**ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM**

**PERMIT FACT SHEET – FINAL**

Permit Number: AKG375000

**Small-Size 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: **May 25, 2012**
Public Comment Period Expiration Date: **June 24, 2012**
Alaska Online Public Notice System: http://notes3.state.ak.us/pn

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

**SMALL-SIZE 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 small-size suction dredge placer miners. The permit authorizes and sets conditions on the discharge of pollutants from small-size suction dredges and highbankers to waters of the United States located in the State of Alaska. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged and outlines best management practices that must be adhered to.

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

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

## Public Comment

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

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

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

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

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

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

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

## Documents are Available

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

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

# TABLE OF CONTENTS

**1.0 PERMIT COVERAGE ..... 4**

1.1 Coverage and Eligibility ..... 4
1.2 Authorized Placer Mining Operations ..... 4
1.3 Prohibitions ..... 6
1.4 Additional Requirements ..... 6
1.5 Individual Permits ..... 6
1.6 Notification Requirements ..... 6
1.7 Permit Expiration ..... 8

**2.0 REGULATORY HISTORY OF PLACER MINING IN ALASKA ..... 9**

**3.0 INDUSTRY DESCRIPTION ..... 10**

3.1 Mining Methods ..... 11
3.2 Processing Methods ..... 11

**4.0 RECEIVING WATERBODY ..... 11**

4.1 Water Quality Standards ..... 11
4.2 Mixing Zone Analysis ..... 12

**5.0 EFFLUENT LIMITATIONS ..... 13**

5.1 Basis for Permit Effluent Limits ..... 13
5.2 Technology-Based Limits ..... 13
5.3 Water Quality-Based Effluent Limits ..... 14
5.4 Best Management Practices (BMPs) ..... 14

**6.0 OTHER PERMIT CONDITIONS ..... 16**

6.1 Monitoring Requirements ..... 16
6.2 Recording and Reporting Requirements ..... 16
6.3 Standard Conditions ..... 17

**7.0 ANTIDEGRADATION ..... 17**

**8.0 OTHER LEGAL REQUIREMENTS ..... 20**

8.1 Ocean Discharge Criteria Evaluation ..... 20
8.2 Endangered Species Act ..... 20
8.3 Essential Fish Habitat ..... 21

**9.0 REFERENCES ..... 23**

# LIST OF TABLES

**Table 1: AKG375000 Permit Dates** ..... 10

# 1.0 PERMIT COVERAGE

## 1.1 Coverage and Eligibility

1.1.1 Section 301(a) of the Clean Water Act (CWA) and 18 AAC 83.015 provide that the discharge of pollutants is unlawful except in accordance with an 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 are:

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

1.1.1.2 Involve the same or substantially similar types of operations;

1.1.1.3 Discharge the same types of wastes;

1.1.1.4 Require the same effluent limitations or operating conditions;

1.1.1.5 Require the same or similar monitoring requirements; and

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

1.1.2 Permit Part 1.1 summarizes coverage and eligibility requirements for existing facilities and new or recommencing facilities. Authorized discharge requires completion of automatic coverage requirements or written notification and a specific authorization number from DEC (Permit Part 1.6).

## 1.2 Authorized Placer Mining Operations

Permit Part 1.2 outlines operations that are authorized under the GP. The included operations are expanded from the 2007 Environmental Protection Agency (EPA)-Issued National Pollutant Discharge Elimination System GP to include highbankers that discharge to waters of the U.S. and small-size suction dredges with dredge engines of greater than 18 horsepower (hp). See the subsequent sections of this permit part for explanation as to why DEC determined it appropriate to expand to include the aforementioned operations.

### 1.2.1 Highbankers

Highbankers (also known as power sluices) typically operate on a stream bank or beach, discharge to land, and accordingly do not necessarily require an APDES permit. However, some highbankers discharge to waterbodies and, therefore, require an APDES permit.DEC has determined that because highbankers authorized under this GP operate similar to a small-size suction dredge, and have similar discharges, highbankers must meet the same permit requirements applicable to small-size suction dredges with dredge

engines of less than or equal 18 hp (see Fact Sheet Section 3.0, Industry Description). Highbankers authorized under this GP are only allowed to operate within the active stream channel. Therefore additional treatment options, such as settling ponds, would be infeasible and potentially result in greater habit degradation than the discharge itself (see Fact Sheet Section 7.0, Antidegradation).

Furthermore, because discharges from highbankers are similar or less significant than those from small-size suction dredges and are suspected to only comprise a small percentage of permitted facilities under the GP, Fact Sheet explanations hereafter will only explicitly reference small-size suction dredges unless otherwise noted. In addition, due to limited information on the actual numbers of highbankers that require coverage, and their similarities to small suction operations, the GP will retain the title *Small-Size Suction Dredge Placer Miners General Permit* for the 2012 DEC-reissuance.

