Fact Sheet

The United States Environmental Protection Agency (EPA)
Plans to Reissue the
National Pollutant Discharge Elimination System (NPDES) General Permit
for
Oil and Gas Exploration Facilities on the Outer Continental Shelf
And Contiguous State Waters

As Two NPDES General Permits:

OIL AND GAS EXPLORATION FACILITIES
ON THE OUTER CONTINENTAL SHELF
AND CONTIGUOUS STATE WATERS IN THE BEAUFORT SEA, ALASKA
Permit Number: AKG-28-2100
(Formerly AKG-28-0000)

AND

OIL AND GAS EXPLORATION FACILITIES
ON THE OUTER CONTINENTAL SHELF IN THE
CHUKCHI SEA, ALASKA
Permit Number: AKG-28-8100
(Formerly AKG-28-0000)

Public Comment Period

Starts: January 30, 2012
Ends: March 30, 2012

Technical Contact

Name: Hanh Shaw
Phone: (206) 553-0171 or toll-free 1-800-424-4372
Fax: (206) 553-0165
Email: shaw.hanh@epa.gov

EPA Proposes To Issue Two NPDES General Permits

The EPA proposes to reissue the National Pollutant Discharge Elimination System (NPDES) General Permit No. AKG-28-0000 for offshore oil and gas exploration facilities on the outer continental shelf and contiguous state waters as two NPDES general permits for offshore exploration facilities. This combined Fact Sheet describes the EPA's proposal to reissue the following two NPDES exploration general permits (GPs):

- NPDES General Permit No. AKG-28-2100 for Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters in the Beaufort Sea, Alaska (Beaufort GP); and
- NPDES General Permit No. AKG-28-8100 for Oil and Gas Exploration Facilities on the Outer Continental Shelf in the Chukchi Sea, Alaska (Chukchi GP).

To protect water quality and human health, the GPs regulate the discharge of pollutants from oil and gas exploration facilities to waters of the United States.

Pursuant to the regulations at 40 CFR § 124.4(a), the EPA is consolidating the permit proceedings by preparing the Beaufort and Chukchi GPs at the same time, combining the statements of basis in one fact sheet, and public comment periods and public hearings for both permits.

This combined Fact Sheet includes:

- the EPA's preliminary determination to reissue General Permit No. AKG-28-0000 as two general permits;
- information on public comment, public hearings, and appeal procedures;
- descriptions of the facilities and discharges covered under the draft Beaufort and Chukchi GPs;
- listings of the proposed effluent limitations, restrictions, and other permit conditions;
- maps and descriptions of the proposed areas of coverage, including restricted areas;
- a summary table of proposed changes to the GPs and sections of the GPs and Fact Sheet the EPA is specifically requesting public comments on (Appendix A); and
- a summary of the technical materials supporting the requirements in the GPs.

Section 403 of the Clean Water Act, 33 USC § 1343, prohibits issuing an NPDES permit for discharges into marine waters located seaward of the inner boundary baseline of the territorial seas (i.e., state and federal offshore waters) except in compliance with the ocean discharge guidelines, 40 CFR Part 125, Subpart M. The guidelines set out criteria that the EPA must evaluate, called the Ocean Discharge Criteria Evaluation (ODCE), to ensure that point source discharges do not cause unreasonable degradation to the marine environment.

The ODCEs developed for the Beaufort and Chukchi GPs are in draft form. After the close of the public comment period, the EPA will refine the ODCE analyses and conclusions, as necessary, to reflect the agency's final decisions.

State Certification of the Beaufort GP

The EPA is requesting that the Alaska Department of Environmental Conservation (DEC) certify the Beaufort GP under Section 401 of the Clean Water Act (CWA) for the discharge activities that occur within State waters or have the ability to affect the quality of the State's waters. A draft Section 401 certification for the Beaufort GP is included in this Fact Sheet as Appendix B. Questions about the draft DEC Section 401 certification may be addressed to Adele Fetter, DEC, at (907) 269-7235 or adele.fetter@alaska.gov.

The Chukchi GP is not subject to State certification because the area of coverage is located in the outer continental shelf, which is beyond State regulated waters.

Alaska Coastal Management Program

As of July 1, 2011, there is no longer a Coastal Zone Management Act (CZMA) program in Alaska. Consequently, federal agencies are no longer required to provide the State of Alaska with CZMA consistency determinations.

Public Comments and Public Hearings

Persons wishing to comment on the draft GPs and the EPA's tentative determinations contained in the draft Beaufort and Chukchi GPs must do so, in writing, by the expiration date of the Public Comment period. The EPA is specifically requesting public comments on several sections of the Fact Sheet and the draft GPs. Appendix A of the Fact Sheet includes a table summary of those sections. In addition, the EPA is requesting the public provide the agency with any studies, research, and/or relevant information that should be considered before making a final determination on the proposed requirements, limitations, or conditions set out in the draft GPs and combined Fact Sheet.

All comments must include the name, address, telephone number, and email address (if available) of the commenter. In addition, each comment must include the GP permit number(s) to which each comment is directed. Each comment should include a concise statement explaining the precise basis and relevant facts that support the comment.

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

U.S. EPA, Region 10, Suite 900
Attn: Director, Office of Water and Watersheds
Subject: Arctic NPDES Permits
1200 Sixth Avenue, M/S OWW-130
Seattle, Washington 98101

Comments may also be submitted electronically to R10arcticpermits@epa.gov by midnight Pacific Standard Time, on March 30, 2012.

Written comments regarding the draft DEC certification should be directed to:

Alaska Department of Environmental Conservation
Division of Water
Attention: Adele Fetter
555 Cordova Street
Anchorage, Alaska 99501

The EPA will hold public hearings on the following dates:

1) March 13, 2012, in Barrow, Alaska, at the Inupiat Heritage Center
2) March 15, 2012, in Anchorage, Alaska, at the Z. J. Loussac Library

Both hearings will begin at 6:00 p.m. Alaska Standard Time (AKST) and will continue until all testimony is heard or 10:00 p.m., whichever is earlier.

Additionally, the EPA will hold two hearings via teleconferences on March 16, 2012, at the following times: 10:00 a.m. – 1:00 p.m., and 2:00 p.m. – 5:00 p.m. AKST. The call-in number for the teleconference hearings is 1-866-299-3188, code: 2065536524.

Details of the public hearings are set forth in the Public Notices and Federal Register notice for the proposed GPs.

After the Public Comment period ends, the EPA will review and address all substantive comments before making a final decision on the GPs. The EPA's Director for the Office of Water and Watersheds in Region 10 will make a final decision regarding the reissuance of the GPs. Pursuant to 40 CFR § 23.2, unless the EPA specifies a different time in the Federal Register notice, two weeks after the Federal Register publication date is the "permit issuance date." The GPs will become effective 30 days after the permit issuance date. In accordance with Section 509(b)(1)(F) of the Clean Water Act, 33 USC § 1369(b)(1), and 40 CFR § 124.19(a), any interested person may appeal the GPs in the Ninth Circuit Court of Appeals within 120 days from the permit issuance date.

Documents Available for Review

Pursuant to 40 CFR § 124.9, the Administrative Records for the draft Beaufort and Chukchi GPs, which consist of the draft general permits, Fact Sheet, stakeholder outreach activities, and the documents referenced in this Fact Sheet. These are available upon request by contacting Hanh Shaw at (206) 553-0171 or shaw.hanh@epa.gov.

The following documents are available for review at the EPA Region 10 Office, 1200 Sixth Ave, Suite 900, Seattle, Washington, between 8:30 a.m. and 4:00 p.m., Monday through Friday, Toll Free 1-800-424-4372.

- Draft Beaufort and Chukchi Exploration NPDES General Permits
- Fact Sheet
- Draft DEC Clean Water Act Section 401 Certification for the Beaufort GP

Copies of these documents are also available at:

EPA Region 10 website:
http://yosemite.epa.gov/r10/water.nsf/npdes+permits/arctic-gp

EPA Alaska Operations Office
Federal Building, Room 537
222 West 7th Avenue, #19
Anchorage, Alaska 99513
Telephone: (800) 781-0983 (in Alaska)

Alaska Department of Environmental Conservation
Division of Water
555 Cordova Street
Anchorage, Alaska 99501
Telephone: (907) 269-7504

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

North Slope Borough School District Library / Media Center
829 Aivak Street
Barrow, Alaska 99723-169

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AAC	Alaska Administrative Code
ACMP	Alaska Coastal Management Program
ADNR	Alaska Department of Natural Resources
AEWC	Alaska Eskimo Whaling Commission
APDES	Alaska Pollutant Discharge Elimination System
AWQS	Alaska Water Quality Standards
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BE	Biological Evaluation
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BOEM	Bureau of Ocean Energy Management
BOEMRE	Bureau of Ocean Energy Management, Regulation and Enforcement
BPJ	Best Professional Judgment
BPT	Best Practical Control Technology Currently Achievable
BSEE	Bureau of Safety and Environmental Enforcement
C_d	Receiving Water Concentration
C_e	Effluent Concentration
CFR	Code of Federal Regulations
COP	ConocoPhillips Alaska, Inc.
CV	Coefficient of Variation
CWA	Clean Water Act
CWIS	Cooling Water Intake Structure
CZMA	Coastal Zone Management Act
DEC	Alaska Department of Environmental Conservation
DMR	Discharge Monitoring Report
EFH	Essential Fish Habitat
ELG	Effluent Limitation Guidelines
EMP	Environmental Monitoring Program
Eni	Eni US Operating Co. Inc.
EPA	U.S. Environmental Protection Agency
FC	Fecal Coliform
GP	General Permit
ICAS	Inupiat Community of the Arctic Slope
LC50	Effluent concentration that causes death to 50 percent of the test organisms
LTA	Long-term Average
MDL	Maximum Daily Limit

MLLW	Mean Lower Low Water
MMS	Minerals Management Service
MODU	Mobile Offshore Drilling Unit
MPN	Most Probable Number
MSFCMA	Magnuson-Stevens Fishery Conservation and Management
MZ	Mixing Zone
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OCS	Outer Continental Shelf
ODC	Ocean Discharge Criteria
ODCE	Ocean Discharge Criteria Evaluation
PPA	Pollution Prevention Act
ppm	parts per million
QAPP	Quality Assurance Project Plan
SBF	Synthetic Based Fluids
Shell	Shell Exploration & Production Company
SPP	Suspended Particulate Phase
Statoil	Statoil USA E&P Inc.
TAH	Total Aromatic Hydrocarbons
TAqH	Total Aqueous Hydrocarbons
TK	Traditional Knowledge
TRC	Total Residual Chlorine
TSS	Total Suspended Solids
TSD	Technical Support Document
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQBEL	Water-Quality Based Effluent Limitation
ZOD	Zone of Deposit

I. APPLICABILITY AND NOTIFICATION REQUIREMENTS

A. Background.

Section 301(a) of the CWA, 33 USC § 1311(a), provides that the discharge of pollutants is unlawful except in accordance with terms and conditions of an NPDES permit. In accordance with 40 CFR § 122.28(c), the EPA must consider issuing NPDES general permits for discharges from offshore oil and gas exploration facilities. General permits are appropriate mechanisms for authorizing discharges from multiple sources that involve the same or substantially similar types of operation, and where discharges from those operations are of the same type and to the same geographic area.

The EPA regulations, 40 CFR § 122.28, also require that general permits cover one or more categories or subcategories of discharges. The draft Beaufort and Chukchi GPs cover thirteen types of discharges from facilities engaged in field exploration and drilling activities under the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart A). The Coastal Subcategory under Subpart D does not apply to the draft GPs.

For purposes of the Beaufort and Chukchi GPs, an exploratory oil and gas facility is a fixed or mobile structure with the capacity to drill exploration wells to determine the nature of potential hydrocarbon reserves and/or drill underground injection control wells.

The proposed Beaufort and Chukchi GPs respectively authorize the following discharges, subject to permit terms and conditions, to offshore waters from exploratory oil and gas facilities operating within the designated areas of coverage for the Beaufort or Chukchi Seas:

- Discharge 001 – water-based drilling fluids and drill cuttings
- Discharge 002 – deck drainage
- Discharge 003 – sanitary wastes
- Discharge 004 – domestic wastes
- Discharge 005 – desalination unit wastes
- Discharge 006 – blowout preventer fluid
- Discharge 007 – boiler blowdown
- Discharge 008 – fire control system test water
- Discharge 009 – non-contact cooling water
- Discharge 010 – uncontaminated ballast water
- Discharge 011 – bilge water

- Discharge 012 – excess cement slurry
- Discharge 013 – muds, cuttings, and cement at the seafloor

Descriptions of these discharges are provided in Appendix C of this Fact Sheet. The EPA is not authorizing the discharge of test fluids in the draft Beaufort and Chukchi GPs.

The draft Beaufort and Chukchi GPs exclude authorization for new sources, which include development and production oil and gas facilities. A development oil and gas facility is a fixed or mobile structure that is engaged in the drilling of productive wells; and a production facility is a fixed or mobile structure that is engaged either in well completion or in recovery of hydrocarbons from producing geologic formations.

An exploratory drilling rig is considered an existing discharger except when operating in an area of biological concern, where it is considered a new discharger. A new discharger is not a new source and is not subject to the requirements of the National Environmental Policy Act (NEPA). Accordingly, exploration facilities are not new sources subject to the requirements of NEPA. Only existing sources and new dischargers may be authorized under the draft Beaufort and Chukchi GPs.

The draft Beaufort and Chukchi GPs also implement cooling water intake structure provisions of the CWA's Section 316(b), Phase III regulations (40 CFR Part 125, Subpart N). Subpart N is applicable to all oil and gas facilities that are subject to the offshore or coastal subcategories of the Oil and Gas Extraction Point Source Category (i.e., Subparts A and D), that commenced construction after July 17, 2006, and that meet the definition of a new facility at 40 CFR § 125.83.

The changes to the expired NPDES General Permit for Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters, NPDES Permit No. AKG-28-0000 (Expired GP) are discussed below. A detailed summary table of the changes is included in Appendix A. The table also includes references to the Beaufort and Chukchi GPs and Fact Sheet sections on which the EPA is specifically requesting public comments. The changes include the following:

1. reissue the Expired GP as two general permits and assign each a new permit number (the Beaufort GP number is AKG-28-2100 and the Chukchi GP number is AKG-28-8100);
2. remove the Hope and Norton Basins from the areas of coverage since they are not on the Bureau of Energy Management's (BOEM) current 2012-

2017 leasing plan;

3. eliminate the authorization to discharge non-aqueous drilling fluids and associated drill cuttings (i.e., only water-based drilling fluids and cuttings are authorized);
4. eliminate the authorization to discharge test fluids;
5. increase the Notice of Intent (NOI) requirements;
6. expand the scope of the environmental monitoring program (EMP) and require it to be implemented at every drilling site for four phases of exploration activity;
7. impose additional EMP requirements, if water-based drilling fluids and drill cuttings are authorized to be discharged by the Director;
8. increase the chemical additive inventory and reporting requirement for all discharges, including limitations on chemical additive concentrations;
9. apply a 5-meter water depth discharge prohibition to all discharges;
10. limit drilling to 5 wells per lease block, except upon the EPA's review and authorization for discharges from the additional wells;
11. prohibit the discharge of water-based drilling fluids and drill cuttings during active bowhead whaling activities in the Beaufort Sea, unless the EPA authorizes the discharge after review of the operator's evaluation of the feasibility of drilling facility storage capacity and land-based disposal alternatives;
12. require an alternatives analysis before authorization is granted for discharge of water-based drilling fluids and drill cuttings, sanitary, and domestic wastes to stable ice in the Beaufort Sea area of coverage;
13. require screening of certain waste streams for toxicity and conduct whole effluent toxicity (WET) testing if those waste streams exceed a volume discharge threshold and if chemicals are added to the system, or if an initial toxicity screen shows potential toxicity;
14. include cooling water intake structure requirements; and
15. include electronic Discharge Monitoring Report (DMR) requirements.

B. Areas of Coverage.

1. Geographic Area. The EPA regulations at 40 CFR § 122.28(a) require that the geographic area of coverage for a general permit correspond to existing geographic or political boundaries. The area of coverage for the draft Beaufort and Chukchi GPs are consistent with lease sales conducted by the Minerals Management Service (MMS) on the outer continental shelf (OCS) of both seas; and as applicable to the draft Beaufort GP, with lease sales conducted by the State of Alaska within the boundaries of state waters in the territorial sea of the Beaufort Sea. The EPA defined the area of coverage for the Chukchi GP to correspond with MMS' previously designated OCS area. The Chukchi GP does not include any areas within

state waters. The Beaufort GP area of coverage corresponds with MMS' previously designated OCS area and with the State of Alaska waters contiguous to the landward boundary of these OCS areas.

The MMS was replaced by the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). In October 2011, BOEMRE was replaced by BOEM and the Bureau of Safety and Environmental Enforcement (BSEE).

2. Source Area. The applicability of the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 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 CWA.

