

RESPONSE – TO – COMMENTS DOCUMENT

NPDES GENERAL PERMIT FOR OIL AND GAS GEOTECHNICAL SURVEYS AND
RELATED ACTIVITIES IN FEDERAL WATERS OF THE BEAUFORT AND CHUKCHI SEAS
(AKG-28-4300)

ORIGINAL PUBLIC NOTICE: NOVEMBER 22, 2013 – FEBRUARY 19, 2014
RE-PROPOSAL PUBLIC NOTICE: AUGUST 15, 2014 – SEPTEMBER 30, 2014

LIST OF COMMENT CATEGORIES – ORIGINAL RTC

CATEGORY 1: SEASONAL RESTRICTIONS AND DISCHARGE PROHIBITIONS.....	3
CATEGORY 2: ENVIRONMENTAL MONITORING PROGRAM	13
CATEGORY 3: ADAPTIVE MANAGEMENT, PEER REVIEW REQUIREMENTS AND GENERAL COMMUNICATION.....	25
CATEGORY 4: ENVIRONMENTAL JUSTICE (EJ) ANALYSIS AND TRADITIONAL KNOWLEDGE	28
CATEGORY 5: ENDANGERED SPECIES ACT (ESA) CONSULTATION	31
CATEGORY 6: GEOTECHNICAL GENERAL PERMIT (GP)	33
CATEGORY 7: COMPARISON OF EPA’S GEOTECHNICAL GP TO ADEC’S GEOTECHNICAL GP.....	55
CATEGORY 8: NOTICE OF INTENT (NOI) REQUIREMENTS	57
CATEGORY 9: OCEAN DISCHARGE EVALUATION CRITERIA (ODCE).....	59
CATEGORY 10: MISCELLANEOUS	76
CATEGORY 11: FACT SHEET.....	77

LIST OF COMMENT CATEGORIES – RE-PROPOSAL RTC

CATEGORY R1: CHUKCHI SEA SPRING LEAD SYSTEM SEASONAL DISCHARGE RESTRICTION	80
CATEGORY R2: ENVIRONMENTAL MONITORING PROGRAM	84
CATEGORY R3: MARINE MAMMAL OBSERVATION REQUIREMENTS (D009).....	84
CATEGORY R4: SANITARY WASTEWATER DISCHARGE (D003) REQUIREMENTS	86
CATEGORY R5: NOI AND SUBMITTAL REQUIREMENTS.....	87
CATEGORY R6: GENERAL PERMIT	87
CATEGORY R7: COMMENTS BEYOND SCOPE OF RE-PROPOSAL	88
REFERENCES.....	93

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ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
CATEGORY 1: SEASONAL RESTRICTIONS AND DISCHARGE PROHIBITIONS			
1	GP Part II.A.10.	[We] support no discharge to stable ice, we are still not clear about the distinction made between stable ice versus other types of ice. Every type of ice is critical habitat used for hauling out, molting, birthing, hunting and other activities by marine mammals and other wildlife and we oppose allowing for discharge onto any ice, whether stable or not.	EPA assumes that on-ice geotechnical activities would not occur unless the ice conditions are sufficiently stable to support access to the site location and the necessary equipment. In keeping with this assumption, the Geotechnical GP and ODCE define stable ice as “ice associated with landfast or bottom-fast ice that is stable enough to support geotechnical equipment staged on the ice surface.” As the commenter noted, the Geotechnical GP prohibits all discharges to stable ice. EPA appreciates the comment regarding the importance of all types of ice; however, because EPA expects geotechnical activities to occur only during the open water season or when ice conditions are stable, references to other types of ice are not necessary.
2	GP Part II.A.9. and ODCE p 3-1	The definitions for stable ice differ from the definition in the companion State permit, leaving room for misinterpretation.	The State’s permit defines stable ice as, “ice that is stable enough to support discharged drilling fluids/drill cuttings, graywater, or domestic waste.” EPA’s Geotechnical GP, which prohibits the discharge of any waste stream to stable ice, defines stable ice as “landfast or bottom-fast ice that is stable enough to support geotechnical equipment staged on the ice surface.” As discussed in RTC #41, EPA assumes that on-ice geotechnical activities will only occur if the ice conditions are sufficiently stable to support access to and setup of necessary equipment at the site location. As EPA’s permit does not authorize discharges to stable ice, the differences between the State’s definition and EPA’s should not result in any misinterpretation of the permit requirements. See also RTC #1 and #130.
3	ODCE, p.6-8	The Geotechnical GP prohibits all discharges on the ice surface. There is no justification in the ODCE for this prohibition. The ODCE fails to reference or summarize the many years of studies beginning in the 1980s regarding on-ice disposal, which indicate that environmental impacts were typically not identified after sea ice melt.	Based on information provided by industry operators, EPA assumes that winter geotechnical survey activities would be conducted during the winter months when landfast ice is present and the locations are accessible from shore. Polar bear dens are found near fast ice; fast ice are also optimum habitat for ringed seal lair construction and support the most productive ringed seal pupping areas (ODCE Section 6.4.). The stable ice discharge prohibition is consistent with EPA’s Beaufort Exploration general permit and ADEC’s geotechnical general permit and is responsive to traditional knowledge concerns. The permit prohibition is also necessary to ensure that the discharges do not cause unreasonable degradation in

			<p>areas where there are reduced dilution capabilities and to prevent the potential for direct exposure and contact by animals, birds, and possibly humans. EPA’s discussion of this issue is included in Section 6.9.1 of the ODCE.</p>
4	GP Part II.B.4.; ODCE, p.6-7	<p>Seasonal restrictions should not be required for geotechnical activities, regardless of subsistence activities due to the temporary and localized nature of cuttings discharged to the seafloor. Subsistence activities are typically conducted close to the coast and via the use of communication centers during oil and gas activities, the operators and communities can determine the best course of action that would minimize impacts on the subsistence hunt. There are many examples over the past 5 years where the industry has refrained from moving personnel and/or vessels within an area of active subsistent hunting until the hunt was completed. The time-window/seasonal restrictions as currently included in the permit are over-reaching and unnecessary. There is absolutely no linkage between substantive impacts and the additional permit requirement.</p>	<p>The commenter’s reference to “seasonal restrictions” was submitted on the initial draft Geotechnical GP and refers to the prohibition on discharging drilling fluids and drill cuttings (D001) during the spring and fall bowhead whale hunting activities in the Chukchi and Beaufort Seas, respectively (Permit Part II.B.4.). This seasonal restriction <u>only</u> applies to D001 due to chemical additives, such as barite present in the drilling fluid formulation. As discussed in the Fact Sheet and ODCE, barite is of a particular concern because it is known to contain trace contaminants of heavy metals, such as mercury, cadmium, arsenic, chromium, copper, lead, nickel and zinc (U.S. EPA, 2000). The seasonal restriction provides an additional level of protection for subsistence activities and resources during a critical time for the communities and is consistent with discharge restrictions included in the Beaufort Sea Exploration GP.</p> <p>This seasonal restriction does not apply to any waste stream other than D001 (i.e. D002-012), therefore this restriction would not otherwise prohibit operators from conducting geotechnical operations during bowhead whale hunting activities. Notably, industry operators have stated that the majority of geotechnical surveys will not involve drilling fluids; such activities are not affect by this provision. The D001 seasonal restriction is established based on EPA’s authorities under the CWA Sections 402 and 404.</p>
5	GP Part II.B.4.	<p>According to the language in the draft Geotech GP, operations must shut down during the annual fall bowhead whale hunt, and operations may only resume when hunting is completed by Kaktovik, Nuiqsut, and Barrow. These terms, however, are inconsistent with the mitigation protocol in the NMFS Incidental Harassment Authorizations and the NMFS Supplemental Draft EIS on Effects of Oil and Gas Activities in the Arctic Ocean for oil and gas related activities, such as seismic surveys. We recommend that the inconsistency between the terms of the draft Geotech GP and the NMFS documents concerning the mitigation for operations during the period of whale hunting be remedied in the final permit.</p>	<p>This comment reflects a misunderstanding of the permit provision in question. Please note the Geotechnical GP does not require that operations “shut down” during the fall whale hunts by the communities of Kaktovik, Nuiqsut, and Barrow. Rather, consistent with the Beaufort Exploration GP (AKG282100), the Geotechnical GP prohibits the discharge of one waste stream - drilling fluids and drill cuttings (D001) - during the fall bowhead hunting activities. As discussed in RTC #4, the seasonal restriction provides an additional level of protection for subsistence activities and resources during a critical time for the communities and is consistent with discharge restrictions included in the Beaufort Sea Exploration GP.</p> <p>The commenter has not identified any specific inconsistency with the referenced NMFS documents. In any event, this restriction is established consistent with EPA’s authorities under the CWA Sections 402 and 403, whereas NMFS issues Incidental Harassment Authorizations pursuant to the Marine Mammal Protection Act, a separate statutory authority with its own regulatory process and specific</p>

			standards. NMFS' authorities under the MMPA do not alter or diminish EPA's authorities and obligations under the Clean Water Act.
6	GP Part II.B.4.	<p>This permit would allow vessels to remain in subsistence hunting areas during the hunt, discharging large volumes of multiple waste streams. Please remember, we are taking our food from these waters. The noise and pollution from these operations are likely to interfere with our subsistence hunting. They also will raise fears about the tainting of our food and the effects to our physical health. These impacts must be considered when EPA is assessing whether the proposed discharges would cause unreasonable degradation of the marine environment. Because of these concerns, companies have agreed to the Conflict Avoidance Agreement provision to move their ships out of the subsistence hunting areas during the hunt. EPA should require the same in this permit. There should be zero discharge of any waste streams in the nearshore waters of the Beaufort Sea [during subsistence whale hunting activities].</p>	<p>Please see RTC #9 and 10.</p> <p>EPA understands the communities' concerns regarding potential tainting of subsistence resources. Modeling data (see <i>Results from Geotechnical Surveys and Related Activities Modeling Scenarios Technical Memorandum</i>) indicates that based on a discharge rate of 1,093 gal/day and a current speed ranging from 0.02 to 0.04 m/s, the depositional thickness of the drilling fluids and drill cuttings solids ranges from 1.52 millimeters (mm) to 30.33 mm (0.06 to 1.19 inches) at one meter (3.3 feet) from the discharge location. The modeling further indicates that at 100m (328 feet) from the discharge point, assuming the same discharge rate and current speed, the thickness of drilling fluids and drill cuttings are 0.15 – 3.03mm (0.006 – 0.038 inches).</p> <p>Additionally, the modeling also indicates that the non-solids discharges, such as sanitary and domestic waste and non-contact cooling water, under the worst case scenario (case 145) the dilution factor ranges from 12 at a distance of 10m from the discharge point to 123 at a distance of 1000m from the discharge point. For this case, if the ambient concentration of a pollutant of concern is zero, then the concentration of that pollutant at a distance of 10 meters will be 1/12th or 8 percent of the discharge concentration.</p> <p>Based on the results of the model and the various restrictions included in the Geotechnical GP, including the seasonal restrictions for D001, EPA has concluded in the ODCE that the discharges would not cause unreasonable degradation of the marine environment. Please refer to the ODCE Criterion 6 and ODCE Section 3.6. for a detailed discussion of EPA's analysis.</p> <p>EPA's requirement of no-discharge of drilling fluids and drill cuttings (D001) is applicable during both spring and fall bowhead whale hunting activities. This requirement is consistent with EPA's Beaufort Exploration GP and focuses on a discharge that is known to include metals constituents and chemical additives. See RTC #4 and #10. This restriction is responsive to the traditional knowledge shared by the hunters and leaders in the communities and further ensures that the important subsistence activity is protected.</p> <p>Also, the commenter requested restriction of discharges in nearshore waters of the Beaufort Sea. EPA's Geotechnical GP applies to federal waters, which extend seaward from the outer boundary of the territorial seas. The final transfer of the</p>

			NPDES program authority to the State of Alaska occurred on October 31, 2012, thus, EPA does not have permitting authority for waters landward from the outer boundary of the territorial seas.
7	GP Part II.B.4.	EPA does not propose any restrictions for spring bowhead whale hunting activities in the Beaufort Sea. As EPA knows, our whaling captains in Barrow conduct a spring hunt that is very important to our community. The noise and pollution from geotech activities in the Beaufort Sea in the spring could interfere with our spring whale hunt in Barrow.	EPA recognizes that bowhead whale hunting activities occur in the spring within the Spring Lead System in the Chukchi Sea prior to the whales traveling eastward from Point Barrow and further offshore through the spring leads in the Beaufort Sea during their migration to the Canadian Beaufort (ODCE, pg 5-8). Because Barrow conducts the spring bowhead whale hunting activities in the Chukchi Sea and to protect the Spring Lead System, EPA has included in the final Geotechnical GP a restriction prohibiting all discharges within the 3-25 nautical mile lease deferral area in the Chukchi Sea prior to July 1. EPA has not included the same seasonal restriction in the Beaufort Sea because the spring leads extend far offshore in the Beaufort Sea, generally making those locations not viable for bowhead hunting, and ice conditions would prevent vessels from entering the Beaufort Sea. See also RTC #R5.
8		Recommend that EPA prohibit all discharges in the Chukchi Sea prior to July 15th. If at a later point in time, NOAA and/or BOEM review and approve operations in the Spring Lead System, along with our whaling captains, EPA can at that time consider an amendment of the Geotechnical general permit to bring it into line with these future authorizations.	<p>To protect the Spring Lead System, EPA revised the Geotechnical GP during the re-proposal process to include a prohibition on all discharges to the area 3 to 25 nautical miles offshore in the Chukchi Sea, which also corresponds to the Bureau of Ocean Energy Management (BOEM) lease deferral area, located 3 – 25 nautical miles offshore, prior to July 1. See also RTC #7.</p> <p>EPA’s selection of the July 1 date is consistent with the National Marine Fisheries Service’s (NMFS) decisions to prohibit vessel entry into the Chukchi Sea (ODCE pg. 6-2). Please see RTC #56 regarding the regulatory process to modify, revoke and reissue, or terminate the permit as allowed under 40 CFR §124.5.</p>
9		The communities and whalers take great care to avoid discarding waste into the ocean during bowhead whale migratory and hunting times. Their observations and our traditional knowledge have taught that whales will avoid areas where human waste of any kind has been dumped. Traditional knowledge also indicates that once one whale deflects the other whales will follow, so halting discharges only once subsistence hunting begins may be too late.	<p>As discussed above, EPA revised the permit during the re-proposal process to include a prohibition on all discharges to the area 3 to 25 nautical miles offshore within the Chukchi Sea prior to July 1. This seasonal restriction protects the sensitive spring bowhead whale migration, feeding and calving period, as well as the migration period for other species. See RTC #7, #8, the Fact Sheet for the Geotechnical GP Re-Proposal, and Final ODCE Sections 4.3.4 and 5.5.</p> <p>Additionally, the Geotechnical GP restricts discharges of drilling fluids and drill cuttings (D001), which are known to include chemical additives and metals constituents, during spring and fall bowhead hunting activities. This restriction provides an additional level of protection for subsistence activities and resources during a critical time for the communities, and is consistent with discharge restrictions included in the Beaufort Sea Exploration GP.</p>

			EPA has evaluated the potential impacts of the discharges, together with a comprehensive evaluation of the effluent limitations, monitoring requirements, and other permit provisions and concluded that issuance of the Geotechnical GP would not result in an unreasonable degradation of the marine environment. See ODCE Section 6.
10		We are still concerned that the seasonal restrictions apply only to a single waste stream - Discharge 001. As we have stated many times, many different kinds of waste can result in the deflection of bowhead whales from their migratory paths. We are especially concerned about the very large volumes of non-contact cooling water, sanitary waste, domestic wastewater, desalination unit wastes, etc...The volumes of these waste streams are estimated to be well in excess of volumes generated during a normal drilling operation, as shown on page 12 of the Fact Sheet.	<p>The specific seasonal restrictions at Permit Part II.B.4, which correspond to spring and fall bowhead whale hunting activities, only apply to the discharge of drilling fluids and drill cuttings (D001) due to chemical additives, such as barite present in the drilling fluid formulation. Barite is of particular concern because it is known to contain trace levels of several heavy metals, such as mercury, cadmium, arsenic, chromium, copper, lead, nickel and zinc (U.S. EPA, 2000). This seasonal restriction provides an additional level of protection for subsistence activities and resources and during a critical time for the communities and is consistent with discharge restrictions included in the Beaufort Exploration GP.</p> <p>In addition to the seasonal restrictions on D001, the Geotechnical GP also prohibits all discharges within the 3 to 25 nautical mile deferral area in the Chukchi Sea prior to July 1 and prohibits all discharges to stable ice. These provisions, in addition to other the permit requirements and effluent limitations on each of the discharges, ensure the protection of subsistence resources. See also RTC #8.</p> <p>Geotechnical activities, on a per hole basis, would be much shorter in duration, generate significantly less volumes due to the small diameter sizes and depths of the boreholes, compared to an exploration well (See ODCE Section 2.2). The estimated discharge summary found in the Fact Sheet and ODCE is a comparison of the annual discharge volumes, from approximately 100 boreholes conducted across both the Beaufort and Chukchi Seas, with the discharge volumes of one exploration well, conducted at a single location.</p>
11		Concerned that this type of activity in the Spring Lead System could result in biologically significant impacts to bowhead whales and an unreasonable degradation of the marine environment. The lead system is one of the first areas in which the phytoplankton spring bloom occurs and discharge into this system may compromise the development of the spring bloom such that the entire food web can be compromised throughout the spring and open water season. It is not possible at this time for [EPA] Region 10 and ADEC to approve of discharges in the Spring Lead System while also fulfilling the legal mandate to ensure no unreasonable degradation of the marine environment. Believes that a well-constructed, peer-reviewed monitoring and adaptive management	EPA has added a seasonal restriction in the Geotechnical GP prohibiting all discharges within the 3-25 nautical miles in the Chukchi Sea prior to July 1 to protect the spring bowhead whale migration and uses of the Spring Lead System by bowhead whales and other species. See also RTC #7, 8, and 71.

		process will address concerns related to allowing discharges at other times.	
12		We appreciate that EPA and [A]DEC have proposed a seasonal restriction limiting the discharge of drilling fluids and cuttings in the Chukchi Sea starting on March 25th. However, we are very concerned that vessels could discharge a wide range of other pollutants into the lead system during the spring migration.	Refer to RTC #8, #9, and #10.
13		AEWC and NMFS should take the lead on addressing this issue (*discharges to the Spring Lead System), in partnership with BOEM and Region 10. Our whaling captains, along with NMFS, have the most expertise on marine mammal biology and the unique importance of the Spring Lead System to the bowhead whale and our subsistence activities.	The ODCE evaluates the Spring Lead System (ODCE Section 4.3.4.) and the potential impacts from the discharges associated with geotechnical surveys and related activities. Based on this analysis, EPA has restricted all discharges into within 3-25 nautical miles in the Chukchi Sea prior to July 1. This seasonal restriction corresponds with NMFS' estimate of completion of the spring bowhead migration. In keeping with this conclusion, NMFS has applied a restriction in the 2012 Incidental Harassment Authorization to Shell prohibiting vessel entry into the Chukchi Sea through the Bering Strait prior to July 1 (Fact Sheet for the Geotechnical GP Re-Proposal; Final ODCE for the Geotechnical GP.
14		Strongly opposes the permitting of any of discharge within the Spring Lead System. Recommends a ban on all waste discharges in the Spring Lead System. We are very concerned about the potential for the permitted discharges to interfere with our spring subsistence whaling, which is protected under federal law pursuant to the Marine Mammal Protection Act (MMPA). The discharge of pollution into areas used by bowhead whales during the spring migration and used by our communities during the spring subsistence hunt raises serious concerns about the tainting of our subsistence foods.	See RTC #7, #8, #13 and #71.
15	GP Part II.B.4.	The Draft Geotechnical GP whaling closures should be removed. The commenter objects to the whaling closures the EPA mandates in the Draft Geotech GP and respectfully requests that they be omitted from the final permit. As drafted, permittees are required in the Chukchi Sea to "cease Discharge 001 starting March 25" and "not resume discharging until after whaling activities are completed, as determined by coordination with the AEWC." Similarly, in the Beaufort Sea, permittees are required to "cease Discharge 001 starting on August 25" and not "resume discharging until after whaling activities are completed, as determined by coordination with the AEWC." The EPA suggests in the ODCE that even the "perception of contamination" may cause subsistence users to avoid harvesting whales. The EPA further attempts to support the whaling closure mandates by associated the "perception of contamination" to one of the ten criteria it has to assess	<p>The commenter's reference to "whaling closures" was submitted on the initial draft Geotechnical GP and appears to reflect a misunderstanding of the provision at issue. This comment refers to the restriction on discharging drilling fluids and drill cuttings (D001) during spring and fall bowhead whale hunting activities (Permit Part II.B.4). This seasonal discharge restriction does not apply to any other waste streams (i.e., D002 – D012), and, as such, does not constitute a "closure" of geotechnical activities that do not involve drilling fluids. Notably, industry operators have stated that the majority of geotechnical surveys do not involve drilling fluids; such activities are not affected by this provision (AOGA, 2013; Shell, 2013; Shell, 2014; See also RTC #32, #82, #155, #208, and #209 for comments regarding the use of drilling fluids).</p> <p>The seasonal restrictions at Permit Part II.B.4 apply specifically to D001 due to chemical additives such as barite present in the drilling fluid formulation. Barite is</p>

		<p>in the ODCE - "potential impacts on human health through direct and indirect pathways." The ODCE contains no technical or scientific information to indicate that Discharge 001 has the "potential" to impact human health or bowhead whales. Furthermore, the EPA fails to provide any information to substantiate that a "perception" exists among North Slope subsistence users that geotechnical discharges contaminate bowhead whales.</p>	<p>of particular concern because it is known to contain trace levels of several heavy metals, such as mercury, cadmium, arsenic, chromium, copper, lead, nickel and zinc (U.S. EPA, 2000). This prohibition provides an additional level of protection for subsistence activities and resources during a critical time for the communities and is consistent with discharge restrictions included in the Beaufort Exploration GP. This seasonal restriction on D001 ensures the protection of subsistence resources and no unreasonable degradation of the marine environment occurs from the discharges. The no discharge restriction of drilling fluids and drill cuttings (D001) during spring and fall bowhead whale hunting activities is retained within the final Geotechnical GP.</p>
16		<p>There is no information that suggests that subsistence users actually harbor misperceptions about the potential of geotechnical discharges to contaminate bowhead whales. The ODCE does not reference statements from AEWC representatives or comments relating to geotechnical discharges received at meetings on the North Slope. The EPA refers in the ODCE to traditional knowledge workshops it held on the North Slope; however, these workshops were held in relation to exploration drilling, not geotechnical surveys. It is not reasonable for the EPA to include provisions in a geotechnical permit based on input received for an exploration permit. Although the commenter does not believe that subsistence users harbor misperceptions about geotechnical discharges, if it were the case, the EPA should endeavor to alleviate those concerns rather than perpetuate unsubstantiated fears through the promulgation of the Draft Geotech GP.</p>	<p>Based on extensive outreach, EPA understands that subsistence communities are concerned about contamination of subsistence resources as a result of discharges associated with oil and gas activities, including geotechnical surveys and related activities in the Beaufort and Chukchi Seas. These concerns were highlighted during tribal consultation meetings between EPA and the Native Village of Barrow, the Native Village of Wainwright, and the Inupiat Council of the Arctic Slope (ICAS), and are confirmed by the numerous comments submitted on the Geotechnical GP. Please refer to RTC #6, 7, and 10 for EPA's responses to comments pertaining to the perception of food tainting/contamination.</p> <p>In addition, EPA's reliance on information collected during the traditional knowledge workshops for the Beaufort and Chukchi Exploration GPs is reasonable because the types of discharges from exploration drilling and geotechnical activities, including the make-up of drilling fluids - are similar. Although the geotechnical surveys and related activities would produce smaller volumes on a per hole basis, the total annual estimates discussed within the ODCE result in discharge volumes at the same order of magnitude as one exploration drilling well. Because the discharges are similar in type and make-up, and would occur within the same geographic areas as the exploration activities, it is appropriate for EPA to consider the concerns expressed by the nearby communities who rely on marine resources to maintain a crucial subsistence diet (See ODCE Section 6.9.1. and EPA's EJ Analysis for the Beaufort and Chukchi Exploration GPs.).</p> <p>The ODCE documents EPA's analysis of potential effects based on the ten criteria established by 40 CFR 125.122. EPA's conclusion that the discharges would not result in unreasonable degradation of the marine environment is based on a comprehensive evaluation of the authorized discharges and the effluent limitations, requirements, and prohibitions established by the Geotechnical GP. The seasonal restriction on D001 is a critical part of that analysis and conclusion, and ensures an additional level of protection of subsistence resources.</p>

17		<p>The operators that engage in geotechnical activities in the Arctic OCS, generally apply for Incidental Harassment Authorizations (IHA) from NMFS for activities that may impact bowhead whales or subsistence users. Under Section 101(a)(5)(A) of the Marine Mammal Protection Act, NMFS may authorize the incidental harassment of certain marine mammals providing, among other things, that the harassment does not have an "unmitigable adverse impact on the availability of these species for subsistence uses." If the EPA is not prepared to allow governance of subsistence impacts to the federal agency charged with that responsibility under the MMPA, it may stipulate that applicants for NOIs not violate the MMPA during the performance of its geotechnical activities. The EPA may request that a permittee provide proof of consultation or authorization from the agencies directly responsible for MMPA protection that the proposed activity will not have an unmitigable impact on subsistence activities. This will allow a permittee to work directly with the federal agency responsible for subsistence impacts.</p>	<p>EPA has an obligation under Section 7 of the Endangered Species Act (ESA) to consult with NMFS and the USFWS to ensure that the discharges authorized by the Geotechnical GP will not likely jeopardize the continued existence of any species listed under ESA or result in the destruction or adverse modification of designated critical habitat. In addition, Section 403 of the Clean Water Act requires EPA to ensure that its permitting decisions do not result in an unreasonable degradation of the marine environment. More specifically, criterion 3 of the Ocean Discharge Criteria Evaluation (40 CFR 125.122) requires an evaluation of the composition and vulnerability of the biological communities, which may be exposed to pollutants, including the presence of species identified as endangered or threatened pursuant to ESA.</p> <p>EPA has completed the ESA consultations with NMFS and the USFWS and the Criterion 3 analysis to ensure the discharges would not adversely affect listed or candidate species or their designated critical habitat areas, or cause unreasonable degradation of the marine environment.</p> <p>The MMPA is an entirely separate statutory authority with its own regulatory process and specific standards (see Sections 101(a)(5)(A) and (D) of the MMPA, 16 U.S.C. § 1371). NMFS's authorities under the MMPA do not alter or diminish EPA's statutory authorities and obligations under the Clean Water Act.</p> <p>EPA further notes that the commenter overlooks critical distinctions between the respective statutory authorities and underlying operative documents. For example, IHAs generally apply only to a single operational area or single drilling season, whereas the Geotechnical GP is designed to govern discharges anywhere within the Chukchi and Beaufort Seas that geotechnical surveys and related activities may occur, and over multiple seasons. In addition, the referenced IHA focused primarily on marine mammal impacts associated with noise from drilling operations. In contrast, EPA is obligated under the Clean Water Act to ensure that the Geotechnical GP does not cause unreasonable degradation based on the ten regulatory criteria. As noted above, NMFS' MMPA authorities do not alter EPA's separate Clean Water Act obligations.</p>
18	GP Part II.B.4.	<p>The lack of support for the whaling closures is highlighted by the ADEC's decision to remove similar closures from its Draft Geotech GP. The ADEC had similar whaling closures in its permit, but removed them in response to comments received during a preliminary comment period. The EPA's decision to include the whaling closures in the draft permit is irreconcilable with the State's decision that they are not warranted, especially given that the state waters of the Beaufort and Chukchi Sea</p>	<p>EPA cannot respond regarding the Alaska Department of Environmental Conservation's (ADEC) decision-making process, please refer to ADEC's Response to Comments document.</p> <p>The commenter's reference to "whaling closures" was submitted on the initial draft Geotechnical GP and refers to the restriction on the discharge of drilling fluids and drill cuttings (D001) during spring and fall bowhead whale hunting</p>

		<p>are nearshore and thus more susceptible to whaling than the federal waters in the region.</p>	<p>activities in the Chukchi Sea and Beaufort Sea, respectively (Permit Part II.B.4). As discussed above, this discharge restriction does not apply to any other waste streams (i.e. D002 – D012), and therefore does not constitute a “closure” of geotechnical activities.</p> <p>EPA determined that this provision was necessary due to chemical additives such as barite to be present in the drilling fluid formulation. Barite is of particular concern because it is known to contain trace levels of several heavy metals, such as mercury, cadmium, arsenic, chromium, copper, lead, nickel and zinc (U.S. EPA, 2000).</p> <p>See RTC #4, #6, #15, and #20.</p>
<p>19</p>	<p>GP Part II.B.4.</p>	<p>The Draft Geotech GP whaling closures are also problematic insofar as they delegate the EPA's regulatory authority to the AEWC, a private organization. The EPA's authority to issue NPDES permits comes from Section 402 of the CWA. The EPA cannot delegate to a private organization the responsibility for ensuring that a NPDES permit complies with applicable laws and regulations. Yet, in the Draft Geotech GP, the EPA vests in the AEWC the discretion to determine when a permittee can recommence Discharge 001 following whaling.</p>	<p>As discussed above in RTC #4, the seasonal restrictions on D001 do not constitute “whaling closures.” In response to the remainder of this comment, EPA has revised the D001 seasonal restriction language.</p> <p>The Geotechnical GP Part II.B.4.a.1. has been revised as follows: “The permittee must cease Discharge 001 starting on March 25 and may not resume discharging until after bowhead whale hunting activities are completed. The permittee must submit an electronic written request to EPA to resume Discharge 001, along with supporting documentation demonstrating that bowhead whale hunting activities have ceased. EPA will respond to the permittee via electronic mail within 7 calendar days of receiving this request. EPA will authorize the permittee to resume Discharge 001, provided sufficient supporting documentation has been submitted by the permittee and EPA has confirmed that bowhead whale hunting activities have concluded.”</p> <p>The Geotechnical GP Part II.B.4.b.1. has been revised as follows: “The permittee must cease Discharge 001 starting on August 25 and may not resume discharging until after bowhead whale hunting activities are completed. The permittee must submit an electronic written request to EPA to resume Discharge 001, along with supporting documentation demonstrating that bowhead whale hunting activities have ceased. EPA will respond to the permittee via electronic mail within 7 calendar days of receiving this request. EPA will authorize the permittee to resume Discharge 001, provided sufficient supporting documentation has been submitted by the permittee and EPA has confirmed that bowhead whale hunting activities have concluded.”</p> <p><i>(Related: RTC #15, #R3 and #R27)</i></p>

