



ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FACT SHEET – **Proposed 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: **March 14, 2024**

Public Comment Period Expiration Date: **April 15, 2024**

Alaska Online Public Notice System: <https://aws.state.ak.us/OnlinePublicNotices/>

Technical Contact: Nick Dallman
Division of Water
Alaska Department of Environmental Conservation
610 University Avenue
Fairbanks, Alaska 99709
Phone: (907) 451-2142
nicholas.dallman@alaska.gov

Proposed reissuance 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 reissue 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. 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 large dredges operating in Norton Sound 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 proposed final permit will be made publicly available for a five-day applicant review. After the close of the proposed final permit review period, the Department will make a final decision regarding permit issuance. A final permit will become effective 30 days after the Department’s decision, in accordance with the state’s appeals process at 18 AAC 15.185.

The Department will transmit the final permit, fact sheet (amended as appropriate), and the Response to Comments to anyone who provided comments during the public comment period or who requested to be notified of the Department’s final decision.

A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See DEC’s “Appeal a DEC Decision” web page <https://dec.alaska.gov/commish/review-guidance/> for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200. Requests must be submitted no later than the deadline specified in 18 AAC 15.

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://dec.alaska.gov/water/wastewater/>.

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
---	--

TABLE OF CONTENTS

1.0 PERMIT COVERAGE	1
1.1 Coverage and Eligibility	1
1.2 Authorized Placer Mining Operations	1
1.3 Limitations on Coverage.....	2
1.4 Operations Requiring an Individual Permit	3
1.5 Notification Requirements	3
1.6 Permit Expiration	3
2.0 REGULATORY HISTORY OF PLACER MINING IN ALASKA.....	4
3.0 INDUSTRY DESCRIPTION.....	5
4.0 RECEIVING WATERBODY.....	6
4.1 Water Quality Standards and Status of Receiving Water	6
4.2 Mixing Zone Analysis.....	7
5.0 EFFLUENT LIMITATIONS.....	9
5.1 Basis for Permit Effluent Limits	9
5.2 Technology-Based Limits	9
5.3 Water Quality-Based Effluent Limits	9
5.4 Best Management Practices (BMPs)	10
5.5 Seasonal Restrictions and Separation Requirements	13
6.0 OTHER PERMIT CONDITIONS	14
6.1 Monitoring Requirements	14
6.2 Recording and Reporting Requirements	14
6.3 Standard Conditions.....	16
7.0 ANTIBACKSLIDING	16
8.0 ANTIDEGRADATION	16
9.0 OTHER LEGAL REQUIREMENTS	17
9.1 Ocean Discharge Criteria Evaluation.....	17
9.2 Endangered Species Act	17
9.3 Essential Fish Habitat	18
10.0 REFERENCES.....	19

1.0 PERMIT COVERAGE

1.1 Coverage and Eligibility

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 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:

- located within the same geographic area and warrant similar pollution control measures;
- involve the same or substantially similar types of operations;
- discharge the same types of wastes;
- require the same effluent limitations or operating conditions;
- require the same or similar monitoring requirements; and
- in the opinion of the Department, are more appropriately controlled under a general permit than under individual permits.

The Department finds that discharges from large dredges in Norton Sound meet the 18 AAC 83.205 regulatory qualifications and are appropriately covered under a general permit.

Permit Part 1.0 describes the permit coverage area and summarizes eligibility requirements for new or expanding facilities and existing facilities that plan to move or expand. 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 1.5.

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 1.2 and 1.3.

1.2 Authorized Placer Mining Operations

Permit Part 1.2 outlines operations that are authorized under the permit. The permit retains coverage for the same category of large dredges as the prior issuance. 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 applicants must be able to reasonably demonstrate that the proposed operation can meet the permit requirements (Permit Part 1.1). 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 beyond the scope of normal operations covered under the general permit, may be denied coverage and required to apply for and obtain an individual permit (Permit Part 1.4).

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 1.3 describes discharges that are either not authorized or subject to additional requirements prior to authorization under the permit. Operations that are not authorized must gain coverage under another applicable general permit or apply for and obtain an individual permit. Prohibited discharges are retained from the prior permit and included because the discharges potentially contain pollutants that require monitoring beyond the scope of the permit; are from operations that are not appropriately controlled under the permit; are subject to additional water quality standards and regulatory requirements; or occur in protected waters. Although permit coverage is limited to marine waters, a stipulation has been added clarifying that permit coverage excludes the estuarine waters of Safety Sound and nearby channels.

