

Fact Sheet

U.S. Environmental Protection Agency
Region 10



The United States Environmental Protection Agency (EPA)
Plans to **Reissue** a
National Pollutant Discharge Elimination System (NPDES) General Permit for

OFFSHORE OIL AND GAS EXPLORATION FACILITIES
ON THE OUTER CONTINENTAL SHELF AND CONTIGUOUS STATE WATERS

Permit Number: AKG280000

Public Comment Period

Starts: April 5, 2004
Ends: May 20, 2004

Technical Contact

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EPA's Tentative Determination

EPA proposes to reissue a NPDES general permit for oil and gas exploration facilities on the outer continental shelf and contiguous state waters. The draft permit places conditions on the discharge of pollutants from oil and gas exploration facilities to the Beaufort and Chukchi Seas. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures;
- a description of the types of facilities and the proposed discharges;
- a listing of the proposed effluent limitations and other conditions;
- a map and description of the proposed discharge area; and
- technical material supporting the conditions in the permit.

Public Comment and Public Hearings

Persons wishing to comment on the tentative determinations contained in the draft permit must do so, in writing, by the end date of this public comment period. All comments should include the name, address, and telephone number of the commenter, reference the facility name and NPDES permit number, and include a concise statement of the exact basis of any comment and the relevant facts upon which it is based.

Persons wishing to request that a public hearing be held may do so, in writing, by the end date of this public comment period. A request for a public hearing must state the nature of the issues to be raised, reference the facility name and NPDES permit number, and include the requester's name, address, and telephone number.

All written comments and requests should be submitted to the attention of the Director, Office of Water at the following address:

U.S. EPA, Region 10
1200 Sixth Avenue, M/S OW-130
Seattle, Washington 98101

****Comments may also be submitted electronically to the technical contact listed above****

After the Public Notice expires, and all comments have been considered, EPA's Director for the Office of Water in Region 10 will make a final decision regarding permit issuance. If no significant comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If comments are received, EPA will address the comments, issue the permit, and the permit will become effective 30 days after the issuance date, unless the permit is appealed to the Environmental Appeals Board within 30 days.

Availability of Documents

The following documents are available at the EPA Region 10 Office, 1200 Sixth Ave, Seattle, Washington, between 8:30 a.m. and 4:00 p.m., Monday through Friday:

- draft permit
- fact sheet
- documents referenced in fact sheet
- ocean discharge criteria evaluation (ODCE)
- other documents (e.g., meeting reports, correspondence, trip reports, telephone memos, calculations, etc.)

Copies of the draft permit, fact sheet, ODCE are also available at:

EPA Region 10 website: www.epa.gov/r10earth.htm

EPA Alaska Operations Office, Anchorage
Federal Building, Room 537
222 West 7th Avenue, #19
Anchorage, Alaska 99513

Anchorage Municipal Library
Z. J. Loussac Public Library
3600 Denali St
Anchorage, Alaska 99503-6055

North Slope Borough School District Library / Media Center
Pouch 169
Barrow, AK 99723

State Certification

EPA is requesting that the Alaska Department of Environmental Conservation certify this NPDES permit for the Offshore Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters, under section 401 of the Clean Water Act for those activities that occur within State waters or have the ability to affect the quality of the State's waters. EPA is also requesting the State to conduct a consistency determination with the Alaska Coastal Management Program

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I. APPLICABILITY AND NOTIFICATION REQUIREMENTS

A. Source.

The federal regulations at 40 CFR 122.28 require that general permits cover one or more categories or subcategories of discharges. The proposed general permit covers only those facilities engaged in field exploration and drilling activities under the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR 435 Subpart A). Exploratory operations are defined as those operations involving the drilling of wells to determine the nature of potential hydrocarbon reserves. Development and production operations are not covered by this general permit.

The draft general permit proposes to authorize the following discharges from exploratory offshore oil and gas operations: drilling mud and drilling cuttings; 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; mud, cuttings, and cement at the seafloor; and test fluids. Further description of these discharges is provided in Appendix A of this fact sheet.

The draft general permit proposes to exclude authorization for “new sources” which include development and production operations. A development facility is any fixed or mobile structure that is engaged in the drilling of productive wells and a production facility is any fixed or mobile structure that is either engaged in well completion or used for active recovery of hydrocarbons from producing formations.

In the context of this point source category for exploration facilities, an offshore mobile exploratory drilling rig is considered an existing discharger except when it is in the area of biological concern in which it is then considered a new discharger. A new discharger is not a new source and is not subject to the requirements of NEPA. EPA will make the determination for authorization of a facility under this general permit on a case-by-case basis from the information supplied by the applicant in the Notice of Intent (NOI). Only existing sources and new dischargers may be authorized under this general permit.

B. Area of Coverage.

1. **Geographic Area.** The federal regulations at 40 CFR 122.28(a) require that the geographic area of coverage correspond to existing geographic or political boundaries. In order to be consistent with lease sales conducted by MMS on the outer continental shelf (OCS) or lease sales conducted by

the state of Alaska within the boundaries of state waters, EPA has defined the area of coverage for this general permit to correspond with MMS OCS regions of the Beaufort and Chukchi Seas and state of Alaska waters contiguous to the landward boundary of these MMS OCS regions. Currently, the only MMS active leases are in the Beaufort Sea. All MMS leases have been relinquished for the Chukchi Sea. A map showing the active leases is provided in Appendix B of this fact sheet.

2. Source Area. The applicability of the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR 435, Subpart A) is to those facilities which are located in waters that are seaward of the inner boundary of the territorial seas as defined in section 502(8) of the Clean Water Act. The inner boundary of the Beaufort and Chukchi seas is either the line of ordinary low water along that portion of the coast which is in direct contact with the open sea or the line marking the seaward limit of inland waters (i.e., inner boundary baseline). Since the inner boundary baseline in Alaska has not been clearly established, applicants discharging to bays, inlets, or other water bodies that may be construed as inland waters will be required to confirm with the U.S. Department of State and the National Oceanic and Atmospheric Administration (NOAA) that their discharge is seaward of the inner boundary baseline.
3. A map of the coverage area is provided in Appendix B of this fact sheet.

C. Prohibited Areas of Discharge. [reserved]

D. Authorization to Discharge.

1. Application. The federal regulations at 40 CFR 122.28(b)(2)(i) allows a complete and timely notice of intent (NOI) to be covered in accordance with the general permit requirements to fulfill the requirements for permit applications.
2. Notice of Intent Contents. The federal regulations at 40 CFR 122.28(b)(2)(ii) require the contents of the NOI to contain information necessary for adequate program implementation, legal name and address of the owner or operator, the facility name and address, the type of facility or discharges, and the receiving stream(s). In additions to these requirements, EPA is including the following requirements as part of the NOI:
 - a. Applicant: The current permit requires that the applicant provide the name and address of the permittee and the facility name and location. The current permit requires the applicant to provide the owner's or operator's: name, mailing address, contact name, and

telephone number; and the facility's name, mailing address, contact name, and telephone number.

- b. Location of discharge: The current permit requires that the applicant provide the leaser (MMS or ADNR) the lease and block numbers of operations and discharges; the latitude and longitude of facility and each well; the range of water depths below mean lower low water (MLLW) in the lease block; and the water depths for each discharge. This information requirement is retained in the draft permit. In addition, the draft permit is proposing that the applicant provide the type of drilling rig (e.g., jackup, drillship, semisubmersible) used for exploratory operations and the receiving water.
- c. Mobile operations: The current permit does not allow for mobile operations; facilities must submit a separate NOI for each location. In other NPDES permits, EPA has allowed mobile operations as long as the permittee provides the area of discharge in their application and notifies EPA of their exact location during operations. The draft permit proposes the authorization of mobile operations as long as the facility initially applies for mobile operations, provides a map and description of the area they are going to operate in, provides the initial location of the facility, and notifies EPA, in writing, of the new location 30 days prior to moving their operation.
- d. Commencement date of discharge: The current permit requires the applicant provide the initial date and expected duration of exploration operations. This information requirement is retained in the draft permit.
- e. Special monitoring: The current permit requires environmental monitoring of drilling muds and drill cuttings when the discharge is within 4000 meters of the following areas: below-ice to water depths shallower than 20 meters as measured from MLLW; the Steffansson Sound Boulder Patch, the protected areas of Kasegaluk Lagoon and the seven identified passes; Omalik Lagoon, or river mouths or deltas during unstable or broken ice or open water conditions. The draft permit retains this requirement and requires the applicant to indicate whether or not they are subject to the special monitoring requirements.
- f. Environmental reports: The current permit requires that the applicant provide copies of any exploration plans, biological surveys, and environmental reports required by MMS for the

identification or protection of biological populations or habitats, or provide notice that no exploration plan or environmental report will be sent. This information requirement is retained in the draft permit.

