ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FACT SHEET – FINAL

Permit Number: AKG374000

Norton Sound Large Dredge Placer Miners General Permit

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

Public Comment Period Start Date: **April 25, 2013**
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Proposed issuance of an Alaska Pollutant Discharge Elimination System (APDES) general permit for:

NORTON SOUND LARGE DREDGE PLACER MINERS

The Alaska Department of Environmental Conservation (hereinafter referred to as the Department or DEC) proposes to issue an APDES general permit for large dredge placer miners who operate within Norton Sound. The permit authorizes and sets conditions on the discharge of pollutants from large dredges to waters of the United States. 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 outlines best management practices that must be adhered to.

This fact sheet explains the nature of potential discharges from mechanical placer mines and the development of the permit including:

- information on appeal procedures;
- a description of the industry;
- a listing of effluent limitations, monitoring, and other conditions; and
- technical material supporting the conditions in the permit.

Public Comment

The Department has both an informal review process and a formal administrative appeal process for final APDES permit decisions. An informal review request must be delivered within 15 days after receiving the Department's decision to the Director of the Division of Water at the following address:

Director, Division of Water
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Interested persons can review 18 AAC 15.185 for the procedures and substantive requirements regarding a request for an informal Department review.

See http://www.dec.state.ak.us/commish/InformalReviews.htm for information regarding informal reviews of Department decisions.

An adjudicatory hearing request must be delivered to the Commissioner of the Department within 30 days of the permit decision or a decision issued under the informal review process. An adjudicatory hearing will be conducted by an administrative law judge in the Office of Administrative Hearings within the Department of Administration. A written request for an adjudicatory hearing shall be delivered to the Commissioner at the following address:

Commissioner
Alaska Department of Environmental Conservation at
410 Willoughby Street, Suite 303
Juneau AK, 99811-1800.

Interested persons can review 18 AAC 15.200 for the procedures and substantive requirements regarding a request for an adjudicatory hearing. See http://www.dec.state.ak.us/commish/ReviewGuidance.htm for information regarding appeals of Department decisions.

Documents are Available

The permit, fact sheet, and related documents can be obtained by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below. The permit, fact sheet, and other information are located on the Department's Wastewater Discharge Authorization Program website: http://www.dec.state.ak.us/water/wwdp/index.htm.

Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 555 Cordova Street Anchorage, AK 99501 (907) 269-6285	Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 610 University Avenue Fairbanks, AK 99709 (907) 451-2136

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1.0 PERMIT COVERAGE

1.1 Coverage and Eligibility

1.1.1 Section 301(a) of the Clean Water Act (CWA) and Alaska Administrative Code (AAC) at 18 AAC 83.015 provide that the discharge of pollutants is unlawful except in accordance with an Alaska Pollutant Discharge Elimination System (APDES) permit. Although such permits are usually issued to individual dischargers, Alaska Department of Environmental Conservation (hereinafter referred to as DEC or the Department) regulations at 18 AAC 83.205 also authorize the issuance of a general permit to a category of discharges when a number of point sources are:

1.1.1.1 Located within the same geographic area and warrant similar pollution control measures;

1.1.1.2 Involve the same or substantially similar types of operations;

1.1.1.3 Discharge the same types of wastes;

1.1.1.4 Require the same effluent limitations or operating conditions;

1.1.1.5 Require the same or similar monitoring requirements; and

1.1.1.6 In the opinion of the Department, are more appropriately controlled under a general permit than under individual permits.

1.1.2 Permit Part 1.0 describes the permit coverage area and summarizes eligibility requirements for new or expanding facilities. Authorized discharge requires completion of notification requirements and written notification from DEC that coverage has been granted. Notification requirements are further described in Permit Part 1.6.

1.1.3 The permit coverage area is limited to marine waters of Norton Sound up to three nautical miles offshore between Cape Rodney at 166°24’09” west longitude and Cape Darby at 162°46’54” west longitude. See Permit Appendix D for coverage area maps. The designated coverage area encompasses 23,793 acres of State of Alaska lease tracts offered during an Alaska Department of Natural Resources (DNR) offshore mineral lease sale on September 28, 2011. The 2011 lease sale extended approximately three miles offshore of Nome between the mouth of the Nome River to the east and Rodney Creek to the west. Because additional upland mineral claims extend short distances offshore to the west and east of the 2011 lease sale area and may result in similar offshore operations, the permit also covers marine waters westward to Cape Rodney and eastward to Cape Darby. Operations are further limited as described under Permit Parts 1.3 and 1.4.

1.2 Authorized Placer Mining Operations

Permit Part 1.3 outlines operations that are authorized under the permit. The permit provides coverage for large dredges that were not previously eligible for coverage under a general permit. Authorized operations include suction dredges with intake diameters greater than ten inches; suction dredge operations with a combination of intake hoses that have a combined intake area greater than that of a ten inch suction dredge; and mechanical dredges, such as excavators or

clamshell dredges. Because some large scale operations may wish to incorporate a smaller dredge for prospecting or other purposes, the permit also covers suction dredges with intake diameters less than or equal to ten inches provided the small dredge is used in conjunction with a larger operation.

Studies indicate that the production rate of a dredge has only a minor effect on the size of the discharge plume when compared to the effects of the silt content of dredged material, current speed, and position in the ore reserve (Garvin, Sweeney, and Rusanowski, 1991). Therefore, the permit does not set a specific limit on production rate or dredge size. Instead, all permittees must comply with best management practices (BMPs) and meet turbidity limits at the mixing zone boundary, as explained in Fact Sheet Section 5.3.

All new or expanding facilities are considered on a case-by-case basis and must be able to reasonably demonstrate that the proposed operation can meet the permit requirements (Permit Part 1.2). To demonstrate an ability to meet permit requirements, an applicant may be required to submit additional information, including output from a mixing zone model or empirical data from a similar operation. A permittee unable to comply with the general permit requirements or who proposes an operation with a scope beyond the normal operations covered under the general permit, may be denied coverage and required to apply for and obtain an individual permit (Permit Part 1.5).

The permit authorizes discharge of only those pollutants resulting from facility processes, waste streams, and operations clearly related to the mining process. Certain pollutants require monitoring beyond the scope of the permit; therefore, addition of chemicals for the enhancement of mineral recovery or discharge of domestic wastewater is not authorized. Discharges that are not authorized must be covered under another applicable general permit or individual permit.

1.3 Limitations on Coverage

Permit Part 1.4 specifies discharges that are not authorized under the permit. To protect sensitive habitat that may occur within the permit coverage area, the permit does not cover discharges within coral beds, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, shellfish beds, or mudflats.

