ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FACT SHEET – PROPOSED FINAL

General Permit Number: **AKG528000**

Seafood Processors Operating Onshore Facilities in Kodiak, Alaska

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

Public Comment Period Start Date: September 13, 2019
Public Comment Period Expiration Date: November 13, 2019
Alaska Online Public Notice System

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

SEAFOOD PROCESSORS OPERATING ONSHORE FACILITIES IN KODIAK, ALASKA

The Alaska Department of Environmental Conservation (DEC or Department) proposes to reissue APDES general permit AKG528000 to seafood processors operating onshore facilities in Kodiak, Alaska that discharge seafood waste to marine waters. The permit authorizes and sets conditions on the discharge of pollutants from authorized permittees to waters of the United States (U.S.). In order to ensure protection of water quality and human health, the permit places limits on amounts of pollutants that can be discharged from the facilities and outlines best management practices to which each facility must adhere.

This fact sheet explains the nature of potential discharges from seafood processing facilities and the development of the permit, including:

- Information on public comment, public hearing, and appeal procedures,
- A listing of proposed effluent limitations and other conditions,
- Technical material supporting the conditions in the permit, and
- Monitoring and reporting requirements in the permit

Public Comment

The proposed final permit will be made publicly available for a ten-day potential applicant review. The applicant may waive this review period. After the close of the proposed final permit review period, the Department will make a final decision regarding permit issuance. A final permit will become effective at least 30 days after the Department's decision, in accordance with the state's appeals processes at 18 AAC 15.185 – 18 AAC 15.340.

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

Appeals Process

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
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://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
Mail: P.O. Box 111800
In Person: 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://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: http://dec.alaska.gov/water/wastewater/.

Dept. of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 555 Cordova Street Anchorage, AK 99501 (907) 269-6285	Dept. of Environmental Conservation Division of Water Wastewater Discharge Authorization Program **Mail**: P.O. Box 111800 **In Person**: 410 Willoughby Avenue, Suite 303 Juneau, AK 99811-1800 (907) 465-5180
Dept. of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 43335 Kalifornsky Beach Rd. - Suite 11 Soldotna, AK 99669 (907) 262-5210	Dept. of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 1700 E. Bogard Road #B Wasilla, AK 99654 (907) 376-1850

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1.0 General Permit

1.1. Legal Basis for Issuance of an APDES General Permit

Section 301(a) of the Clean Water Act (CWA) provides that the discharge of any pollutant is unlawful except in compliance with Sections 301, 302, 306, 307, 318, 402, and 404 of the CWA. In addition, as established in Alaska Administrative Code (AAC) 18 AAC 83.015, the discharge of any pollutant to surface water designated as waters of the U.S. in Alaska is unlawful except in accordance with an Alaska Pollutant Discharge Elimination System (APDES) permit.

Per 18 AAC 83.205, the Department may regulate categories or subcategories of point source discharges within an area through the use of a general permit when the sources:

- Involve the same or substantially similar types of operations;
- Are located within the same geographic area and warrant similar pollution control measures;
- Are involved in 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.

Federal regulations found in Code of Federal Regulations (CFR) 40 CFR Part 408 establish Effluent Limitation Guidelines (ELGs) for seafood processors under a single category, “Canned and Preserved Seafood Processing Point Source Category.” Seafood processing dischargers are further divided into subcategories when applying the ELGs found in 40 CFR Part 408 based on seafood species type and processing method.

The Department determined that it is appropriate to issue a general permit for onshore seafood processing facilities in Kodiak, as identified in Part 1.4. The sources have substantially similar operations, discharge the same types of wastes, are subject to the same water quality-based effluent limitations (WQBELs) and technology-based effluent limitations (TBELs) as specified in the 40 CFR Part 408 ELGs, and have similar monitoring requirements.

1.2. Individual Permit (IP)

A permittee authorized to discharge under a general permit may request to be excluded from coverage by applying for an IP. This request shall be made by submitting APDES permit application Forms 1 and 2C, along with Form 2M (if requesting a mixing zone) with supporting documentation (e.g., modeling, antidegradation information, etc.) to the Alaska Department of Environmental Conservation (DEC), along with any additional information DEC deems necessary.

The Department may require any person authorized by a general permit to apply for and obtain an IP, or any interested person may petition the Department to take this action. Per 18 AAC 83.215, the Department may consider the issuance of an APDES IP when:

- The discharger is not in compliance with the terms and conditions of the APDES general permit.
- A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source.
- Effluent limitations guidelines are promulgated for point sources covered by the APDES general permit.
- A water quality management plan containing requirements applicable to a point source is approved.
- Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or the authorized discharge has either temporarily or permanently been reduced or eliminated.
- The single discharge, or the cumulative number of discharges, have been found to be significant contributor(s) of pollutants.

1.3. Permit Issuance History and Coverage Changes

1.3.1. Permit Issuance and Regulatory History

In 1998, the Environmental Protection Agency (EPA) issued the general permit AKG528000 for Seafood Processors Operating Shorebased Facilities in Kodiak, Alaska. The previous permit became effective on May 1, 1998 and expired on April 30, 2003.

On October 31, 2008, EPA approved Alaska's application to administer the National Pollutant Discharge Elimination System (NPDES) program, and the administration of APDES permitting for the seafood sector transferred to DEC.

Additionally, applicable 40 CFR Part 408 ELG regulations were promulgated in 1974 and 1975. The seafood ELGs provided for two primary categories of Alaskan processors, dependent on whether a processor operated at a "Remote" or a "Non-Remote" location. "Non-Remote" facilities were defined as those facilities located in "population or processing centers." The regulations provided a non-exclusive list of Alaskan locations considered to be "Non-Remote," including Anchorage, Cordova, Juneau, Ketchikan, Petersburg, and Kodiak. In "Non-Remote" locations, the ELGs are based on screening the processing solids from the seafood processing wastewaters and disposing of the screened solids by means other than discharging in the facility's effluent.

Shortly thereafter, the seafood processing industry petitioned EPA regarding the applicability of Non-Remote standards being applicable to certain community locations (Anchorage, Cordova, Juneau, Ketchikan, Kodiak, and Petersburg). In 1980, EPA suspended the applicability section of which communities in Alaska had to comply with Non-Remote ELGs, leaving only Kodiak as a community required to meet Non-Remote ELGs. In 2013, EPA announced via the federal register a Notice of Data Availability (NODA) that EPA had gathered information from Alaskan seafood processing facilities and other publicly available sources of information regarding seafood processing waste disposal practices and options. The NODA provided preliminary results of EPA's analyses of updated data for the five petition locations (Anchorage, Cordova, Juneau, Ketchikan, and Petersburg) as well as preliminary analysis for possible additional locations (Dutch Harbor, Kenai Peninsula, and Sitka) being added to the list of Non-Remote locations. The NODA also provided preliminary indications of how these results may be reflected in EPA's final response to deny the petition for all of these locations, as submitted in 1980 by certain members of the Alaskan seafood processing industry, and in amended ELGs.

As published on EPA's website (https://www.epa.gov/eg/seafood-processing-effluent-guidelines), at this time EPA does not plan to take any action on amending the rule. EPA amended their website to say:

> "In July 2017, EPA decided not to amend subparts of the Canned and Preserved Seafood Processing Category related to certain onshore processors in Alaska. The Agency made this decision in light of the fact that all of the facilities subject to this rulemaking are located in the state of Alaska and EPA concludes that the State of Alaska will establish additional water pollution controls at these facilities if and where the State determines such controls are appropriate and necessary. EPA will continue to work with the state as they consider appropriate controls through their permitting actions. Under 40 CFR Part 408, the limitations for Anchorage, Cordova, Juneau, Ketchikan and Petersburg based upon grinding remain in effect."

1.3.2. Covered Facilities

Onshore seafood processing facilities located in Kodiak, Alaska are eligible for coverage under the permit. The permit provides coverage to permittees previously covered by the 1998 AKG528000, as well as offering coverage to new facilities. The permit will authorize discharges from onshore seafood processors and byproduct recovery facilities. The reissued permit has integrated effluent limits and required monitoring established in the 1998 AKG528000 permit.

At the time of the 1998 AKG528000 issuance, there were ten onshore processing facilities and one byproduct recovery facility in operation in the Kodiak area. Currently, eight processing facilities and one byproduct recovery facility are in operation. The Department has determined these facilities are eligible for coverage under the AKG528000 permit. The existing Kodiak facilities and discharge locations are listed in Attachment F of the permit.

1.3.3. At Sea Discharges

The 1998 AKG528000 permit provided coverage for "At-Sea" discharges. The reissued permit does not continue this coverage. Permittees seeking to discharge "At-Sea" must seek coverage under APDES AKG523000, or through ocean dumping provisions. Seafood waste disposal activities located beyond territorial baseline fall under the legal jurisdiction of the EPA Ocean Dumping Act. Therefore, an applicant seeking to transport seafood processing waste from onshore facilities and dump "At-Sea" (beyond baseline) is instructed to contact EPA for more information regarding the Ocean Dumping Act and associated requirements.

1.4. Discharges Covered (Permit Part 1.2)

1.4.1. Seafood Processing Waste and Wastewaters

The permit authorizes the discharge of pollutants to waters of the U.S., subject to the limitations and conditions set forth herein, including seafood processing waste and wastewaters from seafood butchering, washed mince / washed paste commodity line production, and seafood byproduct production into hydro-dynamically energetic waters with a high capacity of dilution and dispersion. The permit also provides coverage to catch transfer water (fish hold waste and wastewater, live tank water, refrigerated seawater, or brine) conveyed to the onshore seafood facility.

Additionally, the permit provides coverage for cleaning agents used in process areas where the permittee follows the manufacturer's use and disposal recommendations. This includes the use of disinfectants added to wash down water to meet applicable state and federal sanitation standards by facilitating waste removal while processing or sanitizing seafood processing areas.

Pollutants of concern associated with seafood processing wastewater discharges include: residues, biochemical oxygen demand (BOD), total suspended solids (TSS), bacteria, and non-petroleum oil and grease (polar) (O&G). These pollutants result from waste solids (shell, bones, skin, scales, flesh, and organs), blood, body fluids, slime, stickwater, and oils and fats from byproduct operations. Ammonia may be present due to natural degradation processes, refrigeration system leaks, and the use of quaternary ammonia cleaning compounds.

Chlorine may be present due to use as a disinfectant. Other regulated parameters include color, turbidity, pH, and temperature.

1.4.2. Macroalgae Waste and Wastewaters

The permit authorizes the discharge of pollutants to waters of the U.S., subject to the limitations and conditions set forth herein, including macroalgae processing waste and wastewaters into hydro-dynamically energetic waters with a high capacity of dilution and dispersion.

Pollutants of concern associated with macroalgae wastewater discharges include: residues, BOD, TSS, pH, temperature, and sanitizing agents. These pollutants result from the disinfection, blanching, and freezing operations. Ammonia may be present due to natural degradation processes, refrigeration system leaks, and the use of quaternary ammonia cleaning compounds. Chlorine may be present due to use as a disinfectant.