- g. Wells: The current permit does not require the applicant to submit any well specific information. The current permit proposes to require the applicant to submit the initial date of drilling for each well, the well name, the well number (i.e., #1, #2,... #5), the well hole diameter, the category of mud(s) used (e.g., water-based, oil-based, synthetic-based), the type or group of mud used (e.g., lignosulfonate muds, lime muds, etc.), solids removal process, and certification of complete Mud Plan.
- h. Discharges: The current permit authorizes each applicant to discharge all discharges under the permit. The draft permit authorizes each applicant to discharge only those discharges in which they apply to discharge. Additionally, the draft permit requires the applicant to indicate the type of sanitary discharge (M10 or M9IM).
- i. Line Drawing: The current permit does not require the applicant to provide a line drawing that shows the flow of discharged wastestreams through the facility. To be consistent with the application requirements of 40 CFR 122.21, the draft permit is requiring the applicant to submit a line drawing with the NOI.

- 3. Deadlines for Submitting Notice of Intent. The federal regulations at 40 CFR 122.28(b)(2)(iii) require general permits to specify the deadline to submit a notice of intent to be covered under the permit. The current permit requires that the applicant provide: notice of request to discharge 60 days prior to initiation of discharge; information about the discharge 30 days prior to commencement of discharges; and notice of intent to commence discharge, orally or written, 7 days prior to discharging from the facility and from each well. If information required to be submitted 7 days prior to discharging was given orally, the applicant was required to provide written confirmation within 7 days.

EPA has found these deadlines to be laborious, difficult to track, and confusing to the applicant(s). Therefore, the draft permit proposes that the applicant submit a notice of intent to be covered under this general permit thirty (30) days prior to commencement of discharges from any facility.

The draft permit proposes to only authorize information to be given in writing. In addition, the permittee must submit a new complete notice of

intent prior to the expiration date of the general permit should the operator choose to continue operations under this general permit in the event of administrative extension of the general permit.

4. Date(s) when a discharger is authorized to discharge. The federal regulations at 40 CFR 122.28(b)(2)(iii) require general permits to specify the date(s) when a discharger is authorized to discharge under the permit. The date when a discharger is authorized to discharge under the current permit is the date that they receive written notification that EPA has assigned a permit number under the general permit. The date when a discharger is authorized to discharge for the draft permit is the date of the written notification that EPA has authorized the discharge and assigned a permit number under the general permit.
- E. Transfers. The federal regulation at 40 CFR 122.41(l)(3) allows for transfers of permits. Transfers under the draft permit will only be authorized for an existing facility located at the site or area of the original NOI. Discharge authorizations may not be transferred to new facilities, an existing facility previously located at a different site (e.g., if a facility is located at site A, then it cannot move to site B without obtaining new permit coverage, even if there was previous permit coverage at site B for a different facility). This is because the facility will be considered a “new facility” and must submit a new NOI for coverage under this general permit.
- F. Termination Notification. The federal regulation at 40 CFR 122.64 provides causes for terminating coverage under the general permit. One cause is a change in any condition that requires either a temporary or permanent reduction or elimination of any discharge controlled by the permit (for example, plant closure or termination of a discharge).
1. Operations. The current general permit requires the permittee to provide a notice within 30 days following the cessation of discharges from the discharge site. The draft permit proposes that the permittee provide a notice prior to ceasing operations. The notice must include certification that the permittee is not subject to an enforcement action or citizen suit. In accordance with federal regulation 40 CFR 124.64, the permit coverage will be terminated 30 days after the discharger receives notice from EPA.
 2. Wells. The current general permit requires the permittee to provide a notice within 30 days following the cessation of discharges from each well. The draft permit proposes that the permittee provide a notice of well completion within 7 days of ceasing drilling operations in each well.
- G. Requiring an Individual Permit. The federal regulations under 40 CFR 122.28(b)(3) provides the cases where the Director, the Regional Administrator,

or the discharger may request an individual permit. These were incorporated into the general permit as stated in the federal regulations.

II. PROPOSED EFFLUENT LIMITATIONS AND DISCHARGE REQUIREMENTS

A. Basis for Permit Effluent Limits.

In general, the Clean Water Act requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. A technology-based effluent limit requires a minimum level of treatment for point sources based on currently available treatment technologies. A water quality-based effluent limit is designed to ensure that the water quality standards of a water body are being met.

B. Technology-based Evaluation

1. Overview.

There are two general approaches for developing technology-based effluent limits for industrial facilities: (1) using national effluent limitations guidelines (ELGs) and (2) using Best Professional Judgment (BPJ) on a case-by-case basis. The intent of a technology-based effluent limitation is to require a minimum level of treatment for industrial point sources based on currently available treatment technologies while allowing the discharger to use any available control technique to meet the limitations.

The national ELGs are developed based on the demonstrated performance of a reasonable level of treatment that is within the economic means of specific categories of industrial facilities. Where national ELGs have not been developed or did not consider specific pollutant parameters in discharges, the same performance-based approach is applied to a specific industrial facility based on the permit writer's BPJ. In some cases, technology-based effluent limits based on ELGs and BPJ may be included in a single permit.

2. National Effluent Limitation Guidelines.

Section 301(b) of the CWA requires technology-based controls on effluents. This section of the CWA requires that, by March 31, 1989, all permits contain effluent limitations which: (1) control toxic pollutants and nonconventional pollutants through the use of “best available technology economically achievable” (BAT), and (2) represent “best conventional pollutant control technology” (BCT) for conventional pollutants. In no case may BCT or BAT be less stringent than “best practical control technology currently achievable” (BPT), which is the minimum level of control required by section 301(b)(1)(A) of the CWA.

For several specific industrial sectors, EPA has developed effluent limitation guidelines (ELGs) that contain BPT, BCT, BAT, and NSPS limitations. On April 13, 1979, EPA published effluent limitation guidelines for the offshore subcategory of the oil and gas extraction industry. These guidelines were subsequently amended on December 16, 1996, and January 22, 2001. The guidelines for this industry are found in 40 CFR Part 435, Subpart A. The BPT, BCT, and BAT effluent limitation guidelines (40 CFR 435.12-14) that apply to the discharges authorized by this general permit have been incorporated as discussed below.

C. Water Quality-based Evaluation

1. Overview

In addition to the technology-based limits discussed above, EPA evaluated the discharges to determine compliance with section 301(b)(1)(C) of the CWA. This section requires the establishment of limitations in permits necessary to meet water quality standards by July 1, 1977. The regulations at 40 CFR 122.44(d) implement section 301(b)(1)(C) of the CWA. These regulations require that permits include limits for 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.” The permit limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation (WLA).

In determining whether water quality-based limits are needed and developing those limits when necessary, EPA follows guidance in the *Technical Support Document for Water Quality-based Toxics Control* (TSD; EPA, 1991). The water quality-based analysis consists of four steps: (1) determine the appropriate water quality criteria that apply to each discharge, (2) determine if there is “reasonable potential” for the discharge to exceed the criteria in the receiving water, (3) develop a WLA

if there is reasonable potential, and (4) develop effluent limitations based on the WLA.

2. Water Quality Standards.

The State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses that each water body is expected to achieve (such as cold water biota, contact recreation, etc.). The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

The Alaska *Water Quality Standards* (18 AAC 70.020(a)(2)) protect State marine waters for the following beneficial use classifications: aquaculture water supply, seafood processing water supply, industrial water supply, contact and secondary recreation, growth and propagation of fish, shellfish, other aquatic life, and wildlife, and harvesting for consumption of raw mollusks or other raw aquatic life.

