FACT SHEET

PUBLIC COMMENT ISSUANCE DATE: AUGUST 18, 2017

PUBLIC COMMENT EXPIRATION DATE: NOVEMBER 16, 2017

TECHNICAL CONTACT:

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

HILCORP ALASKA, LLC
LIBERTY DRILLING AND PRODUCTION ISLAND
NPDES PERMIT NO. AK-005308-5

EPA PROPOSES NPDES PERMIT ISSUANCE

EPA proposes to issue a NPDES permit to the facility referenced above. The permit places conditions on the discharge of pollutants from the Hilcorp Alaska, LLC – Liberty Drilling and Production Island to Stefansson Sound in the Beaufort Sea at a location approximately 4.78 nautical miles (8.85 kilometers) offshore in federal waters of the outer continental shelf. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged and places other conditions on the facility.

This Fact Sheet includes:

- information on public comment, public hearings and appeal procedures
- a description of the facility and proposed discharge
- a listing of proposed effluent limitations, and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the draft permit

PUBLIC COMMENT

EPA will consider all substantive comments on the draft NPDES Permit, Fact Sheet, and Ocean Discharge Criteria Evaluation (ODCE) before issuing the final NPDES permit. Persons wishing to comment on, or request a public hearing for, the proposed permit action may do so in writing by the expiration date of the public notice period. A request for a public hearing must state the nature of the issues to be raised as well as the requester's name, address, and telephone number. All comments should include name, address, phone number, a concise statement of basis of comment and relevant facts upon which it is based. All written comments should be addressed to:

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After the public notice period has ended and the public comments have been considered, EPA Region 10's Director of the Office of Water and Watersheds will make a final decision regarding permit issuance. If no substantive comments are received, the conditions in the proposed permit will become final and the permit will become effective upon issuance. If substantive comments are received, EPA will respond to the comments and the permit will become effective 30 days after its issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days.

401 CERTIFICATION FOR FACILITIES THAT DISCHARGE TO STATE WATERS

The above referenced facility is located within federal waters of the Beaufort Sea. As the permit does not authorize discharges to Alaska State waters, it is not subject to CWA Section 401 certification.

DOCUMENTS ARE AVAILABLE FOR REVIEW

Pursuant to 40 CFR § 124.9, the Administrative Record for this draft NPDES permit, which consists of the Draft Permit, Fact Sheet, ODCE and the documents referenced in this Fact Sheet, is available upon request by contacting Erin Seyfried at (206) 553-1448 or seyfried.erin@epa.gov.

The Draft NPDES Permit, Fact Sheet and Draft ODCE can be reviewed or obtained by contacting the EPA's Regional Office in Seattle or the Anchorage Operations Office in Alaska between 8:30 a.m. and 4:00 p.m., Monday through Friday (see address below). The draft documents and other information can also be found by visiting the Region 10 website at "www.epa.gov/R10earth/waterpermits.htm".

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I. APPLICANT

This Fact Sheet provides background information on the draft NPDES permit for the Hilcorp Alaska, LLC - Liberty Drilling and Production Island (LDPI). When issued, the permit will provide Clean Water Act (CWA) authorization to discharge wastewater to Stefansson Sound in the Beaufort Sea from the LDPI.

APPLICANT:

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II. BACKGROUND INFORMATION

A. FACILITY OVERVIEW

Hilcorp Alaska, LLC (Hilcorp) is the operator of the proposed LDPI (also referred to as "the facility"), which will be located in Foggy Island Bay of Stefansson Sound in the Alaskan Beaufort Sea, approximately 4.78 nautical miles (8.85 kilometers) offshore, north of the Kadleroshilik River. Hilcorp plans to construct LDPI, an artificial gravel island, to recover reserves from three federal leases (OCS-Y1650, OCS-Y1585, and OCS-&1886) in Foggy Island Bay in the Beaufort Sea. These leases were attained under Lease Sales 124 (in 1991), 144 (in 1996) and 202 (in 2007). The Liberty Unit (for which Hilcorp is the designated operator) was formed in 2003 to include OCS-Y1650 and OCS-Y1585. The LDPI will be built in approximately 19 feet of water, the elevation of the top of the island will be +15 feet above mean lower low water (MLLW) level. The facility will support field development drilling and hydrocarbon production, using a sub-seabed pipeline to transport sales-quality oil onshore to connect with existing infrastructure. The proposed LDPI location is show in Figures A-1 and A-2 (Appendix A of this Fact Sheet). A detailed project description is provided in the Environmental Impact Statement (EIS) for LDPI (BOEM, 2017).

Hilcorp will begin island construction during the winter seasons of the first two years

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of the project. Additional island construction work, including grading of the proposed LDPI, sheet pile installation, and island armament installation, will take place in the summer of the first two years. The work surface of the island will be approximately 9.3 acres (3.76 *ha*); the seabed footprint will be approximately 24 acres (9.71 *ha*). Construction of the proposed LDPI will require up to 833,000 cubic yards (*cy*) of gravel. The LDPI slopes will be protected from erosion due to winds and waves by a combination of interlocking concrete and sheet piles, and potentially gravel bags or large boulders as a secondary measure. The design life of the LDPI and associated infrastructure is approximately 25 years.

Once constructed, the LDPI layout will include areas for drilling, production, production support, utilities, a camp, camp utility area, and a relief well area. Permanent structures on the island will be supported by driven steel piles and/or slab on grade foundations. Rig mats (portable platform used to support equipment used in construction and other resource-based activities, including drilling rigs, camps, tanks, and helipad) may be used in some areas (e.g., storage containers). Additionally, the LDPI will have a helicopter landing pad and two docks to accommodate barges, hovercraft, and small boats. It will also have ramps for amphibious watercraft access. Ocean ice road transitions will occur around the LDPI bench perimeter.

Power for the camp and utilities during LDPI construction will be generated by two diesel-fired generators rated for a maximum power output of 1.25 megawatts (MW) each. Chemicals stored on the LDPI will include diesel fuel, methanol, and other chemicals to support drilling and production. Power for the camp and the LDPI production facilities will be generated by fuel gas-fired turbines once the third Liberty well has been completed. The diesel-fired engines that are located on the LDPI during construction will remain on the LDPI to provide power to the facilities in the event of a power disruption from the fuel gas-fired turbines. The LDPI production facilities will include three gas-fired compressors.

Hilcorp has requested authorization to discharge sanitary and domestic wastewater (Outfall 001A), potable water treatment reject wastes (Outfall 001B), seawater treatment plant wastewater (Outfall 002), construction dewatering wastewater (Outfall 003), and secondary containment dewatering wastewater (Outfall 004) from the facility to Stefansson Sound in the Beaufort Sea. All drilling fluids and drill cuttings associated with construction of the production wells will be disposed of through injection in a permitted disposal well; no surface water discharges of produced water, drilling fluids and drill cuttings are planned under normal operations and therefore will not be authorized under the proposed NPDES permit. This will be the first NPDES permit for the facility.

B. PROCESS DESCRIPTION

With the exception of the ongoing discharges from the seawater treatment plant during the production phase of the project, all other discharges authorized by EPA are contingency discharges. For purposes of this NPDES permit, EPA considers a contingency discharge as an authorized discharge to navigable waters that occurs prior to construction of the waste disposal well, and/or when the well is offline or otherwise not available for injection during maintenance and/or testing activities. The contingency discharges authorized in this permit are: sanitary and domestic wastewater (Outfall 001a); potable water treatment reject wastewater (Outfall 001b); construction dewatering wastewater (Outfall 003); and secondary containment dewatering wastewater (Outfall 004).

1. SANITARY AND DOMESTIC WASTEWATER (OUTFALL 001A; CONTINGENCY DISCHARGE)

Sanitary wastes from offshore oil and gas facilities are comprised of the human body waste discharged from toilets and urinals. Domestic waste, or graywater, originates from sinks, showers, laundries, safety showers, eye-wash stations, hand-wash stations, food preparation areas, galleys, and other domestic sources that do not include wastes from toilets, urinals, hospitals, and cargo spaces.

Hilcorp intends to use a membrane bioreactor (MBR) with ultraviolet (UV) disinfection to treat the sanitary and domestic wastewater at LDPI (Hilcorp, 2016a and 2016b). The MBR treatment process consists of screening, a suspended growth biological reactor (similar to conventional activated sludge systems), membrane filtration to separate and confine solid particles, and disinfection (US EPA, 2007). MBRs have demonstrated high removal efficiencies for contaminants such as nitrogen, phosphorus, bacteria (e.g. fecal coliform), biological oxygen demand, and total suspended solids. Hilcorp has estimated an average daily flow of approximately 5,000 gallons per day (*gpd*) and a maximum daily flow of approximately 20,000 *gpd*.

Hilcorp's NPDES permit application (Hilcorp, 2016a and 2016b) states that this will be a contingency discharge. During the first two years of construction, prior to a disposal well being drilled, sanitary and domestic wastewater will be hauled offsite to an onshore disposal facility. Once the disposal well is available at the LDPI, Hilcorp intends discharge the sanitary and domestic wastewater through injection into the disposal well. Hilcorp has requested this contingency discharge for those times when the disposal well is not operational due to maintenance or other issues.

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2. POTABLE WATER TREATMENT REJECT WASTES (OUTFALL 001B; CONTINGENCY DISCHARGE)

Potable water reject waste is the residual high-concentration brine produced during the distillation of seawater. It has a chemical composition and ratio of major ions similar to the influent seawater, but with significantly higher concentrations.