1.4.3. Catch Transfer Water Discharges

The permit authorizes discharges of catch transfer water (delivering vessel fish hold waste and wastewater, live tank water, refrigerated seawater, or brine) conveyed to the onshore seafood facility.

Pollutants of concern in catch transfer water may include BOD_5 results ranging 7,000 – 34,000 mg/L, TSS results ranging 5,100-26,000 mg/L, and O&G results ranging 360-4,000 mg/L (Drew, 1994). Additionally, dependent on handling, pollutants may also include ammonia, residues, pH, Settleable Solids, color, and temperature.

1.5. Discharges Not Covered by the Permit (Permit Part 1.3)

All discharges to waters of the U.S. shall comply with State Water Quality Standards (WQS) found in 18 AAC 70. The discharge of any pollutants to waters of the U.S. that are not expressly included in the Notice of Intent (NOI) and authorized by the permit is not covered. Discharges not covered are those that may require coverage under other APDES permits.

1.5.1. Storm Water Discharges.

Both commingled and non-commingled industrial storm water discharge coverage is available under the 2015 APDES Multi-Sector General Permit (MSGP). The 2015 APDES MSGP contains provisions that require industrial facilities in 29 different industrial sectors to implement control measures and develop site-specific storm water pollution prevention plans (SWPPP) to comply with APDES requirements. APDES MSGP Part 1.2.1 states that to be eligible to discharge, a permittee shall have a storm water discharge associated with an identified primary industrial activity. The MSGP defines ‘Primary Industrial Activity’ as including any activities performed onsite which are identified by a list of primary SIC codes. The APDES MSGP lists two subsections of ‘Food and Kindred Products’ which seafood processors in Kodiak fall under. These include ‘Sector U2 – SIC Codes 2074-2079 Fats and Oils Products (e.g., Animal and Marine Fats and Oils - SIC Code 2077)’ as well as ‘Sector U3 - SIC Codes 2091-2099 Miscellaneous Food Preparations and Kindred Products (e.g., Canned and Cured Fish and Seafoods - SIC Code 2091 & Prepared Fresh or Frozen Fish and Seafoods – SIC Code 2092).’

Seafood processing facility permittees discharging storm water must determine if coverage under the 2015 APDES MSGP (or most recent version) is required. The AKG528000 permit requires the permittee to identify the facility’s current MSGP authorization number or identify that the facility has submitted a No Exposure Certification. For commingled discharges, the 2015 APDES MSGP Permit Part 1.2.3.1 provides coverage if the storm water is commingled with a discharge authorized by a different APDES permit (in this case, the seafood discharge authorized under AKG528000).

Permittees may choose to keep storm water separate from seafood processing waste and wastewater or may choose to commingle those effluent streams. Seafood processing wastewaters commingled with storm water may contain pollutants that can cause harm to aquatic life and habitat. Therefore, the permit requires facilities to provide treatment to reduce pollutants from the wastewater and any commingled storm water to meet the limits in the permit prior to discharge. Facilities choosing to commingle storm water and seafood processing waste and wastewaters must screen the commingled wastewaters to 1.0 mm, as otherwise seafood processing waste and wastewaters would be left untreated. In this case, only the seafood processing waste and wastewaters portion of the commingled effluent stream would be covered under the AKG528000 permit. For the storm water portion of the commingled effluent stream, the permittee would need to determine whether coverage was needed under the MSGP.

Permittees should be aware that under the APDES MSGP Part 1.3, a seafood processing facility whose raw materials (seafood) or intermediate, byproduct, final, or waste seafood processing products are not protected by storm water resistant shelter to prevent the seafood, seafood process products, or industrial areas from being exposed to rain, snow, snowmelt, or runoff does not qualify for a No Exposure Certification, and the permittee must obtain MSGP AKR060000 coverage and develop a SWPPP.

1.5.2. Domestic Wastewater Discharges.

All permitted facilities currently discharge domestic wastewater to the City of Kodiak Wastewater Treatment Facility; therefore, the 1998 AKG528000 coverage provided for domestic wastewater discharges has been removed.

1.5.3. Drinking Water Filter Backwash Discharges.

No facilities discharge drinking water treatment wastewaters; therefore, coverage is not provided in this permit.

1.5.4. Bilge Water Discharges.

The permit does not cover the discharge of vessel bilge waters, as these discharges are addressed in the 2018 Vessel Incidental Discharges Act (VIDA).

1.6. Prohibited Discharges (Permit Part 1.4)

General – As specified, discharges that violate the 2003 WQS are prohibited, including violations of narrative criteria for residues found in 18 AAC 70.020(b)(20). Seafood wastewaters at times may create floating scum and oil sheens that are not allowed. Additionally, seafood wastes and wastewaters have been observed to create attractive and/or nuisance conditions to both fish and wildlife species and existing users of the waterbody.

Interim, Finished, or Unused products - DEC has been made aware through review of Ocean Dumping, at-sea disposal logs and noncompliance notifications that additives or other products other than raw or cooked seafood wastes have been disposed of in State waters. The discharge or disposal of these chemicals, food (e.g., sugars, salts) or food additives, and processed byproducts (e.g., oils, hydrolysates, etc.) can severely alter the chemistry of the receiving water and are not authorized under the permit. Facilities that have previously been discharging these materials by vessel or through their outfalls are required to seek other permitted disposal methods. The discharge of seafood processing interim or finished byproducts results in very high BOD and chemical oxygen demand (COD) pollutant loading. The restriction does not apply to byproduct effluents meeting the terms of the permit.

Chemicals/additives used in the seafood processing lines (those not actively used in production or disinfection) such as sodium hydroxide, hydrochloric acid, aldehydes, or ketones may not be poured directly into wastewater discharge lines. Unmonitored and/or untreated discharges of these chemicals can lead to violations of WQS.

Hazardous or toxic substances – The WQS for toxic and other deleterious organic and inorganic substances for marine water uses are codified in 18 AAC 70.020(b) and as found in *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*, as amended through December 12, 2008. The permit requires compliance with these WQS; therefore, any toxic or hazardous substance discharges that may impair or violate WQS are prohibited.

Spoiled Seafood Waste– If a vessel delivers fish or other aquatic animals or plants to the permittee, or the permittee experiences a refrigeration system failure, and raw or processed seafood/plant products are "spoiled" due to temperature, histamine concentration, or decomposition, these materials are prohibited from being discharged.

Early Post Mortem Changes. Ordinarily, the most important post mortem change in fish is the changing of muscle metabolism reactions largely to irreversible ones, with a resulting accumulation of lactic acid in the tissue and a decline in its pH. The pH of the living fish muscle is not far from 7.0; however, as a result of post mortem accumulation of lactic acid, pH values in the range of 5.8 to 6.2 are reached at peak rigor development. Shellfish, which contain relatively large quantities of glycogen, attain a much lower pH as a result of post mortem changes, with values of pH 5.0 or even lower being not uncommonly reached (Stansby, 1976).

1.7. Requesting Authorization (Permit Part 1.5)

A permittee shall apply electronically or by hard copy for coverage and authorization under the permit. It is likely, due to the EPA-promulgated e-Reporting Rule, that (with a few exceptions) only electronic submittals will be accepted at some point during the permit cycle. Permittees will be notified in advance of this change. A permittee wishing to apply for new coverage for a seafood processing facility shall submit a complete NOI and required attachments at least 90 days prior to the start of discharge. The 90-day notice is required to allow for adequate time for the Department to review the NOI and initiate necessary engineering review that may be required per 18 AAC 72.

All currently authorized permittees are required to submit a new NOI (Attachment A & A-1) along with all required attachments by the permit's effective date to obtain coverage. If the permittee does not submit a complete NOI application by the effective date of this permit, coverage under the prior AKG528000 for permittees listed in Attachment F will expire. With the submittal of a complete NOI package, existing coverage will continue until the Department issues a new authorization.

The permit does not authorize any discharges from a facility unless the permittee has submitted a complete NOI as specified and has received DEC's written authorization to discharge under the permit, or has been notified in writing by DEC that they are covered under the permit as provided for in 18 AAC 83.210(h). The permittee may only discharge the pollutants authorized under the permit upon delivery of a written APDES authorization and the assignment of a site-specific APDES permit authorization number. The permittee shall retain a copy of the APDES authorization and the permit, as well as applicable inspection and monitoring records, at the facility. Records may be kept electronically, except those requiring hardcopy signature.

Only facilities meeting the provisions of the permit will be provided an APDES AKG528000 written authorization. The Department's evaluation will include reviewing the facility's NOI, the required attachments, the receiving water characteristics, and the cumulative monitoring results.

1.8. Requirement to Submit a Complete Notice of Intent (Permit Part 1.6)

An applicant seeking coverage under the permit shall submit a complete and timely NOI (Attachments A & A-1), per 18 AAC 83.210(b), to fulfill the duty to apply for a permit. Permit Part 1.6 states the written information

found on the NOI, along with the list of required submittals. A discharger that fails to submit a complete NOI in compliance with the requirements of the permit and NOI is not authorized to discharge under the general permit unless the Department determines that a NOI is not required for coverage under the general permit, as provided for in 18 AAC 83.210(g), or the Department notifies a discharger that it is covered by a general permit as provided for in 18 AAC 83.210(h).

DEC requires previous permit information, permittee information, billing contact information, owner information, and facility name and address/ location information in order to accurately maintain facility permit records.

Line Drawing and Flow Volumes

The permit added a new requirement to provide line drawings and approximate incoming flow volumes and effluent flow of the seafood processing lines and waste treatment systems. The line drawings assist DEC in understanding the flow of seafood processing facility wastewater. Additionally, the flow line drawings will assist permittees in identifying areas in which water usage may be decreased as an opportunity to decrease pollutant loading, as the longer distances and time the seafood waste spends in contact with water the greater the pollutant loading that occurs.

Alaskan seafood processing has typically required large amounts of water, primarily for washing and cleaning purposes but also as media for storage, refrigeration, and cooking of seafood products before and during processing. In addition, water has been an important lubricant and transport medium in the various handling and processing steps of bulk seafood processing. Seafood processing wastewater has a high organic content, and subsequently a high BOD, because of the presence of blood, tissue, and dissolved proteins. It also typically has a high content of nitrogen (especially if blood is present) and phosphorus. Detergents and disinfectants may also be present in the wastewater stream after application during facility cleaning activities. A range of chemicals are typically used for cleaning, including quaternary ammonia sanitizers/disinfectants, acids, alkalines, and neutral detergents. The disinfectants commonly used include chlorine compounds, hydrogen peroxide, ammonium salts, and formaldehyde. Other compounds also may be used for select activities (e.g., disinfection of fish meal processing equipment).

As a general rule, water used for all purposes in food production must meet drinking water standards. Process water must often undergo disinfection prior to use. The following are often used as disinfectants: chlorine, chloramine, ozone, or UV irradiation (Bykowski & Dutkiewicz, 1996).