To protect areas with higher populations of seabirds, fish, and marine mammals, as described in the Ocean Discharge Criteria Evaluation (ODCE) for the 2013 permit issuance (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 review by the Alaska Department of Fish and Game (ADF&G) and additional Department approval before authorization. Applicants in such areas must furnish all available evidence reasonably necessary for a decision and, if authorized, may be subject to additional site-specific requirements, including geographic or seasonal restrictions (Permit Part 1.3.2).

Based on input from the National Marine Fisheries Service (NMFS) during the 2013 permit issuance, the permit excludes coverage from March 1 to May 31 to protect red king crab populations that feed and reproduce near shore during spring. To protect winter king crab

fisheries and allow offshore areas an opportunity to recover during winter, the permit also prohibits operation on sea ice.

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 (Permit Part 1.4.)

1.5 Notification Requirements

Applicants with operations eligible for permit coverage must submit a Notice of Intent (NOI). An Application for Permits to Mine in Alaska (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 detailed in Permit Part 1.5.

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. Depending on the general permit issuance timeline, the Department may set an earlier expiration date to prevent the permit from expiring during a mining season.

Under 18 AAC 83.155(c), the conditions of an expired permit continue in force until the effective date of a new permit if (1) the permittee has submitted a timely application for a new permit under 18 AAC 83.110; and (2) the department, because of time, resource, or other constraints, but through no fault of the permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit. A general permit continued under such conditions remains fully effective and enforceable. Therefore, if the permit is not reissued prior to its expiration date, the permit will continue in force and effect for authorized dischargers until a new permit is issued.

Per 18 AAC 83.110, an application is not required for coverage under a general permit, but a notice of intent must be submitted as set out in 18 AAC 83.210(b). Per 18 AAC 83.210(b), and exceptions under sub-parts (g) and (h), an NOI is required for initial permit coverage, but an additional NOI is not required for administratively extended coverage. However, a new NOI must be submitted prior to the effective date of a reissued general permit to prevent any coverage gaps.

2.0 REGULATORY HISTORY OF PLACER MINING IN ALASKA

The Environmental Protection Agency (EPA) began regulating placer mining under National Pollutant Discharge Elimination System (NPDES) general permits in Alaska in 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 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 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 were historically covered under EPA-issued individual permits. The first EPA-issued individual permit for a large dredge in Norton Sound occurred in 1985 for operations by the Western Gold Exploration and Mining Company (WestGold). WestGold operated the BIMA, the world's largest floating bucket dredge at the time, from 1986 -1990 (NPDES Permit No. AK-0004319-2). The BIMA dredge incorporated a gravity-based treatment plant that had an average material throughput rate of 602 cubic yards 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 regulatory protocols 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 foundation for permitting of large-scale offshore mining operations.

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 (DEC 2008), authority to administer the State's program, called the APDES Program, transferred in phases over four years. Under this phased approach, mining permits transferred 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, resulted in 17 new or proposed permit applications for large gold dredge operations in Norton

Sound. Although not all proposed operations reached development, many became operational. To accommodate new operations and streamline the permitting process for operations in Norton Sound, DEC developed the *Norton Sound Large Dredge Placer Miners General Permit*, which was originally issued on July 16, 2013. As of August 14, 2023, approximately 16 operations had active coverage under the permit.

Table 1 summarizes permit-related dates for the Norton Sound Large Dredge Placer Miners General Permit.

Table 1: AKG374000 Permit Dates						
Agency	Issuance Year	Public Notice		Signed Date	Effective Date	Expiration Date
		Start Date	End Date			
DEC	2013	04/25/2013	05/28/2013	07/16/2013	08/15/2013	08/14/2018
DEC	2018	03/22/2018	04/24/2018	05/23/2018	08/15/2018	08/14/2023
DEC	2024	03/14/2024	04/15/2024	Pending	Pending	Pending

3.0 INDUSTRY DESCRIPTION

Placer mining involves the mining and extraction 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 containing very small amounts of native gold or other precious metals. Most deposits occur within existing stream channels 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.