The inner boundary baseline establishes the boundary between inland waters and territorial seas. It is also the boundary between the offshore and coastal subcategories in the effluent guidelines for Oil and Gas Extraction Point Sources at 40 CFR Part 435. The United States Supreme Court established the inner boundary baseline in United States v. Alaska, 521 U.S. 1, 117 S.Ct. 1888 (1997) ("Alaska I"). The Court decided that the seaward extent of Alaska's inland waters, or inner boundary baseline, was the low water line along Alaska's coast supplemented by closing lines drawn across bays and mouths of rivers. Id. at 8.

The inner boundary baseline also defines the seaward extent of the applicability of State water quality standards. That boundary is three miles seaward from the inner boundary baseline, and was fixed by the United States Supreme court in United States v. Alaska, 530 U.S. 1021, 120 S.Ct. 2767 (2000) ("Alaska II").

Accordingly, the draft Beaufort GP does not cover exploratory facilities in areas defined as coastal by 40 CFR § 435.40 (e.g., any location in or on a water of the United States landward of the inner boundary of the territorial seas) or onshore areas under 40 CFR § 435.30. An applicant for Beaufort GP coverage must ensure the proposed exploration facility is located on the seaward side of the applicable U.S. normal baseline (e.g., seaward side of a river or bay closing line). Currently, operators for proposed exploration facilities covered by the Coastal Subcategory, Subpart D, or Onshore Subcategory, Subpart C, of the Oil and Gas Extraction Point Source Category, 40 CFR Part 435, will have to submit a permit application for an individual NPDES permit to the EPA for authorization to discharge into waters of the U.S.

3. The maps of the draft Beaufort and Chukchi GPs' areas of coverage are provided in Appendix D of this Fact Sheet.

C. Alaska Pollutant Discharge Elimination System Program.

The EPA approved Alaska's National Pollutant Discharge Elimination System program application on October 31, 2008. The approved State program, called the Alaska Pollutant Discharge Elimination System (APDES), includes an implementation plan that transfers the administration of specific program components from the EPA to DEC in four phases over a three year period from the date of program approval. Phases I–III have been transferred.

In March 2011, DEC made a submission for approval for a one year extension of the transfer of Phase IV of the APDES program. Phase IV includes oil and gas, cooling water intakes and dischargers, munitions and all other remaining facilities not transferred in Phases I–III. The EPA approved the one year extension for Phase IV on August 11, 2011. Phase IV will transfer to DEC on October 31, 2012. Currently, the EPA retains NPDES permitting jurisdiction for all Phase IV discharges to waters subject to the CWA. After October 31, 2012, the Beaufort GP will be jointly administered by the EPA and DEC for discharges to federal and state waters, respectively.

D. Receiving Waters, Permit Coverage and Well Projections.

1. Chukchi Sea. The draft Chukchi GP applies to the area of coverage shown in Appendix D of this Fact Sheet and in the draft Chukchi GP, Figure 1, Area of Coverage for Offshore Oil and Gas Exploration Facilities in the Chukchi Sea. The area of coverage is approximately 53,750 square miles or 33.76 million acres. The area of coverage extends offshore from north of Barrow southwestward to Point Hope. The area of coverage specifically excludes a 25 mile coastal buffer area established by the U.S. Department of Interior in its current leasing program. The area of coverage does not contain any State of Alaska waters. The EPA considers the marine water quality criteria developed pursuant to the CWA, Section 301(a)(1), when developing NPDES permits for dischargers operating this area of coverage.

2. Beaufort Sea. The draft Beaufort GP applies to the area of coverage shown in Appendix D of this Fact Sheet and in the draft Beaufort GP, Figure 1, Area of Coverage for Offshore Oil and Gas Exploration Facilities in the Beaufort Sea and Contiguous State Waters. The area of coverage <u>does not</u> include areas of state waters covered by the Coastal Subcategory, Subpart D of the Oil and Gas Extraction Point Source

Category, 40 CFR Part 435. The area of coverage is approximately 101,750 square miles or 65.12 million acres. The area of coverage extends offshore north of Barrow and east to the Canadian border. The EPA considers the marine water quality criteria developed pursuant to the CWA, Section 301(a)(1), when developing NPDES permits for dischargers operating exclusively in federal waters of this area of coverage. The EPA also considers Alaska water quality standards (AWQS) [18 AAC 70] when developing NPDES permits for dischargers operating within state waters of this area of coverage.

3. Area Size Comparisons. The draft Chukchi GP's area of coverage (approx. 53,750 square miles) is approximately the size of North Carolina (53,818 sq. mi.) or Arkansas (53,179 sq. mi.). The draft Beaufort GP's area of coverage (approx. 101,750 sq. mi.) is approximately the size of Oregon (98,381 sq. mi.) or Colorado (104,094 sq. mi.).

4. Physical and Biological Descriptions. Detailed descriptions of the physical and biological characteristics and environments of these two seas are found in the Ocean Discharge Criteria Evaluation for the Beaufort Sea NPDES General Permit for Oil and Gas Exploration (Permit No. AKG-28-2100) (Beaufort ODCE) and the Ocean Discharge Criteria Evaluation for the Chukchi Sea NPDES General Permit for Oil and Gas Exploration (Permit No. AKG-28-8100) (Chukchi ODCE).

5. Permit Coverage. The Expired GP was effective on June 26, 2006 and expired on June 26, 2011. The Expired GP was administratively extended to cover those operators who submitted notification of their intent for coverage to the EPA within a timely manner. Coverage to those operators remains in effect until the applicable Beaufort or Chukchi GP is reissued. Permit coverage (i.e., authorization to discharge) under the Expired GP will expire when coverage under the applicable Beaufort or Chukchi GP is authorized to an operator. Any operator authorized to discharge under the Expired GP will be required to submit a new NOI under the reissued and applicable general permit(s) once effective. Shell Exploration & Production Company (Shell), ConocoPhillips Alaska, Inc. (COP), Statoil USA E&P Inc. (Statoil) and Eni US Operating Co. Inc. (Eni) currently have permit coverage under the Expired GP.

   Shell has expressed its intent to begin exploration drilling in the Beaufort and Chukchi Seas in the 2012 drilling season. COP has expressed its intent to begin exploration drilling in the Devil's Paw prospect in the Chukchi Sea in the 2013 drilling season. Statoil expressed its intent to drill in the Amundsen and Augustine prospects beginning in the 2014

drilling season. Eni obtained permit coverage for its fall 2011 exploration drilling program at the Spy Island Drillsite for three discharge waste streams (desalination unit wastes, sanitary and domestic wastes) during construction of a Class I injection well. The well was completed and operational in October 2011.

6. Well Projections. Predicting levels of exploration drilling activities over a long period of time (e.g., three or more years) can be difficult given the uncertainty of numerous variables (e.g., oil prices, weather, marine mammal considerations, etc.) that affect an operator's ability to initiate, sustain, and complete a drilling program in any one drilling season. However, the EPA made exploratory well projections for use in the ODCEs for the draft Beaufort and Chukchi GPs. The EPA considered various information sources in making those projections, including company-specific statements about exploration plans and estimates made by the National Marine Fisheries Service (NMFS).

   Based on this information, the EPA estimates that 24-42 exploratory wells may be drilled in the Chukchi Sea during the five year term of the Chukchi GP, and that 18-34 exploratory wells may be drilled in the Beaufort Sea during the five year term of the Beaufort GP. The EPA is requesting public comments on the number of wells projected to be drilled over the five-year terms of the GPs.

E. Prohibited Areas of Discharge and Seasonal Restrictions. The draft Beaufort GP incorporates area prohibitions, as well as seasonal restrictions for discharges of water-based drilling fluids and drill cuttings (Discharge 001). The draft Chukchi GP contains seasonal restrictions for discharges of water-based drilling fluids and drill cuttings. Both GPs restrict the rate of discharge for Discharge 001 based on receiving water depth. A detailed summary of the GPs' limits and requirements, including prohibited areas of discharge and seasonal restrictions, is found in Sections II.E.1.g. and II.E.2.a.-b., of this Fact Sheet.

F. Authorization to Discharge.

1. Application. The EPA regulations at 40 CFR § 122.28(b)(2)(i) require applicants seeking coverage under a general permit to submit a written NOI to be covered by the general permit. A complete and timely NOI fulfills the requirements for permit application under the draft GPs.

2. Notice of Intent. The EPA regulations at 40 CFR § 122.28(b)(2)(ii) require the contents of the NOI to contain information necessary for adequate program implementation, including at a minimum, the legal

name and address of the owner or operator, the facility name and address, the type of facility or discharges, and the receiving water(s). Applicants must submit an NOI for each proposed drilling site. Specifically, the EPA is including the following requirements for NOIs:

a. Applicant and facility: The draft Beaufort and Chukchi GPs require the applicant to provide the names of the owner and operator, the operator's mailing address, the facility name, the facility mailing address and a facility contact name and telephone number. Applicants must submit a complete NOI to the Director at least 120 days prior to the initiation of discharges.

b. Location of discharge: The draft Beaufort and Chukchi GPs require the applicant to provide the name of the applicable federal or state leasing entity (e.g., BOEM or Alaska Department of Natural Resources (ADNR)); the lease and block numbers of the location of the discharges; the latitude and longitude of each well; the range of water depths below mean lower low water (MLLW) in the lease block; and the estimated water depth below the water surface at which each of the requested discharges will occur. In addition, the draft Beaufort and Chukchi GPs require the applicant to provide the type of drilling rig (e.g., jackup, drillship, semisubmersible, etc.) intended for exploratory operations. Beaufort GP applicants must provide information regarding the location of its proposed discharges relative to state and federal jurisdictions: i.e., applicants must provide confirmation that the proposed discharges are either in state waters or in the OCS.

c. Mobile facilities: The draft Beaufort and Chukchi GPs allow the authorization of mobile facilities as long as the applicant initially applies for mobile operations and provides the following: a map showing the intended areas of operation, a description of operations within those areas, and the initial latitude and longitude of the facility.

d. Environmental monitoring program: The draft Beaufort and Chukchi GPs require the permittee to design and implement an EMP for each drill site. Both draft GPs require the applicant to submit an EMP plan of study (i.e., EMP design and detailed scope of work) to the EPA for review along with the NOI.

e. Environmental reports and related plans: The draft Beaufort and Chukchi GPs require the applicant to provide copies of any

exploration plans, biological surveys, and environmental reports required by BOEM, BSEE, and/or ADNR.

f. Drilling fluid plan: The draft Beaufort and Chukchi GPs require the applicant to prepare and submit a Drilling Fluid Plan with the NOI.

g. Well and drilling fluid information: The draft Beaufort and Chukchi Exploration GPs 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 drilling fluids(s) to be used (e.g., water-based, oil-based, synthetic-based), and the type or group of drilling fluids to be used (e.g., lignosulfonate muds, lime muds, etc.). The Beaufort and Chukchi GPs authorize the discharge of water-based drilling fluids and cuttings if the applicant meets the GPs' terms and conditions.

h. DEC mixing zone or zone of deposit: Beaufort GP applicants that propose to discharge to state waters may submit requests to DEC for a zone of deposit (ZOD) and/or a mixing zone (MZ). If the applicant submits such a request to DEC, the applicant must include detailed information about each applicable zone in the NOI.

i. Line drawing, flow balance and discharge rates/volumes: The draft Beaufort and Chukchi GPs require the applicant to submit a line drawing with the NOI that shows the flow, including rates/volumes, of each discharged waste streams through the facility. The line drawing must contain a flow balance showing average and maximum flow rates between intakes, operations, treatment units and outfalls. The applicant must also submit discharge rates (e.g., based on specified units of time like per hour or per day) and total volumes (e.g., per well) for the requested waste streams.

j. Discharge during active bowhead whaling activities: The draft Beaufort GP prohibits the discharge of water-based drilling fluids and drill cuttings during active bowhead whaling activities, unless the Director or DEC authorizes the discharge, after review of the operator's feasible alternatives evaluation. If the permittee proposes to discharge during this period, it must submit an evaluation of the feasibility of storage capacity on the drilling facility and land-based disposal alternatives. This evaluation must

be submitted with the NOI, in accordance with Section II.A.11.b. of the Beaufort GP.

k. Alternatives analysis for discharges to stable ice: The draft Beaufort GP prohibits the discharge of water-based drilling fluids and drill cuttings, sanitary wastes, and domestic wastes to stable ice unless authorized by the EPA. If the applicant seeks to discharge to stable ice, the NOI must include a detailed written alternatives analysis in accordance with Section II.E.1.k. below and with Section II.A.11.c. in the Beaufort GP.

l. Cooling water intake structure requirements: The draft Beaufort and Chukchi GPs require the applicant to verify whether its facility meets the applicability criteria for new offshore oil and gas extraction facilities, and if so, whether it will comply with either Track I or Track II requirements.

3. Deadlines for Submitting Notice of Intent. The EPA regulations at 40 CFR § 122.28(b)(2)(iii) require general permits to specify the deadlines for submitting NOIs to be covered. The draft Beaufort and Chukchi GPs require the applicant to submit a complete NOI to be covered under the applicable GP at least 120 days prior the initiation of discharges from the facility in accordance with the Submission of Information requirements in Section I.F. of the GPs.

In addition, if a permittee intends to continue discharge activities under the applicable GP after the expiration date of the GP, that permittee must either apply for and obtain an individual permit or submit an NOI to be covered under a new GP at least 180 days prior to the expiration date of the applicable Beaufort and Chukchi GPs. The draft Beaufort and Chukchi GPs, Section VI.B., contain specific conditions for reapplication under the Duty to Reapply provision.

4. Date(s) when a discharger is authorized to discharge. The EPA 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 a general permit. The date when an applicant is authorized to discharge under the draft Beaufort or Chukchi GP is the date the EPA or DEC notifies the applicant in writing of authorization to discharge and assigns the applicant a permit number under the applicable GP.

G. Transfers. The EPA regulations at 40 CFR § 122.41(l)(3) allows for transfers of permits. Transfers under the draft Beaufort and Chukchi GPs will only be

authorized for an existing exploratory facility located at the drilling site identified in the original NOI. If a different exploratory facility will be used, a new NOI for coverage of that exploratory facility is required.

H. Notifications. The draft Beaufort and Chukchi GPs require written notifications, signed in accordance with the GPs' signatory requirements in Section VI.E. of each GP. All notification required under the Chukchi GP must be submitted to the EPA, and all notification required under the Beaufort GP must be submitted to the EPA and DEC. Each GP contains a summary table of some key submissions and notifications; the permittee is responsible for all submissions and activities even if they are not identified in the summary table.

1. Prior to initiation of discharges. The draft Beaufort and Chukchi GPs require the permittee to notify the Director, in writing, 7 days prior to initiation of any discharge at authorized drilling sites.

2. Discharge 001 cessation. The draft Beaufort and Chukchi GPs require the permittee to submit a written notice within 7 days of the permittee ceasing all discharges of water-based drilling fluids and drill cuttings (Discharge 001) at a drilling site.

3. Facility operations and authorized discharge cessation. The draft Beaufort and Chukchi GPs require the permittee to submit a written notice within 30 days of the permittee ceasing all facility operations and all authorized discharges at a drilling site. Facility operations cessation will typically coincide with the exploratory facility's demobilization from the drilling site.

4. Quality Assurance Project Plan. The draft Beaufort and Chukchi GPs require the permittee to submit a written notice within 90 days of receiving discharge authorization that the Quality Assurance Project Plan (QAPP) is complete and the date it was completed.

5. Best Management Practices Plan. The draft Beaufort and Chukchi GPs require the permittee to submit a written notice at least 7 days prior to commencing authorized discharges that the Best Management Practices (BMP) Plan is complete and on-site.

6. Permit coverage termination. The draft Beaufort and Chukchi GPs require the permittee to submit a written notice when GP coverage is no longer needed at a drilling site. Permit coverage termination is not applicable until the permittee has satisfied all GP terms and conditions, including

completion of the EMP and all reporting requirements under the applicable GP.

I. Requiring an Individual Permit. The EPA regulations at 40 CFR § 122.28(b)(3) provide the cases where the Director may require any discharger authorized by a GP to apply for and obtain an individual NPDES permit. The draft Beaufort and Chukchi GPs contain requirements for an individual NPDES permit.

II. EFFLUENT LIMITATIONS AND DISCHARGE REQUIREMENTS

A. Basis for Permit Effluent Limitations and Other Terms and Conditions

Section 301(a) of the CWA, 33USC § 1311(a), prohibits the discharge of pollutants to waters of the United States unless the discharge is authorized pursuant to an NPDES permit. Section 402 of the CWA, 33 USC § 1342, authorizes the EPA, or an approved state NPDES program, to issue an NPDES permit authorizing discharges subject to limitations and requirements imposed pursuant to CWA Sections 301, 304, 306, 401 and 403, 33 USC §§ 1311, 1314, 1316, 1341 and 1343. Accordingly, NPDES permits typically include effluent limits and requirements that require the permittee to (1) meet national standards that reflect levels of currently available treatment technologies; (2) comply with the EPA-approved state water quality standards in state waters; and (3) prevent unreasonable degradation of the marine environment in the territorial seas, the contiguous zone and the oceans.