These chemicals and processes can lead to greater pollutant loading of the seafood processing effluents. As a result, the permit requires increased monitoring and reporting of chemicals and disinfectants used in the facility. The requirement to provide a list of chemicals used, and application rates, annual amounts used, and the use in the facility for those used differently than the manufacturers' recommended use, is a new Annual Report (Permit Part 2.8) reporting requirement.

The permit requires the identification of all outfalls and types of wastewater discharged from each, and providing monitoring results from all outfalls. In order to accurately model environmental impacts, the correct number and location of outfalls must be identified, along with the associated pollutant loading, flow, and depth associated with each outfall.

Requiring identification of all outfall lines and the types of wastewater effluent being discharged and monitored, along with the development and implementation of a robust Best Management Practices (BMP) Plan, should increase permit compliance and ultimately result in increased water quality protection.

Additionally, compliance actions have been taken for permittees discharging ammonia (a refrigerant often used at seafood processing facilities, and created during the natural decomposition of seafood). This discharge has

occurred without monitoring on the part of the permittee to ensure the discharge is meeting WQS, or providing information on the NOI application. DEC cautions permittees to select an analytical method for ammonia monitoring which meets all permit requirements and is applicable to the sample matrix. Most field or handheld ammonia monitors, e.g. ISE probes, cannot be used to monitor ammonia in seafood processing plants due to the ion interference from salt water, as salt water is still found in a majority of the seafood processing water.

1.9. Transfer of Authorization or Change in Location (Permit Part 1.7)

As found in 18 AAC 83.150, the permit requires the submittal of a Name Change/Notice of Transfer form when the information regarding ownership or permittee changes and requires submittal of an updated NOI if changes to management, authorized representative, or plant discharges, production levels, and/or treatment systems occur.

The permit allows for a transfer only for an authorized facility located at the site designated in the original NOI. Discharge authorization for a particular existing facility may not be transferred to the same permittee at a new facility location. Authorization under the permit is specific to the outfall(s), outfall-specific pollutants identified in the NOI, and the specified outfall terminus Geographic Information System (GIS) location(s), + 50 feet.

If a permittee permanently ceases discharging, or moves seafood processing activities to a new facility or discharge location, the permittee shall submit a Notice of Termination (NOT) form for the former facility's location within 30 days of ceasing discharge. The permittee shall apply for coverage for a new facility location by submitting a new NOI.

If a permittee intends to change the location of any outfall/outfall terminus, the permittee shall contact the Department and submit an updated NOI with the proposed new outfall location at least 90 days prior to moving the outfall and shall submit engineering documents as required under Permit Part 1.5.

Another new permit requirement is that if a Seafloor Survey or other survey identifies a broken, floating, or moved outfall (e.g., a boat's anchor has drug the line), the permittee must submit a notice of noncompliance and update their NOI (if necessary). The APDES permit program requires the outfall latitude and longitude location(s) be identified to the nearest 15 seconds (40 CFR §122.21(g)). The permit requires reporting outfall terminus latitude and longitude to the fifth decimal place, acknowledging recent changes in Global Positioning System (GPS) and Wide Area Augmentation System (WAAS) technology that have improved precision in determining outfall terminus location(s). Permittees are also required to update the NOI's outfall terminus location(s) with revised locations as needed based on Seafloor Survey information.

1.10. Continuation of an Expired General Permit (Permit Part 1.10)

The permit expires five years after the effective date. If the AKG528000 permit is not reissued prior to the permit's specified expiration date, it will be administratively continued in accordance with 18 AAC 83.155 and remain in force and effect for those permittees who have applied for continued coverage. In order to continue coverage, the permittee shall submit an updated NOI to the Department 180 days prior to the expiration of the permit requesting authorization for coverage under a reissued permit. The Department may allow the NOI to be submitted at a later date, but prior to the permit's expiration date. Following a permittee's timely and complete submittal of an NOI, and receipt of a DEC APDES administrative continuation letter, the permittee is covered under administrative continuation until the permit is reissued or the authorization is terminated.

The permittee is required to abide by all limitations, monitoring, and reporting included in the permit when the permit enters administrative continuation until such time the permit is reissued or a NOT is submitted by the permittee and processed by the Department.

1.11. Termination of Permit Coverage (Permit Part 1.11)

If a permittee wants to terminate coverage, the permit requires the permittee to provide a NOT to DEC within 30 days following cessation of discharges. The notice shall include certification that the facility is not subject to an enforcement action or citizen suit. The notice shall also include any final reports required by the permit.

2.0 Compliance History

The compliance histories of the facilities authorized by the 1998 AKG528000 permit were evaluated. Various instances of noncompliance with pH limitations, violations of the residues standard (floating foam, residues), and noncompliance with the ELGs were reported during the past five years.

Specific details regarding the compliance history of a specific facility can be found by visiting the EPA's Enforcement & Compliance History Online (ECHO) at https://echo.epa.gov/. Permit Attachment F provides a list of facility permit numbers and facility names that can be used to search for summary and detailed information about a specific facility's compliance and enforcement status and history.

3.0 Effluent Limits and Monitoring Requirements

3.1. Basis for Permit Effluent Limits

In general, the CWA requires that the limits for a particular pollutant be the more stringent of either a TBEL or a WQBEL. A TBEL is set according to the level of treatment that is achievable using available technology. For industrial sources, the national ELGs in the form of TBELs are developed based on the demonstrated performance of a reasonable level of treatment that is within the economic means for specific categories of industrial facilities. A WQBEL is designed to ensure that the WQS of the waterbody are met and may be more stringent than a TBEL. The most stringent limitations of either TBELs or WQBELs will be selected as the final permit limitations.

3.2. Effluent Monitoring

In accordance with AS 46.03.110(d), the Department's permit may specify the terms and conditions under which waste material may be disposed. Monitoring and waste treatment and inspection requirements in a permit are required to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and receiving water data to determine whether additional effluent limits are required and/or to monitor the effluent's impact on the receiving water quality.

The permittee is responsible for conducting monitoring and reporting results, in some cases on discharge monitoring reports (DMRs) and in all cases in an Annual Report to the Department.

Monitoring frequencies are based on the nature and effect of the pollutant as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. The permittee has the option of taking more frequent samples than the permit requires. If the permittee monitors any pollutant more frequently than the permit requires, they must use test procedures approved under 40 CFR Part 136, adopted by reference in 18 AAC 83.010, or as specified in the permit. The additional monitoring results must be included in reported DMR data and/or on the Annual Report. All limits that require averaging of measurements shall be calculated using an arithmetic mean unless the Department specifies another method in the permit. Monitoring data must be reported even if the method detection limits (MDLs) are less than the effluent limits. The use of approved sampling and test methods as found in 40 CFR Part 136 is required.

3.3. General Requirements (Permit Part 2.2)

The AKG528000 permit contains limits based on both TBELs and WQBELs. The TBELs applicable to the Non-Remote seafood processing industrial sector are found in 40 CFR Part 408 - Canned and Preserved Seafood Processing Point Source Category.

The permit requires facilities to install flow meters, perform pre-installation outfall surveys, and monitor and report the operability of their seafood waste treatment systems. The following paragraphs discuss these requirements in more detail.

3.3.1. Flow (Permit Part 2.2.1)

The permit requires facilities to provide information regarding each outfall's discharge flow and outfall depth. The permit requires the installation of permanent devices (flow meter and totalizer) that continuously record flow for all new facilities. Currently permitted facilities were required to have a flow meter on the seafood waste outfall, and the proposed permit requires the installation of flow meters within 24 months of the effective date of the permit for all other unmetered outfalls (e.g., retort water discharge, boiler blowdown waters, commingled storm water, etc.) except for those with intermittent flows. An internal monitoring location flow meter must be installed by all permittees processing washed mince / washed paste within six months of the effective date of the permit. A device that allows only visual observation of instantaneous flows is usually inadequate for the following reasons:

1) Compliance with the permit's production-based standards limit the amount of pollutants that can be discharged for any 24-hour day (daily maximum) and on a monthly basis for the average flow based on the total flow volume (mgd) during sampling days, not on the flow volume at a single instant.
2) Flow records are needed to determine average flows for developing future proposed discharge and authorization limits.
3) Flow records are required to determine permit compliance and determine whether wastewater is discharged at unexpected times.

The permit requires the identification of all outfalls, sampling locations, and types of wastewater discharged from each outfall.

Permit compliance inspections have often revealed multiple outfalls installed at a facility but only one outfall identified on the NOI. In order to accurately model environmental impacts, as well as fully disclose all wastewaters discharged at the facility, the correct number and location of all outfalls must be identified, along with the associated pollutant loadings, flow volumes, and terminus depths.

<u>Calculating Flow Volumes</u>

Historically, permittees have not been required to meter the flow of all outfall(s). Permittees have expressed concern that this new requirement would be used by the Department for compliance actions if the DEC Compliance inspector measured the flow rate and found the volume to be incorrect as compared to the NOI. Since not historically metered, it is not expected that all operators would know the exact flow volumes to be proposed on the NOI. DEC expects the operator's NOI to include best estimated flow, based on previous calculations. As the permit cycle progresses, and meters are installed or pump discharge rate calculations are refined, permittees may find that their initial flow estimates were inaccurate. In this case the permittee would need to submit an updated NOI. The Department expects it may take time to refine flow volume(s), based on dates of meter installation.

Requiring identification of all outfall lines and their depths, average flow volumes, and types of wastewater effluent being discharged, along with requiring the development and implementation of a robust BMP Plan, should increase permittees' compliance with permit requirements and ultimately result in increased water quality protection.

3.3.2. Pre-Installation / Pre-Discharge Survey Requirement (Permit 2.2.3 and Appendix G)

The permit includes a new requirement to conduct a pre-biological survey prior to the placement of a new outfall, planned movement or removal of an existing outfall, or the re-startup of an existing facility outfall where no discharge has occurred in the past 12 months. The purpose of the survey is two-fold. First, the survey must demonstrate that the proposed placement of the outfall will not result in the discharge occurring into "living substrate." Living substrates have been identified as important marine habitat and are susceptible to impacts from human activities. Installation of seafood processing outfalls and possible subsequent burying of living substrate by seafood processing residues must be minimized. Thus, the permit will require the permittee to survey the seafloor for living substrates and place new outfalls outside these habitats.

Second, the permit requires facilities who have not operated in 12 months or more to perform a Pre-Discharge Survey to document the condition and location of the outfall as well as the occurrence and extent of any persistent seafood waste deposits on the seafloor, following the protocols established in Permit Appendix G. Lengthening of existing outfalls may be required for facilities that have not been in operation for 12 months or more if the existing outfall terminus is found to be located in living substrate.