Hilcorp intends to use vapor-compression/distillation technology to produce potable water at the LDPI (Hilcorp, 2016a and 2016b). Seawater is boiled inside a bank of enhanced surface tubes located on one side of the heat transfer surface. Maintenance chemicals will be added during the desalination process, including the use of acid or descaler to remove mineral buildup in the facility. The NPDES permit includes provisions to limit the concentrations of chemical additives used at the facility and requires toxicity testing of the discharge when chemicals are used. The excess feed water that does not evaporate (blowdown) contains concentrated dissolved solids and salts (brine) which are nearly twice the concentration of ambient seawater. A continuous injection of maintenance chemicals will be added during the process. Periodic injection of an acid and/or descaler will be used to remove mineral buildup in the system. Hilcorp has indicated an average daily flow of approximately 5,000 *gpd* and a maximum daily flow of approximately 20,000 *gpd.*

Hilcorp's NPDES permit application (Hilcorp, 2016b) states that the potable water reject waste discharge will be a contingency discharge. During the first two years of project construction, prior to Liberty facility installation, potable water will be hauled to the project location from an existing onshore source. Once the disposal well is available at the LDPI, Hilcorp anticipates comingling the sanitary and domestic wastewater effluent with the potable water treatment plant effluent, and discharging both waste streams into the disposal well. Hilcorp has requested this contingency discharge for those times when the disposal well is not operational due to maintenance or other issues.

3. SEAWATER TREATMENT PLANT (STP) WASTEWATER (OUTFALL 002)

The overall purpose of the seawater treatment plant (STP) is to provide treated seawater for injection into the petroleum reservoir to maintain formation pressures and allow secondary oil recovery from production wells. Treated seawater will also be used to create potable water and utility water used at the proposed LDPI. The STP unit operations consist of a desander, coarse strainer, fine media filters, and a continuous seawater dump that allows seawater to pass through or be shunted for use in backwashing operations. The operation of the STP results in one continuous discharge through Outfall 002, which consists of the residual high-concentration brine and filter backwash produced during the

treatment processes at the seawater treatment plant and a small volume of seawater to transport the solids to the disposal point. It has a chemical composition and ratio of major ions similar to seawater, but with significantly higher concentrations.

The proposed system has been designed to minimize the discharge of residual chemicals. There will be an amount (yet to be determined) of sodium hypochlorite discharged directly to the receiving water during backwash of the coarse and fine filters and some residual coagulant chemicals that may be used during periods of high suspended sediment load that occur during spring break-up and during summer storm events. The use of dechlorination is being considered to reduce the amount of total residual chlorine being discharged to the marine environment. Other chemicals used during the treatment process such as biocides, oxygen scavengers, scale/corrosion inhibitors, etc. will be utilized downstream of the filter backwash processes and, therefore, will not be introduced to the marine discharge, but will be injected as part of the enhanced oil recovery (EOR) process.

Hilcorp has indicated that the daily maximum discharge from the STP is expected to be 1.1 *MGD* with an average daily discharge rate of 0.94 *MGD*.

The unit operations have been designed to minimize the frequency of backwashing/flushing, however, the ultimate frequency for backwash is a function of the solids loading in the feed to the system. If there is a high solids loading due to sand being sucked into the pump pit (e.g., storm conditions) or there is a high concentration of organic material (e.g., algal bloom) the backwash frequency may increase and the discharge rate and concentration of TSS may also increase.

The Liberty STP facility installation will not begin until late in second year or early in the third year of the project construction. No discharge of seawater treatment plant effluent will occur until that time. Once operational, the STP will be an ongoing discharge that occurs during the life of the project.

4. CONSTRUCTION DEWATERING WASTEWATER (OUTFALL 003; CONTINGENCY DISCHARGE)

Construction dewatering is the removal of water from excavated areas where precipitation or snowmelt water accumulates and hinders the construction activity. Construction dewatering is primarily related to trenching activities while installing or repairing utilities and pipelines, but may also be related to other activities such as foundation or vertical support member installations. The most common methods for dewatering include submersible pumps, wells, well points, and vacuum trucks for small volumes.

While no flow volume has been specified for construction dewatering activities located at LDPI, Hilcorp has indicated construction dewatering discharges will be minimal due to the majority of the project construction occurring during the winter (Hilcorp, 2016a and 2016b). Construction dewatering may be required on the island if construction activities such as facility installation are occurring during the spring thaw, approximately May to June. When the disposal well is completed, in approximately Year 3 of project development, construction dewatering effluent will be injected. Therefore, discharges from construction dewatering activities are expected to occur intermittently during Years 1 – 3, at which point the waste stream will be injected into the disposal well.

5. SECONDARY CONTAINMENT DEWATERING WASTEWATER (OUTFALL 004; CONTINGENCY DISCHARGE)

Secondary containment areas are diked or bermed areas around hydrocarbon tanks, tank farms, fuel transfer stations, tanker truck loading racks, and for the storage of non-petroleum chemicals, which provide an emergency storage area and help to prevent accidental spills from reaching the environment or nearby receiving waters. These areas are susceptible to rain or snowmelt accumulation.

Hilcorp has requested authorization to discharge storm water (rainfall & snowmelt) accumulated in areas of secondary containment (i.e., diked or bermed areas) surrounding tanks, tank farms, and other areas utilizing secondary containment structures. No flow volume has been specified, but Hilcorp has indicated that, as with construction dewatering, secondary containment dewatering will be required primarily during the spring thaw, approximately May to June (Hilcorp, 2016a and 2016b). Discharge of secondary containment dewatering may occur during the first two years of construction. Once the disposal well is completed, in approximately Year 3 of project construction, secondary containment dewatering generated on the island will be injected. Therefore, discharges from secondary containment dewatering activities are expected to occur intermittently during Years 1 – 3, at which point the waste stream will be injected into the disposal well.

C. COMPLIANCE HISTORY

This is the first NPDES permit for the facility, therefore, historical effluent monitoring data are not available for review. Hilcorp submitted a complete NPDES permit application to EPA on July 19, 2016. EPA requested additional information from Hilcorp on August 30, 2016, and a revised NPDES permit application was submitted to EPA on December 3, 2016.

D. THE RECEIVING WATERS

Numerous narrow and low relief barrier islands are found 1 – 12 nautical miles (1.6

and 20 kilometers; *km*) from the Alaskan coast. The LDPI project area is planned for the area inside these barrier islands, approximately 4.78 nautical miles (8.85 *km*) offshore in Foggy Island Bay of Stefansson Sound where water depths are between 19–23 feet (5.8–7.0 meters). The relatively shallow shelf depths act as a mixing zone for the clearer, generally colder and more saline ocean waters to interact with the more turbid, sediment-bearing, fresher inflows from the Sagavanirktok, Kadleroshilik and Shaviovik rivers.

Stefansson Sound is ice-covered for about 9 months of the year. Landfast ice is the predominant form of sea ice within Stefansson Sound. Landfast ice forms from the continued growth of new ice along the shoreline beginning in late September or early October and it provides a protective barrier from the winds and sets up unique hydrographic conditions beneath the ice canopy. In most years, all of Foggy Island Bay and Stefansson Sound is ice covered by the second or third week in October. The transition from freeze-up to winter ice conditions in Foggy Island Bay and nearshore Stefansson Sound usually occurs in early to mid-November. From June through mid-July, the landfast ice rapidly weakens and begins to melt, separating from shore. It is during this time, that the advection of warm and fresh Mackenzie Plume from the east can help melt the offshore sea ice. By August, Stefansson Sound is typically free of ice and stays mostly ice free until freeze-up begins again in the fall.

After sea ice breakup, wind speed and direction become the key factors in determining the fate of freshwater advected along the coast. Wind speed and direction also influence water level variations that, in turn, play a key role in the exchange rates between brackish nearshore and offshore marine waters. The prevailing summer winds along the Beaufort Sea coast are from the east and the nearshore currents respond to this wind stress by flowing westward, which results in an upwelling of subsurface salty waters from the deep basin onto the shallow shelf. These upwelling events can bring nutrients, carbon, and zooplankton onto the shallow shelf and spawn increased primary productivity. During those periods of time when the winds are from the west, the Shelf-break Jet accelerates to the east causing the downwelling of fresh water. Between 2002-2003, the western Beaufort shelf and slope had twenty-eight (28) upwelling storms and seven (7) downwelling storms (Pickart, 2010).

During the landfast ice season, the subsurface currents typically don't exceed ~10 cm/s, are weakly sheared, are not correlated with the winds, and do not display a consistent pattern of flow (Weingartner et al, 2009). Less than 2% of all of the subsurface currents speeds exceed 15 cm/s during the landfast ice period, while more than 50% of the subsurface current measurements exceed this speed during the open water season. Temperature and salinity profiles collected under the sea ice within the Beaufort Sea exhibit uniform cold, 29.3°F (-1.5°C), saline (32.4‰) marine waters (BOEM, 2017).

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Freshwater discharge from the Sagavanirktok River during the spring flooding season influences the temperatures and salinities of Stefansson Sound. Fresh and relatively warm water (slightly greater than 0°C (32°F) from the Sagavanirktok River spring river plume flows out onto and under the landfast ice where it mixes with marine water to form a 1.0- to 2 meters (3.3-6.6 ft)- thick, under-ice lenses of brackish water that extends more than 15 kilometers (9.3 mi) offshore (Trefry et al. 2009). Fresh water transport of dissolved chemicals, and land-borne contaminants can be transported long distances offshore (~20 km (12.4 mi)) because the landfast ice canopy inhibits the mixing of the underlying water column from winds. (Rember and Trefry, 2005). Later in the season, these coastal discharges of fresh water may get collectively entrained in the larger and stronger flows of such regional water masses (e.g. the Mackenzie Plume) and can get carried off the shelf and to the west.

