



# FACT SHEET

PUBLIC COMMENT ISSUANCE DATE: NOVEMBER 22, 2013

PUBLIC COMMENT EXPIRATION DATE: JANUARY 27, 2014

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The U.S. Environmental Protection Agency (EPA) plans to issue, a National Pollutant Discharge Elimination System (NPDES) general permit for the following activities pursuant to the provisions of the Clean Water Act, 33 U.S.C. §1251 et seq:

## **OIL AND GAS GEOTECHNICAL SURVEYS AND RELATED ACTIVITIES IN FEDERAL WATERS OF THE BEAUFORT AND CHUKCHI SEAS (AKG-28-4300)**

### **EPA PROPOSES NPDES GENERAL PERMIT ISSUANCE**

EPA proposes to issue an NPDES general permit (No. AKG-28-4300) for oil and gas geotechnical surveys and related activities in federal waters of the Beaufort and Chukchi Seas. In order to ensure protection of water quality and human health, the general permit places limits on the types and amounts of pollutants that can be discharged and places other conditions on authorized facilities.

This Fact Sheet includes:

- information on public comment, public hearings and appeal procedures
- descriptions of the facilities and proposed discharges covered by the Draft Geotechnical General Permit
- listings of proposed effluent limitations, restrictions, and other permit conditions
- maps and descriptions of the proposed areas of coverage, including restricted areas
- a summary of the technical materials supporting the conditions in the draft general permit

## **OCEAN DISCHARGE CRITERIA EVALUATION**

Section 403 of the Clean Water Act, 33 USC § 1343, prohibits issuing an NPDES permit for discharges into marine waters located in the territorial seas, the contiguous zones, and the oceans 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 area of coverage of the draft Geotechnical General Permit is within federal waters of the Beaufort and Chukchi Seas. Since the Geotechnical General Permit applies to discharges to federal waters, the geographic scope of the ODCE extends seaward from the outer boundary of the territorial seas. The ODCE developed for the Geotechnical General Permit is in draft form. After the close of the public comment period, EPA will refine the ODCE analyses and conclusions, as necessary, to reflect the agency's final decisions.

## **401 CERTIFICATION FOR FACILITIES THAT DISCHARGE TO STATE WATERS**

The area of coverage of the draft Geotechnical General Permit applies to federal waters of the Beaufort and Chukchi Seas; it does not authorize discharges to Alaska State waters and is not subject to CWA Section 401 certification.

## **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 COMMENT AND PUBLIC HEARINGS**

EPA will consider all substantive comments on the draft Geotechnical General Permit, Fact Sheet and ODCE before issuing the final NPDES general permit. Persons wishing to comment on the proposed permit action may do so in writing by the expiration date of the public notice period.

All comments must include the name, address, phone number, and email address (if available) of the commenter. Each comment should include a concise statement explaining the basis and relevant facts that support the comment. All written comments should be addressed to:

U.S. EPA, Region 10  
ATTN: Director, Office of Water and Watersheds  
SUBJECT: Geotechnical NPDES General Permit  
1200 Sixth Avenue Suite 900, OWW-130  
Seattle, WA 98101  
Fax: (206) 553-0165  
E-mail: R10geotechpermit@epa.gov

EPA will hold a public hearing in Barrow, Alaska. The date, time, and location of the public hearing are set forth in the Public Notice and Federal Register notice for the draft general permit.

Additionally, the EPA will hold one hearing via teleconference on January 10, 2014, from 4:00 p.m.

– 7:00 p.m. AKST. The call-in number for the teleconference hearing is 1-866-299-3188, code: 907-271-1272#.

After the Public Comment period ends, the EPA will review and address all substantive comments before making a final decision on the General Permit. The EPA’s Director for the Office of Water and Watersheds in Region 10 will make a final decision regarding the issuance of the General Permit. 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 general permit 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 general permit in the Ninth Circuit Court of Appeals within 120 days from the permit issuance date.

**DOCUMENTS ARE AVAILABLE FOR REVIEW**

Pursuant to 40 CFR § 124.9, the Administrative Record for the draft Geotechnical General Permit includes the draft General Permit, Fact Sheet, stakeholder outreach activities, and the documents referenced in this Fact Sheet. These are available upon request by contacting Erin Seyfried at (206) 553-1448 or seyfried.erin@epa.gov.

The draft Geotechnical General Permit, Fact Sheet and draft ODCE are available for review by contacting the EPA’s Regional Office in Seattle or the EPA Region 10 Alaska Operations Office in Anchorage (see addresses below) between 8:30 a.m. and 4:00 p.m., Monday through Friday. The draft general permit, Fact Sheet, and other information can also be found by visiting the Region 10 website at “[www.epa.gov/R10earth/waterpermits.htm](http://www.epa.gov/R10earth/waterpermits.htm)”.

U.S. EPA Region 10  
Attn: Audrey Washington  
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OWW-130  
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**TABLE OF CONTENTS**

**I. INTRODUCTION..... 6**

**II. BACKGROUND INFORMATION..... 6**

A. TYPES OF FACILITIES..... 6

B. DESCRIPTION OF GEOTECHNICAL ACTIVITIES ..... 7

C. AREA OF COVERAGE ..... 13

D. FACILITIES AUTHORIZED TO DISCHARGE ..... 15

E. AUTHORIZED DISCHARGES..... 15

**III. AUTHORIZATION TO DISCHARGE ..... 15**

A. APPLICATION ..... 15

B. NOTICE OF INTENT (NOI)..... 16

C. DEADLINES FOR SUBMITTING NOIS ..... 19

D. DATE OF AUTHORIZED DISCHARGE..... 19

E. TRANSFERS ..... 19

F. NOTIFICATIONS ..... 19

G. REQUIRING AN INDIVIDUAL PERMIT..... 20

**IV. EFFLUENT LIMITATIONS AND DISCHARGE REQUIREMENTS..... 20**

A. BASIS FOR PERMIT EFFLUENT LIMITS ..... 20

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS..... 21

C. WATER QUALITY-BASED EVALUATION ..... 22

D. OCEAN DISCHARGE CRITERIA EVALUATION ..... 22

E. COMMUNITY OUTREACH AND TRADITIONAL KNOWLEDGE..... 23

F. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS ..... 25

**V. MONITORING AND REPORTING REQUIREMENTS..... 32**

A. BASIS FOR EFFLUENT AND SURFACE WATER MONITORING ..... 32

B. SAMPLE TYPE..... 33

C. EFFLUENT MONITORING..... 33

**VI. OTHER PERMIT CONDITIONS..... 34**

A. MONITORING AND REPORTING ..... 34

B. QUALITY ASSURANCE PROJECT PLAN (QAPP) ..... 34

C. BEST MANAGEMENT PLAN (BMP)..... 35

D. DRILLING FLUIDS PLAN ..... 36

E. ADDITIONAL PERMIT PROVISIONS..... 37

**VII. OTHER LEGAL REQUIREMENTS..... 37**

A. STATE WATER QUALITY STANDARDS AND CERTIFICATION ..... 37

B. ENDANGERED SPECIES ACT ..... 37

C. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT..... 37

D. NATIONAL HISTORIC PRESERVATION ACT ..... 38

E. NATIONAL ENVIRONMENTAL POLICY ACT..... 38

F. ENVIRONMENTAL JUSTICE (EXECUTIVE ORDER 12898)..... 39

G. TRIBAL CONSULTATION (EXECUTIVE ORDER 13175)..... 40

H. POLLUTION PREVENTION ACT..... 41

I. OIL SPILL REQUIREMENTS ..... 41

**VIII. MODIFICATION OF PERMIT LIMITS OR OTHER CONDITIONS..... 41**

**IX. PERMIT EXPIRATION ..... 42**

**X. LIST OF ACRONYMS AND DEFINITIONS..... 43**

**APPENDIX A. COVERAGE AREA MAPS..... 49**

**APPENDIX B. REFERENCES..... 53**

## **I. INTRODUCTION**

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. 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.

EPA regulations at 40 CFR § 122.28 require that general permits cover one or more categories or subcategories of discharges. The Geotechnical General Permit (Geotechnical GP) will authorize twelve types of discharges from facilities engaged in oil and gas geotechnical surveys to evaluate the subsurface characteristics of the seafloor and related activities in federal waters of the Beaufort and Chukchi Seas for a permit term of five years (2014-2019). Geotechnical borings are collected to assess the structural properties of subsurface soil conditions for potential placement of oil and gas installations, which may include production and drilling platforms, ice islands, anchor structures for floating exploration drilling vessels, and potential buried pipeline corridors. Geotechnical surveys result in a disturbance of the seafloor and may produce discharges consisting of soil, rock and cuttings materials, in addition to facility-specific waste streams authorized under this general permit.

Geotechnical “related activities” also result in a disturbance of the seafloor and produce similar discharges. The following activities may occur during the 5 year term of the Geotechnical GP: feasibility testing of mudline cellar construction equipment or other equipment that disturbs the seafloor, and testing and evaluation of trenching technologies. The estimated discharge volumes and duration analyzed in the Fact Sheet and Ocean Discharge Criteria Evaluation from these related activities are based on discharges associated with mudline cellar construction in 2012 as reported by Shell at its Burger A and Sivulliq N/G lease locations in the Beaufort and Chukchi Seas, respectively.

The Geotechnical GP does not authorize discharges associated with any activities requiring either of the following: (1) an Exploration Plan submitted to the Bureau of Ocean Energy Management (BOEM) for approval pursuant to 30 CFR 550 Subpart B; or (2) an Application for Permit to Drill (APD) submitted to the Bureau of Safety and Environmental Enforcement (BSEE) pursuant to 30 CFR 250 Subpart D. Furthermore, this general permit does not authorize discharges associated with geotechnical activities conducted at depths greater than 499 feet below the seafloor.

## **II. BACKGROUND INFORMATION**

### **A. TYPES OF FACILITIES**

Ice is present much of the year in both the Beaufort and Chukchi Seas. The majority of geotechnical surveys and related activities (hereafter referred to as “geotechnical activities” unless otherwise specified) will occur during the open

water periods (i.e. July – October). It is possible that geotechnical activities could be conducted during the winter months when landfast ice is present, particularly in the Beaufort Sea. Geotechnical activities during the open water periods will be conducted using geotechnical equipment placed on facilities, such as floating or moored vessels, jack-up and/or lift barges. The facilities may remain stationary relative to the seafloor by means of a dynamic-positioning (DP) system, such as single-beam sonar and ultra short baseline acoustic positioning, which automatically controls and coordinates facility movements using bow and/or stern thrusters as well as the primary propeller(s). The facilities may also be anchored to the seafloor. Winter geotechnical operations during landfast ice periods would require the geotechnical equipment to be staged on the ice surface. Chase/support vessels, such as ice breakers or supply vessels, would not be required to support geotechnical activities. The actual timing of geotechnical activities is strongly influenced by ice and weather conditions.

## **B. DESCRIPTION OF GEOTECHNICAL ACTIVITIES**

Geotechnical surveys evaluate the subsurface characteristics of the seafloor and include related activities in federal waters of the Beaufort and Chukchi Seas. Drilling boreholes and removing core samples is the primary activity conducted during geotechnical surveys. Related activities may include feasibility testing of oil and gas technologies, such as trenching or mudline cellar construction equipment, to evaluate their suitability for use in Arctic conditions. These related activities would result in a disturbance of the seafloor and a discharge of cuttings materials (i.e. soil and rock particles), as well as other miscellaneous waste streams (e.g. deck drainage). These geotechnical related activities may occur during the five-year term of the Geotechnical GP. Typical wastewater discharges include those listed in Section II.E., below.

