federal register

Wednesday
September 20, 1995

Part V

Environmental Protection Agency

Alaskan Outer Continental Shelf; Draft National Pollutant Discharge Elimination System General Permit; Notice

ENVIRONMENTAL PROTECTION AGENCY

[FRL–5297–3]

Alaskan Outer Continental Shelf; Draft National Pollutant Discharge Elimination System General Permit

AGENCY: Environmental Protection Agency, Region 10.

ACTION: Notice of Draft NPDES General Permit (Reissuance), Notice of State of Alaska Certification and Notice of State of Alaska Determination of Consistency with the Alaska Coastal Management Program.

SUMMARY: The Regional Administrator, Region 10, is proposing to issue a draft National Pollutant Discharge Elimination System (NPDES) general permit for oil and gas stratigraphic test and exploration wells on the Alaskan Outer Continental Shelf (OCS) in addition to exploration, production and development wells in offshore and coastal waters of the State of Alaska. A general NPDES permit (51 FR 35460, 10/03/86) was issued September 4, 1986, for all areas offered for lease by the U.S. Department of the Interior's Minerals Management Service (MMS) in Federal Lease Sales 55 (Gulf of Alaska) and 60 (Cook Inlet) and all Cook Inlet blocks offered for lease by the State of Alaska in Lease Sales 32, 33, 35, 40, 46A, and 49. The permit issued in 1986 also covered areas offered under state lease sales held during the effective period of the permit (i.e., 10/10/86–10/10/91). The permit proposed today will not cover areas outside of Cook Inlet (i.e., Federal Lease Sale 55).

When issued, the proposed permit will establish effluent limitations, standards, prohibitions, and other conditions on discharges from facilities in the general permit area. These conditions are based on the administrative record. EPA regulations and the permit contain a procedure which allows the owner or operator of a point source discharge to apply for an individual permit instead. A total of 23 facilities were covered under the previous general permit. Of those 23 facilities, 16 are currently active. All of those permittees have complied with the reissuance application procedures and have indicated preference to be covered under this general permit as well. Therefore, Region 10 hereby announces its intention to cover these facilities under this general permit. If any individual objects to this automatic coverage, that objection should be submitted in writing during the public comment period.

A brief description of the basis for the conditions and requirements of the proposed permit is given in the fact sheet published below.

DATES: Interested persons may submit comments of the draft general permit by 4 pm on November 30, 1995.

ADDRESSES: Public comments and requests for coverage should be sent to: Environmental Protection Agency, Region 10, Attn: Ocean Programs Section, WD–137, 1200 Sixth Avenue, Seattle, Washington 98101.

FOR FURTHER INFORMATION CONTACT: Kris Flint, Region 10, at the address listed above or telephone (206) 553–8155. Copies of the draft general permit and today's publication will provided upon request.

SUPPLEMENTARY INFORMATION:

State Certification

This Notice will also serve as Public Notice of the intent of the State of Alaska, Department of Environmental Conservation to consider certifying that the subject discharge will comply with the applicable provisions of Section 208(e), 301, 303, 306 and 307 of the Clean Water Act. The NPDES permit will not be issued until the certification requirements of Section 401 have been met. Persons wishing to comment on State Certification should submit written comments within this 60 day period to the State of Alaska, Southcentral Regional Office, Alaska Department of Environmental Conservation (ADEC), 555 Cordova Street, Anchorage, Alaska 99501.

State Consistency Determination

This Notice will also serve as Public Notice of the intent of the State of Alaska, Office of Management and Budget, Division of Governmental Coordination, to review this action for consistency with the approved Alaska Coastal Management Program. Persons wishing to comment on the State Determination of Consistency with the Alaska Coastal Management Program should submit written comments within this 60 day period, to the State of Alaska, Office of Management and Budget, Division of Governmental Coordination at the Joint Pipeline Office, 411 West 4th Street, Anchorage, Alaska 99501. Comments should be addressed to the attention of Alaska Coastal Management Program Consistency Review.

Public Hearing

Public hearings on the proposed general permit are tentatively scheduled to be held in Anchorage and Soldotna, Alaska. The Anchorage hearing will be held in Room 154 of the Anchorage Federal Building at 222 West Seventh on November 28, 1995, from 1 p.m. to 5 p.m. The Soldotna hearing will be held in the Assembly Chambers of the Kenai Peninsula Borough at 144 North Binkley Road on November 29, 1995, from 4 p.m. until all persons have been heard. Either or both of the public hearings will be cancelled if insufficient interest is expressed in them. People interested in making a statement at either hearing must contact Kris Flint at the address below or at (206) 553–8155 by 4 pm on November 16, 1995, to confirm that the hearing will take place. At the hearings, interested people may submit oral or written statements concerning the draft general permit.

Request for Coverage

Written request for authorization to discharge under the general permit shall be provided, as described in Part I.A. of the permit, to EPA, Region 10, at least 60 days prior to initiation of discharges. Authorization to discharge requires written notification from EPA that coverage has been granted and that a specific permit number has been assigned to operations at the discharge site. The permit also requires permittees to notify EPA no more than seven (7) days prior to the initiation of discharges at the site, and prior to the initiation of discharges from each new well at a given site.

Administrative Record

The proposed NPDES permit and other related documents are on file and may be inspected any time between 8:30 a.m. and 4 p.m., Monday through Friday at the addresses shown below.

U.S. EPA, Anchorage Operations Office, Anchorage Operations Office, Room 537, Federal Building, 222 West Seventh Avenue, #19, Anchorage, Alaska 99513–7588

U.S. EPA, Region 10, Office of Water, WD–137, Ocean Programs Section, 1200 6th Avenue, Seattle, Washington 98101

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Fact Sheet

I. General Permits and Requests for Individual Permits

Section 301(a) of the Clean Water Act (the ''Act'') provides that the discharge of pollutants is unlawful except in accordance with the terms of an NPDES permit. The Regional Administrator has determined that oil and gas facilities operating in the areas described in the proposed general NPDES permit are more appropriately controlled by a general permit than by individual permits. This decision is based on 40 CFR 122.28, 40 CFR 125 (Subpart M) and the Agency's previous permit decisions in other areas of the Alaskan Outer Continental Shelf (OCS).

Any owner and/or operator authorized to discharge under a general permit may request to be excluded from coverage under the general permit by applying for an individual permit as provided by 40 CFR 122.28(b). The operator shall submit an application together with the reasons supporting the request to the Director, Water Division, EPA, Region 10 (''Director'').

A source located within the general permit area, excluded from coverage under the general permit solely because it already has an individual permit (i.e., a permit that has not been continued under the Administrative Procedures Act), may request that its individual permit be revoked, and that it be covered by the general permit. Upon revocation of the individual permit, the general permit shall apply. Procedures for modification, revocation, termination, and processing of NPDES permits are provided by 40 CFR 122.62–122.64. As in the case of individual permits, violation of any condition of a general permit constitutes a violation of the Act that is enforceable under section 309 of the Act.

II. Covered Facilities and Nature of Discharges

A. Types of Discharges Authorized

The proposed permit will authorize discharges from exploratory operations in all areas, and from development and production operations only in state waters of Upper Cook Inlet, north of the Forelands (see Part II.D. below). The Agency considers it appropriate to include exploration discharges with development and production discharges in this permit because, although some development and production discharges vary from exploration discharges, all exploratory discharges are a subset of those occurring in development and production.

Exploratory operations involve drilling to determine the nature of potential hydrocarbon reserves. Under the permit, exploratory operations would be limited to a maximum of five wells per site. Development operations are engaged in the drilling and completion of production wells. Development operations may occur prior to, or simultaneously with, production operations, which are engaged in active recovery of hydrocarbons from producing formations.

The proposed general permit will authorize the following discharges in all areas of coverage: drilling mud; drill cuttings and washwater; deck drainage; sanitary wastes; domestic wastes; desalination unit wastes; blowout preventer fluid; boiler blowdown; fire control system test water; non-contact cooling water; uncontaminated ballast water; uncontaminated bilge water; excess cement slurry; and mud, cuttings, and cement at the seafloor. Waterflooding discharges, produced water discharges, and well treatment fluids (other than test fluids) will also be authorized for Upper Cook Inlet development and production operations. Descriptions of discharges are given in Part V. of this fact sheet.

Operators of existing facilities are encouraged to consider whether the above discharge categories will cover all discharges at their facilities. If additional categories are necessary, notification should be given to Region 10 during the public comment period.

B. Existing Facilities

Oil and gas are extracted from drilling operations on the production platforms. The oil and gas are in emulsion with water and must be separated for sale. There are various ways in which oil and gas (''products'') are separated from the water (''produced water''). Some of the production platforms are equipped to separate product from produced water onboard and discharge produced water directly to Cook Inlet. Other production platforms perform initial oil/water separation and route their produced water to onshore facilities for further treatment. In these cases, produced water is discharged from the onshore facility. Platforms that send produced water to shore-based facilities for treatment are not authorized to discharge produced water. Produced water is an authorized discharge from the following facilities: (Unocal) Granite Point Treatment Facility, (Unocal) Trading Bay Facility, (SWEPI) East Forelands Treatment Facility, and platforms (Unocal) Anna, (Unocal) Baker, (Unocal) Bruce, Phillips Tyonek A, SWEPI A, SWEPI C, and (Marathon) Spark. The shore-based produced water treatment facilities are authorized to discharge only produced water.

The proposed permit lists 23 operations which may, or may not, all be operating and discharging at any given time during the course of the proposed permit. Occasionally, operators may decide to ''close in'' a platform, ceasing production and subsequent discharges for some period of time. These facilities may resume production and discharging during the effective period of the proposed permit and, if so, will be subject to requirements at Part I.B.3 of the proposed permit. ''Inactive'' refers to operations which are complete, such as exploration operations from mobile units. Previous ''inactive'' operations are listed in the proposed permit simply to ensure that the NPDES permit numbers assigned to those operations are not reassigned to future operations.

C. Discharges Not Authorized

During the effective period of the general permit issued in 1986 (''1986 permit''), permittees identified several discharges that were not authorized. Region 10 has reviewed the questioned wastestreams and has determined that they cannot be covered by this permit. The bases for excluding the following wastestreams are listed below:

- Paint chips, paint overspray, or wastes from paint removal resulting from maintenance of platforms—

MARPOL, Annex V (see Part VI.E. below)

- Water resulting from the cleaning of contaminated soils—40 CFR 122.28(a)(2)
- Wastes resulting from the treatment of contaminated groundwaters—40 CFR 122.28(a)(2)

D. Areas of Coverage

It is important to understand the differences among ''federal'' and ''state'' waters, and the Offshore and Coastal subcategories of discharges. ''Federal'' and ''state'' waters *do not* coincide with the Coastal and Offshore discharge subcategories. Figure 1 illustrates the differences among these terms, and the way in which they apply to oil and gas operations in general.

''State'' waters or ''territorial seas'' are the waters extending 3 miles seaward from the baseline. The ''baseline'' typically follows the line of ordinary low water along the portion of the coast that is in direct contact with the open sea, although closing lines may be drawn straight across the mouth of bays. These closing lines, or baselines, are established by the U.S. Department of State and NOAA. In Cook Inlet, the primary baseline runs across the southern end of Kalgin Island (see Figure 1). Federal waters extend seaward from the territorial seas. All operations north of the baseline in Cook Inlet are part of the Coastal Subcategory of oil and gas operations, while all operations south of the baseline are part of the Offshore Subcategory. In Cook Inlet, all waters north of the Kalgin Island baseline are state and Coastal, while waters south of the baseline are Offshore only, but include state and federal properties.

1. Areas of Coverage in Federal Waters

As discussed above, federal waters are located three miles from the ordinary low tide mark along the shoreline. The permit proposed today will cover a smaller area than the 1986 permit (i.e., only Cook Inlet v. Cook Inlet & Gulf of Alaska). The 1986 general permit authorized discharges in all areas offered for lease by MMS in Federal Lease Sales 55 (Gulf of Alaska) and 50 (Cook Inlet). No federal lease sales were held during the effective period of the 1986 permit. At this time, MMS has tentatively scheduled Lease Sale 149 (Cook Inlet/Shelikof Strait) for late 1996. To the knowledge of Region 10, specific development and production operations are not planned and do not presently exist in federal waters in Cook Inlet; therefore, the proposed permit will cover only exploratory operations in federal waters.

2. Areas of Coverage in State Waters

The proposed permit will authorize discharges from all Cook Inlet blocks previously offered for lease by the State of Alaska, or offered under state lease sales held during the effective period of the 1986 permit. State sales that have occurred and will be covered under the proposed permit are 67A (Cook Inlet Exempt, held January 1991) and 74 (Cook Inlet, held September 1991). The proposed permit will also authorize discharges from blocks offered for lease during the effective period of the permit. Lease sales planned for state waters within the next five years include Sale 85, 85A and 90 (based on Alaska's proposed 5-year state leasing program (ADNR/O&G 1994)). For the purposes of the proposed permit, the southern boundary of Cook Inlet is defined to be the line between Cape Douglas on the west and Port Chatham on the east.

Discharges from new exploratory operations would be allowed in all state waters in Cook Inlet. These include operations in both the Coastal and Offshore Subcategories (40 CFR Part 435, Subparts A and D). Operations in the Offshore Subcategory in state waters would be located within either three miles of the ordinary low tide mark along the shoreline, or of closure lines.

Discharges from development and production operations would be allowed only for Coastal Subcategory operations north of the Forelands in Upper Cook Inlet, where the existing production platforms are located. The proposed permit covers discharges from three shore-based facilities which discharge produced water extracted at several of the platforms. Region 10 has excluded potential development and production in other areas from this permit for two reasons. First, the number and precise nature of such future operations is unknown, in contrast to existing operations in Upper Cook Inlet. Second, other areas are generally richer in biota and more sensitive to discharges than Upper Cook Inlet.

The proposed permit will not authorize discharges into any wetlands adjacent to territorial waters of the State or from facilities in the Onshore Subcategory as defined in 40 CFR Part 435, Subpart C.

E. Nature of Discharges

The Agency has established that drilling muds and cuttings are the major pollutant sources discharged from exploratory and development drilling operations. Produced water and well treatment fluids are the major pollutant sources discharged from production operations. The 1986 permit required the permittees, singly or jointly, to provide information on the composition, quantities, and in some cases the toxicity, of development and production discharges. Region 10 encouraged Cook Inlet operators to participate in a joint study with a single contractor to ensure uniform sampling, analyses, and data compilation. Permittees participating in the study, known as the Cook Inlet Discharge Monitoring Study (CIDMS), included the following:

- Amoco Production Company.
- Marathon Oil Company.
- Shell Western E&P, Inc.
- ARCO Alaska, Inc.
- Phillips Petroleum Company.
- Unocal Corporation.

The CIDMS yielded the following six reports:

- Deck Drainage,
- Non-Contact Cooling Water and Desalination Wastes,
- Blowout Preventer Fluid, Boil Blowdown, Fire Control System Test Water, Uncontaminated Ballast Water, Uncontaminated Bilge water, and Waterflooding Discharges,
- Excess Cement Slurry and Mud, Cuttings, Cement at the Seafloor,
- Well Treatment Fluids, and
- Produced Water.

The pollutants present in the discharges, as reported in the CIDMS, discharge monitoring reports and Agency documents, are summarized below. The toxic pollutants (defined at 40 CFR 401.15) are also known as priority pollutants. Conventional pollutants are defined at 40 CFR 401.16 as pH, biochemical oxygen demand (BOD_5), oil and grease, total suspended solids (TSS), and fecal coliform. The category of nonconventional pollutants includes all pollutants not included in either of the other categories.

1. Conventional Pollutants. pH, BOD_5, oil and grease, TSS and fecal coliform.

2. Toxic Pollutants. Benzene; ethylbenzene; naphthalene; toluene; phenol; 2,4-dimethylphenol; bis (2-ethylhexyl) phthalate; anthracene; phenanthrene; and zinc. The pollutants listed here have been reported as components of produced water discharges in both Cook Inlet and the Gulf of Mexico.

3. Nonconventional Pollutants. Nonconventional pollutants comprise the remaining pollutants and parameters for which the Agency has determined that effluent limits or monitoring is necessary in NPDES permits. These include: chemical oxygen demand (COD), toxicity, total organic carbon (TOC), salinity, temperature, and chlorine.

In developing the proposed permit conditions, EPA has evaluated the concentrations of these pollutants relative to the levels allowed under federal regulations and state water quality standards. The pollutants and discharge parameters limited in each waste stream are summarized in section V.A., and discussed in sections V.C—IV.H.

III. Basis for Permit Conditions

Sections 301(b), 304, 306, 307, 308, 401, 402, 403, and 501 of the Clean Water Act (The Federal Water Pollution Control Act Amendments of 1972, as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987), 33 U.S.C. 1311, 1314 (b), (c), and (e), 1316, 1317, 1318 and 1361; 86 Stat. 816, Pub. L. 92–500; 91 Stat. 1567, Pub. L. 95–217; 101 Stat. 7, Pub. L. 100–4 (''the Act'' or ''CWA''), and the U.S. Coast Guard regulations (33 CFR Part 151), provide the basis for the permit conditions contained in the permit. The general requirements of these sections fall into four categories, which are described in sections A-D below. In section E, the way in which water quality based permit limitations are derived from the Alaska water quality standards is described. In section F, mixing zones are discussed.

A. Technology Bases

1. BPT Effluent Limitations

The Act requires particular classes of industrial discharges to meet effluent limitations established by EPA. EPA promulgated effluent limitations guidelines requiring Best Practicable Control Technology Currently Available (BPT) for the Offshore and Coastal Subcategories of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subparts A and D) on April 13, 1979 (44 FR 22069).

BPT effluent limitations guidelines require ''no discharge of free oil'' for discharges of deck drainage, drilling muds, drill cuttings, and well treatment fluids. This limitation requires that a discharge shall not cause a film or sheen upon, or discoloration on, the surface of the water or adjoining shorelines, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines (40 CFR 435.11(d)). The BPT effluent limitation guideline for sanitary waste required that the concentration of chlorine be maintained as close to 1 mg/l as possible in discharges from facilities housing ten or more persons. No floating solids are allowed as a result of sanitary waste discharges from facilities continuously staffed by nine or fewer persons or intermittently staffed by any number. A ''no floating solids'' guideline also applies to domestic waste. BPT limitations on oil and grease in produced water allowed a daily maximum of 72 mg/l and a monthly average of 48 mg/l.

2. BAT and BCT Effluent Limitations

As of March 31, 1989, all permits are required by section 301(b)(2) of the Act to contain effluent limitations for all categories and classes of point sources which: (1) Control toxic pollutants (40 CFR 401.15) and nonconventional pollutants through the use of Best Available Technology Economically Achievable (BAT), and (2) represent Best Conventional Pollutant Control Technology (BCT). BCT effluent limitations apply to conventional pollutants (pH, BOD, oil and grease, suspended solids, and fecal coliform). In no case may BCT or BAT be less stringent than BPT.

BAT and BCT effluent limitations guidelines and New Source Performance Standards (NSPS) for the Offshore Subcategory were proposed on August 26, 1985 (50 FR 34592) and signed on January 15, 1993 (58 FR 12454, March 4, 1993). The new guidelines were established under the authority of sections 301(b), 304, 306, 307, 308, and 501 of the Act. The new guidelines were also established in response to a Consent Decree entered on April 5, 1990 (subsequently modified on May 28, 1993) in *NRDC* v. *Reilly*, D. D.C. No. 79–3442 (JHP) and are consistent with EPA's Effluent Guidelines Plan under section 304(m) of the CWA (57 FR 41000, September 8, 1992). This permit incorporates BAT and BCT effluent limitations based upon the BAT and BCT effluent limitations guidelines.

BAT and BCT effluent limitations guidelines and NSPS for the Coastal Subcategory were proposed on February 17, 1995 (60 FR 9428). In the absence of final BAT and BCT effluent limitations guidelines for the Coastal Subcategory, permit conditions must be established using Best Professional Judgment (BPJ) procedures (40 CFR 122.43, 122.44, and 125.3). The proposed permit incorporates BAT and BCT effluent limitations for the Coastal Subcategory based on the Agency's BPJ and previous permit actions for similar discharges. Previous BPJ determinations for the Coastal Subcategory were incorporated into the 1986 permit for Cook Inlet/Gulf of Alaska (51 FR 35460, October 10, 1986) and the individual permit issued to ARCO Alaska, Inc. for exploration discharges in upper Cook Inlet (EPA 1993b). Best Professional Judgement (BPJ) procedures are also used to establish permit conditions for wastestreams not addressed in the offshore effluent guidelines (e.g., desalination unit wastes, blow out preventer fluid, boiler blowdown; fire control system test water; non-contact cooling water; uncontaminated ballast water; uncontaminated bilge water; excess cement slurry; and muds, cuttings, cement at seafloor).

As required by section 304(b)(2)(B) of the Act, in developing the BPJ/BAT permit conditions, the Agency considered the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Director deemed appropriate.

The types of equipment and processes used in exploratory, development, and production operations are well known to the Agency. Region 10 has issued numerous individual permits for such operations, as well as the general permits referenced above. The records for this permit and those earlier permits thoroughly discuss the types of equipment, facilities and processes used in exploratory, development, and production operations. With regard to the engineering aspects of the application of various types of control techniques, there are no BAT permit limitations based on installation of control equipment. All proposed BAT permit limitations can be achieved through product substitution. Any costs of achieving the effluent limitations and any non-water quality environmental impacts were also evaluated. Such evaluations are discussed below with respect to any limitation where applicable.

As required by section 304(b)(4)(B) of the Act, the same factors as in BAT are considered in determining BCT permit conditions, with one exception. Rather than considering ''the cost of achieving such effluent reduction,'' any BCT determination includes ''consideration of the reasonableness of the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived and the comparison of the cost and level of reduction of such pollutants from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources.'' BCT effluent limitations cannot be less stringent than BPT; therefore, if the candidate industrial technology fails the BCT

''cost test,'' BCT effluent limitations are set equal to BPT.

The Agency's evaluation of the BAT factors, as discussed above, is also applicable to BCT, as well as to the Agency's BPJ determinations of BPT in cases where there is no BPT effluent limitation guideline for a particular wastestream. There is one BCT limitation based on installation of control equipment: oil and grease limits for produced water are based on the use of oil-water separators. With respect to the BCT ''cost test,'' all BCT limitations are equal to the BPT effluent limitations guidelines or to Region 10's BPJ determinations of BPT. Therefore, no incremental cost will be incurred.

B. Ocean Discharge Criteria

Section 403 of the Act requires that an NPDES permit for a discharge into marine waters located seaward of the inner boundary of the territorial seas (i.e., state and federal offshore waters) be issued in accordance with guidelines for determining the potential degradation of the marine environment. These guidelines, referred to as the Ocean Discharge Criteria (40 CFR Part 125, Subpart M), and section 403 of the Act are intended to ''prevent unreasonable degradation of the marine environment and to authorize imposition of effluent limitations, including a prohibition of discharge, if necessary, to ensure this goal'' (49 FR 65942, October 3, 1980).

If EPA determines that the discharge will cause unreasonable degradation, an NPDES permit will not be issued. If a definitive determination of no unreasonable degradation cannot be made because of insufficient information, EPA must then determine whether a discharge will cause irreparable harm to the marine environment and whether there are reasonable alternatives to on-site disposal. To assess the probability of irreparable harm, EPA is required to make a determination that the discharger, operating under appropriate permit conditions, will not cause permanent and significant harm to the environment during a monitoring period in which additional information is gathered. If data gathered through monitoring indicate that continued discharge may cause unreasonable degradation, the discharge shall be halted or additional permit limitations established.

Preliminary Ocean Discharge Criteria Evaluations for Sale 60, and a Revised Preliminary Ocean Discharge Criteria Evaluation for Sale 88 and state lease sales located in Cook Inlet, were completed for discharges from operations in these lease sale areas covered under the current permit. For the proposed permit, the Region recently updated the existing ODCE information in the *ODCE for Cook Inlet (Oil & Gas Lease Sale 149) and Shelikof Strait* (Tetra Tech 1995). The Region has determined that discharges occurring under the proposed permit will not cause unreasonable degradation as long as the depth-related conditions and environmental monitoring requirements imposed under section 403 of the Act are met.

C. Section 308 of the Clean Water Act

Under section 308 of the Act and 40 CFR 122.44(i), the Director must require a discharger to conduct monitoring to determine compliance with effluent limitations and to assist in the development of effluent limitations. EPA has included several monitoring requirements in the permit, as listed in the table in section V.A. of this fact sheet.

D. State of Alaska Standards and Limitations

Permits for discharges to state waters must ensure compliance with water quality standards and limitations imposed by the State as part of its certification of NPDES permits under section 401 of the Act. The state waters of Cook Inlet and the Gulf of Alaska have been classified by the Alaska Department of Environmental Conservation (ADEC) as marine water with water use classes 2A through 2D (water supply; water recreation; growth and propagation of fish, shellfish, other aquatic life, and wildlife; and harvesting for consumption of raw mollusks or other raw aquatic life).

The NPDES regulations at 40 CFR 122.44(d) require that permits include limits on all pollutants or parameters which ''are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality'' (54 FR 23868–23899, June 2, 1989). The regulations require that this evaluation be made using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

The regulations at 40 CFR 122.44(d) also specifically address when toxicity and chemical-specific limits are required. A toxicity limit is required whenever toxicity is at a level of concern relative to either a numeric or narrative standard for toxicity. The only exception is where chemical-specific limits will fully achieve the narrative standard. A chemical-specific limit is required whenever an individual pollutant is at a level of concern relative to the numeric standard for that pollutant. The regulations also provide three options for developing a chemical-specific limit needed to control a pollutant which does not have a numeric standard, but is contributing to a problem with achieving the narrative standard.

In proposing to reissue this permit, EPA has considered Alaska's antidegradation policy (18 Alaska Administrative Code (AAC) 70.101(c)). The reissuance of this permit will not result in additional pollutant loading to the receiving water; therefore, this action complies with the State's antidegradation policy.