New facilities planning on installing outfalls or restarting discharge from a facility that has not discharged for 12 or more months are required to identify whether the receiving water is hydro-dynamically energetic. The surveyor is required to report ambient tidal current velocity and direction and water chemistry in-situ on the day of the survey, including salinity, water temperature, density, turbidity, dissolved oxygen (DO), and pH. These receiving water quality monitoring parameters shall be taken on the same day the survey is performed and must be taken at the proposed outfall depth and discharge location. For grab sampling at depth, a Van Dorn sampling bottle can be used to obtain water samples at selected depths below the surface. It consists of an open ended clear plastic cylinder that can be attached to the hydrographic wire (the steel wire wound on the winch) and lowered to any desired depth. The bottles also provide a platform to which thermometers can be attached to record the temperature of the water at the location of each Van Dorn bottle. The Pre-Discharge Report requires the submittal of seasonal hydrologic and water quality data parameters, if known.

3.3.3. Monitoring and Reporting Requirements (Permit Part 2.2.4)

Monitoring representative of waste stream flow is a new permit requirement. Previous inconsistencies in monitoring times have resulted in possible pollutant parameter underreporting. Representative monitoring of the seafood processing wastewater discharge is required. It is the Department's expectation that the permittee be discharging at the day's full processing capacity when the samples are taken, not at the beginning of a shift before full effluent loading begins nor at the end of a shift when less processing and pollutant discharge is occurring. The permittee will develop Quality Assurance Project Plan (QAPP) requirements that specify when the personnel are to perform given monitoring for different effluent streams and/or monitoring required under the permit. If permittees discharge out more than one outfall, each outfall must be monitored as established in the permit.

<u>E-Reporting Rule for DMRs (Phase I)</u>

The permittee must submit DMR data electronically through Network Discharge Monitoring Report (NetDMR) per Phase I of the E-Reporting Rule (40 CFR Part 127) upon the effective date of this permit. Authorized persons may access permit information by logging into the NetDMR Portal https://cdxnodengn.epa.gov/oeca-

netdmr-web/action/login. Permittees submitting DMRs in compliance with the E-Reporting Rule are not required to submit as described in permit Appendix A – Standard Conditions unless requested or approved by DEC. Permittees shall include any DMR data required by the permit that cannot be reported in a NetDMR field (e.g., mixing zone receiving water data, etc.) as an attachment to the NetDMR submittal. DEC has established an E-Reporting website at https://dec.alaska.gov/water/compliance/electronic-reporting-rule/ that contains general information about this reporting format. Training materials and webinars for NetDMR can be found at https://netdmr.zendesk.com/home.

In order to accurately document and report effluent and receiving water sample results, permittees are required to clearly label each sample. The label shall identify the applicable pollutant parameter being monitored and which outfall number (e.g., Outfall 001, 002, etc.) the sample was taken for. For receiving water quality monitoring, the permittee shall label the sample with the applicable pollutant parameter being monitored, the location in the receiving water where the sample was taken (i.e., latitude/longitude), and the depth at which the sample was taken.

3.3.4. Treatment Limits Applicable to All Permittees (Permit Part 2.2.5 and Permit Table 2)

All permittees are required to meet effluent limits for temperature and pH. These effluent limits correspond to Alaska WQS found in 18 AAC 70.020(b) and are found in Permit Table 2 (Table 1 here). If a facility is authorized mixing zone(s), the effluent limits in Table 1 for which a mixing zone is authorized are superseded by the corresponding modified effluent limits in the individual authorization to discharge. DEC will notify the permittee of any modified effluent limits when issuing an authorization to discharge under this general permit.

Table 1: Final Effluent Limits Applicable to All Permittees

Parameter	Units	Minimum	Maximum
Temperature	° C	--	15
pH	SU	6.5	8.5

3.3.5. Outfall System Inspection (Permit Part 2.2.6)

All wastewaters originating from seafood processing operations are required to be treated by screening with fine mesh screens, or other equivalent technology, to meet effluent limits established in Fact Sheet Table 2 (Permit Table 3). The requirement for fine screen mesh is found by reviewing the best practicable control technology currently available (BPT) found in the 1974 and 1975 Development Documents for Canned and Preserved Seafood Processing Effluent Limitations Guidelines. Alternative, recently developed treatment technologies may also be utilized. The applicability sections of the 1974 and 1975 40 CFR Part 408 Final Rules state that the production-based standards for Canned and Preserved Seafood Processing ELGs were established using an existing treatment technology (screening) for Non-Remote facilities. The development documents also mentioned several times that wastewater flow reduction was a major component in pollution reduction strategies. Research in seafood processing has documented reducing water usage as a key to reducing pollutant loading and benefitting product quality. Many seafood processing facilities in Alaska have integrated water usage reduction techniques.

The permit requires routine outfall inspection and condition reporting to be submitted with the seafloor survey. Inspection techniques such as pressure testing, visual, remotely operated vehicle (ROV), dye testing, or diver inspection are allowed. The inspection methods must be documented in the BMP Plan and made available upon

request. Permittees are required to report on cathodic protection remaining life and on outfall condition, including breaks and leaks. Permittees must also keep a log of outfall system repairs.

DEC compliance inspections and site visits have found that operational maintenance issues are often the cause of historical permit violations. Requiring inspections of the outfall line, along with the development and implementation of a robust BMP Plan, should increase permit compliance. It is intended that the outfall system survey be repeated at regular intervals (matching the seafloor surveys) to ascertain a deterioration rate and pattern, if any. This is a significant and useful tool to assist estimating the remaining life of the outfall pipe.

The purpose of the monitoring is to confirm permit compliance and implement operational corrections based on BMP Plan requirements and the observations made by the permittee.

3.4. Special Discharge Limitations and Reporting Provisions

3.4.1. One nautical mile conditions (Permit Part 2.2.7):

If discharge occurs to Critical Habitat or Game Refuges, as identified on the Department's GIS provided mapping, the permit requires special reporting. Permittees must report observations of injured or dead endangered or threatened species. Two examples include areas identified as Steller's eider concentration habitat areas and Western Steller sea lion habitat areas. The permit includes reporting the presence of endangered and threatened species [Black-legged Kittiwake (*Rissa tridactyla*), Western Steller sea lions (*Eumetopias jubatus*), Steller's eiders (*Polysticta stelleri*), Southwest Alaska Distinct Population northern sea otters (*Enhydra lutris kenyoni*)] during sea surface and shoreline monitoring. The monitoring is a result of early permit development interagency consultation processes. Additional information on these areas can be found at the DEC Seafood Processing Map as well as at the National Oceanic and Atmospheric Administration (NOAA) and United States Fish and Wildlife Services (USFWS) mapping websites.

The permit proposes to continue authorizing previously approved discharges listed in Attachment F for facilities discharging to or near critical area habitats, National Wildlife Refuges, Steller's eider concentration areas, etc.

The permit requires that if permittees perform fueling activities within critical habitat areas that they comply with all federal and state spill prevention requirements and have written BMPs for spill response. Even small amounts of spilled fuel can contaminate large areas of water, making it uninhabitable for plants and animals. Any fuel spill or overflow may result in a discharge that may be harmful as defined by 40 CFR Part 110, which includes those discharges that cause a visible sheen.

3.4.2. Moored/Docked Vessels Providing Support (Processing or Freezing) (Permit Part 2.2.8)

All seafood processing discharges from moored/docked vessels providing support (processing or freezing) to the onshore facility must be routed to the onshore facility's waste treatment systems. A support vessel's sanitary wastewater is required to be routed to the local municipal domestic wastewater treatment facility. No discharges from support vessels are allowed, except those non-commingled ballast water discharges for the normal operation of the vessel.

<u>Seafood Delivery Vessels</u>

Typical seafood offloading systems include the use of a pump vacuum. These vacuum systems use hydraulic forces sending a mixture of catch transfer water and fish from the vessel to the seafood processing facility. At the end of offloading, the facility sends the catch transfer water through their seafood waste treatment system and outfall, discharges the catch transfer water back to the vessel, or does a combination thereof. See Figure 1 for an example of catch transfer water screened waste. At times, discharging this catch transfer water back to a

vessel has been noted as a cause of sea surface residues violations. If there are reoccurring sea surface residues violations at the facility, the permit requires development and implementation of mitigating BMPs.

For any catch transfer water discharged from the facility to a vessel, NOI application requirements (Attachments A and A-1), limits under Permit Part 2.2, and monitoring per Permit Part 2.6 apply.

Figure 1: Screen waste from catch transfer water

3.5. Seafood Processing Facilities (Permit Part 2.3)

EPA published ELGs for the Canned and Preserved Seafood Processing Point Source Category on July 30, 1975 specifying BPT, best conventional pollutant control technology (BCT), and existing and new source performance standards (NSPS) for seafood processing activities across the nation. The ELGs are codified at 40 CFR Part 408, adopted by reference at 18 AAC 83.010. ELGs were set forth for the degree of effluent reduction attainable through the application of the "Best Practicable Control Technology Currently Available" (BPT) and the "Best Available Technology Economically Achievable" (BAT) and had to be achieved by existing point sources by July 1, 1977 and July 1, 1983, respectively.

The ELGs for existing sources were based on the best identified primary or physical-chemical treatment technology that was currently available for discharge into navigable waterbodies by July 1, 1975, and there was a different set of ELGs for NSPS. The 1975 existing source technology available was generally represented by use of fine mesh screens and air flotation. The regulations for NSPS were established by the use of screening and BPCT on best identified, physical-chemical and secondary treatment and in-plant control as represented by significantly reduced water use and enhanced treatment efficiencies in existing systems as well as the ability to use any new treatment systems.

The permit incorporates NSPS limits that reflect effluent pollutant loading reductions that are achievable based on the use of BPCT. Through a survey conducted in 2018, it has been determined that all facilities in Kodiak are “New Source” processors. New sources have the opportunity to install the best and most efficient production processes and wastewater treatment technologies at the time of construction or modification. As a result, NSPS should represent the most stringent controls attainable through the application of the BPCT for all pollutants (i.e., conventional, nonconventional, and toxic pollutants). The term “New source” is defined in the Permit’s Appendix C. DEC will apply the term to newly constructed or reconstructed facilities as well as to new seafood processing equipment installed after 1975 in existing facilities. Further information can be found in Fact Sheet Appendix A (EPA New Source Memo).

Facilities in Kodiak are classified as ‘Non-Remote’ seafood processing facilities. The Non-Remote facilities are required to meet the Non-Remote TBELs / ELGs. The AKG528000 permit incorporates the ELGs and includes the application of best professional judgment (BPJ) TBELs to include screening at Non-Remote facilities. The

screened solids are required to be processed into fish meal or into other byproduct commodity lines. The 1998 AKG528000 permit allowed the permittees to use other solid waste discharge methods (e.g., ocean dumping) in order to meet permit limits if the byproduct production facility was overloaded or offline. Facilities seeking to use this discharge method must now seek coverage under the APDES AKG523000 Offshore Seafood Processors in Alaska General Permit.

The ELG subcategories established in 1974/1975 applicable to this permit's seafood processing include (40 CFR Part 408 (subcategory in parentheses)): Non-Remote Alaskan crab meat processing (D), Non-Remote Alaskan whole crab and crab section processing (F), Non-Remote Alaskan shrimp processing (I), Alaskan hand-butchered salmon processing (P), Alaskan mechanized salmon processing (Q), Alaskan bottom fish processing (T), Alaskan scallop processing (AC), and Alaskan herring fillet processing (AE). Additional information regarding ELGs applied to the Kodiak facilities can be found in the NPDES 1998 AKG528000 General Permit Fact Sheet.