Available background TSS data from Stefansson Sound is limited. In 1982, the Endicott Development Environmental Studies Program collected water samples over a two-month period from two mooring that were deployed offshore of the Sagavanirktok River delta (Griffiths and Gallaway, 1982). The observed TSS concentrations demonstrated considerable variability, with reported mean concentrations of 45 *mg/L* and 55 *mg/L* and maximum concentrations of 324 *mg/L* and 296 *mg/L* at the two mooring sites.

In 2001 and 2002, water samples were collected from Stefansson Sound, in the vicinity of the Endicott Satellite Drilling Island and the Boulder Patches, in part to quantify background TSS concentrations (Dunton, 2005). TSS concentrations were found to vary significantly throughout Stefansson Sound during the study period, with a reduction in TSS concentrations observed as sample locations moved seaward of the coastal/nearshore environment. The highest TSS concentrations (23.0 – 24.2 mg/L) were found in samples collected in the nearshore environment, near Endicott Island and SDI. The lowest TSS concentrations (4.2 – 14.3 mg/L) were observed in samples collected furthest from the shore, within the Boulder Patch area. This spatial variation is most likely attributed to the impacts associated with high volume river discharges and/or shallow waters with unconsolidated sediments, which can be easily resuspended, in the coastal/nearshore environments.

Detailed descriptions of the physical and biological characteristics and environments of the receiving environment can be found in the draft ODCE for this permit and the EIS (BOEM, 2017).

III. EFFLUENT LIMITATIONS AND DISCHARGE REQUIREMENTS

A. BASIS FOR PERMIT EFFLUENT LIMITS

Section 301(a) of the CWA, 33 USC § 1311(a), prohibits the discharge of pollutants to waters of the United States unless the discharge is authorized pursuant to a

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

In general, the CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based effluent limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards of a waterbody are being met and they may be more stringent than technology-based effluent limits. Due to the offshore location of the proposed discharges from the LDPI, state water quality standards do not apply.

Monitoring requirements must also be included in the permit to determine compliance with effluent limitations. Effluent and ambient monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS

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

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

1. NATIONAL EFFLUENT LIMITATION GUIDELINES

Section 301(b) of the CWA, 33 USC § 1311(b), requires technology-based controls on effluents. All permits must contain effluent limitations which: (a) control toxic pollutants and nonconventional pollutants through the use of "best

available technology economically achievable" (BAT), and (b) control conventional pollutants through the use of "best conventional pollutant control technology" (BCT). In no case may BAT or BCT be less stringent than "best practical control technology currently achievable" (BPT), which is the minimum level of control required by Section 301(b)(1)(A) of the CWA, 33 USC § 1311(b)(1)(A).

The EPA has developed ELGs that contain BPT, BCT, BAT, and new source performance standards (NSPS) limitations for many industrial sectors. For example, the EPA promulgated the Oil and Gas Extraction Effluent Guidelines and Standards (40 CFR Part 435, Subparts A – D) in 1979, and amended the regulations in 1993, 1996, 2001, and 2016. The regulations cover wastewater discharges from field exploration, drilling, production, well treatment and well completion activities. New oil and gas development and production operations where construction commenced after the effective date of applicable NSPS are considered new sources (US EPA, 1993a).

EPA has determined the LDPI to be a new source pursuant to 40 CFR Parts 122.2 and 122.29. As such, the proposed permit incorporates effluent limitations and requirements based on the NSPS ELGs in 40 CFR Part 435. As a new source, the LDPI is also subject to compliance with the requirements of the National Environmental Policy Act (NEPA) prior to EPA taking final permit action. See Section VI.C. of this Fact Sheet for a complete discussion of EPA's new source determination and NEPA compliance obligations.

2. TECHNOLOGY-BASED EFFLUENT LIMITATIONS BASED ON BEST PROFESSIONAL JUDGEMENT

In the absence of applicable effluent guidelines for the discharge or pollutant, technology-based effluent limitations (TBELs) are determined by the permit writer on a case-by-case basis, in accordance with the statutory factors specified in CWA Sections 301(b)(2) and 304(b), 33 U.S.C. §§1311(b)(2), (3), 1314(b), 1342(a)(1).

The site-specific TBELs reflect the best professional judgment (BPJ) of the permit writer, taking into account the same statutory factors EPA would use in promulgating a national ELG, but they are applied to the circumstances relating to the applicant. BPJ controls can be developed using one of two methods: (1) transferring limits from an existing source (e.g. from other existing ELGs or a similar NPDES permit); or (2) deriving new limits (US EPA, 1996).

The NPDES regulations at 40 CFR 125.3 provide that permits developed on a case-by-case basis must consider: (1) the appropriate technology for the category of point sources for which the applicant is a member, based on all

available information; and (2) any unique factors related to the applicant. The analysis in this document uses facility-specific information submitted in Hilcorp's NPDES permit application, discharge monitoring report (DMR) data for similar facilities discharging under NPDES or APDES permits, all of which operate similar systems in the same region.

C. OCEAN DISCHARGE CRITERIA EVALUATION

Section 403 of the CWA, 33 USC § 1343, prohibits issuing a NPDES permit for discharges into the territorial seas, the contiguous zones, and the oceans except in compliance with the ocean discharge guidelines, 40 CFR Part 125, Subpart M. The guidelines set out criteria that EPA must evaluate to ensure that point source discharges do not cause unreasonable degradation to the marine environment. The criteria are set out in 40 CFR § 125.122.

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

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

EPA has prepared a draft ODCE for this permit. The evaluation process informed EPA's permit development process, which resulted in additional permit conditions (e.g., whole effluent toxicity testing when chemicals are added to select systems). EPA has determined that discharges authorized under the LDPI Permit will not cause unreasonable degradation to the marine environment.

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

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D. SUMMARY OF TECHNOLOGY-BASED EFFLUENT LIMITATIONS BASED ON THE OIL AND GAS EXTRACTION ELG AND BEST PROFESSIONAL JUDGMENT

1. SANITARY AND DOMESTIC WASTEWATER (OUTFALL 001A)

As discussed in Section II.B.1 of this Fact Sheet, the Permittee has proposed to use MBR to treat sanitary and domestic wastewater. The draft permit includes technology-based effluent limits based upon BPJ that MBRs can reliably provide treatment at a level comparable to municipal wastewater (US EPA, 2007). Sewage and other sanitary wastewater must receive secondary treatment for municipal facilities. Secondary treatment uses filtration and biological treatment to control pollutant discharges, and is the same treatment processes used in MBR configurations. In addition, the draft permit establishes a narrative effluent limit for floating solids, foam or garbage in accordance with the ELGs set forth in 40 CFR Part 435.

a) **FLOW**. The Permittee is required to record the rate of sanitary and domestic wastewater discharge (Outfall 001a) and report the weekly average and maximum daily rates in million gallons per day (*MGD*). As discussed in Section II.B.1. of this Fact Sheet, the Permittee estimates that the average daily discharge rate will be 5,000 *gpd* with a daily maximum discharge rate of 20,000 *gpd*.

b) **TOTAL SUSPENDED SOLIDS (TSS).** The 30-day average (monthly average) shall not exceed 30 *mg/L* and the 7-day average (weekly average) shall not exceed 45 *mg/L*. These limitations are consistent with the Secondary Treatment Standards found at 40 CFR Part 133.

c) **BIOLOGICAL OXYGEN DEMAND (BOD_5).** The 30-day average (monthly average) shall not exceed 30 *mg/L* and the 7-day average (weekly average) shall not exceed 45 *mg/ L*. These limitations are consistent with the Secondary Treatment Standards found at 40 CFR Part 133.

d) **PH**. The effluent pH shall be maintained within the limits of 6.0 – 9.0 standard units (*s.u.*). This limitation is consistent with the Secondary Treatment Standards found at 40 CFR Part 133.

e) **FECAL COLIFORM**. The 30 – day average (monthly average) shall not exceed 100 coliform forming units (*cfu*) per 100 *mL* and the maximum daily value shall not exceed 200 *cfu*/100 *mL*. Fecal coliform bacteria in discharges of sanitary wastewater are of concern for water quality. The draft permit contains effluent limitations for fecal coliform that are based on BPJ for discharges of sanitary waste.

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f) **FLOATING SOLIDS, FOAM OR GARBAGE:** The draft permit prohibits the discharge of floating solids, foam or garbage. This prohibition adheres to the applicable provisions of the ELG at 40 CFR 435 and is a typical technology-based requirement established by EPA and the U.S. Coast Guard for sanitary and domestic discharges to control debris and the use of potentially harmful detergents. The treatment technology and the use of biodegradable, non-phosphate detergents by the Permittee should effectively meet this requirement for Outfall 001A.

g) **OIL AND GREASE:** The Permittee is prohibited from discharging oil and grease. Oil and grease is listed as a conventional pollutant under 40 CFR 401.16 and, therefore, the factors considered are the same as those used in the development of best practicable control technology currently available (BPT) and best conventional pollutant control technology (BCT) effluent limits. The potential source of oil and grease in the sanitary and domestic wastewater discharge would result from excess cooking oils in the waste stream. The Permittee is required to observe the vicinity of the outfall during periods of maximum discharge to ensure there is no oily sheen. The Permittee must report the observation of an oily sheen in the DMR.

h) **TOTAL RESIDUAL CHLORINE**. Currently, the Permittee has proposed the use of ultraviolet irradiation technology for disinfection of the sanitary and domestic wastewater. As such, the draft permit does not authorize the discharge of TRC in the sanitary and domestic wastewater effluent.

The proposed effluent limits for sanitary and domestic wastewater (Outfall 001A) are summarized in Table 1 of this Fact Sheet. Monitoring and recording are required during periods of discharge only.

