Department of Environmental Conservation Response to Comments

For

Alaska Pollutant Discharge Elimination System

General Permit AKG283100 - Geotechnical Surveys in State Waters of the Beaufort and Chukchi Seas

Public Noticed November 22, 2013 – February 19, 2014

March 31, 2015

Alaska Department of Environmental Conservation
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

1 Introduction

1.1 Summary of Facility / Permit

The Department of Environmental Conservation (DEC or Department) proposes to issue Alaska Pollutant Discharge Elimination System (APDES) general permit (GP) AKG283100 – Geotechnical Surveys in State Waters of the Beaufort and Chukchi Seas (Permit or Geotechnical GP) to cover discharges associated with geotechnical surveys in State waters of the territorial off the coast of the North Slope, Alaska. For the purposes of the permit, geotechnical facility means any floating, moored, or stationary vessel, jack-up or lift barge actively conducting geotechnical surveying. Marine geotechnical surveys are typically performed to collect information on sediment properties to inform design decisions associated with placement of structures in offshore areas (e.g., oil and gas development). Specifically, marine sediment samples are collected to:

- Evaluate the engineering behavior of subsurface materials;
- Determine the relevant physical, mechanical and chemical properties of these materials;
- Assess risks posed by site conditions, including seafloor or shallow depth geologic hazards;
- Locate potential archaeological resources and potential hard bottom habitats for avoidance; and
- Assess specific locations to inform the placement of platforms, pipelines, or other infrastructure.

Owners and operators of geotechnical facilities engaged in conducting geotechnical surveys in the Area of Coverage are eligible for permit coverage. The Area of Coverage is the territorial seas of the State from the landward boundary or baseline of coastal waters to three nautical miles seaward beginning at Point Hope in the west and extending east to the Canadian border. Discharges from geotechnical facilities are prohibited in waters less than five meters deep. The applicant is responsible for demonstrating in their Notice of Intent (NOI) that the proposed geotechnical discharges are within the Area of Coverage and in waters greater than five meters.

The permit authorizes the following discharges:

DISCHARGE NUMBER	DISCHARGES DISCRIPTION
001	Water-Based Drilling Fluids and Drill Cuttings
002	Deck Drainage
003	Domestic Wastewater (as defined in 18 AAC 72.990(23))
004	Graywater (as defined in 18 AAC 72.990(35))
005	Desalination Unit Wastes
007	Boiler Blowdown
008	Fire Control System Test Water
009	Non-Contact Cooling Water
010	Uncontaminated Ballast Water
011	Bilge Water
012	Excess Cement Slurry

These waste streams are related to the drilling process, operation and maintenance of equipment, and personnel on board geotechnical facilities. Geotechnical surveys are generally temporary in nature and characterized as short-term at any particular location. Discharge types from such surveys in state waters

are anticipated to be somewhat similar in composition to those from offshore oil and gas exploration. However, geotechnical discharges will be shorter in duration than those typical of exploration drilling programs resulting in lower volumes being discharged.

1.2 Opportunities for Public Participation

The State Geotechnical GP was coordinated with the Environmental Protection Agency (EPA) who jointly developed a National Pollutant Discharge Elimination System (NPDES) general permit for federal waters in the Beaufort and Chukchi Seas for identical discharges. In addition, DEC and EPA conducted joint public meetings and hearings during a joint public notice period. The Department followed requirements in the Alaska Administrative Code (AAC), specifically 18 AAC 15 – Administrative Procedures and 18 AAC 83 - APDES Program and proposes to issue the permit after considering all substantive public comments on the Draft Permit, Fact Sheet, and Ocean Discharge Criteria Evaluation (ODCE). To ensure public, agency, and tribal notification and opportunities for participation, the Department:

- identified the permit on the annual Permit Issuance Plan posted online at: http://www.dec.state.ak.us/water/wwdp/index.htm;
- notified potentially affected tribes that the Department would be working on this permit via letter, fax and/or email;
- posted a preliminary draft of the permit on-line for a 10-day applicant review on September 30, 2013 and notified tribes and other agencies;
- EPA and DEC jointly published public notice of the Draft Permit on November 22, 2013 in the Anchorage Daily News, Arctic Sounder, and the Petroleum News and posted the public notice on the Department's public notice web page;
- EPA and DEC jointly published an extension of the public comment period from January 27, 2014 to February 19, 2014 in response to a request for such an extension. This notice was published in the Anchorage Daily News and Arctic Sounder and on the Department's public notice web page;
- held public meeting(s)/hearing(s) on the Draft Permit. A public meeting was held in Wainwright on January 6, 2014. The public meeting scheduled for Kaktovik on January 6, 2014 was cancelled due to weather preventing travel to Kaktovik. A public hearing was held in Barrow on January 8, 2014. A telephonic public hearing was held on January 10, 2014 in Anchorage;
- posted the proposed final permit on-line for a 5-day applicant review; and
- sent email notifications via the APDES Program List Serve when the Preliminary Draft, Draft, and Proposed Final Permits were available for review.

The Department received written comments from eight interested parties during public notice of the Draft Permit and supporting documents, including testimony from Mr. Price Leavitt of the Alaska Eskimo Whaling Commission (AEWC) who testified at the Barrow public hearing. DEC received timely written comments from the following parties:

1. The North Slope Borough, Office of the Mayor (NSB)
2. AEWC
3. Alaska Oil and Gas Association (AOGA)
4. BP Exploration Alaska, Inc. (BPXA)

5. Shell Exploration and Production (Shell)
6. Native Village of Kotzebue, Kotzebue IRA (NVK)
7. ConocoPhillips Alaska, Inc. (CPAI)

Unified written comments were received from the City of Wainwright, the Native Village of Wainwright, and Olgoonik Corporation (Wainwright Trilateral Committee (Committee) on April 1, 2014 after the comment deadline. DEC will not respond to these late comments; however, DEC has reviewed the comments and found them largely to be duplicative of the AEWC's comments, which were submitted on time and addressed in this document.

The Department received supplemental information from Shell after the close of the public notice period as a result of their discussions with EPA. Although the Department considered these to be late comments, the supplemental information was reviewed to determine if there was new information that could result in necessary changes to the permit. The Department determined that there was no new information that would result in changes to the permit and this information is not included in this response to comments.

The Department also requested and received comments from the National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (USFWS) during permit development. This information was incorporated into the draft permit documents issued for public comment and no other comments were received from USFWS or NMFS during the public notice period.

The Department issued a five-day notice for applicant review.

This document summarizes the comments submitted and the justification for any action taken or not taken by DEC in response to the comments.

1.3 Final Permit

The final permit was adopted by the Department on March 31, 2015. There were minor changes from the draft Geotechnical GP documents after public notice to correct typographical and grammatical errors, as well as to clarify information and other changes resulting from an outgrowth of comments received. There were also modifications to the Geotechnical GP and Fact Sheet based on comments received by the applicant during the five day notice of review. These modifications were in character of, and an outgrowth from, comments received during the public notice period. Changes resulting from comments received are identified in the response to comments and reflected in the Final Permit, Fact sheet, and ODCE.

2 General Support and Opposition for the Permit

2.1 Comment Summary

The Department received one comment expressing appreciation for the time and effort devoted to developing the Draft Permit.

Response: The Department appreciates the comment.

3 Permit Coverage

3.1 Comment Summary

Shell commented that Permit Section 1.2.1.4, Vicinity Maps does not specify that activity cannot occur within 1,000 meters (m) of a Tier 1 or Tier 2 Sensitive Area, but it implies such a limitation. It is unclear how proximity to a Tier 1 or Tier 2 Sensitive area or an existing exploration well would affect proposed geotechnical surveys at a site within 1,000 m of such areas. Shell recommends that DEC modify this language to indicate that they will make a determination of whether or not activity is allowed in or near Sensitive Areas based on location and time. The only Sensitive Area with a specific (1,000 m) suggested geographic clearance in the ODCE is the Boulder Patch in Stefansson Sound (ODCE, page 121). Shell requests clarification of both the terminology (Tier 1 or 2 Sensitive Areas versus (vs.) Special Habitat Areas) and locations.

Response: DEC reviewed Permit Table 7: Tier I and II Sensitive Areas in developing the following response and noted a technical error in the Draft Permit. The only Tier 1 areas are Kasegaluk Lagoon, Cape Lisbourne, Icy Cape, Wainwright, Cross Island, and the Boulder Patch. The rest of the identified areas on Table 7 are actually Tier II. This typographical error has been corrected in the Permit.

The only geographic discharge prohibition is found in Section 1.4.12 which prohibits all discharge within 1,000 meters of the Boulder Patch at all times. Section 1.4.13 of the permit states that “This permit includes seasonal restrictions at the following locations and times:” In reviewing this language DEC concludes the intent is unclear and should be revised for clarity. The language will be changed to state “This permit prohibits Discharge 001 within 1,000 meters of the following locations for the specified time period at each location:”

The primary intent of requiring submittal of a vicinity map was not to give DEC the authority to approve or disapprove a particular geotechnical borehole location in the vicinity of a Tier II waterbody. The primary intent was to ensure that the applicant performed due diligence in designing a geotechnical program on both a spatial and temporal basis that satisfies the requirements for coverage under the Permit.

Section 1.2.1.4 (Vicinity Maps) of the permit requires that the vicinity map submitted by applicants show all Tier I and Tier II sensitive areas within 1,000 meters of a proposed borehole location. DEC is not modifying the permit based on Shell’s recommendation to have DEC determine if proposed geotechnical activities within 1,000 meters of Tier 1or 2 waterbodies should be authorized as proposed. Instead, the Department has added clarifying language in Permit Section 1.2.1.4, Fact Sheet Section 1.4, and the NOI that emphasize that the applicant bears the burden of demonstrating that the proposed discharge locations satisfy the requirements for coverage under the permit. DEC will review the information provided in the NOI to confirm the applicant has met the requirements for coverage.

Tier II Sensitive Areas are generally Arctic marine waters of the United States (U.S.) within the State of Alaska that have been identified by various state and federal agencies as being used by sensitive marine resources during certain periods of the year. The listing of the Tier II waterbodies is intended to inform applicants that these areas are considered sensitive to disturbance. DEC encourage applicants to contact the listed regulatory authority to learn if there are other restrictions that may affect their geotechnical program. DEC has modified Section 8 of the NOI form to include a column where applicants must

indicate if the borehole is within 1,000 meters of a Tier I or II waterbody. Applicants will be required to show the Table 7 timing of sensitivity for that site.

The term "Special Habitat Area" is a NMFS designation and was taken from the "Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement" (March 21, 2013 document). ODCE Figures 3.2-25 and Figure 3.2-26 show that there are time/area closures associated with these designated areas. DEC encourages applicants to contact NMFS to determine any other requirements they must meet in order to conduct geotechnical activities in these areas. See Permit Section 1.17 Other Legal Obligations and Appendix A -Standard Conditions.

3.2 Comment Summary

Shell commented that in Section 1.2.1.5, Latitude / Longitude of boreholes it is unclear what precision of latitude and longitude must be described for proposed borehole locations in an NOI. Section 1.2.1.5.1 appears to contradict Section 1.2.1.5. Shell recommends that DEC revise Section 1.2.1.5 to include the language of 1.2.1.5.1, so that it is clear that actual coordinates are not required or that the locations remain "confidential" until the permittee makes them public.

Response: DEC agrees that the language in the Draft Permit was unclear regarding the accuracy of the location information (latitude / longitude) for each borehole required in the NOI. DEC has modified Section 1.2.1.5 by deleting the second sentence that includes ± 100 meters and replaces it with a requirement to indicate the source (e.g., Google) of the latitude / longitude. DEC will modify Section 3.4 Annual Report to require that the latitude/ longitude reporting requirements for completed boreholes be collected with a Global Positioning System (GPS) unit with Wide Area Augmentation System (WAAS) capabilities.

APDES regulation 18 AAC 83.165 Proprietary or confidential business information states in Part (b) that "A claim of confidentiality under (a) of this section may not be asserted for the name and address of any permit application or permittee, a permit applicant, a permit, effluent data, sewage sludge data, and information required by APDES or NPDES application forms provided by the Department, whether submitted on the forms themselves or in any attachment used to supply information required by the forms." Discharge locations are an essential component of the application (i.e., NOI) to determine whether subject location(s) are eligible for permit coverage. DEC does not consider descriptions of point source discharge locations, including latitude / longitude, as confidential business information. No changes to the permit have been made based on the comment.

3.3 Comment Summary

CPAI commented that Subsection 1.4.8 prohibits discharges to waters less than five meters deep and that this prohibition is not justified scientifically when geotechnical activities do not involve the use of water-based drilling fluids and cuttings. CPAI requested that this should be clarified.