State marine waters covered under this general permit are tier 1 water bodies, therefore, water quality should be such that it results in no mortality and no significant growth or reproductive impairment of resident species. Coverage under this general NPDES permit cannot be authorized that would result in the water quality criteria being violated in the water body. The draft permit contains effluent limits that ensure that the existing beneficial uses for State marine waters covered under this general permit will be maintained.

3. Water Quality Criteria

The first step in developing water quality-based effluent limits is to determine the applicable water quality criteria. For Alaska, the State water quality standards are found at Title 18, Chapter 70 of the Alaska Administrative Code (18 AAC 70). The applicable criteria are determined based on the beneficial uses of the receiving water. The beneficial uses for the coastal areas of the Beaufort and Chukchi Seas are aquaculture water supply, seafood processing water supply, industrial water supply, contact and secondary recreation, growth and propagation of fish, shellfish, other aquatic life, and wildlife, and harvesting for consumption of raw mollusks or other raw aquatic life. For any given pollutant, different uses may have different criteria. To protect all beneficial uses, the permit limits are based on the most stringent of the water quality criteria applicable to those uses.

When there are not numeric criteria, EPA must interpret the narrative criteria in order to evaluate reasonable potential. This can be accomplished in one of three methods:

- Establish a permit limit using a calculated criterion using a proposed State water quality criterion, or an explicit State policy;
- Establish permit limits on a case-by-case basis using EPA's water quality criteria; or
- Establish an indicator parameter.

The most stringent numeric criteria based on the beneficial uses for the Beaufort and Chukchi Seas are summarized in Table C-1 of Appendix C. The most stringent narrative criteria based on the beneficial uses for the Beaufort and Chukchi Seas are also summarized in Appendix C.

D. Proposed Effluent Limitations

1. Statutory and Regulatory Basis for Limits. Sections 101, 301(b), 304, 308, 401, 402, and 405 of the Clean Water Act (CWA) provide the basis for the effluent limitations and other conditions in the draft permit. The discharges are evaluated with respect to these sections of the CWA and the relevant National Pollutant Discharge Elimination System (NPDES) regulations to determine which conditions to include in the draft permit.
2. Expression of Effluent Limitations.
 - a. Continuous Discharges. The NPDES regulations at 40 CFR 122.45(d) require that all effluent limitations, standards, and prohibitions of discharges from continuous sources at industrial facilities to be expressed, unless impracticable, as both maximum daily and monthly average values.
 - b. Non-continuous Discharges. The federal regulations at 40 CFR 122.45(e) allows non-continuous discharges to be described and limited considering the following factors, as appropriate:
 - (1) Frequency of discharge;
 - (2) Total mass of pollutant per batch discharge;
 - (3) Maximum discharge rate of pollutants; and
 - (4) Expression of limits using the appropriate measure (e.g., mass, concentration, etc.).
3. Mass Versus Concentration Limits. The regulations at 40 CFR 122.45(f)(1) require that all permit limits, standards, or prohibitions be

expressed in terms of mass units (e.g., pounds, kilograms, grams) except under the following conditions:

- a. For pH, temperature, radiation, or other pollutants that cannot appropriately be addressed by mass limits;
- b. When applicable standards and limitations are expressed in terms of other units of measurement; or
- c. If in establishing technology-based permit limitations on a case-by-case basis limitations based on mass are infeasible because the mass or pollutant cannot be related to a measure of production. The limitations, however, just ensure that dilution will not be used as a substitute for treatment.

While the regulations require that limitations be expressed in terms of mass, a provision is included at 40 CFR 122.45(f)(2) that allows limits to be expressed in additional units (e.g., concentration units). Where limits are expressed in more than one unit, the permittee must comply with both.

The basis for expressing limitations in terms of concentration as well as mass is to encourage proper operation of treatment units. In the absence of concentration limits, a permittee would be able to increase its effluent concentration (i.e., reduce its level of treatment) during low flow periods and still meet its mass-based effluent limits. Therefore, concentration limits discourage the reduction in treatment efficiency during low flow periods, and require proper operation of treatment units at all times.

4. The following provides the basis for the effluent limitations and requirements that are in the draft permit for all discharges:
 - a. The proposed permit incorporates the state of Alaska's water quality standard that requires waters of the state must not receive floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind in concentrations causing nuisance, objectionable, or detrimental conditions or that make the water unfit or unsafe for the use. This standard is also being applied to discharges within federal waters to ensure compliance with the coastal zone management act. Operators have been subject to a no floating solids, visible foam, or oily waste requirement in previous permits issued by Region 10 and past practices have not resulted in violations.
 - b. The proposed permit contains a provision that the discharge of surfactants, dispersants, and detergents must be minimized except

as necessary to comply with the safety requirements of the Occupational Health and Safety Administration and the Mineral Management Service (MMS). The discharge of dispersants to marine waters in response to oil or other hazardous spills is not authorized by the permit. These products contain primarily nonconventional pollutants. This provision previously appeared in the permits for this industry located in the Beaufort Sea, Chuckchi Sea, Norton Sound, Bering Sea, and Cook Inlet.

- c. The proposed permit requires separation of area drains for washdown and rainfall that may be contaminated with oil and grease from those area drains that would not be contaminated. This will ensure that minimization of this conventional pollutant to waters of the U.S. This provision previously appeared in the permits for this industry located in Cook Inlet.
 - d. The proposed permit prohibits discharges of the following pollutants: diesel oil, halogenated phenol compounds, trisodium nitrilotriacetic acid, sodium chromate, or sodium dichromate. The class of halogenated phenol compounds includes toxic pollutants, and sodium chromate and sodium dichromate contain chromium, also a toxic pollutant. Trisodium nitrilotriacetic acid is a nonconventional pollutant. The discharge of these compounds was previously prohibited in the permits for this industry located in the Beaufort Sea, Chuckchi Sea, Norton Sound, Bering Sea, and Cook Inlet.
 - e. The proposed permit requires that any commingled discharges are subject to the most stringent effluent limitations for each individual discharge. If the individual discharge is not authorized, the commingled discharge is not authorized. This provision ensures that technology-based requirements are being adequately controlled rather than using dilution to meet the effluent limitations and that all parameters within the commingled discharge meet the water quality standards.
 - f. The proposed permit requires the pH range of all discharges to be maintained between 6.5 and 8.5 standard units. This requirement is consistent with the Alaska water quality standards and has been previously required in permits for this industry in Cook Inlet.
5. The following provides the basis for the effluent limitations and requirements that are in the draft permit for drilling fluids and drilling cuttings (discharge 001):

a. Area Restrictions.

The proposed permit is retaining the area restrictions of the current general permit. Area restrictions on this discharge are necessary to ensure no unreasonable degradation of the environment. In accordance with 40 CFR 125.123(c), the Director has prohibited these discharges because the Region has determined they may cause unreasonable degradation of the marine environment.

EPA has extensively studied the nearshore zone of the Alaskan Beaufort Sea in several Ocean Discharge Criteria Evaluations (Tetra Tech, 1994, 2004; Jones & Stokes, 1983, 1984). These evaluations have clearly shown that these nearshore areas provide important feeding and migratory habitat for a large number of species including fish, waterfowl, and mammals. Further, these areas provide essential feeding and preferred habitat for species of major importance for subsistence and commercial fisheries.

The proposed permit does not authorize discharges within 1000 meters of the Stefansson Sound Boulder Patch as defined by Dunton et al. (1982). The “Patch” is a rare and unique biological community that is susceptible to adverse effects caused by discharged drilling muds and cuttings.

The proposed permit restricts activity near Kasegaluk Lagoon and its barrier island system. Specifically discharge is prohibited within Kasegaluk Lagoon and in the waters within 3 miles of the following passes intensively used by the beluga whales: Kukpowruk Pass, Akunik Pass, Utukok Pass, Icy Cape Pass, and Alokiakatat Pass. This restriction is in accordance with the North Slope Borough’s Coastal Management Program (NSB, 1988). The North Slope Borough recognizes Kasegaluk Lagoon as a candidate Area Meriting Special Attention (AMSA) and imposes this restriction.

