to the study area may be examined.

Tables 10 and 11 are arranged in a similar fashion, but present overall probabilities based on the conditional mean volume scenario, as modified by the Shelikof deletion alternative (0.53 billion barrels).

Overall probabilities were also calculated on the basis of oilspills greater than 10,000 barrels. Appendix A presents the overall probabilities for spills greater than 10,000 barrels as follows: Tables A-1 and A-2 show probabilities of such large spills occurring and contacting targets and land segments, respectively, based on the conditional mean volume scenario. Likewise, tables A-3 and A-4 present such probabilities based on the conditional mean volume scenario as modified by the Shelikof deletion alternative.

Conclusions

This analysis characterizes the oilspill risks associated with the Gulf of Alaska/Cook Inlet lease offering (October 1984). For the conditional mean volume scenario, the proposed lease offering will result in an estimated 0.65 billion barrels of oil being found and produced over a period spanning 25 years. There is a 32 percent chance that no spills of 1,000 barrels or larger will occur and contact land. There is a 68 percent chance that sometime during this 25-year period 1 to 4 spills (most likely, 1 or 2) of 1,000 barrels or larger could occur because of the proposed lease offering and contact land after being at sea less than 30 days. The risks from spills would be mitigated to the extent that weathering and decay of oil occurs at sea, and by the success of any spill countermeasures which would be attempted; these effects were not directly included in this oilspill model, but should be considered in translating the spill contacts predicted by this study into spill impacts for environmental analysis.

For purposes of comparison, risks from existing sources of potential oilspills were also characterized over the same 25-year period as the proposed leases. These risks include all existing oil and gas leases as well as existing tanker transportation of Alaskan crude oil; together they represent more than 10.8 billion barrels produced and/or transported over 25 years. There is an 83 percent chance that over the next 25 years these existing sources will result in 1 to 5 spills (most likely, 2 or more) of 1,000 barrels or larger occurring and contacting land. (Again, these estimates do not include weathering or spill countermeasures.) While the mean numbers of overall spill contacts are similar (1.2 for the proposed lease offerings vs 1.8 for existing risks), the wide distribution of risk from the proposal results in no higher than an 8 percent chance of one or more spills (1,000 barrels) occurring and contacting any land segment. Existing risks are more concentrated near Prince William Sound and in Cook Inlet due to existing tankering of oil from Valdez.

The Shelikof deletion alternative results in less overall risk than

the proposal, in that contacts to land in Shelikof Strait are eliminated. However, the highest probability of contact to any land segment in Shelikof Strait (from the proposal) is only 6 percent.

When only spills of 10,000 barrels or greater are considered, the probabilities of spill occurrence and contact from the proposal are roughly halved.

References Cited

- Dames and Moore, 1976, Report, oilspill trajectory analysis, Lower Cook Inlet, Alaska: Prepared for National Oceanic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program, Bering Sea - Gulf of Alaska Project Office, Juneau, Alaska, Job Number 6797-003-20.
- _____, 1979, Report, oilspill trajectory analysis Lower Cook Inlet, Alaska: Prepared for National Oceanic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program, Bering Sea - Gulf of Alaska Project Office, Juneau, Alaska, Job Number 6797-011-02.
- Devanney, M. W., III, and Stewart, R. J., 1974, Analysis of oilspill statistics, April 1974: Massachusetts Institute of Technology (Cambridge) report no. MITSG-74-20 prepared for the Council on Environmental Quality, 126 p.
- Galt, J.A., 1980, A finite-element solution procedure for the interpolation of current data in complex regions: Journal of Physical Oceanography, V. 10, No. 12 p. 1984-1997.
- Galt, J.A., and Watabayashi, G., 1980, Modeling report to OCSEAP for RV 140. Seattle, Wash., National Oceanic and Atmospheric Administration, Pacific Marine Environmental Laboratory, 53 pp.
- LaBelle, R.P., Samuels, W.B., and Lanfear, K.J., 1980, An oilspill risk analysis for the Cook Inlet and Shelikof Strait (Proposed Sale 60) Outer Continental Shelf lease area: U.S. Geological Survey Open-File Report 80-863, 83 p.
- Lanfear, K. J. and Amstutz, D. E., 1983, A reexamination of occurrence rates for accidental oilspills on the U.S. Outer Continental Shelf: Proceedings of the Eighth Conference on the Prevention, Behavior, Control, and Cleanup of Oil Spills, San Antonio, Texas, February 28-March 3, 1983.
- Lanfear, K.J., Nakassis, A., Samuels, W. B., and Schoen, C.T., 1979, An oilspill risk analysis for the Northern Gulf of Alaska (Proposed Sale 55) Outer Continental Shelf lease area: U.S. Geological Survey Open-File Report 79-1284, 79 p.
- Lanfear, K. J., and Samuels, W. B., 1981, Documentation and user's guide to the U.S. Geological Survey oilspill risk analysis model: Oilspill trajectories and the calculation of conditional probabilities: U.S. Geological Survey Open-File Report 81-316, 95 p.
- Lanfear, K. J., Smith, R. A., and Slack, J. R., 1979, An introduction to the oilspill risk analysis model: Proceedings of the Offshore Technology Conference, 11th, Houston, Tex., 1979, OTC 3607, p. 2173-2175.

- McMullin, R.H., 1983, Memorandum to Regional Supervisor, Offshore Leasing and Environment, from Acting Regional Supervisor, Offshore Resource Evaluation Division, Department of the Interior, July 28, 1983.
- Mungall, J.C.H., 1973, Cook Inlet tidal stream atlas: University of Alaska, Fairbanks, Alaska, Institute of Marine Science, Technical Report R73-2.
- Mungall, J.C.H., and Matthews, J.B., 1973, Numerical tidal models with unequal grid spacing: University of Alaska, Fairbanks, Alaska, Institute of Marine Science, Technical Report R73-2.
- Nakassis, A., 1982, Has offshore oil production become safer?: U.S. Geological Survey Open-File Report 82-232, 27 p.
- Putnina, P., 1966, Studies on the meteorology of Alaska: First Interim Report (The sequences of baric weather patterns over Alaska), U.S. Dept. Commerce, ESSA/EDS, Silver Spring, Maryland.
- Rioux, R.L., 1983, Memorandum to Regional Manager, Alaska OCS Region, from Associate Director for Offshore Minerals Management, Department of the Interior, January 17, 1983.
- Royer, T., 1983, Topographic control of circulation in the northern Gulf of Alaska: Unpublished manuscript, Institute of Marine Science, University of Alaska at Fairbanks.
- Samuels, W. B., Huang, N. E., and Amstutz, D. E., 1982, An oilspill trajectory analysis model with a variable wind deflection angle: Ocean Engineering, v. 9, p. 347-360.
- Schleuter, R.S., and Rauw, C.I., 1980, Final Report - Task 1, Oilspill trajectory simulation Lower Cook Inlet - Shelikof Strait, Alaska: Bering Sea - Gulf of Alaska Project Office, Outer Continental Shelf Environmental Assessment Program. Dames and Moore, Job No. 06797-014-88.
- Smith, R.A., Slack, J.R., Wyant, T., and Lanfear, K.J., 1982, The oilspill risk analysis model of the U.S. Geological Survey: U.S. Geological Survey Professional Paper 1227, 40 p.
- The Futures Group, and World Information Systems, 1982, "Final technical report, Outer Continental Shelf Oil Spill Probability Assessment, Volume I: Data collection report," Prepared for the U.S. Department of the Interior. Bureau of Land Management, under contract number AA851-CTO-69, The Futures Group, Glastonbury, Conn., 69 p.
- U.S. Navy, 1977, U.S. Navy Marine Climatic Atlas of the World: Volume II, North Pacific Ocean, NAVAIR 50-1C-529, March, 1977.

List of Illustrations

<u>Figure</u>	<u>Page</u>
1. Map showing the Gulf of Alaska/Cook Inlet lease offering study area and the proposed leasing areas. -----	16
2. Map showing the proposed leasing areas (numbered P1-P20) for the Gulf of Alaska/Cook Inlet lease offering. -----	17
2a. Enlargement of subset of Figure 2, showing trajectory launch points in the Cook Inlet/Shelikof Strait proposed leasing area (P21-P38). -----	18
3. Map showing the existing Federal lease tract groups (E1-E3,T1) in the study area. -----	19
4. Map showing the transportation route segments; T1-T7, T15-T18, T37-T44 represent pipelines; T8-14, T19-T36 represent tanker routes. -----	20
4a. Enlargement of subset of Figure 4, showing numbered transportation route segments in Cook Inlet/Shelikof Strait. -----	21
5. Map showing the locations of 31 targets, Biological Concentration Areas: crosshatching indicates areal extent. -----	22
6. Map showing the division of the shoreline into 140 segments of approximately equal lengths. -----	23
7. Map showing the boundaries of the Dames and Moore trajectory model. -----	24