Response: The Geotechnical GP does not authorize the discharge of drill cuttings when drilling fluids are not used because drill cuttings in this scenario would be considered a fill under Clean Water Act (CWA) Section 404 rather than a point source discharge under CWA Section 402. If no drilling fluids are used, then the U.S. Army Corp of Engineers Nationwide Permit 6 for Survey Activities (NWP 6) is available for authorizing the placement of drill cuttings in seawater within the permit Area of Coverage. In this scenario, the applicant need not apply for authorization for the discharge of drilling fluids and drill

cuttings but would still need to obtain coverage for other discharges from the geotechnical facility, which is defined in the Draft Permit as a floating, moored, or stationary vessel, jack-up or lift barge conducting geotechnical surveys. Note that the definition of geotechnical facility in the Draft Permit purposefully excluded geotechnical surveys conducted on ice and the Permit prohibits discharges to ice. To add clarity, a sentence has been added to this definition of a geotechnical facility stating geotechnical surveys on ice are not considered a geotechnical facility for the purposes of the permit. DEC expects that nearshore geotechnical activities in waters less than five meters will be conducted via winter ice programs through land fast or shore fast ice utilizing tracked vehicle or truck mounted conventional rotary drill apparatus. The Geotechnical GP prohibits all discharges to stable ice (Section 1.4.11) because all waste streams from a winter ice program can be containerized and transported to a permitted upland disposal facility rather than discharged to ice. Alternatively, geotechnical programs at nearshore locations may use liftboats and case the borehole, which allows cuttings to be recovered to the drill platform on the surface. All other incidental wastewater would need to be stored while actively conducting these cased drilling operations using a liftboat in waters less than five meters. If this activity is in waters greater than five meters and no drilling fluids are used, the incidental discharges can be discharged through authorization under the permit; however, excluding the discharge of drilling fluids and drill cuttings as this would be still covered under NWP 6 as a fill activity.

3.4 Comment Summary

CPAI commented that Subsection 1.4.9 prohibits discharges to coastal Alaska waters and that this statement is confusing because the permit is for discharges from the coast out to 3 miles. CPAI requests that DEC clarifies this point.

Response: The comment that the permit is for discharges from the coast out to 3 nautical miles (nm) is technically incorrect. The Geotechnical GP describes the Area of Coverage as “the area from the inner boundary of the territorial seas to three nautical miles seaward of the boundary or baseline of coastal waters beginning generally at Point Hope in the west and extending east to the Canadian boundary.” The Area of Coverage includes the territorial seas within jurisdiction of the State. The inner boundary of the territorial sea within State jurisdiction is essentially determined to be from the mean lower low water (MLLW) line of the coastline, or a closing line (baseline) that establish an inland coastal zone. The outer boundary is 3 nm seaward of the MLLW or baseline that defines the landward boundary of the territorial sea. Therefore, the Area of Coverage does not include coastal waters inland of a baseline. Fact sheet figures depict some, but not all, baselines and closing lines. Depending on specific locations for proposed boreholes, the determination of whether the site is within the territorial see may be complicated. The applicants bear the burden of demonstrating and certifying that each individual borehole location is within the Area of Coverage when submitting their NOI (See Comment Response 3.1). Clarifying language has been added to Permit Section 1.1.1 and the NOI has been modified to include a requirement for the applicant to certify that all proposed discharge locations are within the Area of Coverage as a result of this and other comments.

3.5 Comment Summary

CPAI commented that Subsection 1.4.10 prohibits discharges within 1,000 m of river mouths or deltas during breakup conditions. DEC allows for mixing zones of 100 m radius around the borehole, even for use of drilling fluids (pg. 13, page 21-section 2.10.2).

Response: The comment seemed more like a statement as it did not appear to recommend any change. However, while reviewing Permit Section 1.4.10, DEC determined more clarity is needed in Section 1.4.10. This section will be modified to state that this permit prohibits discharges within 1,000 meters (3,280 feet) of river mouths or deltas and deletes the unnecessary reference to open water or ice conditions. Permit Section 1.4.10 now states "This Permit prohibits discharges within 3,280 feet (1,000 meters) of river mouths or deltas."

3.6 Comment Summary

CPAI commented that Subsection 1.4.11 prohibits discharges to stable ice. The definition for stable ice differs from the definition in the EPA permit, which leaves room for misinterpretation. Also, we are unclear whether DEC intends to prohibit the placement of cuttings on stable ice.

Response: The DEC definition of stable ice is developed based on land fast ice being stable enough to support activities on the ice surface but may also include variations to account for relative perspectives of the authority issuing the permit. Based on the comment received, DEC has modified this definition to "Means landfast or bottom-fast ice that becomes stationary, or stable, enough to support activities on the ice surface (e.g., winter ice programs)."

DEC will revise Section 1.4.11 to state that "This permit prohibits all discharges to stable ice." This means that all point source discharges regulated by CWA Section 402, including the placement of drilling fluids and drill cuttings (with fluids adhered to the cuttings) on stable ice will not be authorized by the permit. However, note that drill cuttings without drilling fluids adhered to them are not considered a discharge in the Permit, but rather a fill material. Hence, the placement of drill cuttings without drilling fluids is not considered a CWA 402 discharge under the permit (See Response 3.3 NWP 6).

3.7 Comment Summary

CPAI commented that according to Permit Section 2.2 - Requirements for Water-Based Drilling Fluids and Drill Cuttings (D 001), Subsection 2.2.2, the revised General Permit contains a requirement to submit a separate NOI for each proposed activity. If more than one location is proposed in a given season, one NOI should be adequate if it contains the specific information being requested by DEC.

Response: Section 2.2.2 outlines the total recoverable mercury and total recoverable cadmium analysis requirements for stock barite and does not address NOI requirements. However, Section 2.2.2 indicates that a supplier certification may be submitted with the NOI in lieu of an initial sample collected in the field. The sentence describing the certification provided with the NOI has been moved to follow the discussion for initial sampling to avoid confusion. In addition, the sentence describing sampling of stock barite received after initial testing, or supplier certification, has been modified to indicate the results must be submitted with the next Discharge Monitoring Report (DMR).

Draft Permit Section 1.2.1 states that "Applicants shall submit a complete NOI form (ATTACHMENT 1) for each year of operations….." DEC is unable to find any section that requires a separate NOI for each borehole. Section 6 of the NOI form allows for multiple borehole locations. DEC anticipates that operators will submit a single NOI for all planned geotechnical borehole locations in an operating season or calendar year basis. During the development of this response DEC recognized the need to modify the NOI form to reflect the application requirements described in the Draft Permit and Fact Sheet. The NOI

has been updated so applicants can indicate the types of discharges they are applying for at each borehole location.

3.8 Comment Summary

AEWC commented that 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 therefore is imperative that Region 10 and DEC base their decisions on the best available information from western science as well as the invaluable lessons that can be learned from our traditional knowledge. This information is already reflected in the mitigation measures that have been agreed to by industry and the AEWC as reflected in the conflict avoidance agreement (CAA). The Committee supports this comment.

Response: No specific comment on a permit provision was provided in the subject of the comment. DEC has developed the General Permit to be compliant with the CWA and the implementing regulations.

3.9 Comment Summary

AEWC commented that the Beaufort Sea fall whaling villages are opposed to nearshore discharges. There should be discharge restrictions during spring hunting in the Beaufort for Barrow whalers.

Response: Although this comment was directed to EPA, the commenter submitted comments concurrently to both DEC and EPA under the same letter. Given the degree of coordination with EPA, DEC has evaluated this comment and has determined that it warrants a response from DEC due to the reference to nearshore discharges.

Note that the State Permit prohibits discharges in waters less than 5 meters deep and within proximity to areas determined to be sensitive at certain times of the year. These prohibitions have been developed based on DEC statutory and regulatory authority, sound science, and knowledge of rich diversity and subsistence activities occurring in shallow waters.

In addition, the State Permit complies with 18 AAC 70 - Water Quality Standards (WQS). The WQS establish water quality criteria that, if met, protect the uses of the waterbody. Because the discharges have been determined to meet water quality criteria and other requirements of the WQS, the uses of the waterbody in the nearshore environment where discharges are authorized will be maintained and protected. Because WQS will be met, the Department determined there would be no unreasonable degradation of the marine environment per Code of Federal Regulations, Title 40, Part 122(b) (40 CFR 122(b)).

3.10 Comment Summary

Please clarify that Section 1.1.3.2 is only for open water summer months and does not apply to geotech drilling on bottom fast ice during winter months.

Response: DEC agrees that operators conducting geotechnical surveys on bottom fast ice should not need permit coverage given the definition of a geotechnical facility. As discussed in Response 3.3, DEC has added a clarifying sentence in the definition of geotechnical facility to exclude geotechnical surveys on ice.

3.11 Comment Summary

AEWC is strongly opposed to the permitting of any discharge within the Spring Lead System (SLS). All discharges should be prohibited in the SLS. The discharge of pollutants in areas used by spring bowhead whales raises serious concerns about food safety and possible interference with hunting.

Discharge into the SLS should not be allowed until the close of the spring bowhead whale hunt along the Chukchi Sea coast, north to Point Barrow. We appreciate that EPA and 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 SLS during the spring migration.

Response: In the Draft ODCE, the SLS was listed as a Tier 2 sensitive area with a time period ending June 10. Based on this comment, DEC has gathered additional information on the SLS and updated Final ODCE Section 4.3.5. Based on this additional information, DEC understands that it is difficult to predict when and where the SLS will occur in the Area of Coverage defined by the permit and for what duration. Any Permit applicant wishing to conduct geotechnical survey activities within the SLS must identify the location in the NOI as a Tier 2 sensitive area and comply with the Permit limits and conditions that have been developed to meet WQS and support the findings of the ODCE. Because the discharges have been determined to meet water quality criteria and other requirements of the WQS, the uses of the waterbody in the SLS will be maintained and protected. Because WQS will be met, the Department determined there would be no unreasonable degradation of the marine environment per 40 CFR 122(b).

Other agencies have jurisdiction over activities that may affect subsistence and subsistence recourses. Permit Appendix A - Standard Conditions Part 1.17 Other Legal Obligations requires that “All activities conducted and all plan approvals implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations.” This would include any other permits or authorizations required by NFMS or the NSB. Given the uncertain nature of the SLS, inclusion of the SLS as a Tier 2 sensitive area in the Permit, and recognition of other agencies having authority to regulate the activity, DEC has not made changes to the permit based on this comment but has updated the ODCE.

In addition, DEC notes that DEC Geotechnical GP does not contain a seasonal restriction in the Chukchi starting on March 25.

3.12 Comment Summary

NSB commented that this permit may be the first to authorize discharges into the SLS. Discharges to open leads should be prohibited because:

- Bowhead whales use the open leads to migrate and any discharge may result in migration route deflection. If bowheads are deflected before they all migrate through this could be disastrous to our people.
- Spring phytoplankton blooms occur in open leads and discharges may compromise the spring bloom so that the entire food web is compromised throughout the spring and open water season.

Response: See the response to comment 3.11 above. DEC has not made changes to the permit based on this comment.

4 Comments on Effluent Limits

4.1 Comment Summary

Shell recommended that the requirement for Effluent Toxicity Characterization (ETC) be removed from the final Geotechnical GP. These toxicity characterization requirements apply only to the general vessel discharges proposed in the Draft Permit. They do not apply to the discharges associated with geotechnical activities themselves. Given that these discharges are not directly resulting from the type of work a vessel is actually performing, and the permit already requires Sediment Particulate Phase (SPP) toxicity testing for Discharge 001, there is no justification for DEC to regulate these discharges in a manner that is inconsistent with other general permits applicable in the region, including MARPOL, the Vessel General Permit (VGP) and the Offshore Seafood Processor's General Permit.

CPAI commented that the 36-hour holding time requirement for ETC testing is extremely challenging to meet. It would be unreasonable to require toxicity testing for such an environmentally benign activity. We request that DEC remove the ETC requirements because they are not warranted.

Response: The Geotechnical GP regulates discharges from geotechnical facilities, not vessels or offshore seafood processors. Per the EPA 2013 VGP “vessels when they are being used as an energy or mining facility, a storage facility, a seafood processing facility, or when secured to the bed of waters subject to this permit or to a buoy for the purpose of mineral or oil exploration or development are not eligible for coverage under this permit.” The geotechnical drilling is associated with oil development and the facility will be secured to the seafloor or buoy. Therefore, the geotechnical facility is not subject to coverage under the VGP. Even if coverage were applicable, the ETC requirement is supported by the state’s CWA 401 Certification of Reasonable Assurance (Certification) included in the VGP.

Per DEC Certification of the VGP, “all discharges authorized by the VGP to waters of the U.S. extending to the three-mile demarcation of the territorial seas and inland or coastal waters of the State of Alaska shall not result in a violation of Alaska water quality criteria, found in 18 AAC 70, in the waterbody.” The rationale was that vessel operators must treat wastewater and/or implement the Best Management Practices (BMPs) in the VGP and ensure discharges comply with the applicable water quality criteria for the subject waterbody. Ensuring toxics are not discharged in toxic amounts satisfies narrative criteria contained in WQS.

The comparison to the seafood general permit is not applicable because the activities are dissimilar and the referenced seafood general permit was not developed based on specific information for the Beaufort and Chukchi Seas. Alternatively, the activity of geotechnical drilling is more similar to the activity of exploration drilling and the exploration general permits were developed specifically for the Beaufort and Chukchi Seas. Therefore, the geotechnical permit was generally developed to be more in line with the oil and gas exploration permits for the Chukchi and Beaufort Seas, which includes ETC.

