



**ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT FACT SHEET – Final**

Permit Number: AKG371000

Medium Suction 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 25, 2021**

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Proposed reissuance of an Alaska Pollutant Discharge Elimination System (APDES) general permit for:

MEDIUM SUCTION DREDGE PLACER MINERS

The Alaska Department of Environmental Conservation (hereinafter referred to as the Department or DEC) proposes to reissue an APDES general permit (hereinafter referred to as permit or GP) for medium suction dredge placer miners. The general permit authorizes and sets conditions on the discharge of pollutants from medium suction 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 from medium suction dredges and outlines best management practices that must be adhered to.

This fact sheet explains the nature of potential discharges from medium size suction dredges and the development of the permit including

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

Final Permit

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 20 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
PO Box 111800
Juneau, AK 99811-1800

Office Location: 410 Willoughby St., Suite 303, Juneau, AK

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Interested persons can review 18 AAC 15.185 for the procedures and substantive requirements regarding a request for an informal Department review. See <https://dec.alaska.gov/commish/review-guidance/informal-reviews> 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
PO Box 111800
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 <https://dec.alaska.gov/commish/review-guidance/adjudicatory-hearing-guidance/> 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: <https://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
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1.0 PERMIT COVERAGE

1.1 Coverage and Eligibility

Section 301(a) of the Clean Water Act (CWA) and the Alaska Administrative Code (AAC) 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, DEC regulations at 18 AAC 83.205 also authorize the issuance of "general permits" to categories of discharges when a number of point sources all

- occur within the same geographic area;
- 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 medium size suction dredges in Alaska meet the qualifications above and are appropriately covered under a general permit.

Permit Part 1.1 summarizes coverage and eligibility requirements for existing facilities, new or recommencing facilities, and moving or expanding facilities. The permit provides statewide coverage for discharges to fresh and marine waters of the U.S. located in the State of Alaska with certain limitations.

1.2 Authorized Placer Mining Operations

The original 1994 permit covered suction dredges with intake hoses of greater than four inches. In the modified 1996 permit, the U.S. Environmental Protection Agency (EPA) defined medium suction dredges as those with nozzles greater than four inches and less than or equal to eight inches. In the 2000 permit, EPA redefined the medium suction dredge range as greater than four inches and less than or equal to ten-inch dredges. When EPA reissued the *Alaskan Small Suction Dredge Placer Miners General Permit* (AKG375000) in 2002, it changed the maximum allowed nozzle size from four inches to a maximum of six inches. As a result of the change to the *Alaskan Small Suction Dredge General Permit*, the *Medium Suction Dredge Placer Miners General Permit* was changed upon reissuance in 2005 to cover facilities with intake nozzles greater than six inches and less than or equal to ten inches. The current reissuance of the *Medium Suction Dredge Placer Miners General Permit* retains the same nozzle size allowance. To accommodate dredge configurations that may be a combination of smaller intake hoses, the permit also authorizes discharges from dredges that have a combination of intake hoses with combined intake areas greater than that of a six inch suction dredge (28.27 square inches) and less than or equal to that of a ten inch suction dredge (78.54 square inches).

The current permit also retains a provision allowing coverage of smaller dredges, with intake nozzles less than or equal to six inches, that are not eligible for or otherwise denied coverage under another general permit. The provision incorporates flexibility into the permit and provides the Department additional coverage options for smaller dredges. Because the permit includes more restrictive requirements than the alternative *Small Suction Dredge General Permit* (AKG375000), the provision does not result in the relaxation of any permit limits or conditions.

APDES regulations state that “a general permit must specify when a discharger that is eligible for coverage under the permit and has submitted a complete and timely notice of intent in compliance with the general permit, is authorized to discharge under the permit. The permit may allow discharge to begin upon the department’s receipt of the notice of intent, after a waiting period specified in the general permit, on a date specified in the general permit, or when the department notifies the discharger that it is covered under the general permit” [18 AAC 83.210(f)]. Authorization to discharge under the permit requires written notification from the Department that coverage has been granted.

Fee regulations for authorizations under APDES general permits became effective on October 22, 2016. To remain covered under the permit, dischargers must complete payment of the annual authorization fee, as defined in Wastewater Disposal regulations at 18 AAC 72. Authorizations delinquent over 90-days in fee payment may be subject to termination at the discretion of the Department (Permit Part 1.2.4).

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. Coverage limitations 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. Significant changes are discussed below.

Given the occasional historical determination to allow for operation within National Park System Units, National Monuments, National Sanctuaries, National Wildlife Refuges, National Conservation Areas, National Wilderness Areas, or wild segments of designated Wild and Scenic Rivers under federal land management (collectively “federal reserve”), and to conserve agency resources, the permit retains an exception wherein the Department may authorize a facility in such a federal reserve provided that the applicant notifies the agency with management authority over the area 60 days prior to initial discharge and the Department does not receive a valid objection from the management agency within 30 days of the agency receiving the applicant notice. Operations on State-owned land within a federal reserve are excluded from the notification requirements of the subsection. Operations within critical habitat for eiders or northern sea otter remain are not subject to the waiting periods; however, such operations remain ineligible for permit coverage unless the Department receives a statement of non-objection from the U.S. Fish & Wildlife Service (USFWS). Based on input from the agency with management authority over the area, the Department may limit the authorization to seasonal windows or reduced coverage areas. If the Department determines the discharge is not appropriately controlled under the general permit, an individual permit would be required.