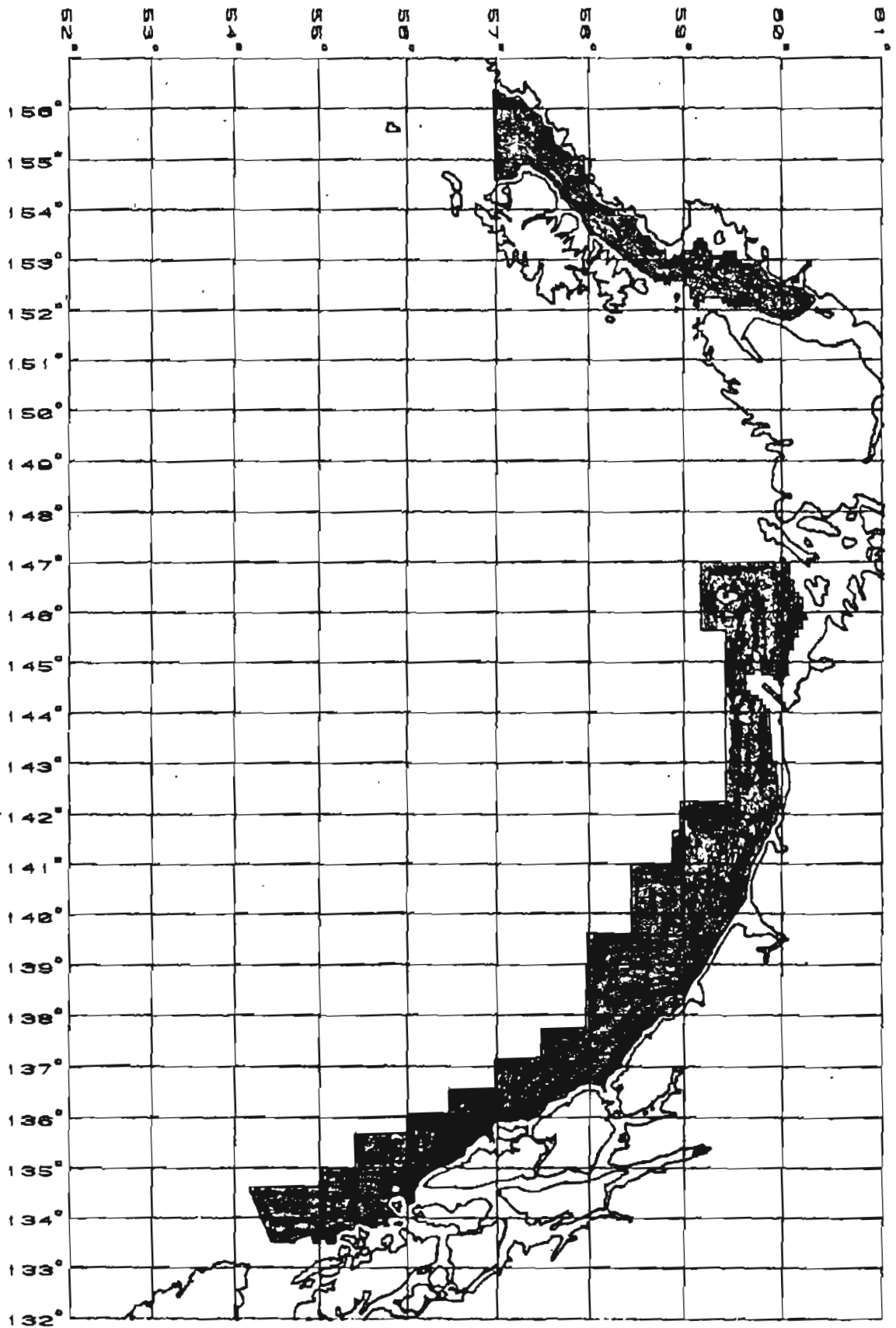


Figure 1. -- Map showing the Gulf of Alaska/Cook Inlet lease offering study area and the proposed leasing areas.

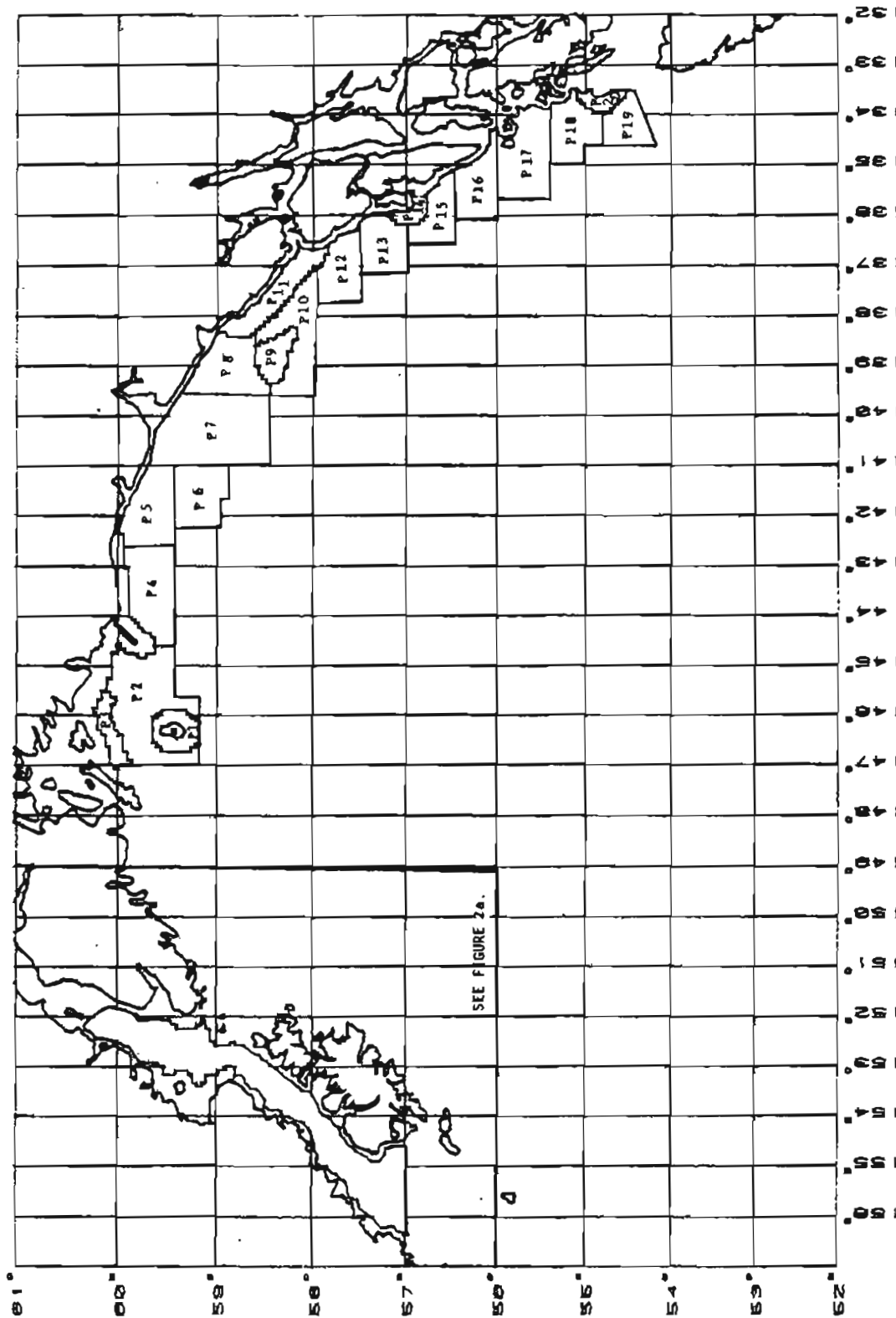


Figure 2. -- Map showing the proposed leasing areas (numbered P1-P20) for the Gulf of Alaska/
Cook Inlet lease offering.

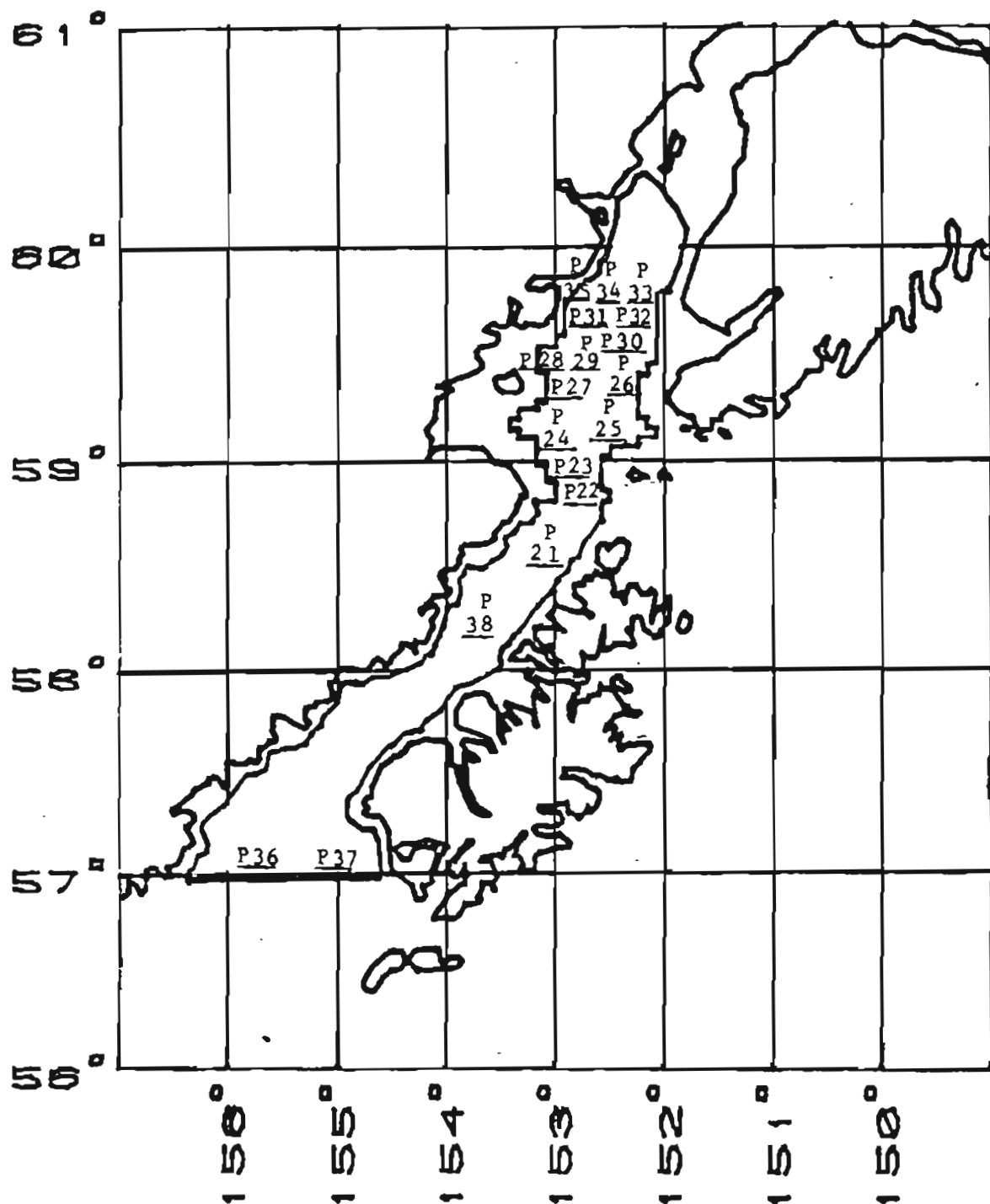


Figure 2a. -- Enlargement of subset of Figure 2, showing trajectory launch points in the Cook Inlet/Shellikof Strait proposed leasing area (P21-P38).