2. POTABLE WATER TREATMENT REJECT WASTEWATER (OUTFALL 001B)

As discussed in Section II.B.2. of this Fact Sheet, the Permittee has proposed to use a vapor compression distillation treatment technology to produce potable water at LDPI. The excess feed water that does not evaporate (blowdown) contains concentrated dissolved solids and salts (brine) near twice the concentration of ambient seawater. The resulting brine blowdown will be discharged through Outfall 001B. Continuous injection of maintenance chemicals will be added during the process. Periodic injection of acid or a descaler will be used to remove mineral buildup in the desalination facility. EPA has not established effluent limitation guidelines for desalination treatment processes, therefore the following proposed limits are based on BPJ.

a) **FLOW**. The Permittee is required to record the rate of potable water reject waste discharge (Outfall 001b) daily and report the weekly average and

maximum daily discharge volume in gallons per day (*gpd*). As discussed in Section II.B.2. of this Fact Sheet, the Permittee estimates that the average monthly discharge rate will be 5,000 *gpd* with a daily maximum discharge rate of 20,000 *gpd*.

b) **TSS**. Desalination treatment processes result in the discharge of concentrated suspended solids. The Permittee is required to monitor the potable water reject waste discharge weekly to characterize the TSS levels present in the waste stream. The federal recommended water quality criteria states that *"settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10% from the seasonally established norm for aquatic life."* The monitoring requirement in the draft permit is needed to assess the effects of TSS on the receiving water environment and adherence to federal water quality criteria, and to determine whether a numeric limit is required in future permit issuances. This requirement is based on Sections 308 and 403(c) of the CWA.

c) **pH**. The effluent pH shall be maintained within the limits of 6.0 – 9.0 standard units (*s.u.*). This is a federal water quality criterion (U.S. EPA, 1986).

d) **Temperature**. Desalination treatment processes may result in elevated temperatures in the effluent, therefore, the draft permit requires monitoring of influent and effluent temperatures during periods of discharge. This requirement is based on Sections 308 and 403(c) of the CWA.

e) **Whole Effluent Toxicity (WET) Testing**. The draft permit requires WET testing when chemicals have been added to the treatment system. This requirement will ensure that chemically treated discharges that are more toxic will be evaluated thoroughly. This approach is preferable to attempting to limit the discharge of each specific chemical. Due to the large number of additives potentially used, it would be difficult to develop technology-based limits for each chemical.

The proposed effluent limits and monitoring requirements for potable water reject waste discharges (Outfall 001B) are summarized in Table 2 of this Fact Sheet. Monitoring and recording are required during periods of discharge only.

3. Seawater Treatment Plant Wastewater (Outfall 002)

As discussed in Section II.B.3. of this Fact Sheet, the effluent from the Seawater Treatment Plant (STP) will contain primary concentrated solids that have been removed from the ambient seawater, an increased temperature, and residual chlorine. Discharge from the STP is not expected to occur prior to the 2nd or

3rd year of the project. EPA has not established effluent limitation guidelines for seawater treatment processes, therefore the following proposed limits are based on BPJ.

a) **FLOW**. The Permittee is required to record discharge rates for Outfall 002 daily and report the weekly average and maximum daily discharge rates in million gallons per day (*MGD*). As discussed in Section II.B.3. of this Fact Sheet, the Permittee estimates that the average monthly discharge rate will be 0.94 MGD with a daily maximum discharge rate of 1.1 *MGD.*

b) **TSS**. Based on the available background TSS data, the observed spatial and temporal variability, it is reasonable to assume that average background TSS concentrations near the STP influent pipe may be approximately 30 *mg/L*. Furthermore, if it is assumed that all of the incoming seawater solids are removed, and the average daily discharge rate is 0.94 *MGD,* then the total combined average effluent TSS concentration is expected to be approximately 140 *mg/L*. However, given the potential for variable concentrations of TSS in the receiving water environment due to naturally occurring seasonal events (e.g. algal blooms, ice break-up, large and sudden sediment loading from nearby freshwater rivers, and storm surges) and based on limited data from comparable facilities operating and discharging to the Beaufort Sea, Hilcorp estimates that the average daily TSS concentration will be 250 *mg/L* and the maximum daily TSS concentration will be 1,000 *mg/L* (Hilcorp, 2016b).

The Permittee is required to monitor Outfall 002 weekly to characterize the TSS levels present in the waste stream. The federal recommended water quality criteria states that *"settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10% from the seasonally established norm for aquatic life."* The monitoring requirement in the draft permit is needed to assess the effects of TSS on the receiving water environment and adherence to federal water quality criteria, and to determine whether a numeric limit is required in future permit issuances. This requirement is based on Sections 308 and 403(c) of the CWA.

c) **TEMPERATURE**. STP processes may have elevated temperatures, therefore, the draft permit requires weekly monitoring of influent and effluent temperatures. This requirement is based on Sections 308 and 403(c) of the CWA.

d) **pH**. The effluent pH shall be maintained within the limits of 6.0 – 9.0 standard units (*s.u.*). This is a federal water quality criterion (US EPA, 1986).

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e) **TOTAL RESIDUAL CHLORINE (TRC).** The maximum daily effluent TRC concentration shall not exceed 204 *µg/L* and the average monthly effluent TRC concentration shall not exceed 142 *µg/L*. These limits were developed on a case-by-case basis using BPJ due to the absence of a ELG specific to total residual chlorine in STP discharges. Chlorine is a parameter of concern because it is used to reduce biofouling in the seawater treatment process and, due to the system design, it has the potential to be discharged directly to the marine environment. The proposed maximum daily limit and average monthly limit are technology-based requirements to control the discharge of chlorine, which can have toxic effects on the receiving environment. This limit is consistent with requirements that have been applied to discharges in permits for the oil and gas industry, specifically STP operations discharging to the Beaufort Sea, in Region 10. This requirement is based on BCT and BPT using BPJ under Section 403(c) of the CWA.

f) **WET**. The draft permit requires WET testing when chemicals have been added to the treatment system and the wastewater is discharged to surface waters subject to the permit. This requirement will ensure that chemically treated discharges that are more toxic will be evaluated thoroughly. This approach is preferable to attempting to limit the discharge of each specific chemical. Due to the large number of additives potentially used, it would be difficult to develop technology-based limits for each chemical. This requirement is based on Sections 308 and 403(c) of the CWA.

The proposed effluent limits and monitoring requirements for the STP discharge (Outfall 002) is summarized in Table 3 of this Fact Sheet. Monitoring and recording are required during periods of discharge only.

4. CONSTRUCTION DEWATERING (OUTFALL 003)

As discussed in Section II.B.4. of this Fact Sheet, construction dewatering discharges are expected to be minimal due to the majority of the project construction occurring during the winter. When a disposal well is completed in approximately Year 3 of project development, construction dewatering effluent will be injected. Discharges from construction dewatering are not addressed in the ELG.

a) **FLOW**. The draft permit does not limit the flow for construction dewatering events. The Permittee must calculate or meter daily and report the average monthly and the maximum daily flow rates in gallons per day (*gpd*) and the duration of the discharge event in number of days during periods of discharge.

b) **FREE OIL.** The draft permit prohibits the discharge of free oil. The Permittee must conduct a visual observation for visual sheen, as determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water, daily during a discharge event. The number of days a sheen is observed must be recorded and reported in the DMR. If visual observations of the discharge are not possible, then the permittee must sample (grab sample) the construction dewatering effluent and test for sheen using the static sheen test in accordance with Appendix 1 to Subpart A of 40 CFR Part 435. These same requirements have been applied to discharges in previous permits for the oil and gas industry in Region 10. This requirement is based on BCT and BPT using BPJ and under Section 403(c) of the CWA.

c) **TSS.** The Permittee is required to monitor Outfall 003 once per discharge event to characterize the TSS levels present in the waste stream. Construction storm water discharges generally contain high levels of TSS. The federal recommended water quality criteria states that *"settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10% from the seasonally established norm for aquatic life."* The monitoring requirement in the draft permit is needed to assess the effects of TSS on the receiving water environment and adherence to federal water quality criteria, and to determine whether a numeric limit s required in future permit issuances. This requirement is based on Sections 308 and 403(c) of the CWA.

The proposed effluent limits and monitoring requirements for construction dewatering (Outfall 003) are summarized in Table 4, below. Monitoring and recording are required during periods of discharge only.

5. SECONDARY CONTAINMENT DEWATERING (OUTFALL 004)

As discussed in Section II.B.5. of this Fact Sheet, secondary containment dewatering discharges are expected to be minimal and primarily occurring during the spring thaw (approximately May to June). Discharges from secondary containment dewatering may occur during the first two years of construction of LDPI. When the disposal well is completed in approximately Year 3 of project development, secondary containment dewatering effluent will be injected. Discharges from secondary containment dewatering events are not addressed in the ELG.

a) **FLOW**. The draft permit does not limit the flow for secondary containment dewatering events. The Permittee must calculate or meter daily and report average monthly and maximum daily in gallons per day (*gpd*) during periods of discharge.

b) **FREE OIL.** The draft permit prohibits the discharge of free oil. The Permittee must conduct a visual observation for visual sheen, as determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water, daily during a discharge event. The number of days a sheen is observed must be recorded and reported in the DMR. If visual observations of the discharge are not possible, then the permittee must sample (grab sample) the construction dewatering effluent and test for sheen using the static sheen test in accordance with Appendix 1 to Subpart A of 40 CFR Part 435. These same requirements have been applied to discharges in previous permits for the oil and gas industry in Region 10. This requirement is based on BCT and BPT using BPJ and under Section 403(c) of the CWA.

The proposed effluent limits and monitoring requirements for secondary containment dewatering discharges (Outfall 004) are summarized in Table 5, below. Monitoring and recording are required during periods of discharge only.

E. PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. REQUIREMENTS FOR ALL DISCHARGES

a) The Permittee must comply with the effluent limits in this permit at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

b) All effluent samples collected from any effluent stream must be taken after the last treatment unit and before discharge into receiving waters, except as otherwise required by discharge-specific provisions of this permit.

c) This permit does not authorize the discharge of any waste streams, including spills and other unintentional or non-routine discharges of pollutants, that are not part of the normal operation of the facility as disclosed in the permit application.

d) For purposes of reporting on the DMR for a single sample, if a value is less than the method detection limit (MDL), the permittee must report "less than {numeric value of the MDL}" and if the value is less than the minimum level (ML), the permittee must report "less than {numeric value of the ML}."

e) The Permittee is prohibited from discharging floating solids, garbage, debris, sludge, deposits, foam, scum or other residues of any kind.

f) The Permittee is prohibited from discharging surfactants and dispersants under this permit.

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g) Any commingled discharges are subject to the most stringent effluent limitations for each individual discharge. If any individual discharge is not authorized, then a commingled discharge is not authorized. This provision ensures that technology-based requirements are implemented for the applicable pollutants, and that all parameters within a commingled discharge meet applicable permit requirements.

h) When visual monitoring is required, the permittee must conduct visual monitoring at the time of maximum estimated or measured discharge, unless otherwise indicated.

i) The Permittee is required to keep an inventory of all chemical additives used during the treatment processes for the authorized waste streams. Chemical additives include, but are not limited to, treatment chemicals, biocides, insecticides, descalers, and corrosion inhibitors. This requirement includes monitoring and reporting of the rates of additive use and locations of use in the facility processes. Additionally, the proposed permit requires that the additive concentrations must not exceed the most stringent of two limitations: (1) the maximum concentration and other conditions specified in the EPA product registration labeling if the chemical is an EPA registered product, or (2) the maximum chemical manufacturer's recommended concentration. This provision is necessary to ensure no unreasonable degradation occurs.

2. OUTFALL 001A: SANITARY AND DOMESTIC WASTEWATER

a) The Permittee must limit and monitor discharges of sanitary and domestic wastewater from Outfall 001a as specified in Table 1. The Permittee must comply with the effluent limits in Table 1 at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

b) The Permittee is prohibited from discharging food solids and kitchen oils and greases from food preparation.

c) The Permittee is prohibited from discharging total residual chlorine.

d) The Permittee must use phosphate-free and minimally-toxic soaps and detergents for any purpose if domestic wastewater will be discharged into waters subject to this permit. Soaps and detergents must be free from toxic or bioaccumulative compounds.

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TABLE 1: *Sanitary and Domestic Wastewater Effluent Limitations and Monitoring Requirements (Outfall 001A)*[1].

PARAMETER	UNITS	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
		MAXIMUM DAILY LIMIT	WEEKLY AVERAGE LIMIT	AVERAGE MONTHLY LIMIT	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTED VALUES[6]
Flow	*gpd*	--	--	--	Daily	Measured or Recorded	Maximum Daily and Average Monthly
pH	*s.u.*	*6.0 – 9.0*			Weekly	Grab	Minimum and Maximum Values
Total Suspended Solids (TSS)	*mg/L*	--	45	30	Weekly	Grab[4]	Average Monthly and Weekly Average
Biological Oxygen Demand (BOD_5)	*mg/L*	--	45	30	Weekly	Grab[4]	Average Monthly and Weekly Average
Fecal Coliform	*cfu/100 mL*	200[2]	--	100[3]	Monthly	Grab	Instantaneous Maximum and Geometric Mean
Oil and Grease	--	*No Discharge*			Daily	Visual[5]	Report
Floating Solids & Garbage	--	*No Discharge*			Daily	Visual[5]	Report
Foam	--	*No Discharge*			Daily	Visual[5]	Report

NOTES: [1] Required during periods of discharge.
[2] Instantaneous maximum limit.
[3] Must be reported as the monthly geometric mean.
[4] Composite samples may be collected in lieu of grab samples and must consist of at least 4 equal volume grab samples, two of which must be taken during periods of peak flow.
[5] The Permittee must monitor by observing the surface of the receiving water in the vicinity of the outfall during daylight at the time of maximum estimated discharge and during conditions when observations on the surface of the receiving water are possible in the vicinity of the discharge. The date of observations and time of day must be recorded. The numbers of days floating solids, foam, garbage or oil sheen are observed must be recorded and reported in the DMR.
[6] Refer to Permit Part I.B.2.

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3. OUTFALL 001B – POTABLE WATER REJECT WASTE

The Permittee must monitor potable water reject waste discharges from Outfall 001B as specified in Table 2. The Permittee must comply with the requirements in Table 2 at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

TABLE 2: *Potable Water Reject Waste Effluent Limitations and Monitoring Requirements (Outfall 001B)*[1]

PARAMETER	UNITS	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
		MAXIMUM DAILY LIMIT	WEEKLY AVERAGE LIMIT	AVERAGE MONTHLY LIMIT	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTED VALUES[5]
Flow	*gpd*	--			Daily	Measured or Recorded	Maximum Daily and Average Monthly
pH	*s.u.*	*6.0 – 9.0*			Weekly	Grab	Minimum and Maximum Values
Total Suspended Solids (TSS)	*mg/L*	--			Weekly	Grab[2]	Report
Temperature	*^oC*	--			Weekly	Grab or Meter	Report
Whole Effluent Toxicity (WET)[3]	*TU_C*	--			*Semi-Annually (2/year)*	24-Hour Composite[4]	Report

NOTES: [1] Required during periods of discharge.
[2] Composite samples may be collected in lieu of grab samples and must consist of at least 4 equal volume grab samples, two of which must be taken during periods of peak flow.
[3] See Permit Part I.A.11. The Permittee must conduct semi-annual (i.e. two times per year, every six months) short-term chronic WET tests during periods of chemical (see definitions) treatment ***and*** when the waste stream is discharged to surface waters subject to this permit. Toxicity testing is ***not*** required during periods (semi-annual, every 6 months) when chemical treatment does not occur ***or*** if the waste stream is not discharged to surface waters subject to this permit.
[4] Toxicity testing must be conducted on 24-hour composite samples of effluent. If obtaining 24-hour composite samples is not possible, then four (4) equal volume grab samples must be collected and blended, two of which must be taken during periods of peak flow. Sample collection must coincide with the use of chemicals in the system.
[5] Refer to Permit Part I.B.2.

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4. OUTFALL 002 – SEAWATER TREATMENT PLANT WASTEWATER

The Permittee must monitor the STP wastewater discharges from Outfall 002 as specified in Table 3. The Permittee must comply with the requirements in Table 3 at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

TABLE 3: *Seawater Treatment Plant Wastewater Effluent Limitations and Monitoring Requirements (Outfall 002)*[1]

PARAMETER	UNITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS		
		MAXIMUM DAILY LIMIT	AVERAGE MONTHLY LIMIT	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTED VALUES[5]
Flow	*MGD*	--		Daily	Measured or Recorded	Maximum Daily and Average Monthly
pH	*s.u.*	*6.0 – 9.0*		Weekly	Grab	Minimum and Maximum Values
Total Suspended Solids (TSS)	*mg/L*	--		Weekly	Grab[2]	Report
Temperature	*^oC*	--		Weekly	Grab or Meter	Report
Total Residual Chlorine (TRC)	*µg/L*	204	142	Monthly	Grab	Maximum Daily and Average Monthly
Whole Effluent Toxicity (WET)[3]	*TU_C*	--		*Quarterly (4/year)*	24-Hour Composite[4]	Report

NOTES: [1] Required during periods of discharge.
[2] Composite samples may be collected in lieu of grab samples and must consist of at least 4 equal volume grab samples, two of which must be taken during periods of peak flow.
[3] See Permit Part I.A.11. The Permittee must conduct quarterly (i.e. four times per year, every three months) short-term chronic WET tests during periods of chemical (see definitions) treatment ***and*** when the waste stream is discharged to surface waters subject to this permit. Toxicity testing is ***not*** required during quarters when chemical treatment does not occur ***or*** if the waste stream is not discharged to surface waters subject to this permit.
[4] Toxicity testing must be conducted on 24-hour composite samples of effluent. If obtaining 24-hour composite samples is not possible, then four (4) equal volume grab samples must be collected and blended, two of which must be taken during periods of peak flow. Sample collection must coincide with the use of chemicals in the system.
[5] Refer to Permit Part I.B.2.

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5. OUTFALL 003 – CONSTRUCTION DEWATERING WASTEWATER

The Permittee must monitor construction dewatering discharges from Outfall 003 as specified in Table 4. The Permittee must comply with the requirements in Table 4 at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

TABLE 4: *Construction Dewatering Wastewater Effluent Limitations and Monitoring Requirements (Outfall 003)*[1]

PARAMETER	UNITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS		
		MAXIMUM DAILY LIMIT	AVERAGE MONTHLY LIMIT	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTED VALUES[3]
Flow	*gpd*	--		Daily	Measured or Recorded	Average Monthly and Maximum Daily
TSS	*mg/L*	--		Once per discharge[2]	Grab	Maximum Daily
Free Oil[3]	--	--		Daily	Visual[3]	Report

NOTES: [1] Required during periods of discharge.

[2] The Permittee must collect a grab sample for analysis once per discharge event, coinciding with the period of maximum discharge ***and*** when construction dewatering wastewater is discharged to surface waters subject to this permit.