Additionally, to protect areas with higher populations of seabirds, fish, and marine mammals, as described in the Ocean Discharge Criteria Evaluation for the permit (DEC 2013) and an Environmental Impact Statement for a previous Norton Sound lease sale (MMS 1990), proposed operations within three nautical miles of Sledge Island or east of Cape Nome require additional Department review and approval, and may be subject to site additional effluent limitations, monitoring requirements, and site-specific conditions (Permit Part 1.4.2).

Based on input from the National Marine Fisheries Service (NMFS), the permit further excludes dredging from March 1 to May 31 to ensure protection of red king crab populations that feed and reproduce near shore during spring. To further protect winter king crab fisheries and allow offshore areas an opportunity to recover during winter, the permit also prohibits operation on sea ice. Red king crab habitat is further discussed in Fact Sheet Section 8.3.

1.4 Operations Requiring an Individual Permit

As outlined in APDES regulations, "the department may terminate or revoke any discharger's coverage under a general permit, and may require the discharger to apply for and obtain an individual APDES permit" or "an interested person may petition the department to take action" under certain situations (18 AAC 83.215). For example, an individual permit may be required when 1) the permittee is not in compliance with the conditions of the general permit; 2) a change has occurred in the availability of demonstrated technology or practices for the control of pollutants applicable to the facility; 3) effluent limitations guidelines are promulgated for facilities covered by the general permit; or 4) circumstances have changed so that the permittee is no longer appropriately controlled under the general permit. The permit cites the regulation by reference under Permit Part 1.5.

1.5 Notification Requirements

Applicants with operations eligible for permit coverage must submit a Notice of Intent (NOI). An Annual Placer Mine Application (APMA) submitted to DNR will be accepted as an NOI if all the required information is included. New or expanding facilities, or facilities with a proposed mixing zone larger than 1,600 feet (discussed in more detail in Fact Sheet Section 4.2), may be required to submit additional information, including output from an approved mixing zone model, for the Department's use in processing the NOI or authorizing a mixing zone. The notification requirements are further outlined in Permit Part 1.6.

1.6 Permit Expiration

APDES regulations allow a permit to be effective for a maximum of five years (18 AAC 83.020). The permit will be issued for the maximum term and expire five years after the effective date.

Under 18 AAC 83.210(a), a permit may be administered according to the individual permit regulations found in 18 AAC 83.115 and 18 AAC 83.120. Therefore, if the permit is not reissued prior to its expiration date, the permit will continue in force and effect until a new permit is issued. A permittee who submits a complete NOI at least 90 days prior to the permit expiration date will be covered by the administratively extended permit, unless the Department has granted the permittee permission to submit an application on a later date. However, the Department cannot grant coverage under an administratively extended permit if an NOI is submitted after the expiration date.

2.0 REGULATORY HISTORY OF PLACER MINING IN ALASKA

The U.S. Environmental Protection Agency (EPA) has regulated placer mining under National Pollutant Discharge Elimination System (NPDES) general permits in Alaska since 1994. The following three general permits have covered most active placer operations: the Mechanical Placer Miners General Permit (AKG370000), applicable to open-cut placer mines and similar operations; the Medium-Size Suction Dredge Placer Miners General Permit (AKG371000), applicable to suction dredges with intake diameters greater than six inches and less than or equal to ten inches; and the Small-Size Suction Dredge Placer Miners General Permit (AKG375000), applicable to suction dredges with intake diameters less than or equal to six inches.

Large suction dredge operations (intake diameters greater than ten inches) and mechanical dredge operations in open water, have historically been covered under EPA-issued individual permits. EPA first issued individual permits to large dredges in Norton Sound in 1985 for operations by the Western Gold Exploration and Mining Company (WestGold). WestGold operated the BIMA that at the time was the world's largest floating bucket dredge, from 1986 - 1990 (NPDES Permit No. AK-0004319-2). The BIMA operation incorporated a gravity-based treatment plant that had an average, locally achieved material throughput rate of 460 cubic meters per hour (Garnett and Ellis 1995). As an offshore mining project, the BIMA operation was new to the United States and, therefore, resulted in new protocols in regulations and permit requirements that were formulated to fit the situation. The project was authorized on a tiered basis and regulation was set up in phases, with each phase having well-defined activities. Through an iterative process, BMPs were developed and environmental concerns were addressed and, in many instances, resolved (ENSR 1992). Ongoing evaluation of the BIMA operation against performance criteria helped establish a sound foundation for future permitting of offshore mining operations of similar type and scale.

From 1998 to 2005, EPA issued five individual permits for large suction dredges in Norton Sound as follows:

- Arctic Whitney, Inc., AK-005289-2, issued May 6, 1998, reissued July 14, 2003;
- Aaron Gustafson, AK-005310-4, issued April 29, 1999;
- This Corporation, AK-005318-0, issued July 7, 2000;
- Craig Coggins, AK-005331-7, issued February 12, 2003; and
- Concha Holdings, Ltd., AK-005342-2, issued June 4, 2005.

On October 31, 2008, EPA approved the State's application to administer the NPDES program in the State of Alaska. According to the Memorandum of Agreement between EPA and DEC, authority to administer the State's program, known as the APDES Program, transferred in phases over four years (DEC 2008). Under this phased approach, mining permits transferred in year two on October 31, 2010. The transfer of mining permits included the following three individual permits for large suction dredges in Norton Sound: Craig Coggins, AK-005331-7, reissued October 29, 2008; Wesley Devore, AK-005347-3, issued October 29, 2008; and Jim Gribben, AK-005353-8, issued November 18, 2008.

DNR held a competitive sale for offshore mineral leases in Norton Sound on September 28, 2011. The lease sale offered a total acreage of 23,793 acres and brought in $7.6 million in sales (personal communication, Bill Cole, Geologist, DNR, November 23, 2012). Mineral leases were purchased by a range of bidders, from local residents to global mining companies. As of September 18, 2012, the lease sale, combined with media coverage and record gold prices, had resulted in 17 new or proposed permit applications for large gold dredge operations in Norton Sound. Although not all proposed operations are anticipated to reach development, the Department anticipates that many may be become operational. In order to accommodate new operations and streamline the permitting process for operations in Norton Sound, DEC initiated development of the Norton Sound Large Dredge Placer Miners General Permit.

3.0 INDUSTRY DESCRIPTION

Placer mining involves the mining and extraction of eroded particles of gold or other heavy metals and minerals primarily from unconsolidated sediment deposits. These deposits may be in existing stream beds or ancient, often buried, stream deposits (i.e., paleo or fossil placers). Many Alaskan placer deposits consist of unconsolidated clay, sand, gravel, cobble and boulders that contain very small amounts of native gold or other precious metals. Most are stream deposits occur along present stream valleys or on benches or terraces above existing streams. Beach placer deposits have been and continue to be important producers in Alaska. These deposits, most notable near Nome, include both submerged and elevated beach placer deposits.