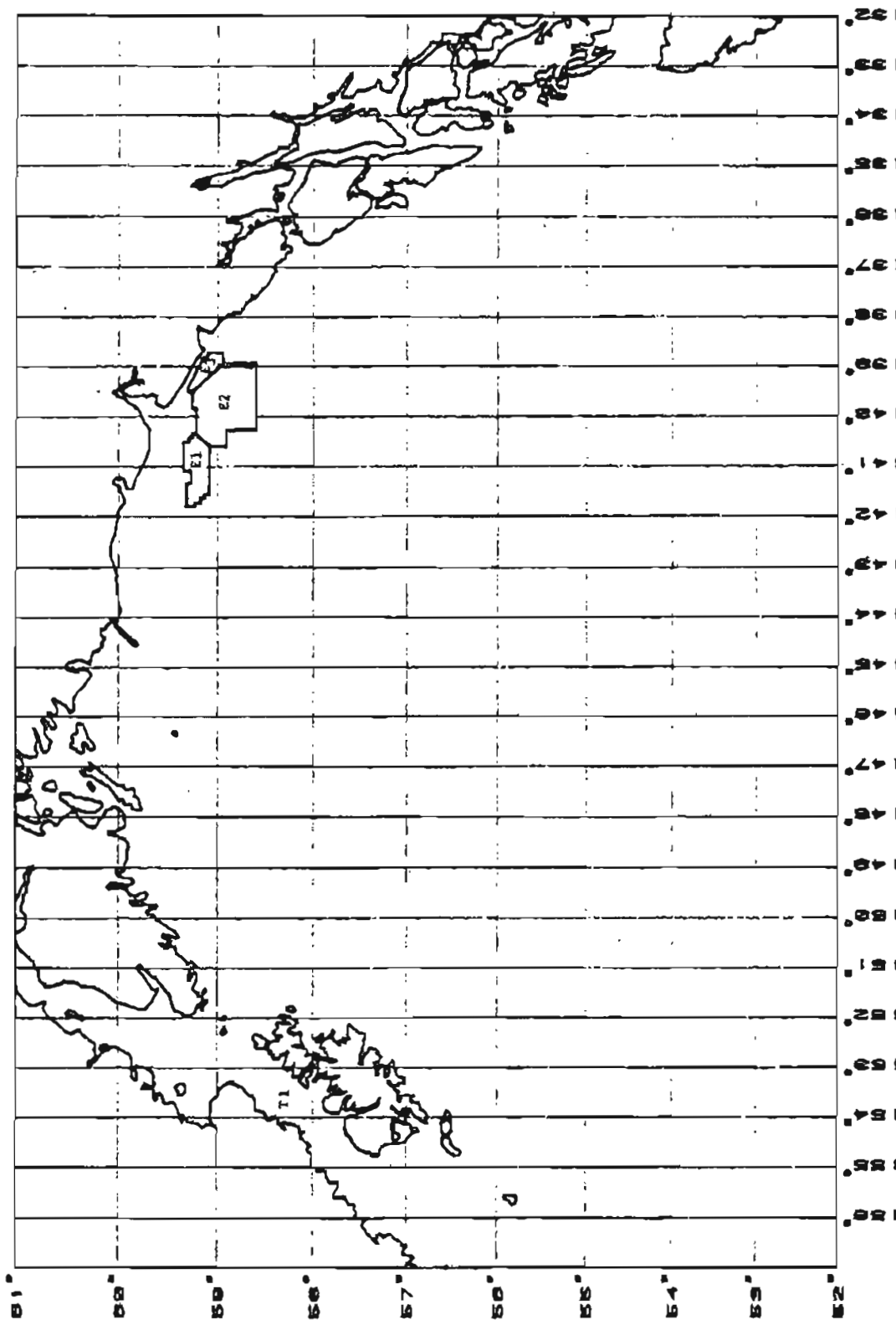


Figure 3. -- Map showing the existing Federal lease tract groups (E1-E3, T1) in the study area

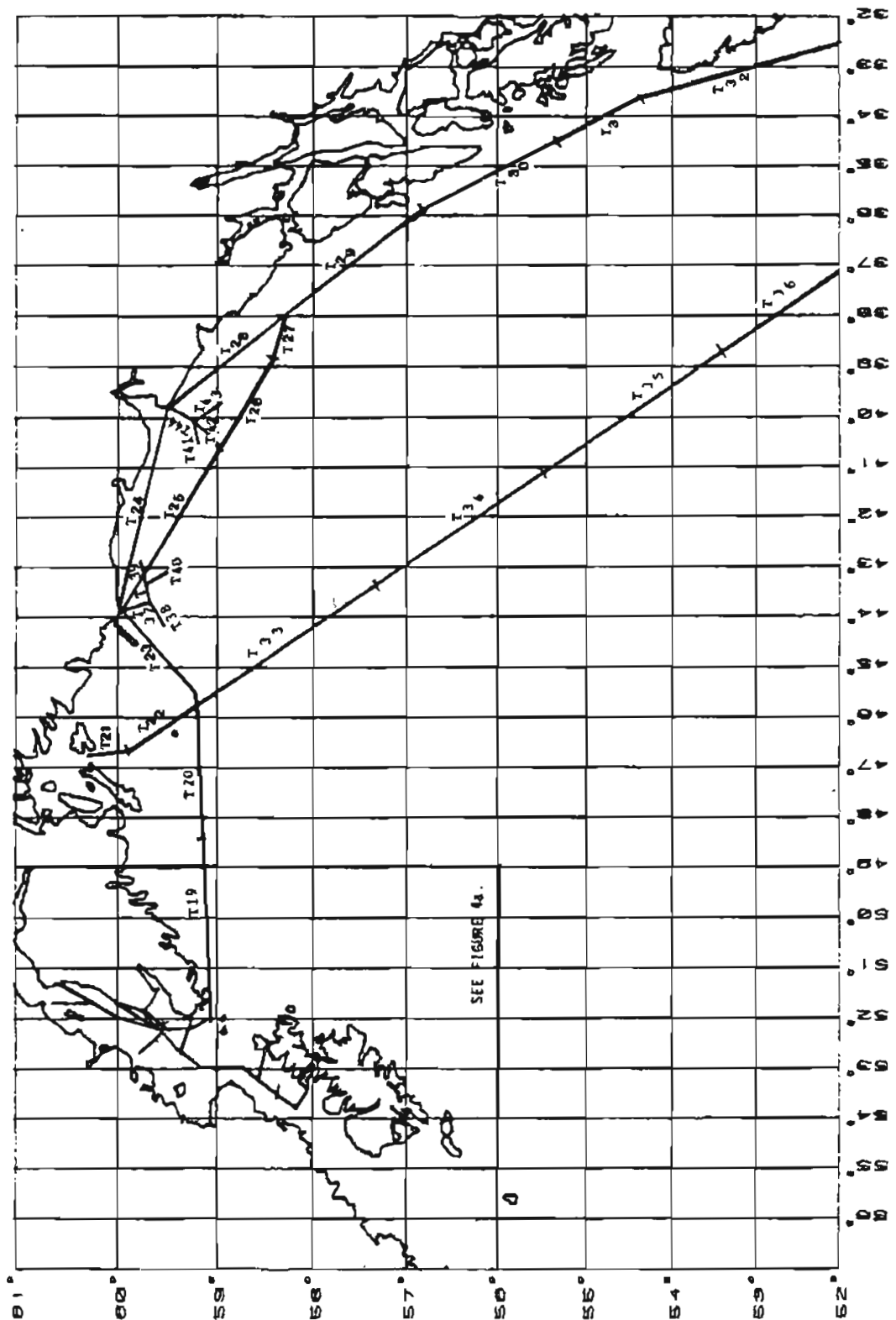


Figure 4. -- Map showing the transportation route segments; T1-T7, T15-T18, T37-T44 represent pipelines; T8-T14, T19-T36 represent tanker routes.

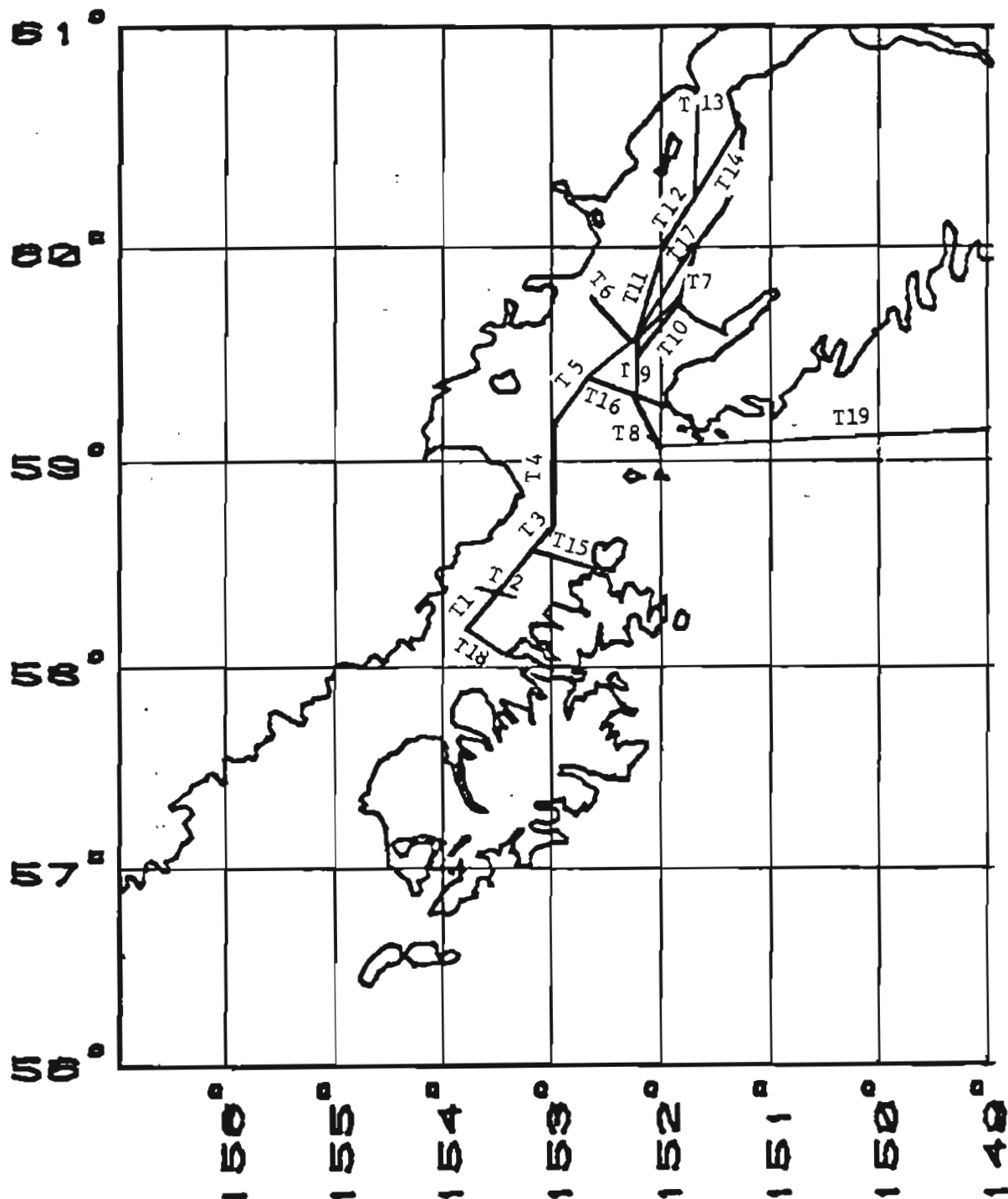


Figure 4a. -- Enlargement of subset of Figure 4, showing numbered transportation route segments in Cook Inlet/Shelikof Strait.