Kasegaluk Lagoon extends for approximately 140 miles along the Chukchi Sea coast. About 90 miles of the lagoon is south of Icy Cape and the rest is north of Icy Cape. Kasegaluk Lagoon is located in State waters of the Chukchi Sea and provides important habitat for spotted seals and beluga whales. Beluga whales are known to feed, calve, and possibly molt in this lagoon (NSB, 1988; Frost and Lowry, 1993; Tetra Tech, 1994, 2004). Spotted seals also calve in Kasegaluk Lagoon (North Slope Borough, 1988). The lagoon also provides important feeding, migrating, and rearing areas for marine and anadromous fish, as well as migratory birds.

Kasegaluk Lagoon, the barrier islands, and the nearshore waters seaward of the barrier islands are an important subsistence area for the villagers of Point Lay (North Slope Borough, 1988).

Subsistence activities that occur seasonally in the Kasegaluk Lagoon candidate AMSA include egg gathering, waterfowl, hunting, sealing, fishing, walrus hunting, and whaling for belugas. This proposed permit and the Borough's management program recognizes the importance of the area for marine mammals, seabirds, and subsistence activities.

b. Seasonal Restrictions.

The proposed permit is retaining the seasonal restriction of the current general permit. These restrictions are necessary to ensure the fate and transport of this discharge does not cause degradation to the environment and is consistent with the finding in several Ocean Discharge Criteria Evaluations (Tetra Tech, 1994, 2004; Jones & Stokes, 1983, 1984).

c. Effluent Limitations. The proposed permit incorporates the effluent limitation required by the effluent limitation guidelines in 40 CFR 435, Subpart A. The current general permit does not authorize the discharge of oil-based drilling muds (or drilling fluids) because EPA was developing national guidelines for this discharge. The proposed permit incorporates the ELGs requirements for non-aqueous drilling fluids that were promulgated January 22, 2001. Additional effluent limitations have been determined to be necessary for this discharge. The following provides the basis for these additional requirements.

Suspended Particulate Phase (SPP) Toxicity. The proposed permit is retaining the effluent toxicity limit of a minimum of minimum 96-hour LC50 of 30,000 ppm SPP on discharged water-based drilling fluids and drilling cuttings. This requirement is being added to non-aqueous drilling cuttings. This limit was designed to be a technology-based control on toxicity, as well as toxic and nonconventional pollutants. The 30,000 ppm SPP limitation is based on the Agency's evaluation that it constitutes an economically and technically achievable level of performance and is both technologically feasible and economically achievable and reflects BAT level of control (USEPA, 1993) on a national basis. This provision previously appeared in the permits for this industry located in the Beaufort Sea, Chuckchi Sea, Norton Sound, Bering

Sea, and Cook Inlet, as well as the 1992 general permit for the Western Gulf of Mexico (57 FR 54652, November 19, 1992).

Total Aqueous Hydrocarbons (TAqH). The proposed permit has added effluent limitations for total aqueous hydrocarbons to ensure protection of Alaska water quality standards. The proposed limits are based on criteria end-of-pipe, but may be modified should the state of Alaska authorize a mixing zone for this parameter.

Total Aromatic Hydrocarbons (TAH). The proposed permit has added effluent limitations for total aromatic hydrocarbons to ensure protection of Alaska water quality standards. The proposed limits are based on criteria end-of-pipe, but may be modified should the state of Alaska authorize a mixing zone for this parameter.

Total Volume. The proposed permit is retaining the requirement to limit drilling discharges from no more than five wells at a single drilling site. However, this requirement has been updated to include specific information that would be necessary by the Director to allow the discharge from additional wells. In the past, this effluent limitation was included because it was the basis of the Ocean Discharge Criteria Evaluation (Tetra Tech, 1994). This Evaluation was updated in 2004 by Tetra Tech and retained the same basis for the analysis. Therefore, the new requirement includes the number of additional wells to be drilled, a technical analysis of additional impacts to the receiving waters from the additional wells, drilling fluid category and group for each well, and well information for each additional well, including well name, number, latitude, longitude, beginning drill date, and hole diameter.

Stock Barite Monitoring (Table 1, footnote 5). The proposed permit is retaining the requirement for the analysis of a representative sample of stock barite once prior to drilling each well. If the same supply of stock barite is used to drill subsequent wells, the same analysis may be used for all wells. This requirement reduces the burden of monitoring for the operator while still providing the information necessary to ensure compliance with this permit.

d. Flow Limitations.

The proposed permit is retaining the flow limitations of the current general permit. The area of coverage includes water depths from 5

to about 3,000 meters deep. Discharge rate limitations on total drilling fluids and drilling cuttings have been established in the ocean discharge criteria evaluation process in order to allow adequate dispersion of the discharges. The depth restriction is necessary because for any given discharge rate, the dilution of drilling fluids and drilling cuttings is not as great in shallow waters as in deeper waters. At any particular water depth, greater dilution close to the discharge point will be achieved with a lower discharge rate. These maximum rates will ensure that the water quality standards will not be exceeded at the edge of a 100-meter mixing zone (Tetra Tech, 2004).

Previous permits have allowed the discharge of drilling fluids and drilling cuttings between 2 and 5 meters depth. However, computer modeling of the dispersion of the drilling fluids conducted for this permit within the depth range of 2 to 5 meters did not perform adequately (Tetra Tech, 2004). The maximum depth of drilling fluid accumulation for these cases was 10 to 20 times greater than the water depth. Drilling fluid accumulations of this magnitude would effectively bury the drilling fluid outfall, making any calculation of dilution values meaningless. Accordingly, EPA is proposing zero discharge of drilling fluids and drilling cuttings in waters less than 5 meters depth.

- e. Environmental Monitoring. The proposed permit is retaining the environmental monitoring requirements for two areas which are of particular concern to Region 10: discharge of drilling fluids and drilling cuttings below-ice to water depths shallower than 20 meters and within 10000 meters of an area of biological concern (i.e., a unique biological community or habitat). The Director has determined that controlled discharges to these areas, in accordance with 40 CFR 125.123(a) and the limitations and conditions in the draft permit, will not cause unreasonable degradation of the marine environment. Environmental monitoring is required to verify that discharges to these areas will not produce conditions in the future that would lead to unreasonable degradation.
- f. Mineral Oil Pills. The proposed permit is retaining the requirements for mineral oil pills. The Region has not obtained enough information regarding the impact of mineral pills on mud toxicity. This monitoring may be discontinued in the future should information show that the addition of the mineral pills does not impact mud toxicity.

- g. End-of-well Report. The proposed permit is retaining the requirement to submit an end-of-well report. However, requirements for the end-of-well report have been changed.

In the current permit, the end-of-well report requires identification of the corresponding mud system and analysis for diesel oil, barium, cadmium, chromium, copper, mercury, zinc, lead, and toxicity. The report is to be submitted within 45 days following well completion.

The proposed end-of-well report requires well name, number, latitude, longitude, beginning drill date, and hole diameter, well completion date, a precise chemical inventory of all constituents added downhole, including all drilling mud additives used to meet specific drilling requirements, the base mud type, the name and total amount of each constituent in the discharged mud, the total volumes of mud treated and added downhole, the maximum concentration of each constituent in the mud, the total volumes of mud discharged to surface waters, and the estimated amount of each constituent in the mud discharge to surface waters. The report is to be submitted with 90 days following well completion.

The change in the end-of-well reporting requirements will better define the fate and transport of this discharge in the environment and the environmental impact of the discharge. The submittal date of the report was extended due to the increased requirements to allow the operator adequate time to complete the report.

- 6. The following provides the basis for the effluent limitations and requirements that are in the draft permit for deck drainage (discharge 002):
 - a. Effluent Limitations. The proposed permit incorporates the effluent limitation required by the effluent limitation guidelines in 40 CFR 435, Subpart A.
 - b. Oil and Grease. The proposed permit is retaining the requirement that deck drainage contaminated with oil and grease must be processed through an oil-water separator prior to discharge. The requirement to sample the deck drainage discharge that is processed through the oil-water separator and tested for sheen has been retained, although it has been modified to state that sampling is to occur once per discharge event. In addition, the permit is proposing monitoring of total aqueous hydrocarbons (TAqH) and

total aromatic hydrocarbons (TAH) to ensure compliance with Alaska water quality standards.