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based effluent limits are set according to the level of treatment that is achievable using currently available treatment technologies. A water quality-based effluent limit is designed to ensure that a state's water quality standards for a water body are being met and may be more stringent than technology-based effluent limits.

B. Technology-Based Evaluation

1. Overview.

There are two general approaches for developing technology-based effluent limits for industrial facilities: (a) using national effluent limitations guidelines (ELGs), and (b) 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.

ELGs are developed on a national scale and reflect 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, 33 USC § 1311(b), requires technology-based controls on effluents. All permits must contain effluent limitations which: (a) control toxic pollutants and nonconventional pollutants through the use of "best available technology economically achievable" (BAT), and (b) control conventional pollutants through the use of "best conventional pollutant control technology" (BCT). In no case may BAT or BCT 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, 33 USC § 1311(b)(1)(A).

The EPA has developed ELGs that contain BPT, BCT, BAT, and new source performance standards (NSPS) limitations for many industrial sectors. For example, the EPA has adopted ELGs for the offshore subcategory of the oil and gas extraction industry in 40 CFR Part 435, Subpart A.

Like the Expired GP, the draft Beaufort and Chukchi GPs incorporate effluent limitations and requirements based on the BCT and BAT ELGs in 40 CFR Part 435. The NSPS guidelines are not incorporated into the draft GPs because NSPS guidelines are not applicable to exploratory oil and gas operations (58 FR 12457, March 4, 1993). In the absence of specific ELGs for wastestreams, limitations and related requirements are established using BPJ. Like the Expired GP, the draft Beaufort and Chukchi GPs contain technology-based limits based on BPJ.

C. Water Quality-Based Evaluation.

1. Overview

Section 301(b)(1)(C) of the CWA, 33 USC § 1311(b)(1)(C), requires that NPDES permits include any effluent limitations necessary to meet the

EPA-approved state water quality standards in state waters. Section 303(c) of the CWA, 33 USC § 1313(c), require states to develop and periodically revise water quality standards applicable to waters of the United States that are in the jurisdiction of the state.

2. State Water Quality Standards.

A 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 and achieve 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.

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 state marine waters of the Beaufort Sea 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.

The draft Beaufort GP contains limitations and related requirements to ensure compliance with the applicable water quality standards in the state waters covered by the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart A). The Alaska water quality standards are not applicable to the draft Chukchi GP's area of coverage because that area does not include state waters.

D. Ocean Discharge Criteria Evaluation.

1. Overview and Determinations.

Section 403 of the CWA, 33 USC § 1343, prohibits issuing an NPDES permit for discharges into marine waters located seaward of the inner boundary baseline of the territorial seas (i.e., state and federal offshore waters) except in compliance with the ocean discharge guidelines, 40 CFR

Part 125, Subpart M. The guidelines set out criteria that the EPA must evaluate to ensure that point source discharges do not cause unreasonable degradation to the marine environment. The criteria are set out in 40 CFR § 125.122.

After an ocean discharge criteria evaluation, the EPA: (a) may issue an NPDES permit if the proposed discharge will not cause unreasonable degradation to the territorial seas, contiguous zones, and oceans (40 CFR § 125.123(a)); (b) will not issue an NPDES permit if the proposed discharge will cause unreasonable degradation (40 CFR § 125.123(b)); or (c) may issue an NPDES permit where there is insufficient information to make an unreasonable degradation determination, if the EPA also determines that the discharge will not cause irreparable harm to the marine environment while further evaluation is undertaken, that there are no reasonable alternatives to on-site discharge, and that the discharge will comply with certain mandatory permit conditions, including a bioassay-based discharge limitation and monitoring requirements (40 CFR § 125.123(c)-(d)).

When reaching a determination that a proposed discharge will not cause unreasonable degradation, the EPA may rely on any necessary conditions specified in 40 CFR § 125.123(d). These conditions include seasonal restrictions on discharges, process modifications, a monitoring program to assess discharge impacts, bioaccumulation tests, and any other conditions deemed necessary because of local environmental conditions. In addition, 40 CFR § 125.123(d)(4) authorizes the EPA to modify or revoke a permit at any time if, on the basis of new data, the EPA determines that continued discharges may cause unreasonable degradation of the marine environment.

The EPA has prepared draft ODCEs for the draft Beaufort and Chukchi GPs. The evaluation process informed the EPA's permit development process, which resulted in additional permit conditions (e.g., enhanced environmental monitoring program, chemical additive inventory and limitations, area restrictions, discharge depth restrictions, etc.) in the draft GPs. The additional conditions allowed the EPA to reach a determination that discharges authorized under the Beaufort and Chukchi GPs will not cause unreasonable degradation to the marine environment.

The EPA will refine and finalize the ODCE documents prior to issuing the final permit decisions.

2. Community Outreach and Traditional Knowledge.

During the development of the draft Beaufort and Chukchi GPs, the EPA solicited and evaluated data and information, including traditional knowledge, from the Inupiat communities and residents on the North Slope. The EPA visited six North Slope coastal villages/communities (Point Hope, Point Lay, Wainwright, Barrow, Nuiqsut, and Kaktovik) in the spring 2010, to request the community's participation in the collection of traditional knowledge (TK) information. The EPA's early and ongoing outreach also included the Inupiat Community of the Arctic Slope (ICAS), Alaska Eskimo Whaling Commission (AWEC), local governments and Native corporations.

The Native Villages of Point Lay, Barrow, Nuiqsut and Kaktovik agreed to participate in the TK study and workshops. The EPA's outreach efforts and workshops were designed to gather Inupiat and local knowledge about the physical and biological environment of both seas, information on subsistence use areas and activities, and observations and concerns about oil and gas facility discharges. The purpose of the EPA's effort was to incorporate – where possible – Inupiat and local understanding of the Chukchi and Beaufort Seas into the ODCE process and in the draft GPs.

Community members from the four North Slope villages provided observations and comments about nearshore physical and biological habitats, marine resources, and subsistence use areas. Community members also shared their concerns about the potential effects of oil and gas related discharges to subsistence areas. These concerns fell into several broad categories: (1) effects of discharges on the health and availability of marine resources (e.g., marine mammals); (2) ramifications of multiple stressors, including discharges, on the sustainability of the subsistence areas and potential effects within the food chain; (3) whether the EPA would adopt a zero-discharge policy regarding potentially harmful discharges; and (4) how the EPA would monitor potential marine impacts resulting from exploration facilities operating under the Beaufort or Chukchi GP.

The community members also provided observations about the NPDES permitting process and offered suggestions for discharge monitoring and permit conditions. Community members asked the EPA to consider community input in the permit development process and to share information with the communities during permit development.

The EPA evaluated and incorporated the communities' concerns, observations and TK information in the development of the ODCEs and permits. The following are examples of new or revised permit terms and conditions that address the issues and concerns resulting from the EPA's community outreach efforts:

a. Prohibit the discharges of water-based drilling fluids and drill cuttings under the Beaufort GP during bowhead hunting activities in the Beaufort Sea, unless authorized in writing by the Director or DEC. If the permittee proposes to discharge this waste stream during this period, it must demonstrate (1) storage capacity is not available on the drilling facility during this period, and (2) land-based disposal options are not feasible.

b. Expand the chemical additive inventory and reporting requirements, to include reporting and limits on chemical additive concentrations.

c. Apply the EMP requirements for each drilling site and expanded the scope of the EMP's evaluations and monitoring. Examples include:

    - complete an initial drilling site assessment, including a physical sea bottom survey, to ensure the exploratory facility is not located or anchored in a sensitive or unique biological area;
    - assess benthic community impacts and complete bioaccumulation studies, if the permittee is authorized to discharge water-based drilling fluids and drill cuttings (Discharge 001), to evaluate potential food chain effects from discharge constituents; and
    - assess the plumes in the vicinity of the discharges and collect observations of potential marine mammal deflection during periods of maximum discharge of cooling water and water-based drilling fluids and drill cuttings.

d. Screen for effluent toxicity of certain waste streams and WET monitoring for those waste streams if: (1) the initial screening indicates the potential for toxicity, or (2) the discharges exceed 10,000 gallons in a 24-hour period and if chemicals are used; and

e. Prohibit all discharges in areas with water depths of less than 5 meters.

Throughout the permit development process, the EPA maintained regular communication with the North Slope communities and stakeholders through quarterly update newsletters, in-person presentations, workshops, and meetings. The EPA also acknowledges the communities' concerns that a comprehensive compliance and enforcement program is a critical component of an effective and robust NPDES permitting program. The EPA will continue to employ compliance assurance, incentives, monitoring and enforcement to ensure that permitted facilities comply with GP requirements. The EPA will also assess opportunities to leverage additional oversight resources with local, state and federal entities as a means to promote compliance in all aspects of environmental protection associated with the overall regulatory framework affecting these exploratory facilities. Finally, the EPA will look for more comprehensive and effective ways to involve and inform North Slope communities about the compliance status of facilities permitted under the GPs.

E. Effluent Limits and Requirements.

1. The Expired GP contains limitations and other requirements to ensure compliance with ELGs and water quality standards and to implement conditions resulting from the ODCE process. The EPA has reexamined those limitations and requirements and, in many cases, retained the same or similar provisions in the draft Beaufort and Chukchi GPs. The following discussion summarizes the proposed limitations and other permit requirements.

    a. The draft Beaufort GP, Section II.A.5., prohibits the discharge of floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind unless specifically authorized in the GP (e.g., drill cuttings). This provision is based in part on the AWQS for residue. This provision is also included in the draft Chukchi GP, Section II.A.5.

    b. The draft Beaufort and Chukchi GPs, Section II.A.6., require the permittee to minimize and report the discharge of surfactants, dispersants, and detergents. The provision also provides that the discharge of dispersants to marine waters in response to oil or other hazardous spills is not authorized by the GPs. The same provision is typically included in Region 10 oil and gas permits.

    c. The draft Beaufort and Chukchi GPs, Section II.A.7., prohibit discharges of the following toxic pollutants: diesel oil, halogenated phenol compounds, trisodium nitrilotriacetic acid, sodium

chromate, or sodium dichromate. The same provision is typically included in Region 10 oil and gas permits.

d. The draft Beaufort and Chukchi GPs, Section II.A.8., require that any commingled discharges are subject to the most stringent effluent limitations for each individual discharge. If any individual discharge is not authorized, then a commingled discharge is not authorized. This provision ensures that technology-based requirements are implemented for the applicable pollutants, and that all parameters within a commingled discharge meet applicable water quality standards and other permit requirements.

e. The draft Beaufort and Chukchi GPs retain pH limits for sanitary and domestic discharges. The EPA is proposing to eliminate the pH limit for the other discharges because there is no reasonable potential basis to impose a limit on the other discharges. However, the draft GPs require pH data to be collected to monitor and evaluate whether pH may cause unreasonable degradation to the marine environment.

f. The draft Beaufort and Chukchi GPs, Section II.A.10., require the permittee to keep an inventory of all chemical additives used for Discharges 001-013. Chemical additives include, but are not limited to, treatment chemicals, biocides, insecticides and corrosion inhibiters. The Expired GP required a narrower chemical additive inventory for a limited set of discharges (e.g., water-based drilling fluids, desalination unit wastes, boiler blowdown, fire control test water and noncontact cooling water).

   This revised inventory requirement also includes monitoring and reporting of the rates of additive use and locations of use in the processes on the facility. Section II.A.10. also requires that the additive concentrations must not exceed the most stringent of two limitations: (1) the maximum concentration and other conditions specified in the EPA product registration labeling if the chemical is an EPA registered product, or (2) the maximum chemical manufacturer's recommended concentration. These new provisions are necessary to ensure no unreasonable degradation occurs.

g. The draft Beaufort and Chukchi GPs, Section II.A.11, prohibit discharges in areas of water depths that are less than 5 meters (approx. 16 feet), as measured from mean lower low water

(MLLW). The Expired GP contains a similar prohibition for Discharge 001, water-based drilling fluids and drill cuttings. The EPA is proposing to extend this prohibition to all discharges, in part, to ensure no unreasonable degradation in near shore areas.

This prohibition is also included in the draft Chukchi GP as a precautionary condition because of unknown depths and potential shallow depths on the Hanna or Herald Shoals, which are within the Chukchi GP area of coverage. The Chukchi ODCE shows that water depths in the area of coverage consistently range from 131 to 164 feet below MLLW. The water depths are lower on the shoals, which are approximately 66 feet below sea level. Based on current information, water depths for one or both shoals should not trigger the 5 meter limitation; however, the EPA proposes to retain this provision in the draft Chukchi GP as a precaution in case shallower depths are discovered in the area of coverage.

h. The draft Beaufort and Chukchi GPs, Section II.A.12., require the permittee to design and implement an EMP for each drilling site. The EPA considers site-specific data necessary to ensure that exploration drilling operations do not result in unreasonable degradation of the marine environment. However, the EPA is requesting comment on whether implementation of an EMP for an operator's first drill site would provide sufficient data to evaluate impacts to the marine environment and seeking input regarding modifications of the EMP at subsequent drill sites. Please comment on the feasibility and benefit of requiring the same EMP elements and same level of analysis at each individual drilling site when another well, subject to all EMP requirements of the GPs, has been drilled in a nearby location.

The Expired GP required an EMP when a permittee proposed to discharge drilling fluids and drill cuttings within 4,000 meters of a prohibited area. The requirements of the expanded EMP for the draft Beaufort and Chukchi GPs are to ensure the discharges do not cause unreasonable degradation to and to monitor the effects of discharges on the marine environment.

Generally, the EPA is expanding the EMP for four reasons:

1) The EPA wants to collect data on Alaska Arctic-specific drilling sites to verify the agency's understanding of environmental impacts associated with drilling discharges.

2) Initial drilling site assessments, including the physical sea bottom surveys, are necessary to ensure the drilling site is not located in sensitive biological areas and habitats.

3) Site-specific data and information is necessary to assess potential impacts to benthic communities and to evaluate whether bioaccumulation of pollutants affect the food chain, including subsistence resources.

4) Data on discharge plumes is necessary to corroborate and assess modeling predictions of water quality criteria concentrations, temperature effects, and deposition, areal extent, and depths related to drilling fluids and drill cuttings.

Each EMP must include four phases to assess the different stages of the exploratory facility's presence at the drilling site. The EPA is requesting comments on the timing of the four phases and how implementation of the EMP may be affected by potential drilling delays, e.g., if a well has to be "mothballed" due to closure of the drilling season. The EPA is also requesting suggestions for alternative implementation schedules that would ensure timely collection of EMP information.

The Phase I (Baseline Site Characterization) ensures a site is not located in a sensitive marine environment and obtains baseline physical, chemical and biological data necessary for initial and subsequent assessments.

Phase II (During Active Drilling) includes toxicity testing of specific wastestreams. The effluent toxicity testing uses a tiered approach for certain discharges, allowing for an initial toxicity screening for specified discharges (i.e., deck drainage, desalination unit wastes, boiler blowdown, fire control system test water, non-contact cooling water, and bilge water). If those discharges exceed a flow rate or volume greater than 10,000 gallons during any 24-hour period and if chemicals are added to the system, or if initial toxicity screening indicates the potential for toxicity, additional whole effluent toxicity (WET) monitoring is required. Toxicity information is necessary to ensure discharges do not cause unreasonable degradation to the marine environment.

The EPA is considering, and requesting public comments, on the following: (1) requiring a single WET test per well or multiple

WET testing for each instance that initial toxicity is triggered; (2) the rapid testing approaches and the existing tools that are capable of performing the tests; and (3) whether multiple WET tests per well would yield useful data. Additionally, for the purposes of the WET monitoring requirement, the EPA is considering extending the holding time on samples from the standard 36 hours to 72 hours from the time of sample collection to the first use in the laboratory. Public comment is requested on the sample holding time requirement of 36 hours and the EPA's consideration to extend this period to 72 hours.

Phase II also includes temperature plume monitoring of non-contact cooling water discharges (Discharge 009) to correlate with modeling predictions. The non-contact cooling water discharge is typically the largest discharge volume and rate, and as a result, has the potential to cause far-field effects. This component also includes observations for potential marine mammal deflection during periods of maximum discharge.

Phase III (Post-Drilling) includes a sea bottom survey to assess site conditions and areal extent and depth/thickness mapping of solids deposition from drilling fluids and drill cuttings (Discharge 001), as well as mud, cuttings and cement discharged at the seafloor (Discharge 013). The survey will be used to correlate actual deposition with modeled deposition predictions.

Phase IV (No Later Than 15 Months After Drilling Operations Cease) includes a physical sea bottom survey to compare with the Phase III survey and a benthic community structure survey.

If the permittee is authorized to discharge water-based drilling fluids and drill cuttings (Discharge 001), the draft Beaufort and Chukchi GPs, Section II.B.3., require four additional EMP components that must be implemented during various EMP phases. First, each drilling fluids system must be analyzed for a suite of metals to characterize the types and quantities of metals being discharged, which will assist with the benthic community bioaccumulation study.