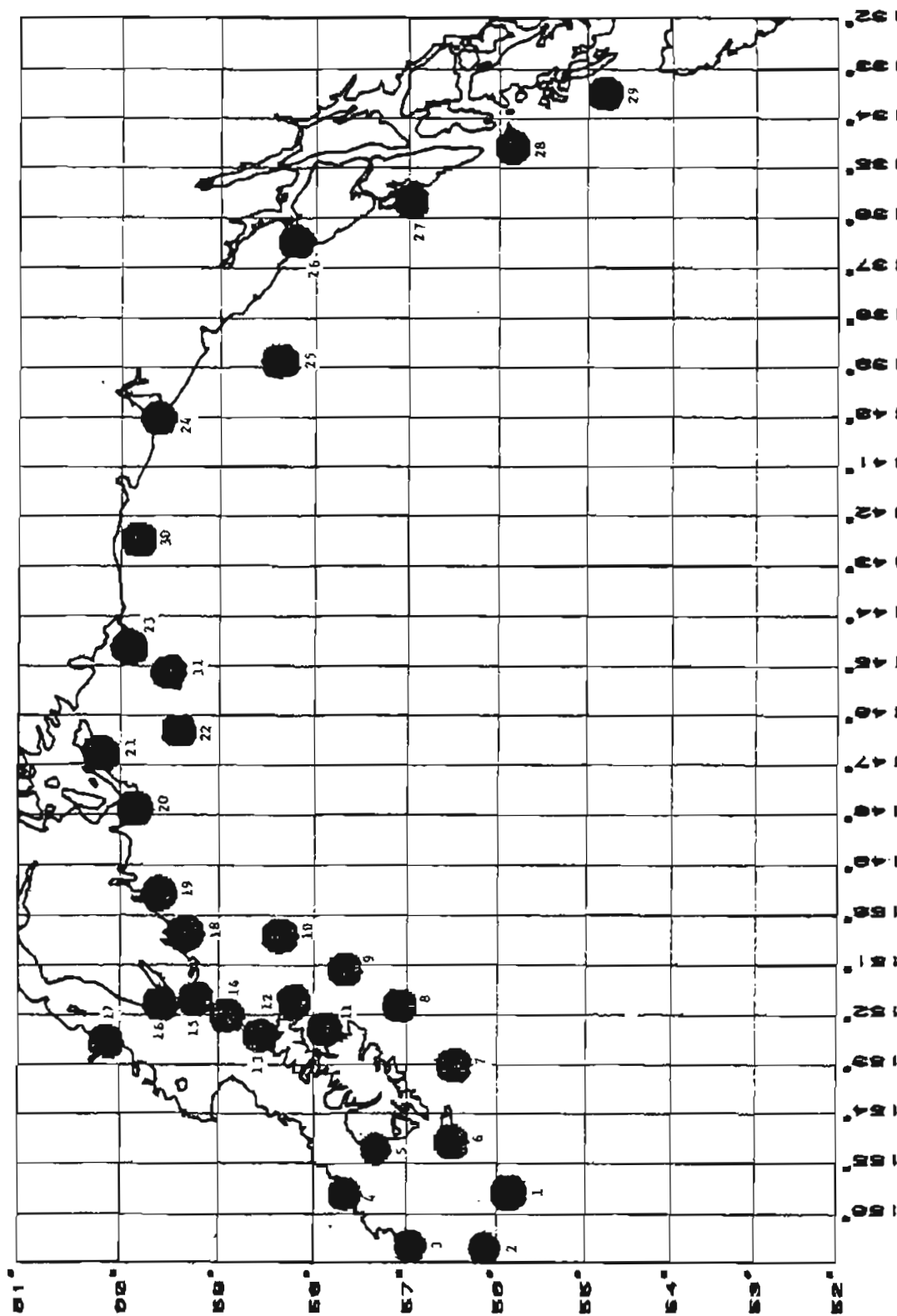


Figure 5. -- Map showing the locations of 31 targets, Biological Concentration Areas: crosshatching indicates areal extent.

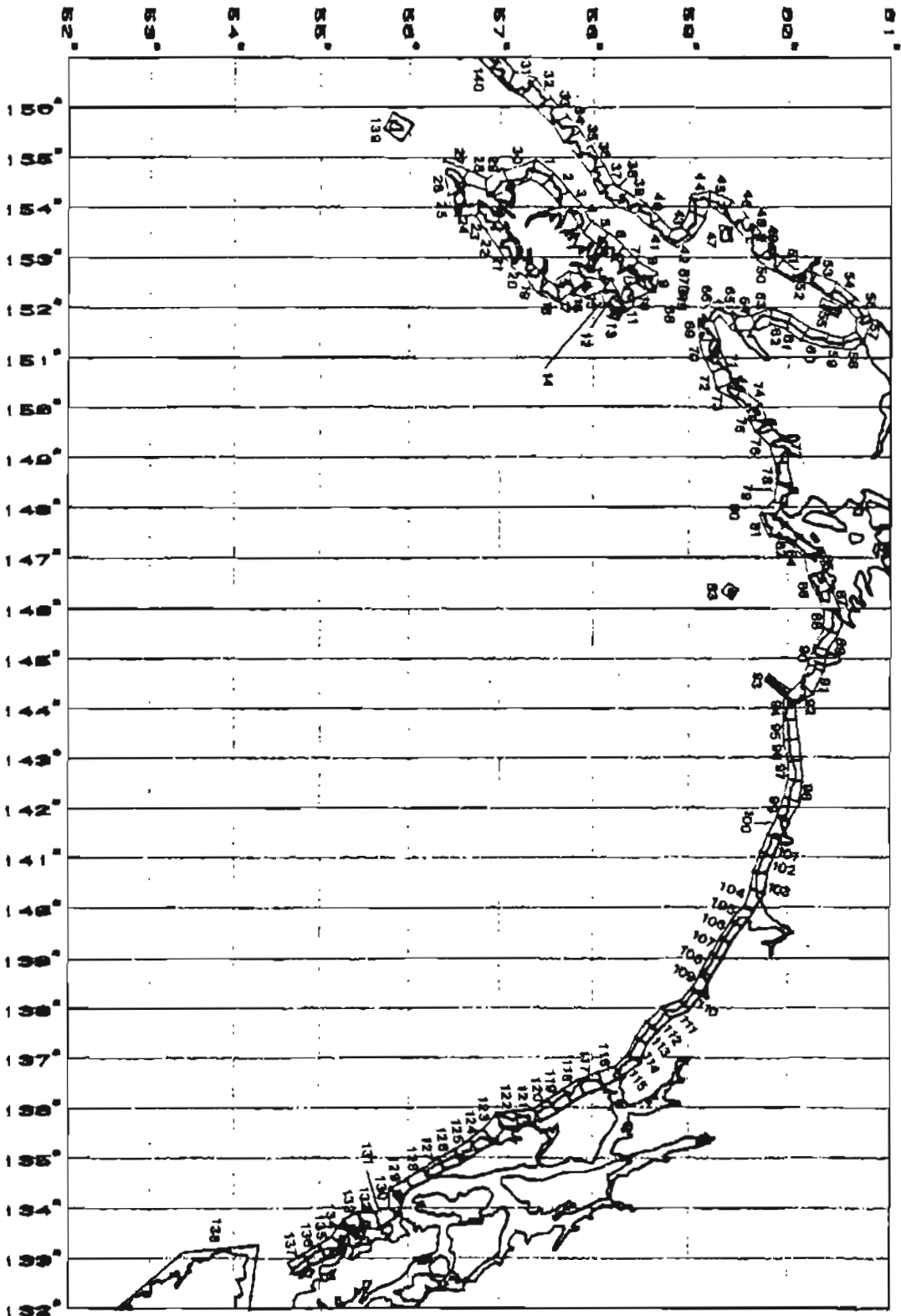


Figure 6. -- Map showing the division of the shoreline into 140 segments of approximately equal lengths.