E. Water Quality-based Permit Limit Derivation

Water quality-based permit limits have been derived for state waters only. In deriving permit limits, reported effluent values are compared to wasteload allocations to determine if limits are needed for individual pollutants. The wasteload allocation is the concentration (or loading) of a pollutant that may be discharged by a permittee without causing or contributing to a violation of water quality standards in the receiving water. It is calculated based on the available dilution, if appropriate, and the water quality standard. As discussed above, 40 CFR 122.44(d)(1) requires consideration of existing controls on all point or nonpoint sources of pollutants when establishing water quality-based limits on point sources.

Under 40 CFR 122.44(d)(1), water quality-based effluent limits must be included in a permit if the discharge shows ''reasonable potential'' to exceed water quality standards. EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA 1991b) (''TSD'') defines ''reasonable potential'' as being within a percentage of the wasteload allocation. The percentage increases as the uncertainty decreases. Uncertainty decreases with increased numbers of samples. The percentage is also based on the coefficient of variation (a measure of the variability) of the data. When there are not enough data to reliably determine a coefficient of variation, the TSD

recommends using 0.6 as a default value.

In deriving the water quality-based permit limits, Region 10 applied the statistical permit limit derivation approach described in the EPA guidance documents, *Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants* (EPA 1987), and the TSD. This approach takes into account effluent variability, as well as the difference in timeframes between the water quality standards and monthly average and daily maximum limits, and sampling frequency. In addition to the wasteload allocation values, EPA used the following values in deriving limits using the formulas in the guidance documents:

Probability value for long-term average calculation: 99%

Probability value for monthly average limit calculation: 95%

Probability value for daily maximum limit calculation (for parameters with greater than monthly monitoring): 99%

Probability value for daily maximum limit calculation (for parameters with monthly or less frequent monitoring): 95%

Coefficient of Variation: 0.6

The water quality-based limits proposed in the draft permit are further discussed in section V.

F. Mixing Zones

The State has issued a preliminary mixing zone determination for produced water that specifies mixing zones and dilutions for eight facilities discharging produced water to Cook Inlet. The State has notified EPA that the mixing zone request submitted by Unocal, Marathon, Phillips and Shell is adequate for incorporation into the draft permit (ADEC 1995). At each of the eight facilities, individual mixing zones are proposed for metals (acute, chronic & human health), total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH), and toxicity (see section V.G.). Wasteload allocations for produced water pollutants are calculated using the dilutions modeled by the permittees; permit limits are then calculated based on the wasteload allocation (see section III.E.).

As part of the state's certification under section 401 of the Act, the mixing zones will either be approved or modified. A mixing zone for total residual chlorine in the sanitary waste stream may also be added to the final permit, as discussed in section V.E.

The state's preliminary mixing zone determination includes mixing zones for arsenic and benzene (as a subset of TAH), both of which are human carcinogens. The state water quality standards at 18 AAC 70.032 state that

''(a) * * * The department will not authorize a mixing zone if it finds that available evidence reasonably demonstrates that * * *

(1) pollutants discharged could * * *

(B) be expected to cause carcinogenic, mutagenic, or teratogenic effects on biota or human health, so that significant human health risks could occur to consumers of water, fish, or shellfish when evaluated using reasonable assumptions about exposure pathways, including exposure duration of affected aquatic organisms in the proposed mixing zone and the patterns of fisheries use and consumption in the area; * * *

[4](b) * * * Human health and chronic aquatic life criteria apply at and beyond the boundaries of the mixing zone. Acute aquatic life criteria apply at and beyond the boundaries of a smaller initial zone surrounding the outfall. * * *''

As part of the proposal for arsenic and TAH mixing zones, permittees evaluated the potential risks to aquatic life and human health at the edge of each site-specific mixing zone. The results of the aquatic life risk assessment indicate that produced water discharged to Cook Inlet from the oil and gas facilities is not expected to be acutely or chronically toxic at the edge of the mixing zones. Similarly, the human health risk assessment results indicate that produced waters are not expected to pose significant risks to human health from the consumption of fish and shellfish in Cook Inlet.

Public comments to EPA on the proposed mixing zone and other water quality standards issues will be copied to the state of Alaska for its review. If the mixing zone approved by the state is different from the mixing zones used to calculate the limits for the draft permit, the limits in the final permit will reflect these changes.

IV. Summary of New and Changed Permit Conditions

The following discussion is intended to provide a summary of the parts of the proposed permit which are substantively different from the 1986 permit. For a detailed discussion of requirements and their bases, please refer to section V of this fact sheet. Many of the new and changed requirements result from promulgation of the final Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory in March, 1993 (see 40 CFR Part 435, Subpart A). As discussed above, the promulgated offshore guidelines apply directly to dischargers in the Offshore segment of Cook Inlet (i.e., the lower inlet). For the Coastal segment of Cook Inlet (i.e., the upper inlet), the Offshore rule is the primary basis for Region 10's best professional judgement regarding technology-based control of pollutant discharge (see section III.A.2., above); although, the proposed Coastal guidelines (60 FR 9428, February 17, 1995) are also referenced throughout this fact sheet.

The balance of new and changed requirements in the proposed permit are the result of the inclusion of water-quality based effluent limits for the produced water and any wastestreams which may be commingled with it. Water-quality based effluent limits were developed based on data collected as part of the *Cook Inlet Discharge Monitoring Study* (Envirosphere 1988–1990).

For drilling muds and drill cuttings:

- Combined wastestreams: In accordance with the Offshore guidelines, drilling muds, drilling cuttings and washwater are combined and addressed in the proposed permit as a single wastestream (Discharge 001). Previously, washwater and cuttings were considered as a separate wastestream; they are now considered by the Agency to be an intrinsic component of the drilling wastes discharge.
- Toxicity limit for drilling muds: In accordance with the Offshore guidelines, a toxicity limit of 30,000 ppm SPP is proposed.
- Oil content on cuttings: In accordance with the Offshore guidelines, Region 10 has removed the 10% by weight limitation of the oil content of cuttings.
- Barite: In previous permits, Region 10 had an option for a case-by-case waiver for stock barite not meeting mercury and cadmium limits. This waiver has been eliminated to ensure consistency with the Offshore guidelines.
- Mud Plan and Authorized Muds & Specialty Additives: Region 10 is discontinuing the case-by-case evaluation and authorization process developed under previous permits. Subsequently, discussions of authorized muds and additives and tables of approved mud formulations and specialty additives are not included in the proposed permit. The Region is proposing a requirement for operators to develop a Mud Plan to plan for compliance with the toxicity limit. Mud Plan requirements were also part of an individual NPDES permit issued to ARCO Alaska for exploratory operations

in Cook Inlet (EPA 1993b) and in the general NPDES permit for the Arctic (60 FR 27508, May 24, 1995).

For other wastes:

• Elimination of wastestream: In accordance with the Offshore guidelines and the proposed Coastal guidelines, Region 10 is prohibiting the discharge of produced sands. This prohibition is listed with limitations on produced water (Discharge 015).

• Oil and grease: In accordance with the Offshore guidelines, Region 10 is proposing oil and grease limits for produced water discharges of 29 mg/l as a monthly average and 42 mg/l as a daily maximum. (The numerical oil and grease limits are also applied to the discharge of workover, completion, well treatment and test fluids.) Limits in the previous permit were 42 mg/l and 72 mg/l (for all operators except Phillips Petroleum, which has more stringent limits).

• Best Management Practices: The proposed general permit requires permittees to develop and implement a Best Management Practices (BMP) plan which prevents or minimizes the generation of pollutants, their release, and potential release from the permitted facilities to waters of the United States.

• Produced Water: Water-quality based effluent limitations have been added for metals, total aromatic hydrocarbons, total aqueous hydrocarbons, and chronic toxicity. Not all metals are limited at all locations; monthly monitoring for metals for which compliance monitoring will not already be done, is required for one year.

• Produced Water Mixing Zones: The 1986 permit contained produced water mixing zones for Marathon Granite Point (450 m), Marathon Trading Bay (750 m) and Shell East Foreland (750 m); and interim mixing zones for Amoco platforms Anna, Baker Bruce and Dillon (625 m) and Phillips Tyonek-A (150 m). The interim mixing zones were never finalized; and none of the mixing zones was used to calculate wasteload allocations for produced water pollutants.

The State has issued a preliminary mixing zone determination for produced water that specifies mixing zones and dilutions for eight facilities discharging produced water to Cook Inlet. Chemical specific mixing zones are proposed to meet water quality criteria for metals, total aromatic hydrocarbons (TAH), total aqueous hydrocarbons (TAqH), and chronic toxicity.

• Sanitary: Chlorine limits have been changed to more accurately reflect the Alaska water quality standards pending section 401 certification of the final permit.

V. Specific Permit Conditions

A. Approach

The determination of appropriate conditions for each discharge was accomplished through:

(1) Consideration of technology-based effluent limitations to control conventional pollutants under BCT,

(2) Consideration of technology-based effluent limitations to control toxic and nonconventional pollutants under BAT,

(3) For state waters, inclusion of permit terms necessary to ensure compliance with state water quality standards and stipulations of state lease sales.

(4) Evaluation of the Ocean Discharge Criteria for discharges in the Offshore Subcategory (given conditions 1 and 2 are in place), and,

EPA first determines which technology-based limits are required and then evaluates the effluent quality expected to result from these controls. If water quality standards could occur as a result of discharge, EPA must include water quality-based limits in the permit. The permit limits will thus reflect whichever limits (technology-based or water quality-based) are most stringent. Finally, Ocean Discharge Criteria are evaluated to identify any areal or depth-related discharge requirements.

General area and depth related requirements are discussed in section V.B. of this fact sheet. Specific effluent limitations and monitoring requirements derived from 1 through 4 above are discussed separately for each wastestream in sections V.C. through H. Additional monitoring requirements based on 1 and 2 are also discussed in section III., above. For convenience, these conditions and the regulatory basis for each are cross-referenced by discharge in the following table.

Discharge and permit condition	Statutory basis	
	Coastal	Offshore
Drilling Muds and Cuttings (001):		
Flow rate limitations	§ 403	§ 403.
Depth related limits	§ 403	§ 403.
Volume	§ 308	§ 308.
Mud plan	CWA §§ 308, 304, 402, PPA § 107.	CWA §§ 308, 304, 402, PPA § 107.
Toxicity	BPJ/BAT	BAT.
No free oil	BPT, BPJ/BCT, BPJ/BAT	BPT, BCT, BAT.
No oil-based fluids	BPT, BPJ/BCT, BPJ/BAT	BPT, BCT, BAT.
No diesel	BPJ/BAT	BAT.
Mercury and cadmium in barite	BPJ/BAT	BAT.
Monitor metals	§ 308	§ 308.
Inventory of added substances	§ 308	§ 308.
Environmental monitoring requirement	§ 403	§ 403.
Deck Drainage (002):		
No free oil	BPT, BPJ/BCT, BPJ/BAT	BPT, BCT, BAT.
Monitor free oil	§ 308	§ 308.
Monitor whole effluent toxicity (direct discharge only)	§ 308	§ 308.
Sanitary Wastes (003):		
Chlorine (facilities >10 people)	BPJ/BCT	BCT.
Biological oxygen demand (BOD)	§ 401/AK WQS	not applicable.
Suspended solids (SS)	§ 401/AK WQS	not applicable.
Floating solids	BPJ/BAT	BPJ/BAT.
Monitor flow rate	§ 308	§ 308.
Marine Sanitation Devices (fecals, solids, chlorine)	§ 312, § 308	§ 312, § 308.
Domestic Wastes (004):		
No foam	BPJ/BAT	BAT.

Discharge and permit condition	Statutory basis	
	Coastal	Offshore
No floating solids	BPJ/BCT	BCT.
Monitor flow rate	§ 308	§ 308.
Miscellaneous Discharges (005–014):		
Monitor flow rate (all)	§ 308	§ 308.
No free oil (006, 010, 011, 012, 013, 014)	BPJ/BPT	BPJ/BPT.
Inventory chemicals added (005, 009, 014)	§ 308	§ 308.
Produced Water (015)		No Discharge.
Flow rate	§ 308	Do.
Produced sands	BCT, BAT	Do.
Oil and grease	BPJ/BAT	Do.
pH	BPJ/BCT	Do.
Zinc	AK WQS	Do.
Total aromatic hydrocarbons (TAH)	AK WQS	Do.
Whole effluent toxicity (WET)	AK WQS	Do.
Total aqueous hydrocarbons (TAqH)	§ 308	Do.
Completion, Workover, Well Treatment Fluids (016–018)		No Discharge.
Frequency & flow rate	§ 308	Do.
No free oil	BPT, BPJ/BCT	Do.
No oil-based fluids	BPT, BPJ/BCT	Do.
Oil and grease	BPJ/BCT, BPJ/BAT	Do.
pH	AK WQS	Do.
Monitor metals	§ 308	Do.
Test Fluids (019):		
No free oil	BPJ/BPT, BPJ/BCT	BPT, BCT.
Oil and grease limits	BPJ/BAT, BPJ/BCT	BCT, BAT.
No oil-based fluids	BPJ/BCT, BPJ/BAT	BCT, BAT.
pH	BPJ/BPT, BPJ/BCT	BPJ/BPT, BPJ/BCT.
Monitor frequency and flow rate	§ 308	§ 308.
All Discharges (001–019):		
No halogenated phenol compounds, diesel oil trisodium nitrilo-triacetic acid, sodium chromate, or sodium dichromate.	BPJ/BAT	BAT.
Sufactants, detergents, dispersants	BPJ/BAT	BPJ/BAT.
No floating solids, visible foam	BPJ/BCT	BCT.
No oily wastes	BPJ/BCT	BCT.
Area and depth related requirements	§ 403, AK WQS	§ 403, AK WQS.
Best Management Plan	§ 402(a)	§ 402(a).

B. Area and Depth-Related Requirements

The discharge restrictions and requirements listed below are necessary to ensure that unreasonable degradation of these areas will not occur as discussed above in part III.B. of this fact sheet (Ocean Discharge Criteria) and are largely unchanged from the 1986 permit to the proposed permit. Discharge within the area described below for Shelikof Strait is prohibited because of the recent determination by the National Marine Fisheries Service (NMFS) which establishes this area as a special aquatic foraging area for the Stellar Sea Lion (58 FR 45278, September, 27, 1993: 50 CFR 226.12(c)(1)).

Pertaining to all discharges, no discharge is allowed:

- In water depths less than 5 m (as measured from mean lower low water).
- Within the boundaries or within 1000 m of a coastal marsh, river delta, river mouth designated Area Meriting Special Attention (AMSA), game refuge, game sanctuary, or critical habitat area. The seaward edge of a coastal marsh is defined as the seaward edge of emergent wetland vegetation.
- In Kamishak Bay west of a line from Cape Douglas to Chinitna Point.
- In Chinitna Bay inside of the line between the points of the shoreline at latitude 59°52′45″ N, longitude 152°48′18″ W on the north and latitude 59°46′12″ N, longitude 153°00′24″ W on the south (Figure 1).
- In Tuxedni Bay inside of the lines on either side of Chisik Island (Figure 1)
  - —from latitude 60°04′06″ North, longitude 152°34′12″ West on the mainland to the southern tip of Chisik Island (latitude 60°05′45′ North, longitude 152°33′30″ West).
  - —from the point on the mainland at latitude 60°13′45″ North, longitude 152°32′42″ West to the point on the north side of Snug Harbor on Chisik Island (latitude 60°06′36″ North, longitude 152°32′54″ West).
- In Shelikof Strait south of a line between Cape Douglas (at 58°51′ North, 153°15′ West) on the west and the northernmost tip of Shuyak Island on the east (at 58°37′ North, 152°22′ West).
- Within 20 nautical miles of Sugarloaf Island as measured from a centerpoint at 58°53′ North and 152°02′ West.

Discharges are prohibited in waters shallower than 5 m because shallow nearshore waters in Lower Cook Inlet are an important habitat for many species. In addition, dilution and dispersion of drilling mud discharges in waters less than 5 m deep is uncertain given that the field data are limited and that the available models of mud dilution and dispersion are not field-verified for shallow depths. Chinitna, Tuxedni, and Kamishak Bays are, or are continuous with, areas of high resource value. In addition, Kamishak Bay is a known net depositional environment where accumulation of drilling mud solids and other pollutants would be likely to occur if allowed to be discharged in this area.

The condition restricting discharges within 1,000 m of coastal marshes, river deltas, and other areas is necessary to comply with local and state Coastal Zone Management Plan prohibitions on discharges of silt materials in these areas, or on activities that may alter the protected biological resources of these areas. The following state game refuges (SGR), game sanctuaries (SGS), critical habitat areas (CHA), and areas meriting

special attention (AMSA) are located in the area covered by this permit.

Palmer Bay Flats SGR
Goose Bay SGR
Potter Point SGR
Susitna Flats SGR
McNeil River SGS
Redoubt Bay CHA
Trading Bay SGR
Kalgin Island CHA
Clam Gulch CHA
Kachemak Bay CHA
Anchorage Coastal Wildlife Refuge
Port Graham/Nanwalek AMSA

The legal descriptions of these state specialty areas are found in Alaska Statute (AS) 16.20. The present boundaries of these state special areas are described in ''State of Alaska Game Refuges, Critical Habitat Areas, and Game Sanctuaries.'' Further information may also be obtained from the Alaska Department of Fish and Game, Habitat Division, Regional Supervisor, 333 Raspberry Road, Anchorage, Alaska 99518–1599; phone (907) 267–2284 or (907) 267–2342.

C. Discharge 001 (Drilling Muds and Cuttings)

The term ''drilling fluid'' generally includes all compositions of fluids used to aid the production and removal of cuttings (particles from geological formations) from a borehole in the earth. The essential function of drilling fluids are:

- to carry cuttings to the surface,
- to cool and clean drill bit & reduce friction in the borehole,
- to maintain pressure balance between formation and borehole in uncased sections of hole, and
- to assist in collection and interpretation of information available from cuttings, cores, electrical logs, etc.

All drilling fluids fall into one of three classes based on their principal components: gas (e.g., mist or foam), water, or oil. When the main component of the drilling fluid is liquid (i.e., water or oil), it is referred to as ''mud.'' All of Region 10's previous permits only cover the discharge of muds because gas fluids are not used for most offshore or coastal drilling operations.

As discussed in subsections 1 and 2 below, the discharge of oil-based muds is limited because they do not comply with the no free oil limitation. Furthermore, the discharge of diesel oil as a mud base or as part of an additive is strictly prohibited. The basis for the diesel prohibition is substitution of mineral oil (which is less toxic) when lubrication is required.

As discussed in section III.A. and as shown on Table 1, the following BCT- and BAT-based permit requirements are based on the Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory, promulgated by the Agency in March, 1993 (40 CFR Part 435, Subpart A). In the absence of promulgated rules for coastal (i.e., upper) Cook Inlet, EPA has used Best Professional Judgement in applying BCT and BAT Offshore requirements to all applicable Coastal operations although the acronyms ''BPJ/BCT'' and ''BPJ/BAT'' are not added in the discussion below. To simplify the discussion, the bases for establishing permit limits are discussed in terms of the applicable Offshore Guidelines, BCT and BAT.

1. BCT Limitations on Drilling Muds and Cuttings

Free oil & oil-based muds: No free oil is permitted from the discharge of drilling mud, drill cuttings, or washwater, based on BPT guidelines. The discharge of oil-based drilling fluids is prohibited since oil-based fluids would violate the BCT effluent limitations of no discharge of free oil. These discharges have been subject to a no free oil limitation in previous permits issued by Region 10 and past practices have not resulted in violations of the limitation. No technology performance data available to Region 10 indicate that more stringent standards are appropriate at this time. Region 10 has, therefore, set BCT limitations equal to the BPT level of control. As such, these limitations impose no incremental costs.

Compliance with the free oil limitation will be monitored by year-round use of the Static Sheen Test daily and before bulk discharges. Region 10 requires use of the Static Sheen Test because visual observation of the discharge for sheen upon the receiving water will not prevent violations of the standard. This test is also appropriate for the harsh weather and extended periods of darkness common in Alaska.

Previous permits issued by Region 10 contained a limit on the oil content of cuttings (not to exceed 10% (wt), based on use of cuttings washers). In the proposed permit, however, the 10% (wt) limit has been rejected in favor of the no free oil limitation contained in the Offshore guidelines (58 FR 12454, March 4, 1993). The Agency rejected an oil content limit because limitations on other pollutant parameters (diesel oil, free oil and toxicity) are sufficient to reduce toxics from drilling wastes (at 56 FR 10682 and 56 FR 10685, March 13, 1991). Because the no free oil limitation is more stringent than the 10% (wt) limitation on the oil content of cuttings, this change does not invoke antibacksliding provisions (see 40 CFR 122.44(1)(2)).

Oil content of cuttings: The proposed permit limits the discharge of oil-contaminated drill cuttings by prohibiting the discharge of free oil, which is BCT (see Part III.B. of the permit). The proposed permit requires an analysis of cuttings for oil content daily when oil-based drilling fluids or mineral oil additives are used. In addition, analysis is required immediately on any sample that has failed the daily Static Sheen Test if a discharge has occurred. Two alternative analytical methods for determining the oil content of drill cuttings are specified in the permit: (1) the soxhlet extraction procedure for oil and grease (as specified in 40 CFR Part 136), and (2) the American Petroleum Institute (API) retort distillation procedure for oil (Recommended Practice 13B, 1990).

2. BAT Limitations on Drilling Muds and Cuttings

Diesel oil: The discharge of drilling muds and cuttings which have been contaminated by diesel oil is prohibited by the Agency, in accordance with the offshore oil and gas effluent guidelines (58 FR 12469, March 4, 1993). The prohibition on the discharge of diesel oil has been part of all of the general NPDES permits issued by Region 10 for the Offshore and Coastal Subcategories. Diesel oil, which is sometimes added to a water-based mud system, is a complex mixture of petroleum hydrocarbons, known to be highly toxic to marine organisms and to contain numerous toxic and nonconventional pollutants. The pollutant ''diesel oil'' is being used as an ''indicator'' of the listed toxic pollutants present in diesel oil which are controlled through compliance with the effluent limitation (i.e., no discharge). The technology basis for this limitation is product substitution of less toxic mineral oil for diesel oil.

Mercury and Cadmium in Barite: In accordance with the offshore oil and gas effluent guidelines (58 FR 12569, March 4, 1993), the proposed permit contains limitations of 1 mg/kg mercury and 3 mg/kg cadmium in barite. Barite is a major constituent of drilling muds. These restrictions are designed to limit the discharge of mercury, cadmium, and other potentially toxic metals which can occur as contaminants in some sources of barite. The justification for the limitation under BAT is product substitution. That is, Alaskan operators can substitute ''clean'' barite, which meets the above limitations, for contaminated barite, which does not meet the limitations. Numerous offshore

exploratory wells and the production wells drilled under permits previously issued by Region 10 have been drilled subject to this requirement. Chemical analyses have shown that the barite used has not exceeded the limitations. Given that ''clean'' barite is available and that operators have been complying with this limitation in previously issued permits, Region 10 believes that this limitation is both technologically feasible and economically achievable.

EPA has eliminated a waiver provision for the barite limits which was in the previous permits. The waiver stipulated that if a permittee was unable to comply with the barite limitations due to the lack of availability of barite which meets the limitation, then the permittee could request a case-by-case waiver allowing the discharge of barite which exceeded the limits (53 FR 37858, September 28, 1988). As a part of the effluent guidelines development, EPA investigated the availability of domestic and foreign supplies of barite to meet the cadmium and mercury limits. The Agency also considered the potential for the increased demand for clean barite stocks resulting from this rule to cause a rise in the cost of barite. (See the Development Document (EPA, 1993a) and the Economic Impact Analysis for detailed discussion on the availability and economic availability.) EPA concluded that ''there are sufficient supplies of barite capable of meeting the limits of this rule to meet the needs of offshore drilling operations (58 FR 12480, March 4, 1993). As a result, the waiver provision was not in the general NPDES permit for the Arctic (60 FR 27508, May 24, 1995), nor is it proposed here.

Discharge Toxicity: Region 10 is proposing a toxicity limit of 30,000 ppm on the suspended particulate phase (''SPP'') (a 96-hour LC50) on discharged drilling muds as a technology-based control on toxicity and toxic and nonconventional pollutants. The numeric effluent limit is based on the BAT as promulgated for the Offshore Subcategory (48 FR 1254, March 4, 1993). Compliance with the drilling mud toxicity limit will be monitored on a monthly basis for each well. When the end-of-well is reached, a final bioassay analysis will be required (see permit Part III.B.2.g.). In cases where mineral oil pills are used near the end-of-well, the Region will accept the bioassay reports required for pills as the end-of-well report (see permit Part III.B.2.g.).

It is important to note the inverse relationship between the 96-hr LC50 value of 30,000 ppm SPP and toxicity. The 30,000 ppm limit is the concentration (of mud in the suspended particulate phase) at which 50% mortality of the tested organisms (*Mysidopsis bahia*) occurs. As the 96-hr LC50 value increases, higher concentrations of mud are required to reach 50% mortality within the 96-hr test period; in other words, toxicity decreases as 96-hr LC50 values increase. Thus, the permit limit of 30,000 ppm SPP (96-hr LC50) is actually a minimum LC50 value used to represent the maximum toxicity allowed for drilling mud discharges.

The toxicity limit is an end-of-pipe discharge limit and represents a different approach to controlling this wastestream than the Region used previously. When the first general permits were issued during development of the Offshore guidelines, Region 10 developed a case-by-case approach to limiting the toxicity of discharged mud/additive systems as BPJ determination of BAT. In this approach, Region 10 used the 96-hr LC50 value of 30,000 ppm SPP value as a criterion in evaluating available bioassay data for the proposed mud/additive discharges. Now, Region 10 is discontinuing the mud preapproval process in favor of the end-of-pipe limitation based on promulgation of BAT for the Offshore subcategory (48 FR 1254, March 4, 1993). The end-of-pipe toxicity limitation for muds/additives was first applied in an individual NPDES permit issued for exploratory drilling in 1993 (EPA 1993d), followed by the general NPDES permit for the Arctic (59 FR 48314, September 20, 1994, and 60 FR 27508, May 24, 1995).