3.1 Mining Methods

Dredging systems are classified as hydraulic or mechanical, depending on the methods of excavation. Suction dredges, the most common hydraulic dredging system, are quite popular in Alaska with small, medium, and large-scale gold placer miners. Like all dredges, suction dredges consist of a supporting hull with a mining control system, excavating and lifting mechanism, gold recovery circuits (e.g., wash plant, sluice box), and waste disposal discharge. All dredges are designed to work as a unit to dig, classify, beneficiate ores and dispose of waste. Mechanical dredges operate in a manner similar to suction dredges. However, mechanical dredges use a mechanical bucket system (e.g., excavator, clam shell), rather than a suction hose, to elevate material to the wash plant. Furthermore, mechanical dredges utilize a water pump only to provide water to the beneficiation system. Because suction dredges and mechanical dredges work the ocean floor, or inter-tidal zone, rather than terrestrial areas, the discharge consists entirely of ocean water and bed material.

3.2 Processing Methods

Suction dredges and mechanical dredges use a sluice box to perform the primary processing function of beneficiation. Many large-scale operations also make use of feed size classification that involves the physical separation of large rocks and boulders from smaller materials such as gravel and sand. The object of classification is to prevent the processing of large-sized material that is unlikely to contain gold values. The primary tool used for classification is the wash plant. The wash plant is an assemblage of equipment, such as grizzlies, trommels, static or vibrating screens, and jig plants, that separates minerals for further concentration and allows waste material to flow out of the machine. The most common gold recovery method, however, is sluicing. The sluice box is a long, sloped trough into which water is directed to separate gold from waste material. A slurry of water and ore flows down the sluice and the gold, due to its relatively high density, is trapped in riffles along the sluice. The concentrated material from the sluice box is then further separated by panning or use of specialized equipment, such as jigs or shaking tables.

4.0 RECEIVING WATERBODY

The permit authorizes discharges to marine waters of Norton Sound up to three nautical miles offshore between Cape Rodney at 166°24’09” west longitude and Cape Darby at 162°46’54” west longitude with certain restrictions in the permit (Fact Sheet Section 1.0).

4.1 Water Quality Standards

Regulations in 18 AAC 70 require that the conditions in permits ensure compliance with the Alaska Water Quality Standards (WQS). The State's WQS are composed of use classifications, numeric and narrative water quality criteria, and an antidegradation policy. The use classification system designates the beneficial uses that each waterbody is expected to achieve. The numeric and narrative water quality criteria deemed necessary by the State to support the beneficial use classification of each waterbody.

Waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230(e). Some waterbodies in Alaska can also have site–specific water quality criteria per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b). However, Norton Sound has not been reclassified or granted site-specific water quality criteria.

4.2 Mixing Zone Analysis

In accordance with State regulations, the Department has authority to authorize a mixing zone in a permit (18 AAC 70.240, as amended through June 26, 2003). An authorized mixing zone must ensure that WQS will be met at all points outside of the mixing zone.

4.2.1 Dimensions and Permit Requirements

Permittees covered under the permit are authorized a 1,600 foot radius mixing zone. All WQS must be met at the boundary of the mixing zone. Studies and model results from the WestGold BIMA operation indicate that the production rate of the dredge had only a minor effect on the size of the discharge plume when compared to the effects of the silt content of dredged material, current speed, and position in the ore reserve (Garvin, Sweeney, and Rusanowski 1991). Because operational practices affect discharge characteristics more than dredge size or production rate, the permit authorizes a standard mixing zone and controls the discharge through the implementation of BMPs (Fact Sheet Section 5.4).

The mixing zone dimension and permit requirements are based on prior EPA-issued NPDES individual permits for large-scale suction and mechanical dredge operations in Norton Sound (AK-004319-2, AK-005331-7, AK-005347-3, and AK-005353-8). EPA-issued individual permits originally applied the results of research from the WestGold BIMA operation in Norton Sound (ENSR 1989, Fact Sheet Section 2.0) and authorized a 500 meter (1,640 feet) radius mixing zone, wherein discharges were allowed to exceed WQS. This permit retains the same mixing zone dimension; however, to remain consistent with similar DEC-issued placer mine general permits, the radius is converted to feet and rounded to the nearest 100 feet. A review of annual reports, aerial photos, and data from site visits of similar large-scale dredge operations, further indicates that large-scale dredge operations when adhering to BMPs and monitoring requirements are able to comply with a 1,600 foot radius mixing zone and meet all WQS at the boundary of the mixing zone.

An applicant may be granted a mixing zone larger than 1,600 feet on a case-by-case basis. The applicant, upon request, must provide all available evidence reasonably necessary to assist in the mixing zone authorization, including output from an approved mixing model or any information necessary to assist in the mixing zone calculation. A mixing zone larger than 1,600 feet will be calculated and authorized based on empirical

data collected during operation; discharges from similar operations; and / or a mixing zone model, such as CORMIX or other appropriate software. The expanded mixing zone must remain consistent with the Clean Water Act and 18 AAC 70.240 – 18 AAC 70.270 (as amended through June 26, 2003). Due to habitat concerns and comments received during the public notice period, an expanded mixing zone would not be authorized for an operation proposed within three nautical miles of Sledge Island or east of Cape Nome from 165°10’00” west longitude. Furthermore, the Department may require a permittee with an expanded mixing zone to comply with additional permit requirements (Fact Sheet Section 5.3). A mixing zone request would be submitted via an approved Department mixing zone application form.

4.2.2 Rationale

During the process of offshore mining, trace-metal concentrations in the water column may be increased 1) through the release of metals dissolved in interstitial waters, 2) by washing metals off of dredged tailings, 3) through the resuspension of particulate trace metals, and 4) by exposing previously buried placer deposits with high-metal content to the water column (MMS 1990). The U.S Geological Survey (USGS) described fourteen metals (i.e., aluminum, antimony, arsenic, calcium, copper, chromium, cadmium, magnesium, mercury, nickel, lead, selenium, silver, and zinc) targeted for monitoring from placer suction dredge operations (USGS 1997). In EPA’s Permit Recommendations Resulting from the EPA Metals Study (EPA 1999b), EPA evaluated the relationship of turbidity and metals in freshwater placer mining discharges after the effluent had been treated using settling ponds. Although discharges from terrestrial placer operations and marine dredges may differ somewhat, EPA’s (1998, 1999a) study showed that for most metals, turbidity is a reliable indicator parameter for the level of metals in the effluent. Monitoring data collected during the BIMA operation from 1986 -1990 (Fact Sheet Section 2.0) also demonstrated that 1) metal concentrations in the discharge were primarily in particulate form, rather than the more toxic dissolved form; 2) concentrations of total metals in the effluent rarely exceeded the effluent discharge criteria; and 3) metal concentrations met water quality criteria much closer to the discharge point than turbidity samples (Crecelius 1990, Garvin, Sweeney, and Rusanowski 1991). It is therefore expected that turbidity would be a reasonable indicator for effluent metal levels in marine placer mining discharges. Accordingly, an operation in compliance with the water quality criteria for turbidity would also be assumed in compliance with water quality criteria for metals.