### 1.2.2 Suction Dredge Engine Size

The 2007 EPA-Issued GP established a maximum dredge engine size of 18 hp, in order to align permit requirements with those of other State agencies. However, neither the 2007 EPA-issued GP, nor the recently DEC-issued Medium-Size Suction Dredge Placer Miners General Permit (AKG371000) covers suction dredges with intake diameters less than or equal to six inches and engines greater than 18 hp. In order to provide permit coverage for this category of small-size dredges with larger engines, as well as the historically covered dredges with engine sizes less than 18 hp, this GP includes small-size dredges with engines larger than 18 hp. Dredges with pump engines larger than 18 hp in freshwater and 23 hp in marine water that wish to operate under this GP will be required to adhere to permit requirements similar to those established in AKG371000 in order to more appropriately control their discharge and thereby protect water quality. The Alaska Department of Fish and Game (ADF&G) or land manager may also apply additional horsepower rules or restrictions.

Note that based on input from the mining industry, the permit is providing a larger horsepower allowance for permitted marine dredges (e.g. 23 hp) in order to overcome the friction and elevation head necessary for larger marine dredges and allow for lower, and more efficient, engine speeds (letter from Patrick Keene, General Manager, Keene Engineering Company, to Kerwin Krause, Geologist/Mineral Property Manager, Alaska Department of Natural Resources, February 8, 2012). The additional horsepower allowance also aligns DEC permit requirements with Alaska Department of Natural Resources (DNR) permit requirements for Public Mining Areas in Nome.

### 1.2.3 Suction Dredge Intake Diameter

In the 1997 EPA-issued permit, EPA defined small-size suction dredges as those with nozzles less than or equal to four inches. When EPA reissued the GP in 2002, it changed the nozzle size requirements from “less than or equal to 4 inches” to “less than or equal to 6 inches.” The 1997 through 2007 EPA-issued GPs also contained language that restricted hose diameter to a maximum of “2 inches larger than the nozzle size” and allowed a permittee to use an internal constrictor ring to reduce a large hose down to six inches. Because dredge output is determined by intake diameter and hp, rather than hose size, DEC has removed the limitation on hose size in the GP. Accordingly, the 2012 GP

language has been reworded to permit suction dredges with an “intake diameter less than or equal to 6 inches.”

## 1.3 Prohibitions

Permit Part 1.3 specifies operations that are not authorized under the 2012 GP. Operations that are not authorized must seek coverage under another applicable permitting mechanism (i.e. other applicable GP or an individual permit). Operations are limited or restricted under this GP because the discharges may occur in management areas or sensitive areas that are excluded from coverage based on past input from the public and other regulatory agencies (Permit Parts 1.3.1 - 1.3.3), or potentially contain pollutants that require monitoring beyond the scope of the GP (Permit Part 1.3.4).

## 1.4 Additional Requirements

The 2007 EPA-issued GP prohibited operations in National Parks System Units (i.e., Parks and Preserves), National Monuments, National Sanctuaries, National Wildlife Refuges, National Conservation Areas, National Wilderness Areas, waters designated as wild under the Wild and Scenic Rivers Act, and critical habitat designated under the Endangered Species Act. However, federal agencies with jurisdiction over those areas, have occasionally granted permission, or provided additional recommendations, for applicants who have wished to operate in historically mined regions, or less sensitive regions. Because neither the 2007 GP, nor earlier EPA-issued GPs, provided case-by-case exceptions, EPA issued individual permits to dredgers that proposed to operate and discharge within those areas. Given the occasional historical determination to allow for operation in these typically excluded areas, the 2012 GP provides case-by-case exceptions wherein the Department may authorize facilities in certain otherwise prohibited locations, provided that 1) the Department receives approval and input from the federal agency with jurisdiction over the area and 2) the permittee meets any additional requirements specified in the authorization. Additional requirements may be derived on a multitude of factors, but specifically, on past EPA-issued individual permits and any additional stipulations provided by the applicable federal agency (Permit Part 1.4).

## 1.5 Individual Permits

DEC regulations outline three individual permit exceptions (18 AAC 83.215). First, the Department may require any person authorized by a GP to apply for and obtain an individual permit, or any interested person may petition the Department to take this action. Second, a permittee may request to be excluded from the coverage of the GP by applying for an individual permit. Third, an owner or operator of a facility that already has an individual permit may request GP coverage. In order to consider general permit exceptions, wherein an individual permit may be issued, the GP includes the exceptions as a reference to the regulations (Permit Part 1.5.1).

## 1.6 Notification Requirements

Owners or operators of facilities eligible for permit coverage must meet requirements for automatic coverage or submit a Notice of Intent (Permit Part 1.6).

### 1.6.1 Automatic Coverage

DEC regulations allow the Department to provide automatic coverage to a discharger under a general permit without submitting a Notice of Intent (NOI), if the reasons for not requiring an NOI are stated in the public notice of the general permit [18 AAC 83.210 (g)].