Permit Part 1.3.3 retains coverage limitations for operations occurring near Endangered Species Act (ESA) critical habitat for spectacled and Steller’s eiders and northern sea otter as well as operations near locations that are used by 125 or more Steller’s eiders as wintering areas. The conditions are based on coordination with the U.S. Fish & Wildlife Service (USFWS) during prior permit issuances and are consistent with similar restrictions under the *Small Suction Dredge General Permit* (AKG375000). Because operations are limited to 500 foot mixing zones and very few facilities have proposed to operate in the remote wintering areas, the Department does not foresee adverse impacts to eiders or northern sea otters from dredges under this permit.

Due to the sensitive nature of estuarine habits and mixing zone size limitations at 18 AAC 70.240(k)(1) (as approved for CWA purposes on September 30, 2019), certain operations may not be properly covered under a general permit. Thus, language has been added under Permit Part 1.3.4 noting that proposed discharges to estuaries are considered on a case-by-case basis and only authorized after coordination with ADF&G and considering all factors, such as the duration of the discharge, size of the operation, and nature of the location. Authorized discharges may be subject to additional conditions, such as reduced operational windows or restricted mixing zone sizes per 18 AAC 70.240(k)(1), as approved for CWA purposes on September 30, 2019.

Permit Part 1.3.5 retains language clarifying that discharges to locations not described in the Notice of Intent (NOI) are not authorized. The language includes an exception wherein operations with NOIs listing locations within the Norton Sound offshore dredge area are authorized coverage for the entire offshore dredge area. Operations offshore of Nome work within a public recreation area or on nearby offshore leases or submerged claims; however, the operations frequently change locations based on contracts with mineral property owners. The fixed coverage area, as defined in Permit Appendix C, allows operators to move among the various mineral properties and allows for a streamlined authorization process. Permittees remain subject to all other coverage limitations and separation requirements within the permit.

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 1.4.

1.5 Notification Requirements

Applicants with operations eligible for permit coverage must submit an NOI (18 AAC 83.210). An Application for Permits to Mine in Alaska (APMA) submitted to the Alaska Department of Natural Resources (DNR) will be accepted as an NOI if all the required information is included. To ensure dredging does not adversely affect fish spawning, permittees must contact the Alaska Department of Fish and Game (ADF&G) and obtain any necessary Fish Habitat Permits and information to satisfy separation requirements prior to discharging. Permittees not applying through the APMA process must provide ADF&G permit information within an NOI form (Permit Appendix E). The notification requirements, outlined in Permit Part 1.5, also 1) require permittees to provide notification of any changes to contact information and 2) clarify that permittees are responsible for notifying the Department once permit coverage is no longer needed.

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 within one year prior to the permit expiration date will be covered by the administratively extended permit. Regulations at 18 AAC 83.105(b) require that a permittee submit a new application, or NOI, at least 180 days

before the existing permit expires, unless the Department grants the permittee permission to apply on a later date (Permit Appendix A, Part 1.3). To incorporate flexibility into the reapplication process, the Department has granted permittees permission to submit applications up to the expiration date of the general permit (Permit Part 1.5.6). However, the Department cannot grant coverage under an administratively extended permit if an NOI is submitted after the general permit's expiration date.

2.0 REGULATORY HISTORY OF PLACER MINING IN ALASKA

Regulation of discharges from gold placer mining operations in Alaska has been a matter of controversy since enactment of the CWA. Starting in 1976 and 1977, the EPA issued approximately 170 individual National Pollutant Discharge Elimination System (NPDES) permits to Alaskan gold placer miners. Those permits were challenged administratively. Some parties argued that the permits were not stringent enough. Others argued that the permits were too stringent. EPA issued an additional 269 individual NPDES permits for gold placer mining in 1983. All of those permits were challenged judicially in *Trustees for Alaska v. EPA*, 749 F.2d 549 (9th Cir. 1984).

EPA issued a new round of individual permits (446 in total) in 1984 to replace expiring permits and to incorporate new promulgated regulations. In 1985, EPA modified the 1984 permits, based on the *Trustees for Alaska* decision, and issued 93 additional permits. In 1987, EPA issued an additional 368 new permits. The 1987 permits were the subject of litigation based on allegations that EPA and the State unreasonably delayed acting on requests for hearings on those permits in *Stein v. Kelso*, Case No. F89-21 Civil (D. Alaska) (litigation against EPA). The case against EPA was eventually dismissed as moot on April 12, 1990.

The permits EPA issued in 1985 and 1987 were challenged administratively, and ultimately judicially, in *Ackels v. EPA*, 7 F.3d 862 (9th Cir. 1993). A decision by the State of Alaska to certify the 1985 permits was ultimately resolved by the *Alaska Supreme Court in Miners Advocacy Council, Inc. v. State of Alaska*, Department of Environmental Conservation, 778 P.2d 1126 (Alaska 1989), cert. denied, 493 U.S. 1077 (1990). The State's certification of the 1987 permits was also challenged in *Stein v. Kelso*, 846 P.2d 123 (Alaska 1993).

EPA also was sued in the United States District Court for the District of Alaska in 1986. That case raised a variety of statutory and constitutional issues that were ultimately dismissed or resolved in the federal courts. One of the concerns raised in the 1986 litigation, whether EPA had a duty to promulgate national effluent limitations guidelines for the gold placer mining point source category, was eventually resolved when EPA published such guidelines in 1988 [40 CFR Part 440, Subpart M, as adopted by reference at 18 AAC 83.010(g)(3)]. Those guidelines were the subject of litigation in *Rybachek v. EPA*, 904 F.2d 1276 (9th Cir. 1990).

On June 30, 1992, EPA received a notice of citizen suit alleging that EPA failed to perform a non-discretionary duty to regulate suction dredge gold placer mining operations in Alaska. At that time, EPA decided it would issue individual permits for mechanical placer mining operations (for the 1993 mining season) and propose a general permit for suction dredge operations. On January 14, 1994, EPA proposed a general permit that extended coverage to mechanical, as well as suction dredge operations (59 FR 2504). After responding to public comment, EPA issued the final general permit on May 13, 1994 (59 FR 28079). On September 28, 1994, two environmental groups filed a petition for review of the general permit in the Ninth Circuit Court of Appeals.