Second, sediment monitoring is required during Phases I, III and IV for pollutant parameters including metals, which is a necessary element in the overall benthic community monitoring program.

Third, the permittee's EMP must evaluate benthic community tissue for metal contaminants as part of a bioaccumulation and bioavailability study in the drilling site area. This evaluation assesses the potential for metals contamination in the food web. The study will also assess factors that may ameliorate or exacerbated metals uptake, availability and persistence.

Finally, the permittee is required to monitor and assess pollutant parameters, including metals, in the discharge-affected water column and plume as a means to correlate this ambient data with locations where modeling predicts measurable changes from ambient background conditions.

These additional EMP components associated with Discharge 001 are necessary to ensure the discharge does not cause unreasonable degradation to the marine environment.

The draft Beaufort and Chukchi GPs, Section II.A.12.c., require an applicant to submit an EMP plan of study to EPA for review with its NOI. The plan of study includes the EMP design and a detailed scope of work. The permittee is required to incorporate any changes in the EMP plan of study identified by the EPA as a condition to receive authorization to discharge under either GP. This submittal and review will help ensure the permittee's EMP adheres to GP requirements.

The permittee may propose in its EMP plan of study, for subsequent drilling sites, the use and consideration of data derived from a fully implemented and completed EMP under the GPs at a prior drilling site authorized by one or either of the GPs. The permittee may propose that this data be used as a basis for modified data gathering requirements at subsequent drilling sites if the permittee demonstrates how the use of this data from a previous drilling site(s) satisfies the goals and objectives of the Sections II.A.12.a-12.b of the GPs.

The draft Beaufort and Chukchi GPs, Section II.A.12.f., require the permittee to submit two EMP reports. The first EMP report, due no later than June 1 of the year following drilling site operation cessation, is a preliminary analysis of baseline conditions, as well as during drilling operations and immediate post-drilling conditions. The second EMP report, due no later than June 1 of the year following completion of all drilling site monitoring, will contain detailed results on all stages of EMP monitoring and

evaluations, as well as descriptions of impacts, data and determinations regarding each EMP component. The EPA is requesting comment on whether the timing requirements for submittal of these plans present technical and logistic challenges, and whether an alternative schedule would satisfy the agency's interest in collecting data in a timely manner to evaluate potential impacts to the marine environment.

i. The draft Beaufort and Chukchi GPs, Section II.A.13, require the permittee to submit an end-of-well report within 90 days after ceasing exploratory operations and all authorized discharges at a drilling site. The Expired GP includes a similar requirement. The proposed report includes several new data submissions. First, the report must include a total discharge volume for each authorized discharge. Second, the report must contain details of drilling dates, time periods, and estimated hourly discharge rates for each authorized discharge. Finally, the report must contain the chemical additive inventories for each discharge and documentation of each additive's concentration determinations and limitation compliance in accordance with the requirements in the draft GPs, Section II.A.10.

j. The draft Beaufort and Chukchi GPs, Section II.A.14, limit drilling discharges from no more than five wells in a lease block. The Expired GP contains a similar restriction except that its limit was to no more than five wells at a single drilling site. The revised restriction clarifies the EPA's intent to limit the number of wells per lease block.

k. The Beaufort GP, Section II.A.11.b., prohibits the discharge of water-based drilling fluids and drill cuttings (Discharge 001) during active bowhead whaling activities in the Beaufort Sea, unless the discharge during this period is authorized by the pemitting authority (Director or DEC), in writing.

l. The Beaufort GP, Section II.A.11.c., prohibits the discharge of water-based drilling fluids and drill cuttings (Discharge 001), sanitary waste (Discharge 003) and domestic waste (Discharge 004) to stable ice, unless authorized by the EPA in writing. If a permittee seeks permission to discharge to stable ice, it must prepare a detailed alternatives analysis demonstrating there are no technically feasible land-based disposal alternatives and the means to transport those waste streams to those disposal facilities. This

provision is an enhanced version of what DEC imposed in its 2006 Section 401 certification regarding the availability of a mixing zone for sanitary and domestic waste discharges; that is, DEC required a demonstration that the applicant did not have feasible access to ice roads or other transportation to a wastewater treatment facility. The use of ice drilling pads and related ice roads for winter exploratory drilling in the near shore areas of the Beaufort Sea provide options for alternative discharge locations. Accordingly, this provision is a necessary condition to ensure discharges do not cause unreasonable degradation to the marine environment by limiting the introduction of pollutants to areas where there are reduced dilution capabilities.

m. The draft Beaufort and Chukchi GPs prohibit the discharge of test fluids. Test fluid discharges were authorized in the Expired GP; however, none of the current NOIs under the Expired GP requested authorization to discharge test fluids. Accordingly, the EPA's proposal to not include a test fluid authorization reflects the industry's practice in the Arctic.

2. Water-based drilling fluids and drill cuttings (Discharge 001).

a. Area Restrictions. The draft Beaufort GP retains the area restrictions from the Expired GP.

The EPA has studied and evaluated the nearshore areas of the Beaufort and Chukchi Seas in several past ODCEs and in the current Beaufort and Chukchi ODCEs. These evaluations demonstrate that the nearshore areas provide important feeding and migratory habitat for a large number of species including fish, waterfowl, and marine mammals. Furthermore, the nearshore areas provide essential feeding and preferred habitat for species relied on by subsistence users.

In addition, the draft Beaufort GP does not authorize any discharges within 1000 meters of the Stefansson Sound Boulder Patch. The "Patch" is a rare and unique biological community that is susceptible to adverse effects caused by discharged drilling fluids and drill cuttings.

These area restrictions are necessary to ensure the discharge causes no unreasonable degradation to the marine environment.

The draft Chukchi GP's area of coverage reflects the approximate 25 mile deferral area and does not cover any state waters or nearshore areas. Consequently, specific area restrictions from the Expired GP are no longer applicable and have been deleted.

b. Seasonal Restrictions. Seasonal restrictions from the Expired GP are retained in the draft Beaufort GP, and are revised in the draft Chukchi GP. These restrictions are necessary to ensure Discharge 001 does not cause unreasonable degradation to the marine environment. The restrictions protect sensitive biological areas (e.g., river mouths and deltas). The draft Beaufort GP restrictions also reflect DEC's ZOD requirements for state waters. Finally, the stable ice restriction in the draft Beaufort GP reflects the required alternatives analysis submittal with the NOI before this discharge is authorized to the stable ice surface.

c. Effluent Limitations and Requirements. The draft Beaufort and Chukchi GPs incorporate the effluent limitations required by the effluent limitation guidelines in 40 CFR 435, Subpart A for water-based drilling fluids and drill cuttings, and related necessary requirements.

Suspended Particulate Phase (SPP) Toxicity. The draft Beaufort and Chukchi GPs retains the ELG-required SPP toxicity limit of a minimum 96-hour LC50 of 30,000 parts per million (ppm) for discharged water-based drilling fluids and drill cuttings. This requirement is a technology-based control on toxicity, as well as toxic and nonconventional pollutants. The SPP limitation reflects the ELG's BAT level of control. Fluids and associated contaminated cuttings that fail this SPP toxicity test cannot be discharged. The draft GPs increase the frequency of SPP testing from monthly to weekly. The increased monitoring will ensure no unreasonable degradation of the marine environment. The Beaufort and Chukchi GPs also require the permittee report to the EPA within 24 hours if the results exceed the SPP limitation, which will enhance compliance oversight and enforcement by the Agency.

Total Aqueous Hydrocarbons (TAqH) and Total Aromatic Hydrocarbons (TAH). The draft Beaufort GP retains surveillance monitoring for TAqH and TAH from the Expired GP to ensure compliance with AWQS for discharges to state waters. The EPA is retaining this monitoring in the draft Beaufort GP for discharges

to federal waters, and in the draft Chukchi GP as necessary conditions to ensure the discharges do not cause unreasonable degradation to the marine environment.

Stock Barite Monitoring and Limitation. The draft Beaufort and Chukchi GPs retain the ELG-required limit and associated analysis of a representative sample of stock barite for mercury and cadmium once per well 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 if no new supplies of barite have been received since the prior analysis. This requirement reduces the burden of barite monitoring while providing the information and procedures necessary to ensure compliance with the mercury and cadmium content limits. The permittee must report to the EPA within 24 hours if any analytical results exceed the mercury or cadmium effluent limitation. These provisions are in the Expired GP.

Free and Diesel Oil Prohibitions. The draft Beaufort and Chukchi GPs retain the ELG-required prohibitions and related analyses on the discharge of free oil and diesel oil. The permittee is prohibited from discharging water-based drilling fluids and drill cuttings if it fails the static sheen test for free oil. Compliance with the diesel oil prohibition is determined (1) with an end-of-well sample, and (2) any time there is a failure of the static sheen test for free oil.

Drilling Fluid Plan and Implementation Requirements. The draft Beaufort and Chukchi GPs retain similar drilling fluid plan requirements and related implementation restrictions from the Expired GP. The draft Beaufort and Chukchi GPs, Section II.B.6. and II.B.5., respectively, limit the discharge of water-based drilling fluids (i.e., specialty additives and mineral oil pills) to those that are contained in the permittee's drilling fluid plan and that meet permit requirements. The draft GPs, Section IV.C., require the development and implementation of a drilling fluid plan. The plan must be submitted along with an applicant's NOI. In general, the plan indentifies information and procedures about the constituents of the various substances and materials used in the drilling process. The plan helps ensure on-site facility personnel are both knowledgeable about precautions taken to minimize toxicity and to ensure that decision making about fluid systems and additives is made in accordance with the GP requirements and the site-specific fluid plan.

d. Non-aqueous fluids and cuttings discharge prohibition. The draft Beaufort and Chukchi GPs, Section II.B., Table 1, prohibit the discharge of non-aqueous fluids and cuttings. The non-aqueous fluids discharge prohibition reflects ELG requirements and is retained from the Expired GP. The EPA is proposing a prohibition on the discharge of cuttings associated with non-aqueous fluids. Permittees may choose to use non-aqueous drilling fluids (e.g., synthetic based fluids, or SBF) during exploration drilling activities, but those fluids and associated cuttings cannot be discharged under the draft GPs. This prohibition reflects past and current exploratory drilling proposals in the Arctic offshore areas. A 2010 scientific review prepared for Shell found that SBF-cuttings were not discharged in the Beaufort and Chukchi Seas during earlier exploratory drilling, and that there are no plans to use them in future exploratory drilling programs (Neff, 2010). Recent NOIs submitted under the Expired GP show that operators intend to rely solely on water-base drilling fluids for exploratory drilling. The ODCEs for the draft Beaufort and Chukchi GPs do not discuss or evaluate SBFs, or associated SBF-cuttings. Accordingly, the draft Beaufort and Chukchi GPs prohibit the discharge of non-aqueous fluids and SBF-cuttings.

e. Discharge Rate Limitations. The draft Beaufort and Chukchi GPs, Section II.B., Table 2, retain discharge rate limitations from the Expired GP. Hourly discharge rate limitations based on the depth of receiving waters for Discharge 001 were evaluated in the ODCE process. The discharge rate limitations are designed to allow adequate dispersion of the discharges to ensure they do not cause unreasonable degradation to the marine environment. In addition, hourly discharge rates ensure that applicable water quality standards will not be exceeded at the edge of a DEC-authorized 100-meter radius mixing zone in state waters.

f. Mineral Oil Pills. The draft Beaufort and Chukchi GPs retain limitations on the use of mineral oil pills from the Expired GP. Mineral oil pills are formulated and circulated in the drilling fluid system as a slug in an attempt to free stuck pipe. The limitations in the draft GPs include precautions to prevent the discharge of any residual mineral oil, and require pre- and post-SPP toxicity tests of the drilling fluids.

3. Deck drainage (Discharge 002).

a. Effluent Limitations. The draft Beaufort and Chukchi GPs prohibit the discharge of free oil in accordance with the ELG at 40 CFR 435 Subpart A. The same restriction was applicable in the Expired GP.

b. Oil and Grease Contamination and Pollution Prevention. The draft Beaufort and Chukchi GPs retain the requirement from the Expired GP that deck drainage contaminated with oil and grease must be processed through an oil-water separator prior to discharge. The deck drainage waste stream that is processed through the oil-water separator must be sampled and tested for sheen once per discharge event, and a visual observation for sheen must also be made once per discharge event. The draft GPs include a requirement to separate area drains as a pollution prevention measure to minimize the volume flows of oil and grease contaminated drainage to the oil/water separator.

c. Other requirements. The draft Beaufort and Chukchi GPs retain the requirement from the Expired GP for the monitoring of TAqH and TAH. In addition, the draft GPs include surveillance monitoring for pH as previously discussed in this Fact Sheet, and the WET testing requirement if the initial toxicity screening indicates the potential for toxicity, or if the deck drainage discharge flow rate or volume exceeds 10,000 gallons in any 24-hour period and if chemicals are added.

4. Sanitary and domestic wastes (Discharges 003 and 004).

a. Effluent Limitations and Requirements within Alaska State Waters. The draft Beaufort GP retains the limitations and requirements from the Expired GP to ensure compliance with Alaska water quality standards and domestic wastewater treatment requirements for sanitary and domestic waste discharges to state waters. These limits are based on best professional judgment and a reasonable potential analysis for water quality-based effluent limitations provided in Appendix E.

In addition, the limitations for flow, biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform (FC), dissolved oxygen, pH, total residual chlorine, floating solids/garbage, foam and oily sheen also reflect the inclusion of the DEC's 2006, Clean Water Act, Section 401 certification requirements. DEC's 2006 certification categorized both domestic

and graywater as sanitary waste and required that domestic and graywater, whether discharged separately or commingled with other discharge materials, had to meet the same effluent limits in state waters.

The state of Alaska's treatment requirements at 18 AAC 72.050(a)(4) for the discharge of domestic wastewater includes sanitary wastes (e.g., human wastes) and graywater (e.g., wastewater from a laundry, kitchen, sink, shower, bath, or other domestic source that does not contain excrement, urine or combined stormwater). 18 AAC 72.990 (23). The State requires all domestic wastewater 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 72.990(59), which are summarized in Table 1, below. The limitations for BOD_5 and TSS for sanitary and domestic discharges to state waters are included in the draft Beaufort GP, Section II.D., Tables 4a and 4b, consistent with the same provisions in the Expired GP.

Table 1. Alaska Technology-based Effluent Limitations for Sanitary and Domestic Wastes (Discharges 003 and 004)

Pollutant Parameter	Duration	Limitation
BOD_5	30-day average	30 mg/L
	7-day average	45 mg/L
	Daily maximum	60 mg/L
TSS	30-day average	30 mg/L
	7-day average	45 mg/L
	Daily maximum	60 mg/L
pH	in any measurement	6.0 - 9.0

Reasonable potential to exceed Alaska water quality standards was determined for pH, fecal coliform bacteria, and total residual chlorine in the no-mixing zone scenario resulting in the imposition of water quality-based effluent limitations for these parameters if no mixing zone is approved by DEC for state waters under the draft Beaufort GP. In the anticipated DEC-authorized 100 meter radius mixing zone context, existing effluent limitations in the Expired GP are retained to avoid backsliding issues.

The draft GPs also retain the Expired GP's requirement for annual testing of marine sanitation devices to ensure the unit is operating properly. This provision reflects the operation and maintenance requirements under 40 CFR § 122.41(e).

b. Effluent Limitations and Requirements in Federal Waters. The draft Beaufort and Chukchi GPs retain the limitations and requirements from the Expired GP for sanitary and domestic discharges to federal waters (i.e., outside Alaska state waters), except for the pH limit related to the sanitary waste discharge. The Expired GP's pH limit range beyond state waters was 6.0-9.0. The draft GPs contain a proposed range of 6.5-8.5, which is more restrictive than the Expired GP limit and consistent with the recommended pH range in the national water quality criteria under Section 304(a) of the CWA. For this parameter, the EPA has determined it is appropriate to maintain a pH limit consistent with AWQS and the pH limits imposed in state waters, and a necessary condition to ensure that discharges do not cause unreasonable degradation in the marine environment.

5. Domestic wastes (Discharge 004). The draft Beaufort and Chukchi GPs retain the Expired GP's prohibition on the discharge of floating solids, garbage and foam. This provision adheres to the applicable provisions of the ELG at 40 CFR 435 Subpart A and AWQS, and is consistent with DEC's 2006, CWA Section 401certification requirements.

6. Discharges 005-013.

Free Oil Discharge Prohibition. The draft Beaufort and Chukchi GPs retain the Expired GP's prohibition on the discharge of free oil for discharges of desalination unit wastes (Discharge 005), blowout preventer fluid (Discharge 006), boiler blowdown (Discharge 007), fire control system test water (Discharge 008), non-contact cooling water (Discharge 009), uncontaminated ballast water (Discharge 010), bilge water (Discharge 011), excess cement slurry (Discharge 012), mud, cuttings, and cement at the seafloor (Discharge 013). These miscellaneous discharges are not addressed in the offshore subcategory ELG. The no free oil discharge prohibition is monitored by visual sheen test and visual observations of the receiving water surface. This requirement is based on BCT and BPT using BPJ. These same requirements have been applied to similar discharges in previous permits for the oil and gas industry in Region 10.