Prior studies (ENSR 1989, MMS 1990, Prussian et al. 1999, USGS 1997), the Ocean Discharge Criteria Evaluation for this permit (Fact Sheet Section 8.1), and subsequent inspections of dredge operations affirm that suction or mechanical dredging conducted according to permit conditions has only localized impacts from the temporary disturbance of sediments and increased turbidity during mining; however, areas beyond the mixing zone remain unaffected.

In authorizing this mixing zone, the Department considered all aspects required in 18 AAC 70.015 (Antidegradation policy) and 18 AAC 70.240 - 270 (Mixing zones), as amended June 26, 2003, including, but not limited to, the predicted effluent quality from the discharge and the potential risk to human health and to aquatic resources.

The Department finds that the mixing zone authorized for a discharge following the requirements in this permit is appropriate and provides reasonable assurance that designated and existing uses of the receiving waters at the boundary of the mixing zone will be maintained and fully protected.

5.0 EFFLUENT LIMITATIONS

5.1 Basis for Permit Effluent Limits

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 effluent 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 WQS for a waterbody are met. Water quality-based effluent limits may be more stringent than technology-based effluent limits. The permit limits reflect whichever requirements (technology-based or water quality-based) are more stringent.

5.2 Technology-Based Limits

EPA promulgated effluent limitation guidelines (ELGs) for the gold placer mining point source category in 1988 [40 CFR § 440.143 Subpart M, as adopted by reference at 18 AAC 83.010(g)(3)]. The ELGs specify the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT), the best available technology economically achievable (BAT), and New Source Performance Standards (NSPS). The ELGs also established BMPs. However, the gold placer mining ELGs are not applicable “to dredges which process less than 50,000 cu yd of ore per year, or to dredges located in open waters (i.e., open bays, marine waters, or major rivers).” Because the majority of anticipated applicants under the permit process less than 50,000 cu yd of ore per year and the permit coverage area only includes open waters, the permit does not contain technology-based effluent limits.

5.3 Water Quality-Based Effluent Limits

The CWA requires the establishment of limitations in permits necessary to meet WQS by July 1, 1977 [CWA § 301(b)(1)]. All discharges to state waters must comply with state regulations, as well as with WQS, including the state's antidegradation policy. APDES regulations require that permits include water quality-based effluent limits that "achieve water quality standards established under CWA § 303, including State narrative criteria for water quality" [18 AAC 83.435(a)(1)].

Pursuant to 18 AAC 83.475(3), BMPs must be included in a permit “when numeric effluent limitations are infeasible.” Dredging’s unique method of intake and displacement presents unusual permitting issues. As previously discussed, a dredge is a mechanical device that operates on the water surface and elevates bed material and *in situ* water into a sluice box from which gold or other minerals may be recovered. The discharge from dredges consists entirely of intake water and bed material immediately released back into the receiving water. Because dredges do not contain treatment systems, nor add pollutants other than those already present in the intake water or bed material, numerical limitations are considered infeasible for most operations; therefore, BMPs have been established in the permit to control the discharges (Permit Part 3.1).

DEC determined that turbidity is a pollutant of concern that must be limited in order to meet State WQS. The BMPs include requirements to minimize and manage turbidity from the discharge and are applicable to all facilities authorized under the permit. Additionally, turbidity monitoring is required at the mixing zone boundary and ensures that the BMPs are being implemented properly (Permit Part 2.0). The permit requires a daily visual inspection of turbidity within the mixing zone. The inspection must be conducted during normal operation after the plume has reached its full extent. Any visual increase in turbidity beyond the boundary of the 1,600 foot mixing zone is a violation of the permit. If turbidity is observed beyond the mixing zone, the permit requires the permittee to decrease or cease operations in order to meet the permit limit. In most cases, water quality recovers rapidly when the permittee takes action.

A permittee authorized a mixing zone larger than 1,600 feet or a permittee unable to comply with the visual monitoring requirement may be required to meet numerical effluent limits and/or collect water samples in lieu of, or in addition to, visual limitations and monitoring. Alternative effluent limits are implemented on a case-by-case basis dependent on the size, scale, and nature of the operation and include specific minimum requirements. At a minimum, turbidity at the boundary of the authorized mixing zone may not exceed an instantaneous measurement of 25 nephelometric turbidity units (NTU), in accordance with the State's WQS [18 AAC 70.020 (b)(24), as amended through April 8, 2012].

Although State WQS establish a turbidity criterion of 25 NTU for marine waters, storm events or other natural conditions can generate high turbidity and cause background levels to exceed 25 NTU. Under such conditions, a mixing zone boundary limit of 25 NTU is infeasible. Data collected during the BIMA operation (Fact Sheet Section 2.0) supports the potential for turbidity exceedances due to natural conditions. Turbidity data were collected from two instrument arrays located on buoys upcurrent and downcurrent of the BIMA operation. Because two turbidity sensors were deployed at each instrument array, it was possible to study the variation in turbidity readings at a single location. Variability of background turbidity reached a maximum of 252 NTU. The average difference in background measurements recorded simultaneously by the two sensors was 10 NTU with a standard deviation of 15 NTU and a 95% confidence interval for the mean difference of +/- 0.44 NTU with a sample size of 1,993. Effluent measurements at the mixing zone boundary had a mean difference of 18 NTU with a standard deviation of 26 NTU and a 95% confidence interval for the mean difference of +/- 1 NTU with a sample size of 2,558 (ENSR 1989). Thus, simultaneous measurements at the same location may vary on average by +/- 11 NTU to 19 NTU.

To account for background conditions and natural variability, the Department may approve a site-specific criterion and permit limit within the permit authorization, provided the criterion is consistent with 18 AAC 70.235, as amended through June 26, 2003. Any site-specific criterion would be based on historical background data, as well as data collected during the active operation. Prior to approval, the public would be provided reasonable notice of, and an opportunity to comment on, the modified turbidity limit, and access upon request to all data and other information used to calculate the limit.

Because effluent limitations based on water quality criteria alone are considered infeasible when background turbidity is naturally elevated, the permit also implements BMPs, in accordance with 18 AAC 83.475(3). Permit limits and monitoring, combined with the BMPs, will help ensure that the receiving water is adequately protected for all existing and designated uses.

5.4 Best Management Practices (BMPs)

BMPs are measures that are intended to prevent or minimize the generation and the potential for the release of pollutants from industrial facilities to the waters of the U.S. through normal operations and ancillary activities. APDES permits must include BMPs to control or abate the discharge of pollutants when 1) numeric effluent limitations are infeasible or 2) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA [18 AAC 83.475(3) – (4)]. The required BMPs and rational are as follows:

5.4.1 The permittee must refrain from dredging that causes undercutting, littoral channeling, or that otherwise results in beach erosion.