On November 18, 1996, EPA and the two environmental groups entered into a settlement agreement to resolve the challenge to the general permit. Pursuant to the agreement, EPA

agreed to issue three separate general permits to modify and supersede the original general permit challenged by the environmental groups in 1994. The settlement agreement also required EPA to complete two studies related to the impact of placer mining on the natural environment in Alaska. One study was to address the discharge of metals by placer mining operations and the other was to address the impact of suction dredge mining.

EPA issued three modified general permits on December 6, 1996: one for mechanical operations, one for medium suction dredge operations, and one for small suction dredges (61 FR 64796). On April 4, 1997, three environmental groups challenged these permits, No. 97-70365 (9th Cir). In a separate action, the Alaska Miners Association (AMA) also challenged the general permits, No. 97-70379 (9th Cir.). These cases were consolidated on May 5, 1997. The challenge by the AMA was dismissed on January 21, 1999.

During the summers of 1997 and 1998, EPA staff and EPA contractors collected data at 31 placer mine sites and several suction dredge sites. These data were analyzed and presented in three final reports: one entitled *Alaska Placer Mining Metals Study* (EPA 1998), a second entitled *Alaska Placer Mining Metals Study - Year Two* (EPA 1999a), and a third entitled *Impact of Suction Dredging on Water Quality, Benthic Habitat, and Biota in the Fortymile River, Resurrection Creek, and Chatanika River, Alaska* (Prussian et al. 1999). The environmental groups believed that the suction dredge report did not address all of the required elements as set out in the 1996 settlement agreement.

To avoid further litigation over the general permits, EPA and the environmental groups entered into another settlement agreement. Pursuant to the agreement, EPA agreed that further study was necessary to quantify the full impact of suction dredge mining on the natural environment and that further research should be conducted before conclusions are reached about the impact of suction dredge mining on Alaska streams. EPA further agreed that by January 7, 2000, it would transmit to the Federal Register any necessary revisions to the modified general permits to address the results of the placer mining metals study (EPA 1998, 1999a). As a result, the environmental groups' petition to review the three general permits was dismissed on August 31, 1999 upon publication of the reissued general permits.

On October 31, 2008, EPA approved the State's application to administer the NPDES Program. According to the Memorandum of Agreement between EPA and DEC (DEC 2008), authority to administer the State's Program, called the APDES Program, would transfer in phases over four years. Under this phased approach, mining permits transferred on October 31, 2010. The transfer of mining permits included the administratively extended 2005 *Medium Suction Dredge Placer Miners General Permit* and all administratively extended authorizations for facilities that reapplied prior to the permit expiration. Prior to the transfer of authority of the mining sector, EPA drafted the 2011 permit, completed a 45-day comment period, and provided it to DEC for final issuance. DEC issued the permit on July 15, 2011 with an expiration date of October 31, 2015. The permit was modified on March 1, 2013 and reissued on December 18, 2015.

As of January 31, 2021, 118 operations had active coverage under the permit. Thirty-eight of those operations were located in fresh waters – mostly in creeks or rivers within the Fortymile and Hope mining districts. The remainder (80) of operations were located in the marine waters of Norton Sound. The Department observed an approximate 34% reduction in active authorizations from the prior 2015 permit issuance. This was likely the result of fee regulations that became effective October 22, 2016. Prior to the 2016 fee regulations, most discharges from placer operations were not subject to permit fees. However, following fee implementation, many permittees with inactive operations contacted the Department and terminated discharge coverage. The terminations resulted in a smaller, but more relevant, authorization inventory.

Table 1 summarizes permit-related dates for the *Medium Suction Dredge Placer Miners General Permit*.

Table 1: AKG371000 Permit Dates						
Agency	Issuance Year	Public Notice		Signed Date	Effective Date	Expiration Date
		Start Date	End Date			
EPA	1994 ^a	01/14/1994	02/14/1994	05/13/1994	06/30/1994	06/30/1999
EPA	1996 ^b	01/31/1996	04/18/1996	11/18/1996	04/07/1997	06/30/1999
EPA	2000	01/14/2000	03/14/2000	08/23/2000	10/02/2000	10/03/2005
EPA	2005	04/21/2005	06/6/2005	08/24/2005	10/07/2005	10/07/2010
DEC	2011	10/25/2010	12/09/2010	07/15/2011	08/14/2011	10/31/2015
DEC	2013 ^b	01/10/2013	02/11/2013	03/01/2013	03/31/2013	10/31/2015
DEC	2015	10/01/2015	11/02/2015	12/18/2015	02/01/2016	01/31/2021
Notes:						
a. <i>Alaskan Placer Miners General Permit (AKG370000)</i>						
b. Modification						

3.0 INDUSTRY DESCRIPTION

Placer mining involves the mining and extraction of gold or other heavy metals and minerals primarily from alluvial 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 that 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.

Placer mining methods to extract gold bearing material (ore) from a deposit include both dredging systems and open-cut mining. 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 further classified as hydraulic (e.g., suction dredges) or mechanical (e.g., bucket dredging), depending on the methods of digging. Suction dredges, the most common hydraulic dredging systems, are popular in Alaska with the small and medium scale gold placer miners for recreational and commercial purposes. A suction dredge, often handled by a diver, 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 sluice box. The sluice box is a long, sloped trough into which water is directed to separate gold from ore. 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 fresh and marine waters of the U.S., as defined in 18 AAC 83.990(77), statewide with certain limitations (Permit Part 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 WQS are composed of use classifications, water quality criteria (either numeric or narrative), 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 water quality criteria are established at levels deemed necessary by the State to support the beneficial use classification of each waterbody. The antidegradation policy ensures that the beneficial uses and existing water quality are maintained.