Monitoring Requirements. The various monitoring requirements for free oil, pH, volume, chemical additive inventory and WET are based on Sections 308 and 403(c) of the CWA.

7. Non-contact cooling water (Discharge 009). The draft Beaufort and Chukchi GPs include a new monitoring requirement for temperature. This measurement is needed to assess the effect of temperature on local conditions, compliance with AWQS, and adherence to federal water quality criteria. This requirement is based on Sections 308 and 403(c) of the CWA.

8. Uncontaminated Ballast Water (Discharge 010). The draft Beaufort and Chukchi GPs include a new requirement that all ballast water contaminated with oil and grease must be treated in an oil-water separator. If ballast water becomes contaminated with oil or grease, then it must be treated and monitored to ensure discharges do not violate the visual sheen test. This requirement is based on BCT and BPT using BPJ and under Section 403(c) of the CWA.

9. Cooling Water Intake Structure Requirements. The draft Beaufort and Chukchi GPs, Section II.N. and Attachment 2, incorporate the 2006 regulation, 40 CFR Part 125, Subpart N, that requires new offshore oil and gas facilities to take measures to reduce entrainment and impingement of aquatic life associated with the construction and operation of cooling water intake structures (CWIS). The EPA promulgated the CWA Section 316(b) Phase III regulation to ensure that the location, design, construction, operation and capacity of CWIS reflect the best technology available to minimize adverse impacts to aquatic organisms.

   Part 125, Subpart N, applies to new facilities that meet the definition of "new facility" at 40 CFR 125.83, is regulated by the Offshore or Coastal Subcategories of the Oil and Gas Extraction Point Source Category Effluent Guidelines, commence construction after July 17, 2006, is a point source discharge, intake 2 million gallons per day of water, and use at least 25 percent of that water for cooling. Regulations allow operators of new fixed facilities to choose from two compliance options, Track I or Track II, to comply with the impingement and entrainment provisions. Fixed facilities do not include mobile offshore drilling units (MODUs) (e.g., drill ships, temporarily moored semi-submersibles, jack-ups, submersibles, tender-assisted rigs and drill barges).

However, 40 CFR § 125.130(c), allows the EPA to impose requirements on a case-by-case basis using BPJ for those new facilities that do not meet the threshold requirements regarding the amount of water withdrawn or percentage of water withdrawn use for cooling water purposes.

The draft Beaufort and Chukchi GPs, Section IV.B. 5.d.7., propose that the BMP Plan require the permittee to select and implement technologies or operational measures to minimize impingement mortality and entrainment of fish and shellfish.

The BMP Plan requirement gives the permittee discretion on what methods to select and how to implement those methods. However, the EPA retains the authority to impose more stringent conditions on a case-by-case basis, if the EPA deems such conditions are necessary to comply with any provision of law in accordance with the draft Beaufort and Chukchi GPs' Attachment 2.

During that NOI review process and in accordance with 40 CFR § 125.134(b)(4), the EPA can require the implementation of additional technologies and operational measures if there is information indicating the potential for specified aquatic organisms to pass through the hydraulic zone of influence of the facility's cooling water intake structure. 40 CFR § 125.134(d).

III. MONITORING REQUIREMENTS

A. Basis for Effluent and Other Monitoring.

1. Section 308 of the CWA and federal regulation at 40 CFR § 122.44(i) require and authorize monitoring in NPDES permits to determine compliance with effluent limitations and other applicable provisions. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations or other requirements are needed and/or to monitor effluent impacts on receiving water quality.

2. The ODCE regulations, 40 CFR § 125.123(a) and (d), also authorize monitoring conditions and monitoring programs in NPDES permits. For example, section 125.123(d)(2) provides for the specific inclusion of a monitoring program to assess the impact of the discharge on water, sediment, and biological quality including where appropriate, analysis of the bioaccumulation and persistent impact on aquatic life of the discharge. In addition, section 125.123(d)(3) authorizes the imposition of any other conditions determined necessary because of local environmental conditions.

3. Sample Type.

a. Estimated. With the exception of the requirement to measure and record sanitary and domestic discharges to monitor compliance with the maximum daily limit discharge volumes, the draft Beaufort and Chukchi GPs propose that the other discharge volumes be estimated rather than measured. The volumes of the authorized discharges are not expected to cause unreasonable degradation. The condition to measure and record sanitary and domestic discharges was required by the DEC 2006 CWA Section 401 certification. The EPA is applying the same requirement in federal waters.

b. Visual.

(1) Free Oil. Compliance with the free oil limitation will be through visual monitoring of the receiving water surface or by the static sheen test.

(2) Floating solids, garbage and foam. The only practical measurement of this requirement is to conduct a visual analysis of the receiving water to determine the presence or absence of floating solids, garbage and foam.

c. Grab. Grab samples are appropriate because most of the discharges are expected to be intermittent, and the flows and characteristics being sampled will likely be relatively constant during the discharge itself.

B. Proposed Effluent and Other Monitoring.

1. The following discussion summarizes aspects of discharge-related effluent and other monitoring requirements in the draft Beaufort and Chukchi GPs.

a. 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. Permittees have the option of taking more frequent samples than are required under the draft GPs (Section III.D.). These samples must be used for limitation averaging, if they are conducted using the EPA-approved test methods (generally found in 40 CFR Part 136). The draft GPs, Section III.A., also require additional sampling and monitoring under specified conditions.

b. The draft GPs, Section II.A.3., require 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, except as otherwise required by a discharge-specific provision in the applicable GP.

c. The draft GPs, Section II.A.9. require visual monitoring of the receiving water be conducted in the vicinity of the outfall(s) at a time of maximum estimated or measured discharge.

d. The draft GPs, Section III.A.1., require that the permittee must ensure samples and measurements are representative of the monitored activity.

e. The draft Beaufort and Chukchi GPs' effluent limitations and monitoring requirements tables indentify the measurement frequency and sample type for each specific effluent parameter.

2. The draft Beaufort and Chukchi GPs' required EMP, Section II.A.12., is necessary to monitor ongoing authorized discharges as means to verify that the discharges will not cause unreasonable degradation to the marine environment. The GPs allow the permittee some latitude and discretion in the design and implementation of the EMP and the EMP Plan of Study. The EMP and its Plan of Study are subject to the EPA's review during the NOI review process.

IV. SPECIAL PERMIT CONDITIONS

A. Monitoring and Reporting.

The draft Beaufort and Chukchi GPs include new provisions to require the permittee to submit DMR data electronically using NetDMR. NetDMR is a national web-based tool that allows the electronic submittal of DMRs via a secure Internet application to the EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in paper forms under 40 CFR § 122.41 and § 403.12.

Under NetDMR, all discharge monitoring reports are submitted to the EPA electronically. The EPA currently conducts free training on the use of NetDMR. Further information about NetDMR, including upcoming trainings and contacts for the EPA Region 10, is provided on the following website: http://www.epa.gov/netdmr.

B. Quality Assurance Project Plan.

The federal regulation at 40 CFR § 122.41(e) requires the permittee to develop a QAPP to ensure that the monitoring data submitted is accurate and to explain data anomalies, if they occur. Under the draft Beaufort and Chukchi GPs (Section IV.A.), the permittee will be required to develop a QAPP for all monitoring required by the GP, including EMP monitoring. The permittee must give written notice to the EPA that the QAPP is complete and the date it was completed. The written notice is due within 90 days upon receipt of written notification that the EPA has authorized discharges under the GP. The QAPP must consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

C. Best Management Practices Plan.

Federal regulations at 40 CFR §122.44(k) require the permittee to develop BMPs. The draft Beaufort and Chukchi GPs (Section IV.B.), retain the Expired GP's requirement for a BMP Plan. The BMP Plan includes measures for controlling the generation of pollutants and their release to waterways. It also identifies various methods and procedures that are necessary to achieve compliance with the GPs' limitations and to carry out other terms and conditions under the purposes and intent of the CWA (e.g. Section 403(c)). The BMPs are also important tools for waste minimization and pollution prevention.

The draft Beaufort and Chukchi GPs (Sections IV.B.1.-2.) require the permittee to develop and implement the BMP Plan and to certify and provide notice, in writing, that the BMP Plan is complete and on-site at least 7 days prior to any authorized discharge. The permittee must maintain a copy of the BMP Plan at the exploratory facility and make the BMP Plan available upon the EPA's request.

The BMP plan must be reviewed at least annually (with applicable procedures for review and annual endorsement) and amended as specified in the GPs including when facility operations covered by the BMP Plan change. Documentation of the annual review certification and any changes to the BMP must be submitted to the Director, and DEC if applicable, with the December DMR.

C. Drilling Fluids Plan.

The draft Beaufort and Chukchi GPs (Section IV.C.) retain the Expired GP's requirement for the development and implementation of a Drilling Fluid Plan. The basis for the Drilling Fluids Plan requirement is Sections 308 and 403(c) of the CWA. The Drilling Fluids Plan requirement is also based upon the Pollution Prevention Act (PPA) 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)).

A goal of the Drilling Fluids Plan is to ensure that personnel on-site are knowledgeable about the information needed and the methods required to formulate the drilling fluids/additive systems to meet the effluent toxicity limit and minimize addition of toxic substances.

The Drilling Fluids Plan also requires clearly stated procedures for situations where additives not originally planned for or included in the toxicity estimations are proposed for use later, and whether any new additive may be used and discharged. The criteria for making changes to the additive make up of a drilling fluid system must be specified in the Drilling Fluids Plan.

V. OTHER LEGAL REQUIREMENTS

A. State Certification and State Water Quality Standards.

Section 401 of the CWA requires the EPA to seek state certification before issuing a final NPDES permit that authorizes discharges to state waters. As a result of the certification, the state may require more stringent permit conditions to ensure that the permit complies with state water quality standards or treatment standards established pursuant to state law or regulation.

The EPA sought a draft certification from DEC for the Beaufort GP because it authorizes discharges to Alaska state waters in the Beaufort Sea. The EPA did not seek a draft certification from DEC for the Chukchi GP because it does not authorize discharges to Alaska state waters. The Chukchi GP's area of coverage is only in federal waters, with the nearest lease boundary approximately 25 miles from the Alaskan Chukchi Sea coast.

B. Standard Permit Provisions.

Sections III, V and VI of the draft Beaufort and Chukchi GPs contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES 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.

The Endangered Species Act requires federal agencies to consult with the National Oceanic and Atmospheric Administration's (NOAA) 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 and/or their critical habitat. The EPA has determined that the issuance of the draft Beaufort and Chukchi GPs may affect, but are not likely to adversely affect, any of the threatened or endangered species or their critical habitat in the vicinity of the discharges. The EPA will request concurrence from NMFS and USFWS regarding the effect determinations. This Fact Sheet, the draft Beaufort and Chukchi GPs, and the Biological Evaluations (BEs) are sent to NMFS and the USFWS for review during the public notice period.

D. Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat).

Essential fish habitat (EFH) includes waters and substrate necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires the EPA to consult with NMFS when a proposed discharge has the potential to adversely affect EFH. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat wide impacts including individual, cumulative, or synergistic consequences of actions.

The EPA has prepared an EFH assessment, which concludes that the issuance of the draft GPs will not adversely affect EFH. This Fact Sheet, the draft Beaufort and Chukchi GPs, and EFH assessment are sent to NMFS for review during the public notice period.

E. Permit Expiration.

Section 402(1)(B) of the CWA require that NPDES permits are issued for a period not to exceed five years, therefore, the Beaufort and Chukchi GPs will expire five years from the effective dates of the general permits.

F. Executive Order 12898 – Environmental Justice.

The EPA has determined that the discharges authorized by the draft Beaufort and Chukchi GPs will not have a disproportionately high and adverse human health or environmental effects with respect to the discharge of pollutants on minority or low-income populations living on the North Slope, including coastal communities near the proposed exploratory operations. In making this determination, the EPA considered the potential effects of the discharges on the communities, including subsistence areas, and the marine environment. The EPA's evaluation and

determinations are discussed in more detail in the Environmental Justice Analysis, which are included in the administrative record for the permit actions.

Executive Order 12898 entitled "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations" states in relevant part that "each Federal agency shall make achieving environmental justices part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations . . . ." The order also provides that federal agencies are required to implement the order consistent with and to the extent permitted by existing law. In addition, the EPA Region 10 adopted its "North Slope Communications Protocol: Communications Guidelines to Support Meaningful Involvement of the North Slope Communities in EPA Decision-Making" in May 2009. Consistent with the order and the EPA policies, the EPA implemented a robust tribal outreach and involvement process that is described in detail in the Environmental Justice Analysis.

The draft Beaufort and Chukchi GPs implement existing water pollution prevention and control requirements, including applicable water quality standards, to ensure compliance with applicable CWA requirements, including the prevention of unreasonable degradation to the marine environment. As discussed in detail in the Beaufort and Chukchi ODCEs, the EPA evaluated the potential for significant adverse changes in ecosystem diversity, productivity and stability of the biological communities within the GPs' areas of coverage and surrounding biological communities. The ODCEs described in detail the evaluation of environmentally significant or sensitive areas that are necessary for critical stages of marine organisms, the roles of these areas in the larger biological community and the vulnerability of these areas to potential discharges. The ODCEs evaluated the potential for loss of esthetic, recreational, scientific and economic value which might be unreasonable in relation to the benefits derived from the discharges.

The ODCEs also evaluated the threat to human health through the direct physical exposure to discharged pollutants and indirectly through consumption of exposed aquatic organisms in the food chain. The EPA acknowledged that human health within the communities near the GPs' areas of coverage is directly related to the subsistence way of life practiced by many residents of these communities. Additionally, the EPA acknowledged that these subsistence areas and related subsistence activities provide not only food but also support important cultural and social connections within the communities. The EPA understood the importance of clearly articulating the potential risks associated with these authorized discharges because even the perception of contamination might produce an adverse effect by causing subsistence hunters to avoid harvesting particular marine species or avoid hunting in particular areas. The EPA solicited and considered the information obtained from residents and participants in the

traditional knowledge workshops related to these important factors. These factors were a part of the overall evaluation framework of the entire ODCE and permit development process.

As a result of the EPA's evaluations, additional changes were made to the draft Beaufort and Chukchi GPs as precautionary measures to ensure no unreasonable degradation occurs during the anticipated exploratory drilling activities. The draft Beaufort and Chukchi GPs impose a robust environmental monitoring program to gather relevant information about potential effects of the discharges to Alaska's Arctic waters. Additionally, the EPA has the authority to make modifications or revoke permit coverages if the threat of unreasonable degradation, from the wastewater discharges, were to occur. The environmental monitoring program is also designed to obtain additional information which can be used in ongoing surveillance of permitted activities and in future permit decisions.

The EPA carefully considered the potential environmental justice impacts related to the draft GPs' authorized discharges, especially the potential for disproportionate effects on communities and residents that engage in subsistence activities. The EPA has determined that discharges authorized by the draft GPs will not cause unreasonable degradation of the marine environment. The EPA therefore determines that there will not be disproportionately high and adverse human health or environmental effects with respect to these discharges on minority or low-income populations residing on the North Slope and near the draft Beaufort and Chukchi GPs' areas of coverage.

G. Executive Order 13175 – Tribal Consultation.

Executive Order 13175 (November, 2000) entitled "Consultation and Coordination with Indian Tribal Governments" requires federal agencies to have an accountable process to assure meaningful and timely input by tribal officials in the development of regulatory policies on matters that have tribal implications and to strengthen the government-to-government relationship with Indian tribes. In May, 2011, the EPA issued the "EPA Policy on Consultation and Coordination with Indian Tribes" which established national guidelines and institutional controls for consultation.

The following discussion includes some examples of the extensive EPA outreach and solicitation efforts made during the development process of these GPs.

Numerous affirmative efforts were taken to provide tribal entities and North Slope communities with information about the ODCEs and draft Beaufort and Chukchi GP development process, and to simultaneously seek early input into the EPA evaluations. As early as May 2009, the EPA held information sessions in Kotzebue and Barrow. In March 2010, the EPA sent a letter inviting the six coastal tribal governments, and the Inupiat Community of the Arctic Slope (ICAS)

to initiate consultation. Project information meetings were held in seven communities in March-April 2010. In the spring of 2010, the EPA visited Kotzebue, Point Hope, Point Lay, Wainwright, Barrow, Nuiqsut and Kaktovik to share information regarding the draft Beaufort and Chukchi GPs reissuance process and to discuss the EPA's plans to collect TK information. During the summer of 2010, the EPA contacted the federally-recognized tribal governments of six North Slope coastal communities to request their community's participation in the collection of the TK information. The EPA also contacted other organizations within these communities, ICAS, AEWC, local governments and Native corporations. Point Lay, Barrow, Nuiqsut and Kaktovik agreed to participate in the TK collection efforts. As a result, the EPA, through a qualified contractor, held 20 TK workshops and interviewed 73 individuals in these four communities during the September-November 2010 time period. The workshop information was used in the ODCE, the Environmental Justice Analyses, and permit development processes and to inform the EPA's determinations and final decisions.