7. The following provides the basis for the effluent limitations and requirements that are in the draft permit for sanitary wastes (discharge 003):

a. Effluent Limitations within Alaska Waters. The proposed permit incorporates the effluent limitations required by the effluent limitation guidelines in 40 CFR 435, Subpart A. Additional limitations have been proposed to ensure compliance with Alaska water quality standards and domestic water treatment requirements. These limits have been established under best professional judgment and the reasonable potential analysis for water quality-based effluent limitations provided in Appendix C.

Best Professional Judgment. The state of Alaska has minimum treatment requirements for the discharge of domestic water (18 AAC 72.050(a)(4)), which includes sanitary wastes. The State requires all domestic wastewater, which applies to sanitary waste (003), discharged into or onto waters of the State to meet secondary treatment. The State’s wastewater regulations provide effluent limitations for secondary treatment at 18 AAC 72.991(59) and summarized in Table 1.

Table 1. Alaska Technology-based Effluent Limitations for Sanitary Wastes (003)		
Pollutant Parameter	Duration	Limitation
BOD ₅	30-day average	30 mg/L
	7-day average	45 mg/L
	24-hour average	60 mg/L
TSS	30-day average	30 mg/L
	7-day average	45 mg/L
	24-hour average	60 mg/L
pH	in any measurement	6.0 - 9.0

Water Quality-based Effluent Limits. Reasonable potential to violate Alaska water quality standards was determined for pH (M9IM and M10), fecal coliform bacteria (M9IM and M10), and total residual chlorine (M10). Therefore, water quality-based effluent limitations have been established for these parameters.

The calculations for the water quality-based effluent limits are provided in Appendix C.

- b. Effluent Limitations beyond Alaska Waters. The proposed permit incorporates the effluent limitations required by the effluent limitation guidelines in 40 CFR 435, Subpart A. Additional limitations have been proposed to proper operation of the marine sanitation device. These limits have been established under best professional judgment.

Best Professional Judgment. The EPA has federal regulations at 40 CFR Part 140 that provide standards for marine sanitation devices (MSDs) that require effluents to contain a maximum of 150 mg/L TSS, a maximum of 200/100 ml fecal coliform bacterial count, and no visible floating solids.

- c. Marine Sanitation Device (MSD). The proposed permit retains the requirement that the operator of a MSD to conduct annual testing of the unit to ensure that the unit is operating properly. The basis for this requirement is established through federal regulations at 40 CFR 122.41(e) (Proper Operation and Maintenance).

- 8. The basis for the effluent limitations and requirements that are in the draft permit for domestic wastes (discharge 004) are required by the effluent limitation guidelines in 40 CFR 435, Subpart A.
- 9. The proposed permit retains the effluent limitation for no discharge of free oil from desalination unit wastes (discharge 005) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.

10. The proposed permit retains the effluent limitation for no discharge of free oil from blowout preventer fluid (discharge 006) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.
11. The proposed permit retains the effluent limitation for no discharge of free oil from boiler blowdown (discharge 007) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.
12. The proposed permit retains the effluent limitation for no discharge of free oil from fire control system test water (discharge 008) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not

regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.

13. The following provides the basis for the effluent limitations and requirements that are in the draft permit for non-contact cooling water (discharge 009):
 - a. Effluent limitations. The proposed permit retains the effluent limitation for no discharge of free oil based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.
 - b. Biocide and Chemical Inventory. The proposed permit retains the requirement for an annual inventory of the type and quantity of biocides and chemicals added to non-contact cooling water. The permit proposes that the report be submitted to EPA by March 1 of the following year. The basis for this requirement is to provide EPA with information regarding the specific chemicals added to discharge to ensure current permit limitations and requirements are protective of water quality.
14. The proposed permit retains the effluent limitation for no discharge of free oil from uncontaminated ballast water (discharge 010) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on

the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.

15. The proposed permit retains the effluent limitation for no discharge of free oil from uncontaminated bilge water (discharge 011) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.
16. The proposed permit retains the effluent limitation for no discharge of free oil from excess cement slurry (discharge 012) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static

sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.

17. The proposed permit retains the effluent limitation for no discharge of free oil from mud, cuttings, and cement at the seafloor (discharge 013) based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.
18. The following provides the basis for the effluent limitations and requirements that are in the draft permit for test fluids (discharge 014):
 - a. Effluent limitations.

Free Oil. The proposed permit retains the effluent limitation for no discharge of free oil based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. BPT is based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industrial category or subcategory. BPJ-based effluent limits are technology-based limits derived on a case-by-case basis under Section 402(a)(1) of the Clean Water Act. BPJ limits are established in cases where ELGs are not available for, or do not regulate, a particular pollutant of concern. EPA has developed this BPJ effluent limitation in accordance with federal regulations 40 CFR 122.43, 122.44, and 125.3. Compliance with the no free oil limitation is to be determined by visual observation for sheen on the receiving water using the static sheen test defined in Appendix 1 to 40 CFR Part 435, Subpart A. This discharge has been subject to this limitation in previous permits for this industry

in Region 10 and past practices have not resulted in violations of this limit.

Oil and Grease. The proposed permit retains the effluent limitation for oil and grease of 29 mg/L monthly average and 42 mg/L daily maximum. Although oil and grease is a conventional pollutant subject to BCT, it also serves as BAT (i.e., as an indicator of toxic pollutants for produced water. Specifically, the toxic pollutants that are controlled by limiting oil and grease include phenol, naphthalene, ethylbenzene, and toluene (USEPA, 1993). EPA has determined that it is not technically feasible to control these toxic pollutants individually so that the limitation on oil and grease controls discharge of these pollutants in produced water at the BAT level (USEPA, 1993).

The promulgated BAT for oil and grease in produced water as 29 mg/L monthly average and 42 mg/L daily maximum based upon the improved operating performance of gas flotation technology of test fluids and produced water, Region 10 has determined that it is reasonable to apply the produced water provisions to test fluids. This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.

pH. The proposed permit retains the effluent limitation for pH of 6.5 to 8.5 standard units. The pH of discharged test fluids (which may have a substantially different pH from that of the ambient receiving water) has been established based on best professional judgment (BPJ) of Best Practicable Control Technology Currently Available (BPT) controls for this discharge. This limitation will ensure that pH changes greater than 0.2 standard units will not occur beyond the edge of the 100-meter mixing zone (40 CFR 125.121(c)). This discharge has been subject to this limitation in previous permits for this industry in Region 10 and past practices have not resulted in violations of this limit.

III. PROPOSED MONITORING REQUIREMENTS

A. Basis for Effluent Monitoring.

1. Section 308 of the Clean Water Act and federal regulation 40 CFR 122.44(i) require effluent monitoring in NPDES permits to determine compliance with effluent limitations. The draft permit only requires

monitoring of discharges that are authorized by the coverage letter to each individual applicant.

2. Monitoring Frequency. Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance.
3. Sample Type.
 - a. Estimated. Since the volume of the authorized discharges, except the sanitary discharge, is minimal and is not expected to present a significant risk to the environment, EPA has proposed in the draft permit that these discharge volumes be estimated rather than measured to provide relief from additional administrative burden.
 - b. Visual.
 - (1) Free Oil. 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.
 - (2) Floating solids, garbage and foam. The only way to adequately measure a discharge for this parameter is to conduct a visual analysis of the receiving waterbody to determine the presence or absence of floating solids, garbage and foam.
 - c. Grab. Grab samples are appropriate for parameters (i.e., pH, fecal coliform bacteria, and total residual chlorine) that are likely to change with storage or for parameters (i.e., BOD₅ and TSS) that are not likely to change over time. It is also more appropriate to collect grab samples for whole effluent toxicity analysis of the deck drainage discharge because it is known that the potential for toxicity is greatest during a significant rainfall or snowmelt. Additionally, the deck drainage discharge is precipitation related and may not last long enough to collect a composite sample.