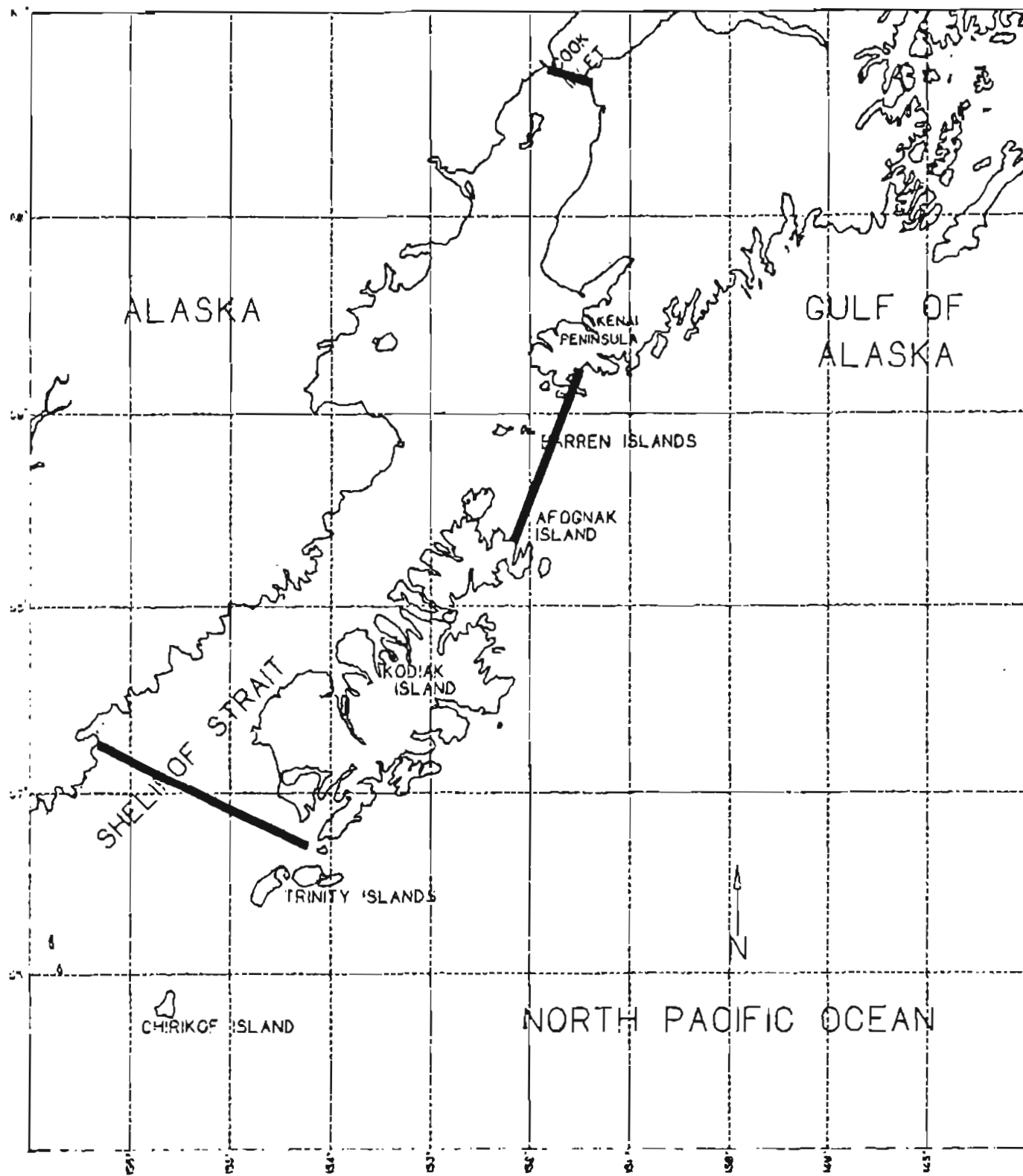


Figure 7.--Map showing the boundaries of the Dames and Moore trajectory model.

List of Tables

<u>Table</u>		<u>Page</u>
1.	Oilspill occurrence estimates for spills greater than 1,000 and 10,000 barrels resulting over the expected production life of the proposed leases, from existing leases, and from existing oil transportation in the study area. -----	27
2.	Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 3 days. -----	28
3.	Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 10 days. -----	32
4.	Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 30 days. -----	36
5.	Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days. -----	40
6.	Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days. -----	47
7.	Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 30 days. -----	54
8.	Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, conditional mean volume scenario. -----	62

List of Tables (Continued)

Page

- | | | |
|-----|--|----|
| 9. | Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario. ----- | 63 |
| 10. | Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, conditional mean volume scenario, Shelikof deletion alternative. ----- | 65 |
| 11. | Probabilities (expressed as percent chance) one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario, Shelikof deletion alternative. -- | 66 |

Table 1. -- Oilspill occurrence estimates for spills greater than 1,000 and 10,000 barrels resulting over the expected production life of the proposed leases, from existing leases, and from existing oil transportation in the study area.

	<u>PROPOSAL</u>	<u>SHELIKOF DELETION ALTERNATIVE</u>	<u>EXISTING LEASES</u>	<u>EXISTING TANKERING</u>
Assumed amount of oil (Bbbls)	0.65	0.53	0.21	10.59
Est. mean number of spills ≥1,000 barrels from:				
Platforms	0.65	0.53	0.21	---
Transportation	0.76	0.52	0.42	4.83
Total	1.41	1.05	0.63	4.83
Probabilities of one or more spills ≥1,000 barrels from:				
Platforms	0.48	0.41	0.19	---
Transportation	0.53	0.41	0.34	0.99
Total	0.76	0.65	0.47	0.99
Est. mean number of spills ≥10,000 barrels from:				
Platforms	0.29	0.23	0.09	---
Transportation	0.36	0.25	0.19	2.68
Total	0.65	0.48	0.28	2.68
Probabilities of one or more spills ≥10,000 barrels from:				
Platforms	0.25	0.21	0.09	---
Transportation	0.30	0.22	0.17	0.93
Total	0.48	0.38	0.24	0.93

Table 2. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 3 days.

Target	Hypothetical Spill Location																															
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25							
Land	21	11	44	22	28	n	11	18	n	n	22	n	1	19	20	41	38	17	n	18	54	41	50	53	41							
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	16	19	4	10	n	n	n	n	n	n	n	n
Biol. Conc. Area 14	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	11	21	8	16	n	n	n	n	n	n	n
Biol. Conc. Area 15	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 16	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 18	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 19	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 20	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 21	1	5	43	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 22	68	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 23	n	8	n	11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 24	n	n	n	n	n	n	9	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 25	n	n	n	n	n	n	2	7	69	22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n	n	7	n	n	64	33	39	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 30	n	n	n	13	38	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 31	1	18	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Note: n = Greater than 99.5 percent; n = less than 0.5 percent.

Table 2. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 3 days.

Target	Hypothetical Spill Location																																
	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	P36	P37	P38	P39	P40	P41	P42	P43	P44	P45	P46	P47	P48	P49	P50	P51	P52	P53	P54	P55	P56	P57	P58
Land	25	47	65	49	46	50	37	14	59	82	47	36	84	11	74	72	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Conc. Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Note: * = Greater than 99.5 percent; n = less than 0.5 percent.

Table 2. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 3 days.

Target	Hypothetical Spill Location																																		
	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31	T32	T33	T34	T35	T36	T37	T38										
Land	67	83	75	66	83	39	6	71	19	34	61	15	n	n	n	23	n	41	1	59	n	n	n	58	21										
Biological Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 4	n	1	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 5	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 13	n	48	3	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 14	n	1	13	3	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 15	n	n	14	7	n	17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 16	2	n	12	26	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 17	6	n	2	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 18	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 19	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 20	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 21	n	n	n	n	n	n	n	88	6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 22	n	n	n	n	n	n	22	n	34	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 23	n	n	n	n	n	n	n	n	n	24	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 24	n	n	n	n	n	n	n	n	n	n	17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 25	n	n	n	n	n	n	n	n	n	n	n	n	25	30	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 26	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	54	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	23	43	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 30	n	n	n	n	n	n	n	n	n	n	n	26	n	n	n	n	n	33	52	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biological Area 31	n	n	n	n	n	n	1	n	3	37	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3

Note: * = Greater than 99.5 percent; n = less than 0.5 percent.

Table 2. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 3 days.

Target	Hypothetical Spill Location											
	139	140	141	142	143	144	E1	E2	E3			
Land	28	11	6	6	5	42	n	3	42			
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 3	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 4	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 5	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 10	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 12	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 13	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 14	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 15	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 16	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 17	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 18	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 19	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 20	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 21	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 22	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 23	3	2	n	n	n	n	n	n	n			
Biol. Conc. Area 24	n	n	8	5	4	47	1	1	4			
Biol. Conc. Area 25	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n			
Biol. Conc. Area 30	24	9	n	n	n	n	2	n	n			
Biol. Conc. Area 31	n	n	n	n	n	n	n	n	n			

Note: n = Greater than 99.5 percent; n = less than 0.5 percent.

Table 3. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 10 days.

Target	Hypothetical Spill Location																								
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25
Land	54	53	89	61	68	13	27	38	6	6	61	7	3	20	21	47	59	60	43	73	92	87	89	91	90
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	1	1	1	1
Biol. Conc. Area 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	1
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n
Biol. Conc. Area 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n
Biol. Conc. Area 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	24	9	14	4
Biol. Conc. Area 14	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	15	23	12	22	2
Biol. Conc. Area 15	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3
Biol. Conc. Area 16	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3
Biol. Conc. Area 17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 18	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 19	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 20	10	5	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 21	8	19	54	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 22	71	13	1	1	26	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 23	n	n	n	n	n	n	14	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 24	n	n	n	n	n	n	4	11	75	41	n	16	18	2	18	9	3	n	n	n	n	n	n	n	n
Biol. Conc. Area 25	n	n	n	n	n	n	n	n	n	n	11	1	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n	n	n	n	n	64	33	39	31	22	13	33	n	n	n	n	n
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	39	53	41	49	n	n	n	n	n
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	11	71	n	n	n	n	n
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 30	n	n	n	n	20	17	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 31	5	20	n	11	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Note: * = Greater than 99.5 percent; n = less than 0.5 percent.

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 10 days.

Target	Hypothetical Spill Location																								
	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	P36	P37	P38	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13
Land	87	90	95	93	92	94	92	83	97	99	86	85	98	98	96	95	96	98	95	91	96	95	95	97	95
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 3	n	n	n	n	n	n	n	n	n	n	4	6	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 4	n	1	1	1	1	1	1	1	n	1	16	13	4	4	3	1	1	1	1	1	1	n	n	n	n
Biol. Conc. Area 5	1	n	n	n	n	n	n	n	n	1	19	26	1	1	1	n	n	n	n	n	1	n	n	n	n
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n	n	3	9	n	n	n	1	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 12	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 13	3	8	6	8	4	4	4	5	5	3	n	n	2	3	17	18	7	2	5	8	5	3	3	2	2
Biol. Conc. Area 14	11	12	4	10	9	6	6	6	5	2	n	n	n	n	2	13	11	8	6	69	11	6	5	3	2
Biol. Conc. Area 15	6	1	n	n	1	n	2	12	5	3	n	n	n	n	n	n	2	3	7	12	20	15	9	4	1
Biol. Conc. Area 16	13	1	n	n	1	n	2	30	3	29	n	n	n	n	n	n	3	3	49	13	35	72	9	6	n
Biol. Conc. Area 17	4	n	n	n	3	5	14	6	13	n	n	n	n	n	n	n	6	23	7	2	2	5	10	8	n
Biol. Conc. Area 18	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 19	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 20	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 23	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 24	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 25	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 30	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 31	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Note: n = greater than 99.5 percent; n = less than 0.5 percent.