The EPA held additional informational meetings on the North Slope in June, 2011. These North Slope meetings were in addition to other informational meetings that the EPA held with other entities including federal agencies, state agencies, local government and interested environmental organizations.

Pursuant to the EPA Region 10's draft Tribal Consultation Procedures, in determining which tribal governments to invite for consultation, the EPA considered whether the action could potentially affect a tribe's resources, rights, or traditional way of life. On November 30, 2011, the EPA sent a second invitation for tribal consultation to the following tribal governments: Native Village of Kaktovik, Native Village of Nuiqsut, Native Village of Barrow, ICAS, Wainwright Traditional Council, Native Village of Point Lay, Native Village of Point Hope, Native Village of Kivalina, Kotzebue IRA Council, Native Village of Diomede, Native Village of Wales, Native Village of Savoonga, and the Native Village of Gambell. Included with the invitation for tribal consultation was a summary of the draft Beaufort and Chukchi GPs requirements and changes from the Expired Arctic GP. Consistent with the order and the EPA tribal consultation policies, the EPA will attempt to honor consultation requests on the draft Beaufort and Chukchi GPs from federally-recognized tribal governments.

This discussion summarizes the tribal outreach and involvement process that is described in more detail in the Environmental Justice Analyses. The EPA believes this robust level of effort and results demonstrates that the EPA's process was accountable and provided meaningful and timely tribal input into the ODCE and permit development processes. Finally, the EPA will also notify tribal entities and communities on the North Slope and in areas near the draft Beaufort and Chukchi GPs' areas of coverage of the opportunity to provide public comment on

the draft permits during the public comment period and to attend and participate (e.g., provide testimony) during any scheduled public hearing.

H. Coastal Zone Management Act.

The Alaska Coastal Management Program (ACMP) expired on June 30, 2011 by operation of Alaska Statutes 44.66.020 and 44.66.030. As of July 1, 2011, there is no longer a CZMA program in Alaska. Because a federally approved CZMA program must be administered by a state, NOAA withdrew the ACMP from the National Coastal Management Program. See 76 Fed. Reg. 39,857 (July 7, 2011). As a result, the CZMA consistency provisions at 16 USC § 1456(c)(3) and 15 CFR Part 930 no longer apply in Alaska. Accordingly, federal agencies are no longer required to provide the State of Alaska with CZMA consistency determinations.

I. Oil Spill Requirements.

Section 311 of the CWA prohibits the discharge of oil and hazardous materials in harmful quantities. Routine discharges specifically controlled by the draft Beaufort and Chukchi GPs are excluded from the provisions of Section 311. However, the permits do 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.

J. Pollution Prevention Act.

It is the 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. The draft Beaufort and Chukchi GPs impose several terms and conditions that ensure these policies are implemented, including the imposition of the design and implementation of a BMP Plan and the Drilling Fluid Plan.

VI. REFERENCES

ADEC, 2009. *Water Quality Standards Amended as of September 19, 2009*. Alaska Department of Environmental Conservation, 18 AAC 70.

ADEC, 2003. *Water Quality Standards As amended through June 26, 2003*. Alaska Department of Environmental Conservation, 18 AAC 70.

ADEC, 2008. *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances As amended through December 12, 2008.* Alaska Department of Environmental Conservation.

ADEC, 2009. *Wastewater Disposal As amended through December 23, 2009*. Alaska Department of Environmental Conservation, 18 AAC 72.

ADEC, 2006. *Final Certificate of Reasonable Assurance for the Proposed NPDES Permit No. AKG280000, Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous Waters (for discharges to State waters contiguous to the Beaufort Sea, Chukchi Sea, and Hope and Norton planning basins)*. Alaska Department of Environmental Conservation, February 27, 2006.

Braund, S. R., and Associates, 2011. *Chukchi and Beaufort Seas National Pollutant Discharge Elimination System Exploration General Permits Reissuance, Report of Traditional Knowledge Workshops – Point Lay, Barrow, Nuiqsut, and Kaktovik* (Final, March 11, 2011). Prepared for Tetra Tech, Inc. and U.S. Environmental Protection Agency, Region 10.

Dunton, K., E. Reimnitz, and S. Schonberg. 1982. *An Arctic Kelp Community in the Alaskan Beaufort Sea.* Arctic 35(4): 465-484.

Dunton, K. H., S. V. Schonberg, K. Iken and D. W. Funk. 2009. *Long-Term Monitoring of the Kelp Community in the Stefansson Sound Bolder Patch: Detection of Change Related to Oil and Gas Development*. Submitted to U.S. Department of Interior, Minerals Management Service, July 20, 2009 (OCS Study MMS 2009-040).

Jones & Stokes Associates. 1983. *Final ocean discharge criteria evaluation, Diapir Field, OCS lease sale 71.* Prepared for U.S. Environmental Protection Agency, Region 10. March 1983.

Neff, J. M., 2010. *Fates and Effects of Water Based Drilling Muds and Cuttings in Cold-Water Environments.* Prepared for Shell Exploration and Production Company by Neff and Associates, LLC. May 25, 2010.

Tetra Tech, Inc. 2011. *Technical Memorandum: Results from Beaufort/Chukchi Permit Dilution Modeling Scenarios.* Prepared for the U.S. Environmental Protection Agency, Region 10. November 2011.

Tetra Tech, Inc. 2004. *Draft Ocean Discharge Criteria Evaluation for Area of Coverage Under the Arctic NPDES General Permit for Oil and Gas Exploration*. Prepared for the U.S. Environmental Protection Agency. March 2004.

. USEPA, 1991. *Technical Support Document for Water Quality-based Toxics Control*. U.S. Environmental Protection Agency, Office of Water, EPA\505\2-90-001. March, 1991.

USEPA, 1993. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory of the Oil and Gas Extraction Pont Source Category (Final)*. U.S. Environmental Protection Agency, Office of Water, EPA 821-R-93-003. January, 1993.

USEPA, 1995. *Ocean Discharge Criteria Evaluation for Area of Coverage Under the Arctic NPDES General Permit for Oil and Gas Exploration.* March 1995. Prepared for the U.S. Environmental Protection Agency by Tetra Tech, Inc. Final Draft, July 1994.

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.

USEPA, 2006. *Technical Development Document for the Final Section 316(b) Phase III Rule*. U.S. Environmental Protection Agency, Office of Water, EPA-821-R-06-003. June 2006.

USEPA, 2006. *Final Ocean Discharge Criteria Evaluation of the Arctic NPDES General Permit for Oil and Gas Exploration (Permit No. AKG280000)*. Prepared for the U.S. Environmental Protection Agency by Tetra Tech, Inc. January 24, 2006.

USEPA, 2006. *Response To Comments, Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters (NPDES Permit No. AKG280000)*. Prepared by the U.S. Environmental Protection Agency, Region 10. 2006.

USEPA, 2012. *Draft Ocean Discharge Criteria Evaluation for the Beaufort Sea NPDES General Permit for Oil and Gas Exploration (Permit No. AKG-28-2100)*. Prepared for the U.S. Environmental Protection Agency by Tetra Tech, Inc., January, 2012.

USEPA, 2012. *Draft Ocean Discharge Criteria Evaluation for the Chukchi Sea NPDES General Permit for Oil and Gas Exploration (Permit No. AKG-28-8100)*. Prepared for the U.S. Environmental Protection Agency by Tetra Tech, Inc., January, 2012.

USEPA, 2012. *Draft Environmental Justice Analysis, Beaufort and Chukchi Seas NPDES General Permits for Oil and Gas Exploration (Permit Nos. AKG-28-2100 and AKG-28-8100)*. January, 2012.

APPENDIX C
Description of Discharges

The following thirteen (13) discharges are authorized under the draft Beaufort and Chukchi GPs, subject to the permit terms and conditions. These discharge descriptions are for informational purposes only. Interested persons can refer to the EPA's 1993 development document for ELGs for the offshore subcategory of the oil and gas extraction point source category for additional discharge information.

Discharge 001 Drilling Fluids

The circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. The draft Beaufort and Chukchi GPs propose to only authorize the discharge of water-based drilling fluids. Descriptions of other classes of drilling fluids are provided here for informational purposes only. Classes of drilling fluids are:

1. Water-based drilling fluid – the continuous phase and suspending medium for solids is a water-miscible fluid, regardless of the presence of oil.
2. Non-aqueous drilling fluid – the continuous phase and suspending medium for solids is a water-immiscible fluid, such as oleaginous materials (e.g., mineral oil, enhanced mineral oil, paraffinic oil, C_{16}-C_{18} internal olefins, and C_8-C_{16} fatty acid/2-ethylhexyl esters).
    a. Oil-based – the continuous phase of the drilling fluid which consists of diesel oil, mineral oil, or some other oil, but contains no synthetic material or enhanced mineral oil.
    b. Enhanced mineral oil-based – the continuous phase of the drilling fluid is enhanced mineral oil.
    c. Synthetic-based – the continuous phase of the drilling fluid is a synthetic material or a combination of synthetic materials.

Drill Cuttings

The particles generated by drilling into subsurface geologic formations and carried out from the wellbore with the drilling fluid. Examples of drill cuttings include small pieces of rock varying in size and texture from fine silt to gravel. Drill cuttings are generally generated from solids control equipment and settle out and accumulate in quiescent areas in the solids control equipment or other equipment processing drilling fluid (i.e., accumulated solids).

Discharge 002 Deck Drainage

Any waste resulting from deck washings, spillage, rainwater, and runoff from gutters and drains, including drip pans and work areas within oil and gas facilities.

Discharge 003 Sanitary Waste

Human body waste discharged from toilets and urinals located within oil and gas facilities.

Discharge 004 Domestic Waste

Materials discharged from sinks, showers, laundries, safety showers, eye-wash stations, hand-wash stations, fish cleaning stations, and galleys located within oil and gas facilities.

Discharge 005 Desalination Unit Waste

Wastewater associated with the process of creating freshwater from seawater.

Discharge 006 Blowout Preventer Fluid

Fluid used to actuate hydraulic equipment on the blowout preventer.

Discharge 007 Boiler Blowdown

Water and minerals drained from boiler drums to minimize solids build-up in the boiler.

Discharge 008 Fire Control System Test Water

Water that is released during the training of personnel in fire protection, and the testing and maintenance of fire protection equipment.

Discharge 009 Non-contact Cooling Water

Water that is used for non-contact, once-through cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content.

Discharge 010 Uncontaminated Ballast Water

Harbor or seawater added or removed to maintain the proper ballast floater level and ship draft and to conduct jack-up rig related seabed support capability tests (e.g., jack-up rig preload water).

Discharge 011 Bilge Water

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 the Seafloor.

Materials discharge at the surface of the ocean floor during construction of the mudline cellar, during the early phases of drilling operations before the riser is installed, and during well abandonment and plugging.

APPENDIX D
Maps

Figure D-1. Beaufort GP Area of Coverage

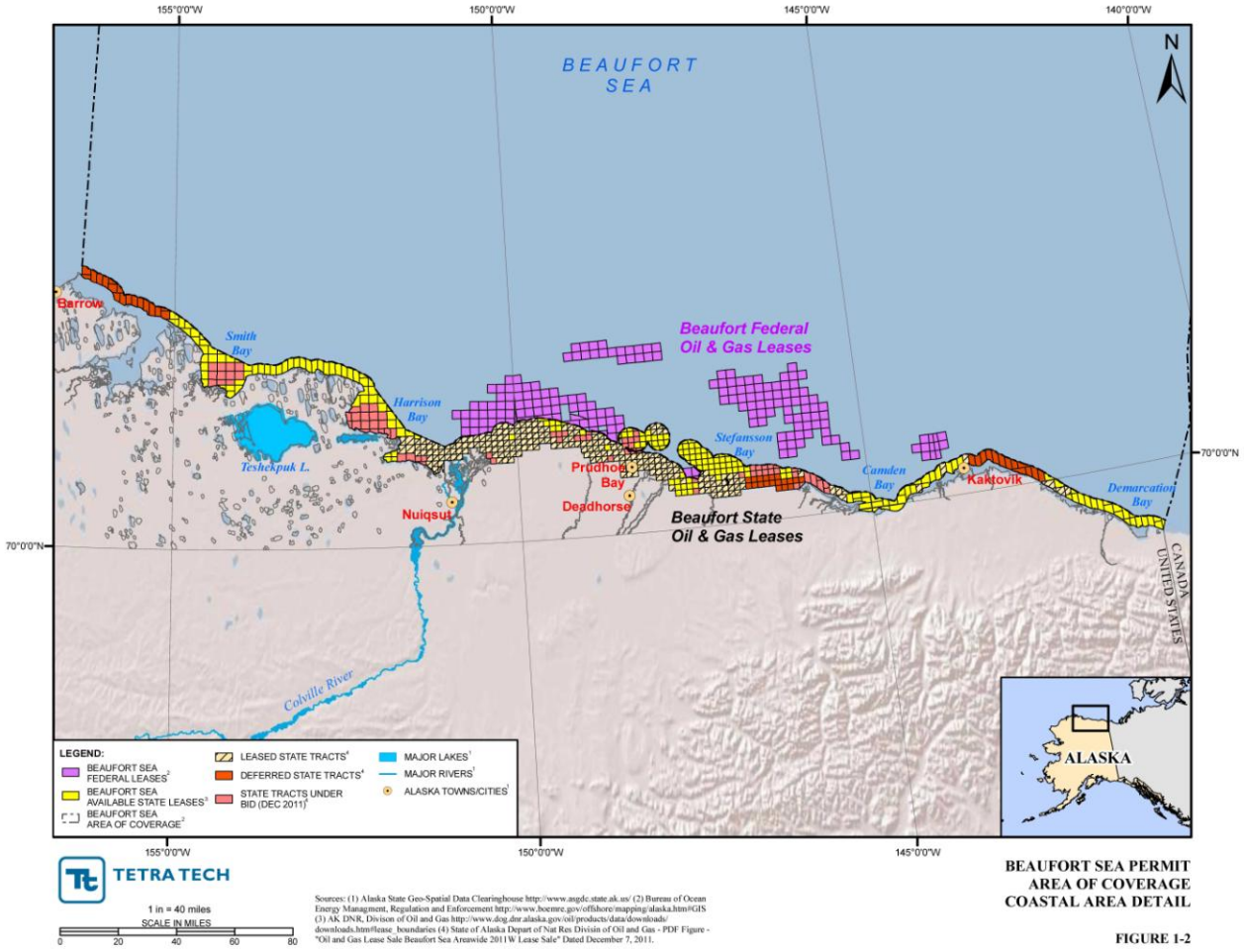
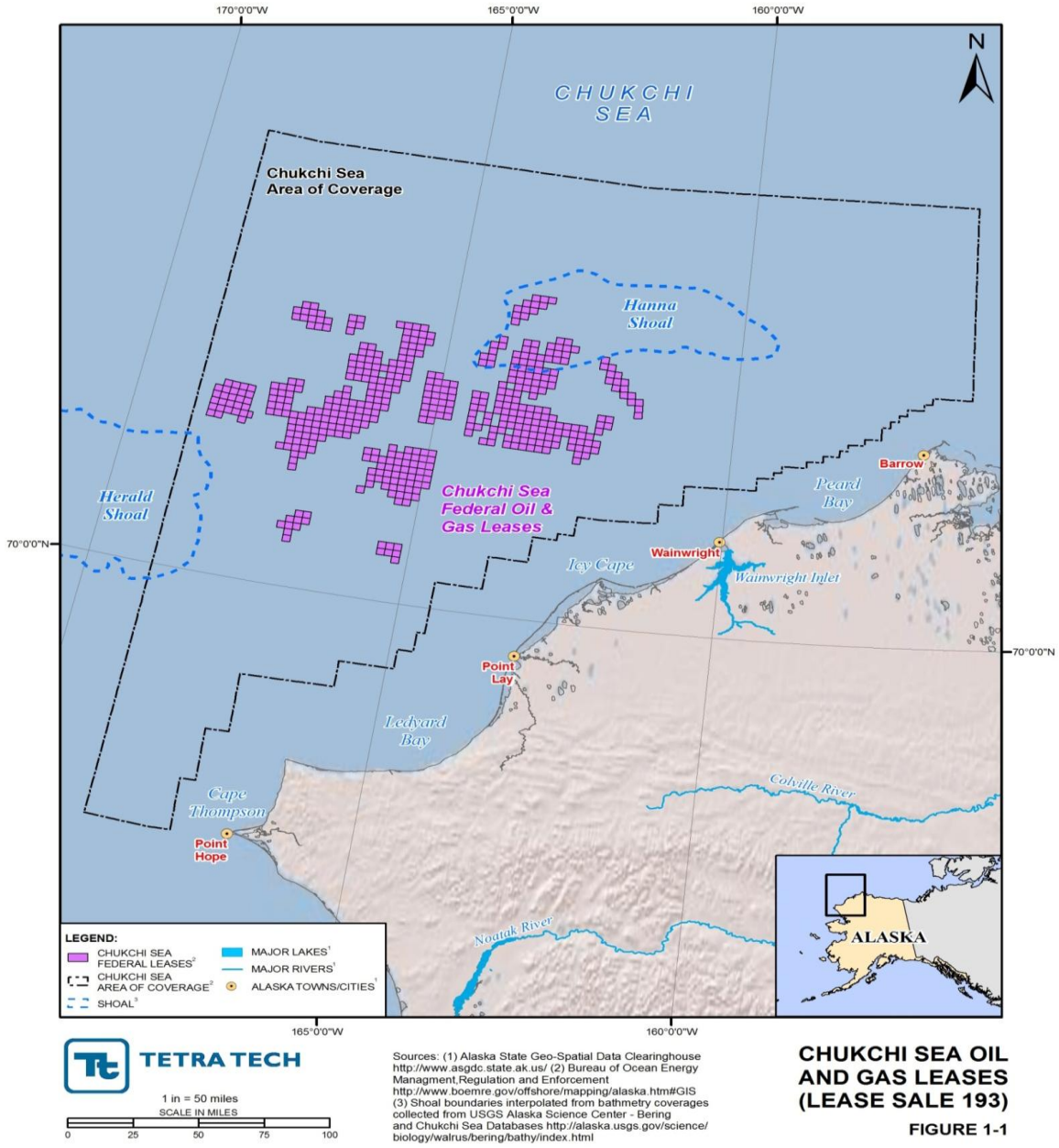


Figure D-2. Chukchi GP Area of Coverage



APPENDIX E
Basis for Water Quality-based Effluent Limitations

Table E-1:
Water Quality Criteria Applicable to the Beaufort Exploration NPDES General Permit for Sanitary Wastes (Discharge 003) within State Waters

DISCHARGE	POLLUTANT PARAMETER	CRITERIA	
		Aquatic Acute	**Aquatic Chronic**
Sanitary Waste (003)	Total Residual Chlorine	13.0 µg/L	7.5 µg/L
	Fecal Coliform Bacteria[1]	14 FC/100 mL	
		43 FC/100 mL[2]	
Sanitary Waste (003)	pH	6.5 - 8.5[3]	

Footnotes:
[1] Based on the median most probable number (MPN) from a 5-tube decimal dilution test.
[2] Based on not more than 10% of the samples exceeding this value.
[3] May not vary more than 0.1 pH unit from natural conditions.