Drilling Mud Formulation: The proposed permit requires permittees to develop and implement a ''Mud Plan'' for each well drilled. The proposed permit does not authorize specific drilling fluid formulations or specialty additives in the way that past general NPDES permits issued for Alaskan operations have done. As discussed above, the discharge of oil-based drilling fluids or diesel oil is prohibited. Region 10 believes that an end-of-pipe toxicity limit for drilling muds in conjunction with implementation of a Mud Plan (containing specific mud/additive formulations) for each well constitutes BAT and ensures that the principles of best management practices and pollution prevention are met. The Mud Plan is discussed below as a permit requirement based on section 308 of the Act.

Oil-based Drilling Muds: As in all previous general oil and gas permits, and is discussed above under BCT for control of free oil, the proposed permit prohibits the discharge of ''oil based muds.'' Previous permits, however, have not defined ''oil-based'' other than in terms of aqueous and dispersed phases. Based on comments Region 10 received on the general NDPES permit for the Arctic (EPA 1995d) and on interagency-industry studies in which EPA is involved, the proposed permit defines ''oil-based'' mud as a drilling mud with fossil-derived petroleum hydrocarbons as the continuous phase, and prohibits discharge of such a fluid. Discharges of ''non-petroleum'' or ''non-fossil-derived'' (hereinafter ''synthetic'') fluids (where the continuous phase consists of non-petroleum hydrocarbons) may be discharged and are required to meet all of the effluent limitations for drilling muds (e.g., toxicity, free oil (sheen), no diesel).

Synthetic-based drilling muds are currently used in offshore drilling outside of the United States and have potential for reducing the amount of cuttings generated and fluids discharged because they are frequently employed with slim-hole or coiled-tube drilling technologies. Preliminary data indicate that the toxicity of synthetic muds compares favorably with drilling fluids discharged under Region 10's various general NPDES permits. At a national level, the Agency is involved in a joint industry-agency group which is reviewing synthetic fluids with respect to toxic and nonconventional pollutants and appropriate analytical methods for monitoring these muds (EPA 1995d). Until such time as the joint industry-agency workgroup completes its evaluation of synthetic fluids and issues findings, Region 10 proposes the revised definition of ''oil-based'' muds to accommodate the discharge of synthetic muds as long as all other effluent limitations are met, including no discharge of free oil determined by the Static Sheen Test.

In cases where the discharge of cuttings from synthetic muds may fail the static sheen test, the Agency has determined such a discharge would not be in accordance with 40 CFR 122.28(2)(ii)(B), (C), and (D) requirements for coverage under the proposed general permit. Specifically, such a discharge may exhibit a higher free oil content (albeit from a non-petroleum based oil) and require unique effluent limitations and monitoring requirements such as those being evaluated by the joint industry-agency workgroup. Dischargers in this situation should contact Region 10 to submit an application for an individual NPDES permit.

3. Section 308 Requirements for Muds and Cuttings

Mud Plan: As mentioned above, Region 10 is discontinuing authorization of individual mud/additive systems. Instead EPA is shifting the responsibility of case-by-case evaluations from the Region to the operator. Resources no longer allow Region 10 to perform case-by-case evaluations or to issue discharge authorizations for each drilling mud/additive system. Hence, the proposed permit contains a requirement that the permittee develop, have on-site, and available upon request a plan for discharge of drilling muds and additives (hereafter called ''Mud Plan''). Permit requirements for the Mud Plan make it analogous to analyses that the Region conducted in the past in development of drilling mud authorizations.

The basis for the Mud Plan requirement is section 308(a)(A) of the Act which provides that EPA may require the permittee to establish and maintain records and/or reports that will assist the Region to determine compliance with other requirements and effluent limitations of the permit. Since the mud plan is one component of the Best Management Practices Plan, additional authority for the mud plan is implicit in the authority to include BMP plans in NPDES permits. Pursuant to sections 304(e) and 402(a) of the Act, BMP plans may be included as conditions in NPDES permits. The mud plan requirement is also based upon the Pollution Prevention Act (section 107(b)(3)) and its policy of prevention, reduction, recycling, and treatment of wastes (PPA section 102(b)) through measures which include process modification, materials substitution, and improvement of management (PPA section 107(b)(3)).

The goal of requiring development of a mud plan is to ensure that personnel on-site are knowledgeable about the information needed and the methods required to formulate the mud/additive systems in order to meet the effluent toxicity limit. Simply put, the mud plan is intended to be a written guide for planning, and using, a mud/additive system in compliance with the permit.

Region 10's case-by-case approach to evaluating discharge of mud/additive systems coupled with use of worst-case cumulative toxicity estimates as bases for authorization, has been conducive to the discharge of muds with lower toxicity than elsewhere in the OCS. To date Alaskan operators have demonstrated that thorough planning and evaluation of mud/additive systems with respect to possible cumulative toxicity does consistently result in discharge of muds that are less toxic than the 30,000 ppm SPP limit.

The mud plan is intended to demonstrate that the discharged mud/additive system for the well in question will meet the effluent limit of 30,000 ppm SPP based on the following decision criteria:

—Estimates of worst case cumulative discharge toxicity (either calculated or actual toxicity test results);
—Estimates of toxicity of discharged mud when a mineral oil pill has been used; and
—Use of less toxic alternatives where possible.

The mud plan shall also include a clearly stated procedure for dealing with situations in which additives not originally planned for are needed at the ''last minute.'' This procedure should enable drilling and mud personnel to determine whether an additive or mud component may be added to the circulating mud system without significant effect upon the discharge toxicity. Criteria for reaching this type of ''last minute'' additive decision shall be clearly specified in the mud plan. In addition to developing the mud plan, the operator is also required to certify that the mud plan is complete, on-site, and available upon request (see Part III.B.1.c. of the permit). Certification is due no later than submission of their written notice of intent to commence discharge (see Parts I.A.3., I.B.3., I.C.3. and II.C.3.c. of the permit).

Region 10 first proposed requirements for a Mud Plan in the individual NPDES permit written and issued for exploratory operations in upper Cook Inlet in 1993 (EPA 1993d). Permit requirements for a Mud Plan were next proposed in the draft general NPDES permit for the Arctic (59 FR 48314, September 20, 1994) and garnered many comments. Region 10 responded to comments on the Mud Plan by modifying the final Arctic general permit (60 FR 27508, May 24, 1995) and by developing an example Mud Plan, which is available upon request.

Other: In addition to the Mud Plan, the discharge monitoring requirements listed below are based on section 308 of the Act and 40 CFR 122.44(i) to determine compliance with, or the possible need for, effluent limitations in the permit. All of the data below have been required in general permits previously issued by Region 10.

(1) Chemical analysis (barium, cadmium, chromium, copper, mercury, zinc and lead).

(2) Chemical inventory (discharged mud composition and toxicity test results).

(3) Volume discharged.

In both the proposed permit and in the final Arctic permit (60 FR 27508, May 24, 1995) permittees must draw a sample of mud of sufficient size to allow for analyses of both total and total recoverable metals; whereas, permits issued prior to 1994 required analyses only for total metals. This requirement will enable the Region to better evaluate the impact of metals in the mud discharge.

4. Section 403(c) Requirements for Muds and Cuttings

Flow rates: In addition to restrictions on all discharges imposed under section 403(c) of the Act and discussed in section III.B. of this fact sheet, muds and cuttings discharges are limited to the following maximum rates. These limitations are identical to those contained in the 1986 general permit.

- 1,000 bbl/hr on total muds and cuttings in waters greater than 40 m deep.
- 750 bbl/hr on total muds and cuttings in waters deeper than 20 m but not deeper than 40 m.
- 500 bbl/hr in waters deeper than 5 m but not deeper than 20 m.
- no discharge in waters shallower than 5 m.

These limits were established because, for any given discharge rate, the dilution of drilling muds and cuttings is not as great in shallow waters as in deeper waters. At any particular water depth, however, dilution near the point of discharge will increase as the rate of discharge decreases. Limiting maximum discharge rates will ensure that acceptable toxicity limits will not be exceeded at the edge of the 100 mixing zone (EPA 1986a, Tetra Tech 1995). (The 100 m mixing zone is defined in regulations for section 403 of the Act at 40 CFR Subpart M, 125.121(c)).

D. Discharge 002 (Deck Drainage)

Deck drainage includes all waste resulting from deck washings, spillage, rainwater, and run-off from gutters and drains including drip pans and work areas. Oil and grease are the primary pollutants identified in deck drainage. In addition to oil, various other chemicals used in drilling operations may be present, as discussed below.

1. BPT, BCT and BAT Limitations on Free Oil in Deck Drainage

As discussed in section III.A. and as shown on Table 1, the following discussion of BCT- and BAT-based permit requirements is based on the Effluent Limitations Guidelines and New Source Performance Standards for

the Offshore Subcategory, promulgated by the Agency in March, 1993 (40 CFR Part 435, Subpart A). In the absence of promulgated rules for coastal (i.e., upper) Cook Inlet, EPA has used Best Professional Judgement in applying BCT and BAT Offshore requirements to all applicable Coastal operations, although the acronyms ''BPJ/BCT'' and ''BPJ/BAT'' are not discussed above.

No free oil is permitted from the discharge of deck drainage. This limit is the current BPT level of control, and is also the appropriate level of control under BCT and BAT. Deck drainage was subject to this limitation in the previous permits issued by Region 10, and past practices have not resulted in violations of this limit. Monitoring of free oil to determine compliance with this limitation is required under section 308 of the Act.

2. Section 308 Requirements for Deck Drainage

Monitoring and analyses of deck drainage is warranted based on the prevalence of both aliphatic and aromatic hydrocarbons, and inorganics, as explained below.

The Cook Inlet Discharge Monitoring Study (CIDMS) required participants to inventory and report the various products that comprise the deck drainage wastestream. The CIDMS addressed deck drainage specifically because little was understood about the wastestream when the 1986 general permit was written. As stated in the response to comments issued with the final 1986 permit, EPA intended to use the chemical information on products contained in deck drainage to determine whether or not further monitoring and analysis of the wastestream was warranted (51 FR 35460, October 3, 1986).

From April 1987 through April 1988, operators reported product names, product uses and estimated application rates (e.g., gal/month). The CIDMS report identifies 35 types of cleaners and solvents, none of which are used more frequently than any other product. Material safety data sheets and product information on all of the identified products are included in the CIDMS report; some product components are not revealed, however, because they have been identified as proprietary trade information. The following product components, identified in CIDMS, are likely to be present in deck drainage and are of particular interest with respect to water quality.

Terpene hydrocarbon
Nonylphenols
Pine oil
Ethylene glycol
Polyglycol
Aromatic naphtha
Heavy aliphatic naphtha
Alkyl & oxyalkyated phenols
(Sodium) hypochlorite
Gluteraldehyde
Butylated Hydroxytoluene
Isopropyl alcohol
Alkyldimethylbenzyl ammonium chlorides
Methanol
Phosphate

In addition, aluminum, barium, iron, manganese, magnesium and titanium may also be found in deck drainage, according to the Agency's Development Documents for both the final Offshore and the proposed Coastal guidelines (EPA 1993a, EPA 1995a).

The proposed permit requires whole effluent toxicity (WET) tests to measure the chronic toxicity of deck drainage using the analytical methods required for produced water (see Part III.F. of permit). The proposed WET monitoring applies only to platforms that do not commingle deck drainage and produced water, because commingled deck drainage/produced water discharges are subject to produced water WET limitations (permit Part III.F.). WET sampling and protocols are discussed in more detail in section V.G.3. of this fact sheet. Monitoring is required twice each year at the beginning of the wettest times of the year during peak deck drainage flow; contaminant concentrations are likely to be highest at these times. Finally, the proposed monitoring requirements do not apply to exploratory platforms because exploratory operations are short-lived and may not occur in the Inlet during wet weather, when deck drainage flows are expected to be highest. The production platforms are permanent and have some existing qualitative data (Envirosphere 1989a) which may be useful when Region evaluates the WET monitoring.

E. Discharges 003 and 004 (Sanitary and Domestic Wastes)

Sanitary and domestic wastestreams include the wastes collected from toilets, urinals, showers, sinks, eye- and hand-wash stations, fish-cleaning stations, galleys and laundries. The pollutants in these wastestreams are: fecal coliforms (FC), residual chlorine (from treatment for coliforms), suspended solids (SS), biochemical oxygen demand (BOD), floating solids and visible foam.

1. BCT, BAT, and Water Quality-based Limitations for Sanitary and Domestic Wastes

As discussed in section III.A. in the absence of promulgated rules for coastal (i.e., upper) Cook Inlet, EPA has used Best Professional Judgement in applying BCT Offshore requirements to all applicable Coastal operations, although the acronym ''BPJ/BCT'' is not added to the discussion below. To simplify the discussion, the bases for establishing permit limits are discussed in terms of the applicable BCT or BAT Offshore Guidelines.

Floating Solids: The BCT prohibition on floating solids is equivalent to the current level of control for sanitary wastes in existing permits. Region 10 has determined that the BCT effluent limitations guideline of no discharge of floating solids from the discharge of sanitary wastes should apply to all other discharges as well. Other discharges have been subject to this limitation in previous permits and past practices have not resulted in violations of this limitation. No technology performance data available to Region 10 indicate that a more stringent standard is appropriate at this time. Therefore, Region 10 has determined that the BCT effluent limitation on floating solids from these discharges is equal to the BPT level of control. As such, the extension of this limitation to all discharges will involve no incremental cost.

Any facility using a marine sanitation devise (MSD) that complies with pollution control standards and regulations under section 312 of the Act in considered to be in compliance with the prohibition of floating solids.

Visible Foam: The promulgated Offshore guidelines set BAT for domestic wastes equal to no discharge of visible foam. Region 10 has determined this limitation is also appropriate for discharges occurring in the Coastal subcategory as well as for the discharge of sanitary wastes.

Chlorine: Chlorine is added to the sanitary waste stream to control fecal coliforms in the discharge, and is regulated by the Agency in the offshore oil and gas effluent guidelines as a conventional pollutant. In the 1986 Cook Inlet and other oil and gas permits, BCT for total residual chlorine (TRC) required that TRC levels be maintained as close as possible to, but no less than, 1 mg/l in sanitary waste discharges for facilities staffed by ten or more people. The intent of this standard is to ensure adequate disinfection of waste through chlorination, while minimizing the addition of excess chlorination to the environment. In the proposed permit,

this BCT limit applies to federal waters. In state waters, the BCT chlorine limit has been proposed, but may be changed by ADEC's application of state water quality standards when the final permit is certified under section 401 of the Act. Water quality-based limits for TRC are discussed in section V.E.2., below. Weekly monitoring for TRC during peak periods of sanitary system flow is proposed. Any facility using a marine sanitation devise (MSD) that complies with pollution control standards and regulations under section 312 of the Act is considered to be in compliance with the TRC limitation.

For state waters, the proposed BCT end-of-pipe limit is based on the assumption that a mixing zone will be added to the final permit by ADEC as part of its certification under section 401 of the Act. If a mixing zone is added to the permit, it is anticipated that the Alaska water quality standard of 2.0 µg/l will apply at the edge of the mixing zone. The ''as close as possible to 1 mg/l'' portion of the BCT standard will still apply end-of-pipe, which effectively places an upper limit on the amount of chlorine that can be added to the sanitary wastestream and limits the size of a mixing zone.

If a mixing zone is not added to the final permit by ADEC, state water quality standards for TRC and fecal coliform will be added to the permit for state waters only. The Alaska water quality standard of 2.0 µg/l is the applicable criterion for a TRC end-of-pipe limitation, since the Alaska water quality standard is more protective than the BCT standard against the toxic effects of chlorine. Based on the method for deriving permit limits recommended in the TSD (EPA 1991b), the TRC limit will be changed in the final permit to a 1.0 µg/l monthly average and 2.0 µg/l daily maximum at the point of discharge. In order to ensure adequate treatment of fecal coliform, a fecal coliform limit of 43 FC/100 ml (daily maximum) and 14 FC/100 ml (monthly median) will also be added to the final permit. The Alaska standard for fecal coliform states that the median ''most probably number'' (MPN) shall not exceed 14 FC/100 ml, and not more than 10% of the samples shall exceed a FC MPN of 43 FC/100 ml. The proposed monthly median limitation of 14 FC/100 ml is derived directly from the Alaska standard. The proposed daily maximum of 43 FC/100 ml reflects the Alaska standard as long as the number of samples collected per month does not exceed ten. Since weekly sampling would be required, Region 10 has determined that 43 FC/100 ml appropriately reflects the Alaska standard.

3. Technology-based Limitation Based on Section 401 Certification of Prior Permit

Suspended Solids (SS) and Biochemical Oxygen Demand (BOD): The following SS and BOD limits are proposed for state waters only.

$SS_{effluent}$ limit	BOD limit	
SS_{intake} + 60 mg/l	60 mg/l	Daily maximum.
SS_{intake} + 45 mg/l	45 mg/l	Weekly average.
SS_{intake} + 30 mg/l	30 mg/l	Monthly average.

The proposed limits for BOD are identical to those contained in the 1986 permit while the proposed SS limits have been changed from the 1986 permit. Monitoring frequency has increased from monthly to weekly.

The 1986 permit contained BOD and SS limitations of 60 mg/l (24-hours), 45 mg/l (7 consecutive days), and 30 mg/l (30 consecutive days). These limits were required by the State in its section 401 certification (for discharges to state waters only), and were more stringent than EPA's BCT-based limitations for the sanitary wastestream. These numeric limits are required by state law under the Alaska definition of secondary treatment (18 AAC 72.990 (42)). In reissuing this permit, EPA must include the State's section 401-based limits on sanitary BOD and SS from the previous permit (40 CFR 122.44(l)). To not include these limits for discharge would constitute backsliding.

Note that the proposed permit addresses these numeric limits in terms of weekly and monthly averages rather than in terms of consecutive days. Standard NPDES reporting for weekly averages (i.e., sum of all daily discharges divided by the number of daily discharges) and monthly averages (i.e., the average of daily discharges calculated over a monitoring month) is different than the reporting required for limits based on −24 ''consecutive days'' (i.e., a rolling average). Region 10 anticipates that using standard NPDES terms in the proposed permit will alleviate some of the confusion and reporting complications generated by use of ''consecutive days'' in the 1986 permit.

The SS standard is technology-based and comes from the State's definition of secondary treatment (18 AAC 72.990(42)). Under 40 CFR 122.45(g)(1)(ii), technology-based effluent limitations may be adjusted to reflect credit for pollutants in the intake water if dischargers demonstrate control systems would meet effluent limits in the absence of pollutants in intake waters. Furthermore, credit for intake pollutants may only be granted under the following conditions:

- Constituents of the generic measure (i.e., SS in this case) in the effluent are substantially similar to constituents of the generic measure in the intake water, and
- intake water comes from the same body of water into which discharge occurs.

A review of past compliance data indicates that operators are not consistently meeting the technology-based SS limits in the current permit. At the request of SWEPI, Marathon, and Unocal, Region 10 has reviewed the nature of sanitary waters, their makeup and treatment prior to use in the system as well as sanitary treatments used on platforms. SS in the effluent is substantially similar to SS in the intake: there is no other source of SS in the effluent except in cases where domestic wastes are commingled with sanitary wastes. In these cases, domestic solids are removed by final sanitary treatment. In all cases, the source of sanitary intake water is Cook Inlet, which is also the discharge receiving water.

Region 10 has determined that high concentrations of SS in effluent are most likely due to high SS concentrations in the intake water used in sanitary systems. To understand how high SS in intake affects SS concentrations in the discharge, the process of taking water onboard and treating it is described as follows. Water is required on platforms for many purposes, of which two tolerate saline water (i.e., waterflood injection and sanitary systems). The general practice to provide water for waterflood and sanitary systems is to take water directly from Cook Inlet and treat it for either application. Primary treatment is solids removal with filters or varying screen sizes. In many cases, water destined for use in sanitary systems is diverted directly to the

system after primary screening and/or filtration. Water used for waterflooding injection receive further treatment to remove both solids and oxygen.

Ideally, sanitary makeup water should also receive further treatment to remove solids before entering the sanitary system. Platforms are capable of removing SS; however, the technology for further solids removal is so closely associated with oxygen stripping for waterflood that considerable retro-fitting would be needed to divert water to the sanitary system before oxygen is removed. (Water with low oxygen is corrosive and not generally suitable for use in sanitary systems.) Furthermore, there is limited space available to install the additional filters and/or screens that would be needed to treat sanitary makeup water for SS to the same degree that waterflood makeup is treated.

Under 40 CFR 122.45(g)(1)(ii), Region 10 has determined that it is appropriate to propose effluent limitations for SS based on intake (or makeup) water plus ADEC's technology-based, secondary treatment limits. The effluent limits proposed for SS are based on the SS concentration of intake water after the water has received primary treatment for SS removal.

Permittees are required to monitor makeup water at a point immediately prior to the water entering the sanitary system. These values shall be reported on DMRs and labelled as SS_{intake}. Effluent shall be monitored and reported as the sums shown above. Eighteen months after the effective date of the permit, Region 10 will evaluate the DMR data to determine whether the SS limits should be modified.

Region 10 proposes to increase monitoring frequency from monthly to weekly in order to address compliance concerns. The overall increased monitoring for SS will enable Region 10 to determine (1) the nature of past noncompliance with numeric limits in the 1986 permit and (2) appropriate numeric SS limits based on the nature of Cook Inlet makeup water. Under section 308 of the Act and 40 CFR 122.44(i), the proposal for increased monitoring of BOD and SS in make-up water and the sanitary discharge is both reasonable and necessary. Region 10 does not propose any change to BOD limits other than monitoring and reporting frequency.

For the discharges to federal waters (i.e., operations on blocks leased under federal sales), any facility using a marine sanitation device (MSD) that complies with pollution control standards and regulations under section 312 of the Act shall be deemed to be in compliance with a limit of no floating solids, until the device is replaced or found not to comply with such standards and regulations.

4. Section 308 and Section 312 Requirements for Sanitary and Domestic Wastes

Based on section 308 of the Act, the proposed permit requires Permittees to estimate and report flow for each of these wastestreams. In addition, for platforms using U.S. Coast Guard certified marine sanitation devices (MSDs), the proposed permit requires Permittees to monitor the sanitary wastestream twice each month and submit the following information:

- FC and the estimated number of persons aboard for the 5 days preceding the sample.
- SS.
- TRC.

The information and data on FC and SS will be used for comparison with standards set forth at 40 CFR 140.3(d) for MSDs. (These regulations are based on section 312 of the Act.) As mentioned above, the proposed permit assumes that a Coast Guard certified MSD will comply with the BCT-based limits for TRC of ''as close as possible to but no less than 1 mg/l'' and the requirement for ''no floating solids.'' While these assumptions are consistent with all offshore general permits issued previously by Region 10, TRC monitoring data required by the proposed permit will allow Region 10 to reassess its assumption for this pollutant.

F. Discharges 005–014 (Miscellaneous Discharges)

1. General Descriptions

Miscellaneous discharges are: desalination unit wastes (005); blowout preventer fluid (006); boiler blowdown (007); fire control system test water (008); non-contact cooling water (009); uncontaminated ballast water (010); uncontaminated bilge water (011); excess cement slurry (012); mud, cuttings and cement at seafloor (013); waterflooding discharges (014). The wastestream characterizations below are based on the Development Document for the Offshore guidelines (pp. X–38–42, EPA 1995b and Envirosphere 1989b, 1989c, 1989d), the 1986 general permit, and CIDMS reports.

Desalination unit wastes: This is wastewater associated with the process of creating fresh water from saltwater. The process itself is generally either distillation or reverse osmosis. The wastewater is a high-concentration brine very similar to seawater in composition but with higher concentrations of anions and cations.

Blowout preventer (BOP) fluid: These are fluids used to actuate the hydraulic equipment on blowout preventers. The fluid itself is generally an oil (vegetable or mineral) or antifreeze solution (e.g., glycol). The blowout preventer equipment may be located on the seafloor or on a platform and is designed to maintain the pressure in a well that cannot be controlled by drilling mud. Small quantities of BOP fluid are discharged when BOPs are tested.

Ballast: This is seawater added or removed to maintain proper draft for the purpose of platform stabilization. Unlike tank ballast water, uncontaminated ballast water is taken from waters adjacent to the platform (i.e., Cook Inlet) and will, at worst, be contaminated with oily slop water.

Bilge water: This is seawater which collects in the lower internal parts of a drilling vessel's hull and may be contaminated with oil & grease or rust. Bilge water is directed to an oil/water separator before discharge, which occurs intermittently.

Muds, cuttings and cement at the sea-floor: These wastes result from marine riser disconnect and well abandonment and plugging. Compared to discharge of muds and cuttings (Discharge 001), these volumes are small.

Boiler blowdown: The discharge of circulation water and minerals from boilers necessary to minimize solids build-up in the boilers. This is another intermittent discharge.

Excess cement slurry: This wastestream is the result of equipment washdown after a cementing operation.

Waterflooding: These discharges are associated with the treatment of seawater prior to its injection into a hydrocarbon-bearing formation to improve the flow of hydrocarbons from production wells. Seawater is taken aboard and treated to remove solids and dissolved oxygen, additional treatment may include flocculants, scale inhibitors, oxygen scavengers, and biocides. This wastestream also includes strainer and filter backwash water and excess treated water not injected. Of all the miscellaneous wastestreams discussed here, waterflood varies most widely in terms of volumes discharged—ranging from 6,300 to 1,793,820 gallons per day (gpd) (estimated daily averages, (Envirosphere 1989c)).

Fire control system test water: This is treated seawater which is released during the training of personnel in fire protection and the testing and maintenance of fire protection equipment.

Non-contact cooling water: This is water which circulates across crude oil or produced water tanks, power generators or other machinery for the purpose of cooling. As implied by the name, this water does not come in contact with product, produced water or the machinery it cools; although it may be treated with biocide to prevent fouling in heat exchangers.

2. BPJ/BPT Effluent Limitation

Neither the promulgated Offshore guidelines nor the proposed Coastal guidelines address the wastestreams described above. The Agency's basis for not addressing these wastestreams in either guideline is that they are more appropriately controlled by regionally issued NPDES permits such as the one proposed today. As discussed in section III.A., above, Region 10 has used Best Professional Judgement (BPJ) in applying permit limits and requirements for these miscellaneous wastestreams in the absence of promulgated technology-based guidelines.