The ETC monitoring is required to inform future permit decisions and to demonstrate narrative water quality criteria are met. The burden of the ETC requirement is dependent upon the operational choices made by the permittee, use of chemicals and daily discharge volumes. The permit requires that geotechnical facilities collect a sample for ETC once per season for discharges with chemical additives. If chemicals are not added to these waste streams, ETC is not required. Monthly sampling is required if chemicals are added and the discharge exceeds 10,000 gallons per day (gpd). If discharges with chemical

additives are not greater than 10,000 gpd, then only one sample during the season is required to satisfy the ETC requirement. DEC has not made changes to the Final Permit based upon these comments.

4.2 Comment Summary

AOGA and Shell commented that the duration of time a geotechnical vessel may spend on site is consistent with the time that vessels regulated under the VGP or the Offshore Seafood Processor's General Permit may spend at a site. 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.

Response: The VGP Fact Sheet explains that "The discharges authorized by the permit are limited to those discharges incidental to the normal operation the vessel, and except for ballast water and graywater from cruise ships, typically will be of limited volumes. In addition, because vessels in the territorial seas are likely to be underway as part of their voyage, any discharges incidental to their normal operation would typically be well-mixed upon discharge before they are subject to further dispersal and transport beyond the area of the vessel's operation." (Section 3.12 of the VGP Fact Sheet). Geotechnical surveying is an activity supporting oil and gas development and production and DEC does not consider geotechnical surveys as part of "normal operations of a vessel."

Geotechnical facilities by definition "means any floating, moored, or stationary vessel, jack-up or lift barge *actively conducting geotechnical surveying*" (Appendix C, Draft Permit). Geotechnical facilities, when operating in the mode of transportation, can discharge wastewater (Discharges 002, 003, 004, 005, 007, 008, 009, and 010) under VGP as authorized by EPA.

DEC has not modified the terms of the Geotechnical GP based on this comment.

4.3 Comment Summary

Shell recommends that the SPP Toxicity Testing requirement be revised to provide that testing shall be conducted only once per season and that it can be performed pre-season. As drafted, the SPP Toxicity Testing requirement in the Draft Permit provides that a permittee will perform this testing of samples taken from the mud pit of a vessel (DEC 2013, Section 2.2.3, Table 2). This requirement should be revised because it is not feasible to analyze mud from the mud pit prior to discharge activities. A permittee should not be required to test its mud system, mobilize to the Arctic, arrive on location, mix mud and then be required to again test the mud system.

Response: The comment is unclear as to why it would be infeasible to collect a mud sample from the mud pit prior to downhole use. Nonetheless, DEC has revised the permit requirement to allow for sampling at any other location as long as it is representative of the fluid before use downhole. In addition, DEC agrees to revise the permit to allow SPP toxicity testing prior to arrival in the Area of Coverage described in the Permit as long as testing is conducted for a drilling fluids formulation that uses the maximum chemical additive concentrations outlined in the Drilling Fluids Plan (DFP) that could be used during the drilling program. The results of these tests shall be part of the DFP submitted with the NOI. However, DEC is retaining the requirement to conduct SPP Toxicity Testing of any drilling fluids formulation used within the Area of Coverage not originally included in the DFP and for which preseason testing has not been performed.

4.4 Comment Summary

Shell commented that requiring SPP toxicity testing for geotechnical activities does not constitute the use of best professional judgment (BPJ), but rather an overabundance of caution that is not merited by the toxicity of the materials discharged as part of geotechnical activities and included in Discharge 001. This lack of understanding of the low risk associated with geotechnical activities is underscored by the fact that the permit states that it mirrors the requirements for oil and gas exploration, an entirely different type of activity which employs materials which have somewhat higher potential toxicity than those used for geotechnical surveys. There is no requirement for SPP toxicity testing in the 2012 Gulf of Mexico General Permit.

CPAI commented that water-based muds and other components listed on the OSPAR (Oslo and Paris Conventions) PLONOR (Pose Little or No Risk) list would be used in a geotechnical program and therefore a requirement for effluent testing using the 96-hour SPP toxicity test is not reasonable for a geotechnical activity, even if water-based fluids and cuttings are used. These chemicals have been demonstrated to be non-toxic to organisms and non-persistent in the environment.

Response: The Geotechnical GP must consider all potential drilling methods, processes, and cross section of potential applicants to ensure an envelope of coverage. The Preliminary Draft Fact Sheet included a list of a number of typical drilling fluids and additives used in exploration drilling that could be applicable to geotechnical drilling. This list was coordinated with the applicant during permit development to assess whether certain additives could be excluded. However, due to perceived difficulties in drilling in geologic formations in the Chukchi Sea, no chemicals were identified by the potential applicants at that time. DEC considered the desire of the applicant to not be restricted by chemical additive prohibitions that could ultimately affect their ability to execute the geotechnical program. The Preliminary Draft Fact Sheet was noticed for a 10-day applicant review period, which included transmittal to numerous potential companies that may request permit coverage. Again, no comments concerning the list of chemicals potentially present in drilling fluids were raised and DEC proceeded with the ODCE and permit development based on this information. Hence, the Draft Permit and ODCE were developed based on the knowledge that the drilling fluids systems desired by industry were similar to exploration drilling fluids except without the potential for hydrocarbons. Therefore, the SPP toxicity test requirement was appropriately adopted using case-by-case BPJ citing the Oil and Gas Extraction Point Source Category 40 CFR 125.13 based on the potential variability of drilling fluids systems that could be used.

The Department reviewed the September 2012 General Permit for New and Existing Sources and New Dischargers in the Offshore Category of the Oil and Gas Extraction Point Source Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (GMG290000). The Gulf of Mexico permit requires SPP toxicity testing in Part I.B.1 (b) Limitations Toxicity.

DEC has not changed the Final Permit based on these comments.

4.5 Comment Summary

Shell commented that the way that Section 2.4.1 Table 4 reads, a permittee will have to hit the 1.0 mg/L total residual chlorine (TRC) concentration exactly. The minimum and daily maximum TRC limit is 1.0 mg/L, so the chlorination system will have to be carefully monitored and controlled in order to avoid a violation. Section 2.9.4 indicates that DEC would consider 0.1 mg/L as the compliance level for the limit. The actual permissible range for TRC should be clarified in Table 4.

Response: A permittee is not required to hit a TRC concentration of 1.0 mg/L exactly because there are two points of compliance, one immediately after disinfection (e.g., chlorination) and another just prior to discharge. Per Fact Sheet Section 6.2.4, DEC is adopting the technology based effluent limit (TBEL) for a minimum concentration of TRC using case-by-case BPJ citing 40 CFR 435 Subpart A where TRC is used as a surrogate parameter to control (disinfect) fecal coliform and enterococci bacteria. TRC must be 1.0 mg/L minimum and maintained as close to this concentration as possible. The point of compliance for this minimum concentration limit is just downstream from the point of chlorination.

In addition, DEC also establishes a maximum TBEL of 1 mg/L TRC using case-by-case BPJ with the understanding that dechlorination is a readily available, effective, and economically achievable treatment for removing chlorine before discharge. The point of compliance for the maximum TRC limit is after the last treatment system prior to discharge. Given the 1.0 mg/L maximum concentration limit is above the water quality criteria, the Department has authorized a 100 meter chronic mixing zone for this discharge parameter.

DEC did not make changes to the final permit based on this comment.

4.6 Comment Summary

CPAI commented on Permit Section 2.4 - Effluent Limitations and Monitoring Requirements for Domestic Wastewater (Discharge 003). Specific comments include:

Table 4 - It is unclear why TRC is listed on two separate lines. The minimum and maximum limits should be included on the same line.

Table 4 - There are superscripts in the table that are not defined or explained. We request clarification of these footnotes, or removal of the superscripts.

There is an inconsistency between DEC and EPA permit where pH monitoring is required monthly by the State permit and weekly by the Federal permit.

Response: DEC has corrected the errors. DEC will combine TRC effluent limitations and monitoring requirements into a single line in Table 4 in the Final Permit and Table 9 in the Final Fact Sheet. DEC will remove the superscript 5 appended to pH as there is no associated footnote. DEC establishes minimum monitoring frequencies in the Permit and has no control over the monitoring frequency for pH in the EPA permit.

4.7 Comment Summary

CPAI noted that Section 2.5 - Effluent Limitations and Monitoring Requirements for Graywater (Discharge 004), Table 5 contains superscripts in the table that are not defined or explained. We request clarification of these footnotes, or removal of the superscripts.

Response: DEC has corrected the errors. DEC will remove superscript 3 associated with pH as there is no associated footnote

4.8 Comment Summary

Shell recommends changing the requirement to use a Hach (or similar) field screening for TRC. Hach's SM 4500-Cl, is approved under 40 CFR 136.3. DEC needs to add a note to Table 4 along the following lines "the permittee must use an EPA-approved test method for total residual chlorine monitoring, but in this permit, sample concentrations below the method detection level (MDL) of the EPA approved method used or 0.1 mg/L, whichever is lower, will be considered the compliance limit."

Response: DEC does not specified a particular method in the Permit. Rather, the Permit requires that analytical methods comply with 40 CFR 136. Therefore, if the Hach SM 4500-Cl Hach method has been approved under 40 C.F.R. 136, this method is allowed. The particular situation raised concerning the compliance limit is covered in Permit Section 2.9.4. However, in reviewing the section to respond to this comment, DEC determined Permit Section 2.9.4 needs to be modified for clarity. Because the limits for TRC are greater than the MDL, specifying a compliance limit is not necessary. The sentence in Permit Section 2.9.4 is revised to state "The permittee must use and EPA-approved test method for TRC monitoring, but in this permit, sample concentrations below the EPA-approved method used or 0.1 mg/L, whichever is lower, must be reported on the DMR."

4.9 Comment Summary

It is unclear to Shell why provision Section 2.2.2 requires mercury and cadmium to be measured as total recoverable. EPA's preference is to measure most metals as dissolved phase, as the dissolved phase gives a better representation of the toxic phase than does the total recoverable measurement. Additionally, DEC Water Quality Standards provides criteria for both metals as dissolved rather than total. While it is fairly simple to convert between the two (hardness-dependent metals conversion), it would be better to include any specific parameters as they are regulated under 18 AAC 70.

Response: The requirement to monitor metals in the stock barite is a TBEL developed based on case-by-case BPJ citing 40 CFR 435 rather than a water quality-based effluent limit (WQBEL) based on dissolved phase metal criteria. If these were WQBELs, reference to total recoverable would be appropriate. However, this particular TBEL is reported in milligrams per kilogram (mg/kg) dry weight and Table 2, Note 3 correctly describes the EPA methods applicable to mercury and cadmium. To avoid confusion and add clarity, Permit Section 2.2.2 and Table 2, Note 3 are revised to remove reference to total recoverable. Similar changes of been made to Fact Sheet Table 7, Note 3 and Section 7.2.4 Metals Analysis as a result of the comment.

4.10 Comment Summary

Shell commented that in APDES Geotechnical GP Section 2.2.5, that the term "continuously" is not defined in the Draft Permit. Shell requests clarification from DEC as to the frequency that metals analysis would be required for each discharged fluid system. Shell recommends that this language be revised to provide that a permittee is required to analyze a representative mud system sample prior to the season and submit the results in its DFP. As long as the chemical makeup of any single additive does not substantively increase during the season, a permittee should not be required to perform additional sampling. Compliance with this requirement could be met by keeping a chemical inventory throughout the season.

Response: DEC agrees that continuously is not defined in the Permit and does not convey the desired information. DEC has revised Permit Section 2.2.5 to indicate that if a permittee continues to use a drilling fluid system previously evaluated in the DFP, no additional analysis is required.

The commenter does not elaborate on what is exactly meant by "substantively increase." Regardless, the DFP defines the fluid system(s), including the maximum proposed concentrations of chemical additives, and provides an estimate of the worst-case cumulative toxicity of chemical additives with a preseason, offsite SPP toxicity test results for verification per 2.13.3.3 (See Comment Responses 4.3 and 4.13 for Permit modifications for preseason, offsite SPP testing). Additional sampling would not be required unless a chemical is used that was not previously considered in the DFP, or used above the maximum proposed concentration described in the DFP. Per Permit Section 3.2, a chemical inventory is required for Discharge 001 – Drilling Fluids and Drill Cuttings including a listing of what chemicals and how much were actually used. No change has been made in response to this portion of the comment.

4.11 Comment Summary

Shell suggests rewording Section 2.12.4.2 to indicate the receiving water must remain within the pH range of 6.5 to 8.5, and within 0.2 pH units of the naturally occurring pH in the receiving water (18 AAC 70.020(18)). The phrase "extreme shifts" is open to a wide variety of interpretation, and a concrete limit based in Alaska's WQS would be more defensible and easier for a permittee to understand and comply with. As an alternative, Shell would suggest requiring good housekeeping measures be outlined in a BMP, which could provide processes for controls for the use of these products so as to limit the use of these products. Every reasonable effort to use phosphate-free and non-toxic soaps offshore will be used.

Response: DEC will modify the language in Section 2.12.4.2 and replace "extended shifts" with "changes of more than 0.2 pH units." Good housekeeping is required per Permit Section 2.12.3.10.