This practice ensures that beach erosion does not occur and that the finer sediments that may be found in these areas do not cause turbidity problems in the receiving waters.

5.4.2 Reasonable care shall be used when mining through silt and clay materials that would result in a significant increase in turbidity. Reasonable care includes moving the dredge to a new location; limiting the operating speed of the dredge; or implementing additional turbidity control methods, beyond those under Parts 3.1.3 – 3.1.7, to specifically control the extraneous resuspension of silts and clays.

This practice decreases the amount of fine material that will be released into the water and minimizes the length of the turbidity plume.

5.4.3 Operational controls to reduce turbidity generated during excavation must be implemented as follows.

5.4.3.1 Mechanical dredge operations must avoid bucket over-penetration and overfilling, multiple bucket bites, bucket dragging, and bottom stockpiling. Bucket ascent speed and lateral movement of the submerged bucket must be reduced or controlled to minimize sediment wash.

5.4.3.2 Cutterhead dredge operations must use reasonable care to reduce cutterhead rotation and swing speed, in relation to suction velocity, in order to eliminate unnecessary side-casting and resuspension of sediment.

These practices, based on similar operational controls for sediment dredge operations, are intended to ensure that sediment released into the water column during excavation is kept to a minimum and does not generate unnecessary turbidity.

5.4.4 Site conditions, such as tides, waves, currents, wind, and substrate type, must be considered and operational methods must be adjusted, as necessary, to ensure discharges comply with permit limits and separation distance requirements, per Part 3.2.

This practice helps ensure that operators monitor the current and other environmental conditions that may affect the turbidity plume length, shape, or location.

5.4.5 Operations in water depths greater than 30 feet must install a downspout, or similar equipment, at the primary outfall(s) on the dredge where discharge of fine material occurs. The discharge from the downspout must occur at least five (5) feet below the water surface and as close to the sea floor as practicable. As a standard operating practice, the downspout must be elevated or deflected as necessary to prevent any scouring and minimize resuspension of sediment.

This practice helps ensure solids are returned as close to the excavated area as possible, decreases the dispersion of fine material released into the water column, minimizes the area of the turbidity plume, and confine the seafloor disturbance to the excavated area. Because a downspout in shallow water is more likely to cause bottom-scouring, more likely to be damaged, and less effective overall, the permit only requires use in depths greater than 30 feet.

5.4.6 All wastewater discharges, including those from oversized, screened material, must be controlled to minimize aeration and reduce air entrainment that may hinder particle settling. Controls include avoiding discharges into air, directing discharges vertically downward or use of downspouts, deflectors, or similar equipment.

This practice reduces the amount of entrained air within the discharge and enhances particle settling rates. Once entrained, air rises to the water surface and takes fine particles with it. As a consequence, the fines spread over a much larger area which increases turbidity. A properly designed outfall reduces air entrainment, encourages particle settling, and, therefore, reduces turbidity.

5.4.7 Mechanical dredges, particularly those that operate in water depths greater than 30 feet, should be fitted with closeable, sealed buckets when economically feasible and practicable.

Similar to operational controls (Fact Sheet Section 5.4.3), this practice is intended to ensure that sediment released into the water column during excavation is kept to a minimum and does not generate unnecessary turbidity. Combined with a properly designed outfall (Fact Sheet Sections 5.4.5 – 5.4.6), this practice will help control and minimize turbidity throughout the entire excavation and discharge process.

5.4.8 Red king crab mating pairs and clusters must be avoided. If red king crab mating pairs or clusters are observed, mining operations must move to an alternate location where no crabs are observed or cease operation until the crabs move away on their own.

This practice ensures that disturbance of red king crab is minimized and that mating pairs or clusters are not disturbed or otherwise harmed.

5.4.9 Releases of petroleum products and other hazard substances must be prevented or mitigated as follows.

5.4.9.1 Equipment and systems must be regularly inspected and maintained to avoid situations that result in leaks, spills, and other releases of pollutants. Equipment must be free of excess oils and grease and must not release petroleum products. Biodegradable lubricants and fluids should be used in place of petroleum-based products when economically feasible and practicable.

5.4.9.2 Precaution must be taken to ensure that petroleum products are stored at a reasonable distance from the waterbody and cannot spill or otherwise enter the waterbody. Care shall be taken during refueling of the equipment to prevent spills.

5.4.9.3 Drip pans or absorbents must be used under or around leaky equipment when practicable. Any spills must be cleaned up using materials such as sorbent pads and booms. All spills must be reported upon discovery per Permit Part 4.4.

The BMPs under Fact Sheet Section 5.4.9 ensure that petroleum contamination from equipment, fuel storage, or refueling is prevented or mitigated. The reporting requirement is included based on DEC regulations that state "a person must notify the [DEC] by telephone immediately in the result of a release or discharge of a hazardous substance" (18 AAC 75.300).

5.4.10 Mercury from historical dredge operations or other pollutants may be encountered during dredge operations. The permittee must take measures to ensure mercury or other heavy metal pollutants, such as lead, that are removed from the wastewater streams are retained in storage areas and not released to the waters of the U.S. Information on how to safely handle, store, and dispose of mercury or other pollutants can be obtained by contacting DEC at the address in Permit Appendix A, Part 1.1.1.

Due to historical mining operations, commercial and subsistence fishing, and other factors, dredge operations may occasionally encounter mercury, lead (e.g.,buckshot, fishing weights), or other heavy metal pollutants. The intent of this practice it to ensure that any collected pollutants are properly disposed of and not returned to the waterbody.

5.5 Separation Requirements

Permit Part 3.2 outlines separation requirements applicable to turbidity plumes. To 1) minimize cumulative impacts from multiple facilities operating simultaneously in close proximity to each other and 2) prevent monitoring difficulties and turbidity limit violations due to plume overlap, permittees must ensure that discharged turbidity plumes do not overlap with the plumes of other active dredging operation. To verify vessel locations, permittees must maintain daily records that include the arrival time, departure time, and outfall coordinates for each dredge site or dredge track.

Additionally, permittees must allow for a zone of passage for fish around turbidity plumes at all times. To provide a zone of passage for smolt outmigration, discharge is prohibited within one mile of any anadromous stream or river mouth from June 1to July 15. To provide a zone of passage for adult salmon migration into streams and rivers, discharge is prohibited within a half mile of any anadromous stream or river mouth from July 16 to September 15. Year round, permittees must

ensure that visible turbidity from a discharge plume does not occur within 500 feet from the mouth of any anadromous stream or river. Anadromous stream and river separation requirements are based on input from NMFS and Alaska Department of Fish and Game (ADF&G), and similar requirements contained in DNR and U.S. Corps of Engineers permits for operations in Norton Sound. Anadromous waters are identified in the ADF&G Anadromous Waters Catalog and included in Permit Appendix D.