B. Proposed Effluent Monitoring.

1. The following presents the proposed effluent monitoring requirements for the draft permit for all discharges.

- a. The proposed permit retains the requirement that monitoring for the facility is not required if it is not staffed. The permittee must provide EPA and ADEC written notification that the facility is no longer staffed 30 days prior to terminating monitoring requirements. This industry has been subject to this monitoring requirement in previous permits in Region 10.
 - b. The proposed permit requires that all effluent samples must be collected from the effluent stream of each discharge after the last treatment unit prior to discharge into the receiving waters. This requirement is necessary to assure compliance with the Clean Water Act and the limits of the permit; therefore, the basis for this requirement is 40 CFR 122.43(a) and 122.44. This industry has been subject to this monitoring requirement in previous permits in Region 10.
 - c. The proposed permit requires pH in all discharges to be monitored monthly, unless otherwise indicated in this permit. This industry has been subject to this monitoring requirement in previous permits in Region 10.
 - d. The proposed permit requires visual monitoring to be conducted of the receiving water surface in the vicinity of the outfall(s) during daylight at a time of maximum estimated or measured discharge. This industry has been subject to this monitoring requirement in previous permits in Region 10.
 - e. The proposed permit requires measurement or estimation of discharge flow or volume for each discharge to allow EPA to know the amount of contaminants are entering the environment to ensure that water quality is maintained.
2. In addition to monitoring for limited parameters in the draft permit for drilling fluids and drilling cuttings (discharge 001), the proposed permit is retaining the environmental monitoring requirements. Environmental monitoring is required in two areas which are of particular concern to Region 10: discharge of drilling fluids and cuttings below-ice to water depths shallower than 20 meters and within 1000 meters of an area of biological concern (i.e., a unique biological community or habitat). EPA has determined that controlled discharges to these areas, in accordance with 40 CFR 125.123(a) and the limitations and conditions in the draft permit, will not cause unreasonable degradation of the marine environment. Environmental monitoring is required to verify that discharges to these areas will not produce conditions in the future that would lead to unreasonable degradation.

3. In addition to monitoring for limited parameters in the draft permit for deck drainage (discharge 002), the proposed permit requires samples for the deck drainage discharge to be collected from the oil/water separator effluent and tested for sheen. This discharge has been subject to this monitoring requirement in previous permits for this industry in Region 10

IV. SPECIAL CONDITIONS

A. Quality Assurance Plan (QAP).

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop a Quality Assurance Plan to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The permittee is required to develop a Quality Assurance Plan within 90 days of the effective date of the final permit. The Quality Assurance Plan must consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Best Management Practices (BMP) Plan.

Section 402 of the Clean Water Act and federal regulations 40 CFR 122.44(k)(2) and (3) authorize EPA to require best management practices, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. These measures are important tools for waste minimization and pollution prevention.

The draft permit requires operators to have a BMP Plan that incorporates practices to achieve the objectives and specific requirements in the permit. The BMP plan must be revised as new practices are developed for the facility.

C. Mud Plan.

The proposed permit is retaining the requirement for a mud plan. 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. The mud plan is one component of the Best Management Practices Plan. The mud plan requirement is also based upon the Pollution Prevention Act and its policy of prevention, reduction, recycling, and treatment or wastes (PPA Section 102(b)) through measures that 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. The intent of the mud plan is a written guide to planning for and using a mud/additive system in compliance with the permit. 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 required limitation.

The mud plan is intended to demonstrate that the discharged mud/additive system for the well in question will meet the effluent limitation 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 is also required to 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 is required to be clearly specified in the mud plan.

V. OTHER LEGAL REQUIREMENTS

A. State Certification Requirements.

Since this permit authorizes discharges to Alaska State waters, section 401 of the Clean Water Act requires EPA to seek state certification before issuing a final permit. As a result of the certification, the state may require more stringent permit conditions to ensure that the permit complies with water quality standards.

B. Standard Permit Provisions.

Sections III, V and VI of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

C. Endangered Species Act of 1973.

Section 7 of the Endangered Species Act requires Federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U. S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. Under the NEPA process (see Part VII.H, below), NMFS and USFWS have determined that the proposed action is not likely to adversely affect threatened or endangered species. Therefore, EPA has determined that the issuance of this permit will not affect any of the threatened or endangered species in the vicinity of the discharge and no further consultation is required. This fact sheet and the draft permit will be submitted to NMFS and the USFWS for review during the public notice period.

D. Essential Fish Habitat.

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with the National Marine Fisheries Service (NMFS) when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. Under the NEPA process (see Part VII.H, below), NMFS had determined that the proposed action is not likely to affect any EFH species. Therefore, EPA has determined that the reissuance of this permit will not affect any EFH species; therefore, no consultation is required. This fact sheet and the draft permit will be submitted to NMFS for review during the public notice period.

E. Permit Expiration.

Section 402(1)(B) of the Clean Water Act require that NPDES permits are issued for a period not to exceed five years, therefore, this permit will expire five years from the effective date of the permit.

F. Ocean Discharge Criteria.

Section 403 of the Clean Water 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 Clean Water 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)

When EPA determines that the discharge will cause unreasonable degradation, an NPDES permit may 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.

The Region has determined that discharges occurring under the proposed permit, which incorporates the above prohibitions, will not cause unreasonable degradation as long as the limitations, requirements, and conditions of the proposed permit are met.

G. Coastal Zone Management Act (CZMA).

The applicant has certified that the activities authorized by the draft permit are consistent with the Alaska Coastal Management Plan. Pursuant to 40 CFR Part 122.49(d), requirements of the State coastal zone management program must be satisfied before the permit may be issued.

H. Oil Spill Requirements.

Section 311 of the Clean Water Act prohibits the discharge of oil and hazardous materials in harmful quantities. Routine discharges specifically controlled by the permit are excluded from the provisions of Section 311. However, this permit does not preclude the institution of legal action or relieve permittees from any responsibilities, liabilities, or penalties for other unauthorized discharges of oil and hazardous materials, which are covered by Section 311.

VI. REFERENCES

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- USEPA, 2000. *Development Document for Final Effluent Limitations Guidelines and Standards for Synthetic-Based Drilling Fluids and other Non-Aqueous Drilling Fluids in the Oil and Gas Extraction Point Source Category*. U.S. Environmental Protection Agency, Office of Water, EPA-821-B-00-013. December 2000.

APPENDIX A
Description of Discharges

There are fourteen (14) different discharges associated with the oil and gas extraction industry conducting offshore exploration. The draft permit proposes that only the discharge of waste streams that were clearly identified in the permit application process will be authorized by the general permit.

Discharge 001 Drilling Fluids and Cuttings. Drilling fluids are the circulating fluids used in the rotary drilling of wells to clean and condition the hole, counterbalance formation pressure and transport drill cuttings to the surface. Drill cuttings are the particles generated by drilling into subsurface geologic formations and carried to the surface with the drilling fluid.

Discharge 002 Deck Drainage. Deck drainage refers to any waste resulting from platform washing, deck washing, spillage, rainwater, and runoff from curbs, gutters, and drains, including drip pans and wash areas. This could also include pollutants, such as detergents used in platform and equipment washing, oil, grease, and drilling fluids spilled during normal operations.

Discharge 003 Sanitary Waste. Sanitary waste is human body waste discharged from toilets and urinals.

Discharge 004 Domestic Waste. Domestic waste (gray water) refers to materials discharged from sinks, showers, laundries, safety showers, eyewash stations, and galleys. Gray water can include kitchen solids, detergents, cleansers, oil and grease.

Discharge 005 Desalination Unit Waste. Desalination unit waste is wastewater associated with the process of creating freshwater from seawater.

Discharge 006 Blowout Preventer Fluid (006). Blowout preventer fluid is fluid used to actuate hydraulic equipment on the blowout preventer.

Discharge 007 Boiler Blowdown. Boiler blowdown is the discharge of water and minerals drained from boiler drums to minimize solids build-up in the boiler. Although boiler blowdown discharges are not planned or likely to occur, they may occur intermittently.

Discharge 008 Fire Control System Test Water. Fire control system test water is sea water that is released during the training of personnel in fire protection, and the testing and maintenance of fire protection equipment on the platform.

Discharge 009 Non-contact Cooling Water. Non-contact cooling water is sea water that is used for non-contact, once-through cooling of various pieces of machinery on the platform.

Discharge 010 Uncontaminated Ballast Water. Ballast water is seawater added or removed to maintain the proper ballast float level and ship draft.

Discharge 011 Bilge Water. Bilge water is water which collects in the lower internal parts of the drilling vessel hull.

Discharge 012 Excess Cement Slurry. Excess cement slurry will result from equipment washdown after cementing operations. Excess cement slurry is discharged intermittently while drilling, depending on drilling, casing, and testing program and problems.