Placer mining methods to extract gold bearing material (ore) from a deposit include both terrestrial open-cut operations and freshwater or marine dredging operations; the *Norton Sound Large Dredge General Permit* only covers marine dredging operations. Dredging systems consist of a supporting hull with a mining control system, excavating and lifting mechanism, gold recovery circuits (e.g., sluice box), and waste disposal discharge. All dredges are designed to work as a unit to dig, classify, beneficiate ores and dispose of waste. Because dredges work the stream bed or ocean floor, rather than terrestrial areas, the effluent consists entirely of *in situ* water and bed material.

Dredging systems are classified as hydraulic (e.g., suction dredges) or mechanical (e.g., bucket dredging), depending on the excavation method. Suction dredges, the most common hydraulic dredging system, are popular in Alaska with small, medium, and large-scale gold placer miners for recreational and commercial purposes. A suction dredge, often handled by a diver or remote-controlled equipment, is akin to a vacuum cleaner used underwater and sucks up the bed material. The material passes through a suction hose to a surface-mounted collection system (typically a sluice box), flows through the system, discharges out the end, and returns to the stream bed or ocean floor. Heavier material (e.g., gold) remains in the collection system.

Mechanical dredges operate in a manner similar to suction dredges. However, mechanical dredges use a mechanical bucket system (e.g., excavator or clam shell), rather than a suction hose, to elevate material to the wash plant. Mechanical dredges utilize a water pump only to direct material through the plant system. Because dredges work the ocean floor, or inter-tidal zone, rather than terrestrial areas, the discharges consist entirely of ocean water and bed material.

Dredges employ various gravity-based methods of size classification and concentration to extract the relatively dense gold from the elevated material. The common tool, the wash plant, is an assemblage of feed-size classification equipment, such as grizzlies, trommels, or static or vibrating screens; and concentrating equipment, such as sluices and jigs. The wash plant gradually bypasses or screens out larger waste material in various feed-size stages sending smaller (mineral rich) materials into gold concentrating equipment. The most common concentrating tool, the sluice, is a long, sloped trough through which gravity and water pressure move a slurry of water and small materials. The slurry flows down the sluice trapping the relatively dense gold (and other heavy materials) behind riffles in the sluice. The concentrated sluice material is then further separated by panning or use of specialized equipment, such as 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 (Fact Sheet Section 1.3).

4.1 Water Quality Standards and Status of Receiving Water

APDES regulations require that permit conditions ensure compliance with the Alaska Water Quality Standards (WQS) under 18 AAC 70. The 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. Protected use classifications include water supply for drinking, culinary, food processing, agriculture, aquaculture, and industrial; water recreation, both contact and secondary; growth and propagation of fish, shellfish, other aquatic life, and wildlife; and harvesting for consumption of raw mollusks or other raw aquatic life. The numeric and narrative water quality criteria are values the State deems necessary to support the beneficial use classification of each waterbody. The Antidegradation Policy ensures that the beneficial uses and existing water quality are maintained. Unless otherwise noted, all Fact Sheet references to WQS and 18 AAC 70 refer to the regulations amended as of November 13, 2022.

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.

Any part of a waterbody for which the water quality does not or is not expected to meet applicable WQS is defined as a "water quality limited segment" and placed on the State's impaired waterbody list. For an impaired waterbody, CWA Section 303(d) requires states to develop a Total Maximum Daily Load (TMDL) management plan for a waterbody determined

to be water quality limited. The TMDL documents the amount of a pollutant a waterbody can assimilate without violating WQS and allocates that load to known point sources and nonpoint sources. Norton Sound is not included on Alaska's Integrated Water Quality Monitoring and Assessment Report (<https://dec.alaska.gov/water/water-quality/integrated-report/>) as an impaired waterbody, nor is the waterbody listed as a CWA 303(d) waterbody requiring a TMDL. Accordingly, a TMDL has not been prepared for the waterbody.

4.2 Mixing Zone Analysis

State regulations provide that the Department may authorize a mixing zone in a permit (18 AAC 70.240). An authorized mixing zone must ensure that water quality criteria will be met at the mixing zone boundary and existing uses outside the mixing zone are maintained and fully protected. The Department's mixing zone analysis follows.