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 criterion per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b).

Receiving waters that have been reclassified as industrial use only include Franklin Creek; Isabell Creek (upper); Lillian Creek; Lucille Creek; Nolan Creek and all its tributaries, excluding Acme Creek near Wiseman; Olive Creek (upper); and Ruth Creek near Livengood.

This permit will be available for dischargers in reclassified waters and Permit Part 3.4 contains exceptions for facilities on waters reclassified as “industrial use only”. However, the water quality-based effluent limits in the permit may be more stringent than would be applied in an individual permit in these locations. A facility located on any of the above receiving waters may apply to DEC for revised limits based on the most stringent criteria applicable to the reclassified waterbody, or an individual APDES permit. The Department will consider permit applications on a case-by-case basis and make the final determination as to which permit the applicant should receive.

4.2 Mixing Zone Analysis

State regulations grant the Department the authority to authorize a mixing zone in a permit (18 AAC 70.240, as approved for CWA purposes on September 30, 2019). An authorized mixing zone must ensure that WQS will be met at all points outside of the mixing zone.

This general permit is intended to cover various locations throughout the state; therefore, the locations of potential discharges are not known until NOIs are received. The permit authorizes standard-sized freshwater and marine mixing zones for turbidity. The freshwater mixing zone extends 500 feet down current of the suction dredge during operation. The marine mixing zone is circular with a 500-foot radius centered on the suction dredge during operation. A turbidity plume may exceed WQS within either the freshwater or marine mixing zones; however, any visual increase in turbidity beyond the boundary of either the freshwater or marine mixing zone is considered a violation of the permit. The effluent limitations are specified in Permit Part 2.1. The mixing zone rationale follows below.

EPA has permitted medium suction dredge activities with a statewide general permit since 1994. Two significant studies were conducted by EPA and its contractors in the summers of 1997 and 1998 (Prussian et al. 1999) evaluating the impacts of suction dredging on water

quality (including metals), benthic habitat, and biota in Alaska streams. Results indicated that the primary effects of suction dredging on water chemistry were increased turbidity, total filterable solids, and copper and zinc concentrations only in a localized area downstream of the dredge, but these variables returned to upstream levels within 262 – 525 feet downstream of the dredge. The studies also indicated that copper and zinc concentrations met water quality standards within the same distance downstream as turbidity. Therefore, if a facility meets the turbidity limits, copper and zinc concentrations are only expected to be elevated within the turbidity plume and mixing zone.

A cooperative effort between the U.S. Geological Survey and Alaska Department of Natural Resources produced another study on the impacts of suction dredging on Alaska waters in 1997 (USGS 1997). The study concluded that at 500 feet downstream of suction dredging there was no measurable effect on water chemistry, and turbidity recovered to levels in compliance with WQS.

The studies and subsequent annual reports and inspections of suction dredge mining operations affirm that medium-size suction dredging, conducted in accordance with the permit conditions, has only localized impacts allowing for the temporary disturbance of sediments and increased turbidity during mining, but areas beyond the 500 foot mixing zone remain unaffected.

In authorizing these mixing zones, the Department considered all aspects required in 18 AAC 70.015 to .016, Antidegradation, and 18 AAC 70.240, Mixing zones (as approved for CWA purposes on September 30, 2019), including, but not limited to, the potential risk to human health and to aquatic resources and analysis of the predicted effluent quality from the discharge.

The Department finds that the 500-foot mixing zones authorized for marine and freshwater discharges following the requirements in the permit are appropriate and provide reasonable assurance that designated and existing uses of the receiving waters outside of the mixing zones are 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 (i.e., technology-based or water quality-based) are more stringent.

5.2 Technology-Based Effluent 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 best management practices (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 freshwater facilities covered under the permit process less than 50,000 cu yd of ore per year and the remainder of facilities operate in open water, the promulgated ELGs are not applicable and, therefore, the permit does not contain technology-based effluent limits.

5.3 Water Quality-Based Effluent Limits

The CWA required the establishment of limitations in permits 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 CWA § 402(a)(2) and 18 AAC 83.475(3), BMPs must be included in a permit “when numeric effluent limitations are infeasible.” Suction dredging’s unique method of intake and displacement presents unusual permitting issues. As discussed above (Fact Sheet Section 3.0), 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 and 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. Daily visual monitoring for turbidity within the mixing zone ensures that the BMPs are implemented properly (Fact Sheet Section 6.0). Any visual increase in turbidity beyond the boundary of the 500-foot mixing zone is a violation of the permit. If turbidity is observed beyond the mixing zone, permittees must decrease or cease operations to meet the permit limit. In most cases, water quality recovers rapidly when corrective actions are taken.

State WQS also include water quality criteria for petroleum hydrocarbons and oils and grease for fresh and marine waters [18 AAC 70.020(b)(5) and (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 that prohibit “floating oils on the surface of the waterbody or cause a film or sheen from petroleum hydrocarbons, or oils and grease, 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. The daily observations during operation, combined with the BMPs for turbidity and hydrocarbons, ensure that the WQS are met.