Table 3. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 10 days.

Target	Hypothetical Spill Location																																	
	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138									
Land	96	96	95	96	98	99	28	91	55	57	86	48	6	7	49	4	45	58	92	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 3	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 4	n	2	1	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 5	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 13	n	49	4	5	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 14	1	2	15	5	n	7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 15	1	n	20	9	n	19	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 16	3	n	12	27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 17	9	n	3	7	n	32	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 18	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 19	n	n	n	n	n	3	10	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 20	n	n	n	n	n	n	5	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 21	n	n	n	n	n	n	1	92	21	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 22	n	n	n	n	n	n	31	n	41	11	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 23	n	n	n	n	n	n	n	n	1	33	1	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 24	n	n	n	n	n	n	n	n	n	n	17	1	3	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 25	n	n	n	n	n	n	n	n	n	n	n	n	29	34	1	3	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 30	n	n	n	n	n	n	n	n	n	n	n	30	29	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	
Biol. Conc. Area 31	n	n	n	n	n	n	5	n	9	43	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Note: n = Greater than 99.5 percent; n = Less than 0.5 percent.

Table 3. (Continued) -- Probabilities (expressed as percent chance) that an oilspill(starting at a particular location will contact a certain target within 10 days.

Target	Hypothetical Spill Location														
	T59	T40	T41	T42	T43	T44	E1	E2	E3						
Land	73	57	63	35	31	73	24	21	69						
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 3	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 4	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 5	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 10	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 12	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 13	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 14	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 15	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 16	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 17	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 18	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 19	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 20	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 21	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 22	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 23	11	12	n	n	n	n	n	n	n						
Biol. Conc. Area 24	n	n	23	16	15	54	6	7	9						
Biol. Conc. Area 25	n	n	n	n	1	n	n	8	1						
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n						
Biol. Conc. Area 30	51	21	6	5	4	5	18	3	n						
Biol. Conc. Area 31	5	4	n	n	n	n	n	n	n						

Note: n = Greater than 99.5 percent; n = less than 0.5 percent.

Table 6. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 30 days.

Target	Hypothetical Spill Location																																			
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25											
Land	89	93	..	93	93	67	76	77	52	48	94	49	42	55	43	65	71	70	61	83	..	98	99	99	99											
Biol. Conc. Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	1	1	2											
Biol. Conc. Area 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n											
Biol. Conc. Area 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 10	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	1											
Biol. Conc. Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	1											
Biol. Conc. Area 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	21	26	10	15	3											
Biol. Conc. Area 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	13	26	13	22											
Biol. Conc. Area 14	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	3											
Biol. Conc. Area 15	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 16	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 18	3	2	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 19	8	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 20	13	10	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 21	14	23	55	6	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 22	72	15	1	4	1	3	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 23	3	16	1	35	4	13	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 24	n	n	n	n	n	2	18	9	6	3	2	2	2	1	2	1	1	n	n	n	n	n	n	n	n											
Biol. Conc. Area 25	n	n	n	n	n	n	3	13	77	47	n	29	40	19	49	23	21	20	23	6	n	n	n	n	n											
Biol. Conc. Area 26	n	n	n	n	n	n	n	n	n	1	14	5	1	1	1	1	n	n	n	n	n	n	n	n	n											
Biol. Conc. Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	66	35	39	31	22	15	33	n	n	n	n	n											
Biol. Conc. Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	39	53	41	49	n	n	n	n	n											
Biol. Conc. Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	11	71	n	n	n	n	n											
Biol. Conc. Area 30	n	n	n	23	55	32	18	9	5	7	n	n	2	n	1	n	1	n	n	n	n	n	n	n	n	n										
Biol. Conc. Area 31	6	21	n	14	4	12	3	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n											

Note: n = Greater than 99.5 percent; n = less than 0.5 percent.

Table 4. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 30 days.

Target	Hypothetical Spill Location																			
	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	P36	P37	P38	12	13	16	15	16	17	18
	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Land	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Biological Area	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Biological Area	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Biological Area	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Biological Area	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Biological Area	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Biological Area	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Biological Area	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Biological Area	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Biological Area	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Biological Area	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Biological Area	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Biological Area	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Biological Area	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Biological Area	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Biological Area	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Biological Area	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Biological Area	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Biological Area	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Biological Area	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Biological Area	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Biological Area	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Biological Area	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Biological Area	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Biological Area	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Biological Area	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Biological Area	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Biological Area	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Biological Area	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Biological Area	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Biological Area	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Biological Area	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

Note: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table 4. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 30 days.

Target	Hypothetical Spill Location																																		
	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138										
Land	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Biological Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 3	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 4	n	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 5	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 10	n	n	1	n	n	5	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 12	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 13	n	50	4	4	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 14	2	2	15	5	9	9	2	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 15	2	n	27	9	n	21	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 16	3	n	12	27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 17	9	n	3	7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 18	n	n	n	n	n	36	21	n	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 19	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 20	n	n	n	n	n	n	11	n	6	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 21	n	n	n	n	n	n	4	93	30	10	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 22	n	n	n	n	n	n	34	n	44	16	n	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 23	n	n	n	n	n	n	2	n	4	41	2	10	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 24	n	n	n	n	n	n	n	n	n	n	17	2	11	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 25	n	n	n	n	n	n	n	n	n	n	n	n	32	36	3	12	19	17	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 26	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	7	64	32	12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 27	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	23	69	21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 28	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 29	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 30	n	n	n	n	n	n	n	n	n	n	n	32	39	14	4	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Biological Area 31	n	n	n	n	n	n	6	n	11	44	2	6	1	1	n	n	n	n	n	18	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Note: n = greater than 99.5 percent; n = less than 0.5 percent.

Table 4. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 30 days.

Target	Hypothetical Spill Location														
	159	160	141	162	163	164	E1	E2	E3						
Land	95	92	83	81	79	90	79	69	87						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
	n	n	n	n	n	n	n	n	n						
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n	n	n	n	n	n							
n	n	n	n												

Notes: * = Greater than 99.5 percent; n = less than 0.5 percent.

Table 5. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

Land Segment	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

108
109
110
111
112
113
114
115
116
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134

Note: * = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

Land Segment	Hypothetical Spill Location																			
	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	P36	P37	P38	T2	T3	T4	T5	T6	T7	T8
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

64	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	1	1	n	n
65	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n
66	1	n	n	n	n	n	4	1	n	n	n	n	1	4	3	12	11	5	n
67	2	2	1	n	1	n	n	n	n	n	1	6	5	2	1	7	4	1	n
68	1	2	n	n	n	n	n	n	n	n	1	1	1	14	2	1	n	n	n
69	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n

Notes: * = Greater than 99.5 percent; n = less than 0.5 percent.
 Rows with all values less than 0.5 percent are not shown.

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

Land Segment	Hypothetical Spill Location																			
	I14	I15	I16	I17	I18	I19	I20	I21	I22	I23	I24	I25	I26	I27	I28	I29	I30	I31	I32	I33
2	n	1	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
3	n	0	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
4	n	4	2	n	11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
5	n	1	1	n	23	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
6	n	6	2	n	8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
7	n	7	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
8	n	45	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
34	n	0	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	2	1	n	7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
36	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
37	n	2	1	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
38	n	8	3	3	10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	n	1	1	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	n	1	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	n	1	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
43	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	2	n	16	9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	8	n	5	7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	1	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	1	n	4	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	1	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
55	12	n	1	7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
56	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
57	3	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
58	22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
59	9	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
60	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	2	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	2	n	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	n	n	2	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
66	n	n	12	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
67	n	n	2	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
68	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
69	n	n	n	n	n	18	n	n	n	n	n	n	n	n	n	n	n	n	n	n
70	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n
71	n	n	n	n	n	7	n	n	n	n	n	n	n	n	n	n	n	n	n	n
72	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n
73	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
81	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

[illegible]

Notes: * = Greater than 99.5 percent; n = less than 0.5 percent.
Rows with all values less than 0.5 percent are not shown.

Table 5. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 3 days.

Land Segment	139			140			141			142			143			144			Hypothetical Spill Location		
	E1	E2	E3	E1	E2	E3	E1	E2	E3	E1	E2	E3	E1	E2	E3	E1	E2	E3	E1	E2	E3
93	5	5	n	5	5	n	5	5	n	5	5	n	5	5	n	5	5	n	n	n	n
94	8	3	n	8	3	n	8	3	n	8	3	n	8	3	n	8	3	n	n	n	n
95	9	3	n	9	3	n	9	3	n	9	3	n	9	3	n	9	3	n	n	n	n
96	4	1	n	4	1	n	4	1	n	4	1	n	4	1	n	4	1	n	n	n	n
97	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n	n	n
102	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
103	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
104	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
105	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
106	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
107	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
108	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n
109	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	1	n	n	n

Notes: "n" = Greater than 99.5 percent; n = less than 0.5 percent.
Rows with all values less than 0.5 percent are not shown.

Table 6. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days.

Land Segment	Hypothetical Spill Location																		
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19
1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
34	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
36	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
37	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
38	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
43	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
44	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
54	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
55	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
56	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
57	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
58	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
59	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
60	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
66	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
67	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
68	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
69	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
70	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
71	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
72	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
73	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
75	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
76	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
77	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
78	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
79	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
80	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
81	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
83	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
84	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
85	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
86	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
87	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
89	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Table 6. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days.

[illegible]

Notes: ** = Greater than 99.5 percent; * = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table 6. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days.

Land Segment	Hypothetical Spill Location										
	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	P36
1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0

Table 6. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days.

[illegible]

Notes: ** = Greater than 99.5 percent; * = less than 0.5 percent.
Rows with all values less than 0.5 percent are not shown.

Table 6. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days.