Small, medium, and large scale dredges with different plume lengths operate in Norton Sound; therefore, the permit does not implement specific separation distances between dredges. Alternatively, the Norton Sound Large Dredge Placer Miners General Permit and similar permits for smaller operations (e.g., AKG371000, AKG375000) require that permittees monitor plume locations and ensure that plume overlap does not occur regardless of dredge size.

Furthermore, to protect anadromous fish migration, the permit requires a year-round separation distance between turbidity plumes and the mouths of anadromous streams or rivers. Because currents, discharge volume, mixing zone length, and other factors can potentially affect the plume location relative to a nearby anadromous stream, the separation requirement ensures that a stream mouth buffer is provided, regardless of dredge location. Moreover, the separation requirement still provides a permittee the flexibility to operate up to 500 feet from a stream mouth in situations where the ocean currents would carry the plume away from the stream mouth. The Department, at its discretion, may further modify separation requirements within the permit authorization as necessary (Permit Part 3.2).

Designated critical habitat for spectacled eiders, listed as threatened under the Endangered Species Act, occurs south and west of Cape Darby, and is adjacent to, but does not overlap the permit coverage area. To protect spectacled eiders that may occur within the permit coverage area, the permit requires permittees to maintain a minimum distance of 1,000 feet from any large flock of spectacled eiders within areas known to have high bird populations, i.e., Sledge Island and east of a location near Cape Nome (Permit Part 3.2.5).

6.0 OTHER PERMIT CONDITIONS

6.1 Monitoring Requirements

APDES regulations require that permits include monitoring to determine compliance with permit requirements (18 AAC 83.455). Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting visual monitoring on a daily basis and for reporting results to DEC (Permit Part 2.2). A permittee that is authorized a mixing zone larger than 1,600 feet or unable to comply with visual monitoring, may be required to comply with alternative monitoring requirements (e.g., water samples) in lieu of, or in addition to, visual monitoring (Permit Part 2.4). Alternative monitoring requirements are issued on a case-by-case basis and are based on the size, scale, and nature of the operation. The Department will outline specific requirements within the permit authorization.

6.2 Recording and Reporting Requirements

The permit contains recording and reporting requirements that are based on standard regulatory language (Fact Sheet Section 6.3) and additional requirements specific to the permit. Recording and reporting requirements stipulate that the permittee must maintain daily records and submit

an annual report to DEC by January 31 for the previous calendar year (Permit Part 4.2). At the Department's discretion, a permittee with a new or expanding operation may be required to submit monthly reports for a minimum of one season of operation until the permittee reasonably demonstrates an ability to meet permit limits and upon receipt of written approval from the Department (Permit Part 4.3). Additionally, Permit Appendix A, Part 3.4 (Twenty-four Hour Reporting) requires reports of any noncompliance event that may endanger health or the environment to be submitted orally within 24 hours after the permittee becomes aware of the circumstances and in writing within five days after the permittee becomes aware of the circumstances.

The 24-hour reporting requirement is based on state regulations and must be contained in all APDES permits [18 AAC 83.410(f)]. The state regulation is based on the CWA and federal regulations that assume that the facility has access to roads and immediate communication. The regulation does not consider the logistical or communication difficulties present in many remote locations in Alaska. DEC has received requests to modify Permit Appendix A, Part 3.4 to consider logistical and communication difficulties of remote sites. However, DEC is unable to modify standard permit conditions that are based on State regulations. Although DEC is aware of the logistical difficulties of remote operations and recognizes that some permittees may have difficulties meeting the 24-hour noncompliance reporting requirement, permittees are still required to notify DEC of any noncompliance. DEC encourages permittees who report after the deadlines, due to the remoteness of the activities, to also include a separate statement that explains the reason for any late reports.

6.3 Standard Conditions

Appendix A of the permit contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an individual APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

7.0 ANTIDEGRADATION

The antidegradation policy of the Alaska WQS states that the existing and designated water uses and the level of water quality necessary to protect existing uses must be maintained and protected (18 AAC 70.015). The following analysis provides rationale for the Department's decisions with respect to the antidegradation policy.

The Department's approach to implementing the antidegradation policy is based on the requirements in 18 AAC 70 and the *Interim Antidegradation Implementation Methods* (DEC 2010). Using these requirements and policies, the Department determines whether a waterbody or portion of a waterbody is classified as Tier 1, Tier 2, or Tier 3. A higher tier indicates a greater level of water quality protection. At this time, the Department has not designated any Tier 3 waters in Alaska. This analysis conservatively assumes that all authorizations completed under the permit will be for discharges to Tier 2 waters. Accordingly, the following antidegradation analysis is for Tier 2 waters.

The State of Alaska's antidegradation policy states that existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected. If the quality of

water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the Department, after receiving from the applicant all information reasonably necessary for a decision on the application, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose, as authorized in a Department permit, certification, or other approval. The Department will authorize a reduction in water quality only after the applicant submits evidence in support of the application and the Department finds that the five specific requirements of the antidegradation policy at 18 AAC 70.015(a)(2)(A)-(E) are satisfied. The Department's findings follow:

7.1.1 18 AAC 70.015 (a)(2)(A). Allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located.

The implementation of BMPs is the most feasible method of controlling the unique type of discharge covered under this permit. Accordingly, the lowering of water quality is necessary in the area where the water is located as the Department has found that the most effective and reasonable methods of pollution control (i.e., BMPs) are being applied to the discharges (See Fact Sheet 7.1.4).

Placer gold mining has occurred near Nome for over 100 years and has played an integral role in the economy and community development. From 1898 to 1993, an estimated 4,822,569 ounces gold were produced from stream, hillslope or colluvial, glacial, and marine strandline placer deposits throughout the area, making the Nome district Alaska's second largest producer of placer gold (Bundtzen et al. 1994). Reports estimate 3.3 million to 10 million ounces of gold remain in the permit coverage area (Lasley 2011).

DNR held a competitive sale for offshore mineral leases in Norton Sound on September 28, 2011. The lease sale conveyed a total acreage of 23,793 acres and brought in $7.6 million in sales (personal communication, Bill Cole, Geologist, DNR, November 23, 2012). Mineral leases were purchased by a range of bidders, from local residents to global mining companies. The lease sale, combined with media coverage, has resulted in 17 new permit applications for large gold dredge operations in Norton Sound.