4.2.1 Dimensions and Permit Requirements

Permittees covered under the permit are authorized a 1,600 foot radius mixing zone wherein water quality criteria may be exceeded. Studies and model results from the WestGold BIMA operation indicate that the production rate of the dredge has only a minor effect on the discharge plume size when compared to the effects of the material content, 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 retained from the prior permit and 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 applied the research results 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 water quality criteria. 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 large dredge operations, further indicates that large dredge operations when adhering to BMPs and monitoring requirements can comply with a 1,600 foot radius mixing zone and meet water quality criteria at the mixing zone boundary.

An applicant may be granted a mixing zone larger than 1,600 feet on a case-by-case basis. The applicant must submit an approved mixing zone application form and, 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 the Department deems 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 CWA and 18 AAC 70.240. Prior to authorization, an expanded mixing zone would be subject to ADF&G review, followed by a public notice period, wherein the public would be provided reasonable notice of, and an opportunity to

comment on, the proposed mixing zone. If, following either review period, the Department determines the expanded mixing zone poses undue environmental risk, the expanded mixing zone would not be authorized and the permittee would be subject to the standard effluent limitations under Permit Part 2.1. If authorized, the Department may include additional permit requirements, such as numerical effluent limitations and additional water quality monitoring (Fact Sheet Section 5.3).

4.2.2 Rationale

During the offshore mining process, trace-metal concentrations in the water column may be increased 1) through the release of metals dissolved in interstitial waters, 2) by washing metals from 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, 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). Therefore, turbidity is expected to 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 is also expected to be in compliance with water quality criteria for metals.

Prior studies (ENSR 1989, MMS 1990, Prussian et al. 1999, USGS 1997), the ODCE for the 2013 permit issuance (DEC 2013), 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 (Mixing zones) 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 the 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 limit for a particular pollutant be the more stringent of either a technology-based effluent limit (TBEL) or a water quality-based effluent limit (WQBEL). A TBEL is set according to the level of treatment that is achievable using available technology. A WQBEL is designed to ensure that the WQS for a waterbody are met. WQBELs may be more stringent than TBELs. 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 TBELs.

5.3 Water Quality-Based Effluent Limits

The CWA required the establishment of permit limitations necessary to meet WQS by July 1, 1977 [CWA § 301(b)(1)]. DEC 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)]. All discharges to state waters must also comply with state and local coastal management plans, as well as with WQS, including the State's Antidegradation Policy.

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, the permit includes BMPs to control the discharges (Permit Part 3.1).

DEC determined that turbidity is a pollutant of concern and must be limited 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, the permit requires daily turbidity monitoring of the discharge plume ensuring proper BMP implementation (Permit Part 2.0). The monitoring 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 above background conditions is observed beyond the

mixing zone, the permittees must decrease or cease operations to meet the permit limit. In most cases, water quality recovers rapidly when corrective actions are taken.

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 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 State WQS [18 AAC 70.020 (b)(24)].

Although 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 modified turbidity limit reflecting the turbidity concentrations naturally present in the receiving water, provided the criterion is 18 AAC 70. Any modified limit would be based on historical background data, as well as data collected during the active operation. Such a modification must undergo review and receive approval from EPA prior to DEC authorization. Additionally, the public would be provided reasonable notice of, and an opportunity to comment on, the modified turbidity limit.

State WQS also include water quality criteria for petroleum hydrocarbons and oils and grease for marine waters [18 AAC 70.020(b) (17)]. To ensure the criteria for petroleum hydrocarbons and oils and grease are met and to align the permit with requirements in similar general permits, the permit includes end-of-pipe narrative water quality criteria limits prohibiting discharges from causing floating oils on the surface of the waterbody or a film, sheen, or discoloration on the surface or floor of the waterbody or adjoining shorelines (Permit Part 2.1.4). Permittees must conduct daily monitoring for the presence of a sheen and take corrective actions if necessary. Permit limits and monitoring, combined with the BMPs, ensure that discharges meet turbidity and hydrocarbon criteria and adequately protect the receiving water for all existing and designated uses.