Operators intend to conduct geotechnical surveys at certain locations within their lease prospects, and in areas between these prospects and shore, to: (a) delineate potential corridors for buried in-field flow lines and pipelines connecting different prospects, (b) evaluate subsurface suitability for placement of ice-islands, jack-up rigs, production and drilling platforms, and anchor structures for floating exploration drilling vessels, and (c) delineate corridors for a potential buried export pipeline between the lease prospects and shore.

Geotechnical surveys are short in duration and, depending on targeted depth, range between 1 to 3 days to complete. Geotechnical surveys will consist of boreholes drilled to depths less than or equal to 499 feet below the seafloor. The diameters of the boreholes can be as small as 4 inches to a maximum of 12 inches. The scope of geotechnical surveys in the Beaufort and Chukchi Seas in any given year, performed by multiple operators, may result in a maximum total of 100 boreholes (AOGA Response Document, 5/14/2013, Revised 9/17/13). The depth, diameter, and number of boreholes will differ depending on specific geotechnical program

goals. For example, shallow pipeline borings will generally be drilled to depths no deeper than 50 feet below the seafloor. The deeper pipeline assessment soil borings would be collected at depths typically between 200 to 300 feet below the seafloor. The deeper platform assessment boreholes would not exceed depths of 499 feet below the seafloor (Shell, 2013).

Spacing between borehole locations will vary. Initial pipeline spacing could range from boreholes 5 to 10 km (16,500 to 32,800 feet) apart; however, as the pipeline route is refined over time, the spacing would need to be closer and could range from 0.5 to 1 km (1,640 to 3,281 feet) apart. Other geotechnical surveys may require spacing of approximately 500 ft between boreholes and up to ¼ to ½ mile (1,320 to 2,640 feet) between holes. In the case of evaluating jack up rig spud cans (cylindrically shaped steel shoes with pointed ends, similar to a cleat, that are driven into the ocean floor to add stability to the rig during operations), borings are typically spaced 3-5 m (10 to 16.4 feet) apart. Depending upon the stratigraphy, borings might be drilled in all 3 jack up rig spud can locations. The actual spacing of these borings would then be dependent upon the jack up rig selected. However, spud cans are usually on the order of 30-40 m (98.4 to 131.2 feet) apart.

The scope of “geotechnical related activities,” i.e. estimated discharge volumes, frequency, and duration analyzed in the Fact Sheet and the Geotechnical ODCE, are based in part on discharges associated with mudline cellar construction by Shell in 2012 at its Burger A and Sivulliq N/G leases in the Beaufort and Chukchi Seas, respectively. EPA has estimated that four (4) equipment feasibility testing activities would occur each year, for a period of 7 – 10 days per event, totaling 20 events during the term of the permit. Each activity would result in a seafloor disturbance that is approximately half the size of a typical mudline cellar. The typical dimensions of a mudline cellar is 20 feet wide and 40 feet deep; therefore, EPA’s assumption is that equipment testing would disturb an area that is approximately 10 feet by 20 feet, generating a total of approximately 235,000 gallons of cuttings materials to be discharged during the five-year permit term. EPA also assumes that drilling fluids would not be used for geotechnical related activities.

## 1. BOREHOLE DRILLING TECHNOLOGIES

There are three primary technologies used to conduct geotechnical surveys:

- Seabed-Based Drilling System
- Jumbo Piston Corer Sampling System
- Conventional Rotary Drilling Technology

Seabed-based drilling systems are operated remotely from an A-frame onboard the facility. The seabed-based drilling system is placed on the seafloor, and conducts cased-hole drilling to recover core samples (each



core is approximately 3m in length). The system has enough casings to drill to 100 feet below the seafloor at one time, obtaining undisturbed core samples up to that depth. The system can also drill upwards of 300 feet below the seafloor; however, there are no additional casings available for use beyond 100 feet. Seabed-based drilling systems do not require the use of drilling fluids as the borehole is cased from the seafloor mudline to the bottom of the hole. The casing is removed upon completion of the borehole. Due to the continuous core sampling ability, the amount of cuttings deposited at the seafloor is much less compared to the conventional rotary drilling technology (discussed below). This technology can conduct cone penetrometer tests (CPT; *see definitions for “Cone Penetrometer Test” and “Electronic Cone Penetrometer”*). Tests performed using a CPT provide *in situ* data on site stratigraphy (i.e. subsurface soil and rock layers), homogeneity of subsurface stratigraphy and pore-water pressure; this data helps corroborate information obtained from laboratory analysis of the collected soil boring samples.

The jumbo piston corer (JPC) has been used in Arctic conditions for borehole assessments upwards of 60 to 100 feet below the seafloor. The JPC is not a drilling technology, but rather a core sampling system, which consists of a continuous coring tool that is lowered to the seafloor on a heavy lift winch operated from an A-frame. The coring tool has a trigger device that is activated once the JPC nears the seafloor, allowing the JPC to freefall from a set distance, driving the corer into the seafloor in one continuous motion. Some JPC sampling systems utilize a weighted corehead (4,000 – 5,000 pounds), to retrieve soil samples from greater depths. With either method, the JPC retrieves an undisturbed continuous core sample between 60 – 100 feet in length (L. Davis, Shell, personal communication (9/25/2013) and Woods Hole Oceanographic Institution Seafloor Laboratory Sampling Website<sup>1</sup> (accessed 9/25/2013)). Since the JPC coring system does not conduct any drilling operations, it does not require the use of drilling fluids and will not result in the discharge of cuttings at the seafloor. CPT soundings are generally conducted at a site adjacent to the borehole location (JPC sampling location; refer to the discussion above on CPT).

Conventional rotary drilling technology is the primary system proposed for use in the Beaufort and Chukchi Seas. This technology has the ability to drill to depths up to 499 feet below the seafloor. It provides the operator with soil boring samples and CPT data. This technology generally requires the use of seawater or drilling fluids as a lubricant, and would result in a discharge of water-based drilling fluids (if used) and cuttings at the seafloor. The use of drilling fluids is dependent on the desired depth of the borehole

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<sup>1</sup> [https://www.whoi.edu/corelab/hardware/systems\\_jpc.html](https://www.whoi.edu/corelab/hardware/systems_jpc.html)

and the subsurface sediment characteristics (see Part II.B.2. below).

It is anticipated that geotechnical activities will be conducted on a 24 hour per day schedule. Shallow boreholes (depths  $\leq 50$  feet) can be completed during one day. Deeper boreholes (depths  $> 50$  feet and  $\leq 499$  feet) will require 2 – 3 days to complete. The boreholes generally will not be plugged after samples have been collected; however, if the substrate conditions warrant the borehole to be plugged to maintain sub-seafloor stability, a heavy cement-bentonite slurry would be used. Table 1 summarizes the anticipated discharge volumes of cuttings and drilling fluids (muds) per borehole based on the approximate depth of a single borehole.

**TABLE 1:** *Estimated water-based drilling fluids and cuttings discharged per borehole, by depth (Source: AOGA Geotechnical Activities Information Paper, 5/14/2013).*

TECHNOLOGY	BOREHOLE DIAMETER <sup>2</sup>	CUTTINGS AND DRILLING FLUIDS DISCHARGED <sup>1</sup> PER BOREHOLE BY DEPTH								
		DEPTH: 50 FEET			DEPTH: 200 FEET			DEPTH: 499 FEET		
		Cuttings	Drilling Fluids <sup>3</sup>	Total	Cuttings	Drilling Fluids	Total	Cuttings	Drilling Fluids	Total
Open Water Conventional Rotary Drilling	7 inches	11 ft <sup>3</sup>	22 ft <sup>3</sup>	33 ft <sup>3</sup>	48 ft <sup>3</sup>	89 ft <sup>3</sup>	137 ft <sup>3</sup>	124 ft <sup>3</sup>	223 ft <sup>3</sup>	347 ft <sup>3</sup>
	8 inches	15 ft <sup>3</sup>	22 ft <sup>3</sup>	37 ft <sup>3</sup>	64 ft <sup>3</sup>	89 ft <sup>3</sup>	154 ft <sup>3</sup>	165 ft <sup>3</sup>	223 ft <sup>3</sup>	388 ft <sup>3</sup>
	9 inches	20 ft <sup>3</sup>	23 ft <sup>3</sup>	43 ft <sup>3</sup>	85 ft <sup>3</sup>	89 ft <sup>3</sup>	174 ft <sup>3</sup>	213 ft <sup>3</sup>	223 ft <sup>3</sup>	437 ft <sup>3</sup>
On-Ice Conventional Rotary Drilling	8 inches	15 ft <sup>3</sup>	-- <sup>4</sup>	15 ft <sup>3</sup>	65 ft <sup>3</sup>	--	65 ft <sup>3</sup>	166 ft <sup>3</sup>	--	166 ft <sup>3</sup>

<sup>1</sup> Conversion: 1 cubic foot = 7.480 U.S. gallons.

<sup>2</sup> Borehole diameters range between 4 and 12 inches. This table reflects discharge volumes for an average size diameter borehole.

<sup>3</sup> Drilling fluids are not expected to be used for boreholes drilled at 50 ft or less below the seafloor surface; however, the volumes are included here to provide estimates sufficient to cover all possible scenarios.

<sup>4</sup> -- indicates that drilling fluids will not be used for this activity.

Drilling fluids and drill cuttings (seawater or water-based drilling fluids; See Section I.B.2) are not directly discharged at the sea surface or within the water column. They are pushed out of the borehole to the seafloor surface due to the pressure within the borehole. As discussed in the draft Geotechnical ODCE (EPA, 2013), the predicted thickness of deposition associated with the discharge of drill cuttings at the seafloor ranges from a high of 30 millimeters (1 meter from the borehole) to a low of 0.04 millimeters (100 meters from the borehole). At 100 meters, across all current speeds and discharge rates, the thickness of deposition for the combined discharge of drilling fluids and drilling cuttings ranges from 0.04 to 3 millimeters. For detailed information about the model and simulation results, see *Results from Geotechnical Surveying and Related Activities Modeling Scenarios Technical Memorandum*, (Modeling Technical

Memorandum) dated November 12, 2013 (Hamrick, 2013).

2. DRILLING FLUIDS

Drilling fluids may be used during the drilling of geotechnical boreholes. The primary purposes of drilling fluids include: (1) providing a lubricant during the drilling process; (2) helping to maintain formation pressures at greater depths; (3) helping to remove cuttings and debris from the hole so core samples can more easily be removed to the facility; and (4) to prevent the loss or damage of equipment in the borehole. The draft Geotechnical GP only authorizes the discharge of water-based drilling fluids.

It is anticipated that seawater will be used as the primary lubricant, particularly for the shallow holes (depths  $\leq 50$  feet). However, hole sweeps, i.e., removal of cuttings from the borehole, may require the use of a salt water gel (i.e. Attapulgitic Clay, Sepiolite, guar gum or polymers) as a viscosifying agent. Deeper holes (depths  $> 50$  feet) may require the use of barite to increase the weight of the drilling fluid for hole stability.

Drilling fluids are mixed onboard the facility in a “mud pit,” either a round or square open-top container, which has an approximate holding capacity of 800 to 1,600 gallons. A mud pit is fitted with a mud agitator to keep the solids (drilling additives) from settling to the bottom of the container. Operators intend to pre-mix large batches of drilling fluids in the mud pit, using the single batch of fluids to drill multiple geotechnical boreholes. If solids become a problem in the mud pit during the season, then the system will be “cleaned” by flushing the container with seawater, agitating, and discharging the mixture at the seafloor. Any excess drilling fluids that remain in the mud pit after completion of the last geotechnical borehole of the season will be discharged at the seafloor.