20	GP Part II.B.4.	<p>If the EPA insists on retaining whaling closures in the final Geotech GP, it will severely impact the ability of an operator to conduct an effective geotechnical program in the U.S. Arctic OCS. Closures, particularly in the Chukchi Sea, are ultimately unworkable. The Arctic open water season is short and these closures would further abbreviate the season for an indeterminate period of time. Depending on the duration of the Spring or Fall whale hunt, these closures could theoretically preclude geotechnical work for an entire season.</p>	<p>This comment reflects a misunderstanding of the permit provision at issue. The commenter’s reference to “whaling closures” was submitted on the initial draft Geotechnical GP and refers to the restriction on the discharge of drilling fluids and drill cuttings (D001) during spring and fall bowhead whale hunting activities in the Chukchi Sea and Beaufort Sea, respectively (Permit Part II.B.4). This discharge restriction does not apply to any other waste streams (i.e. D002 – D012), and therefore does not constitute a “closure” of geotechnical activities, nor would it “preclude geotechnical work for an entire season.” Notably, industry operators have commented that the majority of geotechnical surveys, particularly the shallow boreholes (≤50 ft), would not require the use of drilling fluids (AOGA, 2013; Shell, 2013; Shell, 2014; RTC #32, #82, #155, #208, and #209). Other discharges authorized by the Geotechnical GP are not restricted during bowhead whale hunting activities. See RTC #4 and #15.</p> <p>In addition, the open water season does not generally begin until approximately July 1, when vessels are allowed to enter the Chukchi Sea through the Bering Strait by federal agencies such as NMFS, to prevent impacts to the spring bowhead migration (ODCE Section 6.1.). The open water season ends approximately on October 31, when ice freeze-up begins.</p> <p>On August 15, 2014, EPA re-proposed a revised Geotechnical GP restricting all discharges within the 3 to 25 nautical mile lease deferral area in the Chukchi Sea prior to July 1. EPA’s responses to comments on that separate provision are provided at RTC #7, #8, and #R4.</p>
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CATEGORY 2: ENVIRONMENTAL MONITORING PROGRAM

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
21	ODCE, Criterion 1, pg. viii	<p>The fact that the EPA does not articulate concerns in the ODCE related to bioaccumulation or persistence indicates that an EMP requirement is not necessary and is unduly burdensome. The questions that the EMP requirements are intended to answer have already been answered by prior work published in the literature and current available information. There is no justification for EMP requirements backed by criterion 1 evaluation, which concludes that the discharges are not bioaccumulative or persistent.</p>	<p>EPA disagrees with the commenter’s characterization of the EMP requirement. The EMP requirement is based on EPA’s express authorities under sections 308, 402, and 403 of the Clean Water Act, as well as 40 C.F.R. Part 125, and is specifically tailored to the nature and scope of geotechnical surveys and related activities, while ensuring no unreasonable degradation of the marine environment.</p> <p>In addition, this comment mischaracterizes EPA’s ODCE conclusion regarding Criterion 1, which relies, in part, on the EMP requirement to conclude that “it is not expected that the Geotechnical GP would result in discharges of pollutants in quantities or composition that would bioaccumulate or persist in the marine environment.” See ODCE at Section 6.1.6. The EMP consists of two phases: Phase I includes collection of baseline site characterization data at each geotechnical activity site, or submission of existing representative baseline data. The Phase I requirement appropriately ensures that impacts from geotechnical activities and discharges do not occur to sensitive biological areas and habitats, or are in the vicinity of historic properties. Phase II of the EMP is only required if water-based drilling fluids are used to conduct the geotechnical activity, or if the Director requests completion of Phase II upon review of Phase I data. Phase II includes a visual evaluation and narrative discussion of drilling fluids and drill cuttings deposition, and a discussion of any potential overlap from deposition caused by nearby exploration activities.</p> <p>Given that the ODCE is a prospective analysis, on-the-ground information regarding the sensitivity or historic nature of actual geotechnical survey or related activity locations (Phase I), and information regarding depositional impacts from drilling fluid use (Phase II), is critical to ensuring that unreasonable degradation does not occur once activities commence. As such, both EMP requirements provide part of the supporting basis for EPA’s overall ODCE conclusion that the Geotechnical GP is not expected to cause unreasonable degradation of the marine environment.</p> <p>See also RTC #25 and #31.</p>

22	ODCE, Criterion 2, pg viii-ix. Fact Sheet pg. 10	<p>The limited duration and short-term effects of geotechnical discharge are indicated by the results of the EPA 2D advection diffusion equation model, which demonstrate insignificant deposition beyond 1 meter from the borehole location. Specifically, “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.” These are negligible depositions and are confined to a small spatial scale, both horizontally and vertically, and which do “not result in significant accumulations”. These findings negate the need for a post-drill (Phase II) EMP requirement in final Geotechnical GP. There is no justification for EMP requirements backed by criterion 2 evaluation, which concludes that the short duration discharges will not result in significant accumulations on the seafloor.</p>	<p>Please see RTC #21.</p> <p>The Geotechnical GP requires a Phase II EMP if drilling fluids are used to conduct the geotechnical activity, or if the Director requests completion of Phase II upon review of Phase I data. Phase II includes a visual characterization of the seafloor, a narrative discussion of the areal extent and thickness of the solids deposition, and a discussion of potential overlap from deposition caused by exploration activities. The information collected under this requirement would confirm EPA’s modeling results and the agency’s conclusions, based on an analysis of potential geotechnical and exploration activities, that the discharges would not cause an overlap in deposition. Additionally, the Phase II EMP would provide data regarding the potential transport of pollutants by physical processes, which is a component of Criterion 2. It is therefore critical to ensuring that unreasonable degradation does not occur once activities commence, and provides part of the supporting basis EPA’s overall ODCE conclusion that the Geotechnical GP is not expected to cause unreasonable degradation of the marine environment.</p> <p>See also RTC #147 and #R31.</p>
23	ODCE, Criterion 3, p. x	<p>The BE concluded that the discharges ‘may affect, but are not likely to adversely affect’ ESA listed, candidate, and proposed, species, or their designated critical habitat areas.” Given this conclusion, there is no justification for EMP requirements backed by criterion 3 evaluation. The EMP is not necessary because the ODCE concludes that the short duration discharges are not likely to adversely affect critical species. Additionally, the EMP data collection requirements will not answer these questions.</p>	<p>The purpose of the EMP is not to evaluate potential impacts to ESA species. As discussed in the Geotechnical GP, Fact Sheet and ODCE, the purpose of Phase I is to ensure that impacts from geotechnical activities and discharges do not occur to sensitive biological areas and habitats, or are in the vicinity of historic properties. The purpose of Phase II is to evaluate the areal extent and depth/thickness of solids deposition caused by the discharge of drilling fluids and drill cuttings, and to evaluate any potential overlap from deposition caused by nearby exploration activities.</p> <p>See also RTC #25 and #31.</p>
24	ODCE Criterion 4, pg. x	<p>The seasonal-restriction time window requirements are more than sufficient to limit and/or prohibit any adverse effects to the marine organisms as a result of the geotechnical activity. The current EMP requirements for monitoring do not augment the seasonal-restriction time windows and the time-restrictions alone are sufficient for protection of the environment. There is no justification for EMP requirements backed by the criterion 4 evaluation.</p>	<p>The requirements of the EMP are not meant to augment the seasonal restrictions established by the Geotechnical GP, such as the discharge D001 seasonal restriction. RTC #21, #22, and #23 summarize the EMP requirements and their purposes.</p> <p>Criterion 4 of the ODCE requires consideration of the importance of the receiving water to the surrounding biological community, including the presence of spawning sites, nursery/forage areas, migratory pathways, or areas necessary for other functions or critical stages in the life cycle of an organism. Phase I of the EMP would ensure that impacts from geotechnical activities and discharges would not occur to sensitive biological areas and habitats, or are in the vicinity of historic properties. Criterion 4 is, therefore, critical to ensuring that unreasonable</p>

			<p>degradation does not occur once activities commence, and provides part of the supporting basis to EPA’s overall ODCE conclusion that the Geotechnical GP is not expected to cause unreasonable degradation of the marine environment.</p> <p>Please note that EPA clarified the EMP Phase I requirement during the Geotechnical GP re-proposal process to allow existing, representative baseline data to be submitted under Phase I.</p>
25	ODCE, Criterion 5, pg xi.	<p>“No marine sanctuaries or other special aquatic sites, as defined by 40 CFR 125.122, are in or adjacent to the Geotechnical GP Area of Coverage.” Given this conclusion, there is no justification for EMP requirements backed by criterion 5 evaluation</p>	<p>Criterion 5 of the ODCE requires consideration of the existence of special aquatic site including, but not limited to, marine sanctuaries and refuges, parks, national and historic monuments, national seashores, wilderness areas, and coral reefs. Phase I of the EMP would ensure that impacts from geotechnical activities and discharges would not occur to sensitive biological areas and habitats, or are in the vicinity of historic properties. See also RTC #21 and #24.</p> <p>While special aquatic sites have not been officially designated and therefore not analyzed under Criterion 5, this does not preclude EPA from ensuring that sensitive biological areas, habitats and historic properties would not be affected.</p>
26	ODCE, Criterion 6, pg. xi.	<p>The permit requirements for seasonal-restriction time-windows are sufficient to address the concerns (including perceptions) raised by subsistence hunters. The additional EMP requirements are not necessary for limiting contamination in subsistence food sources because the preceding criterion (e.g. bioaccumulation and persistence potential) addresses potential contamination issues. In addition, historical exploration drilling has occurred in the Arctic OCS (> 60 wells) and the level of contamination in subsistence food resources is low. With the distance from the lease blocks to the subsistence hunting areas and the localized nature of discharges from geotechnical activities, there is no justification for EMP requirements backed by the criterion 6 evaluation.</p>	<p>Geotechnical surveys and related activities are not restricted to occur only within lease block areas. The Area of Coverage for the Geotechnical GP includes federal waters of the United States in the Beaufort and Chukchi Seas, located seaward from the outer boundary of the territorial seas (Permit Part I.B.). As such, the ODCE must consider the discharges and potential impacts to the marine environment within the entire permit coverage area.</p> <p>Refer to RTC #21 and #25.</p>
27	ODCE, Criterion 7, pg xii.	<p>“Based on the limited duration of the discharges authorized and the limits and requirements established in the Geotechnical GP, it is not expected that the discharges would affect fishing success or the quality of the fish harvested.” Given this analysis, there is no justification for EMP requirements backed by Criterion 7 evaluation.</p>	<p>Criterion 7 requires consideration and evaluation of existing or potential recreational and commercial fishing, including finfishing and shell fishing, and discussed by EPA in Section 6.7. of the ODCE. EPA’s conclusion cited by the commenter was reached in consideration of the other ODCE criteria and the totality of the Geotechnical GP requirements, including the EMP requirements. As noted on page 6-20 of the ODCE, “Considering that the discharges would meet federal water quality along with the findings presented for Criteria 1 through 4, EPA does not anticipate significant adverse direct or indirect effects resulting from the authorized discharges on subsistence fishing.”</p> <p>See also RTC #21 – #26.</p>

28	ODCE Criterion 8, pg. xii.	The State of Alaska does not have an approved Coastal Zone Management Plan. There is no justification for EMP requirements backed by criterion 8 evaluation. This criterion is not relevant at this time because the State of Alaska does not currently have a CZMP. This criterion does not justify the inclusion of the EMP in the GT permit.	The EMP requirements are not designed to address Coastal Zone Management Act (CZMA) issues. Section 6.8. of the ODCE noted that the CZMA provisions at 16 U.S.C. 1456(c)(3) and 15 CFR Part 930 no longer apply in Alaska. See RTC #21 and #25.
29	ODCE Criterion 9, pg xii	There is no justification for EMP requirements backed by the criterion 9 evaluation.	Criterion 9 includes a review of other factors relating to the effects of the discharge as may be appropriate. EPA utilized this criterion to evaluate whether the discharges authorized by the Geotechnical GP would have a disproportionately high or adverse human health or environmental effects on minority or low-income populations living on the North Slope, Northwest Arctic, and Bering Sea. EPA's evaluation and determinations are discussed in more detail in the EJ Analysis for the Beaufort and Chukchi Exploration GPs, while taking into consideration the much smaller scale of geotechnical activities, and summarized in Section 6.9.1. of the ODCE. EPA considered all the input received from multiple outreach activities with tribal governments, local communities, and subsistence commissions as well as the Traditional Knowledge information received during development of the Beaufort and Chukchi Exploration GPs. EPA reached the EJ conclusions discussed in Section 6.9.1. based on consideration of the effluent limitations and prohibitions, seasonal restrictions, monitoring requirements, including the EMP, and other ODCE criteria. See also RTC #68. EPA also evaluated the potential for the geotechnical discharges to have a combined effect with exploration discharges under Section 6.9.2. of the ODCE.
30	ODCE Criterion 10, pg.	"Because the effluent limitations and requirements contained in the permit comply with federal water quality criteria, EPA concludes that the discharges will not cause an unreasonable degradation of the marine environment." There is no justification for EMP requirements backed by the criterion 10 evaluation.	The EMP requirements are not designed to address water quality criteria issues. Criterion 10 includes an analysis of marine water quality developed pursuant to CWA Section 304(a)(1) and demonstrated that the effluent limitations established by the Geotechnical GP meet federal criteria. See also RTC #21.
31	ODCE p 6-26	It appears that, based on the ODCE conclusion that the operational discharge requirements ALONE (i.e. effluent limitations as presented in tables 1-12) are more than sufficient for protection of the marine environment. On the basis of these conclusion, the EPA's own criteria document suggests that the criteria evaluations individually and combined do not justify the inclusion of an EMP to the final Geotech GP.	The commenter mischaracterizes the nature of EPA's ODCE conclusions. Throughout the analysis, EPA bases its conclusion of no unreasonable degradation on a comprehensive analysis of the Geotechnical GP's effluent limitations and prohibitions, seasonal restrictions, and monitoring requirements, including the EMP requirements. See ODCE at Sections 6.1, 6.4, 6.9, and 6.10. The EMP ensures that the discharges do not impact sensitive biological areas and habitats, or are within the vicinity of historic properties (Phase I), and to

			<p>determine the areal extent of solids deposition and discuss any potential overlap from deposition caused by nearby exploration activities, if drilling fluids are used (Phase II). The effluent limitations alone do not provide this level of data or assurance that the discharges would not result in unreasonable degradation of the marine environment. For example, the effluent limitations restrict the concentrations of pollutants in the discharge, while the EMP ensures that the discharges do not occur in a sensitive habitat and evaluates the extent and thickness of solids deposition.</p> <p>EPA further notes that in addition to the effluent limitations required under Section 402 of the CWA, Section 403 authorizes EPA to ensure no unreasonable degradation of the marine environment.</p> <p>Refer to RTC #21 – #30 for EPA’s responses regarding the ODCE criteria as they relate to the EMP requirements.</p>
32		<p>The majority of geotechnical surveys does not include drilling fluids and as such do not warrant the implementation of extensive sampling and monitoring programs. The evaluation of the 10 criterion as per the ODCE does not justify the inclusion of the EMP even with the assumption that drilling fluids (D001) are used, especially with the inclusion of the effluent limitation and monitoring requirements associated with D001 (Table 1).</p>	<p>EPA’s drilling fluid analysis is consistent with information received from industry operators. Based on this information, EPA understands that while boreholes less than 50 ft in depth below the seabed may only require seawater; it is possible that drilling fluids would be utilized for the shallow holes as needed. Because this is a general permit, however, and because industry operators have indicated a need for permitting flexibility in designing geotechnical surveys (Shell, 2013; AOGA 2013; Shell 2014; See also RTC #82, #155, #208 and #209), EPA appropriately assumed that all geotechnical boreholes would use drilling fluids in developing the estimated discharge volumes.</p> <p>EPA further notes that Phase II of the EMP is only required when drilling fluids are used. As such, the majority of the commenter’s geotechnical surveys would not be subject to Phase II requirements.</p> <p>Refer to RTC #21 – #30 for EPA’s responses regarding the ODCE criteria as they relate to the EMP requirements.</p>
33		<p>Despite the fundamental differences between geotechnical activities and exploratory drilling, the EMP requirement in the Draft Geotech GP is similar to that required in the Exploration GPs. It takes significantly less time to drill a geotechnical borehole than it does to drill an exploration well. Further, drilling a geotechnical borehole will result in substantially less discharges. It is therefore not appropriate to require similar EMP monitoring to geotechnical activities as is required for exploratory drilling.</p>	<p>Contrary to the commenters’ assertions, the EMP requirements for the Geotechnical GP reflect the nature and duration of geotechnical activities as well as the smaller discharge volumes. Specifically, the Geotechnical GP requires the EMP to be conducted in two phases.</p> <ul style="list-style-type: none"> ▪ Phase I requires collection of baseline site characterization data or submission of existing, representative data. ▪ Phase II, which is required only if drilling fluids and drill cuttings (D001) are discharged (D001). Phase II includes a visual characterization of the seafloor, a narrative discussion of the areal extent and thickness of the solids deposition,

			<p>and a discussion of potential overlap from deposition caused by exploration activities.</p> <p>As discussed in RTC #21, #22, and #23, these requirements are necessary to ensure that discharges do not impact sensitive biological areas and habitats, or are in the vicinity of historic properties (Phase I) and to determine the areal extent of solids deposition, and discuss any potential overlap from deposition caused by nearby exploration activities, if drilling fluids are used (Phase II).</p> <p>In contrast, the Exploration GPs require more extensive monitoring in four distinct phases that apply to each well site. The four phases are as follows:</p> <ul style="list-style-type: none"> ▪ Phase I requires an initial sea bottom survey, a physical characterization of the receiving water environment, an analysis of the receiving water chemistry, a characterization of the benthic community structure, bioaccumulation monitoring, and a characterization of the sediments. ▪ Phase II occurs during drilling and requires effluent toxicity characterization of specific waste streams, non-contact cooling water plume observations, water-based drilling fluids metals analysis, and water-based drilling fluids plume monitoring and observations. ▪ Phase III occurs immediately after drilling has ceased and requires a physical sea bottom survey, a characterization of the post-drilling sediments, an evaluation of the discharge effects on the environment, a characterization of the benthic community structure, and bioaccumulation monitoring ▪ Phase IV occurs within 15 months of a well shutdown and requires a physical sea bottom survey, a characterization of the benthic community structure, bioaccumulation monitoring, a characterization of the sediment and an evaluation of the discharge effects. <p>Accordingly, and contrary to the commenters' assertions, the EMP requirements in the Geotechnical GP and Exploration GPs are not similar and are appropriately tailored to the respective nature of geotechnical and exploration activities.</p> <p>See also RTC #21 and #79.</p>
34		<p>Geotechnical boring activities are not equivalent to Exploration Drilling operations. Discharges from geotechnical drilling result in a very small volume (e.g. for a 100-ft boring a 9-in diameter hole would create approximately 44 cu ft of cuttings, including 2 cu ft for samples). The area of discharge is thus significantly smaller than exploratory drilling discharges and results in a nominal seafloor discharge footprint, both horizontally and vertically. Indeed, the ODCE specifically states that</p>	<p>See RTC # 21, #22, and #33.</p>

		"effects would be limited by the short duration of activity....and the quantity and composition of discharges" (ODCE pg viii) and "effects are likely to occur in a limited area and the extent and duration of effects are expected to be short term" (ODCE pg viii-ix). There is no scientifically valid rationale for inclusion of an EMP in the Geotechnical NPDES permit and this requirement should be removed.	
35		There are significant discrepancies between the NPDES permit and the conclusions presented in the ODCE. The EPA concludes that "the discharges will not cause an unreasonable degradation of the marine environment," and BOEM currently regulates geotechnical activities as "ancillary." Ancillary activities should not require EMP type compliance requirements because they are significantly different (i.e. significantly more minimal) from other types of activities such as exploratory drilling.	<p>The conclusions of the ODCE are reached based on a comprehensive evaluation of the authorized discharges and the limitations, requirements, and restrictions established by the Geotechnical GP, including the EMP requirements. Indeed EPA's conclusion that authorized discharges will not cause unreasonable degradation of the marine environment rests, in part, on the continued provision of monitoring data.</p> <p>Also, BOEM and EPA are authorized to implement different statutes. Sections 402 and 403 of the Clean Water Act provide EPA's authority, and require EPA to ensure that the discharges, given the totality of permit requirements, would not result in an unreasonable degradation of the marine environment. This requirement applies regardless of how BOEM or any other agency defines geotechnical activities under their own respective authorities.</p> <p>As discussed in RTC #21 and #33 the scope of EMP requirements in the Geotechnical GP appropriately reflects the nature of geotechnical activities as compared to exploration activities.</p>
36		The effluent limitations and monitoring requirements and area and time restriction discharge windows are more than sufficient to ensure protection of the marine environment and the humans that rely on the environment for food. For example, the main indicator for potential long-term bioaccumulation and biomagnification of chemicals in the food web is the respective chemicals' propensity to bioaccumulate and persist in the environment. However, the ODCE definitively concludes that "the discharges from geotechnical surveys and related activities to federal waters are not expected to cause an unreasonable degradation of the marine environment because pollutants associated with those discharges are not bioaccumulative or persistent" (ODCE pg viii).	See RTC #21 and #52. EPA reached the conclusions in the ODCE based on a comprehensive evaluation of the effluent limitations, restrictions, and monitoring requirements, including the EMP requirements.
37	GP; Section II.A.14.	In the event that an EMP or a modified version of an EMP (i.e. with an exception for pre-existing Phase I baseline data) is required in the final permit, which commenter opposes, there should be an explicit caveat in this section that the conduct of an extensive EMP would only be required for activities using drilling fluids (D001). As written, this section states that an EMP is required for all geotechnical activities,	As discussed in RTC #21, #33, and #35, EPA disagrees with the characterization of the EMP requirements as overly extensive for geotechnical activities. However, EPA revised the Geotechnical GP during the re-proposal process to allow for the submission of existing, representative baseline data regarding site conditions for Phase I. EPA also clarified that Phase II of the EMP is only required when drilling fluids are used to conduct the geotechnical activity.

		<p>which is not appropriate for an activity that is simply retrieving soil cores from the subsurface well above a hydrocarbon zone. Geotechnical activities solely involving soil borings where minimal disturbance from cuttings would occur do not warrant extensive monitoring requirements. Also, this section should be amended to state that if relevant site-specific data have been collected prior to geotechnical activities, those data may be used to satisfy any Phase I requirements.</p>	<p>See also RTC #23, and #39.</p>
38		<p>If an EMP is required in the final permit - which would be unjustified - the requirement should at least be the same in the federal and state permits. In particular, the "phases" should be defined the same in both permits.</p>	<p>As discussed in RTC #37, EPA clarified the EMP requirements in the revised Geotechnical GP that was re-proposed for public review on August 15, 2014. EPA's EMP consists of two phases, which are designed to determine whether proposed discharge locations are within the vicinity of sensitive biological areas, habitats, or historic properties (Phase I) and to determine the areal extent of solids deposition if drilling fluids are used (Phase II). Refer to RTC #21, #22, and #23.</p> <p>ADEC's EMP is required if an applicant is seeking authorization to discharge water-based drilling fluids and drill cuttings and is comprised of three phases, based on the State's determination of its informational needs and requirements for discharges to nearshore state waters. The three phases are as follows:</p> <ul style="list-style-type: none"> ▪ Phase I (Baseline Survey) requires an initial seafloor survey and a characterization of the sediments for metals. ▪ Phase II (During Drilling) requires monitoring of plume characteristics for the discharge of water-based drilling fluids and drill cuttings (D001) and non-contact cooling water (D009). ▪ Phase III (Post-Drilling) requires a seafloor survey to map the areal extent and depth/thickness of solids deposition caused by D001. <p>Since EPA's Geotechnical GP does not include an EMP requirement for a "during drilling" phase, defining the phases the same in both permits would not be appropriate. No further changes have been made to the EMP as requested by the commenter.</p>
39		<p>Phase I assessment through physical and visual characterization of the seafloor in the EMP does not account for the highly variable annual changes of the seafloor and the large response from the benthic community to oceanographic changes (Reference: Blanchard et al 2013)</p>	<p>EPA requires collection of physical data and a visual characterization of the seafloor, or submission of existing, representative data, at every geotechnical activity location. Phase I includes physical data from the receiving water environment, such as surface wind speed and direction, current speed and direction throughout the water column, water temperature, salinity, depth, and turbidity. The commenter is correct that Phase I does not address benthic-level changes or account for variation of the seafloor; however, those factors are not the goals of the EMP. The purpose of Phase I is to ensure that the geotechnical activities and discharges do not impact sensitive biological areas and habitats, or</p>

			are in the vicinity of historic properties. Phase II evaluates the areal extent and depth/thickness of solids deposition caused by the discharge of drilling fluids and drill cuttings and requires the permittee to discuss any potential overlap from deposition caused by nearby exploration activities.
40		Significant permit revisions are needed if the EMP remains in the Final Geotech GP and tied to the use of drilling fluids. The current draft Geotech GP does not allow for the use of pre-existing data for Phase I requirements. There are no exceptions in the permit for data that already exist that could serve as pre-drilling data.	EPA revised the Geotechnical GP during the re-proposal process to allow for the submission of existing, representative baseline data for Phase I.
41		Commenter suggests that Section II.A.14. Phase I - Baseline Site Characterization (II.A.14) and Assessment (II.A.14d) be removed from the proposed permit because that information is already collected during the site baseline survey.	Refer to RTC #31 and #40.
42	NPDES Geotechnical GP, Section II.A.14.b.1, p. 20	The requirement for a baseline site characterization is not necessary because the permittee already conducts pre-site characterization to avoid sensitive areas and to ensure that equipment will not be compromised during deployment and to determine if there are any potential archaeological or historically significant sites near the planned borehole. If any such site is identified, boreholes are re-sited prior to the operator even entering the coverage area.	Refer to RTC #31 and #40.
43	GP Part II.A.14.d	There are prior and ongoing studies in both the Chukchi and Beaufort Seas funded by both industry and government agencies that provide data equivalent to that required for the Phase I component of the EMP. This includes data from past MMS- and Shell-funded studies in the Beaufort Sea (e.g., ANIMIDA, cANIMIDA) and BOEM-funded ANIMIDA III in the Beaufort Sea, as well as the industry-funded (Shell, Statoil, Conoco) data collection in the Chukchi Sea and the BOEM-funded research in the Chukchi Sea (COMIDA-CAB, COMIDA-Hanna Shoal), among other research programs. Given the existing published baseline data, the commenter recommends removing the Phase I Assessment requirement in the permit.	Refer to RTC #31 and #40.
44	GP Part II.A.14.d.2	The ODCE indicates that turbidity increases from geotechnical activities are not expected, and therefore the requirement in the draft Geotechnical GP to monitor turbidity is without basis. "The solid component of water-based drilling fluids and cuttings (001), cuttings not associated with drilling fluids (011), and cement slurry (012) are not expected to contribute significantly to turbidity in the water column as the discharges occur at the seafloor." (EPA 2013, Section 6.3.1)	EPA revised the Geotechnical GP during the re-proposal process to allow submission of existing, representative baseline data to meet the Phase I EMP requirements. Phase I of the EMP includes two components: (1) initial physical sea bottom survey and (2) collection of physical data, which includes surface wind speed and direction, current speed and direction throughout the water column, water temperature, salinity, depth, and turbidity. Phase I of the EMP is required at each geotechnical activity site and is to be conducted <u>prior to the start of the</u>

		<p>Additional justification of effluent limits in the Geotechnical GP being protective of turbidity is included in the ODCE (EPA 2013, Section 6.10.5). The ODCE does not indicate data gaps requiring additional information on physical process at play. Indeed, it documents and even models physical transport processes including currents and wind in both the Beaufort and Chukchi seas using existing data. (EPA 2013, Section 4.1.3, 6.2.2.) The requirement to collect meteorological and current data presents operational challenges will likely necessitate an additional vessel in addition to monitoring buoys, and is not justified given the amount of data already available.</p>	<p>activity. As with any environmental studies, a clear understanding of the baseline conditions, including turbidity, is critical to the assessment of potential impacts. Phase II is required if water-based drilling fluids are used, or if the Director requests completion of Phase II upon review of Phase I data. Phase II requires a sea bottom survey following cessation of geotechnical activities to determine the areal extent and depth/thickness of solids deposition of drilling fluids and drill cuttings, and a discussion of any potential overlap from deposition caused by nearby exploration activities. Both phases of the EMP, in addition to the effluent limits and monitoring requirements established by the Geotechnical GP, ensure that the discharges would not result in unreasonable degradation of the marine environment. Given that the ODCE is a prospective analysis, specific information regarding site conditions is critical to ensuring that unreasonable degradation does not occur once activities commence.</p>
45	GP Part II.A.14.d.1	<p>The permittee must notify the Director, in writing, 7 calendar days from receipt of the physical sea bottom survey data, if the data indicates the proposed geotechnical activity is located in or near a sensitive biological area, habitat, or in the vicinity of historic properties. It is not clear what happens if a permittee is in or near one of these areas. This process that the EPA will engage in with a permittee following this notification should be described in the final Geotechnical GP.</p>	<p>The Geotechnical GP requires notification within 7 calendar days as cited by the commenter. EPA will review the information and coordinate with other agencies, which may include the Department of the Interior or the Advisory Council on Historic Preservation, and will make the appropriate permit coverage decisions. Because the review and decision-making process may cover a number of different scenarios based on the data provided, EPA has not included a generic process in the final Geotechnical GP.</p>
46	GP Part II.A.14.b.3	<p>Commenter recommends that the requirement to evaluate the areal effects of solids deposition associated with Discharge 001 at the seafloor be deleted. As acknowledged by the EPA in the ODCE, "[t]he anticipated areal extent and depositional thicknesses of the drilling fluids and drill cuttings materials from both activities will not cause long-term effect by the receiving biological and physical marine environment" (EPA 2013, 6-24). Further, the permit includes in other sections effluent limitations and monitoring requirements that already answer the relevant questions--what is entering the receiving waters as a result of these activities?" Additionally, the bioavailability of any associated metals is low (e.g., Trefry and Smith 2003, Crecelius et al. 2007), which is in part why the ODCE concludes that bioaccumulation likelihood is low.</p>	<p>EPA clarified the Phase II EMP requirements during the re-proposal process. Phase II includes a visual characterization of the seafloor, a narrative discussion of the areal extent and depth/thickness of solids deposition caused by the discharge of drilling fluids and drill cuttings (D001), and a discussion of any potential overlap from deposition caused by nearby exploration activities. The effluent limitations would restrict the concentrations of pollutants, while the EMP would aid in the understanding of depositional extent based on the volumes that would be discharged from D001. Additionally, as discussed in RTC #22, the information collected from Phase II would confirm EPA's modeling results and provide data regarding the potential transport of pollutants by physical processes. The EMP requirements, in addition to the effluent limitations established by the permit, were factors that support EPA's conclusions that the discharges would not cause an unreasonable degradation to the marine environment. See also RTC #21.</p>

47		If there is the potential for a company to fail to complete or be exempted from Phase II, our citizens will lose out on the information we need to understand the impacts from these operations.	Phase II of the EMP requires a visual characterization of the seafloor, a narrative discussion of the areal extent and depth/thickness of solids deposition if water-based drilling fluids are used, and a discussion of any potential overlap from deposition caused by nearby exploration activities. The permit does not include any exemption from Phase II EMP requirements when drilling fluids are used. Failure to complete Phase II of the EMP would violate EPA's permit requirements and potentially subject the permittee to enforcement action, including penalties.
48		The EPA requires environmental monitoring to occur after activity at locations where water-based drilling fluids are used. The commenter would like more detailed information on how this monitoring will take place in the Arctic to better assess the monitoring program.	Phase II of the EMP requires a visual characterization of the seafloor, a narrative discussion of the areal extent and depth/thickness of solids deposition caused by Discharge 001, and a discussion of any potential overlap from deposition caused by nearby exploration activities. The visual characterization may involve a subsea camera to capture images of the seafloor after the geotechnical surveys have been completed. This monitoring methodology is not unique to the Arctic.
49	GP Part II.A.14.g	The EMP requirements are not supported. However, assuming the EMP requirement was justified and the EPA carried it forward to the final Geotechnical GP, this language creates numerous questions as to how an EMP could be modified. Does this mean the EMP may only be modified once per year during the annual renewal review? Would changing a part of the EMP constitute a violation of the permit terms and conditions if the modification was requested outside of the annual renewal? This extremely specific allowance for modifications to the EMP, which is an extremely complex and logistically challenging program, gives no operational flexibility and is another reason why the EMP as written will be impossible to implement.	With regard to support for the EMP requirements, see RTC #21, #22, #23 and #25. The permit provision referenced by the commenter pertains to EPA's discretion to require modifications to the EMP Plan of Study. EPA will review the Plan of Study when it is submitted with the first-time and/or annual NOI package and may require modifications prior to granting permit coverage. Once the NOI package, including the EMP Plan of Study, has been reviewed and coverage under the General Permit has been granted, then the operator must fulfill the specifications identified in the EMP Plan of Study. EPA may require a modification to the EMP Plan of Study on an annual basis, either after submission of the first-time or annual renewal NOI.
50	ODCE, pg. ii	"EPA also assumes drilling fluids would not be used for geotechnical related activities." This statement conflicts with the inclusion of D001 and the EMP requirements in the permit.	There is no conflict between the cited statement and the inclusion of Discharge 001 (D001) and other permit requirements in the Geotechnical GP. EPA's decision to include D001 as an authorized discharge in the Geotechnical GP is based on specific information provided by industry operators, including AOGA (AOGA, 2013; Shell, 2013). Specifically, industry operators have made clear that drilling fluids may be necessary for deeper boreholes and have requested the permitting flexibility to use drilling fluids where needed (Shell, 2014). The permit provides that authorization through D001, along with appropriate monitoring requirements that apply when drilling fluids are used. Because geotechnical related activities - i.e. feasibility testing of trenching or mudline cellar construction equipment, are shallow in nature (less than 50 feet below the seafloor surface), EPA made a reasonable assumption that drilling fluids would not be used, based on information from mudline cellars that have been completed in the Arctic. In addition, as discussed above in RTC #22, the Phase II EMP requirements appropriately apply when drilling fluids are used.