5.4 Best Management Practices (BMPs)

BMPs are measures designed 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 rationale follow:

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

This practice prevents undue beach and shoreline degradation and minimizes contributions of released shoreline sediment to receiving water turbidity.

- 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 Permit Parts 3.1.3 – 3.1.7, to reduce the suspension 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, minimize the sediment volume released into the water column during excavation and prevent unnecessary generation of 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 Permit Part 3.3.

This practice helps ensure that operators monitor the current and other environmental conditions affecting the turbidity plume length, shape, and direction.

- 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 decreases the dispersion of fine material released into the water column, minimizes the size of the turbidity plume, and returns solids as close to the excavated area as possible - helping confine the seafloor disturbance to the excavated area. Because a downspout in shallow water (compared to deeper 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 minimizes the sediment volume released into the water column during excavation and prevents unnecessary generation of turbidity. Combined with a properly designed outfall (Fact Sheet Sections 5.4.5 – 5.4.6), this practice controls and minimizes turbidity throughout the entire excavation and discharge process.

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

- 5.4.8.1 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.
- 5.4.8.2 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.
- 5.4.8.3 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 4.5.

The BMPs under Fact Sheet Section 5.4.8 help prevent or mitigate petroleum contamination from equipment, fuel storage, and refueling. 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).

5.4.9 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 or fishing weights), or other heavy metal pollutants. This practice helps ensure that any collected pollutants are properly disposed of and not returned to the waterbody.

5.5 Seasonal Restrictions and Separation Requirements

Permit Parts 3.2 and 3.3 include seasonal restrictions and separation requirements designed to 1) reduce cumulative turbidity impacts and 2) protect sensitive habits and species, threatened or endangered species, essential fish habitat, and anadromous fish passage. To streamline and ensure consistent permit conditions among agencies, the permit references conditions contained within DNR land-use approvals and permits and also includes specific seasonal coverage restrictions within Permit Part 1.3.

Permit Part 3.3.1 outlines separation requirements applicable to turbidity plumes. To minimize cumulative impacts from multiple facilities operating simultaneously in close proximity to each other and prevent monitoring difficulties and turbidity limit violations due to plume overlap, permittees must prevent turbidity plumes from overlapping with the plumes of other active dredging operation. To verify vessel locations, permittees must maintain daily records including the arrival time, departure time, and outfall coordinates for each dredge site.

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 and AKG375000) require that permittees monitor plume locations and ensure that plume overlap does not occur regardless of dredge size.

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, permittees must maintain a minimum distance of 1,000 feet from any large flock of spectacled eiders within areas known to have high bird populations, e.g., Sledge Island and east of near Cape Nome (Permit Part 3.3.2).

Pacific walrus range over the relatively shallow waters of the Bering and Chukchi seas and are occasionally observed in the waters of the Eastern Siberian and Beaufort seas. In the Bering Sea, walrus are distributed from the Bering Strait to Bristol Bay in the east. Because walrus rely on broken ice habitat and coastal haulouts to access feeding areas on the ocean floor, their distribution varies in response to seasonal and annual changes in sea ice cover, with a general northward migration during summer months. To protect feeding and resting walrus, Permit

Part 3.3.3 includes separation requirements for operations near feeding walrus and notification requirements for operations proposing to operate within three nautical miles of walrus haulouts. Walrus protections are based on USFWS comments submitted on the 2023 Small Suction Dredge General Permit (AKG375000).

Essential Fish Habitat for red king crab occurs in Norton Sound offshore of Nome. To minimize red king crab disturbance, permittees must avoid red king crab mating pairs and clusters and either move to an alternate location or cease operation if mating crabs are observed (Permit Part 3.3.4).

To protect sensitive habitat that may occur within the permit coverage area, discharges are prohibited within coral beds, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, and shellfish beds (Permit Part 3.3.5).