3. COMPARISON OF DRILLING ACTIVITIES AND DISCHARGES

The discharges from oil and gas geotechnical surveying and related activities authorized under the Geotechnical GP are similar in nature to those discharges associated with exploration drilling activities, but at much lower volumes. Whereas an exploration well is drilled into geologic formations (to depths approximately 10,000 feet or greater below the seafloor) to evaluate the presence of hydrocarbon accumulation, geotechnical surveys include collection of borings at depths ranging from approximately 50 feet to 499 feet below the seafloor to assess the seafloor and subsurface characteristics. Table 2 compares anticipated discharge volumes from geotechnical surveying and related activities in the Chukchi Sea with discharge volumes evaluated for the 2012 Chukchi Exploration NPDES General Permit (AKG-28-8100). The discharge volumes for

geotechnical surveying activities are presented as per shallow- and deep-borehole.

**TABLE 2:** *Estimated discharge volumes of waste streams associated with geotechnical survey activities per borehole per year, as compared to discharges associated with a single (1) exploration well in the Chukchi Sea.*

Discharge	Estimated Discharge Volume <sup>1</sup> per Shallow <sup>2</sup> Geotechnical Borehole	Estimated Discharge Volume per Deep <sup>3</sup> Geotechnical Boreholes	Estimated Discharge Volumes per Year <sup>4</sup>	Maximum Discharge Volumes per Exploration Well in the Chukchi Sea <sup>5</sup>
	US Liquid Gallons (gal)			gal/Well
Water-based drilling fluids and drill cuttings at seafloor (001)	7,000 <sup>6</sup>	21,000 <sup>6</sup>	1,232,000 <sup>6</sup>	741,378 <sup>7</sup>
Deck drainage (002)	2,000	6,000	352,000	61,740
Sanitary wastes (003)	2,473	7,418	435,186	67,199
Domestic water (004)	21,000	63,000	3,696,000	700,009
Desalination unit wastes (005)	109,631	328,892	19,294,977	846,713
Bilge water (006)	3,170	9,510	557,927	42,000
Boiler Blowdown (007)	N/A	--	--	16,380
Fire control system test water (008)	2,000	6,000	352,000	6,594
Non-contact cooling water (009)	2,726,234	8,178,703	479,817,254	197,398,473
Uncontaminated Ballast Water (010)	504	1,512	88,704	4,829,963
Drill Cuttings Not Associated with Drilling Fluids (011) <sup>8,9</sup>	N/A	--	--	--
Cement Slurry (012)	1	3	114	42,000

<sup>1</sup> Source: Shell's NPDES Permit Application Form 2C (April 3, 2013) and L. Davis (personal communication, August 7, 2013).

<sup>2</sup> Shallow borehole: Depth < 50 feet

<sup>3</sup> Deep boreholes: 50 feet > Depth < 499 feet

<sup>4</sup> Source: AOGA Geotechnical Activities Information Paper (5/14/2013 and Revised 9/17/2013)

<sup>5</sup> Source: ODCE for the Oil and Gas Exploration General Permit in the Chukchi Sea (AKG-28-8100, EPA 2012)

<sup>6</sup> Discharged at the seafloor and may include mud pit cleanup materials. As a worst case estimate, EPA assumes all 100 boreholes would utilize water-based drilling fluids, which would result in approximately 4,800 gallons of drilling fluids discharged per year. These flow rates are conservative estimates that include entrained seawater and do not account for soil boring sample removal.

<sup>7</sup> For purposes of comparison, this volume represents Discharge 001 (water based drilling fluids and drill cuttings) and Discharge 013 (muds, cuttings and cement at the seafloor) under the 2012 Chukchi Sea Oil and Gas Exploration NPDES General Permit (AKG-28-8100).

<sup>8</sup> Discharge 011 includes cuttings materials generated from geotechnical related activities. For purposes of the analysis, EPA estimates that approximately 235,000 gallons of cuttings materials would be discharged from equipment feasibility testing activities during the five-year permit term (Geotechnical Draft ODCE, 2013).

<sup>9</sup> Discharge 011 includes cuttings materials generated from geotechnical related activities and may also

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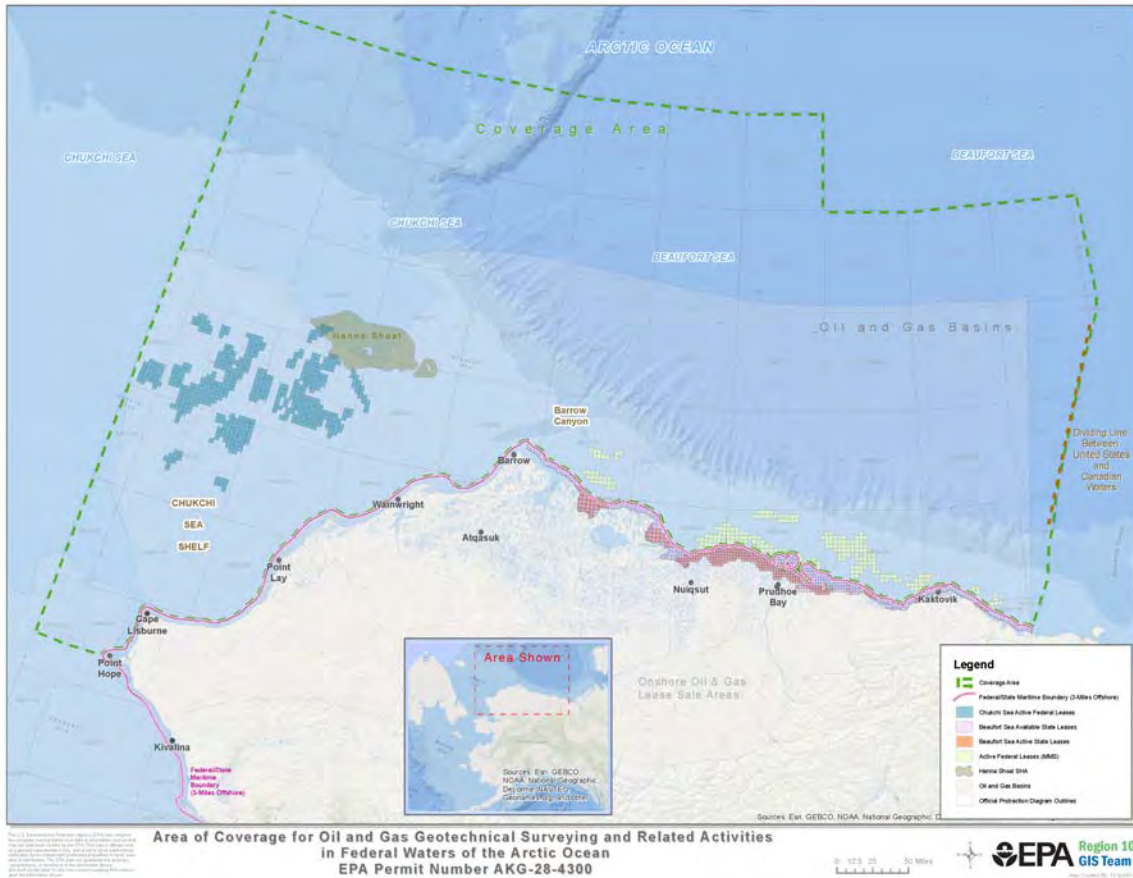
*include cuttings from shallow boreholes. EPA assumes one equipment feasibility testing activity would result in a seafloor disturbance of approximately half of a typical mudline cellar dimension, generating a total of approximately 235,000 gallons of cuttings materials would be discharged during the five-year permit term. [Typical mudline cellar dimensions: 20 ft wide by 40 ft deep]. While the majority of shallow boreholes may not use water-based drilling fluids, to provide a conservative estimate, EPA assumes drilling fluids would be used and the volumes are captured under Discharge 001.*

**C. AREA 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 Geotechnical GP covers federal waters of the United States in the Beaufort and Chukchi Seas located seaward from the outer boundary of the territorial seas to the U.S. and Russia border and extending northward to the Alaska, USA and Yukon, Canada border as shown in Figure 1. The area of coverage for draft general permit does not include any areas within state waters.

The State of Alaska Department of Environmental Conservation (DEC) is developing a similar permit under its Alaska Pollutant Discharge Elimination System (APDES) permitting authority for oil and gas geotechnical surveying activity discharges to state waters of the Beaufort and Chukchi Seas. Please refer to APDES General Permit No. AKG-28-3100.



**FIGURE 1:** Area of coverage for oil and gas geotechnical surveying and related activities in Federal Waters of the Beaufort and Chukchi Seas.

## 2. PHYSICAL AND BIOLOGICAL DESCRIPTIONS

Detailed descriptions of the physical and biological characteristics and environments of the Beaufort and Chukchi Seas can be found in the “Ocean Discharge Criteria Evaluation for Oil and Gas Geotechnical Surveying and Related Activities in Federal Waters of the Beaufort and Chukchi Seas Under NPDES General Permit No. AKG-28-4300” (Geotechnical ODCE).

## 3. SEASONAL RESTRICTIONS

The draft Geotechnical GP incorporates seasonal restrictions for discharges of water-based drilling fluids and drill cuttings (Discharge 001). A detailed summary of the Geotechnical GP’s limits and requirements, including seasonal restrictions, is found in Sections III.F.11. and III.F.12.a.-b. of this Fact Sheet.

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**D. FACILITIES AUTHORIZED TO DISCHARGE**

The draft Geotechnical GP authorizes the discharge of the waste streams listed in Section II.E., below, subject to specific conditions and requirements. The waste streams authorized for discharge under the draft Geotechnical GP are those expressly from oil and gas geotechnical surveys to evaluate subsurface conditions and related activities in federal waters of the Beaufort and Chukchi Seas (See Section II.B.).

The Geotechnical GP does not authorize discharges associated with any activities requiring either of the following: (1) an Exploration Plan submitted to the Bureau of Ocean Energy Management (BOEM) for approval pursuant to 30 CFR 550 Subpart B; or (2) an Application for Permit to Drill (APD) submitted to the Bureau of Safety and Environmental Enforcement (BSEE) pursuant to 30 CFR 250 Subpart D. Furthermore, this general permit does not authorize discharges associated with geotechnical activities conducted at depths greater than 499 feet below the seafloor.

**E. AUTHORIZED DISCHARGES**

The draft Geotechnical GP authorizes the following discharges, subject to permit terms and conditions, from facilities conducting oil and gas geotechnical surveys and related activities and within federal waters in the Chukchi or Beaufort 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 – Bilge Water
- Discharge 007 – Boiler Blowdown
- Discharge 008 – Fire Control System Test Water
- Discharge 009 – Non-Contact Cooling Water
- Discharge 010 – Uncontaminated Ballast Water
- Discharge 011 – Drill Cuttings (*Not Associated with Drilling Fluids*)
- Discharge 012 – Cement Slurry

Descriptions of these discharges are provided in Appendix B of this Fact Sheet.

**III. AUTHORIZATION TO DISCHARGE**

**A. APPLICATION**

The EPA regulations at 40 CFR § 122.28(b)(2)(i) require applicants seeking

coverage under a general permit to submit a written Notice of Intent (NOI) to be covered by the general permit. A complete and timely NOI fulfills the requirements for an NPDES permit application under the Geotechnical GP.