			Overall, the commenters' objection is not clear. EPA does not interpret this comment to request that either Discharge 001 or Discharge 011 (Drill Cuttings not associated with Drilling Fluids) be removed from the Geotechnical GP.
51	Fact Sheet, pg 7	Geotechnical activity is limited in duration. This limited duration combined with the limited spatial extent of deposition (vertical and horizontal) does not result in significant deposition in the environment. This is known a priori and it negates the need for an EMP.	See RTC # 22, #44 and #46.
52		It is not clear whether trace metal bioaccumulation studies of drill sites would also be included in the EMP, but we support their inclusion.	EPA does not require bioaccumulation studies as part of the EMP. EPA has required operators to analyze each drilling fluid formulation for metal contaminants (Geotechnical GP, Table A) if barite is added to the drilling fluid formulation to gather information for future decision-making.
53		It should be noted that bioaccumulation is not biomagnification. Bioaccumulation is a transient, reversible nominal increase in chemical concentration in biota compared to the organisms' environment, e.g., water or sediment or food sources.	Comment noted. Without a specific reference to a document or section of a document that may have confused bioaccumulation with biomagnification, EPA cannot respond directly to this comment.
54		The EMP organization into two phases is problematic because of the potential to ignore cumulative effects.	The purpose of the EMP is to ensure that the discharges from geotechnical activities do not impact sensitive biological areas and habitats, or are within the vicinity of historic properties (Phase I), and to determine the areal extent of solids deposition, including a discussion of any potential overlap from deposition caused by nearby exploration activities, if drilling fluids are used (Phase II). See RTC #23. EPA has considered and evaluated the potential for combined effects associated with geotechnical and exploration activities (ODCE Section 6.9.2, pg 6-21).

CATEGORY 3: ADAPTIVE MANAGEMENT, PEER REVIEW REQUIREMENTS AND GENERAL COMMUNICATION

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
55		<p>Discharges associated with offshore activities, without careful design of appropriate mitigation measures, monitoring plans, and adaptive management, has the potential to interfere with our federally protected subsistence activities, to raise fears about the tainting of our subsistence foods, and to cause biologically significant impacts to the bowhead whale. It is imperative that Region 10 base decisions on the best available information from western science as well as the invaluable lessons that can be learned from our traditional knowledge.</p>	<p>EPA understands the concerns and fears raised by local community members regarding tainting of subsistence foods. The limitations placed on the discharges and the monitoring requirements ensure protection of the receiving water environment. In particular, EPA has included the following restrictions to the final Geotechnical GP:</p> <ul style="list-style-type: none"> • Chukchi Sea Spring Lead System Seasonal Restriction (Permit Part II.A.6.) • Effluent toxicity characterization requirements for 6 waste streams if chemicals are added to the systems (Permit Part II.A.14) • Discharge 001 Seasonal Restriction during the spring and fall bowhead whale hunting activities (Permit Parts II.B.4.a.-b.).
56		<p>Recommends the adoption by EPA of an adaptive management approach to potential future modifications of its multi-year permits. Encourages EPA to fold the monitoring plans required under its permits into the annual peer review process.</p>	<p>EPA’s regulations at 40 CFR §124.5 establish a process for a permit to be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon the Director’s initiative, for the reasons specified in §122.62 or §122.64. Additionally, in accordance with 40 CFR §125.123(d)(4), the Geotechnical GP includes a provision at Permit Part II.A.D. that the permit shall be modified or revoked at any time if, on the basis of any new data, the Director determines that continued discharges may cause unreasonable degradation of the marine environment. As such, appropriate processes are available to address potential future permit modifications should they become necessary.</p> <p>Furthermore, The Clean Water Act Section 308(a)(4)(A) requires that permits contain self-monitoring requirements: “the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including, where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require.” EPA supplements monitoring data through inspections and has no authority to require other agencies or independent party to conduct required permit monitoring or peer reviews. Please note that the Permittee must certify the validity of its sampling results with each Discharge Monitoring Reports (DMRs) submitted to EPA.</p>

			Finally, EPA has and will continue to work closely with our federal partners, such as NMFS, BOEM, and BSEE to coordinate agency activities in the Arctic, including sharing of monitoring data gathered pursuant to the NPDES general permits at the annual Open Water Meetings.
57		EPA's permit does not include any mitigation [requirements] that would be triggered if monitoring were to detect deflection of bowhead whales from their migration route. There is no requirement anywhere in the draft permit for the operator to report to EPA the results of its monitoring of marine mammal behavior. The EMP is only due one year from the completion of geotechnical surveys, and so that of course is inadequate to prevent deflection during the year of operations. In addition, the adaptive management provisions are inadequate and vague.	<p>The Geotechnical GP requires effluent monitoring data results to be reported monthly on the DMRs, no later than the 20th of the month following the completed reporting period. EPA moved the marine mammal observation requirement, originally a part of the EMP, to Section II.J.2. of the permit during the re-proposal process. Any observations of potential marine mammal deflection during discharge of non-contact cooling water (D009) must be reported in the following month's DMR. Non-contact cooling water is anticipated to be the largest-volume discharge under the Geotechnical GP and could cause avoidance behavior in marine mammals because of temperature increases in the vicinity of the discharge. The intent of this provision is to gather information to inform future decisions regarding potential deflection of bowhead whales. As such, mitigation requirements have not been added to the permit. See RTC #17 and #R12.</p> <p>Please see RTC #56 for EPA's response to comments regarding the regulatory process to modify, revoke, reissue or terminate a permit.</p>
58		Recommends a requirement for independent-stakeholder peer review of water quality monitoring plans, preferably through the Open Water Season Peer Review Meeting.	See RTC #56.
59		Would like to have access to annual reports that summarize violations (if any), and any corrective actions taken and best management practice improvements.	<p>As discussed in RTC #62, EPA will make all reports and agency authorization decisions available on the Region 10 website. EPA has established an Enforcement and Compliance History Online (ECHO) website at http://www.epa.gov/echo/ to enhance transparency and improve the public's ability to monitor NPDES permit compliance.</p> <p>Lastly, the commenter may request information from the agency through the Freedom of Information Act (FOIA) process. Please refer to www.foia.gov for additional information.</p>
60		The commenter supports the EMP and would like to be able to access the annual reports or at least summaries detailing site characterizations made before and after activities occur and any biological impact/information recorded, including marine mammals observations, if any.	Thank you for your comment. Refer to RTC #63.

61		We recommend that a peer-reviewed monitoring program be implemented for a transparent approach to [geotech].	Refer to RTC #58 and #62.
62		Please notify tribes by sending copies, or links, where the EMP reports can be found on an annual basis.	EPA will post the data reports on the Region 10 website and provide notice of their availability to interested stakeholders. Also, EPA has and will continue to participate in the annual meetings hosted by NMFS and BOEM to discuss offshore oil and gas activities and results of agency monitoring data. EPA intends to take a more active role during these meetings when the results of the EMP data are available.
63		We are concerned that there is no current plan to communicate permitted activities and results to local agencies such as the North Slope Borough, the Inupiat Community of the Arctic Slope (ICAS), the Alaska Eskimo Whaling Commission (AWEC) and other interested parties. We encourage EPA to require the organization seeking to conduct geotechnical surveys to create a plan of continuous communication throughout the activity to keep communities informed about the activities and the environmental monitoring on a frequent timescale because of the significance of the Beaufort and Chukchi Seas to the Arctic People.	EPA will post all Notices of Intent submitted by operators requesting permit coverage, the agency authorization decisions, and data reports on the Region 10 websites. EPA also intends to take a more active role and share the monitoring results at the annual meetings hosted by NMFS and BOEM. See also RTC #62. While EPA encourages operators to engage in outreach activities with the interested public, the Clean Water Act does not appear to authorize EPA to require such a communication plan in NPDES permits. However, other federal agencies, such as BOEM, NMFS, and the U.S. Fish and Wildlife Service have the authorities to include lease sale stipulations, submission of a plan of cooperation (50 CFR 216.104(a)(12)), or a record of community consultation (50 CFR 18.124(c)(4)), respectively.

CATEGORY 4: ENVIRONMENTAL JUSTICE (EJ) ANALYSIS AND TRADITIONAL KNOWLEDGE

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
64		<p>EPA should complete an environmental justice analysis. The Geotechnical ODCE states, “Since the EJ Analysis evaluated and considered the potential impacts to the same communities from similar discharges, EPA believes the EJ Analysis is also relevant for the Geotechnical GP.” ODCE at 6-19. EPA, however, has not accounted for the numerous differences that exist between the permits and their mitigation measures, including those that formed the basis of its EJ Analysis conclusions. For example, one of the major differences between the permits is that the Geotechnical Permit allows activities to occur in the lead system during spring migration, while the Exploration Permits do not. Because it is clear that North Slope residents have concerns regarding discharges that were not addressed in the EJ Analysis for the Exploration Permits, EPA should conduct an environmental justice analysis specific to the proposed Geotechnical Permit.</p>	<p>EPA believes relying on the EJ analyses for the Beaufort and Chukchi Exploration GPs is reasonable as the discharges are similar, though the geotechnical surveys and related activities would produce smaller volumes. Please note EPA has revised the Geotechnical GP to restrict all discharges to the 3-25 nautical mile deferral area in the Chukchi Sea prior to July 1 to protect the spring lead system during the sensitive migration bowhead whale migration period (ODCE Sections 4.3.4., 5.5., and 6.1.).</p>
65		<p>EPA’s environmental justice analysis must acknowledge the disproportionate impacts that could result from allowing discharges in our subsistence hunting grounds during the hunt for the bowhead whale. The EJ analysis must address ways to mitigate the effects of real or perceived food tainting as a result of the discharge or conclude that an adverse, disproportionate impact will result.</p>	<p>The environmental justice analysis concludes, based on an evaluation of the effluent limitations, restrictions, and requirements established by the Geotechnical GP, that the discharges would not cause an adverse disproportionate effect to the communities. The Geotechnical GP includes effluent limitations on the discharges to ensure protection of the receiving environment and its uses. The GP also includes, among other requirements, a no discharge restriction within the 3-25 nautical mile corridor in the Chukchi Sea prior to July 1 and restrictions on the discharges of drilling fluids and drill cuttings during spring and fall bowhead hunting activities in the Beaufort and Chukchi Seas.</p>
66		<p>The EJ analysis conducted by [EPA] Region 10 here is deficient in a number of respects, including Region 10’s decision to rely on a potentially flawed finding of no unreasonable degradation of the marine environment.</p>	<p>The ODCE documents EPA’s analysis of potential effects based on ten criteria established by 40 CFR 125.122. EPA must ensure that the discharges would not result in unreasonable degradation of the marine environment. EPA has included a number of restrictions and requirements in the Geotechnical GP to reach a conclusion of no unreasonable degradation (see RTC #65). Additionally, EPA relied on the EJ analysis for the Beaufort and Chukchi Exploration GPs, to support the EJ analysis discussed as Criterion 9 in the Geotechnical ODCE, while taking into consideration the smaller scale of geotechnical activities. EPA’s reliance on the EJ analysis for the exploration permits is a reasonable approach. See also RTC #64.</p>

67		<p>EPA's EJ analysis again fails to include any description of the demographics or subsistence practices (including times and locations) of the communities of Kivalina, Kotzebue, Gambell, Little Diomed, and Savoonga. Despite the failure to provide information from these areas, EPA uses its analysis to draw conclusions about the overall impacts to all North Slope and Northwest Arctic residents from the proposed discharges.</p>	<p>Consistent with the EJ analysis for the Beaufort and Chukchi Exploration GPs, EPA has clarified in Section 6.9.1. of the ODCE that the EJ analysis is focused on the North Slope whaling communities. EPA is taking the approach that if the Geotechnical GP is protective of Inupiaq subsistence resources, then it is protective of all residents on the North Slope, and the Northwest Arctic and Bering Sea communities of Kivalina, Kotzebue, Gambell, Little Diomed, Savoonga, and Wales. These communities rely on similar resources since the communities are located near the coastline utilized by subsistence species for migration, feeding, calving, etc.</p>
68		<p>The [2012] EJ Analysis's conclusions are based, in part, on mitigation measures that do not apply to the Geotechnical Permit. The [2012] EJ Analysis states that mitigation measures include monitoring requirements and review of Environmental Monitoring Program reports by the Agency of Toxic Substances and Disease Registry (ATSDR; EJ Analysis at 18; see also Chukchi ODCE at ES-8, 6-23; Beaufort ODCE at ES-9, 6-24, 6-26). The ATSDR, however, is not required to review any reports under the proposed Geotechnical Permit. Other requirements included in the exploration permits that are not in the Geotechnical GP included: (a) more stringent EMP requirements including sediment characteristics and bioaccumulation; (b) modeling; (c) whole effluent toxicity; (d) metals analyses; and (e) plume monitoring. These differences mean that EPA cannot rely solely on the EJ Analysis for purposes of analyzing the Geotechnical Permit because its determination that the discharges "are not expected to have a disproportionately high and adverse human health or environmental effect on minority or low-income populations" is based, in part, on protective conditions in the Exploration Permits that do not exist to the same degree in the Geotech GP (see EJ Analysis pg 43-44).</p>	<p>The Geotechnical GP includes provisions and requirements that are appropriate for the nature and type of activity. Geotechnical surveys and related activities generate similar discharges as those from drilling of exploration wells, however the volumes discharged would be much less at any one location and the potential impacts significantly less in magnitude (ODCE Section 2.2). The EJ analysis for the Geotechnical GP is discussed under Criterion 9 of the ODCE and is based largely on the EJ analysis for the Beaufort and Chukchi Exploration GPs, while factoring in the differences between geotechnical and exploration activities, discussed in Section 2.2 of the ODCE, and the requirements specific to the Geotechnical GP. Since the EJ analysis for the Beaufort and Chukchi Exploration GPs evaluated and considered the potential impacts to the same communities from similar discharges, EPA believes the analysis is also relevant for the Geotechnical GP. The Beaufort and Chukchi Exploration GPs concluded that the discharges would not result in a disproportionately high or adverse human health or environmental effects on minority or low-income populations from a greater suite of impacts. As such, EPA has reached the same conclusion for the Geotechnical GP, which generally governs smaller discharge volumes and assesses a smaller area of potential impacts. See also RTC #55, #64, and #67.</p> <p>EPA further notes that the commenter is incorrect regarding two Geotechnical GP provisions noted. The Geotechnical GP requires toxicity testing of six different waste streams if chemicals are added to the system (deck drainage D002, desalination unit wastes D005, bilge water D006, boiler blowdown D007, fire control system test water D008, and non-contact cooling water D009) and a metals analysis if barite is added to the fluids formulation (Permit Part II.B.3.).</p> <p>Finally, the EMP requirements under the Beaufort and Chukchi Exploration GPs result in long term comprehensive studies at each well site before, during, after drilling, and again approximately 15 months after drilling has ceased that include water and sediment quality data, seafloor surveys, plume monitoring, and benthic community bioaccumulation monitoring. Given the robust data set expected,</p>

			ATSDR's review would yield meaningful information that could also be applied to geotechnical activities going forward and any subsequent EJ analyses or conclusions for both the exploration and geotechnical permits.
69		We are pleased to see the EPA has incorporated permit terms and conditions into the 2012 Beaufort and Chukchi Exploration NPDES General Permits and the draft Geotechnical GP, that incorporate local issues and concerns resulting from EPA's community outreach efforts.	Thank you for your comment.

CATEGORY 5: ENDANGERED SPECIES ACT (ESA) CONSULTATION

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
70		EPA Region 10 failed to makes available its Biological Evaluation for public review.	The Biological Evaluation is included in the administrative record for the Geotechnical GP. Pursuant to 40 CFR 124.9, EPA provided notices of availability of the administrative record in the Fact Sheets supporting the draft permit and the re-proposed permit.
71		The timing and location of the proposed geotechnical activities presents a unique challenge that has not, to date, been addressed by BOEM, NMFS or the EPA. Because the agencies have assumed that vessels would not be permitted to travel through the spring lead system, the effects of vessel traffic, including discharges to the water, on bowhead whales in this area have not been fully analyzed (Ref: NMFS 2010 Biop at 3). BOEM and NMFS have explicitly stated that their analysis of impacts to bowheads from various oil and gas activities are contingent on the assumption that vessels would not be traveling through the spring lead system during bowhead whale migration (Referenced: NMFS 2010 Biop at 3, 68). NMFS assumes that otherwise “the effects would be greater than anticipated,” and BOEM cautions that “drilling operations in the spring lead and polynya system during the spring bowhead migration has a fairly high potential of affecting threatened and endangered whales.” (referenced: BOEM, 2012-2017 Five Year Oil and Gas Program, Final EIS and Sale 193 EIS).	EPA has revised the Geotechnical GP to prohibit discharges within 3-25 nautical miles in the Chukchi Sea prior to July 1. This provision protects the spring migration period for bowhead whales and other species that rely on the spring lead system. This provision corresponds with the BOEM and NMFS, and USFWS restrictions for the spring lead system (ODCE Section 6.1 and 6.4). See RTC #8.
72		EPA must consult on all direct and indirect effects to listed species and critical habitat. EPA’s consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service should include all potential direct and indirect effects of geotechnical activities, such as vessel collisions and noise disturbance, in addition to the effects of the discharges authorized under the proposed permit. Without the Geotechnical Permit, operators may not conduct geotechnical activities, which include a broad range of effects beyond the discharges authorized by the permit. Additionally, EPA should ensure that its consultation covers the timing and geographic variables unique to the Geotechnical Permit, because recent consultations for oil and gas programs in the Arctic Ocean have avoided discussion of some of the more serious impacts due to the shortened and more targeted nature of exploration drilling. We urge EPA to consult on the full range of effects caused by	EPA has consulted on the direct, indirect, and interrelated and interdependent effects of the discharges to listed, proposed and candidate species, and their designated critical habitat areas. The analyses of these potential broad ranges of effects are documented in the Biological Evaluation (BE) and Supplemental BE. On December 20, 2013, EPA sent the BE to the USFWS and NMFS requesting concurrence on the agency’s determinations that issuance of the Geotechnical GP may affect, but is not likely to adversely affect the ESA listed species or their designated critical habitat areas. EPA supplemented the BE on February 11, 2014 with additional analysis for the Pacific walrus, a candidate species, and requested to “conference” on the effects of the Geotechnical GP on this species. Regarding stressors that are not directly related to discharges, such as underwater sound, human presence, ship strikes, etc., EPA’s analyses relied on previously completed ESA consultation documents developed by BOEM.

		<p>geotechnical activities and to use its authority to the maximum extent possible to minimize and mitigate adverse effects.</p>	<p>On January 31, 2014, the USFWS concurred with EPA’s determinations for the polar bear, spectacled eider, and Steller’s eider, and designated spectacled eider critical habitat. In a separate letter on March 13, 2014, the USFWS concluded that the Geotechnical GP is not likely to jeopardize the continued existence of the Pacific walrus. In a letter dated March 19, 2014 NMFS, concurred with EPA’s determinations that issuance of the Geotechnical GP may affect, but is not likely to adversely affect the bowhead, fin, and humpback whales, and bearded and ringed seals. The respective agencies’ concurrences concluded the required ESA consultation process and support EPA’s analysis of the full range of potential effects.</p> <p>Finally, on August 15, 2014 EPA released for public review a re-proposed permit action. EPA conducted an evaluation of the ESA determinations and concluded that the re-proposed permit would not have an effect on the original ESA conclusions, i.e. the discharges may affect, but are not likely to adversely affect listed, proposed, and candidate species or their designated critical habitat areas. This evaluation is included as a memo to the administrative record file.</p>
<p>73</p>		<p>Noise pollution due to drilling activities needs to be considered in order to properly address the cumulative impacts this will have on marine mammals.</p>	<p>EPA considered noise impacts as interrelated and interdependent effects of the action in the Biological Evaluation developed for consultation with NMFS and the USFWS required under the Endangered Species Act. See also RTC #72.</p>

CATEGORY 6: GEOTECHNICAL GENERAL PERMIT (GP)

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
74	GP - Title	<p>As indicated by the title, the EPA has limited coverage under its permit to geotechnical activities undertaken for "oil and gas" related purposes. Geotechnical surveys are not unique to the oil and gas industry. There is no justification for the EPA to regulate discharges associated with oil and gas geotechnical surveys differently than it would regulate discharges associated with these same surveys if they were undertaken by a different industry or the government. The scope of coverage under the proposed APDES permit is not limited to geotechnical discharges associated with oil and gas activities. The EPA should broaden the scope of coverage in its proposed permit so that it is consistent with the scope of coverage under the proposed APDES permit.</p>	<p>EPA's decision to issue a Geotechnical GP to oil and gas facilities is consistent with EPA's Effluent Limitation Guidelines for the Offshore Oil and Gas subcategory, (40 CFR 435, Subpart A), which apply directly to waste streams generated by the proposed geotechnical activities, such as the discharge of drilling fluids and drill cuttings, and sanitary and domestic wastewater. In addition, the specific geotechnical activities proposed by operators in federal waters of the Beaufort and Chukchi Seas are to support future oil and gas activities. In addition, a broader permit scope appears unwarranted given the lack of proposals for other (i.e. non-oil and gas) geotechnical work on the Outer Continental Shelf.</p> <p>Based on industry comments regarding the nature and anticipated timing of geotechnical activities, EPA does not interpret the commenter to be requesting a wholesale revision of the Geotechnical GP and supporting analysis.</p>
75	GP Part Section VII	<p>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). As defined, a "geotechnical facility" need not be performing work related to the oil and gas industry. However, throughout the draft Geotechnical GP there is oil and gas specific language. The EPA should be explicit as to the scope of potentially permitted discharges under the draft Geotechnical GP.</p>	<p>See RTC #74 and #159.</p>
76		<p>The use of Shell's 2013 NPDES permit application for geotechnical surveying activities to derive discharge volume estimates should not be the only source of data used in assessing discharge safety standards because of the unfamiliarity of conducting activity in the Arctic. We suggest that the best management plan review proposals in the Arctic carefully on a case by case basis in addition to setting standards with the best scientific information because of greater possibility of insufficient information given the remoteness of the Arctic, lack of infrastructure, and lack of scientific information.</p>	<p>EPA considered all relevant and available information during development of the Geotechnical GP and support documents. Regarding discharge types and volumes, Shell's NPDES permit application is currently the primary source of information specific to this activity in the Arctic. As such, Shell's permit application provides a relevant basis for the estimated discharge volumes. EPA will review the Notices of Intent from all operators requesting authorization to discharge under the Geotechnical GP on a case-by-case basis to ensure the requested discharge volumes are within the range of volumes estimated and evaluated by EPA on a per-borehole and annual basis. EPA will regularly review and reconsider the level of activity and volumes assumptions. See RTC #R30.</p>

			EPA will utilize the data collected under the five-year term of the Geotechnical GP to refine our assumptions and inform future decision-making regarding similar permits.
77		The terminology and definitions as stated in the draft Geotech GP, ODCE, and Fact Sheet do not make it clear as to the specific geotechnical activities and/or the level of probable impact from geotechnical surveys that will require submission of an NOI. Besides borehole drilling described in the draft permit, there are other types of geotechnical activities (e.g. dart cores and grab samples) that entail the collection of geologic data using techniques that disturb the seafloor, but produce minor to no discharge and/or limited areal disturbance. It is unclear, however, if these other types of geological surveys are included in this draft Geotech GP. We recommend that the final Geotech GP, ODCE, and Fact Sheet identify clearly the specific types of geotechnical activities requiring submission of an NOI.	<p>Part I.A. of the Geotechnical GP describes the sources applicable to the permit: “This general permit authorizes 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. Geotechnical borings are collected to assess the structural properties of subsurface sediment 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 sediment, 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. Such 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.”</p> <p>EPA believes the description is sufficiently clear and additional clarifications are not necessary.</p> <p>Please note, the Clean Water Act does not provide a <i>deminimus</i> exemption. As such, if a discharge to waters of the United States contains a pollutant as defined by the Clean Water Act and accompanying regulations, then NPDES authorization to discharge is required. See also RTC #107.</p>
78		The text does not sufficiently distinguish these two categories including: (1) the different types of equipment and geotechnical approaches that may be used and (2) the different types of discharges and associated impacts that might occur from an open-water or an on-ice operation. We recommend including in the final Geotech GP and Fact Sheet, information that clearly explains these two categories.	EPA believes the Geotechnical GP, Fact Sheet, and ODCE sufficiently describe the geotechnical surveys and related activities, including the type of equipment used, possible discharges, and associated volumes. Similarly, the evaluation of potential impacts were based on the ten ODCE criteria established by 40 CFR 125.122. Please note because the Geotechnical GP prohibits all discharges onto stable ice, EPA did not evaluate the associated impacts.
79		Based on our experience, a company's survey plans rarely span more than one season. A number of the permit requirements, such as EMP requirements for "baseline site characterization" and Phase II requirements, could be unduly burdensome for the short-term type activities conducted under a geological permit. Such requirements as currently defined in the draft Geotech GP could discourage geological permit data collection. Therefore, we recommend defining different levels of permit requirements based on a possible combination of	Based on information provided by AOGA (AOGA 2013) and Shell (Shell, 2014) during the permit development process, EPA understands that geotechnical survey activities may occur over multiple years. Additionally, EPA regulates the discharges, rather than the overall activity, and establishes requirements to ensure that authorized discharges would not result in an unreasonable degradation of the marine environment, as defined by the Clean Water Act and accompanying regulations.

		<p>survey type, duration, and areal extent of the proposed activity for inclusion in the final Geotech GP.</p>	<p>Phase I requires collection of baseline site characterization data, including an initial sea bottom survey and physical characteristics of the location and receiving waters, at each geotechnical activity site. As discussed in RTC #21, #22, and #23, these requirements are necessary to ensure that discharges do not impact sensitive biological areas and habitats, or are within the vicinity of historic properties. In addition, please note that EPA has clarified the EMP requirements during the re-proposal process to allow submissions of existing, representative baseline data under Phase I.</p> <p>Phase II of the EMP is only required if drilling fluids are used to conduct the geotechnical activity, or if the Director requests completion of Phase II upon review of Phase I data. Phase II includes a visual characterization of the seafloor, a narrative discussion of the areal extent and thickness of the solids deposition, and a discussion of potential overlap from deposition caused by nearby exploration activities. The information collected under this requirement would confirm EPA's modeling results and the agency's conclusions, based on an analysis of potential geotechnical and exploration activities, that the discharges would not cause an overlap in deposition. Additionally, the Phase II EMP would provide data regarding the potential transport of pollutants by physical processes, which is a component of ODCE Criterion 2. See also RTC #146 and #R31.</p> <p>As noted by industry commenters, the majority of geotechnical surveys will not use drilling fluids (see RTC #32, #82, #155, #208, and #209), nor does EPA anticipate that the geotechnical related activities will use drilling fluids. Accordingly, EPA does not agree with the characterization that the environmental monitoring requirements may be unduly burdensome. See also RTC #21.</p>
80		<p>In the draft Geotech GP and Fact Sheet, it is estimated that "the scope of geotechnical surveys in the Beaufort and Chukchi Seas in any given year, performed by multiple operators, may result in a maximum of 100 boreholes." BOEM recently received an on-ice geological boring notification where an individual industry operator proposed to drill between 50 and 80 boreholes in one season in the Beaufort Sea. Based [on] our experience, the estimate given in these documents of a maximum total of 100 boreholes for the Beaufort and Chukchi Seas in any given year, performed by multiple operators is low. We recommend that the maximum number of boreholes per season be revised in the final Geotech GP and Fact Sheet.</p>	<p>EPA derived the estimated number of boreholes that could be drilled annually across federal waters of the Beaufort and Chukchi Seas based on information provided by industry representatives (AOGA and ConocoPhillips). EPA believes 100 boreholes per year in federal waters is a reasonable estimate based on available information (ODCE Sections 1.2.2. and 2.1.).</p> <p>Regarding the 50 to 80 boreholes noted by the commenter to be drilled in one season in the Beaufort Sea, it is EPA's understanding that the boreholes would span across both Federal and State waters, which is consistent with EPA's analysis.</p>
81	ODCE Table ES-2; Table 6-4 -	<p>Feasibility testing will not be performed by all operators and references to estimated discharge volumes from these activities may not apply to them.</p>	<p>General permits, by design, include similar requirements for similar dischargers within the same geographic area. EPA understands that not all operators will conduct both geotechnical surveys and related activities. EPA evaluated potential</p>