The prior permit outlined stipulations for separation distances around stream mouths ensuring a zone of passage for fish around the turbidity plume throughout the year. The 2024 permit retains stipulations under Permit Part 3.3.6. However, rather than including detailed separation requirements, the permit references DNR land-use approvals and requires permittees to adhere to DNR separation requirements. Although DNR conditions are equivalent to those in the prior *Norton Sound Large Dredge Permit*, referencing the conditions ensures consistency between agency permits, streamlines permit conditions, and allows for flexibility in the event that ADF&G determines modifications to the separation requirements are warranted. The updated language also includes separation distances around shore fish nets to reduce the potential for negative impacts on commercial and subsistence fisheries. Anadromous stream and river separation requirements are based on prior input from NMFS and ADF&G. Anadromous waters are identified in the ADF&G Anadromous Waters Catalog (ADF&G 1998) and included in Permit Appendix D. Permit Part 1.2.5 requires that permittees maintain copies of any DNR land-use approvals or permits on site where discharges occur.

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. Permittees are 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 depending 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 includes 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). The 2024 permit streamlines conditions to reduce the daily record keeping burden on permittees whilst still retaining essential information ensuring compliance with other permit conditions. Streamlining efforts include removal of non-essential information such as duplicate coordinates for dredge site and plume observation, average discharge rate, and average excavation depth. Modifications also include the addition of sheen observations to record information collected under Permit Part 2.2.

At the Department's discretion, a permittee with a new or expanding operation may be required to submit monthly Discharge Monitoring Reports (DMRs) for a minimum of one season of operation until the permittee reasonably demonstrates an ability to meet permit limits and receives written approval from the Department to discontinue monthly reporting (Permit Part 4.3). Additionally, Permit Appendix A, Part 2.3 (Twenty-four Hour Reporting) requires that reports of any noncompliance event endangering health or the environment 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 2.3 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 explaining the reason for any late reports.

EPA signed an Electronic Reporting Rule (E-Reporting Rule) on September 24, 2015 and published the rule in the Federal Register on October 22, 2015. The rule applies to municipalities, industries and other facilities and replaces most paper-based NPDES reporting requirements with electronic reporting. Specifically, the rule requires regulated entities to report information electronically, instead of filing written paper reports. These reports include monthly Discharge Monitoring Reports (DMRs), other specified program reports (e.g., Annual Reports), and NOIs to discharge under a general permit. The rule also requires states and other regulatory authorities to share data electronically with EPA. The data that these regulatory authorities will share with EPA includes permit, compliance monitoring (e.g., inspection), violation determination, and enforcement action data. General information about the new E-Reporting rule is available at <https://dec.alaska.gov/water/compliance/electronic-reporting-rule/>.

The E-Reporting Rule (40 CFR 127) is implemented in phases. Phase I of the rule required permittees to begin submitting DMR data electronically through NetDMR (<https://cdxnodengn.epa.gov/oeca-netdmr-web/action/login>) on December 21, 2016. Any required DMR data that cannot be reported in a NetDMR field (e.g., mixing zone receiving water data), shall be included as an attachment to the NetDMR submittal. Phase II of the rule will integrate electronic reporting for all other Permit required reports (e.g., Annual Reports and NOIs) and implementation was expected to begin December 2020. However, on November 2, 2002, EPA

published an extension providing states and EPA additional time to implement electronic reporting for certain Clean Water Act discharge permitting requirements. In this final rule, EPA extended the compliance deadline for implementation of Phase 2 of the eRule by five years, from December 21, 2020 to December 21, 2025. Therefore, permittees must begin submitting all required reports (e.g., Annual Reports) electronically through the DEC Environmental Data Management System (EDMS) at <https://dec.alaska.gov/water/edms> starting on December 21, 2025, unless the Department directs otherwise or approves a waiver. Until such time, reports may be submitted to the address in Permit Appendix A. Permittees should monitor the E-Reporting Information website (<https://dec.alaska.gov/water/compliance/electronic-reporting-rule/>) for Phase II updates.

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 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. Standard conditions are generally included by reference unless a permittee would benefit from inclusion of a particular condition within the permit.

7.0 ANTIBACKSLIDING

18 AAC 83.480 requires that “effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit.” 18 AAC 83.480(c) also states that a permit may not be reissued “to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed or reissued.” This reissued permit does not contain effluent limitations that are less stringent than the previous permit, therefore, antibacksliding analysis is unwarranted.

8.0 ANTIDegradation

The Antidegradation Policy of the Alaska WQS states that the existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected; and 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 (18 AAC 70.015). 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 specific requirements of the antidegradation policy are satisfied.