Small suction dredges that are in compliance with the general permit requirements are generally low impact facilities and are accordingly not subject to the same reporting requirements and inspections as larger facilities. However, due to the large volume of authorizations associated with the small suction dredging operations, the Department devotes a large amount of administrative work to authorization issuance and tracking. The automatic coverage option will reduce the administrative workload of processing NOIs for relatively low risk dischargers and in turn provide the Department more opportunity for permit compliance assistance via outreach efforts and site visits.

In making the finding that a NOI is not required, the Department considered the following [18 AAC 83.210 (g)(1) – (2)]:

#### 1.6.1.1 The type of discharge

The permit provides automatic coverage for suction dredges with intake diameters less than or equal to six inches and pump engines less than or equal to 18 hp in freshwater and 23 hp in marine water. Suction dredges that have larger horsepower or facilities that are located in National Parks System Units, National Monuments, National Sanctuaries, National Wildlife Refuges, National Conservation Areas, National Wilderness Areas, waters designated as wild under the Wild and Scenic Rivers Act, critical habitat for northern sea otter, barrier island critical habitat for polar bear, or sea ice are not eligible for automatic coverage and must submit NOIs in ordered to be considered for permit coverage in these areas.

#### 1.6.1.2 The expected nature of the discharge

Suction dredges are designed to work as a unit to dig, classify, beneficiate ores and dispose of waste. Highbankers operate in similar manner, however, are hand-fed with a shovel or bucket, rather than a suction hose. Because suction dredges and highbankers authorized under this GP work the stream bed or ocean floor, rather than terrestrial areas, the discharge from suction dredges and highbankers consists entirely of in-situ water and bed material (see Fact Sheet Section 3.0, Industry Description).

#### 1.6.1.3 The potential for toxic and conventional pollutants in the discharge

Because the discharge from suction dredges consists totally entirely of in-situ water and bed material, the potential for toxic and conventional pollutants in the discharge is limited to those materials already found in the receiving water and stream or ocean bed. Turbidity, the primary pollutant of concern is mitigated through implementation of best management practices (Fact Sheet Section 5.4).

#### 1.6.1.4 **The expected volume of the discharge**

Small-size suction dredges are generally considered recreational equipment. Most small suction dredge activity occurs for a period ranging from two to eight hours a day, for a few days a week on average, and is limited to seasonal work periods authorized by ADF&G. Due to equipment size and the recreational nature of the activity, small suction dredges move and discharge a relatively small amount of material.

#### 1.6.1.5 **Other means of identifying a discharge covered by the permit**

Because the permit requires that facilities receive a Fish Habitat Permit from ADF&G, or submit a statement to DEC if a Fish Habitat Permit is not required, DEC will retain the ability to track the locations and numbers of dischargers covered by the permit.

#### 1.6.1.6 **The estimated number of discharges to be covered by the permit**

DEC anticipates approximately 250 facilities, with an average of four authorizations per facility, to be active on an annual basis. See Fact Sheet Section 2.0 (final paragraph). Numbers of active dischargers, however, are likely to fluctuate based on the continually adjusting price of gold.

### 1.6.2 **Facilities that Require Submittal of a NOI**

An NOI is required when seeking coverage under this GP for suction dredges with pump engines greater than 18 hp in freshwater and 23 hp in marine water; or facilities that are located in National Parks System Units, National Monuments, National Sanctuaries, National Wildlife Refuges, National Conservation Areas, National Wilderness Areas, waters designated as wild under the Wild and Scenic Rivers Act; critical habitat for northern sea otter, barrier island critical habitat for polar bear, or sea ice.

The notification requirements for facilities that require an NOI are outlined in Permit Part 1.6. An Annual Placer Mine Application (APMA), submitted to the DNR, will be accepted as an NOI if all the required information is included.

## 1.7 Permit Expiration

The permit will expire five years after the effective date.

Under 18 AAC 83.210(a), a GP may be administered according to the individual permit regulations found in 18 AAC 83.115 and 18 AAC 83.120. Therefore, if the GP is not reissued prior to its expiration date, the GP will continue in force and effect until a new GP is issued. Only those facilities granted automatic coverage under the 2012 GP, or those facilities authorized to discharge under the 2012 GP that submit an NOI at least 90 days prior to the expiration of the 2012 GP, are covered by the administratively extended permit, unless the Department has granted the permittee permission to submit an application on a later date. However, the Department cannot grant coverage under an administratively extended GP if an NOI is submitted after the permit expiration date.

## 2.0 REGULATORY HISTORY OF PLACER MINING IN ALASKA

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-size 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. The collected data was 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 alleged that the suction dredge reports 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.

EPA reissued the Small-Size Suction Dredge Placer Miners General Permit in 2002 and 2007 without any significant changes (Table 1). On October 31, 2008, EPA approved the State’s application to administer the National Pollutant Discharge Elimination System (NPDES) program. The State’s program became the Alaska Pollutant Discharge Elimination System

(APDES) Program. According to the Memorandum of Agreement between EPA and DEC (amended August 11, 2011), authority to administer the APDES Program transferred from DEC to EPA in phases over four years. Under this phased approach, mining permits transferred in year two on October 31, 2010. The transfer of mining permits included the 2007 EPA-issued Small-Size Suction Dredge GP and all authorizations under the GP.