As described in the DNR Final Finding and Decision for the lease sale (DNR 2011), a vibrant offshore mining industry would provide jobs for Alaskans, particularly in the Nome area. A number of offshore dredgers presently live in Nome. Some currently have leases or operate on leases held by other miners. These dredgers would benefit from the opportunity to operate on new leases. Mining operations also purchase significant amounts of equipment, parts, fuel, food, freight, and other services; bring business to local merchants and suppliers; and expand and diversify the local economic base. If large mining operations were to develop, the boon to local businesses would create even more jobs supporting the mining industry. During the operation of the BIMA dredge from 1986 -1990, WestGold (Fact Sheet Section 2.0) injected approximately $8 to10 million per year into the Nome economy (Rusanowski and MacCay 1990, as cited in DNR 2011).

Depending on whether the operator hires local personnel, mining can be an important source of new jobs in the Nome community. DNR does not have the authority to require local hire, but lease sale stipulations encourage it (DNR 2011). From 1986 through 1989, WestGold employment at Nome was 434 person years. Of that employment, 292 person

years were Nome residents and 325 person years were Alaska Residents, 67% and 75%, respectively. (Rusanowski and MacCay 1990, as cited in DNR 2011).

As a secondary economic benefit, placer gold operations in Alaska have attracted media attention and resulted in the production of multiple cable television series. Expenditures on goods and services during production stimulate the local and statewide economy. Alaska Film Office reports, available at http://www.film.alaska.gov/reports/index.html, indicate that $984,157 in Alaska production expenses was incurred during production in Nome from June 28 to November 5, 2011 and submitted to the State for tax credit approval. Although not all of these expenditures were necessarily spent in Alaska, it is reasonable to assume that a significant amount provided economic benefit to Alaska's economy.

The Department finds that the lowering of water quality is necessary to accommodate important economic and social development in the area where the waterbody is located and that this requirement is met.

7.1.2 18 AAC 70.015 (a)(2)(B). The reduced water quality will not violate applicable water quality criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030.

The Norton Sound Large Dredge Placer Miners General Permit requires adherence to BMPs and authorizes a mixing zone for turbidity to ensure that applicable water quality criteria are met at the mixing zone boundary and within the waterbody as a whole. Limits and monitoring in Permit Part 2.0, BMPs in Permit Part 3.1, Separation Requirements in Permit Part 3.2 , Site-Specific Requirements in Permit Part 3.3, and mixing zones authorized in accordance with 18 AAC 70.240 (amended through June 26, 2003) will protect water quality under 18 AAC 70.020. Moreover, dredging is a mobile operation, and impacts are localized and transient. See Fact Sheet Section 8.1 for a summary of the Ocean Discharge Criteria Evaluation developed for the Norton Sound Large Dredge Placer Miners General Permit for additional information.

Discharges authorized under this permit will not violate applicable water quality criteria per the site-specific criteria regulations found at 18 AAC 70.235. Under this regulation, the Department may establish site-specific water quality criterion that modifies a water quality criterion set for a waterbody. Currently there are no site-specific criteria established for the receiving waters applicable to this permit. If a site-specific criterion is authorized, a permittee must comply with any additional requirements as described in Permit Part 2.4 and implemented via the permit authorization.

Discharges authorized under this permit will not violate the applicable whole effluent toxicity limit found at 18 AAC 70.030. Discharges do not introduce contaminants that do not already exist in the sediment and water; therefore, whole effluent toxicity is not a concern and further evaluation is not required.

The Department finds that the reduced water quality will not violate applicable water quality criteria or the whole effluent toxicity limit and that the requirement is met.

7.1.3 18 AAC 70.015(a)(2)(C). The resulting water quality will be adequate to fully protect existing uses of the water.

EPA-issued NPDES individual permits have authorized discharges from large dredges in Norton Sound since 1985. To date, no negative impacts on the local aquatic ecosystems from large dredge discharges authorized by individual permits have been documented. When compared to requirements in previous individual permits, this permit does not propose any changes that would contribute to the discharge of lower quality wastewater.

The Department finds that the resulting water quality will be adequate to fully protect existing and that this requirement is met.

7.1.4 18 AAC 70.015(a)(2)(D). The most effective and reasonable methods of pollution prevention control and treatment will be applied to all wastes and other substances to be discharged.

The Department finds the most effective methods of prevention, control, and treatment are the practices and requirements set out in this permit and currently in use at these operations. Permittees are required to 1) comply with permit limits and monitoring requirements and 2) implement the BMPs that include pollution prevention measures and controls appropriate for each operation. The Department, on a case-by-case basis, may include additional site-specific requirements for any operation in order to ensure that the most effective and reasonable methods of pollution control are implemented.

The Department finds that this requirement to address pollution prevention, control, and treatment is met.

7.1.5 18 AAC 70.015(a)(2)(E). Wastes and other substances discharged will be treated and controlled to achieve the highest statutory and regulatory requirements.

Applicable "highest statutory and regulatory requirements" are defined in 18 AAC 70.990(30) (June 26, 2003). Accordingly, there are three parts to the definition. The first part of the definition includes all federal technology-based ELGs, as found in 40 CFR Part 440 Subpart M, as adopted by reference at 18 AAC 83.010(g)(3). Pursuant to Subpart M (b), the provisions of Subpart M are not applicable to facilities under the Norton Sound Large Dredge Placer Miners General Permit. Therefore, as described in Fact Sheet Section 5.2, the permit does not contain technology-based effluent limits.

The second part of the definition appears to be in error as 18 AAC 72.040 considers discharge of sewage to sewers and not minimum treatment. The correct reference appears to be the minimum treatment standards found in 18 AAC 72.050, which refers to domestic wastewater discharges only. Because discharge of domestic wastewater is not authorized under this permit, further evaluation of this part is not required.

The third part includes any more stringent treatment required by state law, including 18 AAC 70 and 18 AAC 72. The correct operation of equipment, visual monitoring, and BMP implementation, as well as other permit requirements, will control the discharge and satisfy all applicable federal and State permit conditions and requirements. See the rationale detailed in Fact Sheet Section 7.1.2.

The Department finds that the treatment required by the permit achieves the highest statutory and regulatory requirements and that this requirement is met.

8.0 OTHER LEGAL REQUIREMENTS

8.1 Ocean Discharge Criteria Evaluation

Section 403(c) of the CWA requires that permits for ocean discharges be issued in compliance with EPA's Ocean Discharge Criteria for preventing unreasonable degradation of the marine environment. The purpose of the Ocean Discharge Criteria Evaluation (ODCE) report is to identify pertinent information and concerns relative to the Ocean Discharge Criteria and wastewater discharges.