The Department’s approach to implementing the antidegradation policy is found in 18 AAC 70.016 (Antidegradation implementation methods for discharges authorized under the federal Clean Water Act). 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. However, if an applicant applies for authorization under the permit to discharge to certain sensitive habitats (Permit Part 1.3), the Department will decline

general permit coverage and require an application for an individual permit. Antidegradation analyses generally conservatively presume that all operations under a general permit will be in Tier 2 waters [18 AAC 70.016(c)(1)]. And all waters covered under the Norton Sound Large Dredge General Permit are categorized as Tier 2.

Antidegradation implementation methods at 18 AAC 70.016(c)(3) state that “the Department will not conduct a Tier 2 antidegradation analysis for (A) reissuance of a license or general or individual permit for a discharge that the applicant is not proposing to expand; (B) issuance of a license or general or individual permit for an existing discharge that did not previously require authorization and that the applicant is not proposing to expand; or (C) reissuance of an administratively extended license or permit, if the applicant is not proposing an expanded discharge.” Because the reissued general permit does not propose expansion of discharge coverage, a Tier 2 antidegradation analysis is not required for this issuance.

9.0 OTHER LEGAL REQUIREMENTS

9.1 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 ocean waters. The purpose of the ODCE report is to identify pertinent information and concerns relative to the Ocean Discharge Criteria and wastewater discharges.

EPA’s Ocean Discharge Criteria 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)]. For this permitting action, DEC is relying on 40 CFR 125.122(b) which states “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.” Because the permit implements BMPs, and monitoring requirements, that ensure applicable water quality standards are being met, pursuant to 40 CFR 125.122(b), DEC determined discharges authorized under the permit not to cause unreasonable degradation of the marine environment.

9.2 Endangered Species Act

The Endangered Species Act of 1973 (ESA), first enacted in 1973 provides for the conservation of species that are listed as endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. 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 interacts voluntarily with these federal agencies to obtain listings of threatened and endangered species and critical habitat.

Based on communications with NMFS during prior permit issues and review of the NMFS protected species directory (<https://www.fisheries.noaa.gov/species-directory>) and ESA Critical Habitat Mapper (<https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper>), the Department determined that two threatened and four endangered species may occur in or near the coverage area. Threatened species include the bearded seal [Beringia distinct population segment (DPS)] and ringed seal (Arctic subspecies). Endangered species include the fin whale, humpback whale (western North Pacific DPS), Northern Pacific right whale, and Steller sea lion (western DPS). Critical Habitat for the bearded seal (Beringia DPS) and ringed seal (Arctic subspecies) also falls within the permit coverage area.

Based on communications with USFWS during prior permit issues and review of the USFWS *Information for Planning and Consultation* (IPaC) website (<http://ecos.fws.gov/ipac/>), the Department determined that three threatened and one endangered species may occur in or near the coverage area. Threatened species include polar bear, spectacled eider, and Steller's eider. Endangered species include the short-tailed albatross. Critical habitat for polar bear also falls within the permit coverage area.

To provide additional protection for ESA-listed species, the permit 1) excludes coverage for discharges from operations on sea ice and discharges to estuarine waters of Safety Sound or Bonanza, Solomon, or Cache Channels; and, based on prior USFWS recommendations, 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. The permit further prohibits discharge in coral beds, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, shellfish beds, or mudflats. Although, the permit coverage overlaps with polar bear critical habitat, operation under the permit only occurs offshore during summer and fall. Thus, polar bear interactions are highly unlikely, and the permit does not include polar bear specific stipulations.

The general permit retains a level of water quality protection equal to or more stringent than the prior issuance. Therefore, the Department does not anticipate adverse effects on threatened and endangered species falling under NMFS or USFWS jurisdiction. If additional comments are submitted, DEC will consider them prior to final issuance of the permit.

9.3 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 Anadromous Waters Catalog may be viewed on the ADF&G website at <https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.home>. EFH for marine waters is further identified, based on species and region, within Fishery Management Plans developed by the North Pacific Fishery Management Council. 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 interacts voluntarily with NMFS to identify EFH.