[3] The Permittee must conduct a visual observation for visual sheen, as determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water, daily during a discharge event. The permittee must monitor by observing the surface of the receiving water in the vicinity of the outfall during daylight at the time of maximum estimated discharge and during conditions when observation on the surface of the receiving water are possible in the vicinity of the discharge. The observations and time of day must be recorded. The number of days a sheen is observed must be recorded and reported in the DMR. If visual observations of the discharge are not possible, then the permittee must sample (grab sample) the construction dewatering effluent and test for sheen using the static sheen test in accordance with Appendix 1 to Subpart A of 40 CFR Part 435. For discharges during unstable or broken ice conditions, a water temperature that approximates surface water temperatures after breakup must be used.

[4] Refer to Permit Part I.B.2.

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6. OUTFALL 004 – SECONDARY CONTAINMENT DEWATERING WASTEWATER

The Permittee must monitor secondary containment dewatering discharges from Outfall 003 as specified in Table 5. The Permittee must comply with the requirements in Table 5 at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

TABLE 5: *Secondary Containment Dewatering Wastewater Effluent Limitations and Monitoring Requirements (Outfall 004)*[1]

PARAMETER	UNITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS		
		MAXIMUM DAILY LIMIT	AVERAGE MONTHLY LIMIT	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTED VALUES[3]
Flow	*gpd*	--		Daily	Measured or Recorded	Average Monthly and Maximum Daily
Free Oil	--	--		Daily	Visual[2]	Report

NOTES: [1] Required during periods of discharge.
[2] The Permittee must conduct a visual observation for visual sheen, as determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water, daily during a discharge event. The permittee must monitor by observing the surface of the receiving water in the vicinity of the outfall during daylight at the time of maximum estimated discharge and during conditions when observation on the surface of the receiving water are possible in the vicinity of the discharge. The observations and time of day must be recorded. The number of days a sheen is observed must be recorded and reported in the DMR. If visual observations of the discharge are not possible, then the permittee must sample (grab sample) the construction dewatering effluent and test for sheen using the static sheen test in accordance with Appendix 1 to Subpart A of 40 CFR Part 435. For discharges during unstable or broken ice conditions, a water temperature that approximates surface water temperatures after breakup must be used.
[3] Refer to Permit Part I.B.2.

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IV. MONITORING AND REPORTING REQUIREMENTS

A. BASIS FOR EFFLUENT AND SURFACE WATER MONITORING

Section 308 of the CWA and federal regulations under 40 CFR § 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and/or surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The Permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) to the EPA. Table 1 – Table 5 present the proposed monitoring requirements based on the minimum sampling necessary to adequately monitor the facility's performance.

Sampling of bypass and upset. The proposed permit requires sampling whenever a bypass, spill, or non-routine discharge of pollutants occurs, if such a discharge could cause a violation of an effluent limit.

B. EFFLUENT MONITORING

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. The Permittee has the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA approved test methods (generally found in 40 CFR Part 136) and if the Method Detection Limits (MDLs) are less than the effluent limits.

Table 1 – Table 5 present the monitoring requirements for the facility covered under this draft permit. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR. Since the facility is a new discharger, no available facility-specific effluent data exist for use in developing site-specific TBELs. As a result, the draft permit includes monitoring provisions to collect data for future agency permitting decisions.

V. OTHER PERMIT CONDITIONS

A. BEST MANAGEMENT PRACTICES PLAN (BMP)

Pursuant to Section 402(a)(1) of the Clean Water Act, development and implementation of BMP Plans may be included as a condition in NPDES permits. Section 402(a)(1) authorizes EPA to include miscellaneous requirements in permits on a case-by-case basis, which are deemed necessary to carry out the provisions of the Act. BMPs, in addition to numerical effluent limitations, are required to control or abate the discharge of pollutants in accordance with 40 CFR §122.44(k). The

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BMP Plan requirement has also been incorporated into this permit in accordance with EPA BMP guidance (EPA, 1993).

The draft permit requires the development and implementation of a BMP Plan, which prevents or minimizes the generation and potential release of pollutants from the facility to the waters of the United States through best management practices. This includes, but is not limited to, material storage areas, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990. (42 U.S.C. 13101). The BMP Plan must be completed prior to commencing activities and kept onsite (Permit Part II.A.4.d.). Within 180 days of the effective date of the permit, the Permittee must submit a letter to EPA certifying that the BMP Plan has been developed or updated and is being implemented.

The BMP Plan must be amended whenever there is a change in the facility or in the operation of the facility that materially increases the potential for an increased discharge of pollutants. The BMP Plan will become an enforceable condition of the permit; a violation of the BMP Plan is a violation of the permit.

The BMP Plan must be consistent with the following objectives and the general guidance contained in the publication entitled *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004, October 1993) or any subsequent revisions to this guidance document:

1. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps, and shall be developed in accordance with good engineering practices.

2. The number and quantity of pollutants and the toxicity of effluent generated, discharged or potentially discharged at the facility must be minimized by the Permittee to the extent feasible by managing each influent waste stream in the most appropriate manner.

3. The Permittee must establish specific objectives for the control of pollutants by conducting the following evaluations:

(a) Each facility component or system must be exampled for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to waters of the United States due to equipment failure, improper operation, and natural phenomena such as rain or snowfall, etc. The examination must include all normal operations and ancillary activities including loading or unloading operations or spillage or leaks.

(b) Where experience indicates a reasonable potential for equipment failure, natural condition (e.g. precipitation), or other circumstances to result in significant amounts of pollutants reaching the surface waters, the Plan should include prediction of the rate of flow and total quantity of pollutants that could be discharged from the facility as a result of each condition or circumstance.

4. Ensure that the requirements of the BMP Plan are considered as part of planned facility modifications, and that construction and supervisory personnel are aware of and take into account possible spills or releases of pollutants during facility construction or demobilization.

5. Establish specific best management practices for each component or system capable of generating or causing a release of significant amounts of pollutants, and identify specific preventative or remedial measures to be implemented.

6. Ensure proper management of solid and hazardous waste in accordance with regulations promulgated under the Resource Conservation and Recovery Act (RCRA). Management practices required under RCRA regulations shall be referenced in the BMP Plan.

7. Reflect requirements for Spill Prevention, Control, and Countermeasure plans under Section 311 of the Act and 40 CFR Part 112 and may incorporate any part of such plans into the BMP Plan by reference.

8. Ensure that solids, sludges, or other pollutants removed in the course of treatment or control of water and wastewaters are disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

9. Identify chemical additive inventory procedures (i.e. implementation procedures, calculation methods, record-keeping and reporting procedures) to ensure compliance with Permit Part I.B.10.

10. Ensure the seawater treatment plant intake structure and operational measures minimize the impingement mortality and entrainment of fish and shellfish.

11. Use of local containment devices such as liners, dikes, drip pans and other structures where chemicals, fuels, and/or oils are being managed or stored.

12. Include the following provisions concerning BMP Plan review:

(a) Annual review by engineering staff and the responsible manager.

(b) Annual review and endorsement by the permittee's BMP Committee.

(c) Include a statement that the above annual reviews have been completed and that the BMP Plan fulfills the requirements set forth

in this permit. The statement must include the dated signatures of each BMP Committee member as certification of the annual reviews.

(d) The Permittee must submit a copy of the annual certification statement and a report of all changes in the BMP Plan to the Director with the December DMR.

B. QUALITY ASSURANCE PLAN (QAP)

Federal regulations at 40 CFR §122.41(e) require Permittees to properly operate and maintain their facilities, including "adequate laboratory controls and appropriate quality assurance procedures." To implement this requirement, the draft permit requires that the Permittee develop or update a Quality Assurance Plan (QAP) to ensure that the monitoring data submitted is complete, accurate, and representative of the environmental or effluent condition. The QAP must contain standard operating procedures that the Permittee must follow for collecting, handling, storing and shipping samples for laboratory analysis and data reporting. The facility is required to prepare (or update) a Quality Assurance Plan (QAP) within 180 days of the effective date of the final permit. The QAP shall be prepared in accordance with EPA guidance documents, EPA QA/R-5 (EPA Requirements for Quality Assurance Project Plans) and EPA QA/G-5 (Guidance for Quality Assurance Project Plans). The QAP must be retained on site and made available to EPA upon request.

C. ADDITIONAL PERMIT PROVISIONS

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

VI. OTHER LEGAL REQUIREMENTS

A. ENDANGERED SPECIES ACT

EPA is coordinating a joint ESA consultation process with the Bureau of Ocean Energy Management through the development of a Biological Assessment to satisfy EPA's regulatory requirements under Section 7(a)(2) of the Endangered Species Act. The Biological Assessment includes an evaluation of the potential impacts from the Liberty Development Project, which will be submitted to the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to initiate ESA consultation. Consultation will be concluded prior to EPA issuing a final agency action for the proposed NPDES permit.

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B. ESSENTIAL FISH HABITAT

Under the Magnuson-Stevens Fishery Conservation and Management Act, NMFS and various fisheries management councils must identify and protect "essential fish habitat" (EFH) for species managed under the Act. The EFH regulations define an *adverse effect* as any impact that reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species fecundity), site-specific, or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions. EPA has prepared the EFH analysis and it will be submitted to NMFS along with the Biological Assessment.

C. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

40 CFR § 122.2 defines "new source" as "…any building, structure, facility or installation from which there is or may be a "discharge of pollutants," the construction of which is commenced:

> (a) After promulgation of standards of performance under §306 of CWA which are applicable to such source, or
>
> (b) After proposal of standards of performance in accordance with §306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with §306 within 120 days of their proposal."

The regulations at 40 CFR §122.29(b)(4) define what constitutes "construction" of a new source as "…construction [that] has commenced if the owner or operator has:

> (i) Begun, or caused to begin as part of a continuous on-site construction program:
>
> (A) Any placement assembly, or installation of facilities or equipment; or
>
> (B) Significant site preparation work including clearing, excavation or removal of existing buildings, structures, or facilities which is necessary for placement, assembly, or installation of new source facilities or equipment; or
>
> (ii) Entered into a binding contractual obligation for the purchase of facilities or equipment intended to be used in its operation with a reasonable time."