4.12 Comment Summary

CPAI noted that Table 5 (Section 2.5 - Effluent Limitations and Monitoring Requirements for Graywater (Discharge 004)) contains superscripts in the table that are not defined or explained. We request clarification of these footnotes, or removal of the superscripts.

Response: DEC has corrected the errors. DEC will remove superscript "3" associated with pH as there is no associated footnote.

4.13 Comment Summary

CPAI commented that the term 'record' is undefined in Section 2.13.3.3 of this permit. Shell suggests rephrasing this language to indicate that a permittee will provide a model or other theoretical analysis of anticipated compliance with the SPP toxicity limit.

Shell proposes that the permittee be required to analyze a representative mud system prior to the season and submit results in the DFP. As long as the chemical makeup of any single additive does not substantively increase during the season, additional sampling should not be required.

Response: In response to the first portion of this comment, DEC will modify the permit by replacing the word "record" with the term "written documentation" for purposes of clarity.

DEC has modified the Permit to allow preseason, offsite SPP testing of drilling fluid systems and submission of the SPP Toxicity Test results with the DFP (see Responses 4.3 and 4.10).

4.14 Comment Summary

Mr. Price Leavitt testified at the public hearing in Barrow that AEWC is concerned about the discharge of large volumes of noncontact coolant water, domestic wastewater, graywater, desalination unit waste etc. The volumes of these waste streams are estimated to be well in excess of volumes generated during a normal drilling operation. This permit would allow vessels to remain in the subsistence hunting areas during the hunt, discharging large amounts of multiple waste streams. This could result in deflection of bowhead whales from migration routes effecting our ability to successfully hunt.

Response: This testimony was directed at EPA during the course of the January 8, 2014 Barrow public hearing. Given the degree of coordination with EPA, DEC has evaluated this testimony and has determined that it warrants a response from DEC.

Shell was the entity that submitted an individual permit application that triggered the development of the Geotechnical GP and provided conservative estimates of discharge volumes. DEC used these conservative volumes for the ODCE and developing permit conditions. During the ODCE, DEC determined discharges will meet WQS and, as a result, will not result in unreasonable degradation of the marine environment if the limitations and conditions of the permit are followed. Permit conditions include time and area restrictions that correspond with sensitive habitats and subsistence resources. The Department authorizes discharges associated with activities but not the activities themselves. However, the permit does not absolve the applicant from getting required permits or authorizations from other agencies with appropriate authority to regulate the activity. For example, applicants proposing to conduct geotechnical survey activities in state waters that have the potential to affect the availability of a species or stock of marine mammals for subsistence uses in the Arctic Ocean may be required to obtain a NMFS Incident Harassment Authorization (IHA) as well as coordinate with the North Slope Borough Planning Department. Also, see responses 3.9, 3.11, 6.5, and 9.3.

4.15 Comment Summary

Mr. Price Leavitt testified at the public hearing in Barrow that EPA should require vessels to be moved out of subsistence hunting areas during the hunt. There should be zero discharge of any waste stream in the nearshore areas of the Beaufort.

Response: This testimony was directed at EPA during the course of the January 8, 2014 Barrow public hearing. Given the degree of coordination with EPA, DEC has evaluated this testimony and has determined that it warrants a response from DEC.

The first part of this comments was addressed in Response 4.14. DEC included discharge prohibitions to sensitive areas (See Response 3.11) and does not permit activities; NOAA IHAs and coordination with the North Slope Borough Planning Department have this authority.

DEC does not issue a permit if there is no discharge since the APDES program authority pertains to permits for the discharge of “pollutants” from any “point source” into “waters of the US.” Absent a discharge of pollutants, a permit would not be required. The Department established seasonal restrictions in certain sensitive areas to ensure compliance with WQS. The Department determined discharges to all other areas would meet WQS and would not result in unreasonable degradation of the marine

environment. Therefore, discharges are authorized per governing statutes and regulations. Also, see Response 3.9.

5 Comments on Special Conditions

5.1 Comment Summary

NSB commented that the Environmental Monitoring Program (EMP) does not account for highly variable annual changes of the seafloor, benthic responses to oceanographic changes, and ignores cumulative effects.

Response:

The objectives of the EMP do not include evaluation of cumulative effects from other oil and gas activities or natural changes to the seafloor. Rather, the EMP is specifically designed to capture data that would allow DEC to evaluate potential effects from geotechnical survey discharges within proximity to the discharge location. The EMP is not designed to track annual changes in the seafloor and any resulting response from the benthic community from oceanographic changes. Such wide-scale changes are due to a multitude of factors including natural processes. The Draft ODCE acknowledges the likelihood of natural annual changes in the seafloor due to three primary factors: bioturbation, ice gouging, and gray whales and walrus feeding habits. See ODCE Sections 6.2.1 and 6.2.2 for more information on these natural process.

No change has been made to the Permit based on the comment.

5.2 Comment Summary

Shell and AOGA recommended that the EMP requirements be removed from the final permit as they are not supported by the ODCE. The EMP appears to have been drafted for exploration drilling discharges and it is not appropriate for geotechnical discharges or supported by the ODCE. The ODCE finding of "no unreasonable degradation to the marine environment" is in no way dependent on the inclusion of the EMP in the Draft Permit.

Response: The EMP requirements are not directly linked to the determination of no unreasonable degradation to the marine environment. The ODCE determination was made based on the discharges authorized by the Permit meeting WQS. DEC requires environmental monitoring per Permit Section 3.3.1 to verify assumptions made during permit development and to inform future permit decisions, including EMP requirements.

The EMP requirements are also based on drilling fluid systems discussed in Response 4.4, which are similar to exploration drilling fluid systems. Accordingly, DEC developed EMP requirements based on the drilling similarities but also based on certain differences between exploration and geotechnical programs. DEC recognizes that there could be substantial differences in discharge volumes from geotechnical drilling but also significant differences in benthic conditions and dispersion in nearshore environments where geotechnical discharges are proposed. The estimated total volume of drilling fluids and drill cuttings discharged at multiple locations in a geotechnical program is comparable to the volume from an exploration program at a single location. Although the impacts at individual locations are expected to be less than exploration, the widespread impacts of multiple locations from a geotechnical

program has not been quantified. The EMP is developed to collect oceanographic and benthic data to evaluate the impacts to these nearshore environments from geotechnical drilling using drilling fluids similar to those used in exploration. For more discussion see Responses 5.3 and 9.3.

No change has been made to the Permit based on the comment.

5.3 Comment Summary

Shell commented that with the EMP, DEC sets out to require that a permittee answer questions that are either not raised by the geotechnical activities or have already been answered (or will be answered) by existing studies and other permit provisions. For example, the EMP includes a requirement for metals analysis (DEC 2013, Permit Section 3.3.4.3.4, Table A), but the metals implicated by Discharge 001 are already tested pursuant to another permit provision (Table 2, Effluent limitations and monitoring requirements for drilling fluids and drill cuttings (D001)), which requires SPP toxicity testing.

Response: DEC was unable to find citation Permit Section 3.3.4.3.4, Table A in the Draft Permit. Table A is found in Section 3.3.4.1.1 of the Draft Permit. DEC presumes that the comment contained the wrong citation.

The results from Section 3.3.4.1.1 Phase 1 Sediment Sampling will help establish baseline metals concentrations in sediments within the Area of Coverage where geotechnical surveys occur. DEC is aware that there is existing baseline data from environmental studies conducted in the Beaufort and Chukchi Seas in support of exploration drilling (See ANIMIDA Phase I: Arctic Nearshore Characterization and Monitoring of the Physical Environment in the Northstar and Liberty Development Areas, Final Report, December 2001, cANIMIDA Task 5, Integrated Biomonitoring and Bioaccumulation of Contaminants in Biota of the cANIMIDA Study Area, Final Report, October 2009 (both in the Beaufort Sea) and Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA): Chemical and Benthos (CAB), Final Report, March 2012). Where baseline data exists, the applicant may submit this data with the NOI to satisfy Phase I baseline sediment sampling requirements per Permit Section 3.3.4.1.1. However, DEC understands that most existing data is generally outside the State Permit Area of Coverage.

The final report for the Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA): Chemical and Benthos (CAB) included just five sample locations (1, 4, 14, 27, and 50) within the Bureau of Ocean Energy and Management (BOEM) nearshore lease deferral area. None of the sample locations were within the Permit Area of Coverage. Sample Plot 1 was the closest location to state waters but is estimated to be approximately nine nm offshore. There have been no state lease sales or development activities within the Chukchi Sea that would have generated additional nearshore baseline data. The lack of existing baseline data for metals concentrations in sediment does not currently allow for accurate predictions based on correlations to other sediment properties (e.g., silts and clays) within the Area of Coverage. However, data from the EMP when combined with other data outside the Area of Coverage may result in the ability to predict baseline metal concentrations in nearshore environments similar to the lease sale areas where sufficient data currently exists.

The report titled “Distribution and Provenance of Trace Metals in Recent Sediments of the Northeastern Chukchi Sea” by Trefry, J.H., R.P. Trocine, and L.W. Cooper concluded that “The overall variations and patchwork distribution of metal concentrations are shown using aluminum as an example (Figure 3). The lowest aluminum and metal values were found closer to shore in sand and gravel and the highest

concentrations were found offshore in silt- and clay-rich sediments. Data from the present study agree very well with and compliment previous results for aluminum , iron, manganese, copper, chromium, vanadium, nickel, and zinc by Naidu et al. (1997, Table 1). Metal concentrations were directly correlated with sediment grain size (Figure 4). Concentrations of aluminum and other trace metals generally correlate well with concentrations of silt and clay because concentrations of both aluminum and most metals are very low in coarse-grained quartz sand or carbonate shell material and much higher in fine-grained aluminosilicates (Figure 4)."

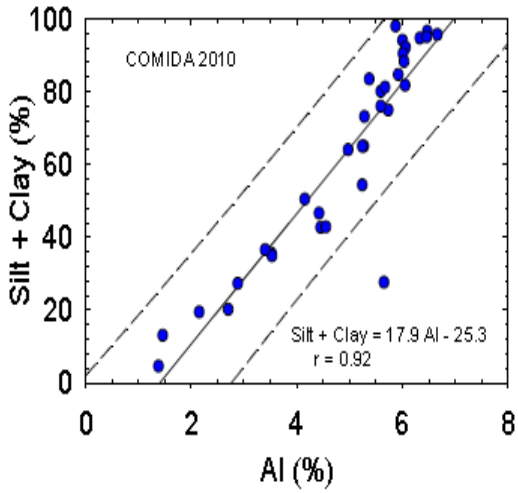

Figure 4. Concentrations of Al versus silt + clay for data from 2010.

The Geotechnical GP requirements of Section 3.3.4.1.1 Phase 1 Sediment may provide information to determine if the results from the Trefry study (above) are applicable to the nearshore environment within the Area of Coverage. Alternatively, the baseline data may be useful in determining other correlations that can be used to predict metals in nearshore sediments within the Area of Coverage. DEC expects that some of this information will be used to propose substantial modifications to EMPs for subsequent years of geotechnical survey activities if the results from the previous year(s) verify the applicability.

The Draft Permit includes the SPP toxicity limit of a minimum 96-hour LC50 of 30,000 parts per million (ppm) for discharged water-based drilling fluids and drill cuttings based upon the adoption of the Effluent Limitations Guidelines (ELG) using case-by-case BPJ. The SPP testing requirement for Discharge 001 (water-based drilling fluids and drill cuttings) is a bioassay test that provides an assessment of toxicity. While SPP testing evaluates toxicity, the results are not useful to predict metals concentrations in post-drilling sediments. Accordingly, toxicity evaluation is not an objective of the EMP. However, comparing post-drilling sediment metals concentrations to sediment metals criteria is an objective that requires monitoring.

No change has been made to the Final Permit based on the comment.

5.4 Comment Summary

AOGA, CPAI, and Shell all commented that there is no rationale to support the EMP requirements for the collection at each site of data relating to "surface wind speed and direction, current speed and direction throughout the water column, water temperature, salinity, depth, and turbidity" (DEC 2013, Permit

Section 3.3.4.1.3). The EMP requires a permittee to collect baseline weather and sediment data from each borehole site, despite the fact that there are substantial existing and ongoing studies that address this type of data in an integrated manner. They include:

- Chukchi Sea Offshore Monitoring in the Drilling Area (COMIDA) studies funded by BOEM (2009,2010,2012);
- Chukchi Sea Environmental Studies Program (CSESP) jointly-funded by Conoco, Shell, and Statoil (2008-present, with a nearshore study in 2014);
- Arctic Nearshore Impact Monitoring in the Development Area (ANIMIDA) studies funded by BOEM (ANIMIDA (1999-2002), cANIMIDA (2004-2007), ANIMIDA III (2013-2018);
- Arctic Ecosystem Integrated Study (2012-present) funded by Department of Interior
- Alaska Monitoring and Assessment Program funded by EPA;
- Onshore Environmental Survey Program (2012) funded by Shell;
- Nearshore Fish Assemblage Studies (2006 - present) funded by the National Oceanic and Atmospheric Administration; and
- Arctic Coastal Ecosystem Study (2010 -present) funded by the North Slope Borough.