Land Segment	Hypothetical Spill Location																			
	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31	T32	T33
1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
30	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
32	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
34	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
36	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
37	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
38	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
43	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
44	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
55	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
56	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
57	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
58	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
59	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
60	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
66	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
67	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
68	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
69	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Table 6. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 10 days.

[illegible]

Notes: * = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table 6. (Continued) -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain land segment within 10 days.

Land Segment	Hypothetical Spill Location										
	139	140	141	142	143	144	E1	E2	E3		
92	1	1	n	n	n	n	n	n	n	n	n
93	12	13	n	n	n	n	n	n	n	n	n
94	17	17	n	n	n	n	1	n	n	n	n
95	20	13	n	n	n	n	1	n	n	n	n
96	14	7	1	1	n	n	1	n	n	n	n
97	4	2	1	1	n	n	2	n	n	n	n
98	3	1	1	n	1	1	2	1	n	n	n
99	1	1	2	n	n	n	2	n	n	n	n
100	n	n	3	3	n	1	2	1	n	n	n
101	n	n	3	3	1	2	3	1	n	n	n
102	n	n	8	3	4	4	3	1	1	n	n
103	n	n	8	8	4	12	3	2	4	n	n
104	n	n	5	3	3	10	1	2	1	n	n
105	n	n	4	5	4	29	n	2	2	n	n
106	n	n	5	7	7	11	n	3	5	n	n
107	n	n	n	1	4	1	n	4	19	n	n
108	n	n	n	n	1	n	n	2	27	n	n
109	n	n	n	n	n	n	n	1	7	n	n

Notes: n = Greater than 99.5 percent; n = less than 0.5 percent.
Rows with all values less than 0.5 percent are not shown.

Table 7. --- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 30 days.

Land Segment	Hypothetical Spill Location																			
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 7. (Continued) -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain land segment within 30 days.

[illegible]

Notes: * = greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table 7. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 30 days.

Land Segment	Hypothetical Spill Location																													
	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138					
1	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	n	n	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
3	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
4	n	n	n	n	11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
5	n	n	n	n	24	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
6	n	n	n	n	9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
7	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
8	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
19	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
30	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
32	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
34	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
36	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
37	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
38	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
43	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
44	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
55	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
56	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
57	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
58	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
59	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
60	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
66	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
67	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
000
001
002
003
004
005
006
007
008
009
010
011
012
013
014
015
016
017
020
022
023

Table 2. (Continued) -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land segment within 30 days.

Land Segment	Hypothetical Spill Location									
	139	140	141	142	143	144	E1	E2	E3	
81	1	1	n	n	n	n	1	n	n	
82	1	1	n	n	n	n	n	n	n	
83	2	1	n	n	n	n	3	n	n	
84	n	2	n	n	n	n	n	n	n	
86	n	2	n	n	n	n	n	n	n	
87	n	n	n	1	n	n	n	n	n	
89	n	1	n	n	n	n	n	n	n	
91	1	1	n	n	n	n	n	n	n	
92	1	1	n	n	n	n	n	n	n	
93	18	2	4	2	1	6	1	n	n	
94	20	22	1	2	2	n	6	3	1	
95	21	16	3	2	4	n	6	2	1	
96	15	12	4	1	2	2	6	4	n	
97	5	4	4	3	4	1	7	3	1	
98	4	4	5	2	4	2	6	2	n	
99	1	2	5	3	2	1	5	1	n	
100	1	1	5	5	4	4	6	3	1	
101	n	n	7	5	5	3	6	4	1	
102	n	n	11	10	8	3	8	6	3	
103	n	n	11	13	8	15	7	6	6	
104	n	n	4	5	5	11	2	5	2	
105	n	n	6	6	7	29	1	3	4	
106	n	n	8	9	10	11	1	6	6	
107	n	n	1	2	5	1	n	6	19	
108	n	n	1	n	3	n	n	5	28	
109	n	n	n	n	1	n	n	4	8	
110	n	n	n	n	n	n	n	1	1	

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.
Rows with all values less than 0.5 percent are not shown.

Table 9. -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario.

Land Segment	Within 3 days				Within 10 days				Within 30 days			
	PROPOSED		EXISTING, AND		PROPOSED		EXISTING, AND		PROPOSED		EXISTING, AND	
	Prob	Mean	Ex. TANK	Prob Mean	Prob	Mean	Ex. TANK	Prob Mean	Prob	Mean	Ex. TANK	Prob Mean
2	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
3	0	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
4	2	0.0	1	0.0	2	0.0	1	0.0	2	0.0	1	0.0
5	1	0.0	0	0.0	1	0.0	0	0.0	1	0.0	0	0.0
6	2	0.0	1	0.0	2	0.0	1	0.0	2	0.0	1	0.0
7	2	0.0	1	0.0	2	0.0	1	0.0	2	0.0	1	0.0
8	5	0.1	1	0.0	6	0.1	2	0.0	6	0.1	2	0.0
15	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
35	1	0.0	0	0.0	1	0.0	0	0.0	1	0.0	0	0.0
36	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
37	0	0.0	0	0.0	1	0.0	0	0.0	1	0.0	0	0.0
38	5	0.1	4	0.0	6	0.1	4	0.0	6	0.1	4	0.0
39	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
40	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
41	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
42	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
43	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
68	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
69	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
70	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
71	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
72	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
73	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
74	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
75	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
77	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
81	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	0	0.0	2	0.0	0	0.0	3	0.0	0	0.0	8	0.1
83	0	0.0	5	0.1	0	0.0	7	0.1	0	0.0	12	0.1
84	0	0.0	6	0.1	0	0.0	9	0.1	1	0.0	21	0.2
85	0	0.0	6	0.1	0	0.0	8	0.1	0	0.0	13	0.1
86	0	0.0	7	0.1	0	0.0	8	0.1	0	0.0	11	0.1
87	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	12	0.1
88	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
89	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0

Table 10. -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, conditional mean volume scenario, Shellfish deletion alternative.

Target	Within 3 days				Within 10 days				Within 30 days			
	PROPOSED		EXISTING AND EX. TANK		PROPOSED		EXISTING AND EX. TANK		PROPOSED		EXISTING AND EX. TANK	
	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean
Land	18	0.2	39	0.5	51	0.7	38	0.5	60	0.9	75	1.6
Biological Area 1	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 4	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 5	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 6	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 7	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 8	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 9	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 10	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 11	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 12	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 13	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 14	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 15	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 16	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 17	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 18	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 19	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 20	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 21	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 22	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 23	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 24	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 25	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 26	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 27	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 28	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 29	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 30	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biological Area 31	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 1). -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario, Shellkof deletion alternative.

Land Segment	----- Within 3 days -----				----- Within 10 days -----				----- Within 30 days -----			
	PROPOSED		EXISTING, AND EXISTING,		PROPOSED		EXISTING, AND EXISTING,		PROPOSED		EXISTING, AND EXISTING,	
	Prob	Mean	EX. TANK	Prob Mean	Prob	Mean	EX. TANK	Prob Mean	Prob	Mean	EX. TANK	Prob Mean
2	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
3	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0
4	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
6	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
7	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
8	n	0.0	1	0.0	n	0.0	2	0.0	n	0.0	2	0.0
15	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
19	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
20	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
38	n	0.0	4	0.0	n	0.0	4	0.0	n	0.0	4	0.0
39	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
40	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
41	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
42	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
66	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
67	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
69	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	3	0.0
70	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
71	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	4	0.0
72	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	2	0.0
73	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	2	0.0
74	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	2	0.0
75	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	3	0.0
76	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	2	0.0
77	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
78	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	2	0.0
80	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
81	n	0.0	2	0.0	n	0.0	3	0.0	n	0.0	8	0.1
82	n	0.0	5	0.1	n	0.0	7	0.1	n	0.0	12	0.1
83	n	0.0	5	0.1	n	0.0	11	0.1	n	0.0	21	0.2
84	n	0.0	4	0.0	n	0.0	9	0.1	n	0.0	13	0.1
85	n	0.0	6	0.1	n	0.0	8	0.1	n	0.0	11	0.1
86	n	0.0	7	0.1	n	0.0	8	0.1	n	0.0	12	0.1
87	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	3	0.0
88	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
89	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
90	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
92	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
93	2	0.0	2	0.0	5	0.1	5	0.1	8	0.1	4	0.0
94	1	0.0	1	0.0	5	0.0	5	0.0	6	0.1	1	0.0
95	1	0.0	1	0.0	4	0.0	4	0.0	6	0.1	7	0.1
96	1	0.0	1	0.0	3	0.0	3	0.0	5	0.0	6	0.1

Table 11. (Cont.) -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario, Shellcof deletion alternative.

97	1	0.0	n	0.0	1	0.0	2	0.0	n	0.0	2	0.0	4	0.0	1	0.0	3	0.1
98	n	0.0	n	0.0	n	0.0	2	0.0	n	0.0	2	0.0	3	0.0	2	0.0	5	0.1
99	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	2	0.0	3	0.0	2	0.0	4	0.0
100	1	0.0	n	0.0	1	0.0	1	0.0	1	0.0	2	0.0	3	0.0	2	0.0	4	0.0
101	n	0.0	n	0.0	n	0.0	1	0.0	1	0.0	2	0.0	3	0.0	2	0.0	4	0.0
102	n	0.0	n	0.0	1	0.0	2	0.0	1	0.0	3	0.0	3	0.0	3	0.0	6	0.1
103	1	0.0	1	0.0	1	0.0	2	0.0	2	0.0	4	0.0	3	0.0	4	0.0	7	0.1
104	n	0.0	1	0.0	1	0.0	1	0.0	2	0.0	3	0.0	2	0.0	3	0.0	4	0.0
105	1	0.0	2	0.0	4	0.0	2	0.0	4	0.0	3	0.1	3	0.0	4	0.0	7	0.1
106	1	0.0	1	0.0	2	0.0	2	0.0	2	0.0	4	0.0	3	0.0	3	0.0	6	0.1
107	n	0.0	n	0.0	1	0.0	1	0.0	1	0.0	2	0.0	2	0.0	1	0.0	3	0.0
108	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	2	0.0	3	0.0	1	0.0	4	0.0
109	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	4	0.0	1	0.0	5	0.1
110	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	2	0.0	n	0.0	2	0.0
111	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
112	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0
113	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0
114	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
122	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	n	0.0	1	0.0
123	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
127	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
130	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
134	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
135	n	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
136	n	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
137	2	0.0	1	0.0	3	0.0	2	0.0	1	0.0	3	0.0	2	0.0	1	0.0	3	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than 0.5 percent probability of one or more contacts within 30 days are not shown.