The CWA requires particular categories of dischargers to meet TBELs established by EPA (see http://water.epa.gov/scitech/wastetech/guide/index.cfm). ELGs are regulations that establish national TBELs for a specific industrial category or subcategory. Where EPA has not yet developed guidelines for a particular industry or subcategory, permit conditions may be established using BPJ procedures (18 AAC 83.425, 18 AAC 83 Article 5, and 18 AAC 83.010).

When TBELs do not exist for a particular pollutant expected to be in the effluent, the Department shall still determine whether the pollutant may cause or contribute to an exceedance of a WQS for the waterbody. If a pollutant causes or contributes to an exceedance of a WQS, a WQBEL must be established.

Onshore seafood processors in Kodiak were previously covered under general permit AKG528000. Most of the 1998 AKG528000 permit effluent limits and monitoring requirements are incorporated in the permit by applying ELGs established in 40 CFR Part 408 and applying WQBELS. While some effluent limitation and monitoring requirements have remained unchanged from the 1998 AKG528000 permit, changes from those previously applied are summarized in this part.

The permit retains the requirement for all wastewaters originating from processing waters, including butchering, washed mince / washed paste commodity lines, and byproduct commodity lines, to be treated by screening with fine mesh screens, or equivalent technology, to minimize the discharge of pollutants and meet the permit's ELG requirements. This BPJ requirement has been shown by facilities currently covered under the permit to be the most cost-effective relative to the environmental benefits achieved by the treatment technology.

The 1998 AKG528000 general permit limitation of fine mesh screen was developed through the application of BPJ TBELs. The 1998 AKG528000 permit Section 3.1 contained the following language:

> "Treatment of the butchering waste stream prior to discharge shall be accomplished through the use of fine mesh screening (1 mm) or equivalent technology. Seafood wastes shall not be pulverized, chopped, ground, or otherwise altered prior to screening and discharge through the facility's outfall."

The permit continues the requirement for the use of 1.0 mm fine mesh screening or equivalent technology.

It is important to note that the May 1, 1998 AKG528000 Fact Sheet (Section 6.2.2) mentioned incorporating the ELG requirements for the Non-Alaskan Mechanized Bottom Fish Processing Subcategory [40 CFR §408.222], and not using the ELG requirements for the Alaskan Bottom Fish Processing Subcategory. EPA's 1998 Fact Sheet reasoning was that the Alaskan performance standards had been developed based on halibut being the dominant bottom fish species. Because other bottom fish are processed by the Kodiak facilities (e.g., cod, pollock, flounder, rockfish/red snapper, black cod/sable fish, flatfish/sole, and other whitefish species),

limitations based on halibut alone did not adequately reflect actual bottom fish processing. Currently, the multi-species bottom fish processing usually involves more extensive butchering and mechanization than typical halibut processing alone. At the time of the 1998 AKG528000 permit issuance, it was determined that the ELG requirements for the Non-Alaskan Mechanized Bottom Fish Processing [40 CFR §408.222] subcategory were more appropriate for Non-Remote seafood processing facilities, and the Department concurs with continuing that determination and has applied the same ELGs in this permit. The Department did not apply the new source Non-Alaskan Mechanized Bottom Fish Processing performance standards found in 40 CFR §408.225. While all of the Alaska-specific new source performance standards were based only on reduced in-plant water use for processing operations, the Non-Alaskan Mechanized Bottom Fish Processing new source performance standards were based on reduced water use as well as the addition of dissolved air floatation treatment. The EPA's 2013 NODA stated that EPA had not identified any new technologies (besides screening) in use for treating Alaskan seafood processing wastewaters. Thus, the Department has determined that it would be inappropriate to apply performance standards in this permit based on the use of dissolved air floatation treatment.

Some industry members have asserted that the Non-Alaskan Mechanized Bottom Fish Processing subcategory ELGs at 40 CFR §408.222 should not be applied to Kodiak processing facilities at all, since the processing done in Kodiak in 2019 involves different processing methods, different species of fish, and different scales of operation than those studied during the ELG development. If the permittees believe the Department should develop an Alaska-specific mechanized bottom fish processing ELG for Kodiak using BPJ, to be applied in the next permit reissuance, they may collect data this permit term to support that analysis. The information that would be required is outlined in 40 CFR §125.3(d). The information provided must pertain to mechanized bottom fish processing only (not to wastewaters from commingled commodity line processing). This information will enable the Department to conduct a BPJ analysis, and if it is not provided the Department intends to include the ELGs at 40 CFR §408.225 in the next reissued permit.

3.5.1. Butchering Production Descriptions, Discharge Limits, and Monitoring

Seafood processing facilities primarily convert raw seafood into a marketable form. Alaska's commercial fishing operations target a number of assemblages, including bottom fish (e.g., walleye pollock, Pacific cod, sablefish, rockfish species, and other species of flatfish); five species of salmon; herring; and shellfish (e.g., species of crab, shrimp, clams, scallops, abalone, sea urchins, and sea cucumbers).

Seafood processing facilities use a variety of techniques and equipment to produce marketable seafood products. Seafood processing can be described as the production of marketable seafood products and includes packaging whole fresh or frozen seafood for shipment, mechanical filleting, deboning processes, production of washed mince / washed paste products, and producing other seafood byproducts. After butchering, the seafood processing wastes are screened and are processed into fish meal, fish oil, or other byproducts. This converts much of the solid waste to marketable products. Additionally, since the early 1980s, newer seafood processing techniques have been introduced into facility commodity lines, such as washed mince / washed paste (formerly referred to in the 1998 AKG528000 permit as 'surimi') and salmon byproduct (unwashed mince and washed mince), resulting in economic gains.

The reissued permit has replaced the term 'Surimi' with washed mince / washed paste, as the actual surimi production is not done in Alaska at this time, only the washing and preserving of frozen blocks of washed mince / washed paste occurs.

At any particular seafood processing facility, the quantity and character of the seafood wastewaters varies considerably over the course of a year. Seafood processing effluent's pollutant loading varies by the distribution of available fishing stocks, the openings and closings of the fishing seasons, and the fishing quota

allocations used to manage stocks. Generally, bottom fish and shellfish wastewaters constitute much of the pollutant discharges in the winter, early spring, and autumn while the discharge of salmon processing waste occurs primarily in the summer and fall (along with some bottom fish).

The timing of the salmon processing is closely tied to the period when each salmon species returns to spawn. The fishing season for each salmon species depends on the various management regions and the type of gear used but generally spans the period between June and September. The relatively short salmon fishing seasons and large runs of fish result in short, but intense, periods of seafood wastewaters produced in this season by this commodity line.

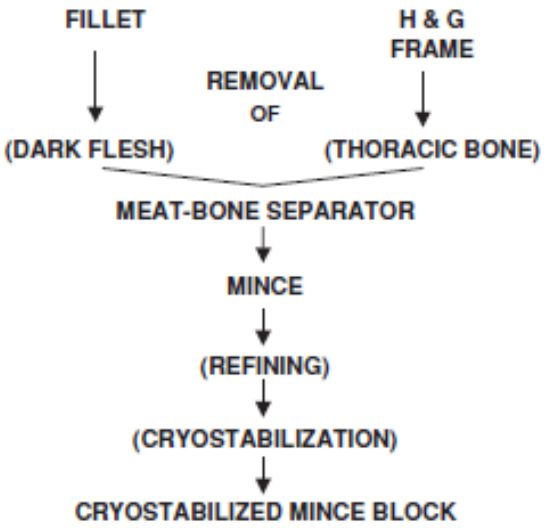
Additional detailed descriptions of specific seafood processing facilities (e.g., salmon canning, fish meal production) are provided in EPA's 'Development Document for Effluent Limitation Guidelines and New Source Performance Standards for the Fish Meal, Salmon, Bottom Fish, Clam, Oyster, Sardine, Scallop, Herring, and Abalone Segment of the Canned and Preserved Fish and Seafood Processing Industry Point Source Category' (1975).

<u>Unwashed mechanical or hand-scraping as deboning, a type of Butchering</u>

Mechanical deboning involves grinding the seafood flesh and bone together and forcing the flesh/fillets through a fine screen or slotted surface of a mechanical deboner. The shearing action of the mechanical deboning process causes considerable cellular disruption.

Bone separators working on different principles are available commercially, but the kind most widely used for seafood is of comparatively simple design. Fish, or pieces of fish, are fed from a hopper to pass between a moving rubber belt and the outside of a revolving perforated drum of stainless steel. The flesh is forced through the perforations into the drum, from where it is expelled as a coarse mince by a fixed screw. Skin and bone are retained on the outside of the drum and removed continuously by a scraper blade. The drum perforations are commonly 5 mm in diameter, but drums with smaller or larger holes are available, which produce mince of different texture. Yield can be increased by increasing the tension on the belt, at the expense of some increase in the degree of fragmentation of the flesh and the amounts of bone, pieces of skin, and black belly wall lining in the mince. Often, flaked ice is fed into these machines to clean and to cool. Further washing is necessary by high-pressure hose for sanitation purposes.

Figure 2: Flow Chart of Mechanical Deboning



Permit Limits and Requirements

The ELGs from 40 CFR Part 408 are applied in the permit, continued from the 1998 AKG528000 permit.

The permit includes the same O&G and TSS weekly monitoring schedule as the 1998 AKG528000 permit. Where sampling is required, unless otherwise noted, the permittee shall use Department approved standard analytical methods found in 40 CFR Part 136 (most current version), adopted by reference at 18 AAC 83.010 (most current version), as well as those found in 18 AAC 70 that can analyze the sample parameters using a sufficiently sensitive MDL to levels less than the effluent limit. The permittee shall notify the Department if samples arrived outside hold times. As a new permit requirement, the permit has effluent monitoring for BOD_5 for commodity lines other than washed mince / washed paste or fish meal. The permit establishes BOD_5 monitoring for all commodity lines as a pollutant of concern.

The permit clarifies that compliance with the permit's butchering effluent limits (based on ELGs) for seafood processing operations will be based on facility effluent pollutant monitoring of the discharge after screening, the total discharge flow volumes (mgd) of wastewaters, and the mass-based calculations that originate from all butchering seafood processing operations.

Effluent limitations from the ELGs are expressed in terms of pounds of TSS, O&G, and BOD_5 per 1,000 pounds of seafood processed (e.g., 14 lbs TSS/1,000 lbs raw salmon processed). If an authorized facility processes more than one commodity line, for compliance purposes, effluent limitations shall be calculated as mixed-commodity effluent limits, reflecting the commodity mix for the appropriate sampling period. The post-treatment effluent limits are based on the actual pounds of raw material processed on a commodity line on a daily and monthly average basis. Calculations are found in permit Appendix D. These calculations are consistent with the ELG final rule language stipulating that when a plant is subject to effluent limitations covering more than one subcategory, the plant's effluent limitation shall be the aggregate of the limitations applicable to the total production covered by each subcategory. The aggregate effluent limitation guideline number may vary over time as a function of the product mix.