Response: DEC is aware that there are published and ongoing studies within or adjacent to the Area of Coverage that provide environmental information that may be germane to the EMP requirements (See Response 5.3). DEC considered the findings of published reports in concluding that geotechnical discharges would not result in unreasonable degradation to the marine environment. Most of the weather related data generated in ANIMIDA and COMIDA are large scale study-area findings with a focus on federal waters. This information does not provide information within the Area of Coverage necessary to verify current reasonable assumptions or inform future permit decisions (See Response 5.5). Site-specific weather and water column data requirements along with actual facility discharge volumes will allow DEC to re-evaluate mixing zones during permit reissuance using oceanographic data collected within the Area of Coverage. However, DEC agrees to delete Section 3.3.4.1.3 *Physical Characteristics* (Phase I) from the final permit based on this comment in the recognition that this is a one-time data gathering exercise and that it is more appropriate to collect this data when drilling fluids and drill cuttings are being discharged at the seafloor.

5.5 Comment Summary

Shell commented that the Draft Permit EMP is premised on the faulty assumption that exploration drilling level impacts will result from geotechnical activities. For example, the Draft Permit EMP requires a permittee to conduct a "seafloor survey" and "map the areal extent and depth/thickness of solids deposition caused by Discharges 001." (DEC 2013, Section 3.3.4.3.1) This requirement is clearly geared toward exploration drilling and not geotechnical boring because the discharge volumes from geotechnical boring are extremely unlikely to result in a measurable areal deposition on the seafloor. Not only are geotechnical discharges lower in volume than exploration discharges, but also geotechnical discharges-unlike exploration discharges-are discharged at the seafloor. Because they are disposed of at the seafloor, geotechnical discharges have a limited opportunity to distribute through the water column and as such, will not result in a large areal distribution on the seafloor.

The Draft Permit EMP also requires that a permittee "continuously monitor for turbidity in the plume from water-based drilling fluids and cuttings." Again, this requirement was designed for exploration drilling, not geotechnical boring where drilling fluids and cuttings will be discharged at the seafloor and therefore will not result in a "plume" in the water column.

Response: The Geotechnical GP authorizes a 100 meter zone of deposit (ZOD) and mixing zone for drilling fluids and drill cuttings discharged at the seafloor. The Draft ODCE evaluated seafloor discharges of drilling fluids and drill cuttings in Section 3.5 and 3.6 of the document. Because there is a lack of empirical data on the behavior of geotechnical discharges at the seafloor, the ODCE included modeling and the EMP requires plume monitoring to verify modeling assumptions and inform future permitting decisions (See Response 5.6 also). Shunted discharges were used to simulate discharges at the seafloor and estimate a possible areal extent of the ZOD from a borehole 499 feet deep. This model predicted a deposit that measure 26 meters in diameter. Based upon limited published research presented in Section 6.1 of the Draft ODCE, DEC also predicted the deposit at the completion of borehole using information provided in the CIR (i.e., cutting piles with slopes of between 6° to 26°). This evaluation suggests the maximum dimensions of the ZOD could be up to 788 square feet, 32 feet in diameter for 6° slopes and up to 4.5 feet thick next to the borehole for 26° slopes. These estimated dimensions indicate a measurable areal deposit at the seafloor.

The volume of the discharge of drilling fluids to seafloor is uncertain given that drilling fluids are not proposed to be recirculated to the deck if the facility. The deposit will be based on what volume is needed to overcome geologic conditions, which are reportedly not well known in the Area of Coverage in the Chukchi Sea. In similar situations, DEC routinely requires seafloor waste accumulation monitoring in other permits with an approved ZOD. Operators of permitted seafood processing facilities and log transfer facilities are required to monitor and report the areal extent of waste on the seafloor to DEC according to the monitoring schedule in their respective permits.

The first year EMP submitted by geotechnical applicants will include a method proposed by the applicant to determine if a cuttings pile is visible, and if visible, determine the areal extent. The permit does not require any certain technology be used to map and determine the areal extent of cuttings piles. The permit specifically allows for modifications in EMPs for future years based on first year EMP findings.

As stated in Response 5.2, the EMP data collection requirement is intended to verify the conservative modeling assumptions in the ODCE and inform future permit decisions. No change has been made to the final permit based on this comment

5.6 Comment Summary

Shell commented that an example of the EMP being out of sync with the nature of geotechnical activities is the requirement that a permittee "continuously monitor for turbidity in the plume from Discharge 001" (DEC 2013, 3.3.4.2.1). As acknowledged in the ODCE Section 3.2, permittees intend to discharge water-based drilling fluids and cuttings (Discharge 001) "at the seafloor absent a riser system" so in those instances there will not be a "plume." While these examples showcase the similarity between the EMP in the Draft Permit with the EMP in the EPA's permit, it is notable that in some respects the State's EMP is even more onerous. While the EMP in the EPA permit include only two phases, the Draft Permit requires a three-phase EMP, which must include a "during drilling" component.

Response: The assertion by the commenter that a discharge at the seafloor will not result in a plume is an assumption that requires verification. The requirement to continuously monitor for turbidity during drilling will result in data that informs plume behavior and allow for verification of modeling results and ensure compliance with WQS.

Given the limited information concerning the physical processes that transport, disperse, or deposit water-based drilling fluids and drill cuttings discharged at the seafloor from geotechnical drilling, monitoring is necessary to verify modeling results. The turbidity monitoring is designed to provide information on potential re-suspension and transport of fine grained materials that exit the borehole at the seafloor during drilling or when the drill pipe is removed from the borehole and returned to the facility. Due to the rotary action of the drill, some re-suspension is likely and this monitoring may allow to quantify the extent and correlate with physical oceanographic parameters.

No change has been made to the Final permit based on the comment.

5.7 Comment Summary

AOGA and Shell commented that with respect to the metals analysis requirement in the EMP, Discharge 001 which would be the likely source of any metals contaminants is already subjected to toxicity and metals testing by permit provisions other than those in the EMP. As set forth in Table 2 of the Geotechnical GP, Discharge 001 will be subjected to SPP testing for mercury and cadmium. These testing requirements are sufficient to characterize any potential toxicity of Discharge 001.

Response: DEC presumes that this comment is directed at Section 3.3.4.1.1 (Phase I Sediment Sampling) and Section 3.3.4.3.2 (Phase III Targeted Sediment Sampling) in the Permit. Permit Section 3.3.4.1.1 requires baseline sediment collection and analysis for metals listed in Table A (Section 3.3.4.1.1) at each drill site. Phase III, Targeted Sediment Sampling, (Section 3.3.4.3.2) requires permittees to collect a post-drilling sediment sample as soon as possible after the completion of the borehole but only where drilling fluids were discharged. The list of metals are those that likely exist in drilling fluid discharges and could bioaccumulate or persist in the environment. Although DEC has qualitatively determined based on correlation to related studies that the discharge of drilling fluids and drill cuttings are not likely to persist in marine sediments, collecting data that supports this determination is prudent. In addition, by analyzing baseline and post-drilling sediment metal concentrations and comparing results to recognized sediment criteria, DEC can make more informed permit decisions quantitatively. Sediment will be analyzed for the same metals as listed in Section 3.3.4.1.1 to compare with sediment metal criteria and inform future permitting decisions. Although no revisions have been made based on this comment, DEC has modified Permit Section 3.3.4.1.1 to state “Analysis for each metal must use appropriate methods specified in 40 CFR 136 and be reported as mg/kg” to be consistent with Response 4.9.

5.8 Comment Summary

Shell and AOGA commented that as drafted, the EMP will increase the disruptions to the environment from a geotechnical program. The EMP will necessitate that a geotechnical program expand its fleet to include a helicopter, science vessel, as well as additional scientific equipment. The EMP will also necessitate that a geotechnical program substantially increase the amount of time that it spends both at an individual boring site and in the Area of Coverage in general. This increase in duration of time at a site will result in increased air emissions and subsea ensonification at the site, as well as increased volumes of

general vessel waste streams that must be discharged at the site. Compliance with the EMP would ultimately result in more environmental degradation than protection and this requirement should be removed from the final Geotechnical GP.

Response: The Geotechnical GP requires only applicants seeking an authorization for Discharge 001 to submit an EMP Study Plan (Section 3.3.2). Although this section places the burden on the applicant to develop and submit an EMP it also grants substantial flexibility in design and implementation and does not dictate means and methods. Section 3.3.4.2 of the Geotechnical GP (Phase II requirements) does not require that permittees utilize an on-site vessel to collect data; applicants are expected to propose a collection method in the EMP Study Plan. In addition, applicants can propose a Phase I schedule separate from Phase II and III. The EMP requirements allow for the use of existing baseline information where available and the Study Plan can be modified for subsequent geotechnical programs accounting for representative information previously collected.

The Permit establishes limits and conditions for wastewater discharges from geotechnical facilities only. Accordingly, science vessel discharges would not be subject to the requirements of the Geotechnical GP.

No change has been made to the Final Permit based on the comment.

5.9 Comment Summary

CPAI commented that in the event that DEC does not agree that the EMP should be removed, the following modifications should be made to the EMP:

(1) Inclusion of an exception for pre-existing Phase I data, such that it need not be collected where data already exist.

(2) Removal of the Phase II (during drilling) requirements because it is not scientifically justified. Geotechnical boring acquisition is not the same as exploratory drilling operations and boring materials are discharged at the seafloor because no riser is used (See responses to EPA / DEC Scoping Questions Document). As stated in the ODCE, "the discharges from geotechnical investigation activities are short term and intermittent, and the majority of dissolved trace metals are expected to adsorb to fine sediment particles, and settle on the seafloor in the immediate vicinity of the point of discharge" (ODCE, p. 96). This conclusion is valid and does NOT warrant a "during drilling" component of the EMP.

(3) An exception for Phase III post-geotechnical activity data collection in areas where baseline studies and continuing monitoring studies historically have been conducted, are currently being conducted, or are planned (e.g., Chukchi Sea Offshore Monitoring In the Drilling Area (COMIDA), BOEM-funded program during 2009, 2010, 2012); Chukchi Sea Environmental Studies Program (CSESP), joint-industry funded program from 2008 to present)). The scientific value of post-boring data collection for the small footprint of a geotechnical boring is far outweighed by the associated cost and burden involved.

Response: Section 3.3.3 of the Draft Permit requires only applicants seeking a discharge authorization for Discharge 001 to submit an EMP Study Plan that satisfies the requirements of Section 3.3.3. Section 3.3.2.2 allows permittees to propose the use of data derived from another EMP study plan, or other relevant sources of information, to satisfy the EMP baseline data gathering requirements. The EMP Study Plan can describe methods utilizing existing information or ongoing studies in the vicinity of discharge. Permit Section 3.3.4.1 has been modified to clarify that existing data may be used in lieu of baseline monitoring at specific borehole locations (See Response 5.12). However, the permittee will not be

absolved from the responsibility to comply with permit conditions and ensure sampling is conducted during and after drilling. If DEC approves an EMP containing existing baseline data, post drilling sampling is still necessary for the reasons discussed in Response 5.7 and during drilling observations are necessary per Response 5.4 and 5.5. The commenter correctly indicates that the discharge of geotechnical drilling fluids and drill cutttings at the seafloor differs from discharging exploration derived drilling fluids and drill cuttings at locations above the seafloor. In addition, the discharge of drilling fluids and drill cuttings authorized by the permit are to nearshore locations, which have different hydrodynamic conditions affecting dispersion when compared to offshore exploration discharges. These difference are precisely why during drilling environmental monitoring is required to inform future permit decisions, including subsequent EMP Study Plan approvals.

Based on the comment, DEC has added a third sentence to Permit Section 3.3.4.1 stating “Existing baseline data may be submitted for DEC approval in lieu of conducting baseline sediment sampling at a specific location.”

5.10 Comment Summary

NVK supports the approach outlined as part of the EMP to be implemented before, during, and after drilling activities at selected sites, so future permitting can be based on recent and real impacts in the areas of activity. As noted, additional monitoring of site-specific exploratory drilling operations is needed to substantiate past data regarding potential bioaccumulation effects in benthic communities and other assumptions based on mathematical models, or limited baseline data.

Response: Comment noted.

5.11 Comment Summary

NVK requests that DEC provide results from the EMP to communities situated along the shoreline of the Chukchi and Beaufort Seas, including Kotzebue. It would also be helpful to provide site location maps where activities have occurred, or are planned to occur, to allow for local people and other experts to determine if these locations are critical as migratory paths, feeding, or hauling out areas.

Response: The Draft Permit requires permittees to submit vicinity maps with the NOI and to comply with the requirements of Permit Section 3.3 and submit an annual report per Permit Section 3.4. The annual report will include most of the requested items. Any member of the public can request a copy of the NOI or annual report but DEC lacks the authority to require permittees to provide copies directly to the public. The public may request and receive this information assuming it is not considered confidential business information per 18 AAC 83.165.