## **B. NOTICE OF INTENT (NOI)**

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 and discharges, and the receiving water(s). Applicants must submit a complete NOI, using Attachment 1 of the Geotechnical GP, at least 90 days prior to initiation of discharges when requesting authorization to discharge for the first time under this general permit. A complete NOI is required for each facility and for each “coverage area zone” within which the specific facility will operate (refer to Figure 1 and Figures A-1 – A-3 in Appendix A). The coverage area zones are established based on a standard official protraction diagram (OPD). At higher latitudes (48 – 75 degrees), OPD grids are one (1) degree in latitude and three (3) degrees in longitude. The OPDs are numbered using the United Nations International Map of the World Numbering System. An original NOI submission is required for each facility that has not been previously covered under the Geotechnical GP, and for each coverage area zone in which that specific facility has not previously operated.

Applicants must submit an annual NOI renewal package to maintain active coverage under the general permit. Annual NOI renewals may be used only by facilities that have been previously authorized to discharge under the Geotechnical GP within the specified coverage area zone. Annual NOI renewal packages must be submitted to the Director at least 45 days prior to initiation of discharges. The applicant must use the NOI information sheet in Attachment 1 of the draft Geotechnical GP as part of their annual NOI renewal submittal. Only complete NOIs will be considered by EPA.

Submittal of an NPDES permit application that meets the NOI information requirements identified in Attachment 1 constitutes a submittal of an NOI.

Each NOI or NPDES permit application must be signed in accordance with the Signatory Requirements of Section VI.E. of the Geotechnical GP.

The Geotechnical GP includes the following requirements for first-time and annual renewal NOIs:

1. **APPLICANT AND FACILITY:** The applicant must provide the names of the owner and operator, the operator’s mailing address, the facility name and coast guard number, and a facility contact name and telephone number. Applicants must submit a complete first-time NOI to the Director at least 90



days prior to the initiation of discharges, and an annual NOI renewal to the Director at least 45 days prior to the initiation of discharges.

2. ANNUAL GEOTECHNICAL PROGRAM OVERVIEW: The applicant must submit a description of the applicant's plans/goals (during the calendar year for which coverage under the GP is requested) for geotechnical surveys and other related activities. At a minimum, the program overview must contain the following information:
  - a. receiving water body,
  - b. requested coverage area zone (refer to Figure A-2 and A-3, Appendix A),
  - c. expected activity start date,
  - d. expected activity completion date,
  - e. initial latitude and longitude for the expected borehole locations of the calendar year,
  - f. expected number of holes to be completed,
  - g. the number of "shallow" holes ( $\leq 50$  feet in depth),
  - h. the number of "deep" boreholes ( $50 \text{ feet} \geq x \leq 499$  feet in depth),
  - i. indication of whether the program will be conducted during the open water season or winter (on-ice) season,
  - j. expected type of sampling and/or drilling technology to be used and a description of operations,
  - k. a map showing the intended areas of operation.
3. REQUESTED DISCHARGES: For each facility, the applicant must identify which waste streams are requested for authorization to discharge, and include the following information regarding the requested discharge:
  - a. frequency of discharge (if "batch", see III.B.3.c)
  - b. estimated rate of discharge
  - c. estimated volume of discharge for batch discharges
  - d. number of outfalls per discharge
  - e. depth of discharge
4. ENVIRONMENTAL MONITORING PROGRAM: The applicant must design and implement an environmental monitoring program (EMP) for geotechnical activities. The EMP is to be implemented through two phases. Phase I (baseline site characterization) is required at each geotechnical activity site.

Phase II (post-activity data collection) is required if drilling fluids will be used to complete the geotechnical drilling operation, or if the Director requests completion of Phase II upon review of site-specific data. Unless otherwise specified by the Director, Phase II is not required if: (1) the geotechnical activities are located within the lease blocks whereby an EMP has been previously conducted pursuant to the 2012 Beaufort & Chukchi Exploration NPDES General Permits (AKD-28-2100 and AKG-28-8100); or (2) water-based drilling fluids are not used to complete the geotechnical activity. The draft Geotechnical GP requires the applicant to submit an EMP plan of study (i.e., EMP scope of work) to the EPA for review along with the NOI.

5. ENVIRONMENTAL REPORTS AND RELATED PLANS: The applicant must provide copies of any ancillary activities reports, biological surveys, and environmental reports required by any State or Federal Agencies.
6. DRILLING FLUID PLAN: The applicant must prepare and submit a Drilling Fluid Plan with the NOI if water-based drilling fluids will be used during the geotechnical survey program. The Geotechnical GP authorizes the discharge of water-based drilling fluids and cuttings if the applicant meets the GP's terms and conditions.
7. LINE DRAWING, FLOW BALANCE AND DISCHARGE RATES/VOLUMES: The applicant must submit a line drawing with the NOI that shows the flow, including rates/volumes, of each discharged waste stream 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 anticipated discharge rates/volumes for the requested waste streams.
8. BEST MANAGEMENT PLAN (BMP): The applicant must submit a copy of the BMP that incorporates practices to achieve the objectives and specific requirements of the permit. *For annual renewal NOIs, the applicant may submit a letter certifying that the original BMP has been reviewed and revised as needed.*
9. QUALITY ASSURANCE PROJECT PLAN (QAPP): The applicant must submit a copy of the QAPP for all monitoring required by this general permit. *For annual renewal NOIs, the applicant may submit a letter certifying that the original QAPP has been reviewed and revised as needed.*
10. CHEMICAL SELECTION: The applicant must submit a list of chemicals to be used during the drilling process, and identify those that meet Norway's "green" classification, as further defined in the permit.

**C. DEADLINES FOR SUBMITTING NOIs**

The EPA regulations at 40 CFR § 122.28(b)(2)(iii) require general permits to specify the deadlines for submitting NOIs to be covered. For first-time NOI submittals, the draft Geotechnical GP requires the applicant to submit a complete NOI to be covered under the Geotechnical GP at least 90 days prior the initiation of discharges in accordance with the Submission of Information requirements in Section I.F. of the Geotechnical GP.

For annual NOI renewal submittals, the draft Geotechnical GP requires the application to submit a complete NOI to maintain coverage under the Geotechnical GP at least 45 days prior to the initiation of discharges in accordance with the Submission of Information requirements in Section I.F. of the Geotechnical GP.

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

**D. DATE OF AUTHORIZED DISCHARGE**

The EPA regulations at 40 CFR § 122.28(b)(2)(iii) require general permits to specify the date(s) when an applicant is authorized to discharge under a general permit. An applicant is authorized to discharge under the Geotechnical GP on the date the applicant receives written notification from EPA granting authorization to discharge and assigning a permit number to the applicant under the GP. For annual renewals the applicant is authorized to continue discharging under the Geotechnical GP on the date the applicant receives written confirmation from EPA that the annual NOI renewal package has been deemed complete.

**E. TRANSFERS**

The EPA regulations at 40 CFR § 122.41(l)(3) allow for transfers of permit authorizations. Transfers under the Geotechnical GP will only be authorized upon written approval from the Director.

**F. NOTIFICATIONS**

The draft Geotechnical GP requires written notifications, signed in accordance with the GP's signatory requirements in Section VI.E. The Geotechnical GP contains a summary table of certain key submissions and notifications; the permittee is responsible for all submissions and notifications even if they are not identified in the summary table.

1. PRIOR TO INITIATION OF DISCHARGES. The permittee must notify the Director, in writing, 7 calendar days prior to initiation of any discharge at the first geotechnical activity site of the calendar year.
2. AUTHORIZED DISCHARGE CESSATION. The permittee must notify the Director, in writing, within 30 calendar days of ceasing geotechnical surveying and related activities and all authorized discharges at the final geotechnical site of the calendar year. The notification must include the general permit number and the date of final geotechnical survey operations and discharge cessation.
3. BEST MANAGEMENT PRACTICES PLAN: The permittee must submit the Best Management Practices (BMP) Plan with the first-time NOI submitted under this general permit. The permittee must submit documentation of the annual review certification and any changes to the BMP to the Director with the annual NOI renewal package.
4. PERMIT COVERAGE TERMINATION. The permittee must submit a written notice when GP coverage is no longer needed. This notification may be submitted with the End-of-Year report required under Section II.A.15. and if modifications are not required under Section II.A.14.g.3. The permittee must certify in the notification that the permittee is not subject to any pending enforcement actions including citizen suits brought under state or federal laws.

**G. 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 Geotechnical GP contains requirements for an individual NPDES permit.

**IV. EFFLUENT LIMITATIONS AND DISCHARGE REQUIREMENTS**

**A. BASIS FOR PERMIT EFFLUENT LIMITS**

Section 301(a) of the CWA, 33 USC § 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 limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based effluent limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards of a waterbody are being met and they may be more stringent than technology-based effluent limits.

EPA first determines which technology-based limits apply to the discharges in accordance with applicable national effluent guidelines and standards. EPA further determines which water quality-based limits apply to the discharges based upon an assessment of the pollutants discharged and a review of state water quality standards. Monitoring requirements must also be included in the permit to determine compliance with effluent limitations. Effluent and ambient monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

As the Geotechnical GP only authorizes discharges to federal waters, state water quality-based effluent limits do not apply. However, EPA has applied Alaska water quality standards, such as fecal coliform limits to discharges of sanitary wastes and pH monitoring of certain waste streams to protect water quality and ensure consistency with the 2012 Beaufort and Chukchi Oil & Gas Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100, respectively).

## **B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS**

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.

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).

Since the authorized discharges and activities under the draft Geotechnical GP are similar in nature to those discharges covered under the 2012 Beaufort & Chukchi Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100), EPA proposes to incorporate, where applicable, the effluent limitations and requirements based on the BCT and BAT ELGs pursuant to the Offshore Subcategory of the Oil and Gas Point Source Category (40 CFR Part 435 Subpart A).

#### **C. WATER QUALITY-BASED EVALUATION**

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.

As the area of coverage authorized under the draft Geotechnical GP does not include state waters, the Alaska water quality standards do not apply. However, as discussed above, EPA has applied Alaska water quality standards to certain waste streams to protect water quality and ensure consistency with the 2012 Beaufort and Chukchi Oil & Gas Exploration NPDES General Permits.

#### **D. OCEAN DISCHARGE CRITERIA EVALUATION**

Section 403 of the CWA, 33 USC § 1343, prohibits issuing an NPDES permit for discharges into the territorial seas, the contiguous zones, and the oceans except in compliance with the ocean discharge guidelines, 40 CFR Part 125, Subpart M. The guidelines set out criteria that 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, EPA: (a) may issue an NPDES permit if the proposed discharge will not cause unreasonable degradation to the marine environment (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 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, 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, and any other conditions deemed necessary because of local environmental conditions. In addition, 40 CFR § 125.123(d)(4) authorizes 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.

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

EPA will refine and finalize the ODCE document prior to issuing the final permit decision.

#### **E. COMMUNITY OUTREACH AND TRADITIONAL KNOWLEDGE.**

During the development of the draft Geotechnical GP, EPA solicited early input from the tribal and local governments on the North Slope, Northwest Arctic, and the Bering Sea. EPA hosted conference calls with any interested participants on May 14, 2013 and May 21, 2013. EPA also hosted informational sessions for interested tribal governments on September 26 and 30, 2013. The EPA's early outreach also included the Inupiat Community of the Arctic Slope (ICAS), Alaska Eskimo Whaling Commission (AWEC), local governments and Alaska Native Claims Settlement Act (ANCSA) corporations.

Furthermore, during the development of the 2012 Beaufort & Chukchi Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100), EPA conducted extensive outreach activities on the North Slope and with Northwest Arctic tribal governments, communities and local stakeholders. EPA also collected traditional knowledge (TK) information from four coastal villages on the North Slope (Point

Lay, Barrow, Nuiqsut, and Kaktovik). EPA's outreach efforts and TK 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.