ELG limits are not currently available for washed mince / washed paste production effluent discharges (Permit Part 2.4), as applicable ELGs have yet to be developed by EPA for this commodity line.

Permit Appendix D presents calculations that must be used for determining compliance with the production-based effluent limitations of Permit Table 3.

A new permit requirement is identifying on the DMRs the applicable monitoring results as compared to the effluent limits during each reporting period based on a single commodity and/or the mixed-commodity that was processed during the reporting period. The permit's applied ELGs (effluent limits) are based on Fact Sheet Appendix A (EPA 2006 memo) and a survey of processors performed in the fall of 2018. Permittees must perform permit Appendix D Effluent Limit calculations, including those calculations necessary to reflect the commodity mix when more than one commodity line has been processed in a sampling period.

Fact Sheet Table 2 (Permit Table 3) summarizes the effluent limits for a new source facility or line, which is defined as a facility constructed or new equipment installed after December 1, 1975. Fact Sheet Table 3 (Permit Table 4) summarizes the monitoring schedule requirements for pollutant parameter monitoring.

Newly Added Commodity Line Reporting

A review of the Alaska Department of Fish and Game (ADF&G) Commercial Fisheries Herring harvest data for 2001-2012 shows the average harvest is 60 to 110 million pounds of herring per year. The 1998 AKG528000 permit did not include effluent limits for filleted herring processing, even though a significant amount of the product is processed in Alaska as evident based on review of the ADF&G data. The 40 CFR §408.315 ELGs applicable to Alaska herring fillet are new permit effluent limits based on harvest numbers suggesting the need for implementation of the applicable ELGs.

Additionally, Alaska has a substantial amount of herring frozen whole as part of a subgroup of herring processing methods. This method of processing produces less TSS and O&G effluent loading than filleted herring processing, so more applicable effluent limits were applied. In the 1998 AKG528000 permit, EPA applied BPJ with the use of 1.0 mm fine mesh screening as the best available technology to treat the effluent generated from the processing of frozen whole herring. Processing herring frozen whole produces effluent loading similar to processing salmon. Therefore, EPA applied the Salmon – Conventional / Hand Butchered ELGs (40 CFR §408.165) as final effluent limits for facilities processing herring frozen whole.

Table 2: Butchering Effluent Limitations (Outfall 001)

Commodity Line	Total Suspended Solids (TSS) (lbs/1,000 lbs)		Oil & Grease (O&G) (lbs/1,000 lbs)		Biochemical Oxygen Demand (BOD_5) (lbs/1,000 lbs)	
	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
Crab Meat	16	5.3	1.6	0.52	report	report
Whole Crab/Crab Sections	9.9	3.3	1.1	0.36	report	report
Shrimp	270	180	45	15	report	report
Salmon Conventional/Hand Butchered	2.3	1.4	0.28	0.17	report	report
Salmon Mechanized Processing	42	25	28	10	report	report
Bottom Fish [a] Conventional/Hand Butchered	1.9	1.1	2.6	0.34	report	report
Bottom Fish [a] Mechanized Processing	22	12	9.9	3.9	report	report
Scallops	5.7	1.4	7.3	0.23	report	report
Herring – Frozen Whole	2.3	1.4	0.28	0.17	report	report
Herring Fillet Processing	23	18	20	7.3	report	report

Notes:

a. Bottom fish include flounder species (e.g., arrowtooth), flatfish/sole species (e.g., yellowfin), halibut, rockfish/snapper species, ocean perch species (e.g., pacific), cod species (e.g., pacific, ling), pollock, sablefish, atka mackerel, and Pacific hake (whiting).

Table 3: Butchering Monitoring and Reporting Requirements (Outfall 001)

Parameter	Units [a]	Sample Frequency	Reporting Requirements	Sample Type
Daily Flow	mgd	record daily	report for the day of pollutant monitoring	metered/estimated
Monthly Flow	mgd	record daily	report monthly average	metered/estimated
Amount raw product processed [b]	lbs	daily	report poundage by commodity line for sampling days and monthly total	measured for each commodity line
Number of Days Processing [b]	days	record daily	report monthly total	measured
Seafood solids sent to by-product recovery	lbs	record monthly	report monthly total	measured
BOD_5 [c, d]	mg/L	weekly	report	composite [e]
	lbs/day			
	lbs/1,000 lbs			
TSS [c, d]	mg/L	weekly	report	composite [e]
	lbs/day			
	lbs/1,000 lbs			
O&G [c, d]	mg/L	weekly	report	grab
	lbs/day			
	lbs/1,000 lbs			
Settleable Solids	mL/L	weekly	report	grab
Total Dissolved Solids	mg/L	weekly	report	composite [e]
Total Residual Chlorine (TRC) [f]	µg/L	weekly	report	grab
Total Ammonia	mg-N/L	weekly	report	grab
pH	SU	weekly	report	grab
Salinity	ppt	weekly	report	grab
Temperature	° C	weekly	report	grab

Notes:

a. Units: mgd = million gallons per day (24-hrs), lbs = pounds, mg/L = milligrams per liter, lbs/day = pounds per day, lbs/1,000 lbs = pounds per 1,000 lbs raw product processed, mL/L = milliliter per liter, µg/L = micrograms per liter, SU = standard units, ppt = parts per thousand, and °C = degrees Celsius.

b. The permittee shall report the number of days of processing and the raw product lbs processed (for sampling days and total monthly) for each commodity line (e.g., crab meat, whole crab or crab sections, salmon by conventional/hand, salmon by mechanized processing, bottom fish, herring fillet processing, herring frozen whole, or scallops).

c. Permittees shall report the daily maximum and monthly average in pounds (lbs) BOD_5, TSS, and O&G / day each sample event during the calendar month.

d. Permittees shall report the pounds BOD_5, TSS, and O&G / 1,000 pounds raw product processed on the day of monitoring, as well as the monthly averages discharged. The calculations to determine pounds of pollutant discharged / 1,000 pounds of raw product processed, as well as calculations necessary to determine compliance with the effluent limitations in Table 2, are shown in Appendix D of this permit. On DMRs, permittees shall specify the effluent limitation calculated based on the commodity mix processed during the reporting period.

e. See Appendix C for a definition. The compositing period shall be for 24 hours or for the total amount of time on the sampling day during which there is flow from the outfall. The composite sample shall consist of at least one equal volume aliquot per every full three hours in the compositing period.

f. Chlorine monitoring is required only if used as a disinfectant or introduced elsewhere in the seafood processing area. Compliance with the receiving water limits for total residual chlorine cannot be determined using EPA-approved analytical methods. DEC will use 0.1 mg/L as the compliance limit for this parameter.

3.5.2. Washed Mince / Washed Paste Production, Effluent Requirements, and Monitoring

Washed Mince / Washed Paste Production Methods - Whitefish (white colored flesh) (including surimi)

Whitefish washed mince / washed paste (most often produced in Alaska from Alaskan Pollock) is minced or paste fish flesh that is washed to remove most of the lipids, blood, enzymes, and sarcoplasmic proteins and processed to concentrate myofibrillar protein. Washing reduces lipid content, pigments, water soluble proteins, and pro-oxidants. Washed mince / washed paste seafood product is often stabilized for frozen storage by cryoprotectants (sugars, phosphates, and salts). Fish proteins are then mixed with cryoprotectants (5% sucrose, 4% sorbitol, and 0.3% sodium tripolyphosphate), and the pH is adjusted to approximately 7.0 using 2% sodium hydroxide.

Additionally, to stabilize many washed mince / washed paste products, the following additives and chemicals are often used: Hydroxybutanedioic acid, malic acid, fumaric acid, and pH adjustment to 7.0 by 1% sodium hydroxide, sodium citrate, sodium erythorbate, sodium citrate plus sodium erythorbate, and polyphosphates. Surimi processing and minced seafood operations are highly water intensive, with most of the water use and generation of wastewaters related to the washing or dewatering of the minced seafood. Washed minced seafood processing effluent streams contain 0.5-6.0% protein solids. These suspended solids in surimi effluent are primarily composed of sarcoplasmic proteins and other intracellular contents (after removal of the myofibrillar content). The washed mince / washed paste effluent contains this protein mix, where the proteins have an approximate average size equal to 0.15 mm or smaller (Wu et al., 2002 and Park, 2005).

A raw material balance shows that 50 percent of the fish is lost before washing. An additional 20 percent of the raw material is lost during washing processes, resulting in an approximate surimi yield of 15-20 percent of the raw fish input. While most frames and heads are sent to the fish meal plant in Kodiak facilities, the 20% of the fish that is lost in the wastewater is typically discharged through the outfall pipe. Park and Morrissey (2000) found that processing Pacific whiting, Alaskan Pollock, and shrimp in Oregon, Alaska, and Washington generates 20 million tons/year of waste and wastewater.

Washed Mince / Washed Paste Production Methods - Salmon Washed Mince /Washed Paste

The following description is provided to identify the types of chemicals and processes the production processes typically include. Dressed fish exit the heading and gutting cutting area to enter a deboner with 3-7 mm holes to separate fish flesh from bones, skin, and scales. The deboning process is also called a mincing process. A portion of the non-refined mince is recovered from the head of the dressed fish. The mince may be further processed on site or may be frozen in boxes and shipped off site. If frozen, the mechanically deboned fish muscle (MDFM) is thawed at 4°C for a number of hours before further processing.

Buffers can be prepared from various phosphate buffer solutions of pH 5.0, 6.0, 7.0, 8.0, 9.0, and 10.0, ± 0.2, from various analytical grade NaH_2PO_4 and chilled distilled water and then be stored at 4°C until used. There can be upwards of seven pH treatments in dark muscled fish, including a control (potable water, pH = 6.8). The washing process occurs in batch wash systems as follows: First cycle (four parts of water to one part of mince): One kilogram of MDFM washed with four liters of phosphate buffer at different pHs at 4°C. The mixture is stirred for three minutes, allowed to settle for 15 minutes, and filtered through a double layer of fine mesh. The water is pressed out and floating particles of fat are removed.

Second and third cycles (five parts of water to one part of mince): The fish paste from the first cycle is washed with five liters of potable water at 4°C. In the third cycle, 0.15% (w/w) of NaCl is added. After each cycle, the mixture is mixed for three minutes, allowed to settle for five minutes, and then filtered through a double layer of fine mesh. The fish paste is further dewatered with a screw press dehydrator to

reduce the moisture content. Variations on the above processing methods are used, all resulting in a washed mince / washed paste to be used in various gel preparations.