As of January 1, 2012, there were approximately 4,000 authorizations under the 2007 GP. However, because a single facility has approximately four separate authorizations, on average, for different areas, the actual number of permitted facilities is approximately 1,000. Furthermore, a single facility may only remain active for a few years under the multi-year GP. Because ADF&G Fish Habitat Permits for small suction dredges are issued on a yearly basis, rather than a multi-year cycle, the ADF&G permits provide a good estimate of active discharge numbers. Although not all facilities require a Fish Habitat Permit, conversation with ADF&G indicates that more than 99% of applicants require a permit (personal communication, Ronald Benkert, Habitat Biologist, ADF&G Palmer, January 27, 2012). Therefore, based on approximately 1,000 ADF&G Fish Habitat Permits issued for 2011, and an average of four permits per facility, DEC estimates that approximately 250 operations were active in 2011.

Of the 250 active operations, approximately 207 were located in freshwater streams, 43 were located in marine waters less than or equal to 20 feet deep, and none were located in marine waters greater than 20 feet deep.

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

**Table 1: AKG375000 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 | 1997 | 01/31/1996 | 04/18/1996 | 11/18/1996 | 04/07/1997 | 04/09/2002 |
| EPA | 2002 | 12/19/2001 | 02/04/2002 | 04/22/2002 | 06/03/2002 | 06/04/2007 |
| EPA | 2007 | 01/16/2007 | 03/02/2007 | 04/24/2007 | 06/05/2007 | 05/31/2012 |
| DEC | 2012 | 05/25/2012 | 06/24/2012 | 08/21/2012 | 09/20/2012 | 09/19/2017 |

Notes:

a. Mechanical Placer Mining General Permit (AKG370000)

## 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.

### 3.1 Mining Methods

Dredging systems are classified as hydraulic or mechanical (including bucket dredging), depending on the methods of digging. Suction dredges, the most common hydraulic dredging system, are quite popular in Alaska with the small or recreational gold placer miner. Like all floating dredges, suction dredges consist of a supporting hull with a mining control system, excavating and lifting mechanism, gold recovery circuits, and waste disposal system. All floating dredges are designed to work as a unit to dig, classify, beneficiate ores and dispose of waste. Highbankers operate in a manner similar to small suction dredges. However, highbankers are constructed with support legs, rather than flotation devices; are hand-fed with a shovel or bucket, rather than a suction hose; and utilize a water pump only to provide water to the beneficiation system. Highbankers typically operate on a stream bank outside the active channel and discharge to land. However, some highbankers operate within the active channel and discharge to waterbodies. Suction dredges and highbankers that work the active stream bed, ocean floor, or inter-tidal zone, rather than terrestrial areas, discharge effluent that consists entirely of in-situ water and bed material.

### 3.2 Processing Methods

Suction dredges and highbankers use a sluice box to perform the primary processing function of beneficiation. 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 material from the sluice box is often further separated by panning the sluice extract.

## 4.0 RECEIVING WATERBODY

The permit authorizes discharges to waters of the U.S. [as defined in 18 AAC 83.990(77)] statewide with certain limitations (Fact Sheet Section 1.0).

### 4.1 Water Quality Standards

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

Waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230(e). Some waterbodies in Alaska can also have site–specific water quality criteria per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b).

Waterbodies, or segments of waterbodies, 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 is available for dischargers in reclassified waters. The WQS contained in this permit are more stringent than would be applied in an individual permit in these locations. A facility located on any of the above waterbodies may apply to DEC for an individual APDES permit (Permit Part 1.5). The Department will consider individual 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

In accordance with State regulations, the Department has authority to authorize a mixing zone in a permit (18 AAC 70.240, as amended through June 23, 2003). An authorized mixing zone must ensure that WQS will be met at all points outside of the mixing zone.

The GP authorizes a standard 500 foot mixing zone for suction dredges with pump engines greater than 18 hp in freshwater and 23 hp in marine water. The Department may implement additional requirements, including mixing zone monitoring, for facilities that are located in National Parks System Units, National Monuments, National Sanctuaries, National Wildlife Refuges, National Conservation Areas, National Wilderness Areas, waters designated as wild under the Wild and Scenic Rivers Act, critical habitat for northern sea otter, barrier island critical habitat for polar bear, or sea ice. Suction dredges with engines less than or equal to 18 hp in freshwater and 23 hp in marine water, or facilities that are located outside of protected areas, have less potential for adverse impacts than other facilities and must adhere to Best Management Practices under Permit Part 2.0.