No free oil: Region 10 has determined that no free oil shall be discharged in those wastestreams that are likely to be oil-contaminated. That is, a no free oil limitation is proposed for bilge water, uncontaminated ballast water, blowout preventer fluid, excess cement slurry and the discharge of muds, cuttings and excess cement at the seafloor. The proposed permit also requires bilge and ballast water to be processed through an oil-water separator prior to discharge. If bilge or ballast water are discharged during broken or unstable ice conditions, or during stable ice conditions, the static sheen test will be used to determine compliance with the no free oil limitation. In addition, the no free oil limit is also proposed for waterflooding discharges in the event that chemicals in preparation of seawater for injection may cause free oil. This limitation is Region 10's best professional judgement determination of BPT controls for these five miscellaneous wastestreams. Compliance with the free oil limitation will be by the visual sheen test. This no free oil limit has been applied in previous permits issued by Region 10 and past practices has not been violated.

The proposed permit does not limit free oil/sheen for desalination unit wastes, boiler blowdown, fire control system test water, or non-contact cooling water because these are ''non-contact'' wastestreams. That is, they do not come in contact with either the production stream (i.e., oil/water/gas from formation) or machinery surfaces where oily wastes are likely to contaminate them.

3. Section 308 Requirements

Flow Rate: Based on section 308 of the Act, the proposed permit requires estimated flow rates to be reported on a monthly basis for all of the miscellaneous wastestreams (Discharges 005–014). In addition, the proposed permit requires permittees to maintain an inventory of the quantities and rates of chemicals (other than fresh or seawater) added to the waterflooding (Discharge 014), noncontact cooling water (Discharge 009), and desalination (Discharge 005) systems. Reports shall be submitted monthly attached to DMRs. This reporting requirement is consistent with previous permits.

G. Discharge 015 (Produced Water)

Produced water is the total water generated from the oil and gas extraction process, and is the highest volume waste source in the offshore oil and gas industry. As discussed in section II of this fact sheet, the discharge of produced water is only authorized in state waters of Upper Cook Inlet, north of the Forelands. Produced water includes: the formation water brought to surface with the oil and gas, the injection water used for secondary oil recovery that has broken through the formation, and various well treatment chemicals added during production and the oil/water separation process. Formation water, which comprises the bulk of produced water, is found in the same rock formation as the crude oil and gas. There are currently five platforms that discharge directly into Cook Inlet (after physical separation of hydrocarbons), while the remaining nine pipe their combined production fluids (hydrocarbon and water) to one of the three shore-based separation/treatment facilities. Effluent flow rates vary from less than 0.2 ft^3 per second at the platforms, to 4 ft^3 per second at the Trading Bay Production Facility. The Cook Inlet Discharge Monitoring Study (''CIDMS'') and the mixing zone application (Parametrix, 1995) identifies numerous organic and inorganic contaminants that are typically found in produced water, as discussed below.

1. BPJ/BCT Limitations for Produced Water

pH: It is proposed that the pH of discharged produced water be limited to a range of 6–9 at the point of discharge. These proposed limits are equal to the pH limitations in the 1986 permit. In the Agency's best professional judgement, this limitation appropriately equals a BPT level of control. No more stringent standard has been identified by the Agency at this time. Therefore, the Agency is setting a BPJ/BCT effluent limitation for the pH of produced water equal to that of BPT. Since previous permits have contained a limitation of pH 6–9, the requirement will not incur an incremental cost. The draft permit requires weekly monitoring of pH.

2. BPJ/BAT Limitations for Produced Water

Oil and Grease: It is proposed that oil and grease concentrations in discharges of produced water from all facilities (except Phillips Tyonek-A) be limited to a 29 mg/l monthly average and a 42 mg/l maximum daily. These oil and grease limits were promulgated as BAT for offshore facilities (40 CFR 435.15) as indicators of toxic and nonconventional pollutants, and are proposed in this permit as BPJ/BAT for coastal facilities (40 CFR 122.43, 122.44, and 125.3). Oil and grease limitations for Phillips Tyonek-A, a gas production platform, will be set at 15 mg/l monthly average and 20 mg/l daily maximum. The limitations for Tyonek-A are equal to those in the 1986 general permit for that facility, and are limitations with which Tyonek-A is currently in compliance. Note that while BPT oil and grease limitations have been promulgated for coastal facilities (40 CFR 435.42), the BPT limitations are less stringent than the limitations proposed above and have therefore not been used to establish permit limitations. The draft permit requires weekly monitoring of oil and grease.

Produced Sands: In the proposed permit, Region 10 prohibits the discharge of produced sands (formerly called ''produced solids'') as BPJ/BCT and BPJ/BAT based on the Agency's guidelines for both Offshore (promulgated) and Coastal (proposed) subcategories. Promulgated BAT (Offshore) for ''produced sand'' is no discharge based on the Agency's determination that these ''sands'' are sent on-shore on barges trips during regularly scheduled maintenance trips. In 1995, the Agency proposed Coastal guidelines in which BPT, BCT, BAT and NSPS are proposed to be equal to no discharge. The proposed Coastal guideline for produced sand is based on information from Cook Inlet operators stating that no produced sand discharges occur in this area (60 FR 9454, February 17, 1995).

The 1986 general permit defined ''produced solids'' as sands and other solids deposited from produced water which collect in vessels and lines and which must be removed to maintain adequate vessel and line capacities. In 1993, the promulgated Offshore rule (40 CFR 435.11(r)) defined ''produced sand''

as slurried particles used in hydraulic fracturing, the accumulated formation sands and scales particles generated during production, desander discharge from the produced water wastestream, and blowdown of the water phase from the produced water treatment system.

3. Water Quality-Based Limitations for Produced Water

The State has issued a preliminary mixing zone determination for produced water that specifies mixing zones and dilutions for eight facilities discharging produced water to Cook Inlet. The State has notified EPA that the mixing zone request submitted by the permittees is adequate for incorporation into the draft permit (ADEC 1995). At each of the eight facilities, individual mixing zones have been proposed for metals (acute, chronic and human health), total aromatic hydrocarbons (TAH), total aqueous hydrocarbons (TAqH), and toxicity.

As part of the mixing zone application (Parametrix 1995), produced water discharges from production facilities in Cook Inlet were sampled at each of 8 facilities currently discharging produced water into Cook Inlet. Samples were analyzed for a broad range of potential pollutants, including metals, monoaromatic hydrocarbons (such as benzene), polynuclear aromatic hydrocarbons (such as naphthalene), and chronic toxicity.

The 1995 sampling effort supplements the 1988–89 sampling effort documented in the CIDMS. The CIDMS provided data for ten organic pollutants, zinc, and acute toxicity for 6 of the 8 facilities currently discharging produced water into Cook Inlet. The way in which available data were used to calculate water quality-based permit limits is discussed in part III.E. of this fact sheet, and below.

Metals: The 1986 permit did not limit metals in produced water. Data submitted by the permittees in the mixing zone application (Parametrix 1995) show exceedances of the water quality criteria for arsenic, copper, zinc and silver at numerous facilities. The following is a summary of the maximum concentrations reported, and applicable aquatic life and human health criteria. The applicable metals criteria for Alaska are written in terms of total recoverable metals; one total recoverable sample was analyzed at each facility.

Pollutant	Criteria			Maximum reported discharge
	Health	Acute	Chronic	
Arsenic	1.4 µg/l	69 µg/l	36 µg/l	230 µg/l (East Forelands).
Silver		2.3 µg/l		80 µg/l (Bruce).
Copper		2.9 µg/l	2.9 µg/l	64 µg/l (Dillon).
Zinc		95 µg/l	86 µg/l	2700 µg/l (Baker).

Acute, chronic and human health mixing zones have been proposed by the Permittees at each of the eight discharge locations. The following is a summary of the proposed acute and chronic mixing zones, and the associated dilution factors at each location. Where modeling results yielded a mixing zone with a radius less than 20 meters, a 20-meter mixing zone is proposed. The dilution factor represents the dilution that is predicted to occur at the edge of the mixing zone.

Location	Proposed acute mixing zone (m)	Dilution factor	Proposed chronic mixing zone (m)	Dilution factor
Granite Point PF	20	82	99	282
Trading Bay	300	4900	300	4900
East Foreland	20	42	109	632
Tyonek A	20	20	20	278
Bruce	37	327	46	336
Baker	22	174	37	300
Dillon	20	84	43	274
Anna	20	65	36	274

Based on the method for deriving permit limits recommended in the TSD (EPA 1991b), individual effluent limitations have been calculated for each of the platforms. If the final mixing zone approved by the state is different from the one used to calculate the limits for the draft permit, the limits in the final permit will reflect these changes. The following is a comparison of wasteload allocations, effluent limits, proposed mixing zone size and dilution factors for each location. Effluent limitations have not been imposed for every metal constituent at every facility. In some cases, the size of the proposed mixing zone diminishes the potential for exceedances of water quality standards at the edge of the mixing zone. In accordance with the TSD, limits are included only when there is a ''reasonable potential'' to exceed water quality criteria. At Trading Bay and Bruce, for example, a reasonable potential to exceed water quality criteria at the edge of the mixing zone was not found; therefore effluent limitations are not proposed.

Location	Pollutant	Wasteload allocation (µg/l)	Effluent limitations	
			Daily max (µg/l)	Monthly average (µg/l)
Granite Point	Copper	238	238	119
East Foreland	Copper	122	122	60.7
	Arsenic	885	1780	885
Tyonek A	Copper	58	58	29
Baker	Arsenic	420	843	420
	Zinc	16500	16500	8240
Dillon	Copper	244	244	121

Location	Pollutant	Wasteload allocation (µg/l)	Effluent limitations	
			Daily max (µg/l)	Monthly average (µg/l)
	Zinc	7980	7980	3980
Anna	Copper	189	189	94

Weekly monitoring for metals is required in the draft permit. Additional monitoring requirements for metals are discussed below in V.G.4.

Total Aromatic Hydrocarbons (TAH) and Total Aqueous Hydrocarbons (TAqH): TAH and TAqH were not limited in the 1986 general permit. The state of Alaska water quality standard for protection of aquatic life is 10 µg/l for TAH, and 15 µg/l for TAqH. TAH is defined as the sum of benzene, toluene, ethylbenzene, and the xylene isomers (usually referred to as BETX). TAqH is defined as the sum of TAH and polynuclear aromatic hydrocarbons (PAHs). All analytical requirements are specified in the Alaska standards (18 AAC 70.020(b).

Data submitted by the permittees in the CIDMS (Envirosphere 1990a) and the mixing zone application (Parametrix 1995) indicate that current TAH and TAqH levels are above the standard at numerous facilities. For example, maximum concentrations of 70,000 µg/l TAH and 70,500 µg/l TAqH were detected at the Bruce platform in 1995. Mixing zones have been proposed for TAH and TAqH at each of the eight discharge locations. The following is a summary of the maximum TAH and TAqH concentrations detected at each location, the proposed mixing zones, and the associated dilution factors. Where a mixing zone with a radius less than 20 meters (Tyonek-A) is needed, a 20-meter mixing zone is proposed. The dilution factor represents the dilution that is predicted to occur at the edge of the mixing zone.

Location	TAH max (µg/l)	TAqH max (µg/l)	Proposed mixing zone (m)	Dilution factor
Granite Point	14,400	15,029	955	3877
Trading Bay	6,970	7,330	300	4900
East Foreland	15,360	16,313	412	3762
Tyonek A	49	68	20	17
Bruce	70,000	70,536	867	18,164
Baker	20,550	21,006	555	5409
Dillon	20,000	13,300	405	3609
Anna	17,510	20,428	363	5233

Based on the method for deriving permit limits recommended in the TSD (EPA 1991b), individual effluent limitations have been calculated for each of the dischargers. The following is a comparison of wasteload allocations and effluent limits for each location. If the final mixing zone approved by the state is different from the one used to calculate the limits for the draft permit, the limits in the final permit will reflect these changes.

Location	Pollutant	Wasteload allocation (µg/l)	Effluent Limitations	
			Daily max (µg/l)	Monthly average (µg/l)
Granite Point	TAH	38,800	38,800	19,300
Prod Facility	TAqH	58,200	58,200	29,000
Trading Bay	TAH	49,000	49,000	24,400
	TAqH	73,500	73,500	36,600
East Forelands	TAH	37,600	37,600	18,800
	TAqH	56,400	56,400	28,100
Tyonek A	TAH	170	170	85
	TAqH	255	255	127
Bruce	TAH	182,000	182,000	90,500
	TAqH	272,000	0272,000	136,000
Baker	TAH	54,100	54,100	27,000
	TAqH	81,100	81,100	40,400
Dillon	TAH	36,100	36,100	18,000
	TAqH	54,100	54,100	27,000
Anna	TAH	52,300	52,300	26,100
	TAqH	78,500	78,500	39,100

The draft permit requires weekly monitoring for TAH and TAqH. Submittal of an annual report summarizing the concentrations of the individual TAH (benzene, toluene, ethylbenzene and xylene isomers) and TAqH components is also required.

The draft permit does not contain individual limitations for benzene, as the total aromatic hydrocarbon (TAH) criterion is significantly more protective than the benzene criterion. The benzene criterion of 710 µg/l is applicable for the protection of human health from potential carcinogenic effects due to benzene exposure through ingestion of contaminated aquatic organisms. This criterion represents an incremental increase of cancer risk of 10^{-5} over a lifetime. Existing data indicates that this criterion is exceeded in the 36 CIDMS samples, and all samples of all discharges (except Tyonek-A) in the mixing zone application; benzene concentrations range from 15 µg/l at Tyonek-A to 53,000 µg/l at Bruce. As part of their mixing zone application to the State, the permittees performed a human health assessment to evaluate potential carcinogenic risks to humans who consume fish and shellfish that inhabit Cook Inlet.

The results of the human health assessment indicate that produced waters are not expected to pose significant risks to human health from the consumption of fish and shellfish in Cook Inlet at the edge of mixing zone.

Whole Effluent Toxicity: Whole effluent toxicity (WET) tests are used to measure the acute and/or chronic toxicity of an effluent. Acute toxicity tests determine the effluent concentration that produces an adverse effect (i.e., death) on a group of test organisms during a short-term exposure. The LC_{50} is the concentration of effluent that would cause death in 50 percent of the organisms exposed. Acute toxicity units (TU_a) are defined as ($100/LC_{50}$).

Chronic toxicity measures a sublethal effect (e.g., reduced growth, reproduction) in an effluent compared to that of the control organism. When conducting a chronic toxicity test, the highest concentration of an effluent at which no adverse effects are observed on the aquatic test organisms is defined as the no observed effect concentration (NOEC). Chronic toxicity units (TU_c) are defined as (100/NOEC).

Alaska's water quality standard for toxicity is expressed as a measure of chronic, rather than acute toxicity. The Alaska standard states that substances must impart no chronic toxicity to aquatic organisms, expressed as 1.0 chronic toxic unit (TU_c) at the edge of the mixing zone, or end of pipe if there is no mixing zone. The relationship between TU_c and TU_a is usually expressed as the acute-to-chronic ratio (ACR). In the absence of site-specific data, the TSD recommends that an ACR of 10 be used.

Produced water toxicity was not limited in the 1986 general permit. Toxicity monitoring was, however, a requirement of the 1986 permit and was discussed in the CIDMS (Envirosphere 1990a). Produced water samples from three platforms and three shore-based facilities were tested for acute toxicity to the marine invertebrate *Mysidopsis bahia* using a 96-hour acute toxicity test. Chronic toxicity was measured at eight facilities currently discharging produced water to Cook Inlet as part of the mixing zone application (Parametrix 1995). For all locations, the mean TU_c exceeds the state water quality standard of 1.0 TU_c.

Mixing zones have been proposed for whole effluent toxicity at each of the eight discharge locations. The 1995 TU_c data (based on NOEC growth and survival), mixing zones and dilution factors are summarized below. Note that while the proposed mixing zones are based on the NOEC (survival), it is anticipated that the mixing zones will be recalculated prior to issuance of the final permit based on the NOEC (growth).

Dilution factor	Location	TU_c (growth)	TU_c (survival)	Proposed chronic mixing zone (m)
	Granite Point PF	21.28	7	2026
	Trading Bay	> 22	10	3004,900
	East Foreland	> 18	11	2040
	Tyonek A	> 5	2	206.2
	Bruce	> 143	21	2082
	Baker	> 17	10	2036
	Dillon	> 28	16	2057
	Anna	77	29	20110

Based on the method for deriving permit limits recommended in the TSD (EPA 1991b), individual effluent limitations have been calculated for each of the dischargers. The following is a comparison of wasteload allocations and effluent limits for each location. If the final mixing zone approved by the state is different from the one used to calculate the limits for the draft permit, the limits in the final permit will reflect these changes. Limitations have not been calculated for the Trading Bay facility. In accordance with the TSD, limits are included only when there is a ''reasonable potential'' to exceed water quality criteria.

Location	Wasteload allocation (TU_c)	Effluent limitations	
		Daily max (TU_c)	Monthly avg (TU_c)
Granite Point	26	43	29
East Forelands	40	66	45
Tyonek A	6	10	7
Bruce	82	135	92
Baker	36	59	40
Dillon	57	94	64
Anna	110	181	124

Monthly chronic toxicity monitoring using grab effluent samples is proposed. The permit requires tests using a vertebrate and two invertebrates, as follows:

Vertebrate: Inland silverside, *Menidia beryllina*

Invertebrate: Atlantic mysid, *Mysidopsis bahia* survival, growth and fecundity test and one of the following two bivalve species tests: *Mytilis sp.* or *Crassostrea gigas* larval development test, depending upon seasonal availability.

The level of chronic toxicity shall be estimated as specified in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition, EPA/600/4–90/003. For the bivalve species, chronic toxicity shall be estimated as specified in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water To West Coast Marine and Estuarine Organisms (Chapman and Denton 1995)

If chronic toxicity is detected above the permit limits, the permittee shall conduct four more tests, bi-weekly, over an eight-week period. In accordance with EPA/600/2–88/070, a toxicity reduction evaluation (TRE) must be initiated within fifteen days of the exceedance in order to expeditiously locate the source(s) of toxicity and evaluate the effectiveness of pollution control actions and/or inplant modifications toward attaining compliance. If chronic toxicity is detected in any of the four bi-weekly tests, the permittee shall initiate a toxicity identification evaluation (TIE) to identify the specific chemical(s) causing toxicity according to the EPA protocols listed below. If none of the four bi-weekly tests indicate toxicity above the permit limit, then the permittee may return to the normal testing frequency.

- USEPA Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I (EPA/600/6–91/005F),
- USEPA Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R–92/080), and
- USEPA Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures (EPA–600/R–92/081).

4. Section 308 Requirements for Produced Water

In addition to the effluent monitoring discussed above, the draft permit requires additional effluent monitoring of flow rate, metals, and total aqueous hydrocarbons.

Flow Rate: Measurement of the produced water flow rate is required daily. This requirement serves to determine compliance with, or the possible future need for, effluent limitations in the permit. The basis for this requirement is section 308 of the Act.

Metals: Monthly monitoring of total recoverable arsenic, cadmium, copper, lead, nickel, silver and zinc is required for one year. Because weekly effluent limitations for metals are not imposed at Bruce and Trading Bay, monthly monitoring of each of the seven metals is required. The remainder of the facilities discharging produced water to Cook Inlet must submit monthly monitoring results for those metals not limited in the permit at that facility. Method detection levels must be less than one-tenth the aquatic life criteria listed below. The minimum detection level required for arsenic is 1 µg/l.

Pollutant	Aquatic life chronic criteria
Cadmium	9.3 µg/l
Copper	2.9 µg/l
Lead	8.5 µg/l
Nickel	8.3 µg/l
Silver	2.3 µg/l
Zinc	86 µg/l

Existing Cook Inlet data are not sufficient to determine whether or not a reasonable potential to exceed water quality standards exists for these five metals at numerous discharge locations. Baseline effluent characteristics from the Thirty Platform Study (EPA 1993a) conducted in the Gulf of Mexico, however, found each of these priority metal pollutants to be above water quality standards in produced water. The basis for this requirement is section 308 of the Act.

H. Discharges 016–019 (Completion Fluids, Workover Fluids, Well Treatment Fluids, and Test Fluids)

Based on the promulgated Offshore guidelines and proposed Coastal guidelines, Region 10 is proposing the definitions shown below for workover, completion and treatment fluids. The proposed definitions are more specific than those in the 1986 permit.

- Workover fluids: salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow safe repair and maintenance or abandonment procedures. Workover fluids used in drilling are considered to be drilling muds. Packer fluids (low solid fluids between the packer, production string, and well casing) are considered to be workover fluids.
- Completion fluids: salt solutions, weighted brines, polymers, and various additives used to prevent damage to the wellbore during operations which prepare the drilled well for hydrocarbon production.
- Well treatment fluids: any fluid used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled.

Workover fluids and completion fluids may be broadly divided into two classes: water-based and oil-based. The proposed permit prohibits the discharge of oil-based fluids. According to the Offshore Development Document (EPA 1993a), water-based workover and completion fluids may be further classified as a brine water solution, a modified drilling fluid or a specialty drilling fluid, depending upon its purpose in the borehole. Brine solutions (e.g., potassium chloride, sodium chloride or bromide, calcium chloride or bromide) are used because they are low solid fluids with densities sufficient to control sub-surface pressures in the well. Modified drilling fluids are typically inorganic brines with polymers acids or oil-soluble materials needed to yield a fluids with properties necessary to inhibit clays, keep solids in suspension, control corrosion, or otherwise control or maintain downhole stability. Note that, as in the 1986 general permit, the proposed permit regulates the discharge of a drilling fluid *as* a drilling fluid, subject to limitations discussed earlier in this fact sheet for Discharge 001, regardless of its use downhole in an existing production well.

Well treatment is a multi-stage process involving a variety of solutions with specialty chemical additives that vary with the chemical reactions desired downhole and in the formation. Well treatment fluids may include: hydrochloric or hydrofluoric acid, EDTA, ammonium chloride, nitrogen, methanol, xylene, toluene or additives for inhibiting corrosion, neutralizing acids, reducing leak off rate, reducing friction, preventing aggregation and deposition of solids (p. X–14–15, EPA 1993a). In Cook Inlet, both acid and non-acid well treatments occur. Treatment, workover and completion fluids may be discharged either directly to the Inlet (in compliance with 1986 permit limits) or commingled with the production stream and discharged with produced water (Envirosphere 1988). In fact, the Agency has determined that

treatment, workover, and completion fluids are routinely commingled with produced water discharges in the Cook Inlet area (60 FR 9457, February 17, 1995).

The proposed permit defines test fluids as shown below. This same definition appeared in the 1986 Cook Inlet and 1995 Arctic general NPDES permits.

- Test Fluids: the discharge which would occur should hydrocarbons be located during exploratory drilling and tested for formation pressure and content. The discharge consists of fluids sent downhole during testing, and formation water.

The 1986 Cook Inlet permit limited ''well treatment'' (i.e., treatment, workover and completion) fluids in conjunction with test fluids and Region 10 is using the same approach in the proposed permit.

1. BPJ/BCT Limitations for TWC and Test Fluids

pH: For the discharge of test fluids and well treatment, workover and completion fluids, the proposed permit limits pH to a range of 6.5–8.5 at the point of discharge. In Region 10's best professional judgement this appropriately equals a BPT level of control. No more stringent standard has been identified at this time. Therefore Region 10 is setting a BCT effluent limit for pH equal to BPT. This pH limit will ensure that pH changes greater than 0.2 pH unit will not occur beyond the edge of the 100 m mixing zone (40 CFR 125.121(c)). This requirement has been, and is, routinely complied with in previous permits and thus reflects no cost incremental to BPT.

Free oil: No discharge of free oil is permitted from any of the wastestreams authorized by the proposed permit. In the 1986 permit, Region 10 determined that the no free oil limitation and no discharge of oil-based fluids were appropriate levels of BCT control on the discharge of TWC and test fluids, establishing BPJ/BCT based on BPT. In 1993, the Agency promulgated BCT for the Offshore subcategory as no free oil; therefore, the no free oil limit for the discharge of test fluid from exploratory operations in lower Cook Inlet (i.e., Offshore subcategory) is BCT. For TWC and test fluids, the no free oil limit is BPJ/BCT for all operations in upper Cook Inlet (i.e., Coastal subcategory). All previous permits issued by Region 10 for either exploratory or production and development operations contained the no free oil limitation and past practices have not resulted in violations of the limit. In accordance with promulgated Offshore BCT and section 308 of the Act, the static sheen test is required to monitor compliance with the limitation.

2. BPJ/BAT Limitations for TWC and Test Fluids

Oil and grease: Although oil and grease is a conventional pollutant subject to BCT, it is also an indicator of toxic pollutants (thus serving BAT as well). Promulgated (offshore) BAT limitations for oil and grease in TWC are 29 mg/l monthly average and 42 mg/l daily maximum (58 FR 12506, March 4, 1993). It is the best professional judgement of Region 10 that these oil and grease limits are also appropriate levels of control for TWC discharges in the Coastal subcategory of Upper Cook Inlet. These limits in the proposed permit are also consistent with effluent limitations guidelines proposed for the Coastal subcategory (60 FR 9429–9430, February 17, 1995). Note that while BPT oil and grease limitations are promulgated for the Coastal subcategory (no free oil, 40 CFR 435.42), they are less stringent than those proposed and are therefore not used as a basis for the proposed permit. For the discharge of test fluids, the proposed oil and grease limits are Region 10's best professional judgement of BAT because no BAT effluent guidelines are promulgated or proposed for the Offshore or Coastal subcategories. Region 10 is using this same approach in the Arctic general NPDES permit (60 FR 27508, May 24, 1995).

3. Section 308 Requirements for TWC and Test Fluids

Flow Rate: Based on section 308 of the Act, the proposed permit requires estimated flow rates to be reported on a monthly basis for the discharge of each wastestream: this monitoring was required in the 1986 permit as well.

Metals: The proposed permit also requires analyses of each discharge of treatment, workover, and completion that is characterized as an acid job for the following metals (dissolved and total recoverable): cadmium, chromium, copper, lead, nickel and zinc. The CIDMS conducted under the 1986 permit indicates that these metals are likely to be present in TWC jobs involving treatment with acids. If these wastestreams are commingled with produced water prior to discharge, then they need not be monitored because similar monitoring is also required for the produced water discharge. In accordance with section 308 of the Act, and 40 CFR 122.44(i), monitoring for metals and flow are required to determine compliance with, or the possible need for, effluent limitations in the permit.