Percent Recovery of Washed Mince / Washed Paste Versus Other Types of Seafood Processing (butchering)

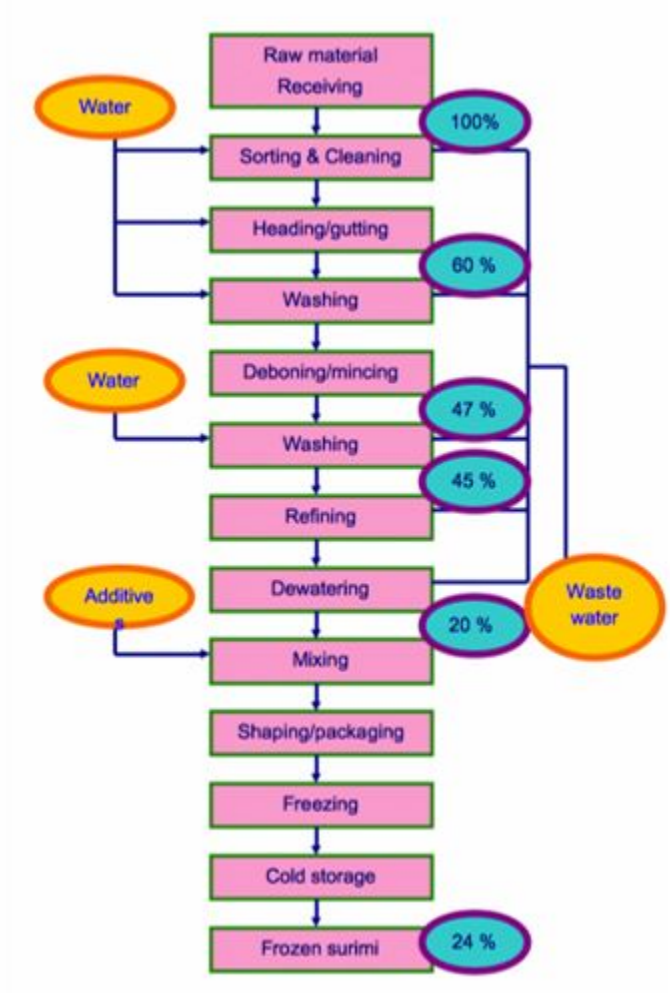
When considering pollutant loading of wastewater, often the smaller the percentages of the seafood recovered (made into product), the greater pollution due to greater amounts of initial product lost to the waste stream. While larger carcass waste can be screened and sent to a byproduct recovery facility, any smaller dissolved and settleable solids can pass through screening. The following information regarding percent recovery for Alaskan whitefish processing (including) washed mince / washed paste versus the traditional butchering process was obtained from the following sources:

- http://www.fao.org/docrep/003/T0219E/T0219E03.htm
- 1989/1990 Study - http://www.st.nmfs.noaa.gov/tm/nwc/nwc175.pdf
  - Pollock Surimi (paste) 22% Recovery
  - Pollock Minced 50% Recovery
- 2016 ASMI Alaska Whitefish Recovery - Recovery and yield data presented as headed gutted to specific product type

Figure 3: Alaska Seafood Percent Recovery

Product Type	Percent Recovery
Pacific Cod Fillets Skin/Bone	54-80%
Pacific Cod Fillets Skinless/Boneless	25-70%
Pacific Halibut Fillets	45-60%
Pacific Halibut Steaks/Loins	70-94%
Alaska Pollock Fillet (PBO & PBI) and Deep-Skinned -Fillet block	18-40%
Alaska Pollock IQF Fillets (Skinless/Boneless)	15-30%
Alaska Pollock Mince block	3-6%
Alaska Pollock Surimi	7-16%
Alaska Pollock Roe	2-14%
Alaska Pollock Milt	Jan-June: 1.2-1.5% July-Dec: 2.5-3%
Sole/Flounder Whole round to Head and Gut (H&G)	60-83%
Sole/Flounder Whole round to IQF Fillets	16-30%
Sole/Flounder H&G to skinless fillet	10-25%
Sole/Flounder H&G to J-cut/tail-off (kirimi)	24-33%
Rock Fish Fillets (skin/skinless, pinbone-in, pinbone-out, skin-on, scaled)	Skin-on: 14-22% Skinless: 12-21%
Sablefish/Black Cod Fillets (skin/skinless, pin-bone in)	Skin-on: 64% Skinless: 56%
Sablefish/Black Cod Steaks	36-44%
Alaska Whitefish Fish Meal – produced from trimmings	10-20% Fish Oil production

Figure 4: Flow Chart Demonstrating Washed Mince/paste, Percent Recovery and losses to Wastewater



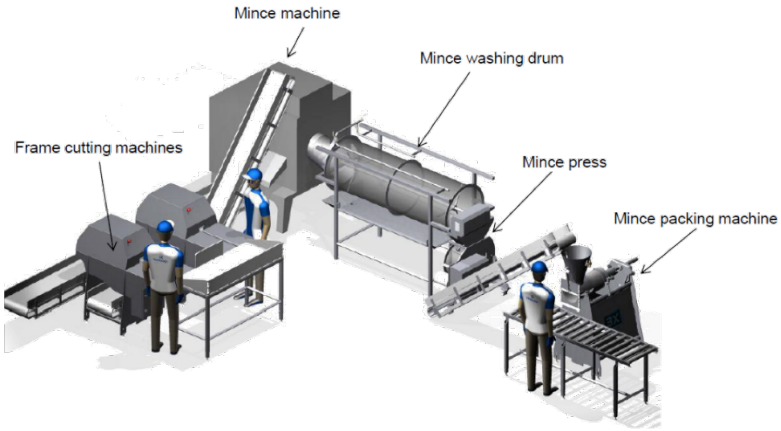
Typical Washed Mince / Washed Paste Pollutant Loading

The pollutant loading of wastes and wastewaters from washed mince / washed paste commodity line processing comes first from the removal of scales, guts, and heads, from which the raw product can be processed into fillets or sent to washed mince / washed paste commodity lines. Next, blood, fat, and intracellular soluble proteins are leached from the mince / washed paste during the washing process (see Figure 5). The high TSS and BOD generated during washed mince / washed paste seafood processing is a direct result of the intentional removal of these materials through washing of the seafood tissue. The quality of the desired final product is directly proportional to the efficiency of the washing process in removing the undesirable components. Since the soluble components can be recovered through several potential methods (e.g., settling, centrifugation, ultrafiltration) for further product recovery and for secondary product use, a significant reduction in waste load has been realized in washed mince / washed paste seafood processing facilities worldwide in Sweden/Denmark, Thailand, and the U.S. (Nolsoe et al., 2011; Kanjanapongkul et al., 2008; Stine et al., 2011; respectively).

The most common wastewater treatment in Alaska for washed mince / washed paste commodity line wastewaters has been drum screening with 0.5 mm to 1.0 mm size screen holes. The wastewaters produced by washed mince / washed paste production can be of such small particle size, 15 – 20 nanometers, that this pollutant-laden effluent can pass through the wastewater treatment screens prior to discharge, thus resulting in increased pollutant loading to the receiving waters.

During whitefish processing, the effluent TSS results can vary between 50 and 3,000 mg/L, COD results between 2,000 and 30,000 mg/L, and BOD results between 1,200 and 20,000 mg/L (Colic et al., 2007; Sridang et al., 2006). Production on a washed mince or washed paste commodity line increases TSS, O&G, and BOD_5 loading in receiving waters if not properly treated due to the amount of solids lost in the washing process. If the wastewaters are not treated, these solids are released into the receiving water and may be causing sea surface residues violations in Near Island Channel.

Figure 5: Drum Washing (washed mince)



Dewatering/ screw pressing

Research and Improvements in Available Treatment Technologies

Since the last issuance of the permit, new wastewater treatment process improvements and technologies have been developed. A number of pollution control approaches to reduce pollutant loading are available and may be implemented if necessary to address residues violations.

For example, small-scale preliminary tests carried out at the Fishery Industry Technology Center in Kodiak found that membranes with a molecular cutoff of 50 kilodaltons (kDa) resulted in recovery of approximately 80% of the protein contained in the washwater, while salts and smaller organic molecules still passed through the membrane. Experiments indicated that membranes with a molecular cutoff between 50 and 100 kDa achieved a good balance between recovery and filtration rates (flux).

Solids from surimi washwater (washed mince / washed paste) were successfully recovered using an ultrafiltration system. Protein concentrates recovered in these experiments had a significantly higher

moisture and lipid content when compared with surimi. From the results of this study, it is possible that the recovered washwater proteins could be used to obtain a fish protein.

Several Alaskan facilities have used alternate wastewater treatment systems, including centrifuges, decanters, and very fine mesh screening systems. Other wastewater treatment systems that have been used for washed mince / washed paste wastewaters include Dissolved Air Flotation (DAF) and Bubble Air Floatation (BAF). These wastewater treatment systems have not been analyzed by EPA in an effort to update the ELGs for the seafood processing industry's production of washed mince / washed paste, and thus have not been determined to be the most technically and economically viable across the spectrum of technologies available to Alaska's or other states' permittees. However, these wastewater treatment systems are shown to be superior to many methods currently in use for reducing pollutant loading. The above described treatment technologies, as well as others, may be implemented if pollutant loading or water quality residues noncompliance issues are identified.

Washed Mince / Washed Paste Wastewater and Monitoring Requirements

In 1974, EPA established technology-based ELGs in 40 CFR Part 408 for Canned and Preserved Seafood Processing Point Sources. In establishing permit limitations, DEC first determined that TBELs had not been promulgated by EPA through ELG rule making for washed mince / washed paste commodity lines. If ELGs had been established, DEC would have applied the TBELs to the discharges and incorporated them into the permit.

In the 1998 permit, EPA required the 1.0 mm screening treatment technologies applicable to the mixed-commodity butchering waste and wastewaters be additionally applied to treat the washed mince / washed paste (surimi) commodity line's waste and wastewaters.

The permit proposes to continue the 1998 AKG528000 permit's final effluent and washed mince / washed paste internal monitoring locations to identify the effluent pollutant loading from the washed mince / washed paste commodity line(s). The washed mince / washed paste commodity lines' internal monitoring for BOD_5, TSS, and total dissolved solids (TDS) shall be collected as composite samples, as identified in the permit. The washed mince / washed paste commodity line(s) shall be monitored at two sampling locations (internal and final effluent (as required in Permit Part 2.4)) at the facility.

The permit establishes a monitoring schedule for washed mince / washed paste wastewaters in Fact Sheet Table 4 (Permit Table 5). Monitoring at an internal monitoring location for TSS, O&G, and BOD_5 for the washed mince / washed paste wastewaters is not a new permit requirement. A number of new pollutant parameters are required to be monitored, including TDS, settleable solids, total residual chlorine (TRC) (if used), total ammonia, pH, and temperature.

The method for performing internal monitoring has changed. The permittee is required to screen the washed mince / washed paste wastewater to 1.0 mm or less, equivalent to the final treatment screening technology installed, prior to analysis of BOD_5, O&G, TSS, SS, and TDS. Typically, an 18/20 mesh (an 18 or 20 mesh screen) is equivalent to 1,000 microns or 1.0 mm. The screening is required to correspond to the screening that occurs at the seafood waste treatment system and thus provide a representative sample to be analyzed as if the internal monitoring location's wastewaters had already passed through the final screening.