Because this is a general permit and the actual locations of potential dischargers are unknown, and turbidity receiving water effects studies have been conducted relevant to this type of discharge, the permit hereby authorizes standard-sized freshwater and marine mixing zones for turbidity. Based on the aforementioned studies (discussed in more detail below), the turbidity freshwater mixing zone extends 500 feet downstream of the suction dredge during operation. Similarly, the turbidity marine mixing zone provides a 500 foot radius around the suction dredge during operation. A turbidity plume may exceed applicable turbidity water quality criteria within either the freshwater or marine mixing zone; however, any visual increase in turbidity beyond the boundary of a mixing zone is considered a violation of the permit. The rationale for the standard-sized mixing zone authorizations is as follows:

### 4.2.1 Rationale

Turbidity has applicable fresh and marine water quality criteria established under 18 AAC 70.020(b). Under the most recent mixing zone regulations approved by EPA for use in issuance of APDES permits and certifications of NPDES permits, the Department has authority to authorize mixing zones in a permit or certification (18 AAC 70.240 - 270, as amended through June 23, 2003). All authorized mixing zones are designed to ensure that applicable water quality criteria are met at all points outside of the mixing zone.

As discussed in Fact Sheet Section 2.0, EPA has permitted suction dredge activities with statewide general permits since 1994. Two significant studies were conducted by EPA and its contractors in the summers of 1997 and 1998 (EPA 1998, EPA 1999a, EPA 1999b, 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. However impacts were confined to localized area downstream of the dredge, and these increased 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 inspections of suction dredge mining operations affirm that small-size suction 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 500 foot mixing zone remain unaffected.

In authorizing this mixing zone, the Department considered all aspects required in 18 AAC 70.015 (Antidegradation policy) and 18 AAC 70.240 - 270 (Mixing zones), as amended June 26, 2003, including, but not limited to, the 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 this permit is appropriate and provides 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 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 the facilities covered under this GP process less than 50,000 cu yd of ore per year or are located in open waters, the promulgated ELGs don’t apply, and the permit accordingly does not contain technology-based limits.

## 5.3 Water Quality-Based Effluent Limits

The Clean Water Act requires the establishment of limitations in permits necessary to meet WQS by July 1, 1977 [CWA § 301(b)(1)]. All discharges to state waters must also comply with state and local coastal management plans, as well as with WQS, including the state's antidegradation policy. 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)].

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 has a unique method of intake and displacement that presents unusual permitting issues. As discussed above, a suction dredge is a mechanical device that floats on the water surface and pumps in-situ water and bed material through a suction intake conduit to a sluice box from which gold or other minerals may be recovered. The discharge from suction dredges consists entirely of intake water and bed material immediately released back into the receiving water. Because suction dredges do not contain treatment systems, nor add pollutants other than those already present in the intake water or bed material, numeric limits are considered infeasible; therefore, BMPs have been established (Permit Part 2.0).

DEC determined that turbidity is a pollutant of concern and must be limited in order to meet the State’s WQS. The BMPs include requirements to minimize and manage turbidity from the discharge and are applicable to all facilities authorized under the GP. Additional turbidity monitoring is required for facilities with mixing zones and ensures that the BMPs are implemented properly (Permit Part 3.0). The GP requires a daily visual inspection for turbidity within the mixing zone. The daily inspection also includes observing any turbidity that may result from any other part of the operation. Any visual increase in turbidity beyond the boundary of the 500 foot mixing zone is a violation of the permit. DEC has found in most cases, water quality recovers rapidly. The daily inspection during operation, combined with the BMPs, will ensure that the WQS are met.

## 5.4 Best Management Practices (BMPs)

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

5.4.1 Mining is permitted only within the active stream channel. Mining 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 mine cuts located above the ordinary high water line, disconnected ponds, or meander cutoffs if fish are not present. Each permittee shall consult ADF&G in order to obtain the information necessary to comply with this requirement.

*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.*

5.4.2 Mining and discharging are prohibited within 500 feet of locations where anadromous fish are spawning or where anadromous fish eggs or alevins are known to exist at the time mining occurs.

*This practice ensures that spawning fish are not disturbed and that anadromous fish eggs or alevins are not buried or otherwise harmed and is compliant with DEC's prohibition of authorizing mixing zones in salmon spawning habitat.*

5.4.3 Motorized winches or other motorized equipment shall not be used to move boulders, logs, or other natural instream obstructions. Tailings or large cobbles that are moved by the operator must not be stacked in a manner that significantly alters the streamflow.

*This practice 1) ensures that important habitat including large organic debris and boulders will not be destroyed and 2) prevents any erosion, and related turbidity problems from changes in the streamflow.*

5.4.4 Suction dredges and highbankers must be operated to ensure that there is a zone of passage for fish around the turbidity plume at all times. Permittees must also ensure that there is no overlap of turbidity plumes from equipment used in the same waters.

*This practice ensures a zone of passage around turbidity plumes and minimizes cumulative impacts from multiple facilities operating simultaneously in the same waterbody.*

5.4.5 Mining through concentrated silt and clay should be avoided. The permittee shall use reasonable care to avoid mining through silt and clay materials that would result in a significant increase in turbidity. Reasonable care includes moving the suction dredge or highbanker to a new location, or reducing the volume of effluent discharged by limiting the operating speed of the suction dredge or highbanker.