The Ocean Discharge Criteria establish guidelines for permitting discharges into the territorial seas, the contiguous zone, and the ocean and set forth specific determinations of "unreasonable degradation of the marine environment" that must be made prior to permit issuance [40 CFR Part 125, Subpart M, as adopted by reference at 18 AAC 83.010(c)(8)]. The Department conducted an ODCE using criteria established in accordance with CWA Section 403 and 40 CFR Part 125. Based on the available information, the Department determines whether the discharge will cause unreasonable degradation of the marine environment. Regulation at 40 CFR §125.121(e) states "*Unreasonable degradation of the marine environment* means:

> (1) Significant adverse changes in ecosystem diversity, productivity, and stability of the biological community within the area of discharge and surrounding biological communities,
>
> (2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or
>
> (3) Loss of aesthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge."

Ocean Discharge Criteria guidelines provide ten criteria to consider in the determination of whether there is unreasonable degradation or irreparable harm [40 CFR §125.122(a)]. The ten criteria include: the quantities, composition, and potential for bioaccumulation or persistence of the pollutants discharged; the potential transport of such pollutants; the composition and vulnerability of biological communities exposed to such pollutants; the importance of receiving water area to the surrounding biological community; the existence of special aquatic sites (including parks, refuges, etc.); the potential impacts on human health; existing and potential recreational and commercial fishing; any applicable requirements of an approved Coastal Zone Management plan; other factors relating to the effects of the discharge as may be appropriate; and marine water quality criteria.

Ocean Discharge Criteria guidelines further state "Discharges in compliance with section 301(g), 301(h), or 316(a) variance requirements or State water quality standards shall be presumed not to cause unreasonable degradation of the marine environment, for any specific pollutants or conditions specified in the variance or the standard" [40 CFR § 125.122(b)].

This permit conforms with the ten criteria under 40 CFR §125.122(a), as outlined in the ODCE (DEC 2013), and implements BMPs and monitoring requirements that ensure applicable WQS are met, pursuant to 40 CFR §125.122(b); therefore, DEC determined discharges authorized under the permit will not cause unreasonable degradation of the marine environment.

8.2 Endangered Species Act

NMFS is responsible for administration of the Endangered Species Act (ESA) for listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, and sea otters) are administered by the U.S. Fish and Wildlife Service (USFWS). The ESA requires federal agencies to consult with NMFS and USFWS (collectively referred to as the Services) if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with the Services regarding permitting actions. However, the Department values input from the Services and solicited comments from them in development of the permit.

Prior to public notice of the draft permit, DEC submitted a letter to NMFS and USFWS on January 19, 2012 requesting a species list for the coverage area of the permit.

In a letter dated February 15, 2012 (personal communication, James W. Balsinger, Administrator, Alaska Region), NMFS submitted a list of threatened or endangered marine mammals under NMFS jurisdiction in Alaska. The threatened marine mammal on the list is the eastern population of Steller sea lion. Endangered marine mammals on the list include the beluga whale (Cook Inlet Distinct Population Segment), blue whale, bowhead whale, fin whale, humpback whale, Northern Pacific right whale, sei whale, sperm whale, and western population of Steller sea lion.

In emails dated February 22 and 27, 2012 (personal communication, Judy Jacobs, Biologist, Alaska Fish and Wildlife Field Office), USFWS submitted critical habitat maps and indicated that the permit coverage area did not include spectacled eider critical habitat or polar bear barrier island critical habitat.

Additional USFWS email dated March 14, 2012 (personal communication, Kimberly Klein, Biologist, Alaska Fish and Wildlife Field Office) indicated that concerns for threatened or endangered species are similar to those addressed in the 2011 Medium-Size Suction Dredge Placer Miners General Permit for (AKG371000). The 2013 Norton Sound Large Dredge Placer Miners General Permit includes ESA considerations similar to those in AKG371000 and the 2012 Small-Size Suction Dredge Placer Miners General Permit for (AKG375000). Considerations include the prohibition of discharges in coral beds, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, shellfish beds, or mudflats (Permit Part 1.4) and the implementation of site-specific requirements on a case-by-case basis (Permit Part 3.3). Based on USFWS comments received during the public notice period, the permit requires also implements a minimum separation distance of 1,000 feet from any large flock of spectacled eiders within areas known to have high bird populations, i.e., Sledge Island and east of a location near Cape Nome (Fact Sheet Section 5.5).

8.3 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) designates Essential Fish Habitat (EFH) in waters used by anadromous salmon and various life stages of marine fish under NMFS jurisdiction. EFH refers to those waters and substrates (sediments, etc.) necessary to fish from commercially-fished species to spawn, breed, feed, or grow to maturity. NMFS describes freshwater EFH for Alaskan stocks of Pacific Salmon as "those waters identified in ADF&G's Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fish Species … and wherever there are spawning substrates"

(ADF&G 1998, NMFS 2005). Freshwater EFH applies to eggs, larval and juvenile stages, and adult salmon.

The Magnuson-Stevens Act requires federal agencies to consult with NMFS when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. As a state agency, DEC is not required to consult with NMFS regarding permitting actions. However, the Department values NMFS input and solicited comments from them on reissuance of the permit.

Prior to public notice of the draft permit, DEC submitted a letter to NMFS on January 19, 2012, and provided an opportunity to submit EFH comments on the proposed permit. In a letter dated February 15, 2012 (personal communication, James W. Balsinger, Administrator, Alaska Region), NMFS provided EFH descriptions and permit recommendations. The NMFS response indicated that "EFH within the project area has been described for red king crab (RKC), Alaska plaice, yellowfin sole, and all five Pacific salmon species." The NMFS response further recommended that 1) mining activities be prohibited from March 1 through May 31 in conjunction with ice edge retreat and the spring plankton bloom; 2) mining activities be prohibited from June 1 through July 15 within a one mile radius of the mouth of an anadromous stream in order to prevent turbidity barriers to outmigrating salmon; and 3) mining activities be restricted to waters less than 30 feet, based on slower benthic habitat recovery in deeper waters relative to shallow water.

The permit prohibits operation on sea ice or from March 1 to May 31 of any year (Fact Sheet Section 1.3). Additionally, the permit implements separation distances from anadromous streams and rivers and requires that dredging operations provide a zone of passage for fish around the turbidity plume at all times (Permit Part 3.2, Fact Sheet Section 5.5). Finally, operations that occur in water depths greater than 30 feet must install a downspout, or similar equipment, and take steps to discharge solids at least five feet below the water surface and as close to the sea floor as practicable (Permit Part 3.1.5). The downspout requirement helps ensure solids are returned as close to the excavated area as possible, decreases the amount of fine material released into the water column, and minimizes the length of the turbidity plume. All authorized operations must avoid red king crab. If red king crab mating pairs or clusters are observed, mining operations must move to an alternate location where no crabs are observed or cease operation until the crabs move away on their own (Permit Part 3.1.8).

Authorized operations that discharge in accordance with the requirements of the permit are not expected to adversely affect EFH or the receiving waters. Potential habitat impacts are further discussed within the ODCE for the Norton Sound Large Dredge Placer Miners General Permit (DEC 2013).

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