EPA evaluated and incorporated the communities' concerns, observations and TK information into the 2012 Beaufort & Chukchi Exploration NPDES General Permits and their supporting ODCEs. The information gathered during that process is applicable to the draft Geotechnical GP. The following are the permit terms and conditions incorporated into the 2012 Beaufort & Chukchi Exploration NPDES General Permits that address the issues and concerns resulting from the EPA's community outreach efforts, and which have also been incorporated into the draft Geotechnical GP:

1. Prohibit the discharges of water-based drilling fluids and drill cuttings to federal waters of the Beaufort Sea during fall bowhead hunting activities, starting on August 25. Discharges may not be resumed until bowhead hunting has been completed by the villages of Barrow, Nuiqsut, and Kaktovik, as confirmed by the AEWG.
2. Prohibit the discharges of water-based drilling fluids and drill cuttings to federal waters of the Chukchi Sea during spring bowhead hunting activities, starting on March 25. Discharges may not be resumed until bowhead whale hunting has been completed by the villages of Barrow, Point Hope, Point Lay and Wainwright, as confirmed by the AEWG. This requirement is unique to the Geotechnical GP because activities may occur prior to the beginning of the open water season (July 1), and the area of coverage includes the 25-mile lease sale deferral area in the Chukchi Sea, in which whale hunting activities occur.
3. Include chemical additive inventory and reporting requirements, with reporting and limits on chemical additive concentrations.
4. Incorporate EMP requirements for geotechnical activities for which water-based drilling fluids are used to complete the geotechnical activity at locations where an EMP has not been previously conducted under the 2012 Beaufort & Chukchi Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100, respectively). See Section IV.F.8 of this Fact Sheet.
5. Require effluent toxicity testing on the following waste streams if chemicals are added to the system: deck drainage (Discharge 002), desalination unit wastes (Discharge 005), bilge water (Discharge 006), boiler blowdown (Discharge 007), fire control system test water (Discharge 008), and non-contact cooling water (Discharge 009). See Section IV.F.7 of this Fact Sheet.



6. Prohibit the discharge of all waste streams (Discharge 001 – 012) to stable ice.

**F. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The draft Geotechnical GP contains limitations and other requirements to ensure compliance with specific ELGs, as applied by EPA using best professional judgment, and to implement conditions resulting from the ODCE process. The following discussion summarizes the proposed limitations and other permit requirements.

1. DEBRIS AND RESIDUES. Section II.A.6. prohibits the discharge of floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind.
2. SURFACTANTS AND DISPERSANTS. Section II.A.7. prohibits the discharge of surfactants, dispersants, and detergents.
3. TOXIC COMPOUNDS. Section II.A.8. prohibits discharges of the following toxic pollutants: diesel oil, halogenated phenol compounds, trisodium nitrilotriacetic acid, sodium chromate, or sodium dichromate.
4. DISCHARGES TO STABLE ICE. Section II.A.9. prohibits the discharge of any waste stream to stable ice. Geotechnical activities conducted during the winter months will consist of a relatively small number of shallow holes. Accordingly, the reduced discharge volumes and availability of ice roads allow for the ease of collection, storage, and removal to a shore-based disposal location.
5. COMMINGLED DISCHARGES. Section II.A.10. requires 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 other permit requirements.
6. CHEMICAL INVENTORY. Section II.A.12. requires the permittee to keep an inventory of all chemical additives used for Discharges 001-012. Chemical additives include, but are not limited to, treatment chemicals, biocides, insecticides and corrosion inhibitors.

This 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.12. 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.

7. EFFLUENT TOXICITY CHARACTERIZATION. Section II.A.13. requires the permittee to conduct echinoderm fertilization toxicity testing (EPA/600/R-95-136) on the following discharges if chemicals are added to the systems: 002 (deck drainage); 005 (desalination unit wastes); 006 (bilge water); 007 (boiler blowdown); 008 (fire control system test water); and 009 (non-contact cooling water). The toxicity tests must be conducted weekly, or once per batch discharge (if applicable), for the identified waste streams.
8. ENVIRONMENTAL MONITORING PLAN. Section II.A.14. requires the permittee to design and implement an EMP for geotechnical activities. The EMP is to be implemented through two Phases. Phase I is required at each geotechnical activity site. Phase II is required if water-based drilling fluids will be used to conduct the geotechnical activity, or if the Director requests completion of Phase II upon review of site-specific data.

As discussed previously, sampling technologies that do not use water-based drilling fluids, or the shallow boreholes that do not require the use of water-based drilling fluids, result in small volumes of cuttings discharged at the seafloor. Site-specific data regarding the potential impacts from the use of water-based drilling fluids is necessary to ensure that geotechnical programs do not result in unreasonable degradation of the marine environment. Additionally, since the Geotechnical GP authorizes discharges beyond the lease prospects that may otherwise be evaluated pursuant to the Beaufort or Chukchi Exploration General Permits, it is necessary to consider the potential and combined impacts of water-based drilling fluids and drill cuttings from both exploration and geotechnical activities. The proposed EMP under the Geotechnical GP will expand the existing dataset to assist with the understanding of potential environmental impacts associated with these discharges.

- a. **Phase I (Baseline Site Characterization)**. Phase I is required for each geotechnical activity location, and obtains baseline physical data necessary for initial and subsequent assessments. Phase I also evaluates whether the geotechnical activities occur in the vicinity of a sensitive marine environment or potential historic properties.
- b. **Phase II (Post-Geotechnical Activity)**.
  - i. *Plume (temperature) monitoring of non-contact cooling water discharges (Discharge 009)*. The non-contact cooling water discharge contains elevated temperature levels and is typically the largest discharge volume and rate, and as a result, has the potential to cause far-field effects. This

- requirement includes observations for potential marine mammal deflection during periods of maximum discharge.
- ii. Physical Sea Bottom Survey.* The permittee is required to conduct a physical sea bottom survey to physically and visually characterize the seafloor and assess the geotechnical drilling site conditions. The survey must map the areal extent and depth/thickness of solids deposition caused by Discharge 001 and depict any potential overlap from deposition caused by nearby exploration activities.
  - c. EMP Plan of Study.** The draft Geotechnical GP, Section II.A.14.d., requires an applicant to submit an EMP plan of study to EPA for review with its NOI. The plan of study includes the EMP scope of work. The permittee is required to incorporate any changes in the EMP plan of study identified by EPA as a condition to receive authorization to discharge under the Geotechnical GP. This submittal and review will help ensure the permittee's EMP adheres to the Geotechnical GP's requirement.
  - d. Annual EMP Report.** The draft Geotechnical GP, Section II.A.14.g., requires the permittee to submit an annual EMP report. The EMP report must be submitted with the annual NOI renewal or within 1 year of completing the geotechnical surveying activities, whichever is earlier. The EMP report must include a summary of the results for each phase of environmental monitoring, accompanied by a discussion of the EMP goals and objectives that were accomplished, and a description of any observed impacts of the effluent on the physical characteristics of the receiving environment.
- 9. END-OF-YEAR REPORT.** Section II.A.15 requires the permittee to submit an End-of-Year report. The End-of-Year report must be submitted within 90 days, or with the annual NOI renewal (whichever is earlier), after ceasing geotechnical surveying and/or related activities and all authorized discharges for the remainder of the calendar year. The report must include a detailed description of each geotechnical activity (i.e. core sampling, equipment testing, etc...) conducted during the calendar year, a map indicating the locations of each site of discharge (i.e. borehole site locations), total discharge volume for each authorized discharge, the chemical additive inventories for each discharge and documentation of each additive's concentration determinations (draft Geotechnical GP Section II.A.12.a), and a summary of batch discharge volumes associated with the mud pit.
- 10. WATER-BASED DRILLING FLUIDS AND DRILL CUTTINGS (DISCHARGE 001)**

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- a. Seasonal Restrictions.** Sections II.B.3.a-b. prohibit the discharge of water-based drilling fluids and drill cuttings (Discharge 001) during:
- i.* Spring bowhead whale hunting activities in federal waters of the Chukchi Sea by the communities of Barrow, Point Hope, Point Lay and Wainwright.
    - Discharges must cease on March 25 and may not be resumed until after spring bowhead whale hunting activities are completed, as determined by coordination with the AEWG.
    - The permittee must submit documentation to the Director with the July DMR identifying the dates and times that Discharge 001 was ceased and restarted due to the spring bowhead whale hunting activities.
  - ii.* Fall bowhead whale hunting activities in federal waters of the Beaufort Sea by the communities of Barrow, Nuiqsut, and Kaktovik.
    - Discharges of water-based drilling fluids and drill cuttings must cease on August 25 in the Beaufort Sea and may not be resumed until after fall bowhead whale hunting activities are completed, as determined by coordination with the AEWG.
    - The permittee must submit documentation to the Director with the December DMR identifying the dates and times that Discharge 001 was ceased and restarted due to fall bowhead whale hunting activities.
- b. Water-Based Drilling Fluids Metals Analysis.** Analysis of each drilling fluids system for the following metal contaminants of concern: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, mercury (total/methyl), nickel, selenium, silver, thallium, tin titanium, and zinc. This analysis is only required once (1) per batch of drilling fluids mixed at the facility. If a new mixture of drilling fluids is created during the geotechnical activities program, then an additional metals analysis is required for the new batch.
- c. Mud pit.** Mud pit clean-up wastes must be discharged at the seafloor and in compliance with the effluent limits referenced in Table 1 of the Geotechnical GP.
- d. Effluent Limitations and Requirements.** The draft Geotechnical GP incorporates the effluent limitations required by the effluent limitation guidelines in 40 CFR 435, Subpart A, based on best

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professional judgment, for water-based drilling fluids and drill cuttings, and related requirements.

- i. Suspended Particulate Phase (SPP) Toxicity.* The draft Geotechnical GP includes the ELG-required SPP toxicity limit of a minimum 96-hour LC<sub>50</sub> 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 that fail this SPP toxicity test cannot be discharged. The draft Geotechnical GP requires SPP testing once per batch of drilling fluids mixed at the facility and prior to beginning drilling operations. If a new mixture of drilling fluids is created during the geotechnical activities program, then an additional SPP test is required for the new batch. The draft Geotechnical GP requires 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. This requirement differs from the Beaufort & Chukchi Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100, respectively) because drilling fluids and drill cuttings associated with geotechnical activities are not returned to the facility.
- ii. Stock Barite Monitoring and Limitation.* The draft Geotechnical GP includes the ELG-required limit and associated analysis of a representative sample of stock barite for mercury and cadmium once per batch of drilling fluids prior to beginning any drilling operations. If the same supply of stock barite is used during the calendar year, the results of the initial analysis may be used for subsequent batches of drilling fluids. The permittee must report to the EPA within 24 hours if any analytical results exceed the mercury or cadmium effluent limitation.
- iii. Free and Diesel Oil Prohibitions.* The draft Geotechnical GP includes 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 the discharge 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.
- iv. Drilling Fluid Plan and Implementation Requirements.* The draft Geotechnical GP includes drilling fluid plan

requirements and related implementation restrictions similar to those included in the 2012 Beaufort & Chukchi Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100). The draft Geotechnical GP, Section II.B.5., limits the discharge of water-based drilling fluids (i.e., specialty additives) to those that are contained in the permittee's drilling fluid plan and that meet permit requirements. The draft Geotechnical GP, Section IV.C., requires the development and implementation of a drilling fluid plan. The plan must be submitted along with an applicant's NOI. In general, the plan identifies information and procedures about the constituents of the various substances and materials used in the geotechnical 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.