I. Other Discharge Limitations

1. No Floating Solids, Visible Foam or Oily Wastes

Region 10 has determined that the Offshore BCT effluent limitations of no discharge of floating solids from the discharge of sanitary wastes should apply to all other discharges as well. This requirement is consistent with the recently issued general NPDES permit for the Arctic (60 FR 27508, May 24, 1995). The limitations on discharge of visible foam and oily wastes have been applied (based on BCT) in previous permits issued by the Region and past practices have not resulted in violations.

2. Surfactants, Dispersants and Detergents

The proposed permit requires the discharge of surfactants, dispersants, and detergents to be minimized except as necessary to comply with the safety requirements of the Occupational Health and Safety Administration and the MMS. These products contain primarily nonconventional pollutants. This provision has appeared in general NPDES permits for the Beaufort Sea, Chukchi Sea, Norton Sound, Bering Sea and the Arctic Ocean as well as in the 1986 Cook Inlet permit.

3. Other Toxic and Non-conventional Compounds

Discharge of the following pollutants is prohibited under the proposed permit: halogenated phenol compounds, trisodium nitrilotriacetic acid, sodium chromate, and sodium dichromate. The class of halogenated phenol compounds includes toxic pollutants while sodium chromate and dichromate contain chromium, which is also a toxic pollutant. Trisodium nitrilotriacetic acid is a nonconventional pollutant. Past permits prohibiting the discharge of these compounds are the Beaufort Sea, Chukchi Sea, Norton Sound, Bering Sea, Arctic Ocean and the 1986 Cook Inlet.

J. Best Management Practice Plan Requirement

It is national policy that, whenever feasible, pollution should be prevented or reduced at the source, that pollution which cannot be prevented should be recycled in an environmentally safe manner, and that disposal or release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner (Pollution Prevention Act of 1990, 42 U.S.C. 13101). Section 402(a)(1) authorizes EPA to include miscellaneous requirements in permits on a case-by-case basis which are deemed necessary

to carry out the provisions of the Act. Best Management Practices (BMPs), in addition to numerical effluent limitations, are required to control or abate the discharge of pollutants in accordance with 40 CFR 122.44(k).

Pursuant to section 402(a)(1) of the Clean Water Act and Region 10 policy (EPA 1992), development and implementation of a Best Management Practices Plan is included as a condition of this NPDES general permit.

The proposed general permit requires the development and implementation of a BMP Plan which prevents or minimizes the generation of pollutants, their release, and/or potential release from the facility to the waters of the United States through normal operations and ancillary activities. Relevant operations and activities include material storage areas, site runoff, storm water, in-plant transfer, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage. EPA does not intend for permittees to duplicate practices more fully described in other documents. Therefore, when a BMP issue is already addressed via a separate regulatory program, the BMP is expected to reference those efforts, not duplicate them.

In addition to developing and implementing the BMP Plan, the operator is also required to certify that the BMP Plan is complete, on-site, and available upon request (see Part III.I.1. of the permit). Certification is required no later than submission of their written notice of intent to commence discharge (see Parts I.A., I.B., and I.C. of the permit). These certification requirements are similar to the requirements for a mud plan.

The BMP Plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants. The BMP Plan will become an enforceable condition of the permit; a violation of the BMP Plan is a violation of the permit.

VI. Other Legal Requirements

A. Oil Spill Requirements

Oil spill requirements in the proposed permit reflect Executive Order 12777 which implements provisions of the Oil Pollution Act of 1990. EO 12777 removed offshore facilities from jurisdiction under EPA and placed them under the jurisdiction of the Department of Interior (DOI), Minerals Management Service (MMS). Offshore operators are required to submit Oil Spill Contingency Plans to MMS for review. Additionally, operators in state waters are required to submit Oil Discharge Prevention and Contingency Plans to the ADEC for review.

The net effect of the Oil Pollution Act of 1990 and EO 12777 is that operators in state or federal waters are no longer required by section 311 of the Clean Water Act to develop Spill Prevention, Control and Contingency (SPCC) plans.

B. Endangered Species Act

The Endangered Species Act (ESA) allocates authority to, and administers requirements upon, federal agencies regarding endangered species of fish, wildlife, or plants and habitat of such species that have been designated as critical. Its implementing regulations (50 CFR Part 402) require EPA to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized, funded or carried out by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat (40 CFR 122.49(c)).

Implementing regulations for the ESA establish a process by which agencies consult with one another to ensure that the concerns of both the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (''Services'' collectively) are addressed. Briefly, the process is as follows: (a) The Services provide list(s) of species or habitats which coincide with the permit area or activity at the request of the licensing agency (in this case EPA Region 10), (b) the licensing agency develops a scientific or other report addressing listed species and/or habitats, and (c) the Services consult (either formally or informally) with the licensing agency. Region 10 is requesting comments from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service and will consider their comments in making the final permit decision. The Region will initiate consultation should new information reveal impacts not previously considered, should the activities be modified in a manner beyond the scope of the original opinion, or should the activities affect a newly listed species.

In compliance with section 7 of the ESA, Region 10 obtained lists of critical habitat areas and threatened and endangered species from the Alaska regional offices of the Services. The Agency contracted with Avanti, Inc. to prepare a draft/preliminary biological evaluation (BE) for threatened, endangered and candidate species reported in the area covered by the proposed general permit (Avanti 1992). In addition to the preliminary BE prepared by Avanti, Region 10 also considered a BE prepared for ARCO for development of an individual NPDES permit for exploratory drilling in upper Cook Inlet (EPA 1993c). These two BEs address the species listed below:

- Gray whale (Eschrichtius robustus, removed from list but continues to be monitored—USFWS),
- Humpback whale (Megaptera novaengliae, endangered—USFWS),
- Fin whale (Balaenoptera physalus, endangered—USFWS),
- Sei whale (Balaenpetera borealis, endangered—USFWS),
- Steller sea lion (Eumetopias jubatus and habitat, threatened—USFWS),
- American peregrine falcon (Falco peregrinus anatum, threatened—USFWS)
- Arctic peregrine falcon (Falco peregrinus tundrius, threatened—USFWS),
- Beluga whale (Delphinapterus leucas, candidate—NMFS), and
- Steller's eider (Polysticta stelleri, mentioned as Category 1 candidate species—USFWS).

In March of 1995 in response to the Region's request for updated status on species in the area of the permit, USFWS provided additional information as shown below. NMFS had no additional or new information to provide at the time of Region 10's request.

- Short-tailed albatross (Diomeda albatrus, added as endangered),
- Harelquin duck (Histrionicus histrionicus, mentioned as Category 2 candidate species)
- Kittlitz's murrelet (Brachyramphus brevirostris, mentioned as Category 2 candidate species)
- Marbled murrelet (Brachyramphus marmoratus, mentioned as Category 2 candidate species)
- Arctic peregrine falcon (F. p, tundrius, removed from list but continues to be monitored)

Based on BE reports, information in the Preliminary Ocean Discharge Criteria Evaluations (PODCEs) for OCS Sales 55 and 60, the Revised PODCE for Sale 88 and state lease sales in Cook Inlet, the revised PODCE for Sale 149 and on information in the Environmental Impact Statements (EISs) prepared for the federal lease sale areas, EPA has concluded that the discharges authorized by this general permit will not jeopardize the continued existence of any endangered or threatened species. The BEs, PODCEs, and EISs do not address the species added to the Region's list in March of 1995, nor are resources available to modify existing

reports at this time. For the short-tailed albatross, Region 10 references the DEIS for Sale 149 (p. III.B.20 and p. IV.B.1.–60, MMS 1995) which states that this species rarely appears in the area of Sale 149 or state lease sales, and is therefore not likely to be affected by the discharges authorized in the proposed permit. For recently added species of murrelets and the Harelquin duck, Region 10 is deferring a determination until the species are listed, and more information is available.

Region 10's determinations under section 7 of the ESA are discussed below for each wastestream. Pursuant to the ESA, Region 10's determinations are either for *no effect* or *may effect:* findings of *may effect* are further categorized as *may beneficially affect, not likely to adversely affect,* or *may adversely affect.*

1. Muds, Cuttings & Washwater (Discharge 001)

The discharge of muds and cuttings may affect all of the listed species, but is not likely to adversely affect the peregrine falcons or the Steller's eider. Disturbances caused by drilling mud discharge occurring during whale migration through the discharge area or in the critical habitat area designated for Steller's sea lions (Avanti 1992) are beyond the scope of the proposed general permit. Issues such as noise and disturbance are considered twice by MMS (for federal leases) and/or the Alaska Department of Natural Resources Division of Oil and Gas (for state leases). The first time such issues are considered is for the whole sale area as part of the initial environmental impact statement or environmental assessment which requires public and interagency review. The second consideration for the specific location as when a lessee submits plans of exploration and operation required by the lease. These documents also undergo public and inter-agency review. The scope of the proposed NPDES permit is limited to controlling the discharge of pollutants in specific wastestreams rather than the presence or absence of an operation. With respect to the critical habitat designated for Steller sea lions, the proposed permit prohibits any discharge in, or within 1000 m of, the critical habitat area designated by USFWS (58 FR 45269–45285, August 27, 1993).

2. Produced Water (Discharge 015)

The discharge of produced water may affect, but is not likely to adversely affect, all of the considered species except the Beluga whale (a candidate species). This determination is based on the fact that the proposed permit authorizes discharges from production operations (i.e., produced water) to upper Cook Inlet and, since all of the species except Beluga whales occur most frequently in the lower Inlet, potential exposure is therefore reduced. The Beluga whales, which frequent the upper Inlet, may be adversely affected by pollutants in produced water. This species may be affected either directly (through exposure) or indirectly (through ingestion and bioaccumulation) (Avanti 1992). The Beluga whale is a candidate for listing; consequently, Region 10's determination of ''may adversely affect'' is based on lack of conclusive evidence regarding the actual impact of produced water discharges upon the species.

3. All Other Wastestreams

Discharge of the remaining wastestreams addressed by the proposed permit is determined to have either no effect or as not likely to adversely affect the species considered. These determinations are based on the relatively small amounts discharged (e.g., waterflood, completion, workover, treatment and test fluids), the absence of harmful pollutants (e.g., sanitary wastes), or the lack of potential to cause effects (e.g., domestic, desalination, blowout preventer fluid) (Ch.6, Avanti 1992).

C. Coastal Zone Management Act

The State of Alaska will be reviewing this permit to determine consistency with the Coastal Zone Management Act.

D. Maritime Protection, Research, and Sanctuaries Act

No marine sanctuaries, as designated by this Act, exist in the vicinity of the permit area. Since state waters are involved in the proposed general permit area the provisions of section 401 of the Act apply. In accordance with 40 CFR 124.10(c)(1), public notice of the draft permit has been provided to the State of Alaska agencies having jurisdiction over fish, shellfish, and wildlife resources.

E. Annex V of MARPOL (73/78 and 33 CFR 155.73)

Under Annex V of the International Convention for the Prevention of Pollution from Ships, the U.S. Coast Guard (USCG) has issued interim final regulations under 33 CFR 151.73 to control the disposal of garbage and domestic wastes from fixed or floating platforms. These regulations include those platforms involved in the exploration and exploitation of oil and gas resources, such as oil drilling rigs and production platforms. These regulations apply to all such vessels when in navigable waters of the U.S. or within the 200 mile Exclusive Economic Zone. This proposed permit will prohibit the discharge of garbage (as defined at 33 CFR 151) within 12 miles of the nearest land. The term garbage, as it is applied here, includes operational and maintenance wastes. Further amplification of wastes covered under these regulations can be found at 33 CFR 151. Beyond 12 miles from the nearest land, the discharge of food wastes which are ground so as to pass through a 25 millimeter mesh screen, incinerator ash, and non-plastic clinkers will be permitted. Incinerator ash and non-plastic clinkers that can pass through a 25 millimeter mesh screen will be permitted to be discharged beyond 3 miles from the nearest land. These requirements are already part of the Coast Guard regulations and are incorporated into the permit for consistency.

F. Executive Order 12291

The Office of Management and Budget has exempted this action from the review requirements of Executive Order 12291 pursuant to section 8(b) of that order.

G. Paperwork Reduction Act

EPA has reviewed the requirements imposed on regulated facilities in the proposed general permit under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* Most of the information collection requirements have already been approved by the Office of Management and Budget (OMB) in submissions made for the NPDES permit program under the provisions of the Clean Water Act and assigned OMB control numbers 2040–0086 for the NPDES permit application and 2040–0004 for the discharge monitoring report form. In addition, the environmental monitoring requirements pursuant to section 403(c) of the Clean Water Act in Part III.B.3. of the proposed permit are similar to the notice of intent to be covered and monitoring requirements that were approved by OMB for the previously issued Beaufort Sea general permit (49 FR 23734, June 7, 1984) and Norton Sound general permit (50 FR 23578, June 4, 1985). While this permit requires some increased monitoring and reporting of that data, the region estimates that the additional burden will be similar to that projected for discharges covered under the most recent Gulf of Mexico general NPDES permit. The final general permit will explain how the information collection requirements respond to any OMB or public comments.

H. Regulatory Flexibility Act

After review of the facts presented in the notice of intent printed above, I hereby certify, pursuant to the provisions of 5 U.S.C. 605(b), that this general permit will not have a significant impact on a substantial number of small entities. This certification is based on the fact that the regulated parties have greater than 500 employees and are not classified as small businesses under the Small Business Administration regulations established at 49 FR 5023 *et seq.* (February 9, 1984). These facilities are classified as Major Group 13–Oil and Gas Extraction SIC 1311 Crude Petroleum and Natural Gas.

Dated: September 8, 1995.

Charles Findley,

Acting Regional Administrator, U.S. EPA, Region 10.

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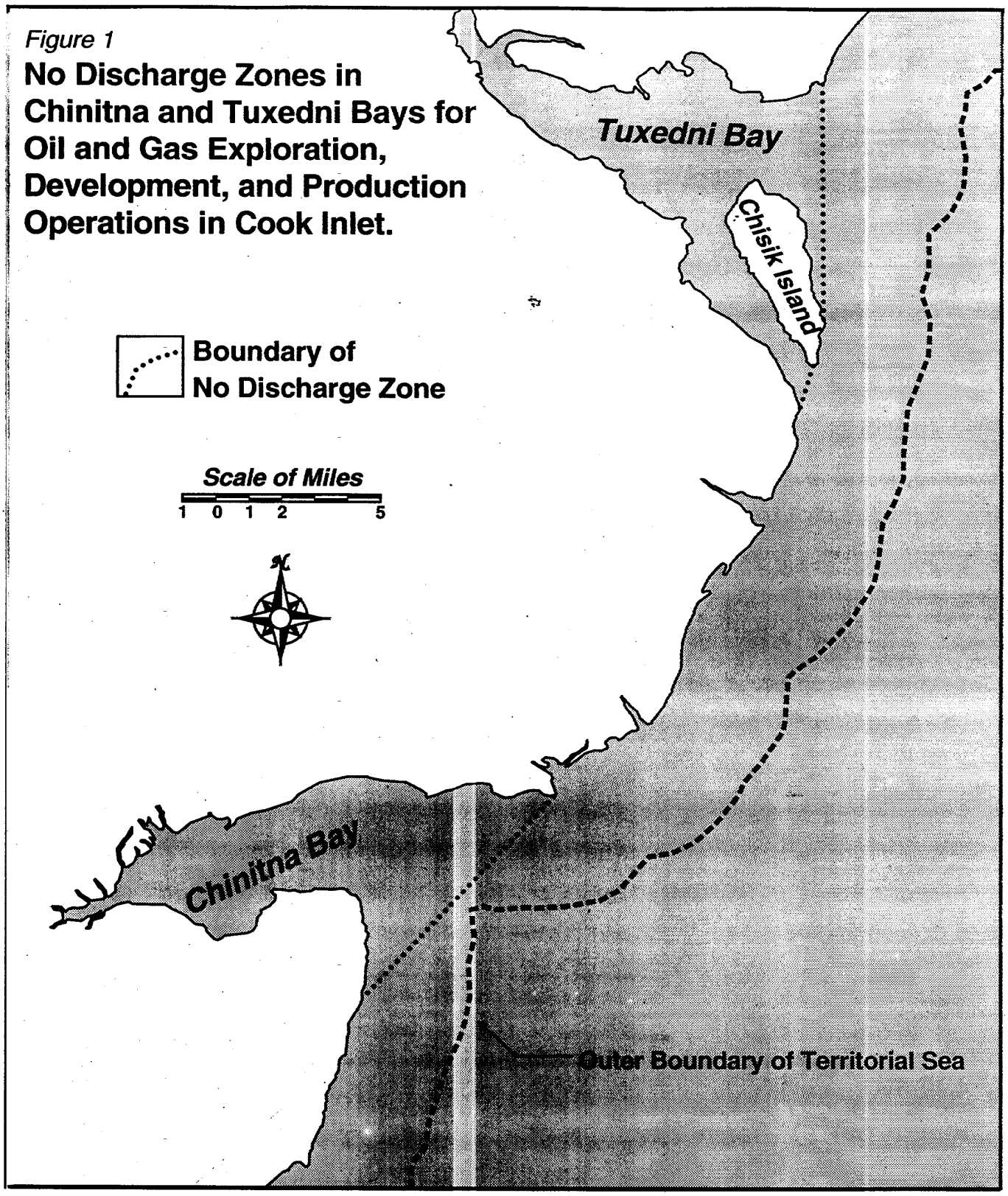

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Permit No.: AKG285100

Cook Inlet

United States Environmental Protection Agency, Region 10, 1200 Sixth Avenue, Seattle, Washington 98101

Authorization to Discharge Under the National Pollutant Discharge Elimination System for Oil and Gas Exploration, Development, and Production Facilities

In compliance with the provisions of the Clean Water Act, 33 U.S.C. 1251 *et seq.*, the ''Act'', the following discharges are authorized in accordance with this National Pollutant Discharge Elimination System (''NPDES''):

Discharge	Discharge No.
Drilling Mud & Cuttings	001
Deck Drainage	002
Sanitary Wastes	003
Domestic Wastes	004
Desalination Unit Wastes	005
Blowout Preventer Fluid	006
Boiler Blowdown	007
Fire Control System Test Water	008
Non-Contact Cooling Water	009
Uncontaminated Ballast Water	010
Bilge Water	011
Excess Cement Slurry	012
Mud, Cuttings, Cement at Seafloor	013
Waterflooding Discharges	014
Produced Water	015
Completion Fluids	016
Workover Fluids	017
Well Treatment Fluids	018
Test Fluids	019

from oil and gas development and production facilities to state waters north of the Forelands in Upper Cook Inlet. These development and production facilities are classified in the Coastal Subcategory of the Oil and Gas Extraction Point Source Category, as defined in 40 CFR Part 435, Subpart D. Discharges are also authorized from exploratory facilities to all state and federal waters addressed by this permit. Exploratory facilities are classified in the Offshore and Coastal Subcategories as defined in 40 CFR Part 435, Subparts A and D. The receiving waters, state and federal, are Cook Inlet. Discharges shall be in accordance with effluent limitations, monitoring and reporting requirements, and other conditions set forth in Parts I through VI herein. The discharge of pollutants not specifically set out in this permit is not authorized.

Permittees who are not granted coverage under this general permit as described in Part I are not authorized to discharge to the specified waters unless an individual permit has been issued to the Permittee by EPA, Region 10. Discharges from facilities in the Onshore Subcategory (40 CFR Part 435, Subpart C), or to wetlands adjacent to the territorial seas and inland coastal waters of the State of Alaska, are not authorized under this permit.

During the effective period of this permit, operators authorized to discharge under the general permit are authorized to discharge the enumerated pollutants subject to the restrictions set forth herein. This permit does not authorize the discharge of any waste streams, including spills and other unintentional or non-routine discharges of pollutants, that are not part of the normal operation of the facility, or any pollutants that are not ordinarily present in such waste streams, unless specifically authorized by EPA prior to discharge.

The authorized discharge sites include all blocks offered for lease by the US Department of the Interior's Minerals Management Service (MMS) in Federal Lease Sales 50 and 149. Additionally, the authorized discharge sites include all Cook Inlet blocks previously offered for lease by the State of Alaska (including blocks offered in Sales 32, 33, 35, 40, 46A, 49, 67A, and 74) or offered under state lease sales held during the effective period of this permit. For the purposes of this permit, the southern boundary of Cook Inlet is defined to the line between Cape Douglas on the west and Port Chatham on the east.

The facilities listed below are authorized to discharge under this permit. The conditions of the previous permit become null and void upon the effective date of this permit.

Operator	Facility	NPDES permit No.
Unocal	Granite Point Treatment Facility (formerly Marathon)	AGK285001
Unocal	Trading Bay Treatment Facility (formerly Marathon)	AKG285002
Shell	East Foreland Treatment Facility	AKG285003
Unocal	Platform Anna (formerly Amoco)	AKG285004
Unocal	Platform Baker (formerly Amoco)	AKG285005
Unocal	Platform Bruce (formerly Amoco)	AKG285006
Unocal	Platform Dillon (formerly Amoco)	AKG285007
Unocal	King Salmon Platform (formerly ARCO)	AKG285008
Unocal	Dolly Varden Platform (formerly Unocal)	AKG285009
Marathon	Spark Platform	AKG285010
Phillips	Platform A (Tyonek Platform)	AKG285011
Shell	Platform A	AKG285012
Shell	Platform C (Middle Ground Shoal)	AKG285013
Marathon	Spurr Platform (formerly Texaco's Superior A Platform)	AKG285014
Unocal	Granite Point Platform	AKG285015
Unocal	Grayling Platform	AKG285016
Unocal	Monopod Platform	AKG285017
ARCO	Fire Island (Exploratory Well)	AKG285018 - INACTIVE
Unocal	Steelhead Platform	AKG285019
Marathon	Steelhead (Blowout Relief Well)	AKG285020 - INACTIVE
ARCO	Sturgeon (Exploratory Well)	AKG285021 - INACTIVE
ARCO	Sunfish (Exploratory Well)	AKG285022 - INACTIVE
ARCO	North Forelands (Exploratory Well)	AKG285023 - INACTIVE

This permit may be modified or revoked at any time if, on the basis of any new data, the Director determines that this information would have justified the application of different permit conditions at the time of issuance. Permit modification or revocation will be conducted in accordance with 40 CFR, sections 122.62, 122.63, and 122.64. In addition to any other grounds specified herein, this permit shall be modified or revoked at any time if, on the basis of any new data, the Director determines that

continued discharges may cause unreasonable degradation of the marine environment.

This permit does not authorize discharges from ''new sources'' as defined in 40 CFR 122.2.

This permit shall become effective

This permit and the authorization to discharge shall expire at midnight,

Signed this day of

DRAFT

Chuck Clarke,

Regional Administrator, U.S. EPA, Region 10.

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References

I. Notification Requirements

A. New Exploration Facilities

1. Requests to be Covered by General Permit

Written request to be covered by this permit shall be provided to EPA at least 60 days prior to initiation of discharges. The request shall include the following information:

a. Name and address of the Permittee.

b. General location (lease and block numbers) of operations and discharges.

c. Any discharge or operating conditions which are subject to the special monitoring requirements (Part III.B.3.).

d. Any plans of exploration or operation that are submitted to MMS or the State of Alaska in application to drill.

2. Authorization to Discharge

The Permittee is not authorized to discharge without written notification from EPA that operations at the discharge site have been assigned an NPDES permit number under this general permit. A permit number cannot be assigned until the following information is received. This information shall be provided to EPA in the request for coverage, but in no case less than 30 days prior to commencement of discharges.

a. Name and location of discharge site, including lease block number and latitude and longitude.

b. Range of water depths (below mean lower low water) in the lease block(s), and the depth(s) of discharge(s).

c. Initial date(s) and expected duration of operations.

3. Commencement of Discharges

The Permittee shall notify EPA during the 7-day period prior to initiation of discharges from the platform and from each well. The notification shall include the exact, final latitude and longitude and water depth of the discharge site, as well as written certification that a Mud Plan (Part III.B.1.b.) is complete, on site and available to the Agency upon request. Similar notification is required for a Best Management Practices Plan (Part III.I.1). This notification may be oral or in writing; if notification is given orally, written confirmation must follow within 7 days.

B. New Development and Production Facilities

1. Requests to be Covered by General Permit

Written request to be covered by this permit shall be provided to EPA at least 60 days prior to initiation of discharges. Facilities wishing to start discharging within 60 days of the final effective date of this permit need not comply with the 60-day requirement, but shall provide the request for coverage as soon as possible prior to initiation of discharges. The request shall include the following information:

a. Name and address of the Permittee.

b. Name of facility.

c. Specific location (including latitude and longitude, and section, range, and township) of operations *and* discharges.

d. Water depth at site and depth of discharge(s) with respect to MLLW.

e. Date of commencing discharge and expected duration of operations.

f. Any discharge or operating conditions which are subject to the special monitoring requirements (Part III.B.3)

2. Authorization to Discharge

The Permittee is not authorized to discharge without written notification from EPA that operations at the discharge site have been assigned an NPDES permit number under this general permit.

3. Commencement of Discharges

The Permittee shall notify EPA within the 7-day period prior to initiation of discharges from the new facility. The notification shall include written certification that a Mud Plan (Part III.B.1.b.) is complete, on site and available to the Agency upon request. Drilling operators shall also notify EPA within the 7-day period prior to initiation of discharges from each new well thereafter. Similar notification is required for a Best Management Practices Plan (Part III.I.1). The notification may be oral or in writing: if notification is given orally, written confirmation must follow within 7 days.

C. Existing Facilities

1. Facilities authorized to discharge under the preceding general NPDES permit (AKG285000) are automatically authorized to discharge by this general permit as of its effective date. These facilities are listed on page 2 of the

permit. These permittees need not submit a formal request for authorization to discharge prior to commencement of discharges under this permit.

2. Commencement of Discharges from New Wells

The Permittee shall notify EPA within the 7-day period prior to initiation of discharges from each new well. The notification may be oral or in writing: if notification is given orally, written confirmation must follow within 7 days.