	Footnotes #10 and #11; Fact Sheet Table 2, Footnote #8		discharges associated with geotechnical surveys and related activities; however, this does not mean that an operator is expected to conduct both types of geotechnical activities.
82		A geotechnical survey covered under this proposed permit would not typically involve the use of drilling fluids, desalination unit wastes, bilge water, boiler blowdown, fire control system test water, non-contact cooling water, uncontaminated ballast water or cement slurry.	EPA understands that depending on the operator's goals for its planned activities, and the type and/or location of geotechnical surveys and related activities, certain waste streams may not be generated or discharged. In those cases, the operator's Notice of Intent would specify those waste streams needing EPA's discharge authorization under the Geotechnical GP. Since this is a general permit, EPA must evaluate the range of potential discharges associated with geotechnical surveys and related activities. See RTC #209.
83		The EPA, working with vessel operating interests has developed the 2013 VGP for discharges incidental to the normal operations of vessels. The VGP identifies 23 different discharge streams incidental to normal vessel operations. While not all discharge streams are applicable to all vessel operations, many are universally applicable. These universally applicable discharge streams would be applicable to a vessel, even if not actively engaged in transportation. Examples of such discharge streams that should be included in the Geotech GP are: Anti-Fouling Leachate from Anti-Fouling Hull Coatings, Cathodic Protection, Controllable Pitch Propeller and Thrust Hydraulic Fluids and other Oil to Sea Interfaces (including lubrication discharges from paddle wheel propulsion, stern tubes, thruster bearings, stabilizers, rudder bearings, azimuth thrusters, propulsion pod lubrication, and wire rope and mechanical equipment subject to immersion). Absent permit coverage in the Geotech GP, such discharges would seem to be in violation of the Clean Water Act - effectively prohibiting vessels from engaging in activities subject to the permit absent coverage by supplemental individual permits. EPA should comprehensively revise the draft Geotech GP to include those discharges addressed in the VGP that would be common to vessels engaging in Geotechnical activities and strengthen the Geotech GP's discharge controls to be consistent with those of the VGP.	<p>EPA did not revise the Geotechnical GP to include these additional discharge streams. The Geotechnical GP includes provisions and requirements for pollutants resulting from facility processes, and waste streams and operations associated with oil and gas geotechnical surveys or related activities. The Geotechnical GP was developed based on information provided by industry operators in Alaska (AOGA 2013). The Geotechnical GP expressly prohibits the discharge of floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind (Permit Part II.A.6) and surfactants, dispersants and detergents, as well as various oils and compounds (II.A.7 and II.A.8).</p> <p>Discharges from anti-fouling hull coatings (antifouling leachate), cathodic protection systems (i.e. aluminum, ionized zinc, or magnesium), and controllable pitch propeller and thruster hydraulic fluids and other oil to sea interfaces are specifically managed through the implementation of Best Management Practices (BMPs) required under the Geotechnical GP. Permit Part IV.B.5.e.9.</p>
84		The possibility of geotechnical surveys to occur in winter months when land-fast is present is of particular concern to the North Slope Borough. The ice conditions are unpredictable and risky.	It is EPA's understanding that operators conduct ice reconnaissance activities prior to mobilizing equipment onto the ice surface for geotechnical work to ensure stability of the landfast ice. Additionally, please note that the Geotechnical GP prohibits all discharges to stable ice. EPA does not have the authority to directly approve or disapprove geotechnical activities themselves. In this instance, EPA's

			authority is to regulate discharges from geotechnical activities in accordance with Sections 402 and 403 of the Clean Water Act.
85		<p>The description of geotechnical surveys in the draft Geotech GP, ODCE, and Fact Sheet focuses on ancillary and development activities related to on-lease exploration and data collection for future development. The same shallow boreholes are permitted under geological permits of off-lease oil and gas geologic data collection. In other words, the same types of activities are conducted under both 30 CFR 550 (for lease-related activities) and 30 CFR 551 (for off-lease activities). As the draft Geotech GP, ODCE, and Fact Sheet are currently written, it is unclear whether the intent of this draft Geotech Permit is to regulate only lease-related geotechnical activities (30 CFR 550) or to also regulate off-lease geotechnical activities related to oil and gas assessment (30 CFR 551). Wording in all three documents needs to be revised to clarify the specific activities that the GP is intended to regulate.</p>	<p>The Geotechnical GP applies to geotechnical surveys and/or related activities, as specifically defined within the permit, which occur within the area of coverage. The Geotechnical GP, Fact Sheet and ODCE specifically describe the Area of Coverage as follows: "This general permit covers the area of 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" (Permit Part I.B.).</p> <p>As evidenced by its description, the Area of Coverage includes both on-lease and off-lease areas referenced by the commenter. The documents also contain coverage area maps that correspond to BOEM's lease sale areas for the Beaufort and Chukchi Seas and include the 3-25 nautical mile deferral area in the Chukchi Sea.</p> <p>The ODCE includes references to 30 CFR 550 Subpart B for geotechnical activities conducted on-lease; EPA has added references to 30 CFR 551 for off-lease activities.</p>
86		<p>We recommend that the map legends be made sufficiently large and clear so readers can easily interpret map contents. We also recommend that all maps be reviewed and revised to reflect the most recent information (Polar Bear Critical Habitat).</p>	<p>The map legend has been enlarged to enable the reader to more easily interpret its contents. The "Area of Coverage" maps are meant to illustrate the areas where authorized discharges are permitted to occur under the permit and are not intended to depict critical habitat areas or migration paths. Please refer to Section 6.4. and Figure. 6-3 in the ODCE for the critical habitat maps. EPA notes that the designation of critical habitat for the polar bears by the USFWS was vacated and remanded on January 10, 2013 by the U.S. District Court for the District of Alaska (http://www.fws.gov/alaska/fisheries/mmm/polarbear/esa.htm).</p>
87	GP Figure 1	<p>Area of Coverage for oil and Gas Geotechnical Surveying and Related Activities in federal Waters of the Arctic Ocean.</p> <p>The map of the coverage area, presented as Figure 1, extends beyond U.S. waters. Given that the EPA does not have jurisdiction under the CWA to regulate discharges in international waters, the map of the coverage area should be reformed in the final permit.</p>	<p>Figure 1 within the Geotechnical GP, the Area of Coverage map, does not show the area of coverage extending beyond U.S. waters. Additionally, the Geotechnical GP specifically describes the Area of Coverage as follows, "This general permit covers the area of federal waters of the <u>United States</u> 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." (Permit Part I.B.) (emphasis added). The permit should not be read to establish an Area of Coverage that extends beyond U.S. waters, as the commenter suggests.</p>

			<p>EPA developed Figure 1 based on GIS mapping data used by NMFS for the Arctic Oil and Gas Draft Environmental Impact Statement and verified by the maps provided on BOEM’s website at http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Leasing-and-Plans/Leasing/Index.aspx#LeasingProcess.</p> <p>EPA’s Area of Coverage is consistent with 40 CFR 122.28(c)(1), which establishes that for Federally leased lands, the general permit area should generally be no less extensive than the lease sale area defined by the Department of Interior.</p>
88	<p>GP Parts II.A.14, II.B.C, II.B.E, II.B.F, II.B.G, II.B.H., II.B.I., II.B.J.</p>	<p>Commenter recommends removing pH and toxicity testing for general vessel discharges. Environmental protection will be sufficiently ensured if these discharges are regulated in a manner consistent with MARPOL and the VGP. These testing requirements are onerous for a permittee and are of no benefit to the environment.</p>	<p>EPA has determined it is appropriate to maintain a pH limit for discharges of sanitary wastes (D003) and non-contact cooling water (D009) and pH monitoring for the remaining waste streams to gather data about potential pH exceedances, as some of these vessel discharges are more acidic or basic than the receiving waters, thus imparting a localized effect on pH. The limits and monitoring requirements for pH are consistent with the recommended pH range in the national water quality criteria under Section 304(a) of the CWA. See ODCE Criterion 10.</p> <p>Since many vessel systems, identified in Permit Part II.A.14, use chemicals to maintain their normal operations (i.e. corrosion inhibitors, biocides, anti-fouling agents, descalers, etc...), there is potential for these treated systems to discharge chemicals and/or their derivatives at levels that are still toxic, thus having the potential to harm organisms in the receiving water. Effluent toxicity testing requirements are justified to ensure the discharges will not result in unreasonable degradation to the marine environment.</p> <p>See RTC #112.</p>
89	<p>GP; Section II</p>	<p>There is no clarification or caveats in this section as to when the monitoring requirements are necessary; it implies that even if an operator is not using drilling fluids, all tasks included in this section must be accomplished</p>	<p>The purpose of a general permit is to cover similar facilities/dischargers within the same geographic area under a single permit. As such, EPA evaluated multiple waste streams that operators indicated may be discharged while conducting oil and gas geotechnical surveys and related activities (AOGA, 2013). An operator must indicate which waste streams they intend to discharge during the NOI process. Permit requirements apply to those waste streams for which an operator receives authorization to discharge. Please refer to RTC #21, #22, #23, #25, and #33 regarding the applicability of the environmental monitoring program (Permit Part II.A.15.)</p>

90	GP; Section I.A.	This section should distinguish between geotechnical activities that would result solely in discharges of soil and rock cuttings, versus those that may include additional discharges. As written, this section implies that discharges [authorizations??] will contain all 12 discharges when in fact they may only be discharging drill cuttings (011)	See RTC #89.
91	GP Part II.B.3	Pursuant to EO 12866, the EPA should explain why per "batch" metals analysis is necessary to protect the environment and justify why any arguable benefits justify the cost of the requirement.	<p>EPA has clarified the “per batch” provision in the permit to require testing for metals from Discharge 001 when barite is added to the drilling fluid formulation. Testing must be conducted once per season and can be performed pre-season. If a new drilling fluid formulation is used and/or a new lot of supply or barite is used during the geotechnical activities program, then an additional metals analysis is required. See also RTC #93 and #95.</p> <p>Barite is the primary source of metals in the drilling fluid formulation and the metals analysis would provide specific information regarding the different constituents of metals and concentrations actually discharged to the marine environment. Given that the ODCE is a prospective analysis, specific information regarding the actual constituent metals and concentrations is critical to ensuring that unreasonable degradation does not occur once activities commence. As such, the required metals analysis provides part of the supporting basis for EPA’s overall ODCE conclusion. The Geotechnical GP, Fact Sheet, ODCE and this Response to Comments document provide detailed explanations regarding the environmental concerns presented by metals and justification for this provision. See also RTC #4, #10, #15, and #18.</p> <p>The cited Executive Order includes numerous specific provisions that apply in a variety of contexts. The commenter has not identified any specific provision that EPA must consider in the context of this permit provision.</p>
92	Table I footnote 2	It is not feasible or warranted to require a permittee to analyze mud from the pit prior to discharge activities. The mud system can be adequately tested prior to arriving in the Arctic. The parameters that the mud system must maintain in order to ensure that the toxicity limitations will be met will be documented in the DFP. Documentation during drilling activities will illustrate that the drilling fluid systems are mixed in accordance with the SPP toxicity sampling done prior to the season. If a mud system needs to be altered outside of the parameters analyzed in the DFP then additional testing prior to discharge is warranted. It is not warranted for a vessel to test a mud system, mobilize to the arctic, arrive on location, mix mud, test again and then be required to wait on site for several days prior to being able to	EPA revised this requirement during the Geotechnical GP re-proposal process. The permittee may conduct this test pre-season and no less than once per season. If a new drilling fluid formulation is to be used during the course of a season for geotechnical surveys and/or related activities, then a new SPP toxicity test must be conducted. The permittee must analyze a representative sample of drilling fluids either during pre-season preparations, or from the mud pit prior to commencing geotechnical drilling operations.

		discharge any material. Commenter suggests revising this provision in the final Geotech GP to require that a permittee shall perform SPP toxicity testing once per season and allow for the permittee to conduct that testing pre-season. That modification could include a mandate that if a permittee opts during the course of a season to modify its drilling fluids system to include constituents at a greater concentration than set forth in its DFP, it may be required to perform additional SPP toxicity testing to verify that it does not exceed the limitations set forth in the permit.	
93	GP Part II.B.3	The permittee must analyze each drilling fluids system for the metal contaminants of concern (see Table A). This analysis is required once (1) per batch of drilling fluids mixed at the facility. If a new mixture of drilling fluids is created, or a new drilling fluids system is used during the geotechnical activities program, then an additional metals analysis is required for the new batch. The metals analysis required by the draft Geotechnical GP is not justified by the data presented in the ODCE. The metals listed on Table A are implicated by exploration drilling, not geotechnical boring. The only metals of concern for a geotechnical program are the chromium, mercury and sulfides found in barite. They are not easily absorbed by the marine life and can be pre-tested for concentrations from the mud we purchase for use each season. A permittee is aware of the volumes of mud used at each boring location and can calculate the quantity of metals discharged at a site.	Metals monitoring remains a requirement of the permit, however, EPA revised the requirements during the re-proposal process. The revision specifies that testing drilling fluids for metals is required only when barite is added to the drilling fluid formulation (Permit Part II.B.3.). The permittee must analyze a representative initial sample of stock barite either during pre-season preparations or prior to drilling at the first geotechnical location of the calendar year. If a new drilling fluid formulation is used and/or a new "lot" or supply of stock barite is used at any point during the season, then a new analysis is required. See also RTC# 91.
94	GP Part II.B.3	The metals analysis requirements would require that this testing occur more than once per day while a vessel is conducting geotechnical activities at a site, and likely undermines the EPA's Draft Geotech GP intent. Commenter suggests revising this provision in the final Geotech GP to require that a permittee shall perform metals analysis once per season and allow for the permittee to conduct that testing pre-season. That modification could include a mandate that if a permittee opts during the course of a season to modify its drilling fluids system to include constituents at a greater concentration than set forth in its DFP, it may be required to perform additional metals analysis to verify that it does not exceed the limitations set forth in the permit.	Refer to RTC #93.
95	GP Table 1, Footnote 6	The language of Footnote 6 in the draft Geotechnical GP further confuses the definition of "batch." The EPA should clarify this language to demonstrate that testing is only required once per drilling season, unless a new lot of barite is supplied and mixed.	The reference to "batch" was removed from Table 1, Footnote 6 during the Geotechnical GP re-proposal process. Sampling is required once per season, with additional sampling required if a new source of stock barite is used onboard the geotechnical facility. See also RTC #91.
96	Table I Footnote 7	The discharge of drilling fluids or drill cuttings generated using drilling fluids which contain diesel oil is prohibited. Compliance will be	The Geotechnical GP establishes a no discharge restriction if free oil or diesel oil is detected in the effluent, as determined by the static sheen test and gas

		<p>demonstrated by gas chromatograph (GC) analysis of drilling fluid collected from the drilling fluid used at the greatest borehole depth. This requirement appears to have come directly from the EPA's Exploration GPs for the Beaufort and Chukchi Seas. Because geotechnical activities will not penetrate hydrocarbon zones, compliance with the no oil sheen should not be required as written. Compliance should be demonstrated by performing a static sheen test on the drilling fluids and further supported by the chemical inventory requirements already required in the general permit.</p>	<p>chromatograph (GC) analysis, respectively and is consistent with the Offshore ELGs Development Document (January 1993).</p> <p>EPA revised this requirement during the Geotechnical GP re-proposal process. Permit Table 1, Footnote 5 reads as follows:</p> <p>"The discharge of drilling fluids or drill cuttings generated using drilling fluids which contain diesel oil is prohibited. Compliance will be demonstrated by gas chromatograph (GC) analysis of any drilling fluids or cuttings that fail the static sheen test as compared to GC analysis of diesel oil in storage on the facility..."</p>
97	GP Part II.C.2.	<p>The permittee must separate area drains for washdown and rainfall that may be contaminated with oil and grease from those area drains that would not be contaminated so that the waste streams are not commingled.</p> <p>This requirement appears to have come directly from the EPA's Exploration GPs for the Beaufort and Chukchi Seas. Because geotechnical activities will not penetrate hydrocarbon zones, there will not be contaminated petroleum cuttings on the drilling floor. This requirement should be removed from the permit. Compliance should be demonstrated by performing a static sheen test on representative grab samples from the deck floor prior to discharging.</p>	<p>Potential sources of petroleum contamination onboard a geotechnical vessel may include lubricating oils, fuel, and hydraulic oils. Compliance with the no discharge of free oil may be demonstrated by performing a static sheen test on representative grab samples from the deck floor once per discharge event. During periods of discharge, the permittee must also conduct visual observation for the presence of a film or sheen upon, or discoloration of, the receiving water.</p>
98	GP Part II.C.	<p>Once per discharge event, the permittee must sample deck drainage discharges that are processed through an oil-water separator and test for sheen using the static sheen test in accordance with Appendix 1 to Subpart A of 40 CFR Part 435, Static Sheen Test. During periods of discharge, the permittee must also conduct a visual observation for visual sheen as determined by the presence of a film or sheen upon or a discoloration of the surface of the receiving water.</p> <p>This requirement appears to have come directly from the EPA's Exploration GPs for the Beaufort and Chukchi Seas. Because geotechnical activities will not penetrate hydrocarbon zones, there will not be contaminated petroleum cuttings on the drilling floor. This requirement should be removed from the permit. Compliance should be demonstrated by performing a static sheen test on representative grab samples from the deck floor prior to discharging.</p>	<p>Refer to RTC #97.</p>
99	GP Part II.D., Footnote 4	<p>The EPA seems to acknowledge in this note that fecal coliform sampling is not feasible for an Arctic offshore geotechnical program. However, simply allowing a permittee to notify the EPA in the event of inclement weather does not alter the fact that weather limitations will routinely result in a permittee being unable to comply with this permit provision.</p>	<p>By including this footnote (Geotechnical GP, Table 3, Footnote 3) EPA acknowledged that inclement weather or the harsh Arctic environment may disrupt sample transport to laboratories for analysis. This footnote to the fecal coliform sampling requirements is to make it clear that the permittee must notify</p>

		<p>Recommend that the EPA allow for TRC to demonstrate compliance with this requirement. Also recommend adding language similar to the footnote on Table 4 that monitoring is only required if a discharge occurs that day.</p>	<p>EPA within 24 hours and document the conditions and rationales for any delays in the following month's DMR.</p> <p>Additionally, the TRC limit established by the Geotechnical GP is a requirement of the Effluent Limitation Guidelines (40 CFR Part 435, Subpart A) for best conventional treatment for facilities that are continuously manned by ten or more persons and has not been revised by EPA (see Fact Sheet accompanying the draft Geotechnical GP). Refer to RTC #100 for changes to fecal coliform monitoring requirements.</p> <p>EPA has revised Footnote 2 of Table 3 to include similar language found at Footnote 1 of Table 4. The language states that "[m]onitoring is only required when discharge occurs," and it makes practical sense that the monitoring requirements for floating solids, garbage and foam, i.e. daily visual observation of the surface of the receiving water, would only apply when a discharge occurs that day.</p>
<p>100</p>	<p>GP Part II.D, Table 3</p>	<p>Geotech GP fecal coliform testing requirement should be revised to conform with the VGP requirements. Commenter asks that the EPA remove the fecal coliform testing requirement from the permit and rely on the requirement for a certified-compliant MSD and periodic testing as required by the VGP to regulate sanitary wastes. This modification would be consistent with the restrictions that the EPA applies in the Alaska Offshore Seafood Processor's General Permit. Otherwise, commenter recommends that the EPA modify this requirement to match the ADEC draft Geotechnical GP requirements, which include monthly TRC measurements as well as minimum and maximum TRC concentrations. (AKG283100, page 17). Transport of the fecal coliform samples within the applicable holding time would increase the environmental impact and safety risks associated with a geotechnical program. Additionally, fecal coliform is no better of an indicator of the presence of potentially pathogenic organisms than TRC. The requirement to perform fecal coliform testing of sanitary waste discharges, in addition to the TRC analyses, is onerous and unwarranted and should be removed from the final Geotechnical GP</p>	<p>The Vessel General Permit (VGP) applies to vessel discharges within state waters (which extend seaward to 3 nautical miles from the baseline) and when a vessel is operating in a capacity as a means of transportation. The VGP does not apply beyond the 3 nautical miles boundary (i.e. in federal waters). The VGP prohibits discharges unless they meet effluent standards, which include specific fecal coliform limits. The VGP fecal coliform limits read as follows "The geometric mean of the samples from the discharge during any 30-day period may not exceed 20 fecal coliform/100 milliliters (mL) and not more than 10 percent of the samples may exceed 40 fecal coliform/100mL." (http://water.epa.gov/polwaste/npdes/vessels/upload/vgp_permit2013.pdf)</p> <p>MARPOL Annex IV prevents pollution associated with discharges of sewage from ships. Under MARPOL and 33 CFR Part 159, operators are not authorized to operate any vessel equipped with installed toilet facilities without an operable marine sanitation device (MSD). There are three different types of MSDs that can be certified by the U.S. Coast Guard to meet the requirements at 33 CFR Part 159. Pursuant to 33 CFR 159.7(a)(1), if a vessel greater than 19.7 meters (65 feet) in length is equipped with installed toilet facilities, it must have an operable Type II or III [MSD] device on board. A Type II MSD is a flow through discharge device that is typically a biological or aerobic digestion based system. A Type III MSD is a device that prevents overboard discharge of treated or untreated sewage or any waste derived from sewage, and is typically a holding tank that may include incineration, recirculation and/or composting features. Based on information provided to EPA, operators intend to use vessels greater than 19.7 meters (65</p>

			<p>feet) in length to conduct geotechnical surveys and/or related activities, which requires them to utilize a Type II or Type III device. Type II MSD systems are designed to produce effluent having a fecal coliform bacteria count not greater than 200 cfu/100mL (coliform forming units per milliliter). http://www.uscg.mil/hq/cg5/cg5213/msd.asp</p> <p>Geotechnical facilities to be covered by the Geotechnical GP are discharging while stationary, and conducting geotechnical activities. EPA revised the fecal coliform sampling frequency during the re-proposal process. The frequency was reduced from weekly to monthly. The open water season is July 1 thru October 31, which is effectively 4 months, and would correspond to 4 fecal coliform sampling events.</p> <p>Using a vessel that is equipped with a U.S. Coast Guard certified Type II or Type III MSD will enable a permittee to comply with the fecal coliform effluent limitations found within the Geotechnical GP. However, given the relatively short holding time for sample analysis for fecal coliform (6 hours; 40 CFR Part 136 Table II), EPA has revised the fecal coliform monitoring requirements in Table 3 of the Geotechnical GP. Thus, if a permittee receives authorization to discharge Sanitary Wastes (D003), and is operating a U.S. Coast Guard certified Type II or Type III MSD, then the permittee may demonstrate compliance with the fecal coliform effluent limits by sampling once per year, and submitting the data with the December DMR (Geotechnical GP Table 3, Footnote 5). If the permittee is not operating a U.S. Coast Guard certified Type II or Type III MSD, then monthly sampling for fecal coliform is required and are subject to the effluent limitations specified within the permit (Geotechnical GP Table 3, Footnote 6).</p> <p><i>(Related: RTC #R19)</i></p>
101	GP Part II.D.	Sanitary waste discharges are not related to a vessel's geotechnical activities and thus should be regulated in a manner that is consistent with the VGP and or MARPOL. The VGP and MARPOL limits discharges and gives standard concessions for discharging from a certified MSD unit / treatment standards and other requirements contained under Parts 5.1.1 and 5.1.2 or 5.2.1 and 5.2.2 of the VGP permit Annex IV of MARPOL Chapter 3 - Regulation 9. This modification would be consistent with the restrictions that the EPA applies in the Alaska Offshore Seafood Processor's General Permit. In contrast, the Draft Geotech GP includes a MSD requirement, a TRC requirement, in addition to the weekly fecal coliform testing requirement.	Refer to RTC #100 and #R19.
102	GP Part II.I, Table 9	The language "[m]ust be maintained as close to this concentration as possible" confuses what the actual effluent limits are for TRC. The EPA	The language "must be maintained as close to this concentration as possible" is consistent with the best conventional treatment (BCT) requirements under the

		should clarify and simplify the bacteriological effluent limits. TRC should be able to be used to demonstrate compliance in lieu of fecal coliform, see the ADEC APDES permit requirements. (AKG283100, page 17)	national Offshore Oil and Gas Effluent Limitations Guidelines (40 CFR Part 435, Subpart A, §435.14, issued in 1993 (58 FR 12454)). EPA applied the national Effluent Limitations Guidelines to the appropriate discharges to restrict the concentrations of pollutants entering the receiving water environment under the CWA Sections 301(a), 301(b), and 402 authorities. Additionally, EPA has revised Table 3 to clarify that the permittee is required to maintain a <u>minimum</u> total residual chlorine concentration of 1 mg/L. See also RTC #74, #100 and #159.
103	GP Part II.D.1	<p>“1. If authorized, the permittee may discharge sanitary and domestic wastes subject to the effluent limitations and requirements herein. The permittee must comply with the effluent limits in this section at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this general permit.”</p> <p>This language makes it sound as though the permittee has the option of complying with either Section II.D.2 or Section II.D.3. Obviously, the option to comply with the MSD requirements included in Section II.D.3 is far less onerous and would be preferable to the requirements of Section II.D.2. The EPA should clarify this is an either/or compliance option.</p>	The requirements for the discharge of Sanitary Waste (D003) and Domestic Waste (D004) would not apply if the operator does not intend to discharge one or both waste streams. As the geotechnical facilities are manned, it is highly likely that the operator will require authorization to discharge both waste streams, and, therefore, is required to comply with the requirements specific to each waste stream. Additionally, if the permittee intends to combine these waste streams, then, pursuant to Permit Part I.A. 11., the most stringent effluent limitations apply.
104	GP Part II.E.	The effluent parameters for the desalination unit wastes include free oil, pH, volume, and toxicity testing (if chemicals are added). Salinity (s.u.) would be an important and relatively easy measure to take and would help evaluate effects to receive waters. Therefore, we recommend that the final Geotech GP include salinity as an effluent parameter.	Since discharges of desalination unit wastes (D005) authorized under the Geotechnical GP will only occur to offshore marine waters, EPA does not expect localized areas of increased salinity levels to have an impact on the receiving marine water, thus monitoring for this parameter will not likely provide any new and substantive information.
105	GP Part II.K.	The proposed permit would require "monthly" measures for drilling processes that require 2 to 4 days. The monthly requirement should be eliminated.	The operator may monitor as often as desired during the course of a month, but their results need only be submitted monthly, with a sample frequency no less than once per month.
106	GP Part II.J.	The EPA needs to address the issue of ballast water treated by a ballast treatment system. Is such treated water "uncontaminated"?	The Geotechnical GP requires that all ballast water contaminated with oil and grease be treated through an oil-water separator. In addition, once per discharge event, the permittee must observe for visual sheen. If visual observations are not possible (i.e. during night time hours or low visibility due to inclement weather), the permittee must test the ballast water using the static sheen test. Discharges are not authorized if the presence of oil is detected. If an operator meets these requirements, then it would result in an authorized discharge of uncontaminated ballast water.

107	GP Part II.A.11., II.K., and Table 11	Commenter suggests that Discharge 011 not apply to geotechnical drilling that does not use additives in the drilling fluids.	Discharges of pollutants to waters of the United States require an NPDES permit. Under the Clean Water Act, a pollutant is defined as any “dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 USC 2011 <i>et seq.</i>)), heat, wrecked or discarded equipment, rock, sand , cellar dirt and industrial, municipal and agricultural waste” (emphasis added). Drill cuttings, not associated with drilling fluids, are defined in the Geotechnical GP to mean “the particles generated by drilling into subsurface geological formations (sediment and rock layers) and carried out from the subsurface hole with seawater and discharged at the seafloor. Examples of drill cuttings include small rocks varying in size and texture from fine silt to coarse gravel.” Therefore, if an operator intends to conduct activities that result in a discharge of cuttings (not associated with drilling fluids), then it meets the definition of a pollutant and requires authorization under the Geotechnical GP as Discharge 011.
108	GP Part II.K.	It would be impossible for the operator to look for a potential sheen of Free Oil through a hole in the ice during winter operations. Determining the total volume of drill cuttings discharged at the sea floor would also be difficult due to the small size in the ice hole. Suggest that the effluent monitoring requirements of Discharge 011 only be applicable during open water months.	<p>The density of oil (excluding bitumen) is lighter than that of water, therefore a sheen should be visible at the surface of the hole upon removing the drilling/sampling equipment. EPA has revised footnote 1 to incorporate winter discharge conditions, but has retained the visual sheen requirement for Discharge 011 in the final permit. Footnote 1 reads as follows: “Once per discharge event, the permittee must conduct a visual observation for a visual sheen as determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water. The permittee must monitor by observing the surface of the receiving water in the vicinity of the outfall(s) during daylight at the time of maximum estimated discharge and during conditions when observations on the surface of the receiving water are possible in the vicinity of the discharge. <u>For geotechnical activities conducted during the winter months, monitoring for the presence of a sheen must be conducted during removal of the sampling/drilling equipment.</u> The observations and time of day must be recorded. The number of days sheen is observed must be recorded and reported in the DMR.”</p> <p>The total volume of drill cuttings discharged is an estimate that can be roughly calculated by subtracting the sample volume from the total volume of the borehole.</p>
109	GP Part II.A.13.a	Commenter recommends that the Echinoderm Rapid Automated Toxicity Test requirement be removed from permit. The SPP toxicity testing alone is sufficient for evaluation of any toxicity associated with the geotechnical drilling operations, If D001 is used, it will be comprised primarily (96%) of seawater. Other drilling fluid constituents relied on for geotechnical borings include simple viscosifiers such as xanthan gum	The SPP toxicity testing is a specific requirement of Discharge 001 and is established consistent with the Offshore ELGs at 40 CFR Part 435 Subpart A. The effluent toxicity characterization requirement is applicable to waste streams D002, D005, D006, D007, D008, and D009 if chemicals are added to the systems. A toxicity test conducted on one discharge cannot be used to ensure that other discharges would not result in a toxic effect. As such, the effluent toxicity

		and bentonite clay, which are used to clean cuttings from the wellbore. Additionally, small quantities of other products may be used to maintain hole stability. These products are similar to those used to drill water wells in other applications. The products that are required for exploration drilling to keep much deeper and larger holes stable and to control subsurface pressures are not required to drill simple geotechnical borings.	characterization requirement at Permit Part II.A.14 remains a requirement of the Geotechnical GP.
110	GP Part II.A.13.a	The permittee must conduct the echinoderm fertilization test (Section 16 of EPA/600/R95-136) once (1) per week, or once (1) per discharge event if the waste streams are discharged during batch events, if the permittee is authorized to discharge the waste streams listed in Permit Part II.A.13.b. (above). The text of Section II.A.13.a references "Section II.A.13.b (above)[.]" However, this section does not exist. Nonetheless, commenter recommends removing this requirement for the above-stated reasons.	Refer to RTC #109. EPA has corrected the internal reference, it now refers to Part II.A.14.
111	GP Part II.C. Table 2	<p>Toxicity Testing Note 3: Sample must be collected from the oil-water separator effluent.</p> <p>This requirement appears to come directly from the EPA's Exploration GPs for the Beaufort and Chukchi Seas as it is premised on there being a possibility of petroleum contamination from the drilling floor, which has been exposed to materials from the hydrocarbon zone. There is very low likelihood that the decks of geotechnical vessels will be contaminated with petroleum products. The deck of a geotechnical vessel is not equivalent to the drill floor of an Exploration Drilling Rig and the requirements should not be the same.</p> <p>In addition, vessels chartered for geotechnical activities usually do not have their deck drains routed through an OWS and it is not feasible to request that these boats comply with this requirement. These drains are normally routed directly overboard with scuppers to control outfall, which is consistent with MARPOL and VGP requirements. As the primary potential source of petroleum contamination onboard a geotechnical vessel is from fuel, lube, and hydraulic sources of the drilling and sampling equipment, the requirements in the draft Geotechnical GP BMP are sufficient to limit the petroleum contamination in deck drainage. These mitigation measures include secondary deck containment around all hydraulically actuated or rotating gears, as well as implementing good housekeeping measures for deck cleanliness. Additionally, as standard practice, Oil Spill Response (OSR) kits are onboard and are located within easy access to address any minor oil spills from the geotechnical gear that could potentially occur on deck</p>	Refer to RTC #98.

		and would in all likelihood be cleaned up before any discharge goes overboard.	
112		<p>Commenter asks that the toxicity testing requirements be removed from the draft Geotech GP. The other “vessel” discharges should not require Echinoderm Rapid Automated Toxicity, or any other type of toxicity testing, as they have already been found under other permitting authorities not to pose an environmental risk. This requirement is not justified by the ODCE and furthermore increases the safety and environmental risks and cost due to the significant logistical support needed to meet his requirement. At the very least, the EPA should modify this requirement in the final permit to dictate that if chemicals are added to these discharge streams, the testing is required only once per season and can be performed pre-season. Even requiring one sample to be collected a year would require significant logistical support, risk, and cost to collect these samples and move them thousands of miles to the closest laboratory within 36-hours. The requirements for “typical” vessel discharges should not become more stringent for oil and gas activities when they represent the exact same discharges that vessels operating throughout the US are allowed to discharge closer to sensitive environments.</p>	<p>The specific waste streams identified in Permit Part II.A.14. (D002, D005, D006, D007, D008, and D009) are subject to the effluent toxicity characterization testing if chemicals are added to the system (See RTC #113). These specific systems may be treated with various chemicals (i.e. anti-fouling agents, biocides, corrosion inhibitors, descalers, etc.), all of which are designed to impart a toxic effect on organisms in the system. If these chemicals are used, then effluent toxicity characterization testing is required to ensure no unreasonable degradation of the marine environment. This requirement is based on EPA’s express authorities under sections 308, 402, and 403 of the Clean Water Act, as well as 40 C.F.R. Part 125.</p>
113	GP Part II.A.14.	<p>The draft Geotech GP would require conducting this testing weekly or once per discharge event. It is unclear from the permit whether the EPA will apply the more or less frequent of these two triggers. For example, it is not clear whether a permittee that has two discharge events in one week will be required to perform this testing once or twice. Please clarify this point.</p>	<p>If chemicals are added to one of the specified waste streams, then effluent toxicity characterization is required. If the discharge occurs “continuously,” then the operator must monitor weekly until chemical treatment has concluded. If the discharge occurs infrequently or in batch events, then monitoring is required per batch discharge until chemical dosing has ceased.</p> <p>EPA has revised Permit Parts II.A.14 and II.A.14.a. to provide more clarity regarding the toxicity testing requirements, these sections now read as follows:</p> <p>Permit Part II.A.14: “The permittee must conduct toxicity tests on the following discharges when 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 following toxicity test must be conducted once (1) per week for continuous discharges, or once (1) per discharge event for intermittent discharges, until chemical treatment has ceased for the identified waste streams.”</p> <p>Permit Part II.A.14.a.: “If the permittee is authorized to discharge the waste streams listed in Section II.A.14., then the permittee must conduct the echinoderm fertilization test (Section 16 of EPA/600/R-95-136).”</p>