As discussed in Fact Sheet Section 4.1, waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230(e). DEC has received requests for modified permit conditions from facilities located on fresh waters that have been reclassified as industrial use only. In consideration of such reclassified waterbodies, the permit includes conditions wherein a permittee may be exempted from certain turbidity related BMPs and granted modified turbidity limits (Permit Part 3.4); such exemptions are made on a case-by-case basis. State WQS for turbidity on fresh waters include industrial use criteria prohibiting discharges that “cause detrimental effects on established (industrial) water supply treatment levels” [18 AAC 70.020(b)(12)(A)(iv)]. To protect established downstream industrial users on

reclassified waterbodies and downstream waterbodies that are protected for other uses, discharges from approved facilities may not create 1) a visual increase in turbidity within 300 feet upstream of the intake of any established industrial user that is actively withdrawing water or 2) a visual increase in turbidity that extends into any downstream waterbody classified for other uses. Department approval is subject to input from ADF&G and the land manager. Upon approval, permittees must continue to adhere to all other permit requirements, including daily monitoring and annual reporting. The exemptions do not extend to limits or conditions for other pollutants, such as petroleum hydrocarbons and oils and grease.

6.0 MONITORING REQUIREMENTS

APDES regulations require that permits include monitoring to determine compliance with effluent limitations (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 permit retains the monitoring requirements included in the prior permit issuance. Permittees must conduct daily visual monitoring and submit annual reports to DEC on before January 31 of each year (Permit Parts 2.2 and 4.0).

7.0 OTHER PERMIT CONDITIONS

7.1 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 following sub-sections describe the required BMPs and rationale:

- 7.1.1 Dredging in fresh waters is permitted only within the active stream channel. Dredging within the active stream channel that results in undercutting, littoral channeling, or that otherwise results in erosion of a stream bank is prohibited. This provision does not apply to facilities operating within disconnected ponds or meander cutoffs if the permittee has received an ADF&G determination that the location is not fish-bearing.

This practice ensures that 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. The second portion of this BMP aligns with conditions in the Small Suction Dredge General Permit (AKG375000) and provides allowances for locations where fish are not present.

- 7.1.2 Motorized winches or other motorized equipment shall not be used in fresh water to move boulders, logs, or other natural obstructions within the active stream channel. This prohibition does not apply to the non-routine use of such equipment either to move obstructions that present an immediate safety hazard or to assist with reclamation upon completion of mining.

This practice 1) ensures that important habitat including large organic debris and boulders will not be destroyed 2) prevents any erosion, and related turbidity problems from changes in the streamflow and 3) helps maintain suction dredging as a relatively low impact activity. Because many permittees operate in streams with large boulders or

other obstructions, the obstructions must be moved to prevent possible entrapment or pinning of the diver. The BMP includes an allowance for the use of motorized equipment in situations where safety is a concern. The allowance provides for the efficient and safe removal of obstructions in non-routine situations. The routine use of such equipment for other dredging uses is beyond the scope of this permit.

- 7.1.3 Boulders, logs, or other natural obstructions must be kept as close to their original location within the active stream channel as possible. Material that is moved by the operator must not be placed in a manner that significantly alters the active stream channel or otherwise redirects the flow of water into the streambank causing erosion or undercutting.

This practice, similar to those described in Sections 7.1.1 and 7.1.2 above, ensures that stream habitat is kept as close to the original condition as possible and that relocated or dredged material will not contribute to undue erosion and related turbidity problems from changes in the streamflow.

- 7.1.4 Dredging of concentrated silt and clay should be avoided. The permittee shall use reasonable care to avoid dredging silt and clay materials that would result in a significant increase in turbidity. Reasonable care includes moving the dredge to a new location or reducing the volume of effluent discharge by limiting operation speed of the suction dredge.

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

- 7.1.5 Mercury from historical dredge operations or other pollutants may be encountered during dredge operations. The permittee must take measures to ensure mercury or other 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 Appendix A, Part 1.1.1.

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

- 7.1.6 Dredging equipment must not house invasive species. Equipment must be self-inspected and cleaned prior to its placement in waters of the U.S. and when transferring from one waterbody to another.

Invasive species, such as Elodea, that pose threats to aquatic resources have begun to establish themselves in Alaskan waters. The intent of this practice is to ensure that invasive plants or animals are not transferred to waters of the U.S. from dredges, particularly those dredges that are new to the state.

- 7.1.7 Petroleum products must be properly managed during storage, refueling, and operation to prevent spillage into surface waters or groundwater. Equipment must be free of excess oils and grease and must not release petroleum products. Any spills must be cleaned up using materials, such as sorbent pads and booms, and reported, per Permit Part 4.3.

These practices ensure that petroleum contamination from equipment, fuel storage, or refueling is prevented or mitigated. The reporting requirement is included based on

DEC regulations requiring a person in charge of a facility or operation to provide notification of spills or releases (18 AAC 75.300).

7.2 Seasonal Restrictions

The permit requires operators to adhere to any seasonal restrictions contained in ADF&G Fish Habitat Permits and DNR mine plan approvals for marine waters (Permit Part 3.2); mine plan approvals for freshwater operations rarely contain seasonal restrictions, and thus are excluded from this requirement. The seasonal restrictions supplement protections for spawning fish, red king crab, and other aquatic resources. Rather than include site-specific seasonal restrictions within authorizations under the general permit, DEC relies on the expertise of complementary State agencies. Permittees must maintain copies of the Fish Habitat Permits and/or mine plan approvals on site.

7.3 Separation Requirements

Permit Part 3.3.1 outlines separation requirements applicable to turbidity plumes. The separation requirements 1) minimize cumulative impacts from multiple facilities operating simultaneously in close proximity to each other, 2) prevent monitoring difficulties and turbidity limit violations due to plume overlap, and 3) allow passage for fish migration.