3. Commencement of Discharges from Closed In Platforms

The Permittee shall notify EPA in writing within the times specified below prior to initiation of discharges from a ''closed in'' platform. Notification shall include a list of discharges that will occur (as listed on page 1 of this permit) and information required in Part I.B.1.b–e., above.

a. If discharges have not changed with respect to treatment of wastestreams or effluent limits, written notification shall be provided within 30 days of initiation of discharge.

b. If any discharge is different from the past due to changes in treatment or operations on the platform, the Permittee shall notify EPA, Region 10 as early as possible, but in no case less than 90 days prior to initiation of discharge. *See also* Part V.J. (Planned Changes)

c. If drilling mud discharges are planned, the Permittee shall provide written notification, within 7 days of discharge, that a Mud Plan (Part III.B.1.b.) is complete, on-site and available to the Agency upon request.

d. The Permittee shall provide written notification, within 7 days of discharge, that a Best Management Practices Plan (Part III.I.1.) is complete, on-site, and available to the Agency upon request.

D. All Facilities Covered by the Permit

1. Submission of Plans of Operation, Environmental Reports, and Biological Surveys

The Permittee is responsible for providing EPA with final copies of any plans of operations, environmental reports, and biological surveys required by the Alaska Department of Natural Resources (ADNR), or by the Regional supervisor, Field Operations, of MMS, for the identification and/or protection of biological populations or habitats. The Permittee may provide these directly to EPA or ensure that ADNR or MMS have provided them to EPA. If final plans and environmental reports submitted to MMS are identical to review copies received by EPA, the Permittee need not submit them under this permit provision.

2. Duty To Reapply and/or Notice of Intent To Continue Activity

If the Permittee wishes to discharge under the authority of this permit *after* its expiration date, the Permittee must submit a notice of intent to EPA to do so. The Notice of Intent shall be submitted at least 180 days before the expiration date of this permit. An NPDES permit application (EPA Form 3510–2C, Wastewater Discharge Information, Consolidated Permits Program (revised February 1985)) shall constitute a complete Notice of Intent. Timely receipt of a complete Notice of Intent by EPA shall qualify the Permittee for an administrative extension of its authorization to discharge under this permit pursuant to 5 U.S.C. Section 558(c).

3. Termination of Discharges

The Permittee shall notify EPA within 30 days following cessation of discharges from each well and from the discharge site. The notification may be provided in a Discharge Monitoring Report (DMR) or under separate cover.

4. Submission of Requests To Be Covered and Other Reports

Reports and notifications required herein shall be submitted to the following addresses.

All requests for coverage—Director, Water Division, U.S. EPA, Region 10, Attn: Ocean Programs Section, WD–137, 1200 6th Avenue, Seattle, Washington 98101, Phone: (206) 553–8155

All monitoring reports and notifications of non-compliance—Director, Water Division, U.S. EPA, Region 10, Attn: Water Compliance Section, WD–135, 1200 6th Avenue, Seattle, Washington 98101, Phone: (206) 553–1846

For discharges to state waters only: copies of all requests, reports, and notifications—Regional Environmental Supervisor, South Central Regional Office, Alaska Department of Environmental Conservation, 555 Cordova, Anchorage, Alaska 99501, Phone: (907) 269–7564

E. Changes From Coverage Under General Permit to Coverage Under Individual Permit

1. The Director may require any permittee discharging under the authority of this permit to apply for and obtain an individual NPDES permit when any one of the following conditions exist:

a. The discharge(s), including stormwater, is a significant contributor of pollution.

b. The Permittee is not in compliance with the conditions of this general permit.

c. A change has occurred in the availability of the demonstrated technology or practices for the control or abatement of pollutants applicable to the point source.

d. Effluent limitation guidelines are promulgated for point sources covered by this permit.

e. The point sources covered by this permit no longer:

(1) Involve the same or substantially similar types of operations,

(2) Discharge the same types of wastewaters,

(3) Require the same effluent limitations or operating conditions, or

(4) Require the same or similar monitoring.

g. In the opinion of the Director, the discharges are more appropriately controlled under an individual permit than under a general NPDES permit.

2. The Director may require any permittee authorized by this permit to apply for an individual NPDES permit only if the Permittee has been notified in writing that an individual permit application is required.

3. Any permittee authorized by this permit may request to be excluded from the coverage of this general permit by applying for an individual permit. The owner or operator shall submit an application together with the reasons supporting the request to the Director no later than 90 days after the effective date of the permit.

4. When an individual NPDES permit is issued to a permittee otherwise subject to this general permit, the applicability of this general permit to that owner or operator is automatically terminated on the effective date of the individual permit.

II. Prohibited Areas of Discharge and Depth-Related Requirements

Discharges from operations in Cook Inlet are prohibited in the cases listed below. Permit applicants should contact EPA if they are uncertain whether or not their discharges will be located in a prohibited area. The Agency will also provide a map showing the approximate location of prohibited areas upon request.

A. Produced Water

The discharge of produced water from new facilities is prohibited in intertidal areas. New discharges (as defined at 40 CFR 122.2) are also prohibited from discharging produced water shoreward

of the 10 m isobath (as measured from mean lower low water).

B. Other Discharges

The discharge of all effluents other than those discussed in paragraph A, above, is prohibited shoreward of the 5 m isobath (as measured from mean lower low water) including intertidal areas.

All discharges are prohibited in the following areas:

1. Shoreward of the 5.5 m isobath adjacent to a either (1) the Clam Gulch Critical Habitat Area (Sales 32, 40, 46A, and 49) or (2) from the Crescent River northward to a point one-half mile north of Redoubt Point (Sales 35 and 49).

2. Within the boundaries or within 1,000 m of a coastal marsh, river delta, river mouth, designated Area Meriting Special Attention (AMSA), game refuge, game sanctuary, or critical habitat area. (The seaward edge of a coastal marsh is defined as the seaward edge of emergent wetland vegetation.)

The following State Game Refuges (SGR), Game Sanctuaries (SGS), Critical Habitat Areas (CHA), and AMSAs are located in the area covered by this permit:

Palmer Hay Flats SGR
Goose Bay SGR
Potter Point SGR
Susitna Flats SGR
McNeil River SGS
Redoubt Bay CHA
Trading Bay SGR
Kalgin Island CHA
Clam Gulch CHA
Kachemak Bay CHA
Anchorage Coastal Wildlife Refuge
Port Graham/Nanwalek AMSA

The legal descriptions of these state specialty areas are found in AS 16.20 The present boundaries of these state special areas are described in ''State of Alaska Game Refuges, Critical Habitat Areas, and Game Sanctuaries,'' Alaska Department of Fish and Game, Habitat Division, March 1991. Further information can be obtained from the Alaska Department of Fish and Game, Habitat Division, Regional Supervisor, 333 Raspberry Road, Anchorage, Alaska 99518–1599; phone (907) 267–2284 or (907) 267–2342.

3. In Kamishak Bay west of line from Cape Douglas to Chinitna point.

4. In Chinitna Bay inside of the line between the points on the shoreline at latitude 59°52′45″ N, longitude 152°48′18″ W on the north and latitude 59°46′12″ N, longitude 153°00′24″ W on the south (Figure 1).

5. In Tuxedni Bay inside of the lines on either side of Chisik Island (Figure 1).

a. From latitude 60°04′06″ North, longitude 152°34′12″ West on the mainland to the southern tip of Chisik Island (latitude 60°05′45″ North, longitude 152°33′30″ West).

b. From the point on the mainland at latitude 60°13′45″ North, longitude 152°32′42″ West to the point on the north side of Snug Harbor on Chisik Island (latitude 60°06′36″ North, longitude 152°32′54″ West).

4. In Shelikof Strait south of a line between Cape Douglas (at 58° 51′ North, 153° 15′ West) on the west and the northernmost tip of Shuyak Island on the east (at 58° 37′ North, 152° 22′ West) (Figure 2).

5. Within 20 nautical miles of Sugarloaf Island as measured from a centerpoint at 58° 53′ North and 152° 02′ West. (Figure 2)

III. Effluent Limitations and Monitoring Requirements

The operators shall limit discharges as specified in the permit below. All figures represent maximum effluent limits unless otherwise indicated. The Permittee shall comply with the following effluent limits at all times unless provided for by this permit (e.g., unanticipated bypass) regardless of the frequency of monitoring or reporting required by other provisions of this permit.

A. Representative Sampling (Routine and Non-Routine Discharges)

The operators shall collect all effluent samples from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the operators shall collect additional samples at the appropriate outfall(s), and analyze them for the parameters appropriate to that waste stream, limited in Parts III.B.-III.I. of this permit, whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample.

The Permittee shall collect such additional samples as soon as possible after the spill or discharge. The samples shall be analyzed in accordance with the monitoring requirements in Parts III.B.-III.I. of this permit. In the event of an anticipated bypass, as defined in Part V of this permit, the Permittee shall collect and analyze additional samples as soon as the bypassed effluent reaches the outfall. The Permittee shall report all additional monitoring in accordance with Part IV.B., below.

B. Drilling Mud, Drill Cuttings (Discharge 001)

1. Effluent Limitations

In addition to the restrictions set out in Parts III.A., III.B.2–3. and IV, the Permittee shall comply with the following effluent limitations and monitoring requirements.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
Flow Rate[1] (Water Depth)				
> 40 m	1,000 bbl/hr	Continuous during discharge	Estimate	Maximum hourly rate.
> 20–40 m	750 bbl/hr.			
5–20 m	500 bbl/hr.			
< 5 m	No discharge.			
Total volume	See note 2	Daily	Estimate	Monthly total.
Mud Plan	Part III.B.1.b	Prior Certification	N/A	N/A.
Toxicity of drilling mud	30,000 ppm SPP minimum	Monthly and End-of-Well	Grab/Drilling Fluids Toxicity Test.	96-hr LC50 (Part III.B.2.g.).
Free oil	No discharge	Daily and before bulk discharges.	Grab/Static Sheen Test Part III.B.2.c.	Number of days sheen observed.
Oil-based fluids	No discharge	N/A	N/A	N/A.
Oil content	N/A	Daily during discharge, prior to bulk discharge.	Parts III.B.2.c., 2.f	N/A.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
Diesel oil content	No discharge	N/A	Grab/GC Part III.B.2.b	Presence or absence.
Mercury and cadmium in barite.	1 mg/kg Hg 3 mg/kg Cd	Once per well	AAS	mg/kg dry wt.
Chemical inventory	N/A	Once per mud system	Part III.B.2.a	N/A.
		Once per bioassay	Part III.B.2.g	N/A.
Metal analyses	N/A	Once per mud system	Part III.B.2.e	N/A.

[1] Maximum flow rate of total muds and cuttings includes predilutant water; water depths are measured from mean lower low water.
[2] Report total volumes for all types of operations (exploratory, production and development). For exploratory operations, drilling discharges are limited to no more than five wells at a single drilling site. If a step-out or sidetracked well is drilled from a previously drilled hole, the step-out well is counted as new well. Requests to discharge from more than five wells per site will be considered by the Water Division Director on a case-by-case basis.

a. *Drilling mud and additive formulations.* Only those drilling muds, specialty additives, and mineral oil pills that meet the criteria of this permit and are contained in the operator's Mud Plan (see Part *III.B.1.b.* below) may be discharged. In no case shall toxicity of the discharged mud exceed the toxicity limit of 30,000 ppm SPP (see Part *III.B.1.* above)

b. *Mud Plan—Planned discharge of drilling muds and additives.* The Permittee shall develop and have on-site at all times a written procedural plan for the formulation and control of drilling mud/additive systems (the ''Mud Plan''). The Mud Plan must specify which mud/additive systems will be used. The Mud Plan shall be implemented during drilling operations.

The Mud Plan shall be available to the Agency upon request. Prior to commencement of discharges from a given well, the Permittee shall provide EPA with written certification that a Mud Plan does exist for the well and is available to the Agency. (See Parts I.A.3., I.B.3. and I.C.3.).

At a minimum, the Mud Plan shall provide the following information:

(1) The well name, well number, NPDES permit number, and the types of mud/additive systems proposed for use as basic identification of the Mud Plan for each well drilled.

(2) Specific for use at each well and for each mud/additive system, a list including commercial product names, descriptions of the products, and the maximum proposed discharge concentrations for each product. Concentrations shall be stated in terms of ''lb/bbl'' or ''gal/bbl''; although, ''% (wt)'' or ''% (vol)'' may be appropriate in some instances. Each mud/additive system shall be clearly labelled (e.g., KCl/polymer mud, freshwater lignosulfonate mud, spud mud). Components of the basic mud shall be listed separately from specialty or contingency additives that may be used.

(3) A record of the operator's determination of how discharge is expected to comply with the 30,000 ppm SPP toxicity limitation. Operator's determination must be based upon, but necessarily limited to, the following criteria:

(a) Estimates of worst-case cumulative discharge toxicity (e.g., based on additive toxicity estimates or commercially calculated discharge toxicity estimates).

(b) Estimates of discharge toxicity based on the use of mineral oil pills (and subsequent discharge of residual mineral oil concentrations (see *Part III.B.1.g.* below)) must be shown separately from the estimate for the basic mud with other additives.

(c) Where possible, overall toxicity shall be minimized.

(4) A clearly stated procedure for determining whether or not an additive not originally planned for or included in toxicity estimations discussed above may be used and discharged.

(5) An outline of the mud planning process which shall be consistent with other permit requirements. Names and titles of personnel responsible for the mud planning process shall be included.

c. *Certification of Mud Plan.* For each well the operator shall submit written certification stating that a Mud Plan is complete, on-site, and available upon request. In addition, each certification shall identify the well it pertains to by well name, well number and NPDES permit number. Written certification shall be submitted no later than the written notice of intent to commence discharge (see Parts I.A.3., I.B.3. and I.C.3.).

If the operator elects to use a particular sequence of mud/additive systems on subsequent wells, a previous Mud Plan may be re-used. Information identifying the Mud Plan, however, must reflect use of the plan for the current well (see *Part III.B.1.e(1)*, above).

d. *Restrictions on the use of mineral oil pills in drilling muds.* The discharge of residual amounts of mineral oil pills (mineral oil plus additives) is authorized by the permit provided that the mineral oil pill and at least a 50 bbl buffer of drilling fluid on either side of the pill are removed from the circulating drilling fluid system and not discharged to waters of the United States. In the event that more than one pill is applied to a single well, the previous pill and buffer shall be removed prior to application of a subsequent pill. Residual mineral oil concentration in the discharged mud shall not exceed 2% v/v (API Recommended Practice 13–1, 1990) (see *Part III.B.2.b.* below). The discharged mud must comply with all permit conditions, including no discharge of free oil.

Should drilling mud containing residual mineral oil pill (after pill and buffer removal) be discharged the following information shall be reported with 60 days of the discharge:

(1) Dates of pill application, recovery, and discharge;

(2) Results of the Drilling Fluids Toxicity Test on samples of:

(a) the mud *before* each pill is added and

(b) the mud *after removal* of each pill and buffer (taken when residual mineral oil pill concentration is expected to greatest);

(3) Name of spotting compound and mineral oil product used;

(4) Volumes of spotting compound, mineral oil, water, and barite in the pill;

(5) Total volume of mud circulating prior to pill application, volume of pill formulated, and volume of pill circulated;

(6) Volume of pill recovered, volume of mud buffer recovered, and volume of mud circulating after pill and buffer recovery;

(7) Percent recovery of the pill (include calculations);

(8) Estimated concentrations of residual spotting compound and

mineral oil in the sample of mud discharged, as determined from amounts added and total mud volume circulating prior to pill application;

(9) Measured oil content of the mud samples, as determined by the API retort method; and

(10) An itemization of other drilling fluid components and specialty additives contained in the discharged mud with concentrations reported in gal/bbl or lb/bbl.

2. Monitoring Requirements

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified here or elsewhere in this permit. Representative sampling requirements are discussed in *Part III.A*.

a. *Chemical inventory*. For each mud system discharged, the Permittee shall maintain a precise chemical inventory of all constituents added downhole, including all drilling mud additives used to meet specific drilling requirements. The Permittee shall report the following for *each* mud system:

(1) Base mud type (as identified in the Mud Plan);

(2) Name and total amount (volume or weight) of each constituent in discharged mud;

(3) The total volumes of mud created and added downhole; and

(4) The maximum concentration of each constituent in the discharged mud.

In addition, for each mud system discharged, the Permittee shall report the following:

(5) The total volumes of mud discharged; and

(6) The estimated amount of each constituent discharged.

The inventory shall be submitted within 45 days of well completion.

b. *Diesel Oil*. Compliance with the limitation on diesel oil shall be demonstrated by gas chromatography (GC) analysis of drilling mud collected from the mud used at the greatest well depth (''end-of-well'' sample) and of any muds or cuttings which fail the daily Static Sheen Test (Part *III.B.2.c.* below). In all cases, the determination of the presence or absence of diesel oil shall be based on a comparison of the GC spectra of the sample and of diesel oil in storage at the facility. The method for GC analysis shall be that described in ''Analysis of Diesel Oil in Drilling Fluids and Drill Cuttings'' (CENTEC, 1985) available from EPA, Region 10. Gas chromatography/mass spectrometry (GC/MS) may be used if an instance should arise where the operator and EPA determine that greater resolution of the drilling mud ''fingerprint'' is needed for a particular drilling mud sample.

The end-of-well analysis for diesel oil shall be done in conjunction with the end-of-well chemical analyses required in Part *III.B.2.e.* The results and raw data, including the spectra, from the GC analysis shall be provided to the Director by written report (1) within 30 days of a positive result with the Static Sheen Test when a discharge has occurred, or (2) for the end-of-well analysis, within 45 days of well completion.

c. *Static Sheen Test*. The Permittee shall perform the Static Sheen Test on separate samples of drilling muds and cuttings, as required in Appendix 1 to Subpart A of 40 CFR Part 435. Samples shall be collected on each day of discharge and prior to bulk discharges. The test shall be conducted in accordance with ''Approved Methodology: Laboratory Sheen Tests for the Offshore Subcategory, Oil and Gas Extraction Industry'' which is Appendix 1 to Subpart A of 40 CFR Part 435. For discharge below ice or during periods of unstable or broken ice, water temperature for the Static Sheen Test shall approximate surface water temperatures at ice breakup. The discharge of drilling muds or cuttings which fail the Static Sheen Test is prohibited.

Whenever muds or cuttings fail the Static Sheen Test and a discharge has occurred in the past 24 hours, the Permittee is required to analyze an undiluted sample of the material which failed the test to determine the presence or absence of diesel oil. The determination and reporting of results shall be performed according to Part *III.B.2.b.* above.

d. *Mercury and cadmium content of barite*. The Permittee shall analyze a representative sample of stock barite once prior to drilling each well and submit the results for total mercury and total cadmium in the DMR upon well completion. Analyses shall be conducted by absorption spectrophotometry and results expressed as mg/kg (dry weight) of barite.

If more than one well is drilled at a site, new analyses are not required for subsequent wells if no new supplies of barite have been received since the previous analysis. In this case, the DMR should state that no new barite was received since the last reported analysis. Operators may provide certification, as documented by the supplier(s), that the barite meets the above limits. The concentration of mercury and cadmium in stock barite shall be reported on the DMR as documented by the supplier.

e. *Metals analysis*. The Permittee shall analyze each discharged mud system containing a mineral oil lubricity and/or spotting agent in the mud discharge for the following metals: barium, cadmium, chromium, copper, mercury, zinc, and lead. Analyses for total *and* total recoverable concentrations shall be conducted on split samples and reported for each metal utilizing the methods specified in 40 CFR 136. The results shall be reported in ''mg/kg of whole mud (dry weight),'' and the moisture content (percent by weight) of the original drilling mud sample shall be reported.

Samples shall be collected when the residual mineral oil concentration is at its maximum value (see *Part III.B.1.d.*, above). If no mineral oil is used, the analysis shall be done on a drilling mud sample collected from the mud system used at the greatest well depth. All samples shall be collected prior to any predilution. Each drilling mud sample shall be of sufficient size to allow for both the chemical testing described here and toxicity testing described below in Part *III.B.2.g.*

Results of metals analyses shall be submitted within 45 days of well completion. Results shall be submitted with the end-of-well chemical inventory and shall identify the corresponding mud system from the end-of-well inventory.

f. *Oil content*. Permittees shall analyze mud and cuttings samples for oil content (percent by weight and volume) using the retort distillation method for oil (American Petroleum Industry, Recommended Practice 13–B, 1990) or by procedures described at 40 CFR 136 (soxhlet extraction for oil and grease).

g. *Toxicity test for drilling fluids*. If no mineral oil is used (*Part III.B.1.d.*), a toxicity test shall be conducted monthly to determine compliance with the drilling fluid toxicity limit. At the end-of-well, a sample shall be collected for toxicity testing. This sample can also serve as the monthly monitoring sample. The sample shall be a representative subsample of that collected for metals analysis (see Part *III.B.2.e.*, above).

The Permittee shall complete a minimum of two toxicity tests on each mud system where a mineral oil lubricity or spotting agent is used. One sample shall be collected before applying the pill and one after removing the pill (see Part *III.B.1.d.(2)*). The ''after pill'' sample test results can be used as the monthly monitoring sample. If the well is completed within 96 hours of collection of the ''after pill'' drilling mud sample, then these test results can also serve as the end-of-well test.

The testing and reporting of drilling fluid toxicity test results shall be in accordance with Appendix 2 to Subpart A of 40 CFR Part 435 (Drilling Fluids Toxicity Test). Results of drilling fluid toxicity tests (in terms of the 96-hr LC50 value) shall be reported on the DMRs. Complete copies of the test reports shall be attached to the DMR and be accompanied by an inventory of all of the drilling mud components and specialty additives present in the sampled mud (including the concentrations of each).

3. Environmental Monitoring Requirements

a. *Within 1500 m of sensitive areas.* Monitoring of the fate and effects of drilling muds and/or cuttings discharges shall be required for new exploration, development and production facilities or when the location of the discharges is within 1500 m of an area such as a coastal marsh, river delta, river mouth, designated AMSA, game refuge, game sanctuary, or critical habitat area. Discharges are prohibited within 1000 m of sensitive areas (see *Part II.B*).

b. *Environmental Monitoring Study.* The Permittee shall submit a plan of study for environmental monitoring to EPA for review with, or prior to, submission of a written request for authorization to discharge (*Parts I.A.2. and I.B.1–2.).*

The objectives of the monitoring shall be to:

(1) Monitor for discharge-related impacts,

(2) Determine statistically significant changes in sediment pollutant concentrations and sediment toxicity with time and distance from the discharge,

(3) Monitor for discharge related impacts to the benthic community,

(4) Assess whether any impacts warrant an adjustment of the monitoring program, and

(5) Provide information for permit reissuance.

The monitoring shall include, but not be limited to, relevant hydrographic, sediment hydrocarbon, and heavy metal data from surveys conducted before and during drilling mud disposal and up to a least one year after drilling operations cease.

The monitoring plan shall address:

(1) The monitoring objectives,

(2) Appropriate null and alternate test hypotheses,

(3) A statistically valid sampling design,

(4) All monitoring procedures and methods,

(5) A quality assurance/quality control program,

(6) A detailed discussion of how data will be used to meet, test and evaluate the monitoring objectives, and

(7) A summary of the results of previous environmental monitoring as they apply to the proposed program plan.

c. *Reporting and Data Submission Requirements.* The Permittee shall analyze the data and submit a draft report by within 180 days following the completion of sample collection. The report shall address the environmental monitoring objectives by using appropriate descriptive and analytical methods to test for and to describe any impacts of the effluent on sediment pollutant concentrations, sediment quality, water quality and/or the benthic community. The report shall include all relevant quality assurance/quality control (QA/QC) information, including but not limited to instrumentation, laboratory procedures, detection limits/precision requirements of the applied analyses, and sample collection methodology.

EPA will review the draft report in accordance with the environmental monitoring objectives and evaluate it for compliance with the requirements of the permit. If revisions to the report are required, the Permittee shall complete them and submit the final report to EPA within two months of the Director's request. The Permittee will be required to correct, repeat and/or expand environmental monitoring programs which have not fulfilled the requirements of the permit.

d. *Modification of Monitoring Program.* The monitoring program may be modified if EPA determines that it is appropriate. The modified program may include changes in (1) sampling stations, (2) sampling times, and/or (3) parameters.

e. *Exemption.* Region 10 will grant an exemption to this requirement if the Permittee can satisfactorily demonstrate that information on the fate and effects of the discharge is available and/or the discharge will not have significant impacts on the area of biological significance. An exemption to post-drilling monitoring will be granted if no impact was indicated during drilling.

C. Deck Drainage (Discharge 002)

1. Effluent Limitations.

In addition to the restrictions set out in Parts III.A., III.C.2–4. and IV, the Permittee shall comply with the following effluent limitations and monitoring requirements.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported Values
Exploratory and Production Operations:				
Flow rate (MGD)	N/A	Monthly	Estimate	Monthly avg.
Free oil	No discharge	Daily, during discharge	Visual/Sheen on receiving water [1].	Number of days sheen observed.
Production Operations:				
Whole effluent toxicity [2]	N/A	Twice per year [3]	Part III.F.3.b.	TU_c [4].

[1] If discharge occurs during broken or unstable ice conditions, or during stable ice conditions, the sample type/method shall be "Grab/Static Sheen Test."

[2] Applies only to production platforms where deck drainage *is not* commingled with produced water discharges. Contaminated deck drainage shall be processed through an oil-water separator prior to discharge and samples for that portion of the deck drainage collected from the separator effluent and shall be sampled for WET testing. If deck drainage is mixed with produced water flow, then effluent limitations and monitoring requirements for produced water shall apply. (See Part III.F.).

[3] Once during the first significant rainfall (to capture first flush of surfaces after the dry season) and once during snowmelt.

[4] With final report for each test, the following shall also be reported: date and time of sample, the type of sample (i.e., rainfall or snowmelt), estimate of daily flow and basis for the estimate (e.g., turbine meters, monthly precipitation, estimated washdown).

2. Drains.

Area drains for either washdown or rainfall that may be contaminated with oil and grease shall be separated from those area drains that would not be contaminated. The contaminated deck drainage shall be processed through an oil-water separator prior to discharge and samples for that portion of the deck drainage collected from the separator effluent shall be tested for sheen.