114	GP I.E.1.	The "7 day prior to discharge" notification should not be required because it is difficult to predict exactly what day the geotech crew would actually start work. The geotech crew may need to manage logistical issues or delay work due to inclement weather (GP pg 8)	EPA has revised the notification requirement found at Permit Part I.E.1 to provide clarity in response to this comment. Permit Part I.E.1. reads as follows: "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. The notification described in this paragraph must be signed in accordance with the Signatory Requirements (Section VI.E.) of this general permit. If logistical issues or weather complications delay the operator beyond the intended initial discharge date, then the permittee needs to provide a revised notification to the Director and signed in accordance with the Signatory Requirements (Section VI.E.)."
115	GP Schedule of Submissions Table	In the event that the EMP is still included in the final Geotech GP, a caveat must be included indicating that some of these activities are only applicable if the applicant is using drilling fluids, for example: Notice of Intent, Chemical Additives Use Inventory, Effluent Toxicity Characterization, Environmental Monitoring Program Plan of Study, EMP Report, Revised EMP Report, Water-Based Drilling Fluids Metals Analysis, QAPP, and DFP.	<p>The EMP is a requirement of the final Geotechnical GP and consists of only two Phases. Phase I is required at each geotechnical activity site. The purpose of Phase I is to ensure that impacts from the geotechnical activities and discharges do not occur to sensitive biological areas and habitats, or are in the vicinity of historic properties. Existing, representative baseline data may be submitted for consideration with the NOI package.</p> <p>Phase II of the EMP is required if water-based drilling fluids are used to conduct the geotechnical activity, or if the Director requests completion of Phase II upon review of Phase I data. The purpose of Phase II is to evaluate the extent of deposition caused by the discharge of drilling fluids and drill cuttings from geotechnical activities, and to provide a discussion of any potential overlap from deposition caused by nearby exploration activities.</p> <p>An NOI is required to be submitted by any operator who intends to discharge pollutants from oil and gas geotechnical surveys and related activities. The CWA requires NPDES coverage for discharges of pollutants to waters of the United States. See also RTC #107.</p> <p>EPA revised the required list of NOI submissions during the Geotechnical GP re-proposal process. The Drilling Fluids Plan (DFP), Best Management Practice (BMP) Plan, and Quality Assurance Project Plan (QAPP) are only required to be submitted as part of the NOI package if a permittee requests authorization to discharge drilling fluids and drill cuttings (D001).</p> <p>For operators who will only discharge drill cuttings not associated with drilling fluids (Discharge 011), the DFP, BMP and QAPP are not required to be submitted with the NOI package. It should be noted, however, that the BMP and QAPP must be developed and on site prior to commencing geotechnical activities regardless of whether or not drilling fluids are used.</p>

			All operators are required to submit a Chemical Additives Use Inventory (Permit Part II.A.13.) and Effluent Toxicity Characterization results (if applicable; Permit Part II.A.14.).
116	GP; Section I.B.4.	For activities that do not involve the use of chemicals or drilling fluids, this section should clarify that the submittal of extensive biological and/or environmental reports is not required.	EPA has clarified the list of required submissions. Please refer to the Schedule of Submissions Table on page 5 the Geotechnical GP.
117	GP Section I.C.4	The EPA is requiring the submittal or reports and data obtained by the operator yet does not appear to allow the use of these data for a Phase I baseline assessment survey. If the EPA is requiring these data, they should then be relying on these data to serve as baseline information for activities that include discharge of water-based drilling fluids and cuttings (D001)	EPA revised the Geotechnical GP during the re-proposal process to allow for the submission of existing, representative baseline data. Refer to RTC # 40, #42, #43, and #44.
118	GP; Section I.E.3.	This section must make it clear that the submittal of a BMP Plan is only required when the operator is discharging drilling fluids and cuttings. There is no scientific rationale for requiring this document for a geotechnical boring survey	<p>EPA revised the Geotechnical GP during the re-proposal process to require submission of the BMP, along with the Drilling Fluids Plan (DFP) and Quality Assurance Project Plan (QAPP), with the NOI submittal package if a permittee is requesting authorization to discharge D001. Please note, however, that the BMP must be completed and in place/on site prior to commencing activities under all circumstances, regardless of whether or not drilling fluids are used to conduct geotechnical activities.</p> <p>Sections 304(e), 402(a)(1) and 402(a)(2) of the CWA provide EPA with the authority to incorporate BMPs into NPDES permits. See also 40 CFR 122.44(k), which requires that NPDES include BMPs in several defined circumstances. Best management practices (BMPs) are recognized as an important part of the NPDES permitting process to prevent the release of toxic and hazardous chemicals, as well as to identify appropriate pollution control mechanisms. The Geotechnical GP requires the permittee to develop and amend the BMP Plan to: (1) ensure proper operation and maintenance of the geotechnical facility, (2) include information about the number and quantity of pollutants and the toxicity of the effluent generated, discharged or potentially discharged, and (3) establish specific objectives for the control of pollutants by examining each facility component or system for waste minimization opportunities and for the potential to cause a release of significant amounts of pollutants to waters of the U.S. as a result of equipment failure, or improper operations.</p>
119	GP Part I.F.1	There needs to be clarification about what information should be submitted to the EPA based on a particular geotechnical activity. This section is written as if all data cells contained in the attached form should be completed for all activities. What kind of information would EPA be requiring for activities involving Discharge 011, for example.	Refer to RTC #116.

120	GP Part III.I	It is unclear what is meant by compliance schedules. Shell requests that the EPA clarify what these schedules relate to, what they require, and when they apply.	This provision appears under Permit Part III.I. and is standard language for all NPDES permits. This language is included in the Geotechnical GP pursuant to EPA regulations at 40 CFR 122.47. The commenter is directed to the regulations for further information on compliance schedules.
121		We recommend that the final Geotech GP require photographs of an upset event along with the written submission from the permittee to help in documenting and reviewing the upset event.	The Geotechnical GP contains upset provisions (Permit Part V.G.) that are consistent with the regulations found at 40 CFR 122.41(n). Pursuant to 40 CFR 122.41(n)(3), the permittee “shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence... ” (<i>emphasis added</i>). EPA believes these provisions will provide adequate documentation of the incident that results in an unintentional and temporary noncompliance with the requirements of the permit.
122	GP Part III.H.1.b	<p>CHANGES IN DISCHARGE OF TOXIC SUBSTANCES. The permittee must notify the Director as soon as he/she knows, or has reason to believe...</p> <p>1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the general permit, if that discharge will exceed the highest of the following “notification levels”: Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony[.]</p> <p>This permit language matches neither the EPA's Nationally Recommended Water Quality Criteria nor levels set in the State of Alaska's Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances. Because these discharge notification limits do not match either the federal or state water quality criteria, they appear to be arbitrary. Some of the toxic pollutants with "notification levels" do not even have water quality criteria for the protection of aquatic life in saltwater, e.g. acrolein, acrylonitrile, antimony. A simple statement that the permittee must notify EPA of any real or perceived exceedance of the existing toxic criteria limits would be demonstrably protective of the designated uses.</p>	This provision appears under Permit Part III.H. and is standard language for all NPDES permits. EPA disagrees that this noncompliance reporting requirement is arbitrary and has retained the standard language, which comes directly from EPA's regulations at 40 CFR 122.42(a)(1)(ii).
123	GP Part V.I	The permittee must give notice to the Director of the Office of Compliance and Enforcement at the address in Section III.B. as soon as possible of any planned physical alterations or additions to the permitted facility whenever: 1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR § 122.29(b); or 2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the general permit, nor	EPA's regulations at 40 CFR 122.41 identify permit conditions that must be incorporated into NPDES permits either expressly or by reference. The Planned Changes reporting requirements included in Permit Part V.I. are taken directly from 40 CFR 122.41(l) and will not be removed.

		<p>to notification requirements under Section III.H. (“Changes in Discharge of Toxic Substances”).</p> <p>Any modification done to a vessel must comply with MARPOL and the VGP and in some situations even be certified by the U.S. Coast Guard. In addition, monitoring and good housekeeping requirements would restrict and limit any increase of pollutants being discharged. This requirement would be onerous if not impossible for a permittee to comply with as vessels that conduct the work described in this permit are not on contract to a permittee year-round. Additionally, the requirement could discourage vessel owners from conducting upgrades to the vessel that could result in better measures to prevent pollution. Shell recommends changing the requirement to state that a permittee must report in its NOI renewal any vessel modifications that increased the quantity of pollutants discharged or that constituted a change that would lead to the vessel being classified as a new source.</p>	
124	GP Part VII.	<p>We recommend that the terms "Geotechnical survey" and "Related activities" be more specifically defined: Geotechnical Surveys related to oil and gas exploration are conducted to collect data on the physical characteristics of sediment and strata in the subsurface of federal waters of the Beaufort and Chukchi Seas. For the purposes of the NPDES Geotech GP, the types of surveying activities include drilling boreholes and coring to depths no deeper than 500 feet. The permitted activities involve disturbance to the seafloor and may produce discharges such as sediment, chips, fragment, cuttings, and/or drilling fluids. <i>Geophysical remote-sensing surveys are not included for consideration in the ODCE because no drill sediments, cuttings, or drilling fluids are discharged from these standard geophysical remote-sensing survey operations.</i> Geotechnical Related Activities for oil and gas exploration are conducted to test the feasibility of new construction methods or equipment that disturbs the seafloor. Examples are testing mudline cellar construction equipment or evaluation of trenching technologies. These activities disturb the seafloor and produce discharges similar to a geotechnical survey.</p>	<p>The language in the Geotechnical GP has not been revised as requested. EPA believes the Geotechnical GP, Fact Sheet and ODCE sufficiently describe geotechnical surveys and related activities.</p>
125		<p>Some technical terms are used inconsistently in the body of all documents. For example, the terms "boring" and "soil boring" are used often and in different contexts (i.e. ODCE Executive Summary, page i, Paragraph 2). We recommend that the usage of "boring(s)" and all three "soil boring" definitions be dropped from the documents.</p>	<p>It is EPA’s intent to use the term “boring.” EPA has confirmed the use of specific terms throughout the ODCE and has revised the following definition in the Geotechnical GP (Permit Part VII.) to provide additional clarity: “boring sample means the undisturbed cylindrical portion of the subsurface geological formations (sediment and/or rock layers) that is recovered to the deck of the facility for analysis.” EPA has removed references to “soil” from both the Geotechnical GP and the ODCE.</p>

126		Shallow drilling is defined in the regulations (30 CFR 551.1) as 500 feet or less. Therefore, the language throughout the draft Geotech GP, Fact Sheet and ODCE needs to be changed from 499 feet to 500 feet.	EPA has revised the Geotechnical GP (and the ODCE) to authorize discharges associated with geotechnical surveys and/or related activities to depths of 500 feet or less below the seafloor, which is consistent with 30 CFR 551.1.
127		We recommend that a conversion table be included as a page in the final Geotech GP and ODCE, along with the existing list of definitions of unit abbreviations. It would also be helpful to have the appropriate conversion(s) footnoted in tables where it is difficult to make units of measure consistent, such as with data published by various sources using various lab methods.	All acronyms and unit abbreviations found within the permit are defined in the Definitions Section (Permit Part VII.). Acronyms and unit abbreviations found within the ODCE are defined in the List of Abbreviations and Acronyms (ODCE, pg iii). Where appropriate, unit conversions have been noted in the documents.
128		We recommend adding "bentonite" to the list of definitions, including a description of the typical components, such as metals, that commonly occur in this material.	EPA has revised the list of definitions within the Permit to include bentonite and barite.
129		We believe the definition of "geotechnical facility" should include on-ice vehicles and on-ice equipment that may entail a discharge as defined in this permit	EPA agrees with this comment and has revised the definition of geotechnical facility to say, "...for purposes of this general permit, includes any floating, moored or stationary vessels, jack-up, lift barges, <u>or on-ice vehicles and on-ice equipment</u> with the capacity to conduct geotechnical surveying or related activities."
130		The definition of "stable ice" is critical with regard to proposed on-ice activities. Therefore, we recommend the definition be revised to read "Stable ice means landfast or bottom-fast ice that is stable enough to support specific equipment on a specified depth of ice."	The Geotechnical GP and ODCE currently define stable ice as "Ice associated with landfast or bottom-fast ice that is stable enough to support geotechnical equipment staged on the ice surface." The definition is appropriate for purposes of the permit and has not been revised.
131		We recommend the addition of a definition for "Bureau of Ocean Energy Management (BOEM)" that reads: "BOEM is part of the U.S. Department of the Interior and is responsible for the management of offshore conventional and renewable energy resources (formerly the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE))."	EPA has revised the list of definitions within the Geotechnical GP to include "Bureau of Ocean Energy Management."
132	GP Part II.J.	The definition of "Discharge 010 - Uncontaminated Ballast Water" is not clear on what is considered uncontaminated. Uncontaminated should be described in the definition section.	Refer to RTC #106.
133		The EPA fails to define "batch" in the Draft Geotech GP. Commenter interprets the term as describing each mixture of drilling muds prepared in the approximately eight-hundred gallon pit maintained on board a geotechnical vessel. Most operators will likely mix "batches" with great frequency, thus necessitating that they perform suspended phase particulate (SPP) toxicity testing multiple times per day while conducting geotechnical activities. If this provision is not removed from the final permit, or modified, it will result in daily helicopter travel to and from vessels during geotechnical activities. Commenter objects to a "per	EPA revised the permit during the re-proposal process to clarify the effluent monitoring requirements for drilling fluids and drill cuttings (D001). SPP toxicity testing must be conducted no less than once per season and can be conducted pre-season (Geotechnical GP Footnote 1, Table 1). If a new drilling fluid formulation is to be used during the season, then a new SPP toxicity test must be conducted.

	<p>batch" SPP toxicity testing requirement, because it is not supported by the ODCE. This permit provision in conjunction with the other unprecedented provisions in this permit will increased the cost of a season of geotechnical work by \$25 to \$30 million per season.</p>	
134	<p>EPA must also conduct a NEPA analysis for this permit. In response to comments on the Exploration General Permits, EPA stated that a NEPA Analysis was unnecessary because exploration discharges are not considered "new sources." However, this permit includes activities that involve significant site preparation related to development and production.</p>	<p>Under the Clean Water Act, NEPA review is only required for NPDES permits that authorize discharges from "new sources." 33 U.S.C. § 511(c). The term "new source" is defined as any facility that discharges pollutants where construction commenced after the effective date of applicable New Source Performance Standards ("NSPS"). See 33 USC §§ 306 and 511(c); 40 CFR 122.2. Because the authorized discharges and activities under the Geotechnical GP are similar in nature to those discharges covered under the 2012 Oil and Gas Exploration General Permits (AKG-28-2100 and AKG-28-8100), EPA has incorporated, 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). For Offshore Subcategory facilities (those located in waters seaward of the inner boundary of the territorial sea), NSPS were promulgated in March 1993. See 58 Fed. Reg. 12454 (Mar. 4, 1993). Thus, any new development or production facilities that commenced construction after March 1993 would be considered "new sources" subject to the relevant NSPS.</p> <p>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 <i>as a part of a continuous on-site construction program</i> 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, as defined in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart A), means 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. See 40 CFR 435.11(w)(1)(ii).</p> <p>In contrast to the above definition, the term "new source" does not include geotechnical surveys and related activities, which are not considered "significant site preparation" work. EPA's rationale is similar to that for exploration activities. See 58 Fed. Reg. at 12454, 12457 (Mar. 4, 1993) (explaining that exploration 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 <i>for a short duration, typically lasting only three to six months, and not necessarily followed by development and production activities at</i></p>

			<p><i>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”).</i></p> <p>Similarly, exploratory facilities generally differ from production and development facilities in that they do not have high volume discharges, and they do not discharge produced water. Moreover, the volume of drilling fluids and drill cuttings discharged from an exploratory facility is significantly less than from a development facility, where up to fifty wells can be drilled. As a result, discharges from exploratory facilities are not considered “new sources.”</p> <p>For the same reasons, EPA does not consider oil and gas geotechnical surveys, i.e. drilling borings at varying locations to assess subsurface conditions for <i>potential placement</i> of oil and gas facilities, as “significant site preparation work as part of a continuous on-site construction program.” As described in the Fact Sheet accompanying the draft Geotechnical GP, and the final ODCE (Sections 2.1. and 2.2.), geotechnical surveys and related activities are much shorter in duration than exploration activities and produce smaller discharge volumes. Similarly, development and production may never actually occur on the surveyed sites. As above, even when development and production does occur, it may not be for months or years after the geotechnical work is completed.</p> <p>As such, the term “new source” does not include oil and gas geotechnical surveys and related activities. EPA has therefore not completed a NEPA evaluation for this permit action.</p>
135		<p>We recommend specifying in the final Geotech GP and Fact Sheet whether the location of geotechnical data related to a geotechnical permitted activity will be proprietary and, if so, when it would be released to the public.</p>	<p>EPA does not consider the data required by the agency pursuant to the Geotechnical GP to be proprietary in nature. For example, the Geotechnical GP requires submission of the number of boreholes drilled during the calendar year, specific locations where discharges occur, sizes and depths of the boreholes, the volumes discharged, and duration of each borehole activity. EPA has an obligation to share this information with the public. If operators request that certain data be protected as Confidential Business Information, EPA will review the request under the Agency’s CBI regulations at 40 CFR Part 2, Subpart B.</p>

CATEGORY 7: COMPARISON OF EPA’S GEOTECHNICAL GP TO ADEC’S GEOTECHNICAL GP

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
136	Definitions	<p>The permit should be consistent with the Alaska Department of Environmental Conservation (ADEC) Geotechnical [A]PDES permit (AKG283100). The definition of geotechnical surveying should be the same in the State and Federal Permits. Currently, there are different definitions in each permit, which leaves room for misinterpretation. For example, according to the State permit, sediment grab sampling for scientific purposes could fall under the geotechnical surveying description.</p>	<p>The State defines geotechnical surveys as follows: “... any subsurface investigation that collects sediment samples to assess the structural properties of subsurface soil condition[s] for potential placement of structures such as oil and gas production and drilling platforms, ice islands, gravel islands, anchor structures for floating exploration drilling vessels, ports and harbors, and potentially buried pipeline corridors.</p> <p>EPA defines geotechnical surveys as follows: “... 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 sediment 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 sediment, rock and cuttings materials, in addition to facility-specific waste streams authorized under this general permit.”</p> <p>EPA does not consider these definitions to be substantially different, however, if the commenter has questions or concerns about what is covered under the State’s Geotechnical GP based on their definition of “geotechnical surveys,” then those questions/concerns should be directed to the ADEC.</p>
137		<p>The ADEC Geotech GP allows for more flexibility with respect to permit requirements commensurate with the type of geotechnical activities conducted in state waters. For those activities that <u>may include</u> the use of drilling fluids, for example, there are sampling and monitoring requirements appropriate for these activities. The proposed EPA permit does not - although it should - distinguish between activities that will use drilling fluids and activities that will not use drilling fluids.</p>	<p>EPA revised the permit during the re-proposal process to clarify that certain permit provisions, such as D001 testing for SPP toxicity and mercury and cadmium testing if barite is added, must be analyzed once per season and a new analysis is required if a new drilling fluid formulation or new “lot” or supply of barite is used. These testing requirements would not apply if drilling fluids are not used. EPA also clarified the EMP requirements such that Phase II is only required if drilling fluids are used. EPA has incorporated these changes in the final Geotechnical GP.</p> <p>It is not clear to EPA the source of the confusion. The Geotechnical GP contains provisions for when drilling fluids are used (D001) and for when they are not used. For example, if the operator does not use drilling fluids for geotechnical surveys, then discharge D011, Drill Cuttings not Associated with Drilling Fluids, would</p>

			<p>apply. The effluent limitations for D011 contain fewer requirements than if D001 is used. The Geotechnical GP includes provisions and requirements that are appropriate for the nature and type of each waste stream.</p> <p>See also RTC# 82, #93, #133, and #209.</p>
138	Definitions	The definitions for stable ice differ in each permit, which leaves room for misinterpretation.	See RTC #2 and #130. The Geotechnical GP and ODCE define stable ice as "Ice associated with landfast or bottom-fast ice that is stable enough to support geotechnical equipment staged on the ice surface." The definition is appropriate for purposes of the permit and has not been revised.
139		The term "territorial waters" needs to be defined and referred to consistently in each permit. The reference to territorial waters suggests application of the permit from 3 to 200 miles offshore. Yet the permit also refers to an area 12 to 200 miles offshore. This creates substantial uncertainty about the area from 3 to 12 miles offshore. The EPA permit wording as to geographical applicability should be clarified.	<p>The phrase "territorial sea" as used in the Geotechnical GP is defined in the Clean Water Act as "the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles." 33 U.S.C. § 1362(8). The Geotechnical GP makes the following reference to the territorial seas: "This general permit covers the area of 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."</p> <p>EPA's Geotechnical GP does not make reference to "territorial waters" or to the area 12 to 200 miles offshore, thus it is not clear to EPA the source of the confusion.</p>
140		We recommend that mitigation measures and the plan for this exploration have stringent regulations and requirements in place using the best available science and technology.	Please see RTC #55 and #68.

CATEGORY 8: NOTICE OF INTENT (NOI) REQUIREMENTS

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
141	GP Part I.C.4	<p>Requirement to submit environmental reports submitted to other agencies for authorization of this activity...</p> <p>There are a number of regulatory requirements and timeframes that may not line up with the NOI requirement in the draft Geotechnical GP. Shell recommends that the EPA change this requirement to provide that a permittee shall list in the NOI the other authorizations and permits that it will seek coverage under, rather requiring the permittee supply each document. The latter approach could delay when the NOI is deemed complete.</p>	<p>Documents such as exploration plans, biological surveys, and environmental reports being prepared for other federal and state agencies must be submitted to EPA. Because these documents are already being submitted to other agencies, most likely before or around the same time as an NOI would be submitted for consideration under the Geotechnical GP, providing copies to EPA would not appear to delay completion of the NOI package. However, if these reports and/or surveys are not available at the time of the NOI submission, then the permittee must indicate which documents are missing and must submit them once available.</p> <p>Permit Part I.C.4. has been revised to clarify the requirements to submit these documents with the NOI package.</p>
142	GP Part I.C.1	<p>The revised General Permit contains a requirement to submit separate NOIs for each proposed activity. If more than one location is proposed in a given season, one NOI should be appropriate if it contains the specific information being requested by EPA.</p>	<p>As discussed in RTC #145, EPA revised the Geotechnical GP such that an operator is only required to submit a first time NOI application for each Geotechnical Facility (as defined in the permit).</p> <p>The NOI form retains the provision requiring the operator to provide the anticipated locations of the geotechnical activities by identifying the applicable coverage area zones, but an operator is not required to request a separate permit authorization per zone. The operator must submit a complete NOI package, including the EMP Plan of Study, at least 90 days prior to initiation of discharges. If an operator intends to use multiple Geotechnical Facilities during the course of one calendar year, or uses different Geotechnical Facilities during subsequent years, then the operator must submit different NOI applications to the Director for each Geotechnical Facility.</p> <p>Permit Part I.C.1. has been revised to simplify the NOI application process. This change does not affect the annual NOI renewal process as described in Permit Part I.C.2.</p>
143		<p>The draft Geotech GP should have a NOI enforcement grace period which would go into effect after the Proposed Permit is finalized, say 90 days. The first NOI requires a BMP, EMP and a QAPP. These plans are difficult to write when we do not know what the final Geotech GP will require.</p>	<p>EPA revised the NOI list of submittals during the re-proposal process. The Best Management Plan (BMP), Quality Assurance Project Plan (QAPP) and Drilling Fluids Plan (DFP) are only required to be submitted as part of the NOI package if a permittee requests authorization to discharge drilling fluids and drill cuttings (D001).</p> <p>For those operators who intend to only use seawater (without additives; D011) to conduct geotechnical surveys and related activities, or those who intent to</p>

			<p>conduct on-ice activities and discharge only a single waste stream (i.e. D011), the BMP, QAPP, and DFP do not need to be included with the NOI package. Under this scenario, the BMP and QAPP must be developed by the permittee and are required to be on site prior to commencing geotechnical activities. This change helps to minimize the upfront paperwork submission.</p> <p>The EMP Plan of Study is required to be submitted by all applicants. The Plan of Study must include the permittee’s EMP scope of work and existing, representative baseline data (Phase I), if applicable.</p>
144		The ADEC geotech permit has different deadlines for the NOI submittal which is based on if the company will be discharging drilling fluids (90 days) and if it will not discharge drilling fluids (45 days). We recommend that the EPA geotech permit have the same NOI deadlines.	<p>EPA’s NOI submission deadlines will not be changed. A first time NOI package (Permit Part I.C.1) or NPDES permit application (Permit Part I.C.3.) must be submitted to the Director at least 90 days prior to initiation of discharges. Applicants must submit a timely NOI renewal package (I.C.2.) to maintain active coverage under the general permit. Annual NOI renewal packages must be submitted to the Director at least 45 days prior to initiation of discharges. See also RTC #142</p>
145	GP Part I.C.1	A first time NOI submission is required for: (1) each facility (not previously covered under the Geotechnical GP), and (2) for each coverage area zone within which that specific facility will operate (as depicted in Figure 1). One NOI should be sufficient for the vessel for the entire geotechnical program in a given year. Requiring multiple NOIs for the same activity significantly increases the administrative burden of complying with the permit with no appreciable environmental benefit. The Blocks and or Lots should be shown on Figure 1 so it is easier to understand each coverage area zones.	<p>EPA has revised the Geotechnical GP authorization process for first time NOI submissions (Permit Part I.C.1), which reads as follows: “Applicants seeking coverage under this general permit must submit a Notice of Intent (NOI) to the U.S. Environmental Protection Agency (EPA) Region 10 Director of the Office of Water and Watersheds (Director) at least 90 days prior to initiation of discharges when requesting authorization to discharge for the first time under this general permit. A first time NOI submission is required for each Geotechnical Facility (not previously covered under the Geotechnical GP). The applicant must use the NOI information sheet in Attachment 1 of the Geotechnical GP as part of the NOI submission. Only complete NOIs will be considered by EPA. Each NOI must be signed in accordance with the Signatory Requirements of Section VI.E. of this general permit.</p> <p>The NOI form retains the provision requiring the operator to provide the anticipated locations of the geotechnical activities. See RTC #142.</p> <p>Permit Part I.C.1. has been revised to simplify the NOI application process. This change does not affect the annual NOI renewal process as described in Permit Part I.C.2.</p> <p>EPA has revised Figure 1 to more clearly depict the coverage area zones. A larger view of the coverage area zones (OPD grids) can also be found at the following website: http://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/Alaska.aspx</p>

CATEGORY 9: OCEAN DISCHARGE EVALUATION CRITERIA (ODCE)

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
146		The highly variable spacing between boreholes is a concern because of potential for cumulative effects with decreased spacing between boreholes.	EPA conducted an evaluation of the potential for combined effects to occur, both in terms of the spacing of the geotechnical boreholes and the potential for the discharges from geotechnical and exploration activities to be combined spatially and within the same time period (ODCE Section 2.2). Additionally, Phase II of the EMP requires the operator to discuss any potential overlap from deposition caused by nearby exploration activities. As a pipeline route is refined over time, the spacing would need to be closer, but at most, these borehole sites would be 500 – 1,000 meters (1,640 to 3,281 feet) apart (AOGA 2013; ODCE Section 2.1). As discussed in the ODCE, 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) (Hamrick, 2013). While the pipeline geotechnical borehole spacing may decrease over time as the route is refined, the physical construction of a pipeline is not expected to occur during the five-year permit term (AOGA, 2013).
147		It is not clear what was considered in determining the number of feasibility testing activities during the five-year permit term. We recommend that text be added to the final Geotech GP, Fact Sheet and ODCE to describe how the number of feasibility testing activities during the five-year permit term was [derived].	<p>EPA’s assumptions regarding the number of testing activities and the estimated volumes are based on existing information, such as mudline cellar discharge volumes from Shell’s 2012 exploration activities, and the agency’s best professional judgment. For example, EPA is aware of two operators who either have submitted or intend to submit ancillary plans to the BOEM for activities in the offshore Beaufort and Chukchi Seas. Based on the number of offshore lease holders in the Beaufort and Chukchi Seas, EPA estimates that one or two additional oil and gas operators may be active during the five year term of the permit. (See http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Leasing-and-Plans/Leasing/Index.aspx#LeasingProcess)</p> <p>Given the limited number of operators with known intentions to operate in the Arctic, EPA assumed that two equipment feasibility testing events could occur twice per year per sea, or 20 times over the five-year term of the permit. In reaching this conclusion, EPA considered the number of current lease holders, potential offshore oil and gas operators, and the likelihood that they would be active over the next five years. Similarly, EPA assumed that each equipment feasibility testing event would disturb an area half the dimensions of a typical mudline cellar. In other words, we assumed that an entire mudline cellar would not be constructed during the test, resulting in a seafloor disturbance of approximately 10 feet wide by 20 feet deep. Therefore, one equipment feasibility testing event would result in an approximate discharge volume of 11,750 gallons.</p>