- e. **Non-aqueous fluids and cuttings discharge prohibition.** The draft Geotechnical GP, Section II.B., Table 1, prohibits the discharge of non-aqueous (i.e., non-water-based) fluids and cuttings.

**11. DECK DRAINAGE (DISCHARGE 002)**

- a. **Effluent Limitations.** The draft Geotechnical GP prohibits the discharge of free oil in accordance with the ELG at 40 CFR 435 Subpart A. This restriction is based on BPT, BCT and BAT and is applied through best professional judgment. This provision is consistent with previous permits for the oil and gas industry in EPA Region 10.
- b. **Oil and Grease Contamination and Pollution Prevention.** The draft Geotechnical GP requires 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.
- c. **Other requirements.** The draft Geotechnical GP requires toxicity testing, as discussed earlier in this Fact Sheet (Section IV.F.7.).

**12. SANITARY WASTE (DISCHARGE 003)**

- a. **Effluent Limitations and Requirements.** The draft Geotechnical GP includes a monitoring requirement for flow, and limitations for

biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), fecal coliform (FC), pH, total residual chlorine, floating solids/garbage, foam and oily sheen. The ELG for best conventional treatment (BCT) requires total residual chlorine to be maintained as close to 1 mg/L as possible for facilities that are continuously manned by ten or more persons. The ELG also requires no discharge of floating solids for offshore facilities that are continuously manned by nine or fewer persons or intermittently manned by any number of persons. Section 312 of the CWA regulates marine sanitation devices and treatment efficiency for fecals, solids and chlorine.

These limits are based on best professional judgment and are applied to the Geotechnical GP to protect water quality and ensure consistency with the 2012 Beaufort & Chukchi Exploration NPDES General Permits (AKG-28-2100 and AKG-28-8100).

- b. Annual Testing of Marine Sanitation Devices (MSD).** The Geotechnical GP requires an annual test of the MSD to ensure that the unit is operating properly. This provision reflects the operation and maintenance requirements under 40 CFR § 122.41(e).

**13. DOMESTIC WASTE (DISCHARGE 004)**

The draft Geotechnical GP includes a 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 is consistent with previous permits for the oil and gas industry in EPA Region 10.

**14. DISCHARGES 005 – 012**

- a. Free Oil Discharge Prohibition.** The draft Geotechnical GP includes a prohibition on the discharge of free oil for discharges of desalination unit wastes (Discharge 005), bilge water (Discharge 006), boiler blowdown (Discharge 007), fire control system test water (Discharge 008), non-contact cooling water (Discharge 009), uncontaminated ballast water (Discharge 010), drill cuttings not associated with drilling fluids (Discharge 011), and cement slurry (Discharge 012). 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 best professional judgment. These same requirements have been applied to similar discharges in previous permits for the oil and gas industry in Region 10.

- b. Monitoring Requirements.** The various monitoring requirements for free oil, pH, volume, chemical additive inventory and effluent toxicity testing are based on Sections 308 and 403(c) of the CWA.
- c. Non-contact cooling water (Discharge 009).** The draft Geotechnical GP includes a monitoring requirement for temperature. This measurement is needed to assess the effect of temperature on local conditions and adherence to federal water quality criteria. This requirement is based on Sections 308 and 403(c) of the CWA and is consistent with previous permits for the oil and gas industry in EPA Region 10.
- d. Uncontaminated Ballast Water (Discharge 010).** The draft Geotechnical GP includes a 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 best professional judgment and under Section 403(c) of the CWA and is consistent with previous permits for the oil and gas industry in EPA Region 10.
- e. Cooling Water Intake Structures.** The draft Geotechnical GP, Section IV.B.5.d.6., requires that the BMP Plan establish measures to select and implement technologies or operational practices to minimize impingement mortality and entrainment of fish and shellfish.

## V. MONITORING AND REPORTING REQUIREMENTS

### A. BASIS FOR EFFLUENT AND SURFACE WATER MONITORING

Section 308 of the CWA and federal regulations at 40 CFR § 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and/or surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) to the EPA. Tables 1–12 in the draft Geotechnical GP present the proposed monitoring requirements based on the minimum sampling necessary to adequately monitor the facility's performance.

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. In addition, section 125.123(d)(3) authorizes the imposition of any other conditions determined



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necessary because of local environmental conditions.

**B. SAMPLE TYPE**

1. 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 Geotechnical GP proposes that the other discharge volumes be estimated rather than measured.

2. VISUAL

- a. **Free Oil.** Compliance with the free oil limitation will be through visual monitoring of the receiving water surface or by the static sheen test.
- b. **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.

3. 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.

**C. EFFLUENT MONITORING**

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. The permittee has the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits (MDLs) are less than the effluent limits.

The following discussion summarizes aspects of discharge-related effluent and other monitoring requirements in the draft Geotechnical GP.

- 1. The draft Geotechnical GP, Section II.A.3., requires that all effluent samples must be collected from the effluent stream of each discharge after the last treatment unit prior to discharge into the receiving waters, except as

otherwise required by a discharge-specific provision in the applicable GP. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

2. The draft Geotechnical GP, Section II.A.11., requires visual monitoring of the receiving water be conducted in the vicinity of the outfall(s) at a time of maximum estimated or measured discharge.
3. The draft Geotechnical GP, Section III.A.1., requires that the permittee must ensure samples and measurements are representative of the monitored activity.
4. The draft Geotechnical GP’s effluent limitations and monitoring requirements tables indentify the measurement frequency and sample type for each specific effluent parameter.
5. The draft Geotechnical GP’s required EMP, Section II.A.14., is necessary to monitor ongoing authorized discharges as means to verify that the discharges will not cause unreasonable degradation to the marine environment. The Geotechnical GP allows 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.

## **VI. OTHER PERMIT CONDITIONS**

### **A. MONITORING AND REPORTING**

The draft Geotechnical GP includes a provision 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 (QAPP)**

Federal regulations at 40 CFR §122.41(e) require permittees to properly operate and maintain their facilities, including “adequate laboratory controls and appropriate quality assurance procedures.” To implement this requirement, the

draft Geotechnical GP, Section IV.A., requires that the permittee develop or update a Quality Assurance Project Plan (QAPP) to ensure that the monitoring data submitted is complete, accurate, and representative of the environmental or effluent condition. The QAPP must contain standard operating procedures that the permittee must follow for collecting, handling, storing and shipping samples for laboratory analysis and data reporting. The permittee is required to prepare (or update) a QAPP and to submit the QAPP with the NOI. For annual NOI renewal packages, the permittee must submit a letter certifying that the original QAPP has been reviewed and revised as needed. The QAPP shall be prepared in accordance with EPA guidance documents, EPA QA/R-5 (*EPA Requirements for Quality Assurance Project Plans*) and EPA QA/G-5 (*Guidance for Quality Assurance Project Plans*). The QAPP must be retained on site and made available to the Director upon request. Annual verification of QA implementation is required and can be satisfied by a letter from the permittee attaching verification letters from in-house and contracted laboratories.

### **C. BEST MANAGEMENT PLAN (BMP)**

Pursuant to Section 402(a)(1) of the Clean Water Act, development and implementation of BMP Plans may be included as a condition in NPDES permits. Section 402(a)(1) authorizes EPA to include miscellaneous requirements in permits on a case-by-case basis, which are deemed necessary to carry out the provisions of the Act. BMPs, in addition to numerical effluent limitations, are required to control or abate the discharge of pollutants in accordance with 40 CFR §122.44(k). The BMP Plan requirement has also been incorporated into this permit in accordance with EPA BMP guidance (EPA, 1993). The permittee is required to submit the BMP with the NOI. For annual NOI renewal packages, the permittee must submit a letter certifying that the original BMP has been reviewed (see Part VI.C.3. below) and revised as needed.

The draft Geotechnical GP, Section IV.B., requires the development and implementation of a BMP Plan, which prevents or minimizes the generation and potential release of pollutants from the facility to the waters of the United States through best management practices. This includes, but is not limited to, material storage areas, site runoff, storm water, in-plant transfer, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990. (42 U.S.C. 13101).

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

and shall also:

1. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps, and shall be developed in accordance with good engineering practices.
2. Ensure that the requirements of the BMP Plan are considered as part of planned facility modifications, and that construction and supervisory personnel are aware of and take into account possible spills or releases of pollutants during construction.
3. The BMP plan must be reviewed annually (with applicable procedures for review and annual endorsement) and amended as specified in the Geotechnical GP. Documentation of the annual review certification and any changes to the BMP must be submitted to the Director with the annual NOI renewal package.
4. Establish specific best management practices to for each component or system capable of generating or causing a release of significant amounts of pollutants, and identifying specific preventative or remedial measures to be implemented.
5. All new facilities and existing facilities are required to implement best management practices to minimize the impingement mortality and entrainment of all life stages of fish and shellfish in accordance with the Best Management Practices Plan requirements.
6. Ensure proper management of solid and hazardous waste in accordance with the regulations promulgated under the Resource Conservation and Recovery Act (RCRA). Management practices required under RCRA regulations must be referenced in the BMP Plan.
7. Reflect requirements for storm water control under Section 402(p) of the Act and the regulations at 40 CFR 122.26 and 122.44, and otherwise eliminate to the extent practicable, contamination of storm water runoff.
8. Reflect requirements for air emissions under applicable state and federal air quality regulations and permits.

#### **D. DRILLING FLUIDS PLAN**

The draft Geotechnical GP (Section IV.C.) requires the development and implementation of a Drilling Fluid Plan if drilling fluids will be used to conduct geotechnical activities. 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.

**E. ADDITIONAL PERMIT PROVISIONS**

In addition to facility specific requirements, most of Sections II, III, IV and V of the draft Geotechnical GP contain standard regulatory language that must be included in all NPDES permits. Because they are based on federal regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

**VII. OTHER LEGAL REQUIREMENTS**

**A. STATE WATER QUALITY STANDARDS AND CERTIFICATION**

The Geotechnical GP's area of coverage is only in federal waters, and thus the GP is not subject to Section 401 of the CWA.

**B. 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 designated critical habitat. EPA has analyzed the discharges proposed to be authorized by the draft Geotechnical GP, and their potential to adversely affect any of the threatened or endangered species or their designated critical habitat areas in the vicinity of the discharges. EPA will send the Biological Evaluation (BE) to NMFS and USFWS, and request their concurrence of the agency's determinations of effects. This Fact Sheet, the draft Geotechnical GP, and the draft ODCE will also be sent to NMFS and the USFWS for review during the public comment period.

**C. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT**

Under the Magnuson-Stevens Fishery Conservation and Management Act, NMFS

and various fisheries management councils must identify and protect “essential fish habitat” (EFH) for species managed under the Act. The EFH regulations define an *adverse effect* as any impact that 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. Agency actions that may adversely affect EFH requires consultation with NMFS.

EPA’s EFH assessment is included as an appendix to the BE.

#### **D. NATIONAL HISTORIC PRESERVATION ACT**

The National Historic Preservation Act (NHPA) requires federal agencies to ensure that any agency-funded and permitted actions do not adversely affect historic properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. BOEM has conducted archaeological baseline studies of the Outer Continental Shelf (OCS) of the Beaufort and Chukchi Seas to determine where known historic properties may be located. These baseline studies are used to identify archaeologically sensitive areas that may contain significant historic properties.

For geotechnical surveys and related activities authorized under the Geotechnical GP, the applicant is required to submit to EPA, along with the NOI, an assessment of whether the activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. The NOI must state which historic properties may be affected by the proposed activities and include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties.