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

5.4.1 Equipment must be properly maintained and petroleum products managed as follows:

5.4.1.1 Equipment used for mining must not release petroleum products. Equipment surfaces must be free of oils and grease, and must be checked for fuel and oil leaks prior to start of operation on a daily basis.

5.4.1.2 All fuel and oil must be stored in an impermeable container and located a reasonable distance from any waterbody. Precaution must be taken to ensure that stored petroleum products cannot spill or otherwise enter a waterbody.

5.4.1.3 Care shall be taken by the permittee during refueling of the equipment to prevent spillage into surface waters or to groundwater. Any spills shall be cleaned up using materials such as sorbent pads and booms. All spills shall be reported to DEC by calling 1-800-478-9300.

*The BMPs under Fact Sheet Section 5.4.1 ensure that petroleum contamination from equipment, fuel storage, or refueling is prevented. 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).*

5.4.2 Removed BMPs

The 2007 EPA-issued GP contained BMPs that 1) prohibited the operation of wheeled or tracked equipment "instream while dredging is in progress" and 2) stated that the "GP does not authorize the construction of dams or diversions."

*First, due to safety and visibility concerns, suction dredgers generally do not operate vehicles instream during dredging. Furthermore, ADF&G retains the authority to permit the use of motorized vehicles in anadromous streams. Second, ADF&G and the Army Corps of Engineers regulate the construction of dams and diversions. Therefore, because of practical considerations and lack of statutory authority, the BMPs have not been retained in the 2012 DEC permit.*

# 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 limits or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results to DEC (Permit Part 3.4; Permit Appendix A, Part 3.0).

## 6.2 Recording and Reporting Requirements

The permit contains recording and reporting requirements that are either based on standard regulatory language (Fact Sheet Section 6.3) or are specific to this GP. The permit requires facilities authorized under Permit Part 1.6.2.1 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 3.4. 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 that assume that the facility has access to roads and immediate communication. The regulation does not consider the logistical or communication difficulties

present in many remote locations in Alaska. DEC has received requests to modify Permit Appendix A, Part 3.4 to consider logistical and communication difficulties of remote sites. However, DEC is unable to modify standard permit conditions that are based on State regulations. Although DEC is aware of the logistical difficulties of remote operations and recognizes that some operators may have difficulties meeting the 24-hour noncompliance reporting requirement, operators are still required to notify DEC of any noncompliance. DEC encourages permittees who report after the deadlines, due to the remoteness of the activities, to also include a separate statement that explains the reason for any late reports.

### 6.3 Standard Conditions

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

## 7.0 ANTIDEGRADATION

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

The Department's approach to implementing the antidegradation policy is based on the requirements in 18 AAC 70 and the *Interim Antidegradation Implementation Methods* (DEC 2010). Using these requirements and policies, the Department determines whether a waterbody or portion of a waterbody is classified as Tier 1, Tier 2, or Tier 3. A higher tier indicates a greater level of water quality protection. At this time, the Department has not designated any Tier 3 waters in Alaska. However, if an applicant applies for coverage under this GP in a National Park, National Wildlife Refuge, or other protected area as described in Permit Part 1.6.2.1, the Department will coordinate with the agency with jurisdiction over these areas and either 1) deny GP coverage and require the applicant to submit an application for an individual permit or 2) include additional permit stipulations to ensure the receiving water is protected. Accordingly, this analysis conservatively assumes that all operations under this GP will be in Tier 2 waters, and this antidegradation analysis focuses on that level of protection. The permit specifically excludes coverage in Tier 3 waters (Permit Part 1.3).

Authorizations under this GP include BMPs for all permittees. Suction dredges with pump engines greater than 18 hp in freshwater and 23 hp in marine water, or facilities authorized in protected areas, are provided a mixing zone for turbidity and must complete additional permit requirements. An antidegradation analysis was applied on a parameter-by-parameter basis, and the Department concluded that the implementation of BMPs to manage turbidity, and the authorization of a 500 foot mixing zone for facilities under Permit Part 3.0, should be subjected to an antidegradation analysis.

The State of Alaska's antidegradation policy states that existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected. If the quality of water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and

recreation in and on the water, that quality must be maintained and protected unless the department, after receiving from the applicant all information reasonably necessary for a decision on the application, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose, as authorized in a department permit, certification, or other approval. The Department will authorize a reduction in water quality only after the applicant submits evidence in support of the application and the department finds that the five specific requirements of the antidegradation policy at 18 AAC 70.015(a)(2)(A)-(E) are satisfied [18 AAC 70.015(a)(1) - (2)]. The Department's findings follow:

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

Rationale: The localized lowering of water quality is necessary given the operational practices of small suction dredging and highbanking (see Fact Sheet Section 5.2) and economical concerns associated with additional water treatment. An attempt to modify current practices in effort to mitigate the lowering of water quality would likely result in making this largely recreational endeavor financially and technically impractical for the vast majority of participants, or potentially result in equal or greater degradation to the lands adjacent to these streams (see Fact Sheet Section 7.1.4).