148	ODCE, pg 2-3.	There is no detailed description of conventional methods of coring (just a few sentences), nor of "related activities." The text in these sections of the ODCE indicates a significant lack of understanding of the physical activities associated with geotechnical surveys. EPA should modify the ODCE to more adequately characterize these activities.	<p>The ODCE contains information directly provided by industry. EPA has added additional information to the final ODCE, where appropriate. The commenter is also directed to the Fact Sheet, which contains descriptions of the different geotechnical survey technologies.</p> <p>The ODCE describes the assumptions used by EPA, such as the potential size of the seafloor disturbance and estimated discharge volumes, to conduct the impact analysis.</p> <p>EPA further notes that the commenter provides no specifics regarding information that was incorrect or information that EPA omitted and should have included. Absent specific information, EPA is not able to respond further.</p>
149		The degree of uncertainty for the proposed permitted activities such as discharge volumes handicaps the agencies' assessment of geotechnical general surveys and related activities and the impact it may have on the marine environment	Please see RTC #76, #147 and #148. The information received from industry operators, such as Shell, other AOGA member companies, and ConocoPhillips, and reliance on EPA's best professional judgment provide a relevant basis for estimating the anticipated number of activities in federal waters across both the Beaufort and Chukchi Seas and the discharge volumes per location and on an annual basis. Collectively, this information supports the agency's estimates used to evaluate the potential impacts and the determination that the discharges would not result in an unreasonable degradation of the marine environment. EPA will regularly review and reconsider the estimated level of activity and the discharge volume assumptions.
150	ODCE pg ii and 2-1; Fact Sheet pg 7	Geotechnical surveys are not necessarily "short in duration and, depending on the targeted depth, range between 1 and 3 days." An individual borehole drilling may be short in duration; however, an individual operator's entire on-ice or open water survey could be proposed for many weeks and several seasons. A survey would typically be comprised of multiple bore- or core-holes. Therefore, we recommend that duration of operations in the Final Geotech GP, ODCE, and Fact Sheet be revised to reflect this information.	EPA has not revised the documents as requested. The language cited in the comment is in reference to the estimated time duration to complete a single borehole. The Fact Sheet and the ODCE (ODCE Sections 1.2.2. and 2.1) discussed EPA's consideration and evaluation of geotechnical activities that would occur at multiple locations each year and would be conducted over multiple years.
151	ODCE, p. 2-1, fourth paragraph	The description of geotechnical related activities is not accurate. The ODCE assumes that the discharge would be equivalent to half of an MLC whereas the definition of "geotechnical related activities" is much broader and should evaluate more reasonable level of activity. It is unreasonable to assess potential impacts of geotechnical discharges using unrealistic or overly conservative assumptions.	See RTC #76, #147 and #149, which discuss the bases for EPA's assumptions. EPA based its analysis and conclusions regarding "geotechnical and related activities" on the information provided by this commenter and other industry operators. This comment fails to provide any further, specific information as to what the commenter believes would be a "reasonable level of activity" for analysis. As such, EPA has not revised the analysis and is not able to respond directly to this comment.
152		The ODCE also states (incorrectly) that a "single batch of fluids [will be used] to drill multiple geotechnical boreholes." This permit	The statement in the draft ODCE was based on information provided by AOGA during the permit development process (AOGA, 2013). EPA has revised the sentence in the ODCE to say, "Operators intend to pre-mix large batches of drilling

		requirements appears to be the result of a misunderstanding, or simply a misstatement.	fluids in the mud pit, <u>and depending on the sizes of the pit, multiple batches may be mixed during a season and a single batch of fluids could be used to drill multiple geotechnical boreholes.</u> Permit requirements associated with the discharge of drilling fluids and drill cuttings were clarified during the Geotechnical GP re-proposal process. See also RTC # 91, 92, 93, #133, and #137.
153	ODCE: Table 3-2, Footnote 8	The statement in Footnote 8 would require a company who is not using drilling fluids to need a Discharge 001 approval, which does not apply in this situation.	Refer to RTC #209.
154	ODCE: Table 3-2, Footnote 7	EPA states that "Discharge 001 includes the cuttings materials generated from geotechnical related activities. For purposes of the ODCE, EPA discharged from equipment feasibility testing activities during the 5-year permit term." Commenter does not plan on performing any feasibility testing.	See RTC #82 and 19.
155	ODCE Section 3.3	The ODCE Section 3.3 last paragraph states: "Discharge 011 may also include cuttings from shallow boreholes. 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." Commenter is concerned about this statement because drilling fluids may or may not be used for shallow or deep boreholes depending on the site and project.	See RTC #180, #207, and #208.
156		EPA's degradation analysis improperly relies on discharge assumptions that are not contained in the proposed permit. The analysis relies on assumptions about the total amount of pollution that will be discharged while the proposed permit contains no limits on the overall amount of pollution. For example, EPA states that "[a]pproximately 10 geotechnical borings could be conducted" in the lease deferral area and bases its degradation analysis on this overall level of discharge (ODCE 6-23). However, the proposed permit itself does not limit the number of boreholes that can be drilled. Rather, it places limitations on the concentrations of discharges without limiting the overall volume of the discharges (Geotech GP pg 23, 27 - listing effluent limits in mg/kg, but only requiring annual reports of total volume).	See RTC #76, #147, and #149.
157	ODCE, pg 3-7; ODCE, pg 2-3. Section 2.1,	Description of conventional rotary drilling for geotechnical surveys correctly indicates that the use of additives and drilling fluids is typically not required (but if drilling fluids/muds were warranted multiple batches would be mixed daily). The focus throughout the ODCE, however, is based on an assumption that drilling fluids with additives	See RTC #82, #137, and #209.

	tenth paragraph	will be used for each borehole. It is unreasonable to assess potential impacts of geotechnical discharges using unrealistic or overly conservative assumptions.	
158	ODCE, pg 3-8	The currents used for modeling are not representative of conditions in the nearshore environment.	The commenter did not provide specific information regarding EPA's model assumptions or data that would be considered representative of conditions in the nearshore environment. As such, EPA has not revised the model and is not able to respond directly to this comment.
159	ODCE, Overall Conclusions, pg 6-26	The EPA's Effluent Limitations Guidelines (ELGs) are promulgated as regulations and—where applied—these ELGs are “protective of the marine environment.” The reader is directed to the Alaska Department of Environmental Conservation Geotechnical GP ODCE, which does a more thorough job of explaining the rationale behind the ELGs. The application of the ELGs reinforces the manner in which the marine environment will be protected even if the final Geotechnical GP does not include an EMP requirement.	EPA applied the national Effluent Limitations Guidelines to the appropriate discharges, such as drilling fluids and drill cuttings (D001), to restrict the concentrations of pollutants entering the receiving water environment under the CWA Sections 301(a), 301(b), and 402 authorities. The EMP, on the other hand, would provide data regarding baseline conditions and the depositional extent based on the volumes that would be discharged from D001. Additionally, as discussed in RTC #162, the information collected from Phase II would confirm EPA's modeling results and provide data regarding the potential transport of pollutants by physical processes. The EMP requirements, in addition to the effluent limitations established by the permit, were factors that support EPA's conclusions that the discharges would not cause an unreasonable degradation to the marine environment. See also RTC #46 and #44.
160		EPA has failed to conduct the site-specific analysis required by its regulations. The proposed Geotech GP and its supporting documentation fail to consider adequately the site-specific impacts on sensitive and important areas, including the Spring Lead System, Steffansson Boulder Patch, and Hanna Shoal. The Clean Water Act requires promulgation of guidelines for determining degradation of waters caused by discharges into the ocean. 33 U.S.C. § 1343(a), (c). Those guidelines, in turn, require the agency to “determine whether a discharge will cause unreasonable degradation of the marine environment.” 40 C.F.R. § 125.122(a). EPA may not authorize discharges that would cause unreasonable degradation, id. § 125.123(b), which includes “[s]ignificant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities.” Id. § 125.121(e)(1). When promulgating these regulations, EPA stressed that “the location of the discharge is an important element in determining the level of control necessary to prevent such degradation. Section 125.122 identifies for the director a number of factors relating to the biology of the local community which are important in assessing the impact of a discharge.” 45 Fed. Reg. 65,942, 65,951 (Oct. 3, 1980). Despite the well-known importance of Hanna Shoal for foraging and resting, see	The commenter referenced EPA regulations that define and refer to the determinations of unreasonable degradation with specific references to the importance of the receiving water area to surrounding biological communities, and the existence of special aquatic sites. The regulations at 125.122(a) do not require site-specific, in situ data collection and analysis as implied by the commenter (by challenging the “adequacy” of EPA's analysis). Regardless, EPA has revised the ODCE to explain further EPA's consideration of the unique features of the Beaufort and Chukchi Seas in reference to resident biological communities and sensitive areas, including the Spring Lead System, Steffansson Sound Boulder Patch, and Hanna Shoal specifically.

		Audubon Letter at 14-15; U.S. Department of Interior Bureau of Ocean Energy Management, Proposed Final Outer Continental Shelf Oil & Gas Leasing Program 2012-2017 (June 2012), at 8-9 & n.14 (describing ongoing scientific studies of Hanna Shoal), the ODCE for the Geotechnical Permit fails to mention it as anything other than a mere geographical marker.	
161		The ODCE states that these borings will be aimed at “investigat[ing] the physical properties of the sediments along potential pipeline routes,” ODCE at 6-23, and according to Table ES-1 for 2014 Activity, as many as 60-64 boreholes are expected to be made solely for pipelines. ODCE at iii. Up to 74 new boreholes are expected in each subsequent year. Id. at iii-v. EPA must consider the impacts of all potential drilling, and even if the agency decides to limit drilling to a specific number of boreholes, it must perform a proper analysis to ensure that any authorized drilling does not have the potential to cause unreasonable degradation.	See RTC #149.
162	ODCE, pg 3-2	Section 3.1, last paragraph: “Barite is a concern because it is known to contain trace contaminants of several toxic heavy metals such as mercury, cadmium, arsenic, chromium, copper, lead, nickel, and zinc.” The author does not appear to understand current industry practice or current manufacturing practices for barite in the U.S. and the fact that constituents of concern are present at extremely low concentrations. Additionally, the trace quantities of heavy metals in barite have been subject to regulatory controls for many years. The barite mining practices over the years have been improved to result in low concentrations of any co-occurring metals with the barite (BaSO4), the concentrations of which are well below any ecologically-relevant and toxicologically-relevant thresholds. (Trefry and Smith 2003) The Petroleum Equipment Suppliers Association (PESA) developed a barite certification program and it is commonly used by drilling fluids companies to document that their products conform to the offshore limits for mercury and cadmium. For many years drilling fluid suppliers have been providing barite that meets the discharge limits. During the Effluent Limitation Guidelines development process the EPA documented that control of mercury and cadmium indirectly controls other heavy metals. (EPA 821-R-93-003 Page VI-4). Several previous scientific studies have demonstrated that low levels of heavy metals found in commercial supplies of barite do not pose a significant environmental risk when discharged into the marine environment.	The statement cited by the commenter is accurate and has been retained in the ODCE. Notably, the commenter acknowledges that the barite contains trace amounts of heavy metals. In addition, as noted by the commenter, EPA established effluent limitation guidelines for mercury and cadmium at 1 mg/kg and 3 mg/kg, respectively, for drilling fluids and drill cuttings, which also serve to indirectly control the concentrations of other metals in the discharge. All of this information is appropriately referenced in the ODCE (ODCE Section 6.1.6.). EPA is aware of the metals studies conducted in the Beaufort and Chukchi Seas and has cited the data in Section 4.5.2. of the ODCE. See also RTC #4, #10, #15, #18, #91, #93, and #137.

163	ODCE, pg 2-3. Section 2.2	Several significant differences between these activities are not identified, including type of discharge, cutting size and depositional pattern.	EPA believes the relevant differences between geotechnical activities and exploration drilling, such as duration of activities, borehole sizes and drilling depths, and discharge volumes - as they relate to permit provisions and potential impacts - have been considered and evaluated. The commenter offers no specific information on the “significant differences” that should be included in the analysis or how including such information would alter EPA’s analysis or conclusions. As such, the analysis has not been revised, and EPA is not able to respond to this comment.
164		The local community has the following concern: How will the disturbance from mudline cellar and construction equipment and other equipment that disturbs the seafloor have an effect on bottom feeding marine organisms, especially subsistence animals we depend on?	<p>The feasibility testing of mudline cellar construction equipment and drilling of geotechnical boreholes is expected to result in limited physical disturbances to and smothering of benthic and epibenthic habitats and pelagic species, which are food sources for various pinnipeds, seaducks, and marine mammals (U.S. EPA, 2013). EPA’s modeling indicates that based on a discharge rate of 1,093 gallons per day (gal/day) and current speeds ranging from 0.02 to 0.40 meters per second (m/s), the depositional thickness of the drilling fluids and drill cuttings materials ranges from 1.52 millimeters (mm) to 30.33 mm (0.06 to 1.19 inches (in)) at a 1 meter (3.3 feet (ft)) distance from the discharge location. At 10 meters (32.8 ft) and 100 meters (328 ft) distances from the discharge location, and assuming the same discharge rate and ranges of current speeds, the thickness of drilling fluids and drill cuttings are 0.48–9.59 mm (0.02–0.38 in) and 0.15–3.03 mm (0.006–0.38 in), respectively.</p> <p>The area of seafloor disturbance is assumed by EPA to cover approximately half of a typical mudline cellar dimension, which is 20 feet wide and 40 feet deep.</p>
165		The NSB is concerned that the assessment of the bioaccumulation and persistence of pollutants into the marine environment has not considered the effect of discharge accumulation into sediments and the uncertainty of the impacts this will have on the marine ecosystems. We recommend that the EPA take a closer look at re-suspension of contaminated sediments due to disturbance, such as ice scouring and disturbance to sediments from bottom feeding organisms (bearded seal, gray whale, pacific walrus) for a better ecosystem-based approach to gauging impacts.	<p>EPA’s analysis of bioaccumulation and persistence of pollutants focuses on water-based drilling fluids, which include chemical additives and barite. Barite is the source of metals, i.e., mercury and cadmium that would be discharged into the marine environment; however, the Geotechnical GP limits the concentrations of mercury and cadmium at 1 mg/kg and 3 mg/kg, respectively. At these concentrations, the metals are not expected to be bioavailable, bioaccumulative, or persistent. Furthermore, all other waste streams that will be authorized by the Geotechnical GP (e.g., sanitary and domestic wastes, deck drainage, bilge water, ballast water) do not contain pollutants that are bioaccumulative or persistent (ODCE Section 6.1.).</p> <p>EPA evaluated turbidity and resuspension of seafloor sediments in Section 4.5.1. of the ODCE. Turbidity levels are generally highest during spring break-up. Table 4-1 summarizes the data for total suspended solids collected in 2009 and 2010 in the Chukchi Sea. Because of the spacing of the boreholes and the volume of drilling fluids estimated to be discharged per hole, exposure to marine mammals</p>

			and other bottom feeding species due to resuspension of the discharged materials is unlikely. Section 6.2.2. discusses the various physical transport mechanisms and the results of EPA’s deposition modeling based on multiple scenarios including current speed and discharge rate.
166		The degree and extent of exposure to pollution required the EPA to address the deflection and disturbance to marine organisms due to vessel traffic. The effects of discharge related visibility and the attraction or deflection of animals because of waste discharge should be considered when determining how this will affect marine organisms, especially marine mammals.	<p>The Geotechnical GP includes a provision to monitor for potential deflection of marine mammals during periods of discharge of non-contact cooling water because this discharge consists of higher temperatures and could cause avoidance behavior (see also RTC #57). EPA did not include a marine mammal monitoring provision during the discharge of drilling fluids and cuttings because the materials are discharged at the seafloor and not expected to result in high turbidity or visibility impacts.</p> <p>Pursuant to the Endangered Species Act, EPA evaluated the potential impacts of the discharges to threatened, endangered, proposed and candidate species in a Biological Evaluation. The BE included potential direct, indirect, interrelated and interrelated impacts associated with the Geotechnical GP, including vessel traffic and noise. The BE also included identification of stressors and a species exposure analysis (Section 5.3.) for mammals (i.e., whales, polar bears, pinnipeds, walrus), coastal and marine birds, including potential habitat loss and impacts to prey species. The BE was developed in coordination and consultation with other federal agencies such as BOEM, NMFS, and the USFWS. See RTC #73.</p>
167		In the spring, open leads and polynyas in the sea ice form a migratory pathway for many species, including threatened and endangered species. Endangered bowhead whales migrate through this corridor from mid-March to mid-June, and although they may be partially protected by the ban on discharges during the bowhead whale hunt, ODCE at 6-20, this condition only protects the whales as long as the hunt lasts, and is not tied to their full migration. U.S. Department of Interior Bureau of Ocean Energy Management, Regulation and Enforcement, Chukchi Sea Planning Area Oil and Gas Lease Sale 193 Final Supplemental Environmental Impact Statement (Aug. 2011) (Chukchi FSEIS), at 62. If confronted with toxic fumes, bowhead whales may modify their movements, “attempt[ing] to detour through adjacent ice covered waters.” Chukchi FSEIS at 195. Newborn bowhead whale calves are particularly susceptible to toxins in their environment because they take more breaths and spend more time at the surface, thereby increasing their intake of toxins and potentially reducing their ability to detour through fully ice-covered waters. Id. Although adult bowhead whales may have the ability to react to contaminants in their environment by taking alternate paths, newborns in the same situation	EPA has revised the ODCE to include discussions of the Spring Lead System and had included a seasonal restriction in the Geotechnical GP to restrict all discharges within the 3-25 nautical mile deferral area in the Chukchi Sea prior to July 1. See also RTC #7, #8, and #170.

	<p>“risk separation, abandonment or mortality.” Id. EPA’s conclusion in the ODCE that the potential effects to the bowhead whale “are expected to be minimal” is arbitrary. This unsupported conclusion does not address or explain the well-known facts that the Spring Lead System is essential to the bowhead whale migration, even though they may use any one place for a short period of time. Nor does the conclusion explain how the Region 10 has reached the conclusion when NMFS and BOEM issued directly contradictory statements and have implemented a 25-mile deferral area along the Chukchi coast.</p>	
168	<p>Bowhead whales are not the only animals that rely on the spring lead system for migration and feeding. Coastal and marine birds, including threatened spectacled eiders, common eiders, murre, long-tailed ducks, and king eiders, follow the open leads during spring migration. Chukchi FSEIS at 59, 64, 67, 233; ODCE at 5-9. Beluga whales and Pacific walrus also migrate along the spring lead system. Chukchi FSEIS at 71; Audubon et al. Letter re Chukchi Lease Sale 237 (Dec. 3, 2013) (Audubon Letter), at 6. Other marine mammals that live in the area year round, such as ringed seals and polar bears, use the spring lead system as important feeding habitat. Chukchi FSEIS at 59, 241. Previous analyses have not discussed the effects of oil and gas activities on the animals using the spring lead system, because they have assumed activities will occur later in the season when open water conditions prevail. See, e.g., Chukchi FSEIS at 233 (“As the hypothetical [very large oil spill] would originate during the open water season (post-July 15), the spring lead system, by definition, would not exist or be available for contact. . . .”); ODCE for Chukchi Exploration NPDES General Permit (Oct. 2012) (Chukchi Exploration Permit), at 6-14 (“The spring migration of bowhead whales would generally be over before the discharges begin, the earliest of which would occur in July.”). Indeed, other agencies have specifically deferred activities from the spring lead system. See, e.g., Bureau of Ocean Energy Management, Chukchi Sea OCS Oil & Gas Lease Sale 193, Record of Decision (Oct. 2011), at 3-4, 11-12 (noting deferral of leasing from coastal area to protect important migratory habitat); National Marine Fisheries Service, Incidental Harassment Authorization for Shell Gulf of Mexico Inc. in the Chukchi Sea (May 2, 2012), at 1, 5 (authorizing activities only after July 1 and requiring ships to avoid spring polynya zone when transiting). The proposed Geotechnical Permit, however, does not do so. It allows activities to proceed in the critical lead system, see ODCE at 6-20, and therefore it is critical that EPA consider whether the discharges would result in unreasonable degradation of the water</p>	Refer to RTC #167.

		quality in the area and during the time in which the spring lead system occurs. EPA must analyze whether discharges in the spring open water leads essential to many species' migration and feeding and in other sensitive areas would result in unreasonable degradation. The current documents contain no such analysis.	
169	ODCE Page 1-3	State explicitly in Section 1.2.1 that the permit applies to discharges within the 25-mile deferral zone established by BOEM.	The permit, fact sheet, and ODCE include descriptions and maps of the coverage area that clearly depict the 3-25 nautical mile deferral area.
170	ODCE Page 1-3-4	Include explicit discussion and analysis of impacts of discharge into Spring Lead System in analyzing 10 criteria used to assess determination of unreasonable degradation, including an analysis of whether and to what extent proposed mitigation measures would be effective at avoiding or minimizing these impacts. The analysis also must support the agency's conclusion as to the impacts of discharge into the Spring Lead System.	The ODCE has been revised to include an analysis of the Spring Lead System and EPA's decision to prohibit all discharges within the 3-25 nautical mile deferral area in the Chukchi Sea prior to July 1 (ODCE Section 6.1.). See RTC #7, #8, and #167.
171	ODCE Page 2-3-4	When comparing these discharges to those associated with exploration, highlight the fact that these would occur in the Spring Lead System	See RTC #167, and #170.
172	ODCE Page 3-8-10	Discuss whether dilution modeling accounts for unique dynamics of the Spring Lead System and if so, why.	EPA revised the Geotechnical GP during the re-proposal process to restrict all discharges to the 3-25 nautical mile deferral area. See RTC #7, #8, #167, and #170.
173	ODCE Page 4-2-7	Provide an in-depth discussion of Spring Lead System as it relates to oceanography, circulation and currents, stratification, salinity, and temperature, ice and water and sediment quality.	See RTC #167, and #170.
174	ODCE Page 5-6-7	Summarize existing information and agency statements on the importance of the Spring Lead System for marine mammals.	See RTC #167, and #170.
175	ODCE 5-16-20	Summarize existing information and agency statements on the importance of the Spring Lead System for subsistence activities.	See RTC #167, and #170.
176		The ODCE also overlooks other areas that have been deemed biologically important for purposes of analyzing related activities. For example, the Beaufort Exploration Permit prohibits discharges within 1,000 meters of the Stefansson Sound Boulder Patch due to its "diverse kelp and invertebrate community" and status as a sensitive area, as designated by the Alaska Department of Natural Resources. ODCE for Beaufort Exploration Permit at 6-16 to 6-17. The State's draft General Permit for Geotechnical Surveys in State Waters of the Beaufort and Chukchi Seas, covering the same activities as EPA's Geotechnical Permit, also prohibits discharges within 1,000 meters of the Stefansson Sound Boulder Patch. State of Alaska, Department of Environmental Conservation, Draft General Permit AKG283100, Geotechnical Surveys in State Waters of the Beaufort and Chukchi Seas, at 11. There is no	The Steffanson Sound Boulder Patch and the 1000 meter buffer are located in state waters of the Beaufort Sea. Since the coverage area for the Geotechnical GP is restricted to federal waters, the Steffanson Sound Boulder Patch is outside of EPA's jurisdiction. Because the Beaufort Exploration GP includes both federal and state waters, the prohibition noted by the commenter is appropriate in that separate permit.

		mention of protections for Stefansson Sound in EPA's proposed Geotechnical Permit. See generally ODCE.	
177		<p>The ODCE for the Geotechnical Permit does not adequately analyze how birds may be affected by geotechnical activities. The ODCE concludes that the “intermittent nature and limited extent of geotechnical surveys and related activities discharges . . . will prevent unreasonable degradation of biological communities,” including Ledyard Bay. ODCE at 6-13. As noted, Ledyard Bay is designated critical habitat for spectacled eider due to its use by the species while molting. Id. However, the ODCE fails to analyze whether eiders are more susceptible to disturbance from discharges in Ledyard Bay given that molting is “energetically demanding, especially for species such as spectacled eiders,” necessitates “ample food resources,” U.S. Fish and Wildlife Service, Intra-Service Biological Opinion for Issuance of a Section 10 Permit for Breeding Biology Research of Steller’s Eiders and Other Waterfowl and Control of Foxes near Barrow, Alaska (2012-2014) (May 2012), at 15, and renders them flightless. U.S. Fish & Wildlife Service, Protecting Spectacled Eiders at Sea (Jan. 2002), at 1; see also id. at 2 (suggesting that operators “[a]void disturbing or harvesting benthic communities in eider molting and wintering areas during any time of year”). The Biological Evaluation prepared for the Chukchi Exploration Permit states that impacts “would be most substantial to molting spectacled eiders . . . during summer as a molting population, and which are likely already stressed and less mobile during this flightless period,” and concludes that eiders would be protected because “no vessels or drilling activities will be allowed within the Ledyard Bay area . . . between July 1 and November 15.” EPA, Biological Evaluation in support of the Chukchi Sea Oil and Gas Exploration NPDES General Permit No. AKG-2808100 (Jan. 2012) (Chukchi Exploration Biological Evaluation), at 51. Additional analysis is warranted to determine the severity of the effects caused by geotechnical activity discharges on eiders and their food source during this sensitive time of year. EPA has a duty to consider the effects of disposal on wildlife. 33 U.S.C. § 1343(c)(1)(B). This analysis is particularly important here, where “[a] permit is not required from [the Bureau of Ocean Energy Management] for ancillary activities,” including geotechnical surveys and related activities. ODCE at i.</p>	<p>The Biological Evaluation completed by EPA for the Geotechnical GP, dated December 2013, considered and evaluated the potential impacts from geotechnical activities and discharges to Ledyard Bay and the species that rely on it, such as spectacled eiders, Steller’s eiders, and other birds. For example, Section 5.3.2. of the BE includes a species exposure analysis of coastal and marine birds within the Geotechnical GP’s Area of Coverage, particularly Ledyard Bay, Section 5.6. discusses the potential impacts associated with the discharges on avian species, and Section 5.7. analyzed the effects to the Ledyard Bay Habitat Unit, which is the designated critical habitat for spectacled eiders. The BE sufficiently evaluated the discharges from geotechnical surveys and related activities that could occur within the 25-mile lease deferral area (after July 1) in the Chukchi Sea, within which Ledyard Bay is located, during the five-year term of the permit.</p> <p>On January 31, 2014, the USFWS concurred with EPA’s determination that the discharges authorized by the Geotechnical GP may affect but not likely to adversely affect listed species or their designated critical habitat areas, including Ledyard Bay. Additionally, please note that the Geotechnical GP has been revised by EPA to prohibit all discharges within the 3-25 nautical mile deferral area in the Chukchi Sea prior to July 1 (ODCE Section 6.1.). See also RTC #7, #8, #R5.</p>
178		<p>There is more recent information on metal persistence in the U.S. Arctic than that is cited in the draft ODCE and Fact Sheet. BOEM has sponsored several studies applicable to persistence, chemical transport, and bioaccumulation in the Chukchi Sea. Most comprehensive of these</p>	<p>EPA notes that the documents included as reference #1 through 5 of the comment are contained in the same report, Chukchi Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. OCS Study BOEM 2012-012. EPA has reviewed all five chapters referenced in the COMICA/CAB reports as well</p>

studies is the “Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA): Chemical and Benthos (CAB)” Report. Specifically, Trefry, Trocine, and Cooper (2012) found persistence of metals around small areas of old drill sites. To increase the understanding of potential effects of the proposed activities under this General Permit, we recommend that information from the following publications concerning metals in the Chukchi and Beaufort seas be incorporated into the final ODCE. The COMIDA final report and others are available on the BOEM Studies website: <http://www.boem.gov/Alaska-Reports-2012/> (1) Cooper, L.W. and J.M. Grebmeier. 2012. Sedimentation Rate Analyses. In Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. Prepared for Bureau of Ocean Energy Management. OCS Study BOEM 2012-012, 311 pp. (2) Dunton, K.H., J.M. Grebmeier, J.H. Trefry, and L.W. Cooper. 2012. The COMIDA-CAB Project: An Overview of the Biological and Chemical Characteristics of the Northern Chukchi Sea Benthos. In Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. Prepared for Bureau of Ocean Energy Management. OCS Study BOEM 2012-012, 311 pp. (3) Fox, A.L, E.A. Hughes, R.P. Trocine, J.H. Trefry, N.D. McTigue, B.K. Lasorsa, and B. Konar. 2012. Regulation of Zinc and Biomagnification of Mercury in Biota of the Northeastern Chukchi Sea. In Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. Prepared for Bureau of Ocean Energy Management. OCS Study BOEM 2012-012, 311 pp. (4) Harvey, H.R., K.A. Taylor, H.V. Fink, and C.L. Mitchelmore. 2012. Organic Contaminants in Chukchi Sea Sediments and Biota and Toxicological Assessment in the Arctic cod, *Boreogadus saida*. In Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. Prepared for Bureau of Ocean Energy Management. OCS Study BOEM 2012-012, 311 pp. (5) Trefry, J.H., R.P. Trocine, and L.W. Cooper. 2012. Distribution and Provenance of Trace Metals in Recent Sediments of the Northeastern Chukchi Sea. In Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. Prepared for Bureau of Ocean Energy Management. OCS Study BOEM 2012-012, 311 pp. (6) Trefry, J.H., Dunton, K.H., Trocine, Schonberg, S.V., McTigue, N.D., Hersh, E.S. and McDonald, T.J. 2013. Chemical and biological assessment for two offshore drilling sites in the Alaska Arctic. *Marine Environmental Research* 86: 35-45. (7) Trefry, J.H., Trocine, R.P., Cooper, L.W., and Dunton, K.H. (in press). Trace metals and organic carbon in sediments of

as reference #6 and incorporated additional data in Section 4.5.2. (Metals) of the ODCE. EPA has also added a new section in the ODCE, Section 4.5.3. (Polycyclic Aromatic Hydrocarbons in Surface Sediments). Finally, reference #7 is available online for purchase but has not been obtained by EPA. EPA appreciates the information.

		the northeastern Chukchi Sea. Deep-Sea Research II: Topical Studies in Oceanography. (available on-line, July 2013).	
179	ODCE Executive Summary	The ODCE Executive Summary should state: "In general, the shallow pipeline boreholes will rely on the use of seawater and not water-based drilling fluids; however, the use of drilling fluids may be necessary based on the nature of subsurface conditions. Related activities would occur during the open water period and/or during bottom fast ice winter months, and do not require water-based drilling fluids."	The ODCE Executive Summary states: "In general, the shallow pipeline boreholes will rely on the use of seawater and not water-based drilling fluids; however, the use of drilling fluids may be necessary based on the nature of subsurface conditions. Related activities would only occur during the open water period and do not require water-based drilling fluids." EPA has opted not to revise the language as requested. It is unclear how the geotechnical related activities, defined by EPA for the purposes of this permit action as those that "may include feasibility testing of mudline cellar construction equipment or other equipment that disturbs the seafloor, and testing and evaluation of trenching technologies" could occur during bottom fast ice winter months.
180	ODCE: Section 2-1	ODCE Section 2.1 should state: "Unlike exploration drilling, seawater may or may not be used as the primary lubricant to drill the shallow geotechnical boreholes. In certain instances and for deeper boreholes, a salt water gel may or may not be used to assist with the displacement of cuttings from the borehole. Deeper holes may or may not require the use of barite to increase the weight of the drilling fluid for hole stability. The drilling fluids and drill cuttings associated with geotechnical surveys are pushed out of the borehole to the seafloor surface and discharged at the seafloor."	The language in the ODCE has not been revised as requested. The word "may" was used to indicate the possibility of the materials being used during geotechnical drilling activities. Adding the words "or may not" is unnecessary. See also RTC #207 and #208.
181		Inconsistent use of kilometers and miles to characterize distance between boreholes.	See RTC #127. EPA has provided unit conversions in the ODCE where appropriate.
182	ODCE, pg 2-1	"Geotechnical related surveys and related activities will include collection of soil borings..." Using the word "collection" is inconsistent with the process of conducting geotechnical soil borings.	The term "collection" is used in the context of recovering geotechnical core samples to assess the subsurface properties and conditions. EPA has retained this term because this issue is a matter of semantics and the commenter did not suggest a different terminology.
183	ODCE, p.4-4 and 4-5	The amount of information presented in these sections is extremely limited and appears to only be based on older NEPA documents. Newer and more comprehensive information on currents and circulation patterns in the northeastern Chukchi Sea have not been incorporated.	EPA has added a significant amount of new information to the ODCE since the release of the draft version for public review, including recent information on the currents and water mass flows in the Beaufort and Chukchi Seas. (See ODCE Section 4.2.2.)
184	ODCE Section 4.3	These sections are primarily focused on the Beaufort Sea.	The descriptions of different ice conditions in Section 4.3 include both the Beaufort and Chukchi Seas. Additional details have been added including a subsection on the Spring Lead System (Section 4.3.4).