5.12 Comment Summary

CPAI commented on the requirement of Subsection 3.1.1 that indicates that a Quality Assurance Project Plan (QAPP) must be prepared for all monitoring required by the permit. This should be revised to state that a QAPP will be required only if an EMP (or minimized EMP) is prepared for an activity using water-based drilling fluids and drill cuttings. Furthermore, the QAPP implementation is tied directly to the effective date of the permit (i.e., "The QAPP must be implemented within 120 days of the effective date of this permit"). The QAPP timeline should be tied to the Operator's intent to conduct the geotechnical

activities, not to the effective date of the permit. In addition, Section 3.3.4.1 should be modified to include an exception for pre-existing baseline data, as previously described.

Response: DEC is not modifying the Permit to require a QAPP for just EMP monitoring. The requirement to develop and implement a QAPP applies to all required effluent sampling, not just sampling associated with EMP requirements. The EMP QAPP requirement is actually found in Subsection 3.3.2. This point has been clarified in Permit Section 3.1.1 by adding a third sentence as described below.

DEC agrees that the requirement to develop and implement a QAPP within 120 days of the effective date of this permit should be tied to the NOI timeline. The second sentence in Section 3.1.1 will be modified to state “The QAPP must be submitted to DEC within 45 days prior to discharge.” A third sentence is added that states “If the applicant proposes to discharge drilling fluids and drill cuttings (Discharge 001), the QAPP must be submitted with the EMP Study Plan per Section 3.3.2.” In addition, DEC reviewed the Draft Fact Sheet and determined that the QAPP requirement was not fully discussed. DEC has modified the Final Fact Sheet to include clarification in Section 7.2.6 and new Section 10.4 QAPP that describes the clarification and additions to the permit resulting from the comment.

The Geotechnical GP already allows permittees to propose modifications to previously approved EMP study plans to incorporate existing environmental data (Section 3.3.2.2). To clarify this point, a third sentence has been added to Section 3.3.4.1 stating “Existing baseline data may be submitted for DEC approval in lieu of conducting baseline sediment sampling at a specific location.”

5.13 Comment Summary

CPAI commented that Section 3.3.4.1.1 requires sediment sample analysis of the 19 metals listed in Table A. These are the same metals required in the EPA geotechnical general permit. However, DEC requirement for metals analysis should be amended to reflect the same requirement as that in the EPA geotechnical general permit, which requires metals analysis on D001 discharges only if water-based drilling fluids are used.

Response: Section 3.3.2 Study Plan states “An applicant seeking authorization to discharge water-based drilling fluids and drill cuttings (Discharge 001) must submit an EMP Study Plan…...” Applicants not seeking an authorization for Discharge 001 are not required to submit an EMP study plan. No changes have been made to the Final Permit based on the comment.

5.14 Comment Summary

CPAI commented that Section 3.3.4.2 Phase II component is defined as "during drilling". This component should be removed in its entirety for the reasons explained in Section 2, which indicate the ODCE itself concludes that “the discharges from geotechnical ... activities are short term and intermittent. .. and settle on the seafloor in the immediate vicinity of the point of discharge" (ODCE, p. 96). This has the potential for confusion with the EPA geotechnical general permit, in which phase II is defined as "post-geotechnical activity."

Response: DEC has previously responded to comments requesting the removal of the EMP requirements from the Geotechnical GP (See Responses 5.2, 5.3, 5.6, and 5.9). As stated in these previous responses, DEC will retain these requirements with some minor modifications clarifications.

Regarding the second portion of this comment, DEC coordinated closely with EPA during the development of our respective permits in an effort to minimize confusion about slightly different permit conditions. However, given the unique difference between discharge conditions in the nearshore areas in state waters, ODCE development, and governing regulations, some difference must be expected between the EPA and DEC permits. DEC expects that applicants planning geotechnical programs in both state and federal waters will carefully review the final EPA and DEC permits and design a program that ensures compliance with each permit.

5.15 Comment Summary

CPAI recommends that Subsection 3.4 be modified from the requirement for all permittees to submit an Annual Report "following geotechnical facility operations and all authorized discharges" to only requires permittees that discharge water-based drilling fluids submit an annual report.

Response: DEC agrees that the annual report should only apply to permittees that discharge drilling fluids and drill cuttings. DEC revises the first sentence in Permit Section 3.4. to state “Permittees authorized to discharge drilling fluids and drill cuttings (Discharge 001) are required to submit an annual report to DEC by January 15th of the year following geotechnical facility activities.”

5.16 Comment Summary

Shell commented that Section 3.3.4.1 Phase 1 – Pre-Drilling Baseline Seafloor Survey and Sediment Sampling is not necessary because the permittee already conducts pre-site characterization to avoid sensitive areas and to confirm that equipment will not be compromised during deployment. Shell and other operators typically site geotechnical boreholes on pre-existing shallow hazard or ice gouge survey lines. This allows the operator to review the existing geophysical report(s) and identify any potential subsurface factors that could complicate boring 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 Area of Coverage. Shell also generally sites boreholes on pre-existing geophysical lines to verify there are no seafloor obstructions that may be in the way such as an old wellhead, structure or pipeline. Boreholes are also sited on pre-existing lines as a matter of efficiency. This practice generally allows the operator to extend the information we find in a lateral direction, some distance away from the borehole without having to go back out and drill another boring.

Response: The Geotechnical GP requires the development of an EMP only from those applicants requesting authorization to discharge drilling fluids and drill cuttings (Discharge 001). There are two objectives of the baseline data collection requirements, demonstration that the site is not in an environmentally sensitive area and to ensure baseline sediment data exists. The information described by the commenter appears to address only site clearance and not baseline sediment data. Data derived from previous EMP Study Plans or other relevant sources of information must meet both objectives to use this existing data in lieu of additional site-specific data collection (See Responses 5.3 and 5.9). DEC is retaining Permit Section 3.3.4.1 as clarified in Response 5.11.

6 Comments Not Directly Related to the Permit and Regulations

6.1 Comment Summary

The Department received comments not directly related to the Permit. Shell and AOGA commented that any delay in the release of a rational, scientifically-based permit for geotechnical discharges in the Beaufort and Chukchi Seas will result in commensurate delay in the production of first oil from the US Arctic OCS. Such a delay will not only have commercial implications for industry, but also will result in foregone royalty revenue for the federal government and foregone tax revenue and opportunities for Alaskans. Further, delayed offshore development in Alaska may compromise the availability of future crude supply to the Trans-Alaska Pipeline System, thereby jeopardizing the continued viability of the pipeline.

Response: Comment noted.

6.2 Comment Summary

AOGA and Shell both commented that the problematic provisions in the Draft Permit appear to be the result of a lack of appreciation for the fundamental differences between exploration drilling and geotechnical surveys. This disconnect has precipitated permit provisions that are not proportionate to the extent and magnitude of impacts from geotechnical activities, but that are instead scaled to exploration drilling impacts. Given the volume and character of geotechnical discharges, and the nature of geotechnical activities, it is not surprising that the ODCE that DEC prepared to evaluate the impacts of the permitted discharges found that they will not result in "an unreasonable degradation of the marine environment." Unfortunately, there are several significant provisions in the Draft Permit that are not in step with this finding and the scientific rationale underlying this finding. These provisions should be revised or removed so that the final Geotech GP conforms to existing science and includes provisions that are tailored to the limited extent and magnitude of impacts.

Response: On several accounts, the comment was not specific enough for the Department to provide a response concerning “several significant provisions…that are not in step with…the scientific rationale underlying this [ODCE] finding.” DEC is not required to speculate in response to nonspecific comments. With respect to the characterization of the discharges, these comments were addressed in Responses 4.2, 4.4, 5.2, 5.3, 5.6, and 5.9.

6.3 Comment Summary

NVK requests that the permit include additional information on bearded seals use of nearshore waters in the Area of Coverage based on recent research findings that include documentation from Tribe participation. The specific document is: "Boveng, P.L. and M.F. Cameron, 2013, Pinniped movements and foraging: seasonal movements, habitat selection, foraging and haul-out behavior of adult bearded seals in the Chukchi Sea. Final Report, BOEM Report 2013-01150. Bureau of Ocean Energy Management, Alaska Outer Continental Shelf Region, Anchorage, Alaska, USA. 91 Pp +; Appendix. Nearshore where migration feeding and hunting occur. Timing in relation to local hunting activities. "

Response: The Geotechnical GP does not contain information on marine resources. The supporting ODCE is the document that contains information on bearded seal distribution. Per Response 6.2, DEC is not required to speculate in response to nonspecific comments. DEC is unsure of the specific information

the commenter is referring to so no changes will be made. Nonetheless, DEC will add this document to the administrative record as a result of this comment.

6.4 Comment Summary

CPAI commented that there are inconsistencies between the proposed DEC permit and the proposed EPA permit for geotechnical work and recommend that these inconsistencies be reconciled to avoid confusion among the operators who will be working under both permit requirements.

Response: Similar to Comment 6.2, the commenter did not provide specific information on what changes should be made or how the EPA and DEC permits differ in terms of requirements. (See also Response 5.14).

6.5 Comment Summary

NVK commented that physical disturbances associated with ships, aircraft, noise, and other disturbances associated with geotechnical activity have the potential to deflect marine mammals away from village hunting areas and completely prevent the harvesting of certain animals. We also support the position that DEC acknowledges the importance of assessing and clearly articulating the risk related to the discharges, because even the perception of contamination could produce adverse effects on subsistence hunters and their practices.

Response: As discussed previously, DEC has authority over wastewater discharges associated with activities but does not directly authorize the activitiy (e.g., geotechnical drilling). DEC evaluated impacts from discharges in the ODCE and sets limits and conditions to ensure compliance with WQS, which resulted in the determination that discharges will not result in unreasonable degradation to the marine environment. However, conflicts between the activity and subsistence hunting is beyond DEC's authority (See Responses 3.9, 3.11, and 4.15).

7 Comments on the Public Process

7.1 Comment Summary

AEWC requested that DEC extend the original public comment period (November 22, 2013 through January 27, 2014) an additional 30 days.

Response: AEWC requested that DEC extend the original public comment period (November 22, 2013 through January 27, 2014) an additional 30 days. DEC extended the public comment period to February 19, 2014 in response.

8 Comments on Limits and Monitoring Requirements

8.1 Comment Summary

NVK supports the decision to not authorize discharges to ice.

Response: Comment noted.

8.2 Comment Summary

Shell commented that the Draft Permit states a permittee must minimize the use of surfactants, dispersants, and detergents, whereas the ODCE (Section 3.3.1, page 25) states that the Draft Permit "prohibits the discharge of surfactants and dispersants…" DEC should rectify this inconsistency. Shell requests that the ODCE language stating that surfactants and dispersants are not allowed be revised. The ODCE should provide that minimized use of surfactant, dispersants, and detergents are allowed (e.g., use of ice melt for slippery surfaces or use of detergents to keep areas of the deck clean).

Response: DEC has modified the language in the ODCE to be consistent with the Geotechnical GP.

8.3 Comment Summary

Shell commented that there is no benefit to calling out these contaminants (diesel oil, nonaqueous drilling fluids, mineral oil, halogenated phenol compounds, trisodium nitrilotriacetic acid, sodium chromate, or sodium dichromate) in the Draft Permit (Section 2.1.8, page 14). A permittee will be required to comply with 18 AAC 70, which includes specific language addressing the discharge of petroleum hydrocarbons and toxic and deleterious substances. This list appears to have come directly from the Exploration GP, and is poorly suited to the Draft Permit.

Response: As discussed in Responses 4.4 and 5.2, industry did not seek to delist chemical additives during permit development coordination or the 10-day applicant review. Given there has been no delisting of typically oil and gas drill fluid additives, DEC considers these prohibitions prudent to establish limitations on drilling programs.

8.4 Comment Summary

Shell commented that installing oil-water separators (OWS) for processing deck drainage water would be a cost prohibitive vessel retrofit. Further, the likelihood of having deck drainage water contaminated with oil or grease is extremely low. This provision appears to come from the EPA's Exploration GPs for the Beaufort and Chukchi Seas in which EPA anticipates produced hydrocarbons to surface on the drill floor. Exploration drilling rigs have separate drain systems around the drill floor for this event, but geotechnical vessels do not, nor do they anticipate drilling into hydrocarbon zones. Additionally, a permittee's BMP will state how the deck materials will be managed to reduce the likelihood of contaminating the deck and what measures are in place to manage the material in the unlikely event it should occur.

Response: The intent of the requirement is to ensure free oil is not discharged in deck drainage. DEC disagrees that the risk of contaminated deck drainage is extremely low due to operator development and implementation of BMPs. Industrial equipment, like a geotechnical drill module, require fuel and lubricants to operate. Every fuel line and hydraulic hose connection is a potential source of deck contamination. To provide flexibility in meeting this requirement, DEC modifies Footnote 1, Table 3 in the Permit and the same Footnote to Table 8 in the Fact sheet to state "Contaminated deck drainage must be processed through an OWS, or other equivalent treatment, to remove free oil prior to discharge." In addition, this same modification made in Permit Section 2.1.

8.5 Comment Summary

AEWC recommends that Region 10 and DEC require peer reviewed monitoring of discharges and their impacts during the open water season and adaptive management in the event adverse impacts are

observed. With well-constructed, peer-reviewed monitoring and an adaptive management approach to review, it is possible that concerns related to allowing discharges at other times might be addressed.