Based on review of the Alaska EFH Mapper (<https://www.fisheries.noaa.gov/resource/map/alaska-essential-fish-habitat-efh-mapper>) and NMFS communications during prior permit issuances, the project area includes EFH for red king crab, Alaska plaice, yellowfin sole, and all five Pacific salmon species. A prior NMFS response recommended that 1) mining activities be prohibited from March 1 through May 31 when red king crab are near shore and spawning 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 to prevent turbidity barriers to out-migrating 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.

Based on NMFS recommends, 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 prohibits plume overlap with other dredging operations, helping to provide a zone of passage for fish (Permit Part 3.3, Fact Sheet Section 5.5). Finally, operations occurring in water depths greater than 30 feet must install a downspout, or similar equipment, and 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 return solids 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 also 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 3.3.4).

Authorized operations discharging in accordance with the permit requirements 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). If additional comments are submitted, DEC will consider them prior to final issuance of the permit.

10.0 REFERENCES

- ADF&G (Alaska Department of Fish and Game). 1998. Catalog of waters important for spawning, rearing, or migration of anadromous fishes. Alaska Department of Fish and Game, Habitat Division, 6 vols., Anchorage, Alaska. Revised periodically.
- Crececius, E. A. 1990. Review of the Westgold Monitoring Program. Prepared by Battelle, Pacific Northwest Laboratories, Richland, Washington. for Westgold Exploration and Mining Company, Nome, Alaska.
- DEC (Alaska Department of Environmental Conservation). 2008. National Pollutant Discharge Elimination System Memorandum of Agreement between State of Alaska and United States Environmental Protection Agency Region 10, as amended through August 11, 2011. Alaska Department of Environmental Conservation.

- DEC. 2013. Ocean Discharge Criteria Evaluation for the Alaska Pollutant Discharge Elimination System Norton Sound Large Dredge Placer Miners General Permit (AKG374000). Alaska Department of Environmental Conservation.
- ENSR (ENSR Consulting and Engineering). 1989. ODCE information database for Norton Sound 45 Nome Offshore Placer Project NPDES Permit No. AK-004319-2.
- ENSR. 1992. Regulatory processes associated with metal-mine development in Alaska: a case study of the WestGold BIMA. Prepared by ENSR Consulting and Engineering for the U.S. Bureau of Mines, Alaska Field Operations Center, OFR 88-92, Juneau, Alaska.
- EPA (U.S. Environmental Protection Agency). 1998. Alaska placer mining metals study. U.S. Environmental Protection Agency, Office of Environmental Assessment, Region 10, EPA-910-R-98-003, Seattle, Washington.
- EPA. 1999a. Alaska placer mining metals study - year two. U.S. Environmental Protection Agency, Office of Environmental Assessment, Region 10, EPA910-R-99-004, Seattle, Washington.
- EPA. 1999b. Permit recommendations resulting from the EPA metals study. U.S. Environmental Protection Agency, Office of Environmental Assessment, Office of Water, Region 10, unpublished, Anchorage, Alaska.
- Garnett, R. H. T. and D. V. Ellis. 1995. Tailings disposal at a marine placer mining operation by WestGold, Alaska. *Marine Georesources and Geotechnology* 14:41-57
- Garvin, P. C., C. E. Sweeney, and P. C. Rusanowski. 1991. Evaluation of effluent mixing zone size with permit performance standards for an offshore mining vessel. 23rd Annual Offshore Technology Conference, Houston, Texas, OTC 6552.
- MMS (Minerals Management Service). 1990. OCS Mining Program Norton Sound lease sale: Second draft environmental impact statement. U.S. Department of the Interior, Minerals Management Service, OCS EIS/EA, MMS 90-0032, Anchorage, Alaska.
- Prussian, A. M., T. V. Royer, and G. W. Minshall. 1999. Impact of suction dredging on water quality, benthic habitat, and biota in the Fortymile River, Resurrection Creek, and Chatanika River, Alaska. Prepared by Idaho State University for the Environmental Protection Agency, Region 10, Seattle, Washington.
- Rusanowski, P. C. and C. L. MacCay. 1990. Nome Offshore Placer Project synthesis report 1989. Prepared by ENSR Consulting for Western Gold Exploration and Mining Company (WestGold).
- USGS (United States Geological Survey). 1997. Studies of suction dredge gold-placer mining operation along the Fortymile River, Eastern Alaska. Department of Interior, United States Geological Survey, Fact Sheet 154-97.