Additionally, prior to conducting the geotechnical activity, the operator must conduct a baseline site characterization to ensure the locations are not in the vicinity of potential historic properties. The operator must notify EPA 7 calendar days from receipt of the physical sea bottom survey data, if the data indicates the proposed geotechnical activity is located in the vicinity of historic properties.

Information from the NOI and baseline site characterization will assist EPA with ensuring the requirements of Section 106 of the NHPA are met.

#### **E. NATIONAL ENVIRONMENTAL POLICY ACT**

In accordance with the Clean Water Act (33 U.S.C. 1371) and EPA regulations (40 CFR 122.29(b)(2) and (c)(1); 40 CFR Part 6), issuance of NPDES permits for new sources are considered major Federal actions subject to review under the

National Environmental Policy Act (NEPA). A “new source” means any building, structure, facility, or installation from which there is or may be a “discharge of pollutants,” the construction of which commenced: (a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or (b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Construction of a “new source” commences if the owner or operator of the facility (1) has begun, or caused to begin significant site preparation work as a part of a continuous on-site construction program or (2) has entered into a binding contractual obligation for the purchase of facilities or equipment that are intended to be used in its operations within a reasonable amount of time. See 40 CFR 122.29(b). Significant site preparation work is defined in the Oil and Gas Offshore Subcategory as the process of surveying, clearing or preparing an area of the water body floor for the purpose of constructing or placing a development or production facility on or over the site.

New source performance standards have not been promulgated under section 306 of the CWA for discharges associated with oil and gas geotechnical surveying activities. Furthermore, geotechnical surveying activities are not considered significant site preparation work. As explained in the preamble for the final Offshore Subcategory regulations, exploratory wells are not considered “significant site preparation work” because the operations are conducted at a particular site for a short duration, typically lasting only three to six months, and not necessarily followed by development and production activities at the site. Moreover, even when development and production does occur, it may not occur for months or years after exploration. See 58 Fed. Reg. at 12457 (noting that “exploratory wells would not be new sources in any circumstance”). The same is true for geotechnical activities, which are significantly shorter in duration, lesser in scope and produce smaller discharge volumes.

As such, issuance of NPDES permits for geotechnical survey activities are not considered major Federal actions subject to NEPA review and a NEPA evaluation has not been prepared for this permit action.

#### **F. ENVIRONMENTAL JUSTICE (EXECUTIVE ORDER 12898)**

The EPA has determined that the discharges authorized by the draft Geotechnical GP will not have a disproportionately high and adverse human health or environmental effects on minority or low-income populations living on the North Slope, including coastal communities near the proposed geotechnical activities. In making this determination, EPA considered the potential effects of the discharges on the communities, including subsistence areas, and the marine environment.

EPA's environmental justice evaluation and determinations are discussed in the draft ODCE for the Geotechnical GP, and are based, in part, on the Environmental Justice Analysis completed for the 2012 Beaufort & Chukchi Exploration NPDES General Permits.

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 North Slope Communications Protocol, EPA sent early informational letters in May 2013 to all of the coastal entities (City governments, tribal governments, marine mammal commissions, North Slope Borough, Northwest Arctic Borough and the ANCSA Village and Regional Corporations) on the North Slope, as well as the whaling communities of Kivalina, Diomedes, Wales, Savoonga, Gambell, and Kotzebue. EPA held two informational teleconference calls to determine level of interest in this project; those meetings were held on May 14 and May 21, 2013. Additionally, EPA is planning enhanced community engagement activities consistent with EPA's Environmental Justice and Permitting Region 10 Implementation Plan. These activities will include informational meetings and public hearings held in the communities closest to the agency action.

Finally, the EPA will also notify tribal entities and communities on the North Slope and in areas near the draft Geotechnical GP's area of coverage of the opportunity to provide public comment on the draft permit during the public comment period and to attend and participate (e.g., provide testimony) during any scheduled public meetings or hearings.

**G. TRIBAL CONSULTATION (EXECUTIVE ORDER 13175)**

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.



Efforts have been taken to provide tribal entities and North Slope, Northwest Arctic, and Bering Sea communities with information about the ODCE and draft Geotechnical GP development process, and to simultaneously seek early input into the EPA evaluations. In May 2013, the EPA held two information sessions via conference call with members of tribal governments, native corporations, and subsistence commissions to inform them about the upcoming NPDES permitting action and seek input.

Pursuant to the EPA Region 10's 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 September 19, 2013, the EPA sent an 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 Diomedea, 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 Geotechnical GP's requirements. Consistent with the executive order and the EPA tribal consultation policies, the EPA will honor requests for consultation meetings either via teleconferences or in-person meetings on the draft Geotechnical GP from federally-recognized tribal governments.

#### **H. POLLUTION PREVENTION ACT**

It is national policy that, whenever feasible, pollution should be prevented or reduced at the source, that pollution which cannot be prevented should be recycled in an environmentally safe manner, and that disposal or release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner. The permittee will discharge at the facility in accordance with best management practices that will address the provisions of the Pollution Prevention Act.

#### **I. OIL SPILL REQUIREMENTS**

Section 311 of the Clean Water Act prohibits the discharge of oil and hazardous substances in harmful quantities. Discharges specifically controlled by the draft Geotechnical GP are excluded from the provisions of Section 311 because these discharges are limited to amounts and concentrations which are deemed to be protective of State water quality standards. However, the permit does not preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties for other unauthorized discharges of oil and hazardous materials which are covered by Section 311.

### **VIII. MODIFICATION OF PERMIT LIMITS OR OTHER CONDITIONS**

When EPA receives information that demonstrates the existence of reasonable cause to modify a permit in accordance with 40 CFR § 122.62(a), EPA may modify the permit. “Reasonable cause” includes alterations or additions to the facility or activity, new federal regulations or standards, new state water quality standards, the completion or modification of total maximum daily loads or wasteload allocations for the receiving water of the facility (also, see 40 CFR § 122.44(d)((1)(vii)(B)), failure of the permit to protect state water quality standards, a change in a permittee’s qualification for net limits, any relevant compliance schedule, the need to incorporate or revise a pretreatment or land application plan, when pollutants which are not limited in the permit exceed the level which can be achieved by technology-based treatment, the correction of technical mistakes and legal misinterpretations of law made in determining permit conditions, and the receipt of new information relevant to the determination of permit conditions. Minor modifications to a permit may be made by EPA with the consent of a permittee in order to correct typographical errors, change an interim compliance schedule, allow for a change in ownership, change a construction schedule, or delete an outfall. Pursuant to 40 CFR § 122.63, such minor modifications may be made without public notice and review.

#### **IX. PERMIT EXPIRATION**

The permit will expire five years from its effective date. In accordance with 40 CFR § 122.6(a), the conditions of an expired permit continue in force under 5 U.S.C. § 558(c) until the effective date of a new permit, when a permittee submits an application for permit reissuance 180 days before the expiration of the permit. Permits that are continued remain fully effective and enforceable.

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**X. LIST OF ACRONYMS AND DEFINITIONS**

§ means section or subsection.

*Act* means the Clean Water Act.

*ADEC* means Alaska Department of Environmental Conservation.

*Average monthly discharge limitation* means the average of “daily discharges” over a monitoring month, calculated as the sum of all daily discharges measured during a monitoring month divided by the number of daily discharges measured during that month. It may also be referred to as the “monthly average discharge.”

*AWQS* means Alaska Water Quality Standards.

*Ballast water* means harbor or seawater added or removed to maintain the proper ballast floater level and ship draft and to conduct jack-up rig related sea bed support capability tests (e.g. jack-up rig preload water).

*Best management practices* (“BMPs”) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

*Bilge water* means water which collects in the lower internal parts of the facility’s hull.

*Biocide* means any chemical agent used for controlling the growth of or destroying nuisance organisms (e.g., bacteria, algae, and fungi).

*BOD* means biochemical oxygen demand. This is a measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days, designated BOD5), in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

*Boiler blowdown* means the discharge of water and minerals drained from boiler drums to minimize solids build-up in the boiler.

*Borehole* means a 4 – 12 inch diameter, hole drilled to assess the subsurface characteristics of the seafloor. Boreholes may be shallow (depth ≤ 50 feet) or deep (depths > 50 feet and ≤ 499 feet) (*See also* “Soil Boring”).

*BPJ* means Best Professional Judgment as described within 40 CFR §§ 122.43, 122.44 and 125.3.

*Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

°C means degrees Celsius.

*CFR* means Code of Federal Regulations.

*CV* means coefficient of variation.

*CWA* means the Clean Water Act, (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483 and Public Law 97-117, 33 U.S.C. 1251 et seq.

*Cement Slurry* is the cement-bentonite mixture that may be used to plug a geotechnical borehole.

*Core* means the undisturbed cylindrical sediment sample recovered from the borehole to the facility for laboratory analysis. (See also "*Soil Boring (or Core) Sample*").

*Cone Penetration Test (CPT)* is an in situ method used to determine the geotechnical engineering properties of soils and delineating soil stratigraphy (rock layers). (See also "Electronic Cone Penetrometer").

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

*Daily maximum discharge* means the highest allowable "daily discharge" and is also referred to as the "maximum daily discharge."

*Deck drainage* means any waste resulting from deck washings, spillage, rainwater, and runoff from curbs, gutters, and drains including drip pans and work areas within facilities subject to this general permit.

*Desalination unit wastes* means wastewater associated with the process of creating fresh water from seawater.

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

*Director* means the Director of the Office of Water and Watersheds, EPA Region 10, or an authorized representative.

*Discharge of a pollutant* means any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

*Discharge Monitoring Report ("DMR")* means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA.

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

*Drilling fluids and drill cuttings*, for the purposes of this general permit, means particles generated by drilling into subsurface geological formations and carried out from the hole with the drilling fluid (e.g. seawater with additives) and discharged at the seafloor; this also includes discharge of residual drilling fluids from the mud pit (during mud pit clean-up operations). Drilling fluids are used in rotary drilling operations to clean and condition the borehole and to counterbalance formation pressure. Examples of drill cuttings include small pieces of rock varying in size and texture from fine silt to gravel.

*Drill cuttings not associated with drilling fluids*, for the purposes of this general permit, means the particles generated by drilling into subsurface geologic formations (soil and rock layer) and carried out from the subsurface hole with seawater and discharged at the seafloor. Examples of drill cuttings include small pieces of rock varying in size and texture from fine silt to gravel.

*Drilling fluid additives* include natural thickeners (i.e. Attapulgite clay), a densifier or weighting agent (i.e. barium sulfate; Barite), and/or a lubricant (i.e. polymer gel).

*Drilling site* means the single, specific geographical location where facility is positioned (e.g., stationary or anchored vessels, or secured on the ice surface, etc.) and conducts oil and gas geotechnical activities, including the seafloor area impacted by the drilling activity.

*Electronic Cone Penetrometer* is an *in situ* investigation method that involves pushing an electronically instrumented probe into the ground that records force resistances, such as tip resistance, local friction, and pore water pressure. Electronic cone penetrometers do not collect soil samples. (See also “Cone Penetration Test”)

*Effluent limitation* means any restriction imposed by the Director on quantities, discharge rates, and concentrations of “pollutants” which are “discharged” from “point sources” into “waters of the United States,” the waters of the “contiguous zone,” or the ocean.

*End of Year* means, for the purposes of the End of Year Report, after the geotechnical activities and all authorized discharges have ceased for the calendar year.

*EPA* means U.S. Environmental Protection Agency.

*ESA* means the Endangered Species Act.

*°F* means degrees Fahrenheit.

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

*Free oil* refers to any oil contained in a waste stream that when discharged will cause a film or sheen upon or a discoloration of the surface of the receiving water.

*gpd* means gallons per day.

*gpm* means gallons per minute.