3. Commingled Wastestreams.

Any deck drainage which is commingled with other wastes prior to discharge shall be subject at the point of discharge to the most stringent of the limitations on the individual effluents.

4. Monitoring Requirements.

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified here or elsewhere in this permit. Representative sampling requirements are discussed in *Part III.A.*

D. Sanitary Wastes and Domestic Wastes (Discharges 003, 004)

1. Effluent Limitations

In addition to the restrictions set out in Parts III.A., III.D.2–3. and IV, the Permittee shall comply with the following effluent limitations and monitoring requirements.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
Sanitary and Domestic Wastes:				
Flow rate (MGD)		Monthly	Estimate	Monthly Average.
Floating solids [1]	No discharge	Daily	Observation [2]	Number of days solids observed.
Sanitary Wastes [3]:				
Total residual chlorine (TRC) [1 4 5].	As close as possible to, but no less than, 1 mg/l [6].	Weekly	Grab	Concentration in mg/l.
BOD (mg/l) [7]	60 mg/l 45 mg/l 30 mg/l	Weekly [8]	Grab	Daily Maximum. Weekly Average. Monthly Average.
SS (mg/l) [1 7]	SS_{intake} + 60 mg/l SS_{intake} + 45 mg/l SS_{intake} + 30 mg/l	Weekly [8]	Grab	Daily maximum. Weekly Average. Monthly Average.
MSDs (FC, SS, TRC) [9]		Twice/month	Grab	Estimated # persons aboard.[8]
Domestic Wastes:				
Foam	No discharge	Daily	Observation [10]	Number of days foam observed.

[1] Any facility using a marine sanitation device (MSD) that complies with pollution control standards and regulations under Section 312 of the Act shall be deemed to be in compliance with these limitations until such time as the device is replaced or found not to comply with such standards and regulations. The MSD shall be tested yearly for proper operations and test results maintained at the facility.

[2] For state waters, permittee shall monitor by observing the surface of the receiving water in the vicinity of the outfall(s) during daylight at the time of maximum estimated discharge. For domestic waste, observations shall follow either the morning or midday meal.

[3] In cases where sanitary and domestic wastes are mixed prior to discharge, and sampling of the sanitary waste component stream is infeasible, the discharge may be sampled after mixing. In such cases, the discharge limitations for sanitary wastes shall apply to the mixed waste stream.

[4] Limit applies only to facilities continuously staffed by ten or more people.

[5] Limit applies to those facilities discharging a chlorinated treatment water in state or federal waters.

[6] If a mixing zone is not designated during the 401 certification, the TRC discharge limit will be changed to 2.0 µg/l (daily maximum) and 1.0 µg/l (monthly average) to reflect Alaska water quality standards; a fecal coliform limit of 43 FC/100 ml (daily maximum) and 14 FC/100 ml (monthly median) will also be added to the permit.

[7] The numeric limits for BOD and SS apply only to discharges to state waters. Influent samples shall be taken with the same frequency that effluent samples are taken. If enough water is taken on-board to create several days' supply for the sanitary system, then the SS value shall be reported as ''carried over'' from the date of intake and sampling.

When reported on DMRs, actual intake SS concentrations shall be labelled SS_{intake}. Actual effluent SS concentrations shall be labelled $SS_{effluent}$. Effluent limits for SS concentrations (SS_{limit}) shall be calculated as the sum of SS_{intake} plus 60, 45, or 30 mg/l to report daily maximum, weekly average, or 30 day maximum effluent concentrations, respectively.

[8] Based on weekly sampling and depending on the length of the calendar month, a total of 3–4 samples will be analyzed per month. The reported monthly average value shall be the average of all weekly samples taken during the month. Each weekly sample value will then be subject to both the daily maximum and weekly average criteria.

[9] Applies to facilities with MSDs only. Sample the effluent twice each month and report the following: date of sample, estimated number of persons aboard for 5 days preceding the sample, the number of FC/100 ml, TRC and SS.

[10] Monitoring by visual observation of the surface of the receiving water in the vicinity of the outfall(s) shall be done during daylight at a time of maximum estimated discharge.

2. Discharge Below Water Surface

Domestic and sanitary wastes shall be discharged below the water surface.

3. Monitoring Requirements

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified here or elsewhere in this permit. Representative sampling requirements are discussed in Part II.B.

a. *Residual Chlorine.* Residual chlorine shall be monitored using a 40 CFR 136 method which obtains an MDL of at least 10 µg/l.

b. *Sanitary Wastes.* Sanitary waste grab samples shall be collected during periods of sanitary system peak flow.

E. Miscellaneous Discharges (Discharges 005–014)

1. Effluent Limitations

In addition to the restrictions set out in Parts III.A., III.E.2–4. and IV, the discharge of desalination unit wastes (005); blowout preventer fluid (006); boiler blowdown (007): fire control system test water (008); non-contact cooling water (009); uncontaminated ballast water (010); bilge water (011); excess cement slurry (012); mud, cuttings, cement at the seafloor (013); and waterflooding (014) shall comply with the following effluent limitations and monitoring requirements.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
All Miscellaneous:				
Flow (MGD)	N/A	Monthly	Estimate	Monthly average.
Blowout Preventer, Excess Cement Slurry, Waterflooding:				
Muds, Cuttings and Cement at Seafloor, Ballast, Bilge Free Oil.	No discharge	Once/discharge for discharges lasting < 24 hrs.	Visual/Sheen on receiving water [1].	Number or days sheen is observed.
		Once/24-hrs for discharges lasting < 24 hrs.		
Waterflooding, Non-Contact Cooling Water, Desalination Wastestreams:				
Chemical Inventory	N/A	Monthly	Part III.E.2.	Part III.E.2.

[1] For Uncontaminated Ballast Water (010) and Bilge Water (011) only: uncontaminated ballast and bilge water shall be processed through an oil-water separator prior to discharge. If discharge of bilge water occurs during broken, unstable, or stable ice conditions, the sample type/method used to determine compliance with the no free oil limitation shall be ''Grab Static Sheen Test'' (Appendix 1 to Subpart A of 40 CFR Part 435). For discharges above stable ice, below ice, to unstable or broken ice, a water temperature that approximates surface water temperatures after breakup shall be used.

2. Desalination Unit Wastes (005), Non-Contact Cooling Water (009) and Waterflooding (014)

The Permittee shall maintain an inventory of the quantities and application rates of chemicals (other than fresh or seawater) added to waterflooding, cooling water and desalination systems. The inventory(ies) shall be submitted with the monthly DMR.

3. Monitoring Requirement

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified here or elsewhere in this permit. Representative sampling requirements are discussed in Part III.A.

F. Produced Water (Discharge 015)

1. Effluent Limitations

In addition to the restrictions set out in Parts III.A., III.F.2–3., IV, the Permittee shall comply with the following effluent limitations and monitoring requirements.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
Flow rate (MGD)	N/A	Daily	Estimate	Daily avg and monthly average.
Produced sands	No discharge.			
Oil and Grease:				
Phillips A/Tyonek	20 mg/l daily max	Weekly	Composite	Daily Maximum.
	15 mg/l monthly avg			Monthly Average.
All other facilities	42 mg/l daily max	Weekly	Composite	Daily Maximum.
	29 mg/l monthly avg			Monthly Average.
pH	6–9	Weekly	Grab	pH.
Copper:				
Granite Point	238 µg/l	Weekly	Grab	Daily Maximum.
AKG285101	119 µg/l			Monthly Average.
East Forelands	122 µg/l	Weekly	Grab	Daily Maximum.
	60.7 µg/l			Monthly Average.
Anna	189 µg/l	Weekly	Grab	Daily Maximum.
	94 µg/l			Monthly Average.
Dillon	244 µg/l	Weekly	Grab	Daily Maximum.
	121 µg/l			Monthly Average.
Phillips A/Tyonek	58 µg/l	Weekly	Grab	Daily Maximum.
	29 µg/l			Monthly Average.
Arsenic:				
East Forelands	1780 µg/l	Weekly	Grab	Daily Maximum.
	885 µg/l			Monthly Average.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
Baker	843 µg/l	Weekly	Grab	Daily Maximum.
	420 µg/l			Monthly Average.
Zinc:				
Baker	16,500 µg/l	Weekly	Grab	Daily Maximum.
	8,240 µg/l			Monthly Average.
Dillon	7,980 µg/l	Weekly	Grab	Daily Maximum.
	3,980 µg/l			Monthly Average.
Total Aromatic Hydrocarbons (TAH) [1]:				
Granite Point PF	38,800 µg/l	Weekly	Grab	Daily Maximum.
AKG285101	29,000 µg/l		Part III.F.3.a	Monthly Average.
Trading Bay	49,000 µg/l	Weekly	Grab	Daily Maximum .
	24,400 µg/l		Part III.F.3.a	Monthly Average.
East Forelands	37,600 µg/l	Weekly	Grab	Daily Maximum.
	18,800 µg/l		Part III.F.3.a	Monthly Average.
Anna	52,300 µg/l	Weekly	Grab	Daily Maximum.
	26,100 µg/l		Part III.F.3.a	Monthly Average.
Baker	54,100 µg/l	Weekly	Grab	Daily Maximum.
	27,000 µg/l		Part III.F.3.a	Monthly Average.
Bruce	182,000 µg/l	Weekly	Grab	Daily Maximum.
	90,500 µg/l		Part III.F.3.a	Monthly Average.
Dillon	36,100 µg/l	Weekly	Grab	Daily Maximum.
	18,000 µg/l		Part III.F.3.a	Monthly Average.
Phillips A/Tyonek	170 µg/l	Weekly	Grab	Daily Maximum.
	85 µg/l		Part III.F.3.a	Monthly Average.
Total Aqueous Hydrocarbons (TAqH) [1]1:				
Granite Point PF	58,200 µg/l	Weekly	Grab	Daily Maximum.
AKG285101	19,300 µg/l	Monthly	Part III.F.3.a	Monthly Average.
Trading Bay	73,500 µg/l	Weekly	Grab	Daily Maximum.
	36,600 µg/l	Monthly	Part III.F.3.a	Monthly Average.
East Forelands	56,400 µg/l	Weekly	Grab	Daily Maximum.
	28,100 µg/l	Monthly	Part III.F.3.a	Monthly average.
Anna	78,500 µg/l	Weekly	Grab	Daily Maximum.
	39,100 µg/l	Monthly	Part III.F.3.a	Monthly Average.
Baker	81,100 µg/l	Weekly	Grab	Daily Maximum.
	40,400 µg/l	Monthly	Part III.F.3.a	Monthly Average.
Bruce	272,000 µg/l	Weekly	Grab	Daily Maximum.
	136,000 µg/l	Monthly	Part III.F.3.a	Monthly Average.
Dillon	54,100 µg/l	Weekly	Grab	Daily Maximum.
	27,000 µg/l	Monthly	Part III.F.3.a	Monthly Average.
Phillips A/Tyonek	255 µg/l	Weekly	Grab	Daily Maximum.
	127 µg/l	Monthly	Part III.F.3.a	Monthly Average.
Whole Effluent Toxicity:				
Granite Point PF	43 TU_c	Monthly	Grab	Daily Maximum.
AKG285101	29 TU_c		Parts III.F.2., 3.b	Monthly Average Parts III.F.2., 3.b.
East Forelands	66 TU_c	Monthly	Grab	Daily Maximum.
	45 TU_c		Parts III.F.2., 3.b	Monthly Average Parts III.F.2., 3.b.
Anna	181 TU_c	Monthly	Grab	Daily Maximum.
	124 TU_c		Parts III.F.2., 3.b	Monthly Average Parts III.F.2., 3.b.
Baker	59 TU_c	Monthly	Grab	Daily Maximum.
	40 TU_c		Parts III.F.2., 3.b	Monthly Average Parts III.F.2., 3.b.
Bruce	135 TU_c	Monthly	Grab	Daily Maximum.
	92 TU_c		Parts III.F.2., 3.b	Monthly Average Parts III.F.2., 3.b.
Dillon	94 TU_c	Monthly	Grab	Daily Maximum.
	64 TU_c		Parts III.F.2., 3.b	Monthly Average Parts III.F.2., 3.b.
Phillips A/Tyonek	10 TU_c	Monthly	Grab	Daily Maximum.
	7 TU_c	Parts III.F.2., 3.b	Monthly Average	Parts III.F.2., 3.b.
Metals [2]	N/A	Monthly for one year	Part III.F.3.c.	

[1] Submittal of an annual report summarizing the concentrations of the individual TAH components (benzene, toluene, ethylbenzene and xylene isomers) and individual TAqH components is required.

[2] Monthly monitoring of total recoverable arsenic, cadmium, copper, lead, nickel, silver and zinc is required for one year. Because weekly effluent limitations for metals have not been imposed at Bruce and Trading Bay, monthly monitoring of each of the seven metals is required. The remainder of the facilities discharging produced water to Cook Inlet must submit monthly monitoring results for those metals not limited in the permit at that facility.

2. Commingled Wastestreams

If workover, completion, well treatment or test fluids are mixed with produced water, then all of the effluent limitations and requirements applied to produced water shall apply (*Part III.G.2*) and supersede limits for the separate wastestreams. Likewise, if deck drainage is commingled with produced water, then all of the effluent limitations and requirements applied to produced water shall apply (*Part III.C.1*) and supersede limits for the separate discharge of deck drainage.

If deck drainage, workover, completion, well treatment or test fluids are commingled with produced water, ''commingled'' shall be reported on the DMRs for *both* produced water *and* the wastestream mixed with it.

3. Monitoring Requirements

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified here or elsewhere in this permit. Representative sampling requirements are discussed in *Part III.A*.

a. *Total Aromatic Hydrocarbons (TAH) and Total Aqueous Hydrocarbons (TAqH).* For analysis of TAH and TAqH, all analytical requirements cited in the Alaska Standards, 18 AAC 70.020(b) are applicable.

b. *Whole Effluent Toxicity.* Produced water samples shall be collected at least once per month. The Permittee shall conduct tests on grab effluent samples with one vertebrate and two invertebrate species, as follows:

Vertebrate (survival and growth): Inland silverside, *Menidia beryllina*
Invertebrate: Atlantic myside *Mysidopsis bahia* (survival, growth and fecundity test) and one of the following two bivalve species tests: *Mytilis sp.* or *Crassostrea gigas* (larval development test, depending upon seasonal availability).

Results shall be reported in TUc, where TUc=100/NOEC.

The presence of chronic toxicity shall be estimated as specified in USEPA Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition, EPA/600/4–90/003. For the bivalve species, chronic toxicity shall be estimated as specified in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to West Coast Marine and Estuarine Organisms (Draft Chapman and Denton, 1995)

The following quality assurance procedures shall be followed:

A series of five dilutions and a control will be tested. The series shall include the instream waste concentration (IWC), two dilutions above the IWC, and two dilutions below the IWC. The IWC is the concentration of effluent at the edge of the mixing zone.

Concurrent testing with reference toxicants shall be conducted. If either of the reference toxicant tests or the effluent tests do not meet all test acceptability criteria as specified in the test methods manual, then the permittee must re-sample and re-test as soon as possible.

Control and dilution water should be receiving water, or salinity adjusted lab water. If the dilution water used is different from the culture water, a second control, using culture water shall also be used.

If chronic toxicity is detected above the permit limits, the permittee shall conduct four more tests, bi-weekly, over an eight-week period. In accordance with EPA/600/2–88/070, a toxicity reduction evaluation (TRE) must be initiated within fifteen days of the exceedance in order to expeditiously locate the source(s) of toxicity and evaluate the effectiveness of pollution control actions and/or inplant modifications toward attaining compliance. If chronic toxicity is detected in any of the four bi-weekly tests, the permittee shall initiate a toxicity identification evaluation (TIE) to identify the specific chemical(s) responsible for toxicity (EPA/600/6–91/005F (Phase I), EPA/600/R–92/080 (Phase II), and EPA–600/R–92/081 (Phase III)). If none of the four bi-weekly tests indicate toxicity above the permit limit, then the Permittee may return to the normal testing frequency *of once per month*.

c. *Metals.* The minimum detection level for arsenic must be 1 µg/l. For the remainder of the metals, method detection levels must be less than one-tenth the aquatic life criteria listed below:

Pollutant	Aquatic life chronic criteria (µg/l)
Cadmium	9.3
Copper	2.9
Lead	8.5
Nickel	8.3
Silver	2.3
Zinc	86

G. Completion Fluids, Workover Fluids, Well Treatment Fluids, and Test Fluids (Discharges 016–019)

1. Effluent Limitations

In addition to the restrictions set out in Parts III.A., III.G.2–3., IV, the Permittee shall comply with the following effluent limitations and monitoring requirements.

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
All Wastestreams:				
Discharge frequency	N/A	Once/discharge [1]	Count	Type & total number of discharges.[1]
Flow rate (MGD)	N/A	Daily [1]	Estimate	Monthly average.
Oil-based fluids	No discharge	Included in free oil monitoring, below [2].		
Free oil [3]	No free oil	Once/discharge [1]	Grab/Static Sheen Test	Number of times sheen observed.
Oil and grease [3]	42 mg/l max. daily, 29 mg/l monthly avg.	Weekly	Composite	Daily max. and monthly average.
pH	6.5–8.5	Weekly	Grab	pH.
Treatment, Workover, Completion:				
Metals		Once per discharge [1]	Part III.G.2.a.	

[1] The type of discharge (i.e., completion, workover, treatment, test fluid, or any combination) shall be reported. Discharge of individual wastestreams shall reported separately from the discharge of commingled wastestreams.

[2] Discharge of oil-based fluids is prohibited.

[3] No free oil and oil and grease limits apply to each discharge, whether these wastestreams are discharged individually or are commingled. All fluids shall be processed through an oil-water separator prior to discharge. Samples shall be collected after the final step of treatment.

2. Commingled Wastestreams

If workover, completion, well treatment or test fluids are mixed with produced water, then all of the effluent limitations and requirements applied to produced water (*Part III.F.*) shall also apply to these wastestreams.

3. Monitoring Requirements

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified here or elsewhere in this permit. Representative sampling requirements are discussed in *Part III.A.*

Metals. For each discharge of well treatment, completion or workover fluids which is characterized as an acid job (strong or weak, including but not limited to hydrochloric or hydrofluoric acid, EDTA), samples of effluent shall be taken for analyses of the following: cadmium, chromium, copper, lead, nickel and zinc. Analyses for total recoverable concentrations shall be conducted and reported for each metal.

H. Other Discharge Limitations

1. *Floating Solids, Visible Foam, or Oily Wastes.* There shall be no discharge of floating solids or visible foam in other than trace amounts, nor of oily wastes which produce a sheen on the surface of the receiving water.

2. *Surfactants, Dispersants, and Detergents.* The discharge of surfactants, dispersants, and detergents shall be minimized except as necessary to comply with the safety requirements of the Occupational Health and Safety Administration and the Minerals Management Service. The discharge of dispersants to marine waters in response to oil or other hazardous spills is not authorized this permit.

3. *Applicable Marine Water Quality Criteria.* There shall be no discharge of any constituent in concentrations which results in an exceedence of applicable marine water quality criteria at the edge of any permitted mixing zone.

4. *Other Toxic and Non-conventional Compounds.* There shall be no discharge of diesel oil, halogenated phenol compounds, trisodium nitrilotriacetic acid, sodium chromate or sodium dichromate.

I. Best Management Practices Plan Requirement

1. *Implementation.* The Permittee shall develop and implement a Best Management Practices (BMP) Plan which achieves the objectives and the specific requirements listed below. The BMP Plan shall be implemented as soon as possible but no later than 7 days prior to initiation of discharges from the facility and from each well.

The Permittee shall certify that its BMP Plan is complete, on-site, and available upon request to EPA. This certification shall identify the well it pertains to by well name, well number, and the NPDES permit number and be signed by an authorized representative of the Permittee. The certification shall be submitted no later than the written notice of intent to commence discharge (*see* Parts I.A.3, I.B.3., and I.C.3.) and the Certification of Mud Plan (*see Part III.B.1.b.*).

2. *Purpose.* Through implementation of the BMP Plan the Permittee shall prevent or minimize the generation and the potential for the release of pollutants from the facility to the waters of the United States through normal operations and ancillary activities.

3. *Objectives.* The Permittee shall develop and amend the BMP Plan consistent with the following objectives for the control of pollutants.

a. The number and quantity of pollutants and the toxicity of effluent generated, discharged or potentially discharged at the facility shall be minimized by the Permittee to the extent feasible by managing each influent waste stream in the most appropriate manner.

b. Under the BMP Plan, and any Standard Operating Procedures (SOPs) included in the Plan, the Permittee shall ensure proper operation and maintenance of the treatment facility.

c. The Permittee shall establish specific objectives for the control of pollutants by conducting the following evaluations.

(1) Each facility component or system shall be examined for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to waters of the United States due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc. The examination shall include all normal operations and ancillary activities including material storage areas, site runoff, in-plant transfer, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances to result in significant amounts of pollutants reaching surface waters, the program should include a prediction of the direction, rate of flow and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.

4. *Requirements.* The BMP Plan shall be consistent with the objectives in Part 3 above and the general guidance contained in the publication entitled ''Guidance Document for Developing Best Management Practices (BMP)'' (EPA Document Number EPA 833–B–93–004, U.S. EPA, 1993) or any subsequent revisions to the guidance document. The BMP Plan shall:

a. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps, and shall be developed in accordance with good engineering practices. The BMP Plan shall be organized and written with the following structure:

(1) Name and location of the facility or operation (including identification by latitude/longitude).

(2) Statement of BMP policy.

(3) Description of the person(s) and/or staff position responsible for developing and overseeing implementation of the BMP Plan; and procedures for BMP approval.

(4) Specific management practices and standard operating procedures to achieve the above objectives, including, but not limited to, the following:

(a) modification of equipment, facilities, technology, processes, and procedures,

(b) reformulation or redesign of products,

(c) substitution of materials, and

(d) improvement in management, inventory control, materials handling or general operational phases of the facility.

(5) Risk identification and assessment.

(6) Reporting of BMP incidents.

(7) Materials compatibility.

(8) Good housekeeping.

(9) Preventative maintenance.

(10) Inspections and records.

(11) Security.

(12) Employee training.

b. Include the following provisions concerning BMP Plan review:

(1) Be reviewed by plant engineering staff and the plant manager as warranted by changes in the operation or at the facility which are covered by the BMP.

(2) Be reviewed and endorsed by the individuals responsible for development and implementation of the BMP Plan.

(3) Include a statement that the above reviews have been completed and that the BMP Plan fulfills the requirements set forth in this permit. The statement shall be certified by the dated signatures of the individuals responsible for development and implementation of the BMP Plan.

c. Establish specific best management practices to meet the objectives

identified in Part 3 this section, addressing each component or system capable of generating or causing a release of significant amounts of pollutants, and identifying specific preventative or remedial measures to be implemented.

d. Establish specific best management practices or other measures which ensure that the following specific requirements are met:

(1) Ensure proper management of solid and hazardous waste in accordance with regulations promulgated under the Resource Conservation and Recovery Act (RCRA) and the Alaska Solid Waste Management Regulations (18 AAC 60). Management practices required under RCRA regulations shall be referenced in the BMP Plan.

(2) Reflect requirements within Oil Spill Contingency Plans required by the Minerals Management Service (*see* 30 CFR 254). Permittees in state waters must also reflect the requirements within Oil Discharge Prevention and Contingency Plans as required by ADEC. Permittees may incorporate any part of such plans into the BMP Plan by reference.

(3) Reflect requirements for storm water control under Section 402(p) of the Act and the regulations at 40 CFR 122.26 and 122.44, and otherwise eliminate to the extent practicable, contamination of storm water runoff.

(4) Reflect the development and implementation of the Mud Plan (*see Part III.B.1.b.*) for the formulation and control of drilling mud systems.

5. *Documentation.* The Permittee shall maintain a copy of the BMP Plan at the facility and shall make the plan available to EPA upon request. All offices of the Permittee which are required to maintain a copy of the NPDES permit shall also maintain a copy of the BMP Plan.

6. *BMP Plan Modification.* The Permittee shall amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to the receiving waters. The Permittee shall also amend the Plan, as appropriate, when plant operations covered by the BMP Plan change. Any such changes to the BMP Plan shall be consistent with the objectives and specific requirements listed above. All changes in the BMP Plan shall be reviewed by the plant engineering staff and plant manager and shall be reported to EPA in writing.

7. *Modification for Ineffectiveness.* At any time, if the BMP Plan proves to be ineffective in achieving the general objective of preventing and minimizing the generation of pollutants and their release and potential release to the receiving waters and/or the specific requirements above, the permit and/or the BMP Plan shall be subject to modification to incorporate revised BMP requirements.

IV. Recording and Reporting Requirements

A. Reporting of Monitoring Results

The Permittee shall summarize monitoring results each month on the Discharge Monitoring Report (DMR) form (EPA No. 3320–1). The Permittee shall submit reports monthly, postmarked by the 10th day of the following month. The Permittee shall sign and certify all DMRs, and all other reports, in accordance with the requirements of *Part VI.D.* of this permit (''*Signatory Requirements*'').

The Permittee shall submit the legible originals of these documents to the Director, Water Division, with copies to ADEC, at the following addresses:

United States Environmental Protection Agency, Region 10, 1200 Sixth Avenue, WD–135, Seattle, Washington 98101

Alaska Department of Environmental Conservation, Attn: Water Quality & Wastewater Programs, 411 W. 4th Ave., suite 2C, Anchorage, Alaska 99501.

B. Additional Monitoring by Permittee

If the Permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the Permittee shall include the results of this monitoring in the calculation and reporting of the data submitted in the DMR. The Permittee shall indicate on the DMR whenever it has performed additional monitoring, and shall explain why it performed such monitoring.

Upon request by the Director, the Permittee shall submit results of any other sampling, regardless of the test method used.

C. Records Contents

All effluent monitoring records shall bear the hand-written signature of the person who prepared them. In addition, all records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The names of the individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The names of the individual(s) who performed the analyses;

5. The analytical techniques or methods used; and

6. The results of such analyses.

D. Retention of Records

The Permittee shall retain records of all monitoring information, including, but not limited to, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. This period may be extended by request of the Director at any time.

A copy of the final permit shall be maintained at the drilling site.