Discharge 013 Mud, Cuttings, Cement at Seafloor. Muds, cuttings, and cement at the seafloor are materials discharge 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.

Discharge 014 Test Fluids. Test fluids are discharges that occur if hydrocarbons located during exploratory drilling are tested for formation pressure and content. This would consist of fluids sent downhole during testing, along with water from the formation.

APPENDIX B
Maps

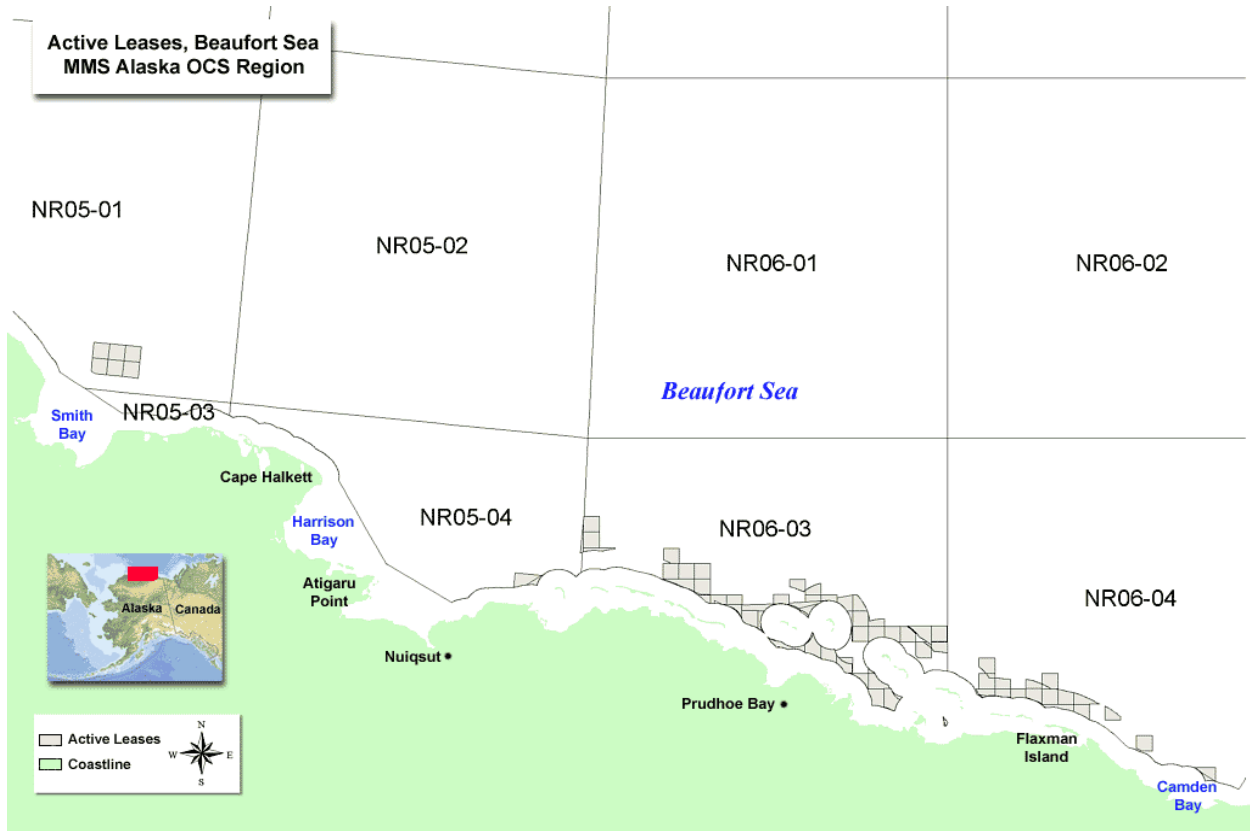


Figure B-1. Active MMS Leases in the Beaufort Sea

APPENDIX C
Basis for Water Quality-based Effluent Limitations

Table C-1. Water Quality Criteria Applicable to the General Permit Discharges within Alaska Waters			
DISCHARGE	POLLUTANT PARAMETER	CRITERIA	
		Acute	Chronic
Drilling Fluids and Drilling Cuttings (001)	Cadmium (total recoverable)	43 µg/l	9.3 µg/l
	Mercury (total recoverable)	2.1 µg/l	0.0025 µg/l
	Total aqueous hydrocarbons (TAqH)	15 µg/l ⁵	
	Total aromatic hydrocarbons (TAH)	10 µg/l ⁶	
Deck Drainage (002)	Total aqueous hydrocarbons (TAqH)	15 µg/l ⁵	
	Total aromatic hydrocarbons (TAH)	10 µg/l ⁶	
Sanitary Waste (003)	Total Residual Chlorine	2.0 µg/l	
	Fecal Coliform Bacteria ¹	14 FC/100 ml ²	
		43 FC/100 ml ³	
Domestic Waste (004)	Total aqueous hydrocarbons (TAqH)	15 µg/l ⁵	
	Total aromatic hydrocarbons (TAH)	10 µg/l ⁶	
Excess Cement Slurry (012)	Total aqueous hydrocarbons (TAqH)	15 µg/l ⁵	
	Total aromatic hydrocarbons (TAH)	10 µg/l ⁶	
All	pH	6.5 - 8.5 ⁴	
<p><u>Footnotes:</u></p> <p>1 Based on the median most probable number (MPN) from a 5-tube decimal dilution test.</p> <p>2 Based on any one sample.</p> <p>3 Based on ≤10% of the samples.</p> <p>4 May not vary more than 0.1 pH unit from natural conditions.</p> <p>5 As determined by summing the results of EPA Method 602 (plus Xylenes) to quantify monoaromatic hydrocarbons to measure TAH and EPA Method 610 to quantify polynuclear aromatic hydrocarbons.</p> <p>6 As determined by EPA Method 602 (plus Xylenes) to quantify monoaromatic hydrocarbons.</p>			

The most stringent narrative criteria based on the beneficial uses for the Beaufort and Chukchi Seas are summarized in the following paragraphs:

1. Residues. Floating solids, debris, sludge, deposits, foam, scum, or other residues may not, alone or in combination with other substances or wastes, make the water unfit or unsafe for the use; cause acute or chronic problem levels as determined by bioassay or other appropriate methods; cause a

film, sheen, or discoloration on the surface of the water or adjoining shorelines; cause leaching of toxic or deleterious substances; or cause a sludge solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines.

2. Petroleum Hydrocarbons, Oils and Grease. Surface waters, floor of the waterbody, and adjoining shorelines must be virtually free from floating oil, film, sheen, or discoloration.
3. Odor or Taste to Fish or Aquatic Organisms. Substances may not be present in concentrations that individually or in combination impart undesirable odor or taste to fish or other aquatic organisms based on bioassay or organoleptic tests.

B. Reasonable Potential Evaluation

1. Determination of Reasonable Potential

To determine if there is “reasonable potential” to cause or contribute to an exceedance of water quality criteria for a given pollutant (and therefore whether a water quality-based effluent limit is needed), for each pollutant present in a discharge, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is “reasonable potential,” and a limit must be included in the permit. EPA uses the recommendations in Chapter 3 of the TSD (EPA, 1991) to conduct this “reasonable potential” analysis.

2. Reasonable Potential Evaluation Procedure with Numeric Criteria.

- a. Because the effluent discharges are to a marine environment, the appropriate steady-state mixing model to calculate the minimum dilution at critical conditions is:

$$C_d \times V_d = (C_e \times V_e) + (C_u \times V_d),$$

where, C_d is the projected receiving water concentration, V_d is the volume of the receiving water used for mixing (i.e., the mixing zone dilution), C_e is the maximum effluent concentration, V_e is the estimated volume of effluent discharged, and C_u is the existing receiving water concentration prior to effluent discharge.

The predicted receiving water concentration (C_d) can be calculated by rearranging the basic mass balance equation, as follows:

$$C_d = (C_e \times V_e \div V_d) + C_u,$$

where the ratio of the effluent volume to the receiving water volume ($V_e \div V_d$) is the dilution ratio. The dilution ratio is determined from computer modeling performed by ADEC.