Appendix A

Table A-1. -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, conditional mean volume scenario, for spills greater than 10,000 barrels.

Target	----- Within 3 days -----				----- Within 10 days -----				----- Within 30 days -----			
	PROPOSED Prob Mean	EXISTING AND EX. TANK Prob Mean	PROPOSED, EXISTING, EX. TANK Prob Mean	PROPOSED, EXISTING, EX. TANK Prob Mean	PROPOSED Prob Mean	EXISTING AND EX. TANK Prob Mean	PROPOSED, EXISTING, EX. TANK Prob Mean	PROPOSED, EXISTING, EX. TANK Prob Mean	PROPOSED Prob Mean	EXISTING AND EX. TANK Prob Mean	PROPOSED, EXISTING, EX. TANK Prob Mean	PROPOSED, EXISTING, EX. TANK Prob Mean
Land	18	3.2	22	0.3	36	0.4	29	0.3	37	0.5	56	0.8
Biol. Conc. Area 1	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 4	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 5	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 6	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 7	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 8	n	3.2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 9	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 10	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 11	n	3.2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 12	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 13	3	0.0	1	0.0	3	0.0	3	0.0	1	0.0	4	0.0
Biol. Conc. Area 14	n	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
Biol. Conc. Area 15	n	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
Biol. Conc. Area 16	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 17	n	3.2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 18	n	0.0	n	0.0	1	0.0	1	0.0	1	0.0	1	0.0
Biol. Conc. Area 19	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 20	n	3.2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 21	n	0.0	12	0.1	12	0.1	15	0.2	15	0.2	19	0.2
Biol. Conc. Area 22	n	0.0	10	0.1	10	0.1	17	0.2	18	0.2	27	0.3
Biol. Conc. Area 23	1	0.0	n	0.0	1	0.0	2	0.0	3	0.0	5	0.0
Biol. Conc. Area 24	1	0.0	2	0.0	4	0.0	4	0.0	6	0.1	5	0.0
Biol. Conc. Area 25	1	0.0	n	0.0	2	0.0	2	0.0	3	0.0	3	0.0
Biol. Conc. Area 26	n	3.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
Biol. Conc. Area 27	2	0.0	n	0.0	2	0.0	3	0.0	1	0.0	1	0.0
Biol. Conc. Area 28	1	0.0	n	0.0	2	0.0	3	0.0	3	0.0	3	0.0
Biol. Conc. Area 29	2	0.0	1	0.0	3	0.0	2	0.0	1	0.0	1	0.0
Biol. Conc. Area 30	3	0.0	n	0.0	3	0.0	3	0.1	1	0.0	6	0.1
Biol. Conc. Area 31	n	0.0	2	0.0	2	0.0	1	0.0	6	0.1	7	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table A-2. -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario, for spills greater than 10,000 barrels.

Land Segment	Within 3 days				Within 10 days				Within 30 days			
	PROPOSED		EXISTING, AND		PROPOSED		EXISTING, AND		PROPOSED		EXISTING, AND	
	Prob	Mean	Ex. Tank	Prob Mean	Prob	Mean	Ex. Tank	Prob Mean	Prob	Mean	Ex. Tank	Prob Mean
2	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
3	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
4	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
5	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
6	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	2 0.0	0.0	0.0	0.0	2 0.0
7	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
8	0.0	0.0	0.0	3 0.0	0.0	0.0	0.0	3 0.0	0.0	0.0	0.0	3 0.0
35	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
38	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
39	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
40	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
41	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
42	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
69	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
70	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
71	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
72	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
73	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
74	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
75	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
76	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
77	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
78	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
81	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
82	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	2 0.0	0.0	0.0	0.0	2 0.0
83	0.0	0.0	0.0	3 0.0	0.0	0.0	0.0	6 0.1	0.0	0.0	0.0	13 0.1
84	0.0	0.0	0.0	2 0.0	0.0	0.0	0.0	3 0.0	0.0	0.0	0.0	8 0.1
85	0.0	0.0	0.0	3 0.0	0.0	0.0	0.0	5 0.0	0.0	0.0	0.0	6 0.1
86	0.0	0.0	0.0	4 0.0	0.0	0.0	0.0	5 0.0	0.0	0.0	0.0	7 0.1
87	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	1 0.0
88	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	1 0.0
99	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	1 0.0
90	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	2 0.0	0.0	0.0	0.0	2 0.0
91	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	2 0.0	0.0	0.0	0.0	2 0.0
94	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	2 0.0	0.0	0.0	0.0	2 0.0
95	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	1 0.0	0.0	0.0	0.0	1 0.0
96	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
97	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
98	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
99	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
100	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0
101	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0	0.0	0.0	0.0	0 0.0

Table A-2. (Cont.) -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario, for spills greater than 10,000 barrels.

102	n	0.0	n	0.0	n	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	3	0.0
103	n	0.0	n	0.0	1	0.0	1	0.0	1	0.0	2	0.0	1	0.0	2	0.0	3	0.0
104	n	0.0	n	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	2	0.0
105	1	0.0	1	0.0	2	0.0	1	0.0	2	0.0	2	0.0	1	0.0	2	0.0	3	0.0
106	n	0.0	n	0.0	1	0.0	1	0.0	1	0.0	2	0.0	1	0.0	1	0.0	2	0.0
107	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
108	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	2	0.0
109	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	2	0.0	n	0.0	3	0.0
110	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0
112	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
123	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
127	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	n	0.0	1	0.0
130	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
134	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	n	0.0	1	0.0
137	1	0.0	n	0.0	2	0.0	1	0.0	n	0.0	2	0.0	1	0.0	n	0.0	2	0.0

Note: n = less than 0.5 percent; ∞ = greater than 99.5 percent. Segments with less than 0.5 percent probability of one or more contacts within 30 days are not shown.

Table A-3. -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, conditional mean volume scenario, Shell/Kof deletion alternative, for spills greater than 10,000 barrels.

Target	Within 3 days					Within 10 days					Within 30 days					PROPOSED, EXISTING, PROPOSED,				
	PROPOSED	EXISTING AND	PROPOSED	EXISTING AND	PROPOSED,	PROPOSED	EXISTING AND	PROPOSED	EXISTING AND	PROPOSED,	PROPOSED	EXISTING AND	PROPOSED	EXISTING AND	PROPOSED,	PROPOSED,				
	Prob Mean	EX. TANK	Prob Mean	EX. TANK	Prob Mean	Prob Mean	EX. TANK	Prob Mean	EX. TANK	Prob Mean	Prob Mean	EX. TANK	Prob Mean	EX. TANK	Prob Mean	EX. TANK				
Land	9	0.1	22	0.3	29	0.3	20	0.2	37	0.5	50	0.7	32	0.4	60	0.9	73	1.3		
Objol. Conc. Area 1	n	3.3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 3	n	3.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 4	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 5	n	3.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 6	n	3.3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 7	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 8	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Objol. Conc. Area 9	n	3.3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 10	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 11	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Objol. Conc. Area 12	n	3.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 13	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 14	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 15	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 16	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 17	n	3.3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 18	n	3.3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 19	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 20	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 21	n	3.3	12	0.1	12	0.1	n	0.0	13	0.2	15	0.2	n	0.0	19	0.2	19	0.2		
Objol. Conc. Area 22	n	0.0	10	0.1	10	0.1	n	0.0	17	0.2	17	0.2	n	0.0	27	0.3	28	0.3		
Biol. Conc. Area 23	1	0.0	n	0.0	1	0.0	2	0.0	2	0.0	3	0.0	4	0.0	5	0.0	8	0.1		
Biol. Conc. Area 24	1	3.3	2	0.0	4	0.0	2	0.0	4	0.0	6	0.1	3	0.0	5	0.0	8	0.1		
Biol. Conc. Area 25	1	0.0	n	0.0	2	0.0	n	0.0	n	0.0	3	0.0	4	0.0	5	0.0	8	0.1		
Biol. Conc. Area 26	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0		
Biol. Conc. Area 27	2	0.0	n	0.0	2	0.0	3	0.0	n	0.0	3	0.0	3	0.0	3	0.0	5	0.0		
Objol. Conc. Area 28	1	0.0	n	0.0	2	0.0	3	0.0	1	0.0	3	0.0	3	0.0	1	0.0	3	0.0		
Biol. Conc. Area 29	2	0.0	1	0.0	3	0.0	2	0.0	1	0.0	3	0.0	2	0.0	1	0.0	3	0.0		
Biol. Conc. Area 30	3	3.3	n	0.0	3	0.0	5	0.1	1	0.0	6	0.1	8	0.1	5	0.0	12	0.1		
Objol. Conc. Area 31	n	0.0	2	0.0	2	0.0	1	0.0	6	0.1	7	0.1	2	0.0	16	0.2	18	0.2		

Note: n = less than 0.5 percent; * = greater than 99.5 percent.

Table A-4. -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area conditional mean volume scenario, Shellkot deletion alternative, for spills greater than 10,000 barrels.

Land Segment	Within 3 days				Within 10 days				Within 30 days			
	PROPOSED		EXISTING, AND		PROPOSED		EXISTING, AND		PROPOSED		EXISTING, AND	
	Prob	Mean	EX. TANK	Prob Mean	Prob	Mean	EX. TANK	Prob Mean	Prob	Mean	EX. TANK	Prob Mean
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-4. (Cont.) -- Probabilities (expressed as percent chance) of one or more spills, and the expected number of spills (mean) occurring and contacting land segments over the expected production life of the lease area, conditional mean volume scenario, Shellkof deletion alternative, for spills greater than 10,000 barrels.

109	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	3	0.0
110	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
112	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
123	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	1	0.0	1	0.0
127	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0	1	0.0
130	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
134	n	0.0	n	0.0	n	0.0	1	0.0	n	0.0	1	0.0	n	0.0	1	0.0
137	1	0.0	n	0.0	2	0.0	1	0.0	n	0.0	2	0.0	1	0.0	2	0.0

Note: n = less than 0.5 percent; *n = greater than 99.5 percent. Segments with less than 0.5 percent probability of one or more contacts within 30 days are not shown.