As indicated in 2010 data for the minerals industry, the Alaska Office of Economic Development/Minerals provided that 405 equivalent jobs were created by the placer industry, and the placer mines produced approximately 69,318 ounces of gold worth approximately $84,881,971 in 2010 (Szumigala et al. 2011). Combined mineral exploration expenditures ($2,525,837) and development expenditures ($229,300) for placer operations totaled approximately $2,755,137 in 2010. Approximately ten commercial recreational gold prospecting sites exist in Alaska providing opportunities for tourists to experience mining for gold. The placer industry also supports local economies by purchasing significant amounts of equipment, parts, fuel, food, freight, and other services.

According to a report by McDowell Group (McDowell 2010) on the economic benefit of Alaska's mining industry, 175 families are engaged in placer mining with a total estimated production of 54,000 ounces of gold. Suction dredges with intake diameters up to 6 inches are considered recreational dredges in Alaska. Some of the operators under the Small-Size Suction Dredge Placer Miners GP are recreational and some are commercial. Both sectors contribute to local and family economies.

Continued or new placer mining in Alaska is tied to gold prices and operating expenses. While gold prices are at historic highs, fuel prices are also high. Because many mines are remote and require transportation and stored fuel for operations, this is a significant economic factor.

The Department finds that implementation of BMPs and authorization of a 500 foot mixing zone for facilities under Permit Part 3.0 accommodates important economic and social development and that this requirement is met.

### 7.1.2 18 AAC 70.015 (a)(2)(B). The reduced water quality will not violate applicable water quality criteria, except as allowed under 18 AAC 70.015(a)(2).

Rationale: For the Small-Size Suction Dredge Placer Miners GP, BMPs and a mixing zone for turbidity ensure that applicable criteria are met within 500 feet of the operation. Moreover, suction dredging is a mobile operation, and impacts are localized and transient. See the June 1999 final report prepared for EPA titled "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), and "Studies of Suction Dredge Gold-Placer Mining Operation Along the Fortymile River, Eastern Alaska" by the U.S. Geological Survey (USGS 1997). BMPs in Permit Part 2.0, and additional requirements in Permit Part 3.0, will protect water quality under 18 AAC 70.240(b).

The Department finds that this requirement is met.

7.1.3 **18 AAC 70.015(a)(2)(C). Resulting water quality will fully protect existing uses.**

Rationale: Previous versions of this GP, and other individual permits that authorize similar discharges, have authorized discharges from suction dredges since 1994. When compared to requirements in previous GPs and individual permits, this GP does not propose any changes that would contribute to the discharge of lower quality wastewater.

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

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

Rationale: The Department finds the most effective methods of prevention, control, and treatment are the practices and requirements set out in this permit and currently in use at these facilities. Alternative methods for pollution prevention control and treatment, such as adjacent land discharges, would come with associated pollution problems as stated above. In addition, land discharges removed from the riparian zone would most likely result in making this largely recreational endeavor technically and financially impractical for the vast majority of participants. Accordingly, mine operators are required to implement the BMPs that DEC has concluded are the most effective and reasonable methods (Permit Part 2.0).

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

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

Rationale: Applicable "highest statutory and regulatory requirements" are defined in 18 AAC 70.990(30) (June 26, 2003). Accordingly, there are three parts to the definition. The first part of the definition includes all federal technology-based ELGs, as found in 40 CFR Part 440 Subpart M, as adopted by reference at 18 AAC 83.010(g)(3). Pursuant to Subpart M (b), the provisions of Subpart M are not applicable to applicants under the Small-Size Suction Dredge Placer Miners GP. Therefore, as described in Fact Sheet Section 5.2, the permit does not contain technology-based limits. The second part of the definition, 18 AAC 70.990(30)(B) (2003) appears to be in error, as 18 AAC 72.040

describes discharges to sewers and not minimum treatment. The correct reference appears to be the minimum treatment standards found in 18 AAC 72.050, which refers to domestic wastewater discharges only. However, because this permit does not authorize discharge of domestic wastewater, this regulation does not apply. The third part includes any more stringent treatment required by state law, including 18 AAC 70 and 18 AAC 72. The correct operation of equipment, visual monitoring, and BMP implementation, as well as other GP requirements, will control the discharge and satisfy all applicable federal and State permit conditions and requirements. This achieves the highest statutory and regulatory requirements.

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

# 8.0 OTHER LEGAL REQUIREMENTS

## 8.1 Ocean Discharge Criteria Evaluation

Section 403(c) of the CWA requires that permits for ocean discharges be issued in compliance with EPA's Ocean Discharge Criteria for preventing unreasonable degradation of 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 this GP 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 GP not cause unreasonable degradation of the marine environment.

## 8.2 Endangered Species Act

The National Marine Fisheries Service (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 voluntarily solicited comments from them on reissuance of this permit.