The most stringent narrative criteria based on the beneficial uses for state waters in the Beaufort Sea 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 in a state water quality standard for a given pollutant (and therefore whether a water quality-based effluent limit based on a state water quality standard is needed), the 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. The EPA uses the recommendations in Chapter 3 of the EPA's Technical Support Document for Water Quality-based Toxics Control (TSD, 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 (e.g., the state-authorized 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 dilution modeling. If a state-authorized mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration.

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.

3. Reasonable Potential Evaluation Procedure with Narrative Criteria.

   The EPA must establish provisions 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, the 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 (TRC). When determining the projected receiving water concentration, the TSD recommends using the maximum projected effluent concentration. To determine the maximum projected effluent concentration (C_e), the EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) (standard deviation/mean) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV is determined, the reasonable potential multiplier used to derive the maximum projected effluent concentration (C_e) can be calculated using the method provided in Section 3.3.2 of the EPA's TSD. The maximum projected concentration (C_e) for the effluent is equal to the highest observed value of the data set multiplied by the reasonable potential multiplier.

      Due to a lack of recent effluent data, the technology-based effluent limitation (minimum residual chlorine) of 1.0 mg/L is used as the maximum effluent concentration and 0 is assumed for the background concentration.

      If there is no state-authorized mixing zone (i.e. no authorized dilution), the technology-based limit of 1.0 mg/L is used as the maximum projected effluent concentration. The technology-based effluent limit is used in this manner because the water-quality based effluent limits are only required when a discharge of the pollutant at the technology-based limit has the reasonable potential to cause or contribute to a state-based water quality standards exceedance. In this situation of no state-authorized mixing zone, there is reasonable potential for an exceedance of the aquatic acute and chronic criterion.

      If there is a state-authorized mixing zone, the dilution associated with that mixing zone is taken into consideration in determining the reasonable potential. Here, the EPA anticipates that the DEC will authorize a 100-meter radius mixing zone as DEC did in its 2006 Section 401 certification for Discharge 003. The Beaufort ODCE indicates that the maximum discharge rate associated with Discharge 003 could be up to 30 bbl/day and that current speeds in likely discharge areas are not

expected to be below 5 cm/sec. A conservative dilution factor was extrapolated from the dilution modeling data associated with a slower current speed (i.e., 2 cm/sec.) at a 5-meter depth (Tetra Tech Modeling Scenarios, December 2011, Table 6, Case ID 121). The derived dilution ratio is 10,153:1 (volume receiving water:volume effluent). The final calculation indicates that the maximum projected effluent concentration does not result in an exceedance of the standard at the boundary of the mixing zone so a WQBEL is not needed.

b. Fecal Coliform Bacteria. For context, the standards for marine sanitation devices, 40 CFR § 140.3(d), require that effluent contain a maximum of 200 FC/100 mL. In order to determine reasonable potential, the maximum technology-based effluent limitation of 200 FC/100 mL is used as the maximum effluent concentration and 0 is assumed for the background concentration. If there is no state-authorized mixing zone (i.e., no authorized dilution), the technology-based limit of 200 FC/100 mL is used as the maximum projected effluent concentration and compared to the criteria of 14 and 43 FC/100 mL directly. In this situation, there is reasonable potential for an exceedance of the state's bacteria standard at the end of pipe.

   If there is a state-authorized 100-meter radius mixing zone for Discharge 003, the calculation indicates that the maximum projected effluent concentration (technology-based limit of 200 FC/100 mL) does not result in an exceedance of the standard at the boundary of the mixing zone, so no WQBEL is needed.

c. pH. The technology-based effluent range for pH of 6.0 - 9.0 standard units is typically applied to the sanitary discharges from publically owned treatment plants. Since the state's water quality standards require a pH range of 6.5 - 8.5, and if the DEC does not authorize a mixing zone, there would be no dilution ratio for pH in the sanitary discharge so there is reasonable potential for this discharge. There would be no reasonable potential if DEC authorizes a 100-meter radius mixing zone for Discharge 003.

d. Residues. The domestic waste discharge has a technology-based effluent limitation that prohibits the discharge of floating solids. All 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, the EPA has determined that there is reasonable potential for these discharges to violate this state's water quality standard.

C. Water Quality-based Permit Limit Derivation

If the 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 the state's 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.

   If no mixing zone is authorized by DEC, the water quality standard's numeric criterion becomes the WLA in the WQBEL derivation process. In the computation of the long term average concentrations (LTA), the LTAs for the two criterion (acute and chronic) are compared and the more stringent is used to develop the daily maximum and monthly average permit limits. For TRC, the chronic LTA of 3.95 µg/L is the more stringent LTA (acute LTA = 4.2 µg/L). In the absence of recent data to evaluate the true variability of the effluent, the 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 F) are a daily maximum limit of 12.3 µg/l (0.0123 mg/l) and an average monthly limit of 6.1 µg/l (.0061 mg/l). Generally, this shows maximum effluent concentrations while the technology-based limit indicates a minimum control level. Consequently, the WQBELs are the more stringent effluent limits in the no-mixing zone context and would usually be applied to this discharge. However, the current TRC maximum daily limit (MDL) of 0.0075 mg/L is more stringent than the derived maximum daily WQBEL. To avoid backsliding, the draft Beaufort GP retains the current MDL of 0.0075 mg/L. The MDL is not quantifiable using The EPA-approved analytical methods. The EPA will use the minimum level (ML) of 100 µg/l (0.1 mg/l) as the concentration based compliance level for TRC.

   If a 100 meter radius mixing zone is authorized by DEC as it did in the 2006 Section 401 certification, the reasonable potential determination process takes into account the available dilution of the mixing zone. As noted previously, the reasonable potential calculation indicates that the maximum projected effluent concentration does not result in an exceedance of the standard at the boundary of the mixing zone so a WQBEL is not needed. To avoid backsliding, the draft Beaufort GP retains the current MDL of 1.0 mg/l and the current AML of 0.5 mg/l.

2. pH.

   The Alaska water quality standards require marine waters to have a pH value with the range of 6.5 – 8.5 standard units. If no state mixing zone is authorized, this criterion must be met when the effluent is discharged to the receiving water. To meet the more restrictive water quality based criterion, the draft Beaufort GP incorporates the water

quality-based pH range of 6.5 to 8.5 standard units. The Expired GP has these same limits.

3. Residues.

   The draft Beaufort GP prohibits any discharge of floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind unless specifically addressed in the GP. Applicants that propose to discharge water-based drilling fluids and drill cuttings (Discharge 001) to state waters may request a zone of deposit (ZOD) from DEC. In addition, the applicant can request a mixing zone for sanitary and domestic waste discharges (Discharges 003 and 004, respectively).

4. Fecal Coliform Bacteria.

   Given the intermittent discharge from these relatively small and temporary facilities, and the lack of recent actual performance data, the method for limit derivation is simplified. The acute and chronic criteria are included directly as limitations under the no-mixing zone situation to assure compliance with the water quality standard. In the no-mixing zone context, the draft Beaufort GP, like the Expired GP, incorporates the more stringent water quality-based criteria of 14 FC/100 mL and 43 FC/100 mL as end-of-pipe limits to protect the beneficial uses of the marine environment (e.g., harvesting for consumption of raw mollusks or other raw aquatic life). The EPA is including a maximum daily limit of 43 FC/100 mL because, based on 4-samples per month, any one sample exceeding 43 FC/100 mL will result in an exceedance of the underlying water quality standard (i.e., not more than 10% of the samples can exceed 43 FC/100 mL). The draft Beaufort GP retains the technology-based limit for both the authorized mixing zone situation in state waters and as a limit for bacteria beyond state waters; no WQBELs are applied in these situations because there was no reasonable potential to exceed the criteria.

APPENDIX F
Calculations

I. Total Residual Chlorine

A. Reasonable Potential Calculations

If there is no state-authorized mixing zone (i.e. no authorized dilution), the technology-based limit of 1.0 mg/L is used as the maximum projected effluent concentration. That concentration exceeds the acute and chronic criterion of 0.0130 mg/L and 0.0075 mg/L respectively, so there is reasonable potential.

In the scenario associated with a state-authorized 100-meter radius mixing zone, the following Table F-1 reflects the reasonable potential analysis:

TABLE F- 1: *Reasonable Potential Analysis for TRC*	
Coefficient of Variation (CV)	0.6
Reasonable Potential Multiplier	13.2
Technology Based Effluent Limit (mg/L)	1.0
Maximum Effluent Concentration (mg/L)	1.0
Maximum Projected Effluent Concentrations, C_e (mg/L)	13.2
Dilution Ratio, V_e/V_d	10,153
Background Concentration, C_u (mg/L)	0
Projected Receiving Water Concentration, C_d (mg/L)	0.0013
Criterion (mg/L)	0.0075
Is C_d > Criterion?	no
Reasonable Potential to exceed?	no

The projected receiving water concentration (C_d) is less than the acute criteria and the chronic criteria for aquatic life, thus, there is no reasonable potential to exceed this water quality standard at the boundary of the 100-meter radius mixing zone.

B. Wasteload Allocation and WQBEL Calculations

Where no mixing zone is allowed, the criterion becomes the WLA. In the case of total residual chlorine TRC, for the acute criterion,

WLA_a = 13.0 µg/L

For the chronic criterion,

WLA_c = 7.5 µg/L

The next step is to compute the "long term average" concentrations which will be protective of the WLAs. This is done using the following equations from EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$LTA_a = WLA_a \times \exp(0.5\sigma^2 - z\sigma)$
$LTA_c = WLA_c \times \exp(0.5\sigma_4^2 - z\sigma_4)$

where,

$\sigma^2 = \ln(CV^2 + 1)$
$\sigma = \sqrt{\sigma^2}$
$\sigma_4^2 = \ln(CV^2/4 + 1)$
$\sigma = \sqrt{\sigma_4^2}$
$z = 2.326$ for 99th percentile probability basis

In the case of TRC,

$\sigma^2 = \ln(0.6^2 + 1) = 0.307$
$\sigma = \sqrt{\sigma^2} = 0.555$
$\sigma_4^2 = \ln(0.6^2/4 + 1) = 0.086$
$\sigma = \sqrt{\sigma_4^2} = 0.294$
$z = 2.326$ for 99th percentile probability basis

Therefore,

$LTA_a = 13.0\ \mu g/L \times \exp(0.5 \times 0.307 - 2.326 \times 0.555)$
LTA_a = 4.2 µg/L

$LTA_c = 7.5\ \mu g/L \times \exp(0.5 \times 0.086 - 2.326 \times 0.294)$
LTA_c = 3.95 µg/L

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits as shown below. For TRC, the chronic LTA of 3.95 µg/L is more stringent.

The next step is to derive the maximum daily and average monthly effluent limits using the TSD equations. The MDL and AML effluent limits are calculated as follows:

$MDL = LTA \times \exp(z_m\sigma - 0.5\sigma^2)$
$AML = LTA \times \exp(z_a\sigma_n - 0.5\sigma_n^2)$

where,

$\sigma^2 = \ln(0.6^2 + 1) = 0.307$
$\sigma = \sqrt{0.307} = 0.555$
$\sigma_4^2 = \ln(0.6^2/4 + 1) = 0.086$
$\sigma = \sqrt{0.086} = 0.293$

$z_a = 1.645$ for 95th percentile probability basis
$z_m = 2.326$ for 99th percentile probability basis
n = number of sampling events required per month (minimum of 4)

In the case of TRC under the no-mixing zone context,

MDL = 3.95 µg/L× exp(2.326 × 0.555 - 0.5 × 0.307)
MDL = 12.3 µg/L

AML = 3.95 µg/L× exp(1.645 × 0.293 - 0.5 × 0.086)
AML = 6.1 µg/L

II. Fecal Coliform Bacteria

A. Reasonable Potential Calculations

If there is no state-authorized mixing zone (i.e. no authorized dilution), the technology-based limit of 200 FC/100 mL is used as the maximum projected effluent concentration. That concentration exceeds both criterion of 14 FC/100 mL and 43 FC/100 mL, so there is reasonable potential. The derivation of the final limits is discussed in Appendix E.

In the scenario associated with a state-authorized 100-meter radius mixing zone, the following Table F-2 reflects the reasonable potential analysis:

TABLE F-2: *Reasonable Potential Analysis for Bacteria*

Coefficient of Variation (CV)	0.6
Reasonable Potential Multiplier	13.2
Technology Based Effluent Limit (FC/mL)	200
Maximum Effluent Concentration (FC/mL)	200
Maximum Projected Effluent Concentrations, C_e (FC/mL)	2600
Dilution Ratio, V_e/V_d	10,153
Background Concentration, C_u (mg/L)	0
Projected Receiving Water Concentration, C_d (FC/mL)	1.0
Criterion (FC/mL)	14 & 43
Is C_d > Criterion?	no
Reasonable Potential to exceed?	no

The projected receiving water concentration (C_d) is less than the criterion, thus, there is no reasonable potential to exceed this water quality standard at the boundary of a 100-meter radius mixing zone.

B. Wasteload Allocation & WQBEL Calculations

N/A

APPENDIX A

Summary of General Permit Changes and Request for Public Review/Comments of Specific Sections

The following table summarizes some of the changes from the Expired Arctic General Permit (AKG-28-0000) and the draft Beaufort (AKG-28-2100) and Chukchi (AKG-28-8100) General Permits (GPs) requirements. The EPA is soliciting public comments on all terms and conditions of the draft Beaufort and Chukchi GPs. However, this table reflects the sections of the Beaufort and Chukchi GPs and combined Fact Sheet that the EPA is specifically requesting public comments on. The EPA also is requesting the public provide the agency with any studies, research, and/or relevant information that should be considered before making a final determination on the proposed requirements, limitations, or conditions set out in the draft GPs and combined Fact Sheet.

In addition to the issues, terms and conditions identified in the table below, the EPA is requesting public comment on the estimates of exploration drilling activities as reflected in the well projections in the Fact Sheet, Section I.D.6. The EPA is particularly interested in comments from the regulated community and state and federal agencies with oil and gas regulatory responsibilities given their experience and expertise in projecting and evaluating oil and gas exploration activities.