The TDS are those solids left in the liquid portion after filtering. By the standard methods definition, dissolved solids is the portion of solids that passes through a filter of two micrometer (µm) (or smaller) nominal pore size, and suspended solids is the portion retained on the filter. Filters used for TSS test methods generally range in pore size from 0.7 µm to 1.5 µm. As previously stated, the washed mince / washed paste effluent solids are typically 15 - 20 nanometers in size and may contribute to pollutant loading. Therefore, TDS monitoring is required.

Unlike the 1998 permit, the internal monitoring location's pollutant concentration amount (mg/L) shall not be subtracted from the post-treatment effluent concentrations (mg/L) of TSS, O&G, or BOD_5.

Sampling required at the internal monitoring location shall be performed on the monitoring schedule found in Fact Sheet Table 4 (Permit Table 5). Washed mince / washed paste internal monitoring is required to occur at a location prior to commingling with any other wastewater discharge stream(s). The permittee is required to determine washed mince / washed paste commodity line(s) wastewater TSS, O&G, and BOD_5 pollutant mass contribution to the post-treatment effluent pollutant mass (lbs/day) discharged.

The internal monitoring location's concentration (mg/L) of TSS, O&G, and BOD_5 shall be converted into mass discharged daily (lbs pollutant (TSS, O&G, or BOD_5)/day) using the following formula: sample result (mg/L) x flow (mgd) x 8.34 conversion factor. The internal monitoring location's calculated pollutant mass discharged (lbs/day) shall be subtracted from the post-treatment calculated pollutant mass discharged (lbs/day) prior to determining permit limit compliance.

Washed mince / washed paste wastewater's known high BOD and TSS pollutant loading characteristics do not have corresponding Alaska WQS. However, depending on the receiving water characteristics and outfall diffuser design, the effluent may impact ambient DO levels, residues in the water column, or the formation of shoreline and/or seafloor residue deposits.

At the time of writing this permit, only a single facility, Trident's Star of Kodiak/Alcod building, is producing washed mince / washed paste as a commodity line. The wastewater from the washed mince / washed paste commodity line commingles with the butchering wastewaters of the Trident Star of Kodiak processing areas. Therefore, the BOD_5, TSS, and O&G measured from the washed mince / washed paste commodity line's effluent contributes to the final post-treatment pollutant loading monitoring location.

Monitoring of ammonia in the washed mince / washed paste wastewaters is a new permit requirement. Ammonia was documented as a pollutant in the 1975 Development Document for Seafood Processing Effluent Limit Guidelines (40 CFR Part 408). Ammonia is entrained in fish parts and wastes, a fraction of which, depending on the pH of the receiving water, is in the unionized toxic form. Similar to most food processing industries, effluents from seafood processing plants are characterized by high concentrations of nutrients, high levels of nitrogen content as ammonia (NH3-N; 29 to 35 mg/L), and the presence of sanitizers (Theriault et al., 2007). Seafood processing wastewater has been noted to sometimes contain high concentrations of organic total nitrogen (0–300 mg/L) (Islam et al., 2004).

Where sampling is required or performed to determine pollutant loading, unless otherwise noted, the permittee shall use Department approved standard analytical methods found in 40 CFR Part 136 (most current version), adopted by reference at 18 AAC 83.010 (most current version) and those found in 18 AAC 70 that can analyze the sample parameters using a MDL less than the effluent limit.

The permit requires the pounds of each of the mass-based pollutants (lbs BOD_5, TSS, and O&G/day) to be reported on the DMR, along with the lbs/1,000 lbs seafood processed. The permittee is required to account for amounts of seafood processed into washed mince, washed paste, or the combination of these commodity lines, as well as associated flow volumes (mgd), separate from the butchering commodity lines. This reporting is required to enable the Department to accurately review and verify the required calculations and reported pollutants discharged. Example calculations are provided in Permit Appendix D.

Monitoring for chlorine is a new permit requirement. Residual chlorine monitoring is only required if chlorine is used in the washed mince / washed paste production area for processing or cleaning.

Table 4: Washed Mince / Washed Paste Effluent Monitoring and Reporting Requirements (Outfall 002)

Parameter	Units [a]	Sample Frequency	Reporting Requirements	Sample Type
Daily Flow	mgd	record daily	report for the day of pollutant monitoring	metered/estimated
Monthly Flow	mgd	record daily	report monthly average	metered/estimated
Raw product sent to washed mince / washed paste commodity line / area	lbs	record daily	report for sampling days and monthly total	measured
Number of Days Processing [b]	days	record daily	report monthly total	measured
BOD_5 [c,d]	mg/L	weekly	report	composite [f]
	lbs/day			
	lbs/1,000 lbs			
TSS [c,d]	mg/L	weekly	report	composite [f]
	lbs/day			
	lbs/1,000 lbs			
O&G [c,d]	mg/L	weekly	report	grab
	lbs/day			
	lbs/1,000 lbs			
Settleable Solids [e]	mL/L	weekly	report	grab
Total Dissolved Solids	mg/L	weekly	report	composite [f]
Total Residual Chlorine (TRC) [g]	µg/l	weekly	report	grab
Total Ammonia	mg-N/L	weekly	report	grab
pH	SU	weekly	report	grab
Salinity	ppt	weekly	report	grab
Temperature	° C	weekly	report	grab

Notes:

a. Units: mgd = million gallons per day (24-hrs), lbs = pounds, mg/L = milligrams per liter, lbs/day = pounds per day, lbs/1,000 lbs = pounds per 1,000 lbs raw product processed, mL/L = milliliter per liter, µg/L = micrograms per liter, SU = standard units, ppt = parts per thousand, and °C = degrees Celsius.
b. The permittee shall report the number of days each calendar month on which washed mince / washed paste seafood processing occurred.
c. Permittees shall report the daily maximum and monthly average pounds BOD_5, TSS, and O&G.
d. Calculations to determine lbs of pollutant discharge per 1,000 lbs of raw product processed are shown in Appendix D.
e. Use methods described in 18 AAC 70.020(b), footnote 11. Add methods to QAPP.
f. See Appendix C for a definition. The compositing period shall be for 24 hours or for the total amount of time on the sampling day during which there is flow from the outfall. The composite sample shall consist of at least one equal volume aliquot per every full three hours in the compositing period. Samples shall be taken as required in Permit Part 2.4.2.
g. Monitoring for chlorine required only if chlorine is used as a disinfectant, or introduced elsewhere in the seafood processing area. Compliance with the receiving water limits for total residual chlorine cannot be determined using EPA-approved analytical methods. DEC will use the 0.1 mg/L as the compliance limit for this parameter.

3.5.3. Macroalgae Processing

There is interest in disinfecting, blanching, and flash freezing commercial marine macroalgae (e.g., seaweed and various kinds of kelps). Seaweeds are crucial in oceanic aquatic food webs, rich in both minerals and essential trace elements, and can be raw materials for the pharmaceutical and cosmetics industry.

The permit does not propose to cover macroalgae processing beyond disinfection, blanching, and freezing. The permit requires the permittee to provide effluent discharge characteristics and identify the proposed macroalgae processing techniques on the NOI.

The permit requires the permittee to provide information for pH, temperature, salinity, BOD_5, TSS, ammonia, and chlorine in effluent from the macroalgae processing line. DEC has identified that, on average, over 40% of total plant effluent BOD in vegetable processing is generated by blanching. Hot gas blanching has been demonstrated to reduce the volume of wastewater effluent from a blancher to less than 1% of that produced with steam or hot water blanching (https://www.sciencedirect.com/topics/food-science/blanching, accessed 4/22/2019).

Further macroalgae or microalgae processing and associated waste and wastewater discharges are not covered based on information gathered regarding effluent associated with these processes. Red and brown seaweeds are used to produce three hydrocolloids: agar, alginate, and carrageenan. The process of producing alginate can involve pretreating seaweed with hydrochloric acid (HCl - pH 4), followed by extracting the alginate with Sodium Carbonate (Na_2CO_3 solution - pH 10). In other alginate production facilities, the liquid effluent can be highly acidic (around pH 1.4–1.8) due to the use of sulfuric acid as their process material (Sivasubramanian et al., 2009). DEC does not have adequate effluent pollutant loading characteristics for agar, alginate, carrageenan, etc. production to propose coverage under this permit.

Finally, this permit does not propose to provide coverage for aquaculture or for macroalgae or microalgae mariculture operations.

3.5.4. Byproduct Production Effluent Requirements and Monitoring (Permit Part 2.5) for Fish Meal, Fish Oil, Fish Hydrolysate, and Other

There continues to be increased interest in starting byproduct recovery facilities/commodity lines in seafood processing facilities. Currently in Kodiak, a single fish meal/fish oil plant processes all of the processors' offal and must comply with the effluent limits in Fact Sheet Table 5 (Permit Table 6). Any new source byproduct facilities or processing lines would also need to comply with these limits. Byproduct recovery/production lines include, but are not limited to: fish meal, fish powder, fish oil, and fish hydrolysate. Permittees under the permit may be authorized to discharge fish meal, fish powder, fish oil, fish hydrolysate, or other byproduct effluent under the permit if they perform the required effluent monitoring in Permit Table 7.

<u>Description of Types of Seafood Processing Byproducts</u>

<u>Fish Meal</u>

Fish can be reduced to meal and oil in a number of ways. Common to all methods of practical importance are the following processing steps:

- heating, which coagulates the protein, ruptures the fat depots, and liberates oil and physicochemically bound water
- pressing (or occasional centrifugation), which removes a large fraction of the liquids from the mass
- separation of the liquid into oil and water (stickwater). This step may be omitted if the oil content of the fish is less than 3%

- evaporation of the stickwater into a concentrate (fish solubles)
- drying of the solid material (press cake) plus added solubles, which removes sufficient water from the wet material to form a stable meal
- grinding the dried material to the desired particle size

The main first step of the process is cooking for coagulation of the protein, releasing bound water and oil. Separation by pressing the coagulate yields a solid phase (press cake) containing 60-80% of the oil-free dry matter (protein, bones) and oil as well as a liquid phase (press liquor) containing water and the rest of the solids (oil, dissolved and suspended protein, vitamins and minerals). The main part of the sludge in the press liquor is removed by centrifugation in a decanter, and the oil is subsequently removed by centrifuge.

Stickwater is a valuable product containing minerals, vitamins, some residual oil, and as much as 20% soluble and undissolved (suspended) proteins. The stickwater is concentrated through evaporation to a consistency of thick syrup containing from 30% to 50% solids. This material can be sold as “condensed fish solubles.” Alternatively, this solubles material can be further dehydrated by adding it back to the presscake for drying. Therefore, one can purchase “presscake” meal or a “whole” meal (where all of the solubles have been added back). The meals are then dried so that the moisture content is low enough to allow the meal to be stored and transported without any substantial mold or bacterial growth. Drying can be either direct or indirect; direct drying is the most rapid and requires very hot air to be passed over the meal as it is rapidly tumbled in a cylindrical drum.