Dredge operations in fresh water must maintain an 800 feet separation between other active dredge operations. The 800 feet separation distance provides a 300 feet long buffer between the downstream boundary of a mixing zone (500 feet) and the next downstream discharge. The Department has received requests from permittees to allow partner dredges to operate in closer proximity to facilitate fuel storage, minimize river travel, and improve safety allowing the adjacent operators to monitor each other. To accommodate partner operations, the permit defines “dredge operation” to include “two medium-sized suction dredges operating within 800 feet of one another with no single or combined plume length greater than 500 feet long” (Permit Appendix C).

The Department has received comments voicing concern that the 800 feet separation distance in fresh waters may effectively prohibit operation on small claims due to operations on adjacent claims discharging near the claim boundaries. The 800 feet separation has been in place since the 1996 permit modification. To date, the Department is unaware of the separation requirement causing conflicts or effectively prohibiting any operations in fresh water. This may be because dredges of the size and scale covered under the permit commonly operate on a series of adjoining claims covering a stretch of riverbed. The adjoining claims allow operators to discharge without overlap or conflicts with other operators. In situations where ownership of a single claim, or small number of claims, presents overlap conflicts, the discharger may operate with a smaller dredge, covered under the *Small Suction Dredge General Permit* (AKG375000), not subject to the 800 feet separation.

Because dredges of varying sizes with different plume lengths often operate in the same areas within marine waters (e.g., Norton Sound), and the relative positions of marine operations with regard to currents differs considerably from flowing streams, the permit does not implement specific separation distances between dredges in marine waters. However, marine dredges must operate to ensure that discharged turbidity plumes do not overlap with the plumes of other equipment used in the same waters.

Permit Part 3.3.2 implements a 500 feet separation between discharges and locations where anadromous or resident fish are spawning or where anadromous or resident fish eggs, alevins, or spawning redds are known to exist at the time dredging occurs. DEC mixing zone regulations prohibit the authorization of mixing zones in areas of anadromous or resident fish

spawning, with limited exceptions [18 AAC 70.240(e) and (f), as approved for CWA purposes on September 30, 2019]. This prohibition, along with seasonal restrictions based on ADF&G Fish Habitat Permits (Fact Sheet Section 7.2), ensures that anadromous and resident fish are not disturbed during spawning and that anadromous and resident fish eggs, alevins, and spawning redds are not buried or otherwise harmed. Permit Appendix C defines “anadromous fish,” “resident fish,” and “spawning” based on regulations at 18 AAC 70.240(e) and (f) and 18 AAC 70.990, as approved for CWA purposes on September 30, 2019.

To ensure discharges do not interfere with drinking water sources for public water system (PWS) intakes, Permit Part 3.3.3 implements a 500 feet separation from downstream PWS intakes. Dredge operations are unlikely to interfere with ground water intakes; therefore, the separation distance is not applicable to ground water systems that are not under the direct influence of surface water. Permittees who wish to obtain further information, such as locations of known intakes, are advised to visit the interactive web map (<http://dec.alaska.gov/das/gis/apps.htm>) or contact the DEC Drinking Water Protection group.

Critical habitat for northern sea otter occurs near Kodiak Island and along the Aleutian Chain. Based on coordination with USFWS and conditions in the APDES *Small Suction Dredge General Permit* (AKG375000), Permit Part 3.3.4 requires operations in critical habitat for northern sea otter (see Permit Appendix D, ESA Habitat Areas) to maintain a distance of 800 feet from any northern sea otter during operation. To account for otter movements, the distance provides a 300 feet buffer between the otter and boundary of the mixing zone (500 feet).

Critical habitat for polar bear occurs on sea ice and along coastal areas (terrestrial denning habitat and barrier islands) in northern and northwest Alaska. To minimize any potential impacts to polar bears from dredging operations, language has been added under Permit Part 3.3.5 requiring dischargers to cease operation if a polar bear is observed and recommending permittees review USFWS *Polar Bear Interaction Guidelines* (<https://fws.gov/alaska/pages/marine-mammals/polar-bear/interaction-guidelines>) or contact USFWS to obtain additional information or report sightings.

Essential Fish Habitat for red king crab occurs in Norton Sound offshore of Nome. To ensure red king crabs are not disturbed, Permit Part 3.3.5 requires that operations avoid red king crab mating pairs and clusters and either move to an alternate location or cease operation if crabs are observed.

To align the permit with conditions under the *Small Suction Dredge General Permit* (AKG375000) and *Norton Sound Large Dredge General Permit* (AKG374000) and protect sensitive habitat, Permit Part 3.3.6 prohibits discharges to coral beds, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, or shellfish beds.

7.4 Reclassified Waters

Based on requests for modified permit conditions from facilities located on fresh waters reclassified as industrial use only under [18 AAC 70.230(e)], the permit includes conditional exemptions from certain turbidity-related BMPS and modified turbidity limits (Permit Part 3.4). See Fact Sheet Section 5.3.

7.5 Recording and Reporting Requirements

Per regulations at 18 AAC 83.455, Permit Part 4.0 contains recording and reporting requirements that are either based on standard regulatory language (Fact Sheet Section 7.5) or specific to the general permit. The permit requires the facility to maintain daily records and

submit an annual report to DEC by January 31 for the previous calendar year. Specific report requirements are outlined under Permit Part 4.2.

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 twenty-four-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. 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 permit requirements that are based on State regulations. Although DEC is aware of the logistical difficulties of remote operations and recognizes that some operators may have difficulties meeting the 24-hour noncompliance reporting requirement, operators are still required to notify DEC of any events subject to the reporting requirement. 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.

7.6 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 APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general provisions.

8.0 ANTIBACKSLIDING

Anti-backsliding requirements found in 18 AAC 83.480(a) prohibit relaxation of effluent limitations, standards, or conditions when a permit is reissued, except under prescribed circumstances. 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.