Response: Permits issued under the CWA have an effective period of five years and do not require interim review and approval by third parties. DEC provides for public involvement during the development of the permit to ensure any concerns that are raised are considered based on applicable laws and regulations and the most recent information available at the time of permit issuance. During the next permit reissuance, DEC will consider the data collected and reported by permittees to re-evaluate permit limits and prohibitions and conduct another public involvement program at that time.

9 Comments on the Draft ODCE

9.1 Comment Summary

Shell recommends that DEC consider evaluating geotechnical activity levels in terms of linear feet of borehole drilled as opposed to the "per borehole" approach that is proposed in the Draft Permit. In an average season, most operators will be unable to drill more than an estimated 1,500 to 2,000 linear feet of boreholes in state waters. In order to conservatively estimate the total boreholes for any given year, DEC assumed that 50% of the boreholes in the CIR would be drilled in state waters. However, in the Fact Sheet DEC acknowledges that "such a split is unlikely, and as a result, [it] is likely overstating both the level of activity and possible effects." While Shell appreciates that it is prudent for DEC to be reasonably conservative in its activity level estimates, the 50% multiplier drastically overstates the boreholes that are currently planned for state waters during the permit cycle. Between limitations on available assets and the short working season, it is not currently foreseeable that 136 boreholes will be drilled in state waters during a single year during the permit cycle.

Response: DEC could only evaluate the information provided in the CIR, which included information from multiple stakeholders including Shell. The CIR did not include qualifiers or estimates of the level of potential activity within state waters versus federal waters, nor did it provide estimates of annual borehole depth. The range of potential borehole depths in the CIR varied greatly and further complicated DEC's ability to more accurately forecast both the level of activity and the total depth.

The Draft Fact Sheet in Table 4: Projected Five-Year Totals did in fact provide information on total annual and permit cycle borehole depth based on information provided in the CIR and DEC's conservative estimates. Table 4 projected a cumulative borehole depth of 1,550 to 12,475 feet for 31 boreholes (2014). For the period 2015 to 2018, total estimated borehole depth was estimated at 4,300 to 24,954 feet. The low range for 2014 is consistent with the information provided by Shell in their formal comment.

DEC remains uncertain on what level of activity is likely on an annual basis given we have received only a single application to date coupled with the knowledge that there are multiple lease holders in federal and state waters that may conduct a geotechnical program during the life of the permit. Given this uncertainty and the lack of specificity in the CIR, DEC maintains a conservative estimate is prudent.

9.2 **Comment Summary**

CPAI and Shell commented that the ten criteria evaluated by DEC in the ODCE to assess whether the Geotechnical GP may result in "unreasonable degradation of the marine environment" do not justify the inclusion of the EMP requirements, either individually or taken as a whole. Review of the individual ODCE criterion conclusions supports the removal of the EMP requirement from the Draft Permit.

The ODCE supports the conclusion that the toxicological (i.e., SPP), and chemical (e.g., Mercury and Cadmium) requirements associated with D001 are sufficient to ensure protection of the marine environment.

DEC received comments on the following Criterion that propose the elimination of the EMP requirements:

- AOGA and Shell commented that DEC concludes that while sediment concentrations of some constituents will be elevated within the immediate vicinity of the drill sites as a result of the discharges of drilling fluids and drill cuttings, they are unlikely to be persistent in the waterbody (DEC 2013, p. 90). Based on criterion 1 conclusions, it is not scientifically valid to require an EMP in addition to the discharge-specific effluent limitations and monitoring requirements in the Draft Permit.
- AOGA, CPAI, and Shell commented that DEC concludes that "the discharges from geotechnical investigation activities are short term and intermittent, and the majority of dissolved trace metals are expected to adsorb to fine sediment particles, and settle on the seafloor in the immediate vicinity point of discharge" (DEC 2013, p. 96). Based on criterion 2 conclusions, it is not scientifically valid to require an EMP in addition to the discharge-specific effluent limitations and monitoring requirements in the Draft Geotechnical GP.
- AOGA, CPAI, and Shell commented that Criterion 3 evaluates the vulnerability of biological communities as a result of the proposed activities. The ODCE found that permitted discharges from geotechnical investigations will not cause unreasonable degradation of the marine environment as a result of impacts to threatened or endangered species or their habitats. The Criterion 3 evaluation does not justify inclusion of the EMP in the Draft Geotechnical GP.
- AOGA and Shell commented that Criterion 4 evaluates the importance of the receiving water to the surrounding biological community. The Area Restrictions and Seasonal (Unstable or Broken Ice) Restrictions are more than sufficient to limit and/or prohibit any adverse effects to spawning sites, shallow nursery areas, migratory pathways, or other areas necessary for critical life stages. The EMP is neither necessary, nor justified based on ODCE conclusions for Criterion 4.
- AOGA and Shell commented that Criterion 5 evaluates the existence of special aquatic sites. The summary in the ODCE indicates that there is no criterion 5 justification for the EMP requirements.
- AOGA, CPAI, and Shell commented that Criterion 6 evaluates the likelihood of potential impacts on human health as a result of the proposed geotechnical activities. The EMP is not necessary because the ODCE concludes that the discharges are not bioaccumulative or persistent (See criterion 1). Furthermore, the discharges are limited in potential for transport (See criterion 2). Moreover, the effluent limitations and monitoring requirements for the discharges are sufficient to identify what potential chemicals (included on the OSPAR potential for little to no risk to the

environment - PLONOR list) may be entering the environment as a result of the activities and at concentrations in line with the permit toxicity requirements.

- AOGA and Shell commented that Criterion 7 evaluates the likelihood for adverse impact on existing or potential recreational and commercial fishing as a result of the proposed geotechnical activities. There is no justification for the EMP requirements backed by criterion 7 evaluation because the questions the EMP is attempting to answer are already decisively answered by the information provided in the ODCE, as well as by the effluent limitations and monitoring requirements in the Draft Geotechnical GP.
- AOGA, CPAI, and Shell commented that Criterion 9 evaluates additional other factors relating to potential effects of discharge. There is no justification for the EMP requirements based on criterion 9 because the questions the EMP is attempting to answer are already decisively answered by the information provided in the ODCE. The effluent limitations and monitoring requirements are sufficient to evaluate any unanticipated potential for adverse effects. Indeed, the potential for adverse effects is what the Effluent Limitation Guidelines (ELG) values were derived from initially.
- AOGA and Shell commented that Criterion 10 evaluated the potential effect of the geotechnical activities relative to Marine Water Quality Criteria pursuant to CWA Section 304(a)(1). The DEC noted that "[i]n accordance with the requirements of the CWA, DEC has identified no marine waters within the Area of Coverage that are water quality limited because of pollutants associated with discharges authorized under the GP. Based on that conclusion, there is no justification for the EMP requirements, and effluent limitations and monitoring requirements are sufficient to evaluate any unanticipated potential for adverse effects.

Response: The EMP requirements are not tied explicitly to the ODCE. Per Fact Sheet Section 7.2.6, the EMP is an important component of the Permit that will assist in gaining a better understanding of conditions and impacts associated with geotechnical discharges in nearshore environment and this understanding will help inform future permitting decisions. Hence the finding of no unreasonable degradation of the marine environment does not negate the requirement to collect information under the authority of CWA Section 308. However, clarifications on use of existing available baseline information and the elimination of baseline oceanographic data collection has been made consistent with earlier comments (See Responses 5.3, 5.9, and 5.16). DEC will retain the EMP requirements with certain modifications based on comments received.

9.1 Comment Summary

AEWC commented that the draft permits and ODCE are inadequate to support a conclusion that the proposed discharges, if allowed in the SLS, will not result in an unreasonable degradation of the marine environment. We request that Region 10 and DEC prohibit discharges in the SLS until the completion of spring bowhead whale hunting. Discharges to the SLS could result in biologically significant impacts to bowhead whales and an unreasonable degradation of the marine environment. We do not believe that EPA or DEC can authorize such discharges while fulfilling the legal mandate to ensure no unreasonable degradation.

Response: Unreasonable degradation of the marine environment is defined as: (1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities, (2) Threat to human health through direct exposure to

pollutants or through consumption of exposed aquatic organisms, or (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge. Per 40 CFR 125.122(b), discharges in compliance with WQS are presumed not to cause unreasonable degradation of the marine environment. The WQS establishes marine water quality criteria and other requirements that if met will be protective of the beneficial uses of the waterbody as a whole, including the growth and propogation of fish, shellfish, and other aquatic life (i.e., beluga whale). The Department determined that the discharges authorized by the Permit comply with WQS and, as a result, will not result in unreasonable degradation of the marine environment.

In the Draft ODCE and Geotechncial GP, DEC identified the SLS as a Tier II Sensitive Area with a sensitivity timing window ending June 10. Although DEC acknowledges the importance of the SLS for spring bowhead whaling, the specific geographic location of the SLS varies seasonally but generally does not occur within the Area of Coverage for the Geotechnical GP. DEC understands that applicants proposing to conduct geotechnical surveys within the SLS would be required to obtain approval from other agencies having direct authority over the activity (See Responses 3.11 and 4.14). In addition, DEC understands AEWC and industry often enter into CAAs, a negotiated agreement between willing parties, prior to undertaking any activity that could adversely affect subsistence gathering activities or resources. DEC has not changed the Permit to include this prohibition.

10 General Comments

10.1 Comment Summary

NSB commented that ice seals reside in the Beaufort and Chukchi Seas year round and may be exposed to the accumulation of pollutants.

Response: The ODCE evaluated the accumulation of pollutants and DEC has determined that accumulation of pollutants is not likely to occur if the limits and conditions of the permit are met.

The Draft ODCE included information on Ringed Seals, Spotted Seals, and Bearded Seals. Information from NOAA Fisheries will be added to Section 5.6 of the final ODCE on Ribbon Seals. See http://alaskafisheries.noaa.gov/protectedresources/seals/ice.htm

10.2 Comment Summary

AEWC recognizes that all open water operations are subject to numerous restrictions through BOEM's permits and NMFS's small take authorization as well as mitigation measures adopted through the CAA process.

Response: Comment noted.

10.3 Comment Summary

AEWC commented that their Beaufort Sea fall whaling villages are opposed to nearshore discharges.

Response: Although this comment was directed to EPA, the commenter submitted comments concurrently to both DEC and EPA under the same letter. Given the degree of coordination with EPA, DEC has evaluated this comment and has determined that it warrants a response from DEC.

The Geotechnical GP contains effluent limitations and other special conditions that help ensure discharges and will meet applicable water quality criteria, protect all the designated uses of state waters (18 AAC 70.020 (2)), and will not cause unreasonable degradation to marine waters 40 CFR 125.123 if the permit limits and conditions are met (See Response 4.15). No change has be made in the final permit based on this comment.

10.4 Comment Summary

AEWC commented that under the MMPA, Congress implemented a moratorium on the taking of marine mammals but exempted from that moratorium the taking of marine mammals by Alaska Natives for subsistence purposes. Takes of marine mammals incidental to industrial operations such as those covered by Region 10's draft permit may be authorized by NMFS only if NMFS finds that the requested takes: 1) "will have a negligible impact on such species or stock;" and 2)"will not have an unmitigatable adverse impact on the availability of such species or stock for taking for subsistence uses .. " Congress therefore has given a priority status to subsistence takes of marine mammals over all other uses, implementing a dominant use regime.

Response: No permit-specific comment was provided.

10.5 Comment Summary

AEWC commented that western science is confirming the lessons of our traditional knowledge. A recent study provided strong evidence that bowhead whales have olfactory capabilities that likely enable them to detect odors. The authors of that study believe that this sense of smell could help bowheads to track down prey in the water column, to avoid predators, or to find potential mates. There can be little question at this point that industrial discharges associated with geotechnical operations, therefore, have the potential to cause the deflection of bowhead whales from their migratory paths, which can interfere with our subsistence activities and can result in biologically significant impacts to the whales themselves.

Response: No permit-specific comment was provided.

10.6 Comment Summary

The communities of AEWC 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. Even coffee grounds and cooking waste are stored and returned to the towns for disposal rather than being dumped into the water during spring and fall whaling. Human waste is never put into the water during migratory and hunting times, for the same reasons. 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.

Response: No permit-specific comment was provided.

10.7 Comment Summary

The Fact Sheet should explain how geotechnical drilling is performed on bottom fast ice and what types of equipment are used.

Response: Based upon discussions with Shell and other entities, DEC understands that companies recover all their waste, containerize it and haul it to an approved upland disposal site. The ODCE (Section

2.5) states that drilling fluids and drill cuttings could be discharged at the seafloor in waters deeper than 5 meters in depth. Permit Section 1.4.11 prohibits all discharges to stable ice (See Response 3.6). Therefore, the following discussion does not result in modification to the Permit. However, DEC has revised Fact Sheet Section 2.8 to clarify information on conventional rotary drilling in bottom fast ice as a result of this comment.