185	ODCE Section 4.4	There is no substantial discussion of the magnitude of natural sediment transport, specifically sedimentation rates in relation to the predicted deposition. This critical factor should be described in the ODCE because it would further demonstrate that geotechnical discharges on the seafloor are negligible.	Section 4.4 describes the general sediment transport dynamics in the Arctic environment. The commenter is directed to Section 6.2.2 for a specific discussion of the physical transport mechanisms associated with geotechnical discharges, along with a summary of EPA's deposition modeling results.
186	ODCE Section 4.5	Although some information provided by industry is included, the overall amount of information on water and sediment quality is very limited. In addition, the Shell (2013) citation is not included in the reference section. It is unreasonable that the same level of information as is being required by the EMP is not included in the ODCE. The requirement for an EMP is not justified especially when other available reports on sediment chemistry in the Chukchi Sea are not included.	<p>This comment fails to include any information on specific information on water and sediment quality the commenter believes should have been included. As such, EPA cannot respond directly on that issue. With regard to information provided by industry, EPA has added the following to Section 4.5.: (1) a table in subsection 4.5.1. summarizing the total suspended solids (TSS) results from survey data collected in 2009 and 2010 in the Chukchi Sea; (2) a summary in subsection 4.5.2. discussing the 2013 Trefry et al. chemical and biological study at two historical Hammerhead well sites in the Beaufort Sea; and (3) a new subsection 4.5.3. discussing the polycyclic aromatic hydrocarbons in surface sediments of the Chukchi Sea. See also RTC#184.</p> <p>The Shell 2013 citation has also been added to the reference section.</p> <p>See RTC #25, #26 and #31 regarding EMP requirements.</p>
187	ODCE Section 4.5.2., Table 4-1	It is unclear whether all of the measurements in this table are "mg/kg dry weight." We recommend specifying the units in the title or in the body of the table.	EPA has revised Table 4-1 in the ODCE to include the units of measure.
188	ODCE Section 4.5.2., Table 4-3	For clarity, we recommend that units of measure be added to each variable in this table.	EPA has revised Table 4-3 in the ODCE to include the units of measure.
189	ODCE Section 4.6	There is more recent information on ocean acidification in the U.S. Arctic than is cited in the draft ODCE and Fact Sheet. The following journal articles have been published in conjunction with a BOEM sponsored study entitled "Biogeochemical Assessment of the OCS Arctic Waters: Current Status and Vulnerability on Climate Change," which will be published in 2014. We suggest that information in the following papers be used when describing ocean acidification in U.S. Arctic in the final ODCE and Fact Sheet. (1) Mathis, J.T., and J. Questel. 2013. Assessing Seasonal Changes in Carbonate Parameters Across Small Spatial Gradients in the Northeastern Chukchi Sea. <i>Continental Shelf Research</i> 67: 42-51. (2) Fabry, V.J., J.B. McClintock, J.T. Mathis, and J.M. Grebmeier. 2009. Ocean Acidification at High Latitudes: The Bellwether.	The discussions of ocean acidification in the ODCE served to highlight this issue as one of the challenges in the Arctic. EPA appreciates this information, but will not include it in the ODCE.

		<p><i>Oceanography</i> 22(4): 160-171. (3) Bates, N.R., J.T. Mathis, M.A.Jeffries. 2011. Air-sea CO2 fluxes on the Bering Sea shelf. <i>Biogeosciences</i> 8: 1237–1253. (4) Mathis, J. T., Cross, J. N., Bates, N. R., Moran, S. B., Lomas, M. W., and P. J. Stabeno. 2010. Seasonal distribution of dissolved inorganic carbon and net community production on the Bering Sea shelf. <i>Biogeosciences</i> 7: 1769-1787. (5) Mathis, J. T., J. N. Cross, and N. R. Bates. 2011. Coupling primary production and terrestrial runoff to ocean acidification and carbonate mineral suppression in the eastern Bering Sea. <i>Journal of Geophysical Research</i> 116: C02030. (6) Cross, J., J. Mathis, N. Bates and R. Byrne. 2013. Conservative and non-conservative variations of total alkalinity on the southeastern Bering Sea shelf. <i>Marine Chemistry</i> 154: 100–112.</p>	
190	ODCE Section 5.1	<p>There is significant information missing from oceanographic surveys conducted in 2008, 2009, 2010, 2012, and 2013.</p>	<p>EPA understands that plankton data were collected in the Chukchi Sea during the years mentioned by the commenter and has acknowledged such in the ODCE. The final reports for each of those years are available online at https://www.chukchiscience.com/Downloads. EPA has added a short summary comparing results from the previous six years, however, for simplicity, the ODCE discusses the plankton data from the year 2011, which is considered by EPA as representative of data from the other years (ODCE Section 5.1.).</p>
191	ODCE Section 5.3	<p>The Magnuson-Stevens Fishery Conservation and Management Act (as amended in 2006) defines deep-sea coral (or cold-water coral) as “any colonial, azooxanthellate [lack symbiotic algae] corals generally occurring at depths below 50 m that provide vertical structure above the seafloor that can be utilized by other species.” Soft corals have been documented in the Chukchi Sea in deep water by the Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA) project (Grebmeier and Cooper, 2012). The dominant soft coral species was <i>Gersemia rubiformis</i> and was found in several locations, including high densities at nearshore sites and at the head of Barrow Canyon. We recommend the following text citing the references below on soft corals be included in the benthic invertebrate discussion in the final ODCE:</p> <p>(1) Cooper and Grebmeier (2009) and Grebmeier and Cooper (2012) defined seven seafloor types based on video taken in the Chukchi Sea in 2009 and 2010. Abiotic characteristics, such as sediment type, and dominant epifauna were described for each type of habitat.</p> <p>(2) Cooper, L.W. and J.M. Grebmeier. 2009. Seafloor Video Survey of the Chukchi Sea, 2009. Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA). Arctic Ecology Lab at the University of Maryland Center for Environmental Science’s Chesapeake Biological Laboratory. http://arctic.cbl.umces.edu/web-content/COMIDA09_Video/.</p>	<p>Thank you for the references. EPA has incorporated the coral information as appropriate in Section 5.3 (Benthic Invertebrates).</p>

		(3) Grebmeier, J.M. and L.W. Cooper. 2012. Water Column Chlorophyll, Benthic Infauna and Sediment Markers. In Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA): Chemical and Benthos (CAB) Final Report. Prepared for Bureau of Ocean Energy Management. OCS Study BOEM 2012-012, 311 pp.	
192	ODCE Section 5.3	This section is written at an extremely broad, textbook-type manner and includes many statements that are not necessarily applicable to U.S. Arctic conditions. In addition, nearshore lagoons are generally shoreward of the 3-mile limit and therefore not part of the federal geographic scope. The text in these sections of the ODCE indicates a significant lack of understanding of the existing natural conditions and results in unrealistic and overly conservative assumptions about potential impact.	EPA has added more details on benthic invertebrates to Section 5.3 of the ODCE. While nearshore lagoons are outside the Geotechnical GP's area of coverage, the statement that larger invertebrate communities exist in these areas is accurate and has been retained.
193	ODCE Section 5.4	We recommend that the ODCE include information on salmon in the nearshore and offshore Chukchi and Beaufort seas as a basis for understanding potential effects of the proposed activities under this General Permit. Salmon are accorded protection through State of Alaska regulations for anadromous fish and through federal regulations regarding Essential Fish Habitat. We recommend that the information in the following publications cited on Pacific salmon in the Chukchi and Beaufort seas be incorporated in the final ODCE. (1) Anadromous salmon streams (including pink and chum salmon) along the Chukchi and Beaufort Sea coastline from the Bering Strait to Barrow [ADFG. Alaska Department of Fish & Game. 2013. Anadromous Waters Catalog. Available at: http://www.adfg.alaska.gov/sf/SARR/AWC/]. (2) Pacific salmon in the Chukchi Sea marine environment and in estuarine and freshwater environments connected to the Chukchi Sea coastline; and high densities of juvenile pink and chum salmon at or near the surface offshore in the Chukchi Sea as far north as Point Lay [Kondzela, C., M. Garvin, R. Riley, J. Murphy, J. Moss, S.A. Fuller, and A. Gharrett. 2009. Preliminary genetic analysis of juvenile chum salmon from the Chukchi Sea and Bering Strait. North Pacific Anadromous Fish Commission Bulletin 5: 25–27.; Moss, J.H., J.M. Murphy, E.V. Farley, L.B. Eisner, and A.G. Andrews. 2009. Juvenile pink and chum salmon distribution, diet, and growth in the northern Bering and Chukchi seas. North Pacific Anadromous Fish Commission Bulletin 5: 191–196.; and Craig, P. and L. Haldorson. 1986. Pacific salmon in the North American Arctic. Arctic 39(1): 2-7.]. (3) Increasing numbers of salmon in coastal subsistence fisheries in the Arctic [Carothers, C. 2013. Subsistence Use and Knowledge of Salmon in	EPA conducted an Essential Fish Habitat (EFH) assessment as Appendix A of the Biological Evaluation. The portion of the Geotechnical GP's Area of Coverage within the Chukchi Sea would overlap with the EFH of Pacific salmon, Arctic cod, saffron cod, and opilio snow crab. The Beaufort Sea portion of the Area of Coverage would overlap with the EFH of Pacific salmon and Arctic cod. Appendix A discussed potential effects of the discharges to EFH for these species. Additionally, the ODCE Criterion 7 (Section 6.7.) as well as Section 5.8. evaluated the existing or potential recreational and commercial fishing, including finfishing and shellfishing. As discussed in ODCE, in 2009, the North Pacific Fishery Management Council developed a Fishery Management Plan (FMP) for fish resources in the Arctic Management Area. The geographic extent of the Arctic Management Area is all marine waters in the U.S. Exclusive Economic Zone of the Chukchi and Beaufort Seas from 3 nautical miles offshore the coast of Alaska. The plan establishes a framework for sustainably managing Arctic marine resources. It prohibits commercial fishing in the Arctic Management Area until sufficient information is available to support sustainable fisheries management (74 FR 56734, November 3, 2009). The FMPs applicable to salmon and Pacific halibut fisheries likewise prohibit the harvest of those species in the Arctic Management Area. There are few recreational fisheries in the Arctic Management Area. Most recreational catch in the Arctic likely would occur in state waters located almost exclusively in inland lakes and streams, or along the coast or in river delta waters and outside the Area of Coverage for the EPA's Geotechnical GP. Section 5.4. of the ODCE also includes a discussion of fish, including salmon, common in the Beaufort and Chukchi Seas.

		Barrow and Nuiqsut, Alaska. University of Alaska Fairbanks, School of Fisheries and Ocean Sciences. OCS Study BOEM 2013-0015. Available on the BOEM Studies website: http://www.boem.gov/Alaska-Reports-2013/].	Together, the EFH assessment and ODCE contain the appropriate level of analysis and basis for understanding potential effects of the discharges authorized under the Geotechnical GP.
194	ODCE Section 5.3	“Physical smothering of habitat due to deposition of drilling fluids and cuttings materials discharged on the ocean floor.” Physical smothering due to deposition may affect certain individuals, but is not at all likely to result in community level changes.	Physical smothering of habitat by the deposition of discharged materials is one of the factors, among several, that could affect benthic communities. This statement does not qualify whether the smothering would occur at the individual or community level and has been retained in the final ODCE.
195	ODCE Section 5.4	“The Chukchi Sea is characterized by sub-arctic climate, especially during the open-water season in the later spring and summer.” This statement is incorrect and reflects a poor understanding of the existing environment. It is well-accepted that the Chukchi Sea is habitat for cold-adapted fish species that exhibit unique ecological characteristics.	EPA has deleted the sentence regarding sub-arctic climate from the ODCE as it does not add any value to the discussion of fish in the existing biological environment.
196	ODCE, p.5-16	Section 5.9, Subsistence Activities and Environmental Justice Considerations. Increased traffic and time on site because of the requirements of the EMP has the potential to cause substantial impact on subsistence activities that has not been evaluated in the ODCE.	The commenter fails to specify how the requirements of the EMP would cause increased traffic and time on site or how that would result in “substantial impact” on subsistence activities. Additionally, EPA has clarified the EMP Phase I requirements to allow submission of existing representative baseline data. The Phase II requirements have also been clarified. See RTC #25, #26 and #31.
197	ODCE Sections 5.9 and 5.10	Repeated reference is made to SRB&A 2011, which is a traditional knowledge and stakeholder engagement workshop conducted exclusively to assess potential concerns and issues associated with exploratory oil and gas drilling. It is unreasonable to use outcomes from this workshop to then create numerous restrictions and EMP requirements associated with a geotechnical program. The workshop proceedings are also not available to the public for review.	The final traditional knowledge report completed by Stephen R. Braund and Associates on March 11, 2011 includes a summary of the workshop protocol and proceedings and is part of the administrative record for the Geotechnical GP. This document is available to the public. The traditional knowledge information collected during development of the ODCE accompanying the Beaufort and Chukchi exploration general permits covered a broad range of topics that are also directly relevant to the Geotechnical GP, including 1) knowledge of the physical and biological environment, 2) subsistence activities, and 3) knowledge, observations, and concerns about discharges from offshore oil and gas activities. As discussed in RTC #25 and #31, the limitations, restrictions, and monitoring requirements, including the EMP, were established by EPA based on a comprehensive evaluation of the potential impacts associated with the discharges. EPA has also clarified the EMP requirements for Phases I and II (please see RTC #31, #40 – #43, and #48). The EMP requirements for the Geotechnical GP are reduced in scope as compared to those established by EPA for exploration drilling activities.

198	ODCE Section 6.2.3	To facilitate the understanding of the discussion of chemical transport, it will be important for the final General Permit to include the list of citations for the studies discussed in this section, rather than stating "...some studies of other related materials suggest broad findings that are relevant."	The commenter is directed to Subsections 6.2.3.1 and 6.2.3.2 of the ODCE that describe the chemical transport processes of metals and organics, respectively, for the citations of relevant studies.
199	ODCE, p.6-7	"Little information is available to assess the biomagnifications of drilling fluid discharges components; however, one study suggests that barium and chromium could magnify." This statement is completely biased and not objective. The author completely ignores numerous studies conducted since the 1980s that demonstrates that bioavailability and bioaccumulation are negligible. Instead, the author focuses only on the oldest of the studies and only a single study.	The evaluations under Criteria 1 and 2 (Sections 6.1. and 6.2., respectively) include comprehensive discussions of the potential for the discharged pollutants to bioaccumulate, persist, and transported via biological, physical, or chemical processes. The ODCE has been revised as appropriate, in particular Section 6.1.5. (Bioaccumulation), 6.2.1. (Biological Transport), and 6.2.3.1. (Metals), to incorporate the most recent studies.
200	ODCE Section 6.2.4	Replace the word "absorbed" with "adsorbed".	The ODCE has been revised as suggested.
201	ODCE Section 6.3.2	The language in this section is vague and fails to mention that deposition greater than 1 cm is only for two cases in Table 6-2.	Section 6.2.2 summarizes the physical transport mechanisms of discharged materials given various conditions, such as currents, temperature, mixing and diffusion in the water column, etc. Section 2.2.2 also includes Table 6-2, which discusses EPA's depositional modeling results from a twelve different scenarios. The discussion in this section, along with the data table, is sufficient.
202	ODCE Section 6.4, Figure 6-3	In January 2013, a court order rescinded the designation of polar bear critical habitat. The final ODCE needs to be updated to indicate that currently there is no critical habitat designated for polar bears in the U.S. Chukchi and Beaufort seas.	The ODCE has been revised to reflect the January 2013 court decision regarding designated critical habitat areas for polar bears.
203		If Region 10 determined to move forward with the general permit as currently proposed, we ask that the ODCE be updated and then re-noticed for public comment so that our communities have an opportunity to comment on this first-of-its-kind analysis.	EPA released a re-proposal of specific changes to the permit provisions along with a focused fact sheet and revised ODCE on August 15, 2014 for a 30-day public review. Based on a request for an extension, EPA extended the comment period deadline to September 30, 2014.

CATEGORY 10: MISCELLANEOUS

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
204		<p>EPA should not proceed with the proposed general permit in light of the recent Ninth Circuit Court of Appeals decision on oil leases in the Chukchi Sea. The Court’s decision obligates [BOEM] to reevaluate the environmental effects of oil drilling in the Chukchi Sea and to reconsider its decision to offer oil leases there. During the pendency of this reconsideration, the Department of Interior and other agencies, including EPA, should ensure that no further consideration or approval of activities predicated on the existence of the leases goes forward. The activities covered by the proposed Geotech GP – preparation for future oil infrastructure – are predicated on the existence of oil leases in the Chukchi Sea.</p>	<p>The related U.S. District Court order, dated April 24, 2014 (Case No. 1:08-cv-0004-RRB) excludes ancillary activities or studies conducted pursuant to Geological and Geophysical Permit issued under 30 CFR Part 551 in the Chukchi Sea. The Geotechnical GP applies to ancillary activities authorized by BOEM.</p> <p>Ancillary activities include (30 CFR 550.207):</p> <ul style="list-style-type: none"> (a) Geological and geophysical (G&G) explorations and development G&G activities; (b) Geological and high-resolution geophysical, geotechnical, archaeological, biological, physical oceanographic, meteorological, socioeconomic, or other surveys; or (c) Studies that model potential oil and hazardous substance spills, drilling muds and cuttings discharges, projected air emissions, or potential hydrogen sulfide (H₂S) releases. <p>Additional information regarding ancillary activities can be obtained at http://www.boem.gov/Oil-and-Gas-Energy-Program/GOMR/G-and-G-Regulatory-Authority-Information-Sheet.aspx</p>
205		<p>I oppose blasting and seismics and all killings of life that you are proposing to let polluters do in the Beaufort and Chukchi Seas. These sites should be left alone as they are the last places left on earth.</p>	<p>Geotechnical activities involve the drilling of boreholes in varying sizes and depths (not to exceed 500 feet) into the subsurface of the seafloor to assess the structural properties of subsurface sediment conditions for potential placement of oil and gas installations (see Fact Sheet, page 6). No blasting or seismic activities are authorized under the Geotechnical GP. Additionally, the Geotechnical GP includes effluent limitations, restrictions, and monitoring requirements to ensure protection of the receiving environment, such as water quality and marine life.</p>
206		<p>I think it may be wise for EPA to consider this as an employment opportunity for our Company’s shareholders in providing a platform and logistics for wastewater discharge. This would solve an ongoing issue of discharges being dumped into the ocean where it creates pollution and also providing much needed income to our communities. This would be better in terms or relationship building all across the board for our coastal communities.</p>	<p>EPA’s authority in this instance is to issue the general permit for discharges from geotechnical surveys and related activities, consistent with the Clean Water Act. EPA is sensitive to the economic needs of the local communities. We will continue to keep the communities informed of permitting decisions and data results collected under the permit.</p>

CATEGORY 11: FACT SHEET

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
207	Fact Sheet: Table 1, Footnote #3	Fact Sheet, Footnote #3 should state: "Drilling fluids may or may not be used for boreholes drilled." Drilling fluids may not be needed. Also, Footnote #3 should be superscripted across the top of Table 1 for all "depths" of boreholes.	<p>Table 1, Footnote 3 of the Fact Sheet states "drilling fluids are not expected to be used for boreholes drilled at 50ft or less below the seafloor surface..." EPA has made clear in the Fact Sheet and the ODCE that although drilling fluids are not expected to be used to drill shallow boreholes, for purposes of analysis, it was assumed that drilling fluids would be used to drill all boreholes. Notably, industry operators have expressed a desire for operational flexibility to use drilling fluids as needed (AOGA, 2013; Shell, 2013; Shell, 2014; RTC #32, #82, #155, #208, #209). As such, EPA has not sought to quantify the specific number of boreholes that would not use drilling fluids, nor have industry operators provided such information. In the absence of such specifics, applying an assumption that all boreholes would use drilling fluids allows EPA to conduct an analysis that appropriately captures potential impacts associated with geotechnical surveys and ensures no unreasonable degradation to the marine environment.</p> <p>EPA does not agree that Footnote 3 should apply to the entirety of Table 1 as the distinction being made is specific to the shallow boreholes. Also, as a general matter, EPA does not revise Fact Sheets, which accompany draft permits.</p>
208	Fact Sheet, Section II.B.2	The Fact Sheet Section II.B.2. (Drilling Fluids) should state: "It is anticipated that seawater may or may not be used as the primary lubricant, particularly for shallow holes (depths < 50). However, hole sweeps, i.e. removal of cuttings from the borehole, may or may not require the use of a salt water gel (i.e. attapulgite clay, sepiolite, guar gum or polymers) as a viscosifying agent. Deeper holes (depths > 50 feet) may or may not require the use of barite to increase the weight of the drilling fluid for hole stability." Not all borings require additives.	<p>The language the commenter cited from the Fact Sheet was correct. The word "may" was used to indicate the possibility of the materials being used during geotechnical activities. Adding the words "or may not" is unnecessary. It should be noted that, as a general matter, EPA does not revise Fact Sheets, which accompany draft permits.</p> <p>See also RTC #180 and #207.</p>
209		It should not be assumed that drilling fluids would be needed for shallow and deep boreholes. Fact Sheet, Table 2, Footnote 9 would require the operator to be covered under Discharge 001, but should not be applicable to all operators.	Information provided by AOGA (AOGA, 2013) and Shell (Shell, 2014) indicated an industry desire for operational flexibility to discharge drilling fluids for all geotechnical boreholes, even though drilling fluids may not be used for all geotechnical boreholes (See also #32, #82, #155, #208 and #209). As such, EPA has not sought to quantify the specific number of boreholes that would not use drilling fluids, nor have industry operators provided such information. In the absence of such specifics, applying an assumption that all boreholes would use drilling fluids allows EPA to conduct an analysis that appropriately captures potential impacts associated with geotechnical surveys and ensures no unreasonable degradation to the marine environment.

			If an operator does not intend to discharge drilling fluids while conducting geotechnical activities, they would simply omit this waste stream (i.e. D001) from the Notice of Intent requesting authorization to discharge. See RTC #82.
210	Fact Sheet: Table 1, Footnote #4	Fact Sheet, Table 1, Footnote #4 should be continued across the row for 200 ft and 400 ft depths.	Footnote 4 in Table 1 explains that the dashed line indicates that drilling fluids will not be used for on-ice geotechnical activities. Since the 200 feet and 499 feet depths also include a dashed line in the respective columns, adding the same footnote 4 reference appears unnecessary. Also, as a general matter, EPA does not revise Fact Sheets, which accompany draft permits.
211	Fact Sheet	This section on geotechnical activities would be clearer if it included subsections on open water vessels and on-ice vehicles, as geotechnical activities for open water vessels and on-ice vehicles differ. As currently written, the discussions of the two different types of operations are intertwined. We recommend the final Fact Sheet be revised to include separate subsections on open water vessels and on-ice vehicles for geotechnical operations.	The Fact Sheet contains a sufficient level of detail regarding the types of geotechnical activities conducted either during the open water season or on ice during the winter months. Furthermore, the commenter did not provide the specifics regarding how the descriptions are not clear. EPA refers the commenter to Sections 1.2.2 and 2.1 of the ODCE for additional discussion associated with the different types of geotechnical activities. Also, as a general matter, EPA does not revise Fact Sheets, which accompany draft permits. See also RTC #210.
212	Fact Sheet: Table 1	Fact Sheet Table 1 should give the option to use drilling fluids while performing geotech work on ice.	As discussed in RTC #210, the information contained in Table 1 is based on information provided by AOGA. The purpose of the table is to provide estimated volumes of drilling fluids and drill cuttings for average sizes of boreholes drilled at different depths. This table does not restrict operators from using drilling fluids; however, please note that the Geotechnical GP prohibits all discharges onto stable ice at Permit Part II.A.10. It should be noted that, as a general matter, EPA does not revise Fact Sheets, which accompany draft permits.
213	Fact Sheet Table 1	Fact Sheet Table 1 should have the appropriate number related to the amount of "cuttings" that would be produced during winter on-ice geotech work. Open Water conventional rotary drilling states that there will be 15 cubic square feet of cuttings and the on-ice conventional rotary drilling would produce the same cubic feet of cuttings. This is not the case, drilling on bottom fast ice produces less cuttings.	Because this is a general permit that applies to multiple operators and to ensure that the full range of potential impacts is considered, EPA has assumed the same volume of cuttings materials would be discharged whether the geotechnical activities are conducted on-ice or in open water. Furthermore, on-ice activities could occur when the ice is floating or bottom-fast, which may result in different estimated discharge volumes, though EPA is not making that distinction in this table. Finally, please note that the information for Table 1 is provided by AOGA, to which BP is a member company.
214	Fact Sheet, Section F.4	The Fact Sheet, Section F.4, should state "geotechnical activities conducted during the winter months will consist of a relatively small number of shallow and deep holes." Commenter notes that the holes drilled during the winter season would be 75 to 100 feet deep.	The Fact Sheet contains a sufficient level of detail regarding the level of geotechnical activities conducted during the winter months, as well as the anticipated depths of the boreholes associated with winter activities. This information was derived by EPA based on information submitted to the Agency by AOGA. As a general matter, EPA does not revise Fact Sheets, which accompany draft permits.

215		The Fact Sheet should explain how geotech drilling is performed on bottom fast ice and what types of equipment are used.	The Fact Sheet and ODCE include general descriptions of the types of technologies that could be used to conduct geotechnical activities, whether on-ice or during open water conditions. The ODCE includes the sufficient level of detail and as a general matter, EPA does not revise Fact Sheets, which accompany draft permits. EPA notes that the commenter did not offer information or any details for consideration.
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RESPONSE – TO – COMMENTS DOCUMENT FOR THE NPDES GENERAL PERMIT RE-PROPOSAL FOR
OIL AND GAS GEOTECHNICAL SURVEYS AND RELATED ACTIVITIES IN FEDERAL WATERS OF THE BEAUFORT AND CHUKCHI SEAS (AKG-28-4300)
(RE-PROPOSAL PUBLIC NOTICE: AUGUST 15, 2014 – SEPTEMBER 30, 2014)

CATEGORY R1: CHUKCHI SEA SPRING LEAD SYSTEM SEASONAL DISCHARGE RESTRICTION

ID	DOCUMENT REFERENCE	COMMENT	RESPONSE
R1		EPA claims the seasonal restriction is proposed to protect the migration patterns of the bowhead whale and other species, which is also supported by the National Marine Fisheries (NMFS) issuance of the Incidental Harassment Authorization (IHA) issued to Shell in 2012, which already prohibits vessel entry into the Chukchi Sea through the Bering Strait prior to July 1. The Chukchi Sea Spring Lead System Seasonal Restriction is redundant given NMFS’ jurisdiction and regulations to protect marine mammals and a potential EPA over-reach.	<p>The Incidental Harassment Authorization (IHA) process conducted by the National Marine Fisheries (NMFS) pursuant to the Marine Mammal Protection Act and 50 CFR 216 Subpart I is a separate statutory and regulatory process that is independent of EPA’s Clean Water Act (CWA) obligations.</p> <p>Section 403 of the CWA requires EPA to ensure that its permitting decisions do not result in an unreasonable degradation of the marine environment. More specifically, criterion 3 of the Ocean Discharge Criteria Evaluation (40 CFR 125.122(a)(3)) requires an evaluation of the composition and vulnerability of the biological communities that may be exposed to pollutants, including the presence of species identified as endangered or threatened pursuant to ESA. Although NMFS may have authority or jurisdiction over other specific aspects of marine mammal behavior and protection, this does not eliminate or diminish EPA’s authorities and obligations under the Clean Water Act.</p> <p>See RTC #5 and #17.</p>
R2		The Spring Lead Seasonal Restriction is not supported by the Ocean Discharge Criteria Evaluation (ODCE) associated with the re-proposed GP. The ODCE does not clearly state how geotechnical activities could impact the spring lead system. It is mentioned that sensitive species migrating through the spring lead could be at risk in the case of a nearby oil spill. This concern is not relevant to the Geotech GP, as drilling into hydrocarbon zones is not normally a function of the geotechnical activities covered by the permit at issue.	<p>Unreasonable degradation includes a finding of “significant adverse changes in ecosystem diversity, productivity, and stability of the biological community within the area of discharge and surrounding biological communities” (40 CFR 125.12(e)). The requirements established by the Geotechnical GP are based on a comprehensive evaluation of the authorized discharges and potential impacts as required under 40 CFR 125.122. EPA’s determination of no unreasonable degradation is supported by the totality of the limitations, requirements, and prohibitions included in the Geotechnical GP.</p> <p>Sections 4.3.4. and 5.5. of the ODCE discuss the Spring Lead System and marine mammals present, including the importance of this system for multiple species, such as bowhead whale, beluga whales, and eiders. The descriptions and maps depicting the Spring Lead System relied on substantial existing information and address various vulnerabilities to the species present from discharges authorized by the Geotechnical GP. In particular, the ODCE provides a complete description of the potential impacts that could occur from different sources of disturbance to</p>

			<p>the species and during the sensitive spring migration period, including potential impacts to subsistence (Section 5.9.). Also refer to ODCE Sections 6.1. and 6.4.</p> <p>The commenter also appears to have misunderstood EPA’s reference in the ODCE, which is specifically addresses vulnerabilities to oil contact, which is not limited to oil spills. Potential sources of oil contact may include lubricating oils, fuel, and hydraulic oils.</p>
R3		<p>It is not clear how EPA has the authority under Section 402 of the Clean Water Act to duplicate or interfere with other on-going and existing processes outside of the regulatory scope of this proposed permit and among the Alaska Eskimo Whaling Commission (AEWC) representatives and companies conducting activities in the OCS. For example, companies already enter into Conflict Avoidance Agreements (CAA) with the AEWC and EPA should explain how this existing process is insufficient, such that it would require EPA to include whaling closures in a geotechnical permit.</p>	<p>Refer to RTC #15 and #19</p>
R4		<p>If the Spring Lead Seasonal Restriction and whaling closures persist in the final GP, they will significantly impact industry’s ability to conduct geotechnical activities, and therefore, will thwart potential development in Alaska’s OCS. Alaska’s open water season is already short and these restrictions and closures would further truncate the season, if not completely precludes geotechnical activities for an entire season.</p>	<p>This comment appears to mischaracterize the two separate and distinct seasonal restrictions, i.e., 1) the Chukchi Sea Spring Lead System restriction, and 2) the Discharge 001 (D001) restrictions during bowhead whale hunting activities in the Beaufort and Chukchi Seas.</p> <p>The Spring Lead System provision restricts all discharges only to the area 3 to 25 nautical miles offshore in the Chukchi Sea prior to July 1. With the exception of the Discharge 001 restriction, described in the following paragraph, all authorized waste streams may be discharged anywhere within the permit’s Area of Coverage, i.e. anywhere beyond this 3 to 25 nautical mile corridor, at any time. The seasonal restriction protects the sensitive Spring Lead System (breaks in the sea ice), which provides important migration, feeding, and breeding habitat for numerous species, including bowhead and beluga whales, several seal species, polar bears, and coastal and marine birds. The Spring Lead System is also a critically important area for calving and nursing of bowhead whales. Additionally, this restriction corresponds with BOEM’s decision to defer this area from leasing entirely, as well as NMFS’s estimate of the completion of bowhead whale migration. It is also consistent with timing restrictions imposed by NMFS, and USFWS, prohibiting vessel entry into this sensitive area before July 1.</p> <p>NMFS included this restriction in its 2012 Incidental Harassment Authorizations for Shell’s exploration activities in the Beaufort and Chukchi Seas as a mitigation measure to minimize impacts to marine mammals and subsistence activities. (NMFS 2011, NMFS 2012). In addition, in 2013, USFWS issued a final rule</p>