9.0 ANTIDegradation

The antidegradation policy of the Alaska *Water Quality Standards* requires 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. Antidegradation analyses generally conservatively presume that all operations under a general permit will be in Tier 2 waters [18 AAC 70.016(c)(1)]. The permit specifically excludes coverage in Tier 3 waters (Permit Part 1.3).

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 1.3.1), the Department will decline general permit coverage and require an application for an individual permit. An operation proposed for a National Park System Unit, National Wildlife Refuge, water designated as wild under the Wild and Scenic Rivers Act, or similar protected area requires additional review from the agency with management authority over the area and may be subject to additional seasonal or geographic restrictions on the authorization (Permit Part 1.3.2).

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 has not been conducted for this issuance.

10.0 OTHER LEGAL REQUIREMENTS

10.1 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 Ocean Discharge Criteria Evaluation (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.

10.2 Endangered Species Act

The Endangered Species Act of 1973 (ESA) was signed on December 28, 1973 and 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. The National Marine Fisheries Service (NMFS) is responsible for ESA administration of listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, eiders, and sea otters) are

administered by the 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>), the following endangered species (final and proposed listings) may occur in or near the permit coverage area: beluga whale; blue whale; bowhead whale; chinook, coho, and sockeye salmon (non-Alaska populations); fin whale; humpback whale (certain populations); North Pacific right whale; sei whale; sperm whale; steelhead trout (non-Alaska populations); and Steller sea lion. Additionally, the following threatened species (final and proposed listings) may occur in or near the permit coverage area: bearded seal; chinook, chum, coho, and sockeye salmon (non-Alaska populations); eulachon (non-Alaska population); green sturgeon (southern DPS), Guadalupe fur seal; humpback whale (certain populations); ringed seal; steelhead trout (non-Alaska populations); and yelloweye rockfish (non-Alaska population). All listed species under NMFS jurisdiction in Alaska occur in remote marine or coastal areas and are unlikely to occur near most operations covered under this permit. During prior permit issuances, NMFS concurred with EPA determinations that the proposed action would not adversely affect the ESA-listed species under NMFS jurisdiction in Alaska.

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 six threatened and endangered species may occur in the statewide coverage area. Threatened species include the spectacled eider, Steller's eider, northern sea otter, and polar bear. Endangered species include the short-tailed albatross and Aleutian shield fern. Critical habitat is designated for the spectacled eider, Steller's eider, northern sea otter, and polar bear. All listed species under USFWS jurisdiction in Alaska occur in remote marine or coastal areas and are unlikely to occur near most operations covered under this permit. The general permit authorizes discharges to fresh and marine waters; however, most discharges occur either in fresh waters in the interior of the state or in marine waters immediately offshore of Nome.

To provide additional protection for ESA-listed species, the permit 1) excludes coverage for operations within critical habitat for spectacled eider, Steller's eider, or northern sea otter, unless USFWS has an opportunity to provide input and submits a letter of non-objection; 2) establishes seasonal windows for Steller's eider wintering areas; and 3) includes additional stipulations for facilities authorized to operate in critical habitat for northern sea otter or polar bear. Protections for eiders and northern sea otter are based on USFWS comments received during the 2011 and 2015 Draft Public Notices.

Moreover, 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 that fall under NMFS or USFWS jurisdiction. If additional comments are submitted, DEC will consider them prior to final issuance of the permit.

10.3 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act or MSA), first enacted in 1976, 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 communications with NMFS during prior permit issuances, DEC determined that the most likely harm to come to fish as a result of placer mining is sediment loading or decreased light penetration caused by elevated instream turbidity; however, actions authorized by the general permit would not adversely affect EFH since facilities in compliance with the permit conditions would not be expected to cause significantly elevated sediment loads or instream turbidity. In streams where suction dredging occurs, the most critical life stage for salmon is the egg stage. The permit prohibits suction dredging within 500 feet of locations where fish are spawning or where fish eggs or alevins are known to exist. Additionally, permittees must obtain any necessary ADF&G Fish Habitat Permits and adhere to the seasonal restrictions within the permits. ADF&G Fish Habitat Permits limit or prohibit mining in anadromous streams while the eggs are in the gravel and during spawning periods. In fresh waters, the permit is unlikely to be used during the critical phase and if it were, the suction dredge studies, as discussed in Appendix A, have shown that the impacts of an operation are minimal after 500 feet. Therefore, the 500-foot buffer would provide sufficient protection. DEC has determined that no adverse impact to EFH in fresh waters would result from the reissuance of the permit. During the prior permit issuances, NMFS concurred with EPA determinations that actions authorized by the permit would not adversely affect EFH in anadromous streams.

Most marine waters surrounding the state of Alaska have been designated EFH. During the issuance of a general permit, it is difficult to determine where facilities might be located during the life of the permit. However, most suction dredges of the size covered by the permit do not operate in waters greater than 30 feet in depth, and the timing is restricted by weather, water conditions (e.g., clarity), and ice cover. Almost all marine facilities operating under this permit are located in Norton Sound immediately offshore of Nome. Based on prior consultations and review of the Alaska EFH Mapper (<https://www.fisheries.noaa.gov/resource/map/alaska-essential-fish-habitat-efh-mapper>), the area immediately offshore of Nome is designated as EFH for all five Pacific salmon species. EFH for red king crab (RKC) also occurs near Nome with a critical period from March 1 to May 31 when RKC are near shore and spawning in conjunction with the ice edge retreat and spring plankton bloom. Due to ice cover, very few operations are expected to operate during this period. Operations that do operate under-ice are limited to water depths of 30 feet to prevent conflicts with crab fisherman that are known frequent deeper waters. If RKC mating pairs or clusters are observed, permitted operations must move to an alternate location where no crabs are observed or cease operation until the crabs move away on their own. The permit also requires adherence to any additional seasonal limits for under-ice operations implemented by DNR.