EPA has determined the LDPI to be a new source since construction will commence after the promulgation of new source performance standards in 1993. In accordance with Section 511(c)(1) of the CWA and the EPA's regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) at 40 CFR

Part 6, issuance of NPDES permits for new sources are considered major federal actions subject to NEPA review.

In order to satisfy NEPA compliance obligations associated with the issuance of an NPDES permit for the Liberty Project, pursuant to 40 CFR 1501.6, EPA is participating as a cooperating agency in the preparation of the Environmental Impact Statement (EIS) associated with this project.

D. ENVIRONMENTAL JUSTICE (EXECUTIVE ORDER 12898)

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

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

Executive Order 12898 entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" states in relevant part that "each Federal agency shall make achieving environmental justices part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations..." The order also provides that federal agencies are required to implement the order consistent with and to the extent permitted by existing law. In addition, the EPA Region 10 adopted its "North Slope Communications Protocol: Communications Guidelines to Support Meaningful Involvement of the North Slope Communities in EPA Decision-Making" in May 2009. Consistent with the North Slope Communications Protocol, EPA sent early informational letters on February 23, 2017 to the following tribal governments: Native Village of Kaktovik, Native Village of Nuiqsut, and the Inupiat Community of the Arctic Slope (ICAS).

Finally, the EPA will notify these tribal governments and communities of the opportunity to provide public comment on the draft permit during the public comment period and to attend and participate (e.g. provide testimony) during any scheduled public meetings or hearings.

E. TRIBAL CONSULTATION (EXECUTIVE ORDER 13175)

Executive Order 13175 (November, 2000) entitled "Consultation and Coordination

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

Pursuant to the EPA Region 10's Tribal Consultation Procedures, in determining which tribal governments to invite for consultation, the EPA considered whether the action could potentially affect a tribe's resources, rights, or traditional way of life. On February 23, 2017, the EPA sent an invitation for tribal consultation to the following tribal governments: Native Village of Kaktovik, Native Village of Nuiqsut, and ICAS. Included with the invitation for tribal consultation was a summary of the LDPI activities, potential wastewater discharges, and a permit issuance timeline. Consistent with the executive order and the EPA tribal consultation policies, the EPA will honor requests for consultation meetings via teleconferences on the draft permit from federally-recognized tribal governments.

F. POLLUTION PREVENTION ACT

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

G. OIL SPILL REQUIREMENTS

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

VII. MODIFICATION OF PERMIT LIMITS OR OTHER CONDITIONS

When EPA receives information that demonstrates the existence of reasonable cause to modify a permit in accordance with 40 CFR § 122.62(a), EPA may modify the permit. "Reasonable cause" includes alterations or additions to the facility or activity, new federal regulations or standards, new state water quality standards, the completion or modification

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

VIII. PERMIT EXPIRATION

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

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IX. LIST OF ACRONYMS AND DEFINITIONS

§ means section or subsection.

Act means the Clean Water Act.

Administrator means the Administrator of the EPA, or an authorized representative.

AML means average monthly limit; "monthly average limit" is synonymous.

Annual means once per calendar year

Average Monthly Discharge Limitation means the average of "daily discharges" over a monitoring month, calculated as the sum of all daily discharges measured during a monitoring month divided by the number of daily discharges measured during that month. It may also be referred to as the "monthly average discharge."

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

Biochemical Oxygen Demand (BOD_5) means the amount, in milligrams per liter, of oxygen used in the biochemical oxidation of organic matter in five days at 20°C.

BOD_5 means five-day biochemical oxygen demand.

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

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

°C means degrees Celsius.

CFR means Code of Federal Regulations.

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

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

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

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Director means the Director of the Office of Water and Watersheds, or Director of the Office of Compliance and Enforcement, EPA, or authorized representatives.

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

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

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

EPA means U.S. Environmental Protection Agency.

ESA means the Endangered Species Act.

^{o}F means degrees Fahrenheit.

Facility or activity means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

gpd means gallons per day.

LTA means longterm average.

MA/NLAA means "may affect, but not likely to adversely affect".

Maximum means the highest measured discharge or pollutant in a waste stream during the time period of interest.

Maximum Daily Discharge Limitation means the highest allowable "daily discharge."

MDL means Method Detection Limit.

MGD means million gallons per day.

mg/L means milligrams per liter.

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

Month means the time period from the 1st of a calendar month to the last day in the month.

Monthly Average means the average of daily discharges over a monitoring month calculated as the sum of all daily discharges measured during a monitoring month divided by the number of daily discharges measured during that month.

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NMFS means National Marine Fisheries Service.

National Pollutant Discharge Elimination System ("NPDES") means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA.

O&M means Operation and Maintenance.

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

Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

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

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

QAP means Quality Assurance Plan.

Regional Administrator means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

Report means report results of an analysis.

Sheen means an iridescent appearance on the water or ice surface.

STP means seawater treatment plant.

s.u. means standard units for pH measurements.

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

Total Suspended Solids (TSS) means a measure of the filterable solids present in a sample, as determined by the method specified in 40 CFR Part 136.

TSD means Technical Support Document.

USFWS means U.S. Fish and Wildlife Service.

µg/L means micrograms per liter.

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused

by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

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

WLA means wasteload allocation.

WQBEL means water-quality-based effluent limitation.

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APPENDIX A. MAP OF FACILITY LOCATION

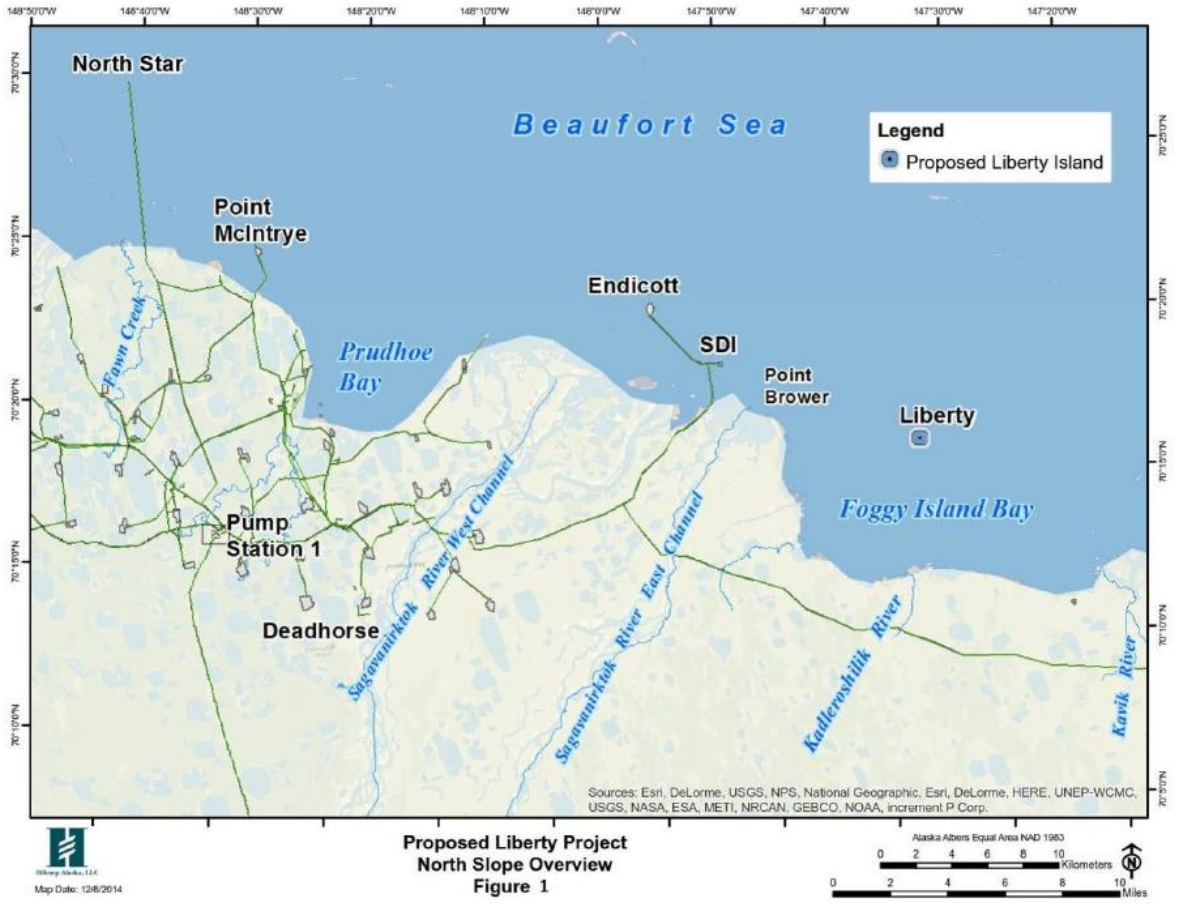

FIGURE A-1: *Location of the Liberty Drilling and Production Island in relation to other offshore and coastal developments.*