			<p>authorizing the incidental take of Pacific walruses during oil and gas exploration activities in the Chukchi Sea. Among other things, the rule authorizes activities only during the open-water season, not to exceed July 1 to November 30. This condition is intended to minimize impacts to walruses during the spring migration and minimize interference with subsistence hunts (USFWS 2013). The USFWS' 2012 Biological Opinion for Oil and Gas Activities in the Beaufort and Chukchi Seas prohibited all vessels from entering the spring lead system between April 1 and June 10 of each year (USFWS 2012). With regard to Criterion 1, EPA's seasonal restriction further reduces any potential for unreasonable degradation by removing discharges and activity from the sensitive spring lead system during the critical spring migration, feeding, resting, and calving period.</p> <p>If a similar IHA restriction on vessel entry is applied going forward, then it is not clear that EPA's seasonal discharge restriction will have an appreciable effect on geotechnical activities in the Chukchi Sea before July 1.</p> <p>The separate Discharge 001 seasonal restriction prohibits <i>only</i> the discharge of drilling fluids and drill cuttings, and <i>only</i> during spring and fall bowhead whale hunting activities starting on March 25 and August 25, in the Chukchi and Beaufort Seas, respectively. No other discharges are restricted during this period. The commenter erroneously refers to this seasonal restriction as a "whaling closure" when, in fact, 11 of the 12 waste streams retain discharge authorization during this period. EPA further notes that industry commenters have specifically stated that the majority of boreholes will not use drilling fluids (AOGA 2013, Shell 2013, Shell 2014). As such, the majority of geotechnical drilling activities may not be affected by this provision. See RTC #20, #32, #82, #155, #208, and #209.</p>
R5		<p>The seasonal prohibition on discharges in the Chukchi Sea lease deferral corridor is critical and should be extended to the Beaufort Sea. EPA concluded that no restriction is necessary in the Beaufort Sea spring lead system during bowhead whale migration because ice would be too thick during this period for vessel entry. However, this assumption might not hold true over the 5-year duration of the permit in light of substantial reduction in both the extent and thickness of the Arctic sea ice cover. EPA should add an enforceable permit restriction prohibiting discharges in the Beaufort Sea prior to July 1 instead of relying solely on the unenforceable assumption that ice conditions will make it too difficult to conduct offshore activities during this key migration period.</p>	<p>Section 4.3.4. of the ODCE provides an in-depth discussion and figures describing the Spring Lead System, including the factors that contribute to the seasonal and spatial patterns. Research data indicate that the highest lead fractions and largest sizes are observed in the eastern Chukchi Sea with fewer and smaller leads present in the central Beaufort Sea. Sea ice in the Chukchi Sea is more mobile and changeable, while the Beaufort Sea retains a significant perennial ice cover. The data is supported by Figures 4-2 through 4-9. EPA relies on current information to restrict discharges within the 3-25 nautical mile corridor in the Chukchi Sea prior to July 1.</p> <p>EPA has not extended the Spring Lead System seasonal restriction to the Beaufort Sea (see ODCE Section 4.3.4. and Figures 4-2 through 4-5 and 4-6 through 4-9, which depict the locations of spring leads during March, April, May and June of the years 1994 and 2009). EPA has not extended the Spring Lead System seasonal</p>

			<p>restriction to the Beaufort Sea. With regard to current assumptions about the thickness and extent of sea ice, EPA’s regulations at 40 CFR §124.5 establish a process for a permit to be modified, revoked and reissued, or terminated either at the request of any interested person (including a permittee) or upon the Director’s initiative, for the reasons specified in §122.62 or §122.64. Additionally, in compliance with 40 CFR §125.123(d)(4), the Geotechnical GP includes a provision at Permit Part IV.D. that the permit shall be modified or revoked at any time if, on the basis of any new data, the Director determines that continued discharges may cause unreasonable degradation of the marine environment.</p>
R6		<p>The fall migration of bowhead whales across the Beaufort Sea shelf occurs when geotechnical activities are most likely to occur. The same reasons for prohibiting discharges in the spring migration in the Chukchi Sea also compel the prohibition of discharges in the Beaufort Sea during fall migration. A seasonal prohibition on discharges should be extended to fall migration in the Beaufort Sea.</p>	<p>During spring migration, long narrow channels in the pack ice form, forming leads or polynas (See ODCE Figures 4-2 through 4-9). These leads are highly important to multiple species and the successful migration of bowhead whales. The spring leads and polynas provide an obligate pathway for migrating whales, as well as providing important habitat and feeding grounds for seals, walrus, and many birds and sea ducks. For these reasons, it is essential to restrict discharges to the 3-25 nautical mile corridor in the Chukchi Sea during the spring migration. This seasonal restriction corresponds with NMFS’ estimate of completion of the spring bowhead migration and is consistent with the protections afforded by the NMFS restriction on vessel traffic prior to July 1, and BOEM’s decision to defer oil and gas leasing in this critical migration corridor. See ODCE at Section 6.1.</p> <p>In contrast, during the fall migration, the Arctic Ocean is largely ice-free, allowing bowhead whales to have more freedom in the paths they take as they migrate westward. Tracking research conducted by the Alaska Department of Fish and Game has shown that, although the fall migration remains closer to shore in the Beaufort Sea, it is far less confined than spring migration patterns, thus reducing the potential for impacts to occur from discharges. See ADF&G website at http://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.bowhead.</p> <p>The final Geotechnical GP includes a seasonal restriction on the discharge of drilling fluids and drill cuttings (D001), in the Beaufort Sea beginning on August 25. This provision restricts the D001 discharge during fall subsistence activities, which protects the important fall subsistence period and also corresponds with fall bowhead migration movements.</p>
R7		<p>We strongly support the new prohibition of all discharges in the Chukchi Sea Spring Lead System. To this point in time, there have been no proposals for activities in the Spring Lead System in the Chukchi Sea and thus the Conflict Avoidance Agreement does not address this issue. We appreciate that EPA has heard our concerns and has recognized that</p>	<p>Thank you for your comment.</p>

		such operations present unique threats to bowhead whales and subsistence activities.	
R8		Please provide additional clarification that the Chukchi Sea Spring Lead System Seasonal restriction is 3-25 <i>nautical</i> miles offshore, as stated in the permit, and not 3-25 <i>miles</i> offshore as stated in the ODCE (e.g. pgs x-xi, 6-20).	The Chukchi Sea Spring Lead System seasonal restriction applies to the area 3 – 25 nautical miles offshore. The ODCE has been revised to ensure consistent terminology.
R9		We are pleased to see the EPA has incorporated permit terms and conditions into the Reproposed permit that incorporate local issues and concerns resulting from the EPA’s community outreach efforts.	Thank you for your comment.
R10		The Tribe supports the Chukchi Sea Spring Lead System Seasonal Restriction, although we believe this should be reevaluated based on real world monitoring to see whether the July 1 date is sufficient for mitigating impacts to migrating marine mammals and other sensitive biological phenomenon related to birds and fishes.	EPA’s selection of the date of July 1 corresponds with NMFS’ estimate of completion of the spring bowhead migration and is consistent with the protections afforded by the NMFS’ previous restrictions on vessel traffic traveling through the Bering Strait prior to July 1. See RTC #8 and the ODCE at Section 6.1. With regard to the sufficiency of the July 1 date, EPA’s regulations at 40 CFR §124.5 establish a process for a permit to be modified, revoked and reissued, or terminated either at the request of any interested person (including a permittee) or upon the Director’s initiative, for the reasons specified in §122.62 or §122.64. Additionally, in compliance with 40 CFR §125.123(d)(4), the Geotechnical GP includes a provision at Permit Part IV.D. that the permit shall be modified or revoked at any time if, on the basis of any new data, the Director determines that continued discharges may cause unreasonable degradation of the marine environment.
CATEGORY R2: ENVIRONMENTAL MONITORING PROGRAM			
R11	GP Part II.A.15.d.	While we also support the concept of allowing Baseline Site Characterization (“Phase I”) – using existing representative baseline data based on similar sites, we believe that there should be at least some way to ground truth this approach because there is a risk that it will be too generally, or liberally, applied not allowing for determinations on whether this is a sufficient method to prevent unnecessary harm or to inform future processes that rely on before and after impacts from geotechnical activities. We understand this will be evaluated during the NOI process and would hope that the agency will use known scientific data in order to make this determination.	EPA will review each Notice of Intent and all of the required submissions during the NOI review process. The Environmental Monitoring Program (EMP) Plan of Study is required to be submitted with the NOI package. EPA will ensure that any submissions of representative baseline data meet the requirements of the permit.
CATEGORY R3: MARINE MAMMAL OBSERVATION REQUIREMENTS (D009)			
R12	GP Part II.1.2.	Object to the inclusion of a new marine mammal observation requirement associated with Discharge 009, non-contact cooling water. EPA’s decision to impose an additional monitoring requirement into the	This requirement is not an additional requirement or new to the Geotechnical GP. The original Draft Geotechnical GP included a marine mammal observation requirement during periods of non-contact cooling water discharges as part of the

		re-proposed Geotech GP for one specific discharge stream is an unnecessary duplication of the proper agencies' efforts to compile data on marine mammal behavior. The behavior of marine mammals in and around a drilling operation is influenced by a number of factors and it is rarely possible to link an observed behavior with a specific operational activity (in this case, a particular discharge stream). Additionally, many marine mammals are in fact attracted by warm water discharges and there are no known cases of marine mammals being harmed by noncontact cooling water discharge. EPA could simply require a permittee to provide proof of consultation or authorization from the agencies directly responsible for MMPA protection.	<p>Environmental Monitoring Program. To minimize confusion and to make clear that this monitoring requirement was specific to Discharge 009, during the re-proposal process, EPA moved it to Permit Part II.I., which sets forth requirements specific to non-contact cooling water discharges. Please see RTC #17.</p> <p>Section 308 of the Clean Water Act authorizes EPA to require the owner/operator of any point source to provide information as prescribed by the Administrator, including monitoring. In addition, Section 403 of the Clean Water and accompanying regulations include requirements to ensure that no unreasonable degradation of the marine environment will occur as a result of the authorized discharges and to ensure that sensitive ecological communities are protected. 33 U.S.C. 1343. Although other federal agencies may have authority or jurisdiction over other specific aspects of marine mammal behavior and protection, this does not eliminate or diminish EPA's authorities and obligations under the Clean Water Act.</p> <p>EPA has not revised the marine mammal observation requirement at Part II.I.2. See also RTC #17, #56, #57 and #R16.</p>
R13	GP Part II.I.2.	The revision requiring observations by Marine Mammal Observers to be reported on a monthly basis is an improvement over the previous proposal for submission one year from the completion of the geotechnical survey. However, reporting even on a monthly basis is inadequate to prevent potentially significant impacts to subsistence hunting from deflection. In addition, the permit does not specify what mitigation would be triggered if monitoring were to detect deflection of bowhead whales from their migratory route.	<p>The purpose of this requirement is to gather information for use in future decision-making, both during this permit term and in the issuance of any future permits. Pursuant to 40 CFR 125.123(d)(4), EPA may revoke or modify an operator's discharge authorization if new data leads EPA to determine that continued discharges may cause unreasonable degradation of the marine environment.</p> <p>See RTC #56 and #57.</p>
R14	GP Part II.I.2.	The permit does not specify, and it is not clear to us, how Marine Mammal Observers are to determine whether deflection occurs as a result of cooling water discharges or other discharges occurring at the same time.	<p>Non-contact cooling water is anticipated, by EPA, to consist of the largest volume to be discharged under the Geotechnical GP. This waste stream is also unique in that it may raise the temperature of the receiving water in the vicinity of the discharge. As such, discharges of non-contact cooling water could cause avoidance behavior in marine mammals because of temperature increases. The intent of this provision is to gather information to inform future decisions regarding potential deflection of bowhead whales that may result from non-contact cooling water discharge. The permittee will be aware of any discharges that occur within the vicinity of the discharge of non-contact cooling water.</p>
R15	GP Part II.I.2.	EPA's revisions make clear that Marine Mammals Observers will not be monitoring for deflection from other discharges. We recommend that the MMOs be used to observe whether deflection occurs from any permitted discharges, to give us the opportunity to observe how our	<p>Refer to RTC #57 and #166.</p>

		resources respond to these activities, in the context of existing restrictions.	
R16	GP Part II.I.2.	Marine mammal observers (MMOs) are limited in their capabilities and are unable to monitor for deflection of marine mammals beyond observation distances from the vessel. MMOs are also limited in their ability to monitor for deflection during adverse weather conditions or at night. We ask the EPA to clarify how permittees will conduct far fields monitoring for marine mammal deflection and how permittees will monitor for deflection in the harsh operational conditions of the Arctic.	This provision requires the permittee to observe for potential marine mammal deflection during periods of discharge of non-contact cooling water. It is understandable that MMOs onboard vessels are limited by the distances in which they are able to humanly observe, even with the assistance of far-field observation equipment, such as binoculars. Similarly, during inclement weather conditions or during the evening hours, it is understood that observation data would not be collected. These conditions should be documented in the following month's Discharge Monitoring Reports (DMRs). See also RTC #R12.
R17	GP Part II.I.2.	Change clarifies confusing previous "plume observation" monitoring and specifies the requirements for PSO's to be onboard any vessels involved in GT activity that are discharging D009.	Thank you for your comment.
R18	GP Part II.I.2.	The redundancy of EPA's insertion into other federal processes and authorities is in violation of Executive Orders 12866 and 13563, which were developed to maximize the benefits of effective regulations while reducing the burden and complexity of conflicting and redundant regulatory requirements.	As discussed in RTC #5, #17, #R1, and #R12, EPA has conducted this permit proceeding, and developed the permit provisions and supporting analysis, in accordance with its authorities and obligations under the Clean Water Act and supporting regulations. The fact that other agencies may have authority or jurisdiction over other specific aspects of geotechnical activity (BOEM) or protection of marine mammals and other species (NMFS, USFWS), does not alter, eliminate, or diminish EPA's authorities and obligations under the Clean Water Act. EPA disagrees with the commenter's characterization that the exercise of EPA's Clean Water Act authority – and in particular the fulfillment of Section 403's requirement to ensure no unreasonable degradation of the marine environment – constitutes a "redundancy" or an improper "insertion into other federal processes and authorities." The cited Executive Orders include numerous specific provisions that apply in a variety of contexts. The commenter has not identified any specific provision that EPA has "violated" in issuing the Geotechnical GP.
CATEGORY R4: SANITARY WASTEWATER DISCHARGE (D003) REQUIREMENTS			
R19	GP Part II.D.	Recommend that EPA remove the fecal coliform requirement to correspond with the ADEC Draft Geotech GP requirements, which include monthly TRC measurements as well as minimum and maximum TRC concentrations. Sanitary waste discharges are not related to a vessel's geotechnical activities and this should be regulated in a manner that is consistent with the VGP, MARPOL, and or Offshore Seafood Processors GP. For example, the VGP requires fecal coliform testing bi-	See RTC #100.

		annually and the Offshore Seafood GP requires routing of sanitary wastes through a system that meets the applicable U.S. Coast Guard pollution control standards.	
R20	GP Part II.D.	The re-proposed GGP has been revised to require monthly fecal coliform testing, but has not changed the weekly BOD and TSS sampling requirements. EPA's revisions do not solve the operational challenges outlined in Shell's previous comments, such as installation of a helideck. Thus, Shell again requests that the EPA remove these testing requirements from the final Geotech GP.	It was EPA's intent to reduce the BOD ₅ and TSS sampling requirements from weekly to monthly, consistent with the change made to the testing frequency for fecal coliform bacteria, as these monitoring parameters are typically conducted in tandem. EPA has revised the monitoring frequency for BOD ₅ , TSS, and pH in Table 3 of the Geotechnical GP to reflect a consistent monitoring frequency. Please note, while the testing frequency has been changed, the requirements to monitor for BOD ₅ , and TSS, and pH has not been removed from the final Geotechnical GP.
CATEGORY R5: NOI AND SUBMITTAL REQUIREMENTS			
R21	GP Part I.C.4	There are a number of regulatory requirements and timeframes that may not line up with the NOI requirement in the draft Geotechnical GP. Shell recommends that the EPA change this requirement to provide that a permittee shall list in the NOI the other authorizations and permits that it will seek coverage under, rather [than] requiring the permittee to supply each document. The latter approach could delay when the NOI is deemed complete.	This comment is beyond the scope of the Geotechnical GP re-proposal. Please see RTC#141.
R22		Please provide additional clarification (i.e. explicitly state) that no Drilling Fluids Plan is required at all, in the event that D001 is not discharged. This is implied in the re-proposed permit and fact sheet, but not stated explicitly.	The Geotechnical GP does not require a permittee to develop and submit a drilling fluids plan if authorization to discharge D001 is not requested. However, if a permittee intends to use drilling fluids at any point to conduct geotechnical surveys, and requests authorization to discharge D001 in their NOI application, then a drilling fluids plan must be submitted to EPA for review along with the NOI package. Please refer to Part IV.C. of the permit. See also RTC#141 – #145.
CATEGORY R6: GENERAL PERMIT			
R23	GP Schedule of Submissions	It is of great importance to BPXA that geotechnical investigations for the Liberty Development resume no later than March 1, 2015 during the on-ice season in the Beaufort Sea in order to complete Ancillary Activities required to support the Liberty Development and Production Plan (DPP). The Liberty Development Project will need coverage under the Geotech GP for Discharge 011 effective March 1, 2015. Thus it is important that the general permit become finalized and available no later than November 1, 2014 in order to meet the permit's deadline for submission of the NOI 90 days prior to initiation of this work.	EPA acknowledges the need for permit coverage by the commenter. However, given the significant issues and permit revisions that required additional public comment, the Geotechnical GP will be effective 30 days from the date of issuance, which is the date in which the Federal Register notice is published.
R24		The other proposed changes seem to have very little potential to increase harm or reduce mitigation protections.	Thank you for your comment.

CATEGORY R7: COMMENTS BEYOND SCOPE OF RE-PROPOSAL

R25	GP Part II.C.	Please remove the deck drainage requirements, such as requiring testing and treatment through an oil-water separator and separating area drains for uncontaminated washdown and rainfall, from the final geotechnical GP. These requirements are inapplicable to geotechnical activities, and are impossible for geotechnical vessels to comply with, without expensive and unnecessary retrofitting. As the primary potential source of petroleum contamination onboard a geotechnical vessel is from fuel, lube, and hydraulic sources of the drilling and sampling equipment, the requirements in the draft Geotechnical GP BMP are sufficient to limit the petroleum contamination in deck drainage.	This comment is outside the specific scope of the Geotechnical GP re-proposal. A similar comment was submitted on the initial draft permit, however. See RTC #97.
R26		The manner in which a geotechnical vessel operates is similar to that of an average vessel, and, thus, it appears that the EPA has erroneously subscribed to geotechnical activities the level of impacts attributable to exploration drilling. The burden associated with this misconception is substantial. EPA continues to fail to recognize the substantive difference between the two activities when it comes to discharges.	This comment is outside the specific scope of the Geotechnical GP re-proposal; however, similar comments were submitted on the initial draft permit. EPA disagrees with the statement that “that the EPA has erroneously subscribed to geotechnical activities the level of impacts attributable to exploration drilling.” For example, Section 2.2 of the ODCE provides a discussion of the differences between geotechnical surveys and related activities to exploration drilling. The Geotechnical GP includes provisions and requirements that are appropriate for the nature and type activity. See also RTC #21, #22, #33, #64, #163 and #197.
R27	GP Part II.B.4.	The EPA cannot delegate its responsibility for ensuring that a NPDES permittee complies with applicable laws and regulations. Yet, in the re-proposed GGP, the EPA persists in divesting its discretion to determine when a permittee can recommence Discharge 001 following whaling. EPA does not have legal support for this delegation of authority.	This comment is outside the specific scope of the Geotechnical GP re-proposal. Similar comments were submitted on the initial draft permit, however. See RTC #19
R28	GP Part II.A.14.	The EPA should remove the effluent toxicity characterization. These toxicity characterization requirements are applicable only to the general vessel discharges and do not apply to the discharges associated with geotechnical activities. Given that these discharges are unrelated to the type of work a vessel is performing, there is no justification for the EPA to regulate these discharges in a manner that is inconsistent with other general permits applicable in the region (including MARPOL, VGP, and Offshore Seafood Processors). If the EPA is unwilling to delete this unnecessary aspect of the Draft GP, it should modify the provision to provide that testing is required once-per-season and only if chemicals are added to the discharge streams.	With the exception of the last sentence, this comment repeats a comment submitted on the initial draft permit. The last sentence offers a new comment that is outside the scope of the Geotechnical GP re-proposal. Nevertheless, EPA notes that the commenters seem to have misunderstood the effluent toxicity characterization requirements found within the Geotechnical GP (Permit Part II.A.14). The Geotechnical GP requires toxicity tests on 6 waste streams only if chemicals are added to those systems. As discussed in RTC # 88, #109, #112, and #113, these waste streams are commonly treated with chemicals (e.g. biocides, fungicides, anti-fouling agents, antimicrobials, etc...) designed to impart a toxic effect on the system as a means of maintaining the effectiveness of the system. For example, if the permittee treats the non-contact cooling water system (D009) with a descaler or biocide, then they are required to conduct a rapid automated

			<p>toxicity test on the effluent weekly until the treatment has ceased, or, once per discharge event if the discharge is not continuous.</p> <p>If a permittee does not treat any waste streams identified in Permit Part II.A.14. with chemicals, then toxicity testing is not required.</p>
R29	BE	<p>EPA has not yet conducted site-specific analysis required by its regulations. See 40 CFR 125.122(a), (e). Our comment letter on the first draft of the permit raised concerns about the effects of the proposed discharges on the spring lead system, Stefansson Sound Boulder Patch, Hanna Shoal, and Ledyard Bay. Although EPA’s re-proposed permit addresses the first of these concerns, the agency’s revisions only reinforce the need for site-specific analysis addressing the remaining three. EPA’s biological evaluation (BE) similarly recognizes that “the Hanna Shoal is an important Pacific walrus feeding area where large numbers of animals gather.” While EPA’s revisions to the ODCE recognize the importance of these marine areas, they are not protected by the agency’s new seasonal restriction on discharges in the Chukchi Sea. As a result, we again request that EPA conduct a site- and time-specific analysis for each of these sensitive areas to assess the effects of potential discharges on wildlife.</p>	<p>This comment is outside the specific scope of the Geotechnical GP re-proposal. Similar comments were submitted on the initial draft permit, however. See RTC #160.</p> <p>In addition, EPA evaluated the potential effects of the proposed discharges on numerous species in the Biological Evaluation, dated December 20, 2013, consistent with 40 CFR 125.122(a)(3)-(4) and in compliance with the Endangered Species Act. The BE considered and evaluated the potential impacts from geotechnical activities and discharges to Ledyard Bay and the species that rely on it, such as spectacled eiders, Steller’s eiders, and other birds. On February 11, 2014 supplemented the BE with additional analysis for the Pacific walrus, a candidate species, and requested to “conference” on the potential effects of the Geotechnical GP on this species. On January 31, 2014, the USFWS concurred with EPA’s determination that the discharges authorized by the Geotechnical GP may affect but are not likely to adversely affect listed species or their designated critical habitat areas, including Ledyard Bay. In a separate letter on March 13, 2014, the USFWS concluded that the Geotechnical GP is not likely to jeopardize the continued existence of the Pacific walrus.</p> <p>The commenter is referred to Table 1 of the Supplemental BE, which summarizes the multiple ESA consultations conducted by EPA and BOEM for agency activities in the Beaufort and Chukchi Seas.</p> <p>Additionally, EPA has revised the ODCE to expand the discussions of the Spring Lead System (Section 4.3.4.); Unique Features that consist of Herald and Hanna Shoals, Herald Canyon and Barrow Canyon, and the Stefansson Sound Boulder Patch (Section 4.6.); and the section on Marine Mammals (Section 5.5.), including added discussion on ringed seals, bowhead whales, beluga whales, and fin whales. EPA has also expanded the discussion of Ledyard Bay in Section 5.6. (Coastal and Marine Birds).</p>
R30	GP	<p>EPA should set enforceable limits on the overall level of discharge. Shell’s apparent failure to provide information to EPA about the number of boreholes to be drilled and the volume of discharges highlights the uncertainty inherent in basing the effects analysis on assumptions rather than enforceable permit terms.</p>	<p>EPA considered all relevant and available information during the development of the Geotechnical GP and supporting documents. Regarding discharge types and volumes, Shell’s NPDES permit application (submitted April 3, 2013) is currently the primary source of information specific to this activity in the Beaufort and</p>

			<p>Chukchi Seas. As such, Shell’s permit application provides a relevant basis for the estimated discharge volumes.</p> <p>EPA will review the Notices of Intent from all operators requesting authorization to discharge under the Geotechnical GP to ensure the requested discharge volumes are within the range of volumes estimated and evaluated by EPA on a per-borehole and annual basis. EPA will regularly review and reconsider the level of activity and volumes assumptions.</p>
R31	BE	<p>The BE and Supplemental Analysis include unsupported assumptions that call into question that validity of EPA’s determinations. For example, the Supplemental Analysis fails to analyze the effects of concurrent operations on walrus based on a presumption that “exploration drilling and geotechnical surveys and related activities should not occur concurrently.” Since pipelines must eventually connect to prospects, EPA may be incorrect in assuming that exploration drilling and geotechnical activities will not occur concurrently. EPA should address the likelihood that geotechnical and related activities will not occur concurrently.</p>	<p>EPA assumed that exploration and geotechnical activities would not occur concurrently, in terms of time or space, in the context of evaluating potential overlapping of solids deposition or combined impacts. If only one operator is conducting geotechnical and exploration activities, then the assumptions are as follows: (1) geotechnical surveys conducted to support exploration rig or anchor placement would occur prior to commencing exploratory drilling at a site; and (2) geotechnical surveys and related activities for pipeline placement would occur after exploration activities have been completed. See Section 6.9.2. of the ODCE (Combined Effects with Exploration Discharges).</p> <p>In the case that multiple operators are active or one operator has multiple activities occurring simultaneously, EPA assumed the activities would not overlap spatially. Due to the size of the geographic extent of the lease blocks (each federal lease block is 9 square miles), it is highly unlikely that there would be any spatial overlap with one operator conducting exploration at Lease Block A and another operator performing geotechnical activities at Lease Block B (see ODCE Section 6.9.2. for an evaluation of potential depositional effects based on modeling results).</p>
R32	BE	<p>The BE also avoids analysis of the effects of helicopter noise on walrus, stating that “the use of helicopters is not expected for the activity.” This assumption conflicts with Shell’s explanation that sampling of fecal coliform requires use of helicopter due to the shore holding time of eight hours. EPA should reopen its BE to analyze the effects of additional helicopter noise on walrus.</p>	<p>The Pacific walrus is a candidate species under the ESA and candidate species are not included in Section 7 consultations. If there is a likelihood that a species will be listed within the term of the action (2015-2020), then an action agency can request a conference on the species with the Service. EPA prepared a supplemental analysis for the Pacific walrus and received a letter documenting our conference on this species from USFWS. See RTC #R29.</p> <p>At the time the analysis was conducted, EPA was unaware of any intended use of support vessels including aircraft for geotechnical survey activities, as such an analysis of this activity was not included. Additionally, according to BOEM Lease Sale 193 Draft Second SEIS, “USFWS has incorporated into its Incidental Take Regulations special considerations for authorizing any incidental take associated with oil and gas exploration activities within the area it defined as the “Hanna Shoal Walrus Use Area” (HSWUA) during times of concentrated walrus use (50 CFR</p>

			<p>§18.118(a)(4)(v)). The USFWS has determined that additional mitigation measures may be required for activities within the HSWUA in order to minimize potential disturbance and ensure consistency with MMPA standards. These mitigation measures “include, but may not be limited to, seasonal restrictions, reduced vessel traffic, or rerouting of vessels. Minimum flight altitudes are also directed.”</p> <p>The frequency of possible helicopter flights as a result of EPA’s permit action is <i>de minimus</i> in relation to the frequency considered in previous ESA Section 7(a)(2) consultations by federal agencies, such as BOEM, and Marine Mammal Protection Act authorizations for oil and gas exploration and development. Consequently, the limited number of flights that may be necessary to transport samples during the open water season (July to October) should not affect listed species to a greater extent than previously considered in the consultations for similar activities. EPA understands the agreement, made in previous meetings with BOEM and the Services, that if an activity is interrelated or interdependent to the EPA’s proposed action; does not exceed the scope of the Biological Opinions (USFWS 2012; NMFS 2013) prepared for Oil and Gas Leasing and Exploration Activities in the U.S. Beaufort and Chukchi Seas; and, has undergone ESA Section 7(a)(2) consultation, those activities would not require further consultation. EPA received confirmation from both the USFWS and NMFS on the streamlined consultation approach.</p>
R33	BE	<p>The BE dismisses the potential for exposure to drilling fluids and drill cuttings in the Hanna Shoal area. The leases in the vicinity of Hanna Shoal are nonetheless active leases, and is within 25 kilometers of the Burger Prospect, where Shell explored in 2012. Sale of additional lease tracts within Hanna Shoal if the planned 2016 Chukchi Sea Lease Sale 237 proceeds. Finally, EPA has acknowledged that geotechnical activities are not restricted to lease areas. For these reasons, EPA should not simply assume that there is only a “very small” potential that discharges authorized by the permit will affect the numerous animals using Hanna Shoal.</p>	<p>Hanna shoal is defined bathymetrically, encompassing approximately 9,500 m² (24,600 km²) at its greatest extent. The Burger prospect is located south-southeast of Hanna Shoal at an approximate distance of 30.4 miles (48.9 kilometers), as measured by EPA using available GIS data from the northern edge of the Burger Prospect to the southern edge of Hanna Shoal. Given the distance between the area of the most recent exploration activity and Hanna shoal, as well as the expected depositional extent (ODCE Section 3.6., Predictive Modeling of Discharges), it is extremely unlikely that there would be any exposure to drilling fluids and drill cuttings from geotechnical surveys and related activities within Hanna Shoal.</p> <p>As can be inferred from Figure 1-1 in the ODCE (U.S. EPA, 2015), it is unlikely that geotechnical activities would occur in the vicinity of Hanna Shoal, when the purpose of “off-lease” geotechnical activities is to delineate potential pipeline routes to shore.</p>
R34		<p>We reiterate that the EPA should acknowledge the fall whaling that occurs and is likely to occur in the Chukchi Sea. As the spring hunt becomes more difficult, the fall hunt has become even more important at Barrow and has prompted villages that did not traditionally conduct a</p>	<p>EPA has revised the ODCE to discuss the instances in which fall bowhead whale hunting activities have occurred in recent years based on available information from the International Whaling Commission website and those provided by the North Slope Borough.</p>

		fall hunt in the Chukchi Sea to begin fall whaling. The ODCE makes no mention of fall hunting by the Chukchi Sea villages.	
R35		Request that Region 10 clarify how the AEWC and affected communities can participate in potential revisions to the mitigation, monitoring, and adaptive management provisions on an annual basis. Without input from the affected community and the use of our traditional knowledge, offshore operators will risk potential conflicts with our subsistence activities and potentially significant impacts to the bowhead whale. We suggest that EPA include, in the permit, a requirement for independent-stakeholder peer review of plans for water quality monitoring and results, preferably through the Open Water Season Peer Review Meeting.	This comment is beyond the scope of the Geotechnical GP re-proposal. Please refer to RTC #56 and #57.
R36	ODCE Section 2.1	The ODCE “description of activities” text (Section 2.1, p. 2-3, paragraph 2) containing specific information only relevant to Shell (Shell 2014) should be reworded to remove the term “with older vessels” because it gives the impression that dynamic positioning is the preferred method. This is not necessarily the case; even a brand new state-of-the-art vessel operating in the Chukchi Sea in even moderate sea state will have to use an anchor spread; DP cannot maintain a tight enough vessel position in shallow waters. Moreover, this topic is not directly related to discharges, and vessel type should not be dictated by EPA.	This comment is beyond the scope of the Geotechnical GP re-proposal. EPA is not expressing a preferred method, but rather was providing a description of the types of vessels anticipated to be used for geotechnical activities. EPA has added a reference noting that physical anchoring may occur dependent on sea conditions.

REFERENCES

See ODCE Section 7 for a complete list of references.

U.S. EPA. 2015. Final Ocean Discharge Criteria Evaluation for Oil and Gas Geotechnical Surveys and Related Activities in Federal Waters of the Beaufort and Chukchi Seas, Alaska (NPDES Permit No. AKG-28-4300). January 21, 2015.