EXPIRED ARCTIC GP	BEAUFORT GP	CHUKCHI GP	FACT SHEET
I. Areas of Coverage			
One GP authorized exploration discharges to federal and state waters of the U.S. in the Beaufort Sea, Chukchi Sea, Hope Basin, and Northern Norton Basin.	Establishes a separate GP authorizing exploration discharges to federal and contiguous state waters of the Beaufort Sea. (Section I.B.)	Establishes a separate GP authorizing exploration discharges to federal waters of the Chukchi Sea. (Section I.B.)	Sections I.D.1. and I.D.2.
II. Authorized Discharges			
Authorized discharges 001–014.	No discharge of test fluids (Discharge 014).	No discharge of test fluids (Discharge 014).	Sections I.A. and II.E.1.m.
Authorized discharge of water-based fluids and cuttings, non-aqueous stock base fluids and non-aqueous cuttings.	Authorizes discharge of water-based drilling fluids and cuttings. No discharge of non-aqueous stock base fluids, and cuttings associated with non-aqueous fluids.	Authorizes discharge of water-based drilling fluids and cuttings. No discharge of non-aqueous stock base fluids, and cuttings associated with non-aqueous fluids.	Section II.E.2.d.

III. NOI Requirements			
- Submit at least 45 days prior to initiation of discharges. - NOI form contained general information requirements.	- Submit at least 120 days prior to initiation of discharges. - Must indicate whether discharges will be in state or federal waters. - An NOI must be submitted for each proposed drill site. - NOI form contains a checklist with specific requirements. (Beaufort GP Attachment 1)	- Submit at least 120 days prior to initiation of discharges. - An NOI must be submitted for each proposed drill site. - NOI form contains a checklist with specific requirements. (Chukchi GP Attachment 1)	Section I.F.2.
IV. Well Number Limitation			
Limited the number of wells to no more than five wells at a single drilling site.	Limits drilling discharges from no more than five wells in a lease block; discharges from additional wells will require EPA or DEC approval. (Section II.A.14)	Limits drilling discharges from no more than five wells in a lease block; discharges from additional wells will require EPA approval. (Section II.A.14)	Section II.E.1.j.
V. Duty to Reapply			
Contained standard permit language.	Includes expanded language for reapplication, administrative extension coverage, and termination requirements. (Section VI.B.)	Includes expanded language for reapplication, administrative extension coverage, and termination requirements. (Section VI.B.)	Section I.F.3.
VI. Chemical Inventory			
Required a narrow chemical additive inventory for a limited set of discharges (e.g., drilling fluids, desalination unit wastes, boiler blowdown, fire control test water, and noncontact cooling water).	Expands the chemical additive inventory and reporting requirements, including reporting and limits on chemical concentrations for Discharges 001-013. Also included monitoring and reporting of the constituents, total quantities used, rates of additive use and locations of use in the processes on the facility. (Section II.A.10.)	Expands the chemical additive inventory and reporting requirements, including reporting and limits on chemical concentrations for Discharges 001-013. Also included monitoring and reporting of the constituents, total quantities used, rates of additive use and locations of use in the processes on the facility. (Section II.A.10.)	Section II.E.1.f.
VII. Area Restrictions			
Included no-discharge restrictions for discharges of drilling fluids and drill cuttings within the following areas: - in areas with water depths that is less than 5 meters;	Expands the no-discharge prohibitions for all discharges in areas where the water depth is less than 5 meters, as measured from MLLW. (Section II.A.11.a.) Retains the same no-discharge of drilling fluids	Expands the no-discharge prohibition for all discharges in areas where the water depth is less than 5 meters, as measured from MLLW. (Section II.A.11.)	Sections I.E., II.E.1.g. and II.E.2.a.

- between the shore (mainland and the barrier islands) and the 5 meter isobath; - within 1,000 meters of the Stefansson Sound Boulder Patch or between individual units of the Boulder Patch where the separation between units is greater than 2,000 meters but less than 5,000 meters. - within Omalik Lagoon; - within Kasegaluk Lagoon; or - within 3 miles of the following passes of Kasegaluk Lagoon (Kukpowruk, Akunik, Utukok, Icy Cape, Alokiakatat, Naokok, and Pingaorarok)	and drill cuttings restrictions within certain areas. The Beaufort GP prohibits discharge under any of the following conditions: - between the shore from MLLW, including the mainland and the barrier islands, and the 5 meter isobath; - within 1000 meters of the Stefansson Sound Boulder Patch (near the mouth of the Sagavanirktok River) or between individual Boulder Patches where the distance between those patches is greater than 2000 meters but less than 5000 meters; and - within State waters unless a ZOD has been authorized for the discharge by DEC. (Section II.B.4.)		
VIII. Seasonal Restrictions			
Contained the following no-discharge seasonal restrictions for drilling fluids and drill cuttings: Open-water restrictions: - at depths greater than 1 meter below the surface of the receiving water between 5 and 20 meters isobaths; - within 1,000 meters of river mouths or deltas; or - within state waters unless a ZOD is authorized by DEC. Unstable or broken ice restrictions: - within 1,000 meters of river mouths or deltas, or	Retains the same no-discharge restrictions for water-based drilling fluids and drill cuttings. The Beaufort GP contains an additional requirement for no discharge to the stable ice surface unless authorized in writing by EPA or DEC in accordance with the Alternatives Analysis requirements under Section II.A.11.c. of the general permit. (Section II.B.5.b.)	Includes the following similar no-discharge restrictions for water-based drilling fluids and drill cuttings: (II.B.4.) Open-water restrictions: - at depths greater than 1 meter below the surface of the receiving water between 5 and 20 meters isobaths; Unstable or broken ice restrictions: - shoreward of the 20 meter isobaths as measured from the MLLW during unstable or broken ice conditions except when the discharge is prediluted to a 9:1 ratio of seawater to drilling fluids and cuttings. Stable ice restrictions: - below stable ice and must avoid, to the	Sections I.E. and II.E.2.b.

- shoreward of the 20 meter isobaths, unless (a) the discharge is prediluted to a 9:1 ratio of seawater to drilling fluids and cuttings, and (b) the permittee conducts environmental monitoring. Stable ice restrictions: - below the ice and shall avoid, to the maximum extent possible, areas of sea ice cracking or major stress fracturing unless authorized by EPA. - below ice within state waters unless a ZOD has been authorized by DEC the permittee conducts environmental monitoring.		maximum extent possible, areas of sea ice cracking or major stress fracturing unless authorized by EPA.	
IX. Discharge During Active Bowhead Whaling Activities			
None	Prohibits the discharge of water-based drilling fluids and drill cuttings (Discharge 001) during active bowhead whaling activities in the Beaufort Sea, unless EPA or DEC authorizes the discharge, after review of the operator's evaluation of exploratory facility storage capacity and land-based disposal alternatives. (Section II.A.11.b.)	Not applicable.	Sections I.A.11., I.F.2.j., II.D.2.a., and II.E.1.k.
X. Alternatives Analysis			
None	Prohibits discharge of water-based drilling fluids and drill cuttings (Discharge 001), sanitary waste (Discharge 003) and domestic waste (Discharge 004) to stable ice unless authorized in writing by EPA or DEC in	Not applicable.	Sections I.A.12., I.F.2.k., II.E.1.l. and II.E.2.b.

	accordance with the following requirements: - submit a detailed written alternatives analysis demonstrating that there are no technically feasible land-based disposal alternatives and means to transport the waste streams to those disposal sites; must be submitted with the NOI. (Section II.A.11.c.)		
XI. Cooling Water Intake Structure Requirements			
None	Includes cooling water intake structure requirements to new offshore oil and gas extraction facilities for which construction was commenced after July 17, 2006, that meet the following criteria: (1) is a point source that uses or proposes to use a cooling water intake structure; (2) has at least one cooling water intake structure that uses at least 25 percent of the water it withdraws for cooling purposes as specified in subsection N.2. below; and (3) has a design intake flow greater than 2 million gallons of water per day. (Section II.N.)	Includes cooling water intake structure requirements to new offshore oil and gas extraction facilities for which construction was commenced after July 17, 2006, that meet the following criteria: (1) is a point source that uses or proposes to use a cooling water intake structure; (2) has at least one cooling water intake structure that uses at least 25 percent of the water it withdraws for cooling purposes as specified in subsection N.2., below; and (3) has a design intake flow greater than 2 million gallons of water per day. (Section II.N.)	Sections I.A.14., I.F.2.l., and II.E.9.
XII. Electronic Discharge Monitoring Reports (NetDMR)			
Required paper submittal of DMRs.	Requires electronic submittal of monitoring reports using NetDMR. (Section III.B.)	Requires electronic submittal of monitoring reports a using NetDMR. (Section III.B.)	Section IV.A.
XIII. Environmental Monitoring Plan (EMP)			
Required an EMP when a permittee proposed to discharge drilling fluids and drill cuttings within 4,000 meters of a prohibited area.	Requires design and implementation of an EMP at each drill site. The applicant must submit an EMP plan of study to EPA and DEC for review with the NOI. EMP elements: 1. Dilution, plume and deposition modeling. 2. Contains four phases:	Requires design and implementation of an EMP at each drill site. The applicant must submit an EMP plan of study to EPA for review with the NOI. EMP elements: 1. Dilution, plume and deposition modeling. 2. Contains four phases:	Sections I.F.2.d., II.D.2.c., II.E.h. and III.B.2.

	• Phase I (baseline) assessment – Initial site survey, physical and receiving water data collection, and benthic community structure; • Phase II (during drilling) assessment – Effluent toxicity characterization, cooling water (Discharge 009) plume and water column monitoring, and collect observations for potential marine mammal deflection during high periods of discharge; • Phase III (post-drilling) assessment – Physical sea bottom survey • Phase IV (15 months after drilling ceases) assessment – Physical sea bottom survey, benthic community structure. 3. WET testing once per well for certain discharges that (a) initial screening indicate potential toxicity, or (b) exceed a discharge rate greater than 10,000 gallons during any 24-hour period and if chemicals are added. 4. Two EMP reports must be submitted. Additional EMP requirements for discharge of water-based drilling fluids and drill cuttings: 5. Analyze drilling fluids and drill cuttings for metals contaminants of concern; 6. Sediment monitoring of the drilling site; 7. Evaluate benthic community tissue for metals and organic compounds, and conduct a metals bioaccumulation study in the drilling site area; 8. Sample and assess metals, organics, turbidity, and total suspended solids	• Phase I (baseline) assessment – Initial site survey, physical and receiving water data collection, and benthic community structure; • Phase II (during drilling) assessment – Effluent toxicity characterization, cooling water (Discharge 009) plume and water column monitoring, and collect observations for potential marine mammal deflection during high periods of discharge; • Phase III (post-drilling) assessment – Physical sea bottom survey • Phase IV (15 months after drilling ceases) assessment – Physical sea bottom survey, benthic community structure. 3. WET testing once per well for certain discharges that (a) initial screening indicate potential toxicity, or (b) exceed a discharge rate greater than 10,000 gallons during any 24-hour period and if chemicals are added. 4. Two EMP reports must be submitted. Additional EMP requirements for discharge of water-based drilling fluids and drill cuttings: 5. Analyze drilling fluids and drill cuttings for metals contaminants of concern; 6. Sediment monitoring of the drilling site; 7. Evaluate benthic community tissue for metals and organic compounds, and conduct a metals bioaccumulation study in the drilling site area; 8. Sample and assess metals, organics, turbidity, and total suspended solids throughout the discharge-affected water column and	

	throughout the discharge-affected water column and discharge plume' 9. Observe for potential marine mammal deflection. (Section II.A.12.)	discharge plume; 9. Observe for potential marine mammal deflection. (Section II.A.12.)	
Table 1 – Drilling Fluids and Drill Cuttings (Discharge 001)			
- Required SPP toxicity limit of a minimum 96-hour LC50 of 30,000 ppm for discharged water-based drilling fluids and drill cuttings. - Stock barite monitoring and limitation. - No discharge if there is a failure of the static sheen test. - Surveillance monitoring for chromium VI, silver, thallium, TAqH and TAH.	- Retains the SPP toxicity limit of a minimum 96-hour LC50 of 30,000 ppm for discharged water-based drilling fluids and drill cuttings, stock barite monitoring and limitation, and no discharge if there is a failure of the static sheen test; retains surveillance monitoring for TAqH and TAH. - Requires higher frequency monitoring (weekly SPP toxicity test; mercury and cadmium testing once per well). - Requires reporting to EPA within 24 hours if the results exceed the permit limits.	- Retains the SPP toxicity limit of a minimum 96-hour LC50 of 30,000 ppm for discharged water-based drilling fluids and drill cuttings, stock barite monitoring and limitation, and no discharge if there is a failure of the static shee test; retains surveillance monitoring for TAqH and TAH. - Requires higher frequency monitoring (weekly SPP toxicity test; mercury and cadmium testing once per well). - Requires reporting to EPA within 24 hours if the results exceed the permit limits.	Section II.E.2.c.
Table 2 – Flow Limitations for Discharge 001			
Contained hourly discharge rate limitations based on the depth of receiving waters.	No change.	No change.	Section II.E.2.e.
Table 3 – Deck Drainage (Discharge 002)			
- No discharge if there is a failure of the static sheen test or as determined by visual observation. - Deck drainage contaminated with oil and grease must be processed through an oil-water separator prior to discharge. - Monitoring for chromium VI, silver, thallium, TAqH and TAH.	Same with additional surveillance monitoring requirements for pH, and WET testing if initial screening shows potential for toxicity, or the deck drainage discharge rate exceeds 10,000 gallons in any 24-hour period and if chemicals are used in the system.	Same with additional surveillance monitoring requirements for pH, and WET testing if initial screening shows potential for toxicity, or the deck drainage discharge flow rate exceeds 10,000 gallons in any 24-hour period and if chemicals are used in the system.	Section II.E.3.

Tables 4a and 4b (Beaufort GP) – Sanitary and Domestic Wastes in Alaska Waters (Discharges 003 and 004)			
- Included limitations for flow, BOD_5, TSS, fecal coliform, dissolved oxygen, pH, total residual chlorine, floating solids/garbage, foam and oily sheen. - Required annual testing of marine sanitation devices to ensure the unit is operating properly.	Retains the same requirements, but includes higher frequency of monitoring for BOD_5, TSS, fecal coliform (weekly).	Not applicable.	Section II.E.4.a.
Table 5 (Chukchi GP); Tables 5 and 6 (Beaufort GP) – Sanitary and Domestic Wastes in Federal Waters (Discharges 003 and 004)			
Included limitations for flow, BOD_5, TSS, fecal coliform, dissolved oxygen, pH, total residual chlorine, floating solids/garbage, foam and oily sheen.	Retains the same requirements but includes stricter pH limit for sanitary waste discharge (6.5-8.5) and higher frequency of monitoring for pH, fecal coliform, and total residual chlorine (weekly).	Retains the same requirements but includes stricter pH limit for sanitary waste discharge (6.5-8.5) and higher frequency of monitoring for pH, fecal coliform, and total residual chlorine (weekly).	Section II.E.4.b. and II.E.5.
Table 6 (Chukchi GP); Table 7 (Beaufort GP) – Desalination Unit Wastes (Discharge 005)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Section II.E.6.
Table 7 (Chukchi GP); Table 8 (Beaufort GP) – Blowout Preventer Fluid (Discharge 006)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with new monitoring for pH.	Same with new monitoring for pH.	Section II.E.6.
Table 8 (Chukchi GP); Table 9 (Beaufort GP) – Boiler Blowdown (Discharge 007)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Section II.E.6.
Table 9 (Chukchi GP); Table 10 (Beaufort GP) – Fire Control System Test Water (Discharge 008)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with new pH monitoring and WET testing (if initial screening shows potential for	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or	Section II.E.6.

	toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	
Table 10 (Chukchi GP); Table 11 (Beaufort GP) – Non-contact Cooling Water (Discharge 009)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with increased visual monitoring for free oil, new pH and temperature monitoring requirements, and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Same with increased visual monitoring for free oil, new pH and temperature monitoring requirements, and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Sections II.E.6. and II.E.7.
Table 11 (Chukchi GP); Table 12 (Beaufort GP) – Uncontaminated Ballast Water (Discharge 010)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with new monitoring for pH and a requirement that all ballast water contaminated with oil and grease must be treated in an oil-water separator.	Same with new monitoring for pH and a requirement that all ballast water contaminated with oil and grease must be treated in an oil-water separator.	Sections II.E.6. and II.E.8.
Table 12 (Chukchi GP); Table 13 (Beaufort GP) – Bilge Water (Discharge 011)			
No discharge if there is a presence of free oil; flow monitoring; and process all bilge water through an oil-water separator prior to discharge.	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Same with new pH monitoring and WET testing (if initial screening shows potential for toxicity, or the discharge exceeds 10,000 gpd in a 24-hour period and if chemicals are added).	Section II.E.6.
Table 13 (Chukchi GP); Table 14 (Beaufort GP) – Excess Cement Slurry (Discharge 012)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with new monitoring for pH.	Same with new monitoring for pH.	Section II.E.6.
Table 14 (Chukchi GP); Table 15 (Beaufort GP) – Muds, Cuttings, and Cement at the Seafloor (Discharge 013)			
No discharge if there is a presence of free oil; and flow monitoring.	Same with increased visual monitoring for free oil.	Same with increased visual monitoring for free oil.	Section II.E.6.