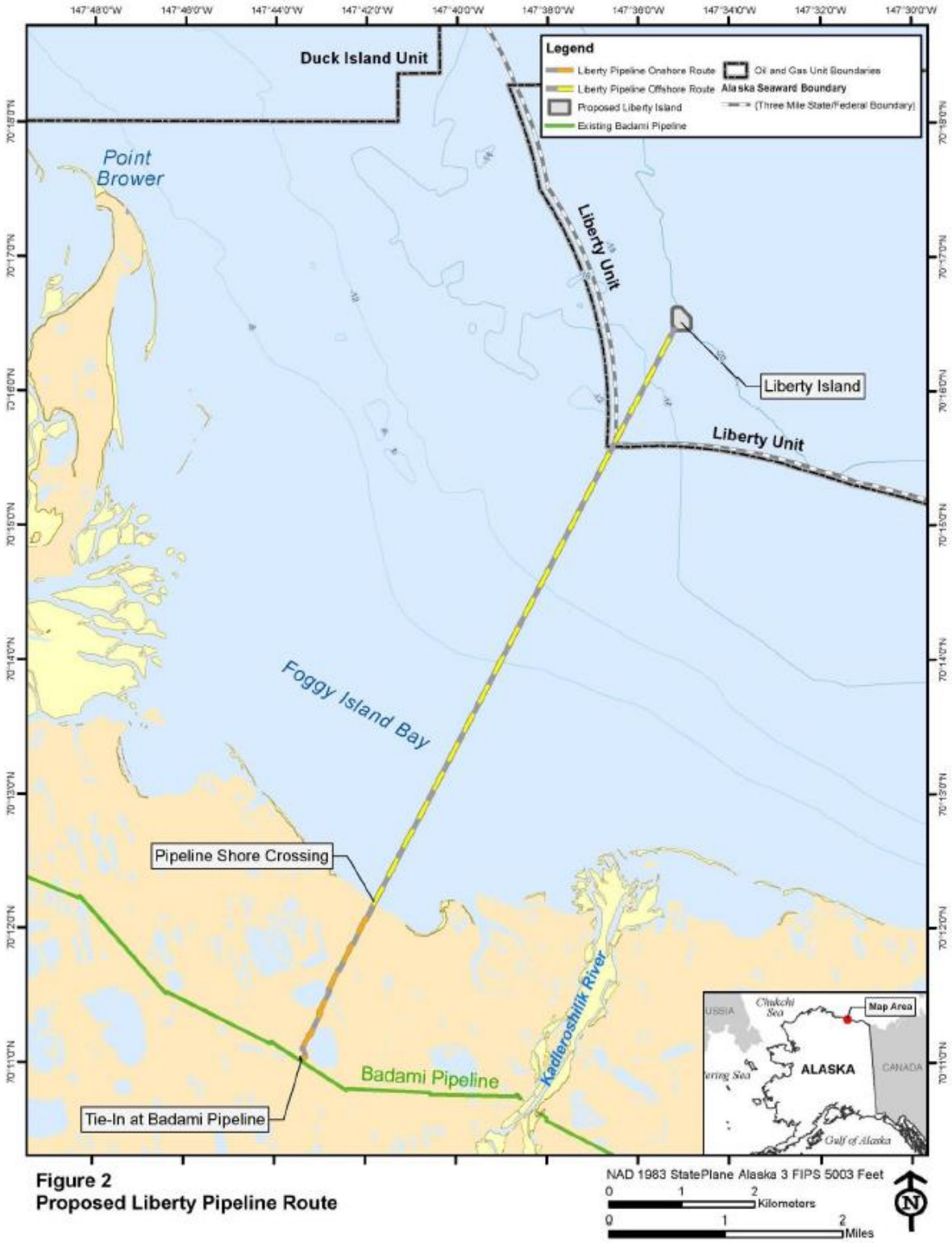

FIGURE A-2: *Location of the Liberty Drilling and Production Island and pipeline route.*

APPENDIX B. TOTAL RESIDUAL CHLORINE LIMIT DEVELOPMENT

1. BEST PROFESSIONAL JUDGEMENT (BPJ) DETERMINATION

There are no effluent limitation guidelines for total residual chlorine discharged from seawater treatment plants, nor is there facility-specific data available. In the absence of such data, permit writers may supplement the analysis with data from existing facilities and permits. In this case, EPA has used data reported in DMRs from the following facilities (2011-2017): Prudhoe Bay STP/Waterflood Facility, Kuparuk STP/Waterflood Facility, and the Endicott STP Facility. Each of these facilities have authorization to discharge wastewater from seawater treatment plant operations to the Beaufort Sea.

2. BEST PROFESSIONAL JUDGEMENT (BPJ) DETERMINATION

The LDPI has not previously been covered under an NPDES permit and, therefore, does not have facility-specific effluent data to evaluate in the development of effluent limitations. Table B-1 lists the dataset used to evaluate TRC in effluent from other comparable STP operating in Alaska and discharging to the Beaufort Sea. It was determined that there were seven outliers in the dataset. A box-whisker plot, Figure B-1, graphically demonstrates the results of the outlier test. These data points have been marked with an asterisk (*) in the table and were not used in the calculations.

TABLE B - 1: TRC (µg/L) EFFLUENT DATA FROM SEAWATER TREATMENT PLANT DISCHARGES TO THE BEAUFORT SEA.

10	100	100	100	30	100	100	20	20	20
100	100	100	100	30	100	100	20	20	20
100	100	100	100	30	100	100	20	20	20
10	100	100	100	20	100	100	20	20	20
100	100	100	100	30	100	100	20	20	20
100	100	100	100	250*	100	100	20	20	20
100	100	100	100	20	100	100	100	20	20
100	100	100	100	20	100	100	100	20	20
100	100	100	100	20	100	20	100	20	20
100	100	100	100	20	100	20	100	20	20
100	100	100	100	20	100	30	100	20	20
100	100	100	100	20	100	1000*	100	20	20
100	100	100	100	20	100	20	100	20	20
100	100	100	100	20	100	20	100	20	20
100	100	100	100	20	100	20	20	20	20
100	100	100	100	30	100	30	20	100	20
100	100	100	100	250*	100	1000*	20	20	20
100	100	413*	100	20	100	20	20	100	20
100	100	100	100	100	100	20	20	20	500*
100	100	100	100	100	100	1000*	20	20	20

100	100	100	100	100	100	20	20	20	20
100	100	100	100	100	100	20	20	20	20
100	100	100	20	100	100	20	20	20	20
100	100	100	20	100	100	20	20	20	
100	100	100	20	100	100	20	20	20	

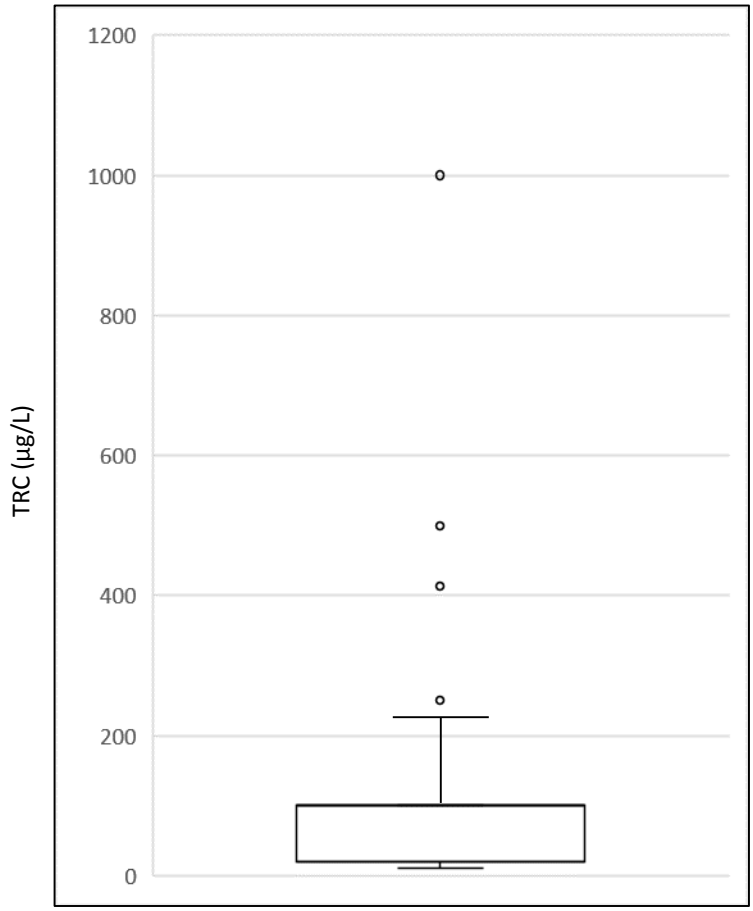

FIGURE B - 1: *Box-and-whisker plot analyzing effluent data for outliers. A box plot is a way of graphically depicting groups of numerical data through their quartiles. The lines extending vertically above and below the box (whiskers) indicate the variability outside the upper (75%) and lower (25%) quartiles. The outliers have been plotted as individual points, note, however, there are 3 data points equal to 1000 µg/L and 2 data points equal to 500 µg/L.*

3. BEST PROFESSIONAL JUDGEMENT (BPJ) DETERMINATION

EPA calculated effluent limitations consistent with the methods outlined in the TSD for the development of technology-based effluent limits. A long-term average (LTA) was calculated using the dataset provided in Table B-1 and based on the requirement of sampling monthly (no less than once per month).

(1) LTA = 70 µg/L
Standard Deviation = 39

Coefficient of Variation (CV) = 0.6

(2) Maximum Daily Limit $= LTA \times e^{[z\sigma - 0.5\sigma^2]} = 204\ \mu g/L$

Where: $\sigma^2 = \ln[CV^2 + 1]$

$z = 2.326\ for\ the\ 99th\ percentile\ probability\ basis$

(3) Average Monthly Limit $= LTA \times e^{[z\sigma_n - 0.5\sigma_n^2]} = 142\ \mu g/L$

Where: $\sigma_n^2 = \ln[{CV^2}/{n} + 1]$

$z = 1.645\ for\ the\ 95th\ percentile\ probability\ basis$