If C_u is equal to 0, the equation becomes

$$C_d = C_e \times V_e \div V_d.$$

- b. The criterion is then compared to the maximum projected receiving water concentration to determine the need for a water-quality-based effluent limitation (WQBEL). If the projected receiving water concentration is equal to or greater than the criterion, then a WQBEL for that pollutant must be incorporated into the permit.

The exception is for BOD, nutrients, and bacteria where the WLAs are directly applied as the WQBEL (i.e., the acute WLA is the maximum daily limit and the chronic WLA is the average monthly limit). In this case, the projected receiving water concentration must be greater than the criterion before a WQBEL is necessary for that pollutant.

3. Reasonable Potential Evaluation Procedure with Narrative Criteria.

The EPA must establish levels that are protective of the narrative criteria (40 CFR 122.44(d)(1)(vi)) in the absence of State numeric criteria and when there is reasonable potential for the discharge to cause or contribute to an excursion that results in the violation of the narrative water quality standard. In order to determine this, EPA must use the best information available to characterize the conditions of the receiving water body and the point source discharge (effluent).

4. Reasonable Potential Analysis.

- a. Total Residual Chlorine. In order to determine reasonable potential, the technology-based effluent limitation (minimum residual chlorine) is used as the maximum projected effluent concentration and 0 is assumed for the background concentration. Additionally, the permit proposes a dilution ratio of 500:1 (volume receiving water:volume effluent). The analysis (see calculations in Appendix C) indicates that WQBELs are necessary for the sanitary discharge.
- b. Fecal Coliform Bacteria.

In order to determine reasonable potential, the technology-based effluent limitation is used as the maximum projected effluent concentration and 0 is assumed for the background concentration. Both water quality criteria are evaluated directly against the technology-based effluent limit because the proposed sample frequency is once per month. Since the permit does not proposed a dilution ratio for fecal coliform, the analysis (see calculations in Appendix C) indicates that WQBELs are necessary for the sanitary discharge.

- c. pH. The technology-based effluent range of pH is 6.0 - 9.0 standard units applies only to the sanitary discharge. Since the water quality standards require a pH range of 6.5 - 8.5 and the permit does not proposed a dilution ratio for pH in the sanitary discharge, EPA has determined that there is reasonable potential for this discharge. Additionally, EPA has determined that there is reasonable potential for the other authorized discharges to violate this water quality standard.
- d. Residues. The domestic waste discharge has a technology-based effluent limitation that prohibits the discharge floating solids, garbage and foam. All other discharges are required to contain no free oil. Since the water quality standards prohibit the discharge floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind in concentrations causing nuisance, objectionable, or detrimental conditions or that make the water unfit or unsafe for the use, Region 10 has determined that there is reasonable potential for these discharges to violate this water quality standard.

C. Water Quality-based Permit Limit Derivation

Once EPA has determined that a water quality-based limit is required for a pollutant, the first step in developing the permit limit is development of a wasteload allocation (WLA) for the pollutant. A WLA is the concentration (or loading) of a pollutant that may be discharged without causing or contributing to an exceedence of water quality standards in the receiving water. The WLAs and permit limits are derived based on guidance in the TSD (EPA, 1991). The WLAs are then converted to long-term average concentrations (LTAs) and compared. The most stringent LTA concentration for each parameter is converted to effluent limits.

- 1. Total Residual Chlorine.

Since the Alaska water quality criteria for total residual chlorine is reported as a single value (i.e., 2 µg/L), the TSD (EPA, 1991) recommends deriving the wasteload allocation (WLA) from the single criterion as the chronic WLA. In the absence of data to evaluate the true variability of the effluent, EPA has used a value of 0.6 for the coefficient of variation (CV) in the statistical calculations for WQBELs. A CV of 0.6 is a conservative estimate that assumes relatively high variability in the final permit limit.

The resulting WQBELs (see calculations in Appendix C) indicate effluent maximum concentrations while the technology-based limit indicates a minimum control level. Consequently, the WQBELs are the more stringent effluent limits and are applied to this discharge.

2. pH.

The draft permit incorporates the more stringent water quality-based pH range of 6.5 to 8.5 standard units.

3. Residues.

The draft permit prohibits any discharge of floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind in concentrations causing nuisance, objectionable, or detrimental conditions or that make the water unfit or unsafe for the use.

4. Fecal Coliform Bacteria.

The draft permit incorporates the more stringent water quality-based criteria of 14 FC/100 mL in any sample and 43 FC/100 mL in ≤10% of the samples.

APPENDIX D
Calculations

I. TOTAL RESIDUAL CHLORINE

A. Reasonable Potential Calculations

Table D-1. Reasonable Potential Analysis for Total Residual Chlorine			
Aquatic Life - Chronic	Nomenclature	Value	Units
criterion		0.002	mg/L
projected receiving water concentration $C_d = (C_e \div \text{dilution ratio}) + C_u$	C_d	0.002	mg/L
maximum effluent concentration $C_e = \text{TBEL}$	C_e	1.0	mg/L
Technology-based effluent limit	TBEL	1.0	mg/L
dilution ratio		500:1	
background concentration	C_u	0	mg/L

The projected receiving water concentration (C_d) is equal to the chronic criterion for aquatic life, thus, there is reasonable potential to violate this water quality standard.

B. Wasteload Allocation Calculations

Table D-2. Waste Load Allocation for Total Residual Chlorine			
Aquatic Life - Chronic	Nomenclature	Value	Units
wasteload allocation $WLA = C_e = [C_d - C_u] \times \text{dilution ratio}$	WLA_e	1.0	mg/L
chronic criterion	C_d	0.002	mg/L
dilution ratio		500:1	
background concentration	C_u	0	mg/L

C. Water Quality-based Effluent Limitation (WQBEL) Calculations

Table D-3. Water Quality-based Effluent Limits for Total Residual Chlorine			
Aquatic Life	Nomenclature	Value	Units
maximum daily limit $MDL = LTA \cdot \exp[z_{99}\sigma - 0.5\sigma^2]$	MDL	1.6	mg/L
average monthly limit $AML = LTA \cdot \exp[z_{95}\sigma_n - 0.5\sigma_n^2]$	AML	0.8	mg/L
average annual effluent flow	Q_e	0.00202	mgd
long term average $LTA_c = WLA_c \cdot \exp[0.5\sigma_4^2 - z_{99}\sigma_4]$	LTA	0.53	
chronic wasteload allocation	WLA_c	1.0	
z-score (99th percentile)	z_{99}	2.326	
z-score (95th percentile)	z_{95}	1.645	
coefficient of variation	CV	0.6	
popular variance $\sigma^2 = \ln(CV^2 + 1)$	σ^2	0.31	
standard deviation $\sigma = (\sigma^2)^{0.5}$	σ	0.55	
number of samples required per month	n	4	
$\sigma_n^2 = \ln[(CV^2 \div n) + 1]$	σ_n^2	0.086	
$\sigma_n = (\sigma_n^2)^{0.5}$	σ_n	0.29	

II. FECAL COLIFORM BACTERIA

A. Reasonable Potential Calculations

Table D-4. Reasonable Potential Analysis for Fecal Coliform Bacteria			
Aquatic Life	Nomenclature	Value	Units
criterion		14	FC/100 mL
projected receiving water concentration $C_d = (C_e \div \text{dilution ration}) + C_u$	C_d	200	FC/100 mL
maximum effluent concentration $C_e = \text{TBEL}$	C_e	200	FC/100 mL
Technology-based effluent limit	TBEL	200	FC/100 mL
dilution ratio		0	
background concentration	C_u	0	FC/100 mL
criterion (in $\leq 10\%$ of samples)		43	FC/100 mL
projected receiving water concentration $C_d = (C_e \div \text{dilution ration}) + C_u$	C_d	200	FC/100 mL
maximum effluent concentration $C_e = \text{TBEL}$	C_e	200	FC/100 mL
Technology-based effluent limit	TBEL	200	FC/100 mL
dilution ratio		0	
background concentration	C_u	0	FC/100 mL

The projected receiving water concentration (C_d) is less than or equal to the criteria for aquatic life, thus, there is not reasonable potential to violate this water quality standard.

B. Wasteload Allocation Calculations

N/A

C. Water Quality-based Effluent Limitation (WQBEL) Calculations

N/A