Prior to issuance of the 2012 permit, DEC submitted a letter to NMFS and USFWS on December 30, 2011, requesting a species list for the coverage area of the permit.

In a letter dated January 11, 2012 (personal communication, James W. Balsinger, Administrator, Alaska Region), NMFS submitted a list of threatened or endangered marine mammals under NMFS jurisdiction in Alaska. Threatened marine mammals on the list include the eastern population of Steller sea lion and spotted seal. Endangered marine mammals on the list include the beluga whale (Cook Inlet Distinct Population Segment), blue whale, bowhead whale, fin whale, humpback whale, northern right whale, sei whale, sperm whale, and western population of Steller sea lion. The NMFS letter also provided the following website as a reference: www.fakr.noaa.gov/protectedresources/default.htm.

In an email dated January 3, 2012 (personal communication, Denise A. Walter, Biologist, Fairbanks Field Office), USFWS submitted a list of threatened or endangered species and critical habitat. Threatened or endangered species on the list include Alaska-breeding Steller's eider, northern sea otter, polar bear, and spectacled eider. The email also indicated that concerns for these species would be similar to those addressed in the 2011 Medium-Size Suction Dredge Placer Miners General Permit for (AKG371000). The 2012 Small-Size Suction Dredge Placer Miners General Permit includes ESA related requirements based on those in AKG371000, however, includes case-by-case allowances for operations in critical habitat for northern sea otter and barrier island critical habitat for polar bear (Fact Sheet Section 1.4). Although the GP does not specifically prohibit operation in polar bear sea ice critical habitat or denning critical habitat, the GP includes a general prohibition against operation in sea ice, with the exception of traditionally mined areas near Nome. Furthermore, due to climate and ice thickness, winter operation is unlikely to occur in onshore areas of Alaska designated as polar bear denning critical habitat. In order to further protect marine habitat, the 2012 permit also implements prohibitions against operations in coral, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, shellfish beds, or mudflats (Permit Part 1.3).

## 8.3 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) designates Essential Fish Habitat (EFH) in waters used by anadromous salmon and various life stages of marine fish under NMFS jurisdiction. EFH refers to those waters and substrates (sediments, etc.) necessary to fish from commercially-fished species to spawn, breed, feed, or grow to maturity. NMFS describes freshwater EFH for Alaskan stocks of Pacific Salmon as "those waters identified in ADF&G's Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fish Species … and wherever there are spawning substrates" (ADF&G 1998, NMFS 2005). Freshwater EFH applies to eggs, larval and juvenile stages, and adult salmon.

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

Prior to issuance of the 2012 permit, DEC submitted a letter to NMFS on December 30, 2011, and provided an opportunity to submit EFH comments on the permit. In a letter dated January 11, 2012 (personal communication, James W. Balsinger, Administrator, Alaska Region), NMFS recommended that mining operations should be restricted to "waters <30 feet (ft), based on increased benthic habitat complexity (species diversity and habitat structure) in deeper waters

relative to shallow water, mediated by differences in disturbance regimes (frequency and intensity of winter storms and sea ice).”

Most marine waters surrounding the state of Alaska have been designated as EFH. In a GP, it is difficult to determine where facilities might be located during the life of the permit. Therefore, it is difficult to determine the potential impact on EFH. In general, suction dredges of the size covered by this GP operate within the surf zone or in waters less than 20 feet in depth. The timing of operation is further restricted by weather and ice cover. Most facilities that operate in marine waters operate off-shore of Nome in the State’s recreational area in Norton Sound. An evaluation of authorizations under the GP indicates that all active operations in 2011 occurred in waters of less than or equal to 20 feet in depth (Fact Sheet Section 2.0). Mining at these shallower depths is probably less disruptive to natural biological communities that tend to adapt to natural disturbances than to communities in deeper water with less natural disturbance. Because of 1) the practical restrictions on depth and timing, and 2) permit prohibitions against operations in coral, eelgrass beds, seagrass beds, kelp beds, vegetated shallows, shellfish beds, mudflats, and sea ice, adverse impacts to EFH in marine waters from the issuance of the 2011 GP are unlikely to occur.

In streams where suction dredging occurs, the most critical life stage for salmon is the egg stage. The GP prohibits suction dredging within 500 feet of locations where fish are spawning or where fish eggs or alevins are known to exist (Permit Part 2.1.2). Additionally, permittees must contact ADF&G prior to the start of operation and receive a Fish Habitat Permit or a determination that a Fish Habitat Permit is not required. ADF&G Fish Habitat Permits limit or prohibit mining in anadromous streams while the eggs are in the gravel. In freshwaters, the GP is unlikely to be used during the critical phase (fall –spring) and if it were, suction dredge studies have shown that the impacts of an operation are minimal after 500 feet (Prussian et al. 1999, USGS 1997); therefore, the 500 foot buffer, combined with ADF&G requirements, should provide sufficient protection against adverse impacts to EFH in freshwaters.

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