*Garbage* means all kinds of victual, domestic, and operational waste, excluding fresh fish and part thereof, generated during the normal operation and liable to be disposed of continuously or periodically except dishwater, graywater, and those substances that are defined or listed in other Annexes to MARPOL 73/78.

*Geotechnical Surveying and Related Activities*, for the purposes of this general permit, means conducting oil and gas geotechnical surveys to evaluate the subsurface characteristics of the seafloor and related activities in federal waters of the Beaufort and Chukchi Seas. Geotechnical surveying involves disturbance of the seafloor. Specifically, borings are collected to assess the structural properties of subsurface soil conditions for potential placement of oil and gas installations, which may include production and drilling platforms, ice islands, anchor structures for floating exploration drilling vessels, and potential buried pipeline corridors. Geotechnical surveys result in a disturbance of the seafloor and may produce discharges consisting of soil, rock and cuttings materials, in addition to facility-specific waste streams authorized under this general permit.

Geotechnical “related activities” also result in a disturbance of the seafloor and produce similar discharges. Geotechnical “related activities” may include feasibility testing of mudline cellar construction equipment or other equipment that disturbs the seafloor, and testing and evaluation of trenching technologies.

*Geotechnical Facility*, for the purposes of this general permit, includes any floating, moored or stationary vessels, jack-up or lift barges with the capacity to conduct geotechnical surveying or related activities (*defined above*).

*MA/NLAA* means “may affect, but not likely to adversely affect”.

*Marine sanitation device (MSD)* means a sanitary wastewater treatment system specifically designed to meet U.S. Coast Guard requirements.

*Maximum daily discharge limitation* means the highest allowable “daily discharge.”

*MDL* means Method Detection Limit.

*MGD* means million gallons per day.

*mg/L* means milligrams per liter.

*ML* means the minimum level of detection, which is defined as the lowest concentration that gives recognizable signals and an acceptable calibration point for laboratory analysis.

*MLLW* means mean lower low water.

*Mud Pit* is the unit where the drilling fluids (muds) are mixed prior to use during drilling operations. For the purposes of this general permit, discharges from the mud pit (including mud pit clean-up) must occur at the seafloor and are authorized under Discharge 001.

*NMFS* means National Marine Fisheries Service.

*National Pollutant Discharge Elimination System (“NPDES”)* means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and

enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the CWA.

*Non-aqueous drilling fluid (NAF) or non-aqueous fluids* means “drilling fluid” that has water-immiscible fluid as its continuous phase and the suspending medium for solids, such as oleaginous materials (e.g., mineral oil, enhanced mineral oil, paraffinic oil, C16-C18 internal olefins, and C8-C16 fatty acid/2-ethylhexyl esters). Types of non-aqueous drilling fluids include oil-based fluid, enhanced mineral oil-based fluid, and synthetic-based fluid.

*Non-contact cooling water* means water used for contact, once-through cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content.

*O&M* means Operation and Maintenance.

*Operations cessation* means when all geotechnical activities have ceased, including ceasing of all authorized discharges at a drilling site. Geotechnical field operations cessation will typically coincide with the facility’s demobilization from the drilling site.

*OWW* means EPA Region 10’s Office of Water and Watersheds.

*Point source* means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

*Pollutant* means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

*Process wastewater* means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

*QAPP* means Quality Assurance Plan.

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

*Soil Boring* means the act or process of making a hole in subsurface geological formations (soil and rock layers) to obtain representative data (physical core samples and/or electronic CPT soundings).

*Soil Boring Cuttings* means particles generated by drilling into subsurface geological formations (soil and rock layers) and carried out from the borehole with the drilling fluid (e.g. seawater with or without additives). Examples of soil boring cuttings include small pieces of rock varying in size and texture from fine silt to gravel.

*Soil Boring (or Core) Sample* means the cylindrical portion of the subsurface geological formations (soil and/or rock layers) that is recovered to the deck of the facility for analysis. See “Core Sample”

*SPP* means suspended particulate phase and refers to the bioassay test procedure, “Suspended Particulate Phase (SPP) Toxicity Test,” which is published in Appendix 2 of 40 CFR Part 435 Subpart A.

*Stable ice*, for purposes of this general permit, means ice associated with landfast or bottom-fast ice that is stable enough to support geotechnical equipment staged on the ice surface.

*Static sheen test* means the standard test procedures in Appendix 1 to subpart A of 40 CFR part 435 that have been developed for this industrial subcategory for the purpose of demonstrating compliance with the requirement of no discharge of free oil.

*Stock barite* means the barite that was used to formulate a drilling fluid.

*Stock base fluid* means the base fluid that was used to formulate a drilling fluid.

*s.u.* means standard unit, as for the parameter pH.

*Technology-based effluent limit* means a permit limit or condition based upon EPA’s technology-based effluent limitation guidelines or EPA’s best professional judgment.

*TRC* means Total Residual Chlorine.

*TSD* means Technical Support Document.

*USFWS* means U.S. Fish and Wildlife Service.

*µg/L* means micrograms per liter.

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

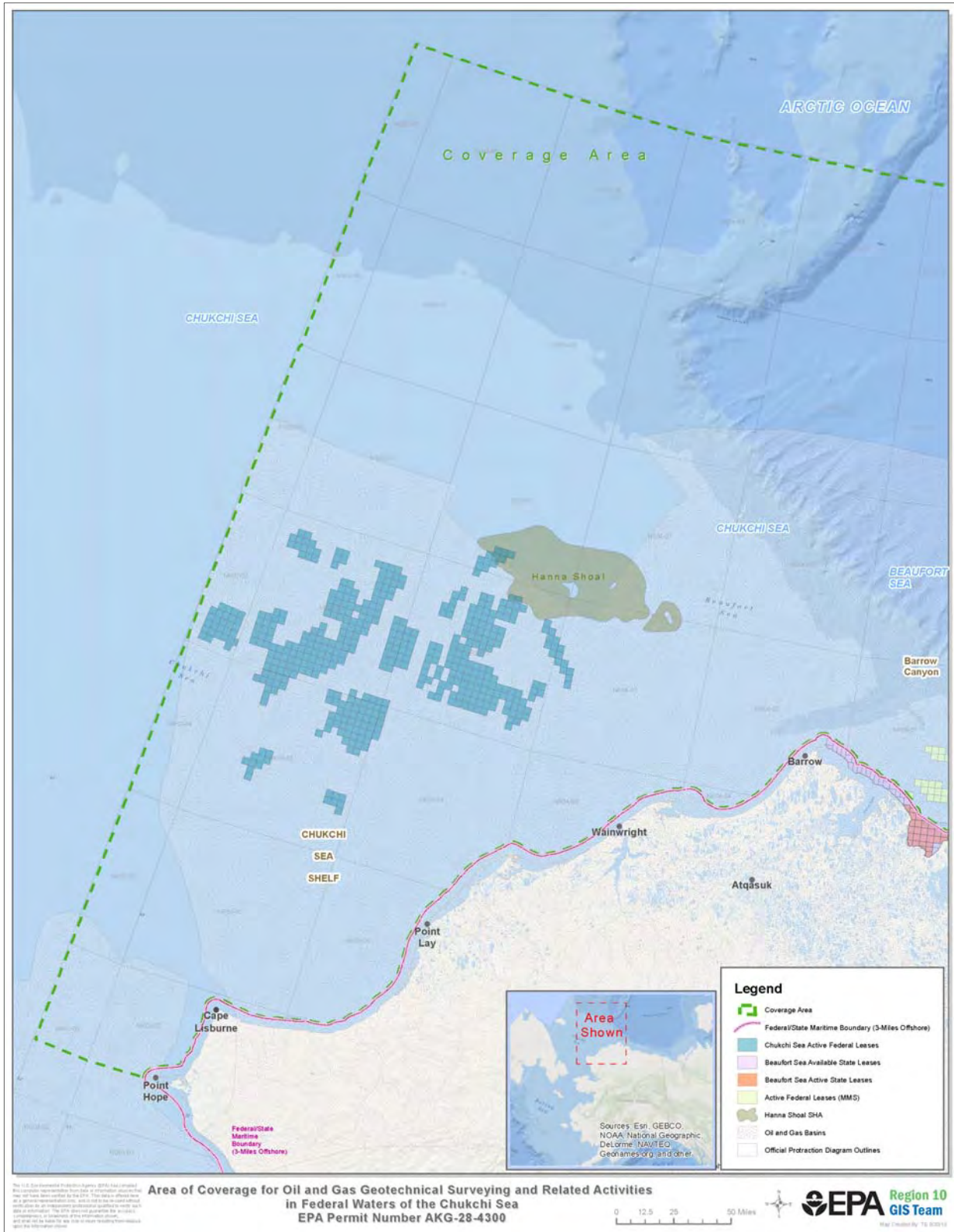
*Water-based drilling fluid* means “drilling fluid” that has water as its continuous phase and the suspending medium for solids, whether or not oil is present.

*Water quality-based effluent limit (WQBEL)* means a permit limit derived from a state water quality standard or an appropriate national water quality criteria.





**FIGURE A-1:** *Geotechnical General Permit area of coverage and “coverage zones.”*



**FIGURE A-2:** Chukchi Sea area of coverage and “coverage zones.”



## **APPENDIX B. REFERENCES**

- AOGA Geotechnical Activities Information Paper. Transmitted to EPA via email on May 14, 2013.
- Dredging Research Ltd. Drill Cuttings Initiative – In Situ Solutions: Covering (Research and Development Programme – Phase II Task 5B. Report No. 238.UK.0700 – Rev2A). Surrey, UK: Bargate House. 2002
- Hamrick, J., 2013. Results from Geotechnical General Permit Dilution Modeling Scenarios. Technical Memorandum from John Hamrick, Tetra Tech, Inc., to Tim Mayers, U.S. Environmental Protection Agency, Region 10. November 12, 2013.
- U.S. EPA. 1991. Technical support document for water quality-based toxics control. Office of Water, Washington, D.C. EPA/505/2-90-001.
- U.S. EPA. 1993. Guidance Manual for Developing Best Management Practices (BMP). Office of Water, Washington, D.C. EPA/833/2-93-004.
- U.S. EPA, 1993. Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (Final). U.S. Environmental Protection Agency, Office of Water, EPA 821-R-93-003. January, 1993.
- U.S. EPA. 1996. NPDES Permit Writers' Manual. Office of Wastewater Management, Washington, D.C. EPA/833/B-96-003.
- U.S. EPA, 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.
- U.S. EPA. 2004. Technical Support Document for the 2004 Effluent Guidelines Program Plan. Office of Water, Office of Science and Technology, Washington, D.C. EPA-821-R-04-014. August 2004.
- U.S. EPA, 2012. Response To Comments, Oil and Gas Exploration Facilities on the Outer Continental Shelf of the Chukchi Sea (NPDES Permit No. AKG-28-8100). Prepared by the U.S. Environmental Protection Agency, Region 10. 2012.
- U.S. EPA, 2012. Response To Comments, Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters of the Beaufort Sea (NPDES Permit No. AKG-28-2100). Prepared by the U.S. Environmental Protection Agency, Region 10. 2012.
- U.S. EPA, 2012. Environmental Justice Analysis, Beaufort and Chukchi Seas NPDES General Permits for Oil and Gas Exploration (Permit Nos. AKG-28-2100 and AKG-28-8100). OCTOBER, 2012

U.S. EPA, 2013. **Draft** Ocean Discharge Criteria Evaluation for Oil and Gas Geotechnical Surveying and Related Activities in Federal Waters of the Beaufort and Chukchi Seas (Permit No. AKG-28-4300). November, 2013.