During the 2012 and 2103 mining seasons, DEC staff collected discharge samples offshore of Nome from four suction dredges, with nozzle diameters ranging from 10 to 18 inches. All sampled operations had observed turbidity plume lengths less than 50 feet and the discharges met WQS for turbidity within ten feet of the discharge point. Compliance inspections of medium-size dredges operating in Norton Sound have yielded similar results. The relatively short plume lengths were likely due to slow currents within Norton Sound and coarse near-shore substrate sediments that settled quickly upon discharge. Discharges from such dredges authorized under the permit would not be expected to have adverse effects on fish passage or RKC spawning or larvae. Because of 1) the practical restrictions on depth and timing, 2) seasonal restrictions and separation requirements within the permit (Permit Part 3.0), and 3) relatively short turbidity plumes expected from near-shore operations within Norton Sound, adverse impacts to EFH in marine waters from the permit issuance are unlikely to occur. If additional comments are submitted, DEC will consider them prior to final issuance of the permit.

11.0 REFERENCES

- ADF&G (Alaska Department of Fish and Game). 1998. Catalog of waters important for spawning, rearing, or migration of anadromous fishes. ADF&G, Habitat Division, 6 vols., Anchorage, Alaska. Revised periodically.
- Crock, J.G., L.P. Gough, R.B. Wanty, W.C. Day, B. Wang, B.M. Gamble, M. Henning, Z.A. Brown, A.L. Meier. 1999. Regional geochemical results from the analyses of rock, water, soil, stream sediment, and vegetation samples--Fortymile River watershed, east-central Alaska. Department of Interior, United States Geological Survey, Open-File Report 99-33.
- 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. State of Alaska, Department of Environmental Conservation.
- EPA (Environmental Protection Agency). 1998. Alaska placer mining metals study. US 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. 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. Environmental Protection Agency, Office of Environmental Assessment, Office of Water, Region 10, unpublished, Anchorage, Alaska.
- NMFS (National Marine Fisheries Service). 2005. Final environmental impact statement for essential fish habitat identification and conservation in Alaska, Appendix D: D77-D81. US Department of Commerce, National Oceanic and Atmospheric Administration, NMFS, Alaska Region, Juneau.
- 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.
- USGS (United States Geological Survey). 1997. Studies of suction dredge gold-placer mining operation along the Fortymile River, Eastern Alaska. Department of Interior, USGS, Fact Sheet 154-97.
- Wanty, R.B., B. Wang, J. Vohden, P.H. Briggs, and A.L. Meier. 2000. Regional baseline geochemistry and environmental effects of gold placer mining operations on the Fortymile River, eastern Alaska, in Kelley, K.D., and Gough, L.P., eds., Geologic studies in Alaska by the U. S. Geological Survey, 1998. Department of Interior, USGS, Professional Paper 1615

APPENDIX A. SUMMARY OF SUCTION DREDGE STUDY

The U.S. Environmental Protection Agency (EPA) commissioned a suction dredge study that was conducted on the Fortymile River in 1997 and 1998 by Idaho State University (Prussian et al. 1999). Two sites were chosen, Site 1 in the vicinity of a ten-inch suction dredge, and Site 2 in the vicinity of an eight-inch suction dredge. The United States Geological Survey (USGS) also conducted studies in the same area (Crock et al. 1999, USGS 1997, Wanty et al. 1999).

The studies demonstrated that the primary effect of dredging on water chemistry was increased turbidity, total filterable solids, and copper and zinc concentrations downstream of the dredge.

The turbidity plume was visually dramatic at Site 1; however, spatially confined to less than 525 feet. At 100 feet downstream, the turbidity values were reported at 19 Nephelometric Turbidity Units (NTU) which, with background levels reported at 2.2 - 2.3 NTU, would exceed the Alaska Water Quality Standard (WQS) of 5 NTU above background. However, at 200 feet downstream from the dredge, the turbidity values were 3.7 NTU, which is 1.4 - 1.5 NTUs above background and well within the WQS and the permit requirements. The USGS report states that the turbidity values for Site 2 were less than Site 1. In their study, USGS attributes higher turbidity for Site 1 to the increased volume of the larger dredge and the finer material being mined. It should be noted that even with these adverse conditions, the 10-inch dredge was well within compliance with the discharge requirements of the EPA-issued National Pollutant Discharge Elimination System (NPDES) permit.

As the sediments were transported downstream, the total copper and zinc concentrations declined. Within 262 feet downstream of the dredge, copper and zinc concentrations were similar to those measured upstream of the dredge. The USGS report found that, based upon chemical and turbidity data, any variations in water quality due to suction dredging activity fell within the natural variations in water quality.

In general, the observed decrease in water clarity was unlikely to have altered ecosystem function in the area of the Fortymile River where the dredge was located. There also did not appear to be any downstream influence on bed morphology by dredged sediments, indicating that dredging had little effect beyond the substrates immediately adjacent to the dredged area. Based on observations made in both studies, it appears that the dredge piles at the examined locations will remain in place no longer than one to three years and in many cases the stream channel will return to its pre-dredge condition in one year.

As with water clarity, the effect of suction dredging on macroinvertebrate abundance and diversity was confined spatially to a relatively small area downstream of the dredge. Both abundance and diversity were notably reduced for 33 feet downstream of Site 1, with similar occurrence at Site 2. Within 262 feet, both streams appeared to be unaffected by the dredge plumes. The results from 1998 indicate that substantial recovery of the macroinvertebrate community occurs within one year after suction dredging ceases, and that the effects of suction dredge mining on macroinvertebrates are local and short lived.