E. Twenty-four Hour Notice of Noncompliance Reporting

1. The Permittee shall report the following occurrences of noncompliance by telephone within 24 hours from the time the Permittee becomes aware of the circumstances:

a. Any noncompliance that may endanger health or the environment;

b. Any unanticipated bypass that results in or contributes to an exceedance of any effluent limitation in the permit (*see Part V.G., ''Bypass of Treatment Facilities''*);

c. Any upset that results in or contributes to an exceedance of any effluent limitation in the permit (see *Part V.H., ''Upset Conditions''*); or

d. Any violation of a maximum daily discharge limitation for any of the pollutants listed in the permit .

2. The Permittee shall also provide a written submission within five days of the time that the Permittee becomes aware of any event required to be reported under subpart 1 above. The written submission shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected; and

d. Dteps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

e. The results of any monitoring data required under Paragraph III.C., above.

3. The Director may, at her or his sole discretion, waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the

Water Compliance Section in Seattle, Washington, by telephone, (206) 553–1846.

4. Reports shall be submitted to the addresses in *Part IV.A.* (*''Reporting of Monitoring Results''*).

F. Other Noncompliance Reporting

The Permittee shall report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports for *Part III.A.* are submitted. The reports shall contain the information listed in *Part IV.E.2.* of this permit.

G. Changes in Discharge of Toxic Substances

The Permittee shall notify the Director as soon as it knows, or has reason to believe:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following ''notification levels'':

a. One hundred micrograms per liter (100 µg/l);

b. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by the Director in accordance with 40 CFR 122.44(f).

2. That any activity has occurred or will occur that would result in any discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following ''notification levels'':

a. Five hundred micrograms per liter (500 µg/l);

b. One milligram per liter (1 µg/l) for antimony;

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by the Director in accordance with 40 CFR 122.44(f).

V. Compliance Responsibilities

A. Duty to Comply

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. The Permittee shall give reasonable advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

B. Penalties for Violations of Permit Conditions

1. *Civil and Administrative Penalties.* Sections 309(d) and 309(g) of the Act provide that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act shall be subject to a civil or administrative penalty, not to exceed $25,000 per day for each violation.

2. Criminal Penalties:

a. *Negligent Violations.* Section 309(c)(1) of the Act provides that any person who negligently violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act shall be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or by both.

b. *Knowing Violations.* Section 309(c)(2) of the Act provides that any person who knowingly violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act shall be punished by a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or by both.

c. *Knowing Endangerment.* Section 309(c)(3) of the Act provides that any person who knowingly violates a permit condition implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. A person that is an organization shall be subject to a fine of not more than $1,000,000.

d. *False Statements.* Section 309(c)(4) of the Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this Act or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this Act, shall be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both.

Except as provided in permit conditions in *Part V.G.,* (*''Bypass of Treatment Facilities''*) and *Part V.H.,* (*''Upset Conditions''*), nothing in this permit shall be construed to relieve the Permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of water and wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters, except as specifically authorized in Part II.

G. Bypass of Treatment Facilities

1. *Bypass not exceeding limitations.* The Permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this Part.

2. Notice.

a. *Anticipated bypass.* If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.

b. *Unanticipated bypass.* The Permittee shall submit notice of an unanticipated bypass as required under *Part IV.E.* (''*Twenty-four Hour Notice of Noncompliance Reporting*'').

3. Prohibition of bypass.

a. Bypass is prohibited, and the Director may take enforcement action against the Permittee for a bypass, unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment shall have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The Permittee submitted notices as required under paragraph 2 of this Part.

b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Part.

H. Upset Conditions

1. *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the Permittee meets the requirements of paragraph 2 of this Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. *Demonstration of an upset.* To establish the affirmative defense of upset, the Permittee shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the Permittee can identify the cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The Permittee submitted notice of the upset as required under *Part IV.E., Twenty-four Hour Notice of Noncompliance Reporting;* and

d. The Permittee complied with any remedial measures required under *Part V.D., Duty to Mitigate.*

3. Burden of proof. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Toxic Pollutants

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Planned Changes

The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements under *Part IV.G.*

The Permittee shall give notice to the Director as soon as possible of any planned changes in process or chemical use whenever such change could significantly change the nature or increase the quantity of pollutants discharged.

K. Anticipated Noncompliance

The Permittee shall also give advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with this permit.

VI. General Provisions

A. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

B. Duty To Provide Information

The Permittee shall furnish to the Director, within the time specified in the request, any information that the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

C. Other Information

When the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or that it submitted incorrect information in a permit application or any report to the Director, it shall promptly submit the omitted facts or corrected information.

D. Signatory Requirements

All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed as follows:

a. For a corporation: by a responsible corporate officer.

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Director, and

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company.

3. *Changes to authorization.* If an authorization under *Part VI.D.2.* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph *VI.D.2.* must be submitted to the Regional Administrator prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. *Certification.* Any person signing a document under this Part shall make the following certification:

''I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.''

E. Availability of Reports

Except for data determined to be confidential under 40 CFR 2, all reports prepared in accordance with this permit shall be available for public inspection at the offices of the state water pollution control agency and the Director. As required by the Act, permit applications, permits, Best Management Practices Plans, Mud Plans, and effluent data shall not be considered confidential.

F. Inspection and Entry

The Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

G. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under Section 311 of the Act.

H. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

I. Severability

The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

J. Transfers

This permit may be automatically transferred to a new Permittee if:

1. The current Permittee notifies the Director at least 30 days in advance of the proposed transfer date;
2. The notice includes a written agreement between the existing and new Permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
3. The Director does not notify the existing Permittee and the proposed new Permittee of his or her intent to modify, or revoke and reissue the permit.

If the notice described in paragraph 3 above is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.

K. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

L. Reopener Clause

1. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Act, as amended, if the effluent standard, limitation, or requirement so issued or approved:

a. Contains different conditions or is otherwise more stringent than any condition in the permit; or

b. Controls any pollutant or disposal method not addressed in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

2. This permit may be reopened to adjust any effluent limitations if future water quality studies, waste load allocation determinations, or changes in water quality standards show the need for different requirements.

VII. Definitions

1. ''AAS'' means atomic absorption spectrophotometry.
2. ''Acute toxic unit (TU_a)'' is a measure of acute toxicity. The number of acute toxic units in the effluent is calculated as 100/LC50, where the LC50 is measured in percent effluent.
3. ''ADEC'' means the Alaska Department of Environmental Conservation.
4. ''Average monthly discharge limitation'' means the highest allowable average of ''daily discharges'' over a calendar month, calculated as the sum of all ''daily discharges'' measured during a calendar month divided by the number of ''daily discharges'' measured during that month.
5. ''Ballast water'' means harbor or seawater added or removed to maintain the proper ballast floater level and ship draft.
6. ''bbl/hr'' means barrels per hour. One barrel equals 42 gallons.
7. ''Bilge water'' means water which collects in the lower internal parts of the drilling vessel hull.
8. ''Biocide'' means any chemical agent used for controlling the growth of or destroying nuisance organisms (e.g., bacteria, algae, and fungi).
9. ''Blowout preventer fluid'' means fluid used to actuate hydraulic equipment on the blowout preventer.
10. ''BOD'' means biochemical oxygen demand.
11. ''Boiler blowdown'' means the discharge of water and minerals drained from boiler drums.
12. ''Bulk discharge'' means the discharge of more than 100 barrels in a one-hour period.
13. ''Bypass'' means the intentional diversion of waste streams from any portion of a treatment facility.
14. ''Cd'' means cadmium.
15. ''Chronic toxic unit (TU_c)'' is a measure of chronic toxicity. The number of chronic toxic units in the effluent is calculated as 100/NOEC, where the NOEC is measured in percent effluent.
16. ''COD'' means chemical oxygen demand.
17. ''Completion fluid'' means salt solutions, weighted brines, polymers, and various additives used to prevent damage to the wellbore during operations which prepare the drilled well for hydrocarbon production.
18. ''Composite sample'' for oil and grease analysis means a set of four individual grab samples taken a minimum of two hours apart within a 24-hour period. The samples shall be of equal size and of not less than 100 ml each. They shall be collected and stored

in accordance with procedures in 40 CFR 136. Samples shall be analyzed separately and the results of the four analyses averaged to provide a single value for the composite sample.

19. ''Cooling water'' means once-through non-contact cooling water.

20. ''Daily discharge'' means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the ''daily discharge'' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the ''daily discharge'' is calculated as the average measurement of the pollutant over the day.

21. ''Deck drainage'' means all waste resulting from platform washings, deck washings, spillage, rainwater, and runoff from curbs, gutters, and drains including drip pans and wash areas within facilities subject to this permit.

22. ''Desalination unit wastes'' means wastewater associated with the process of creating freshwater from seawater.

23. ''Development'' operations are those operations that are engaged in the drilling and completion of production wells. These operations may occur prior to or simultaneously with production operations.

24. ''Diesel oil'' means the grade of distillate fuel, as specified in the American Society for Testing and Materials Standard Specifications D975–81, that is typically used as the continuous phase in conventional oil-based drilling fluids, which contains a number of toxic pollutants. For the purpose of this permit, ''diesel oil'' includes the fuel oil present at the facility.

25. ''Director'' means the Regional Administrator or delegated authority for administration of the NPDES program in EPA, Region 10.

26. ''Domestic wastes'' means materials discharged from showers, sinks, safety showers, eye-wash stations, hand-wash stations, fish-cleaning stations, galleys and laundries.

27. ''Drill cuttings'' means particles generated by drilling into subsurface geological formations and carried to the surface with the drilling fluid.

28. ''Drilling fluid'' means the circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. A water-based drilling fluid is the conventional drilling mud in which water is the continuous phase and the suspended medium for solids, whether or not oil is present. See also ''oil-based drilling mud'', below.

29. ''Drilling Fluids Toxicity Test'' means a toxicity test conducted and reported in accordance the following approved toxicity test methodology: ''Drilling Fluids Toxicity Test,'' as defined in Appendix 2 to Subpart A of 40 CFR 435, or other methods approved in advance by Region 10 that produce results which will assure equivalent protection levels.

30. ''Drilling mud'' means any fluid sent down the hole, including any specialty products, from the time a well is begun until final cessation of drilling in that hole. It also includes fluids used in workover operations involving drilling. A water-base drilling fluid is the conventional drilling mud in which water is the continuous phase and the suspending medium for solids, whether or not oil is present. For the purposes of this permit, an oil-based drilling fluid has a petroleum-based hydrocarbon oil as its continuous phase with water as the dispersed phase. See ''oil-based drilling mud'', below.

31. ''Excess cement slurry'' means the excess cement and wastes from equipment washdown after a cementing operation.

32. ''Exploratory'' operations are limited to those operations involving drilling to determine the nature of potential hydrocarbon reserves and does not include drilling of wells once a hydrocarbon reserve has been defined. Discharges from exploratory operations are limited to five wells per site.

33. ''Fire control system test water'' means the water released during the training of personnel in fire protection and the testing and maintenance of fire protection equipment.

34. ''GC'' means gas chromatography. ''GC/MS'' means gas chromatography/mass spectrometry.

35. A ''Grab'' sample is a single sample or measurement taken at a specific time or over as short a period of time as is feasible.

36. ''Hg'' means mercury.

37. ''lb/bbl'' means pounds per barrel.

38. ''LC_{50}'' means the concentration of effluent that is acutely toxic to 50 percent of the test organisms exposed.

39. ''Maximum daily discharge limitation'' means the highest allowable ''daily discharge.''

40. ''Maximum hourly rate'' as applied to drilling mud, cuttings, and washwater means the greatest number of barrels of drilling fluids discharged within one hour, expressed as barrels per hour.

41. ''Method Detection Limit (MDL)'' means the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero as determined by a specific laboratory method.

42. ''MGD'' means million gallons per day.

43. ''mg/kg'' means milligrams per kilogram.

44. ''mg/l'' means milligrams per liter.

45. ''Mineral oil'' means a class of low volatility petroleum product, generally of lower aromatic hydrocarbon content and lower toxicity than diesel oil.

46. ''Mineral oil pills'' (also called mineral oil spots) are formulated and circulated in the mud system as a slug in attempt to free stuck pipe. Pills generally consist of two parts: a spotting compound and mineral oil.

47. ''Minimum daily'' discharge limitation means the lowest allowable ''daily discharge.

48. ''Monitoring month'' means the period consisting of the calendar weeks which end in a given calendar month.

49. ''Monthly average'' means the average of ''daily discharges'' over a monitoring month, calculated as the sum of all ''daily discharges'' measured during a monitoring month divided by the number of ''daily discharges'' measured during that month.

50. ''MSD'' means marine sanitation device.

51. ''Muds, cuttings, cement at sea floor'' means the materials discharged at the surface of the ocean floor in the early phases of drilling operations, before the well casing is set, and during well abandonment and plugging.

52. ''NAA'' means neutron activation analysis.

53. ''No discharge of free oil'' means that waste streams may not be discharged when they would cause a film or sheen upon or a discoloration of the surface of the receiving water or fail the static sheen test defined in Appendix 1 to 40 CFR 435, Subpart A.

54. ''No discharge of diesel oil'' in drilling mud means a determination that diesel oil is not present based on a comparison of the gas chromatogram from an extract of the drilling mud and from diesel oil obtained from the drilling rig or platform. GC/MS may also be used.

55. ''NOEC'' means no observable effect concentration. The NOEC is the highest tested concentration of an effluent at which no adverse effects are observed on the test organisms at a specific time of observation.

56. ''Non-contact cooling water''—see ''cooling water.''

57. ''Oil-based drilling mud'' means a drilling mud with fossil-derived petroleum hydrocarbons as the continuous phase.

58. ''Open water'' means less than 25 percent ice coverage within a one mile radius of the discharge site.

59. ''Produced solids'' means sands and other solids deposited from produced water which collect in vessels and lines and which must be removed to maintain adequate vessel and line capacities

60. ''Produced water'' means fluid extracted from a hydrocarbon reserve during development or production. The fluid is generally a mixture of oil, water, and natural gas. This may include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

61. ''Production'' operations are those operations involving active recovery of hydrocarbons from production formations. These operations may occur simultaneously with or following development operations.

62. ''Sanitary wastes'' means human body waste discharged from toilets and urinals.

63. ''Severe property damage'' means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

64. ''Site'' means the single, specific geographical location where a mobile drilling facility (jackup rig, semi-submersible, or arctic mobile rig) conducts its activity, including the area beneath the facility, or to a location of a single gravel island.

65. ''Slush ice'' occurs during the initial stage of ice formation when unconsolidated individual ice crystals (frazil) form a slush layer at the surface of the water column.

66. ''Stable ice'' means ice that is stable enough to support discharged muds and cuttings.

67. ''Static Sheen Test'' means the standard test procedures that has been developed for this industrial subcategory for the purpose of demonstrating compliance with the requirement of no discharge of free oil. The methodology for performing the static sheen test is presented in Appendix 1 to Subpart A of 40 CFR 435.

68. ''Test fluid'' means the discharge which would occur should hydrocarbons be located during exploratory drilling and tested for formation pressure and content. This would consist of fluids sent downhole during testing along with water from the formation.

69. ''TOC'' means total organic carbon.

70. A ''24-hour composite'' sample shall mean a flow-proportioned mixture of not less than 8 discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and stored in accordance with procedures prescribed in the most recent edition of *Standard Methods for the Examination of Water and Wastewater.*

71. ''Unstable or broken ice conditions'' means greater than 25% ice coverage within a one mile radius of the discharge site after spring breakup or after the start of slush ice formation in the fall, but not stable ice.

72. ''Upset'' means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

73. ''Waste stream'' means any non-de minimus stream of pollutants within the Permittee's facility that enters any permitted outfall or navigable waters. This includes spills and other unintentional, non-routine or unanticipated discharges.

74. ''Waterflooding discharges'' means discharges associated with the treatment of seawater prior to its injection into a hydrocarbon-bearing formation to improve the flow of hydrocarbons from production wells. These discharges include strainer and filter backwash water, and treated water in excess of that required for injection.

75. ''Weekly average'' means the average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. For fecal coliform bacteria, the weekly average is calculated as the geometric mean of all daily discharges measured during a calendar week.

76. ''Well completion fluids'' are salt solutions, weighted brines, polymers and various additives used to prevent damage to the well bore during operations which prepare the drilled well for hydrocarbon production. These fluids move into the formation and return to the surface as a slug with the produced water.

77. A ''well treatment fluid'' is any fluid used to restore or improve productivity by chemically or physically altering hydrocarbon bearing strata after a well has been drilled.

78. ''Workover fluids'' are salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow for maintenance, repair of abandonment procedures. Drilling fluids used during workover operations are not considered workover fluids by definition. Packer fluids (low solid fluids between the packer, production string, and well casing) are considered to be workover fluids.

79. ''XFA'' means x-ray fluorescence analysis.

80. ''96-hour LC50'' means the concentration of a test material that is lethal to 50 percent of the test organisms in a toxicity test after 96 hours of constant exposure.

81. ''μg/l'' means micrograms per liter.

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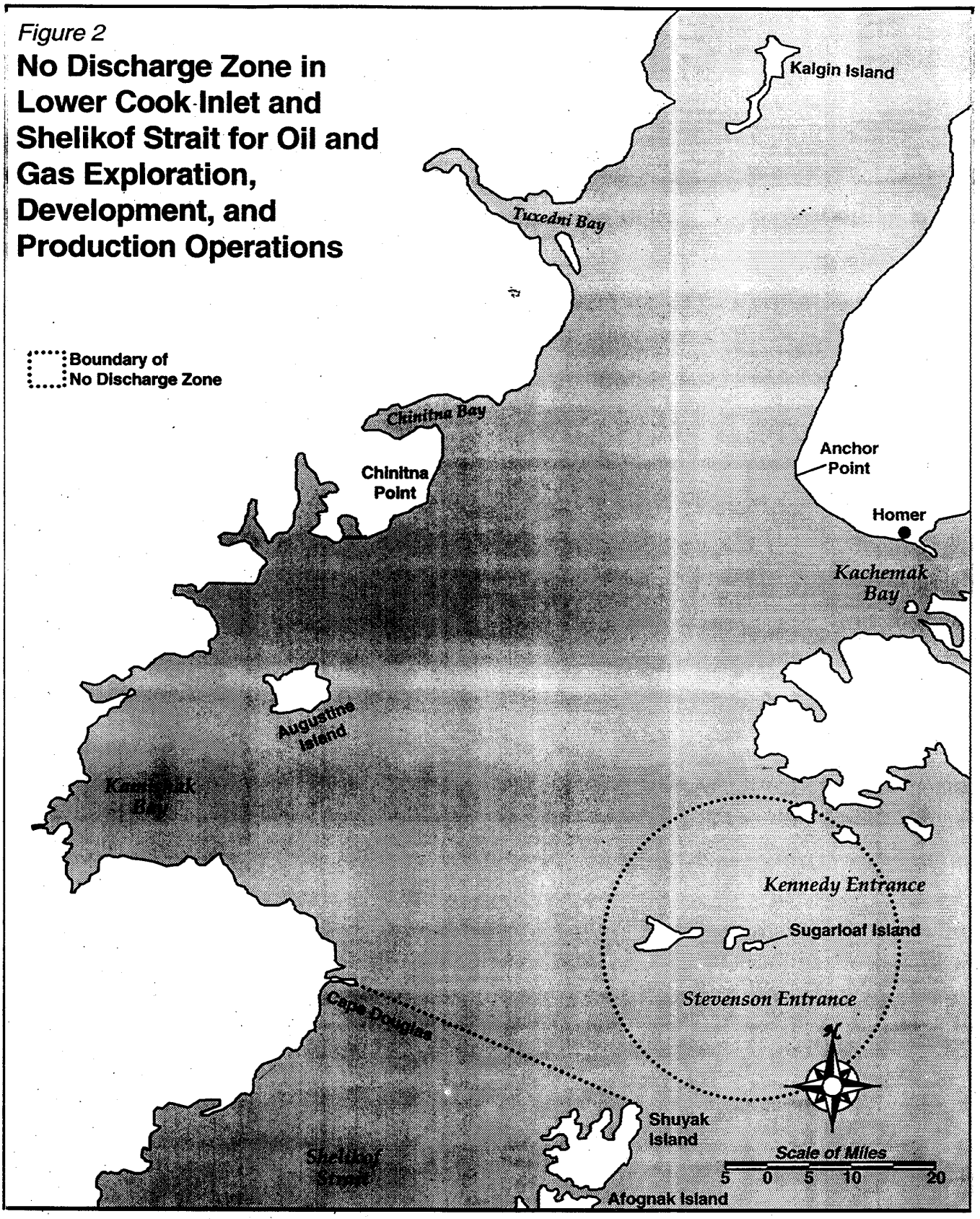
Figure 2
No Discharge Zone in Lower Cook Inlet and Shelikof Strait for Oil and Gas Exploration, Development, and Production Operations
Boundary of No Discharge Zone
Kalgin Island
Tuxedni Bay
Chinitna Bay
Chinitna Point
Anchor Point
Homer
Kachemak Bay
Augustine Island
Kennedy Entrance
Sugarloaf Island
Stevenson Entrance
Cape Douglas
Shuyak Island
Shelikof Strait
Afognak Island
Scale of Miles
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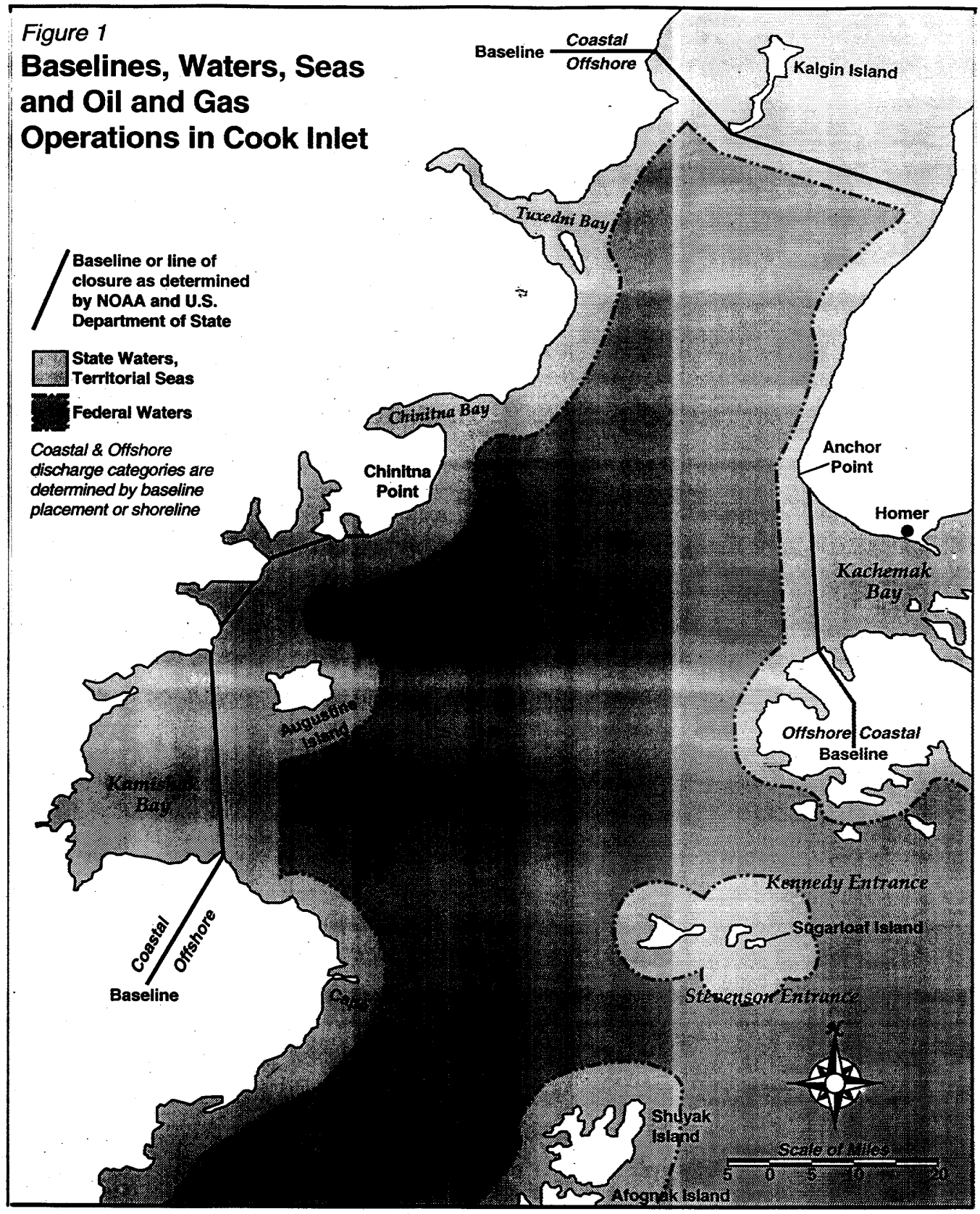

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References

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2. State of Alaska. State of Alaska Game Refuges, Critical Habitat Areas, and Game Sanctuaries, Alaska Department of Fish and Game, Habitat Division. March 1991.

3. EPA. Drilling Fluids Toxicity Test. Appendix 2 to Subpart A of 40 CFR Part 435.

4. EPA. Analysis of Diesel Oil in Drilling Fluids and Drill Cuttings. CENTEC 1985.

5. EPA. Approved Methodology: Laboratory Sheen Tests for the Offshore Subcategory, Oil and Gas Extraction Industry. Appendix 1 to Subpart A of 40 CFR Part 435.

6. EPA. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (2nd edition). EPA/600/4–90/003.

7. Chapman, Gary, and Denton, Debra. Standard Practice for Conducting Static Acute Toxicity Tests With Larvae of Four Species of Bivalve Molluscs. Designation: E 724–89. ASTM 1989.

8. EPA. Toxicity Reduction Evaluation Protocol for Industrial Treatment Plants. EPA/600/2–88/070.

9. EPA. Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluent, Phase I. EPA/600/6–91/005F.

10. EPA. Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity. EPA/600/R–92/080.

11. EPA. Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures. EPA/600/R–92/081.

[FR Doc. 95–23207 Filed 9–19–95; 8:45 am]

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