10.8 Comment Summary

BPXA requests that trenching on bottom fast ice within State of Alaska waters should not require a geotechnical permit (Section 1.1.2.6, APDES Draft Permit) because BP geotechnical trenching on bottom fast ice comprises of the following steps. 1. Slotting the ice, by cutting and removing the required width needed using a Ditch-Witch and an amphibious excavator. 2. The trench is dug by the amphibious excavator which straddles the trench. 3. After the trench is completed it is backfilled by using front end loaders and excavators.

Response: This activity would not result in any discharge requiring permit coverage since there are no waste streams resulting from trenching that require an authorization under the Draft Permit. The trench techniques described would result in a fill activity regulated under CWA Section 404 rather than a CWA Section 402 discharge. Hence the NWP 6 issued by the Army Corp of Engineers may apply (See Response 3.3).

10.9 Comment Summary

Highly variable borehole spacing is a concern because of potential cumulative effects with decreased spacing. NSB would like more info on how monitoring will take place to better assess the monitoring program.

Response: The ODEC evaluated the effects of the authorized discharges as well as the effects on the benthos using published literature. Based upon this information DEC concluded that geotechnical discharges will not cause unreasonable degradation in the marine environment. Regardless of spacing, discharges are short-term in duration and the effluent limits in the Draft Permit are protective of the designated uses of the receiving waters. The EMP requires baseline, during drilling, and post drilling monitoring when drilling fluids are used (See Permit Section 3.3 and 3.4). This requirement may allow for an evaluation on the cumulative effects of variable borehole spacing. Permit Section 1.6.5.2 limits borehole clusters to be no closer than 16 feet apart. No change has be made in the final permit based on this comment.

10.10 Comment Summary

AOGA commented that DEC must revise the Draft Permit to ensure that its requirements are substantiated by science, within the purview of the State of Alaska to regulate under the CWA, and of a demonstrable benefit to the marine environment.

Response: The comment was not specific enough for the Department to provide a response concerning what revisions would be necessary to ensure Permit requirements are substantiated by science, compliant with regulations and statutes, and demonstrable to the marine environment. DEC is not required to speculate in response to nonspecific comments.

10.11 Comment Summary

NSB commented that mitigation measures and the BMP plan should have stringent regulations and requirements using the best available science and technology.

Response: Comment noted.

10.12 Comment Summary

NSB is concerned that activities may be conducted through land fast ice because ice conditions are unpredictable and risky.

Response: Comment noted.

10.13 Comment Summary

NSB commented that Shell's application shouldn't be the only source for discharge volume estimates in safe discharges limits.

Response: Shell was the entity that submitted an individual permit application that triggered the development of the Geotechnical GP. DEC solicited additional input from other entities with the CIR. DEC used these volumes conservatively in developing permit conditions (See Response 9.1).

11 Comments Received By Applicant During Five-Day Review

During the five-day applicant review, Shell and AOGA provided comments that reiterated their concerns and comments submitted during the Draft Permit public notice that did not result in DEC making changes to the Final Geotechnical GP. There were also new comments presented not associated with comments received during the public notice period that did not result in revisions to the Permit. However, Shell and AOGA provided comments on multiple topics that were in character with the Draft Geotechnical GP and comments received during the Draft Permit public notice period that resulted in modifications to the Final Geotechnical GP. Per the APDES Program Description, DEC only responds to comments received from the applicant (and EPA) submitted during the five-day applicant review. Furthermore, DEC is only obligated to formally respond to applicant comments submitted during the five-day review that result in a change to the Permit. However, in DEC's discretion other comments that did not result in changes to the Permit are responded to in order to provide additional explanation and clarification. The comments that resulted in modifications to the Final Geotechnical GP are addressed below.

11.1 General Summary of Comments Not Resulting in Revisions

Shell's comments generally discussed the following three main areas: the EMP, ETC, and NOI coordinate locations. The issues raised for coordinate locations included accuracy requirements, setbacks to sensitive habitats, borehole relocation in the field, and confidentiality. Of these concerns, DEC has modified Permit language associated with borehole relocation and confidentiality. Shell requested complete removal of EMP and ETC requirements stating inequity between environmental impacts associated with geotechnical drilling and permit conditions. The justifications presented for removing these permit conditions relied on understated potential environmental impacts from discharges coupled with unintended interpretations of permit conditions. The Department has determined that the responses provided in previous sections adequately address how the permit conditions were derived from information provided by multiple applicants and were based on resulting potential environmental impacts. However, DEC is providing

additional commentary on certain permit conditions to clarify unintended interpretations and is making revisions based on points of logistics and practicality raised by Shell. In addition, Shell indicated instances where DEC did not fully respond to certain comments submitted during the public notice of the Draft Permit. DEC provides additional explanation for some of these instances.

11.2 Comments Resulting in Revisions

EMP Comments: Shell commented that if the EMP is not removed in the Final Permit, it should at least be modified to allow for the following four items:

1. the use of existing information in lieu of Phase I baseline sampling,
2. modeling temperature for the discharge of non-contact cooling water rather than water column sampling,
3. turbidity observations rather than water column sampling, and
4. inclusion of modeling in lieu of a seafloor survey to align with EPA's Geotechnical GP.

Response to Removal of EMP Requirements: DEC has determined that the EMP requirements will not be removed consistent with earlier comments. However, DEC has considered some of the requested modifications by Shell and revised Permit and Fact Sheet Sections as described in the following responses to the four items.

Response to EMP Item 1: The Geotechnical GP already allows for the use of existing representative, site specific data in lieu of baseline sampling per Permit Section 3.3.4.1.1. Fact Sheet Section 7.2.6, EMP Study Plan has been revised to add clarity and to align better with the intent of the permit language. Underlined and bold content in the following identifies the revisions in Fact Sheet Section 7.2.6:

> "The permittee may propose in the **initial** EMP Study Plan **or** in subsequent years of operation the use and consideration of **existing data or** data from a completed EMP from the previous season of operation. The permittee may propose modifying the monitoring requirements if **existing data or** the results from a previous season demonstrate the data from a previous year(s) satisfies the goals and objectives of the EMP."

Underlined and bold content in the following identifies the revisions in Permit Section 3.3.2.3, first bullet:

- identification of the relevant **existing data or** data from an EMP fully completed by the permittee under this general permit for a previous year of operation that was subject to the terms and conditions of Section 3.4. of this general permit;

Underlined and bold content in the following identifies the revisions in Permit Section 3.3.3.2, first bullet:

- **in addition to conducting** a baseline survey, **either provide satisfactory existing data or** conduct sediment sampling of all borehole locations to ensure biologically sensitive or unique sites are identified and protected and form a basis of comparison for post drilling conditions;

Underlined and bold content in the following identifies the revisions in Permit Section 3.3.4.1:

> The purpose of the Phase I Baseline Characterization is to complete an initial site assessment, including seafloor survey and sediment sampling, to document existing conditions and ensure the

> geotechnical facility is not located in a sensitive biological area or unique habitat. Phase I Baseline Characterization must be completed prior to conducting geotechnical surveying. **The applicant may present satisfactory existing sediment data in lieu of conducting pre-drilling sediment sampling.**

Underlined and bold content in the following identifies the revisions in Permit Section 3.3.4.1.1:

> Phase I Sediment Sampling– At all borehole locations, **satisfactory existing sediment data must be presented or** a sediment sample must be collected and analyzed for metals shown in Table A and other parameters the permittee propose in the EMP Study Plan. Analyses for each metal must use appropriate methods specified in 40 CFR 136 and be reported as mg/kg. Sediment data will be used to compare to Phase III sediment data and to develop a dataset that potentially results in generation of predictive tools for use in subsequent years of operation. The permittee may submit existing data, if representative of the site location, with the EMP Study Plan. DEC will review the data and, at DEC's discretion, determine whether the data meet the Phase I requirements (See Section 3.3.2.3).

Response to EMP Items 2 and 3: DEC has removed the requirement for instream temperature monitoring and clarified temperature data collection for Discharge 009 – Noncontact Cooling Water and clarified that observations of turbidity satisfy the Phase II EMP objectives.

Underlined and bold content in the following identifies the revisions in Permit Section 3.3.4.2:

> The purpose of during drilling monitoring is to collect information on plume characteristics for the discharge of water-based drilling fluids and drill cuttings (Discharge 001) and non-contact cooling water (Discharge 009). The permittee must monitor turbidity **by implementing observations or field measurements** in the plume from Discharge 001. **The permittee must monitor temperature in the effluent from Discharge 009 (See Table 6, Note 2) for use in modeling dispersion for temperature. In addition, the permittee must collect surface wind speed and direction, current speed and direction, water temperature, salinity, and depth for use in modeling dispersion for temperature and drilling fluids and drill cuttings.**

The following sentence replaces the second to last sentence under objectives in Fact Sheet Section 7.2.6:

> **Similarly, field measurements, or observations, of turbidity and collection of oceanographic data will be required at selected sites to verify existing assumptions and inform future dispersion estimates for drilling fluids and drill cuttings and temperature in non-contact cooling water.**

Response to EMP Item 4: The requirement to conduct a seafloor survey to map the aerial extent and depth of discharged drilling fluids and drill cuttings is in both the EPA and State Geotechnical Permits. Per Fact Sheet 7.2.6, the minimum requirement for seafloor sediment evaluation is to document pre-drilling and post-drilling conditions via seafloor survey. The EPA and State Geotechnical Permits are aligned on this requirement. DEC may also require collecting a sediment sample for metals analysis if the drilling fluids contain metals (e.g., barite). DEC does not consider collecting a pre-drilling and post drilling sediment sample from a geotechnical facility before leaving the site to be a logistical challenge given the purpose of the geotechnical facility is to collect sediment samples. The use of science vessel for

this monitoring requirement would be at the discretion of the permittee as DEC does not describe means and methods under the EMP.

ETC Comments: Shell commented that the ETC requirements should be removed from the Final Permit. Alternative, Shell suggests that the testing should be allowed to be conducted preseason while the geotechnical facility is in a port where the logistics of shipping to a laboratory is more feasible within the 36-hour hold time for samples.

Response to ETC Comment: DEC requires ETC while the geotechnical facility is actively engaged in performing the geotechnical program. This requirement is largely due to deck drainage where the use of drilling fluids or other chemicals could impart chronic toxicity. Other waste streams will require ETC only when chemicals are added. DEC has modified the Final Permit and Fact Sheet to modify and clarify this requirement. Fact Sheet Table 11, Note 3, last sentence has been modified to read:

> "**At a minimum, one ETC per season must be performed for all miscellaneous discharges 005, and 007 through 011 if chemical additives were used regardless of the discharge rate**."

In addition, Fact Sheet Section 7.6.3, third paragraph, last sentence has been modified to read:

> "**At a minimum, one ETC sample is required per season for miscellaneous discharges 005, and 007 through 011 if chemical additives were used regardless of the discharge rate**."

Note that the requirement for ETC for Discharge 002 – Deck Drainage is unchanged and an ETC must be conducted once per season while the geotechnical facility is actively performing the geotechnical program. In order to accommodate challenging logistics, Permit Section 2.7.8 is updated to read;

> "**ETC samples holding times are established at 36 hours and samples must not exceed a hold time of 72 hours. The permittee must document the conditions that resulted in the need for the holding time to exceed 36 hours and the potential effect on the test results.**"

A similar paragraph is added to the end of Fact Sheet Section 7.6.3 that reads:

> "**Meeting ETC hold time requirements may be difficult due to remote logistics in the Beaufort and Chukchi Seas. ETC samples holding times are established at 36 hours and samples must not exceed a hold time of 72 hours. The permittee must document the conditions that resulted in the need for the holding time to exceed 36 hours and the potential effect on the test results.**"

NOI Comments Pertaining to Borehole Locations: Shell commented that operators need to have flexibility to adjust borehole locations, within reason. In addition, Shell disagrees with DEC's position that information contained in the NOI is not confidential business information (CBI) under 18 AAC 83.165.

Response to Borehole Adjustment Comment: Permit Section 1.1.1.5.1 states "DEC acknowledges that the coordinates provided are estimates and actual coordinates may not be known until the facility arrives at the proposed location." Furthermore, Permit Section 1.2.8 states "If the permittee intends to move 3,280 feet (1,000 meters) or more from an approved discharge location, the permittee will be required to notify the Department in writing within seven (7) days of proposed location changes and provide an updated latitude and longitude of the new location of each proposed borehole and information required in 1.2.6. The permittee must fulfill EMP requirements and demonstrate that new borehole locations meet the

permit requirements and conditions of the permit in the annual report(s)." Section 8 of the NOI has been revised to include a clarifying sentence at the end of the instruction box that states:

"**Field adjustments for borehole locations can be made per Permit Section 1.2.8**."

Response to Borehole Location Confidentiality: Although 18 AAC 165(b) appears to be clear that information required in a permit application is not considered CBI, 18 AAC 165(a) indicates that an applicant can submit a claim of confidentiality by stamping the words "confidential business information" on each page of a submission the applicant considers proprietary or confidential. If the information satisfies the test in 40 CFR 2.208 and is not otherwise required to be made public by state law, the Department will treat the information as CBI. Upon receiving a submittal identified by the applicant to CBI, the Department will evaluate the CBI determination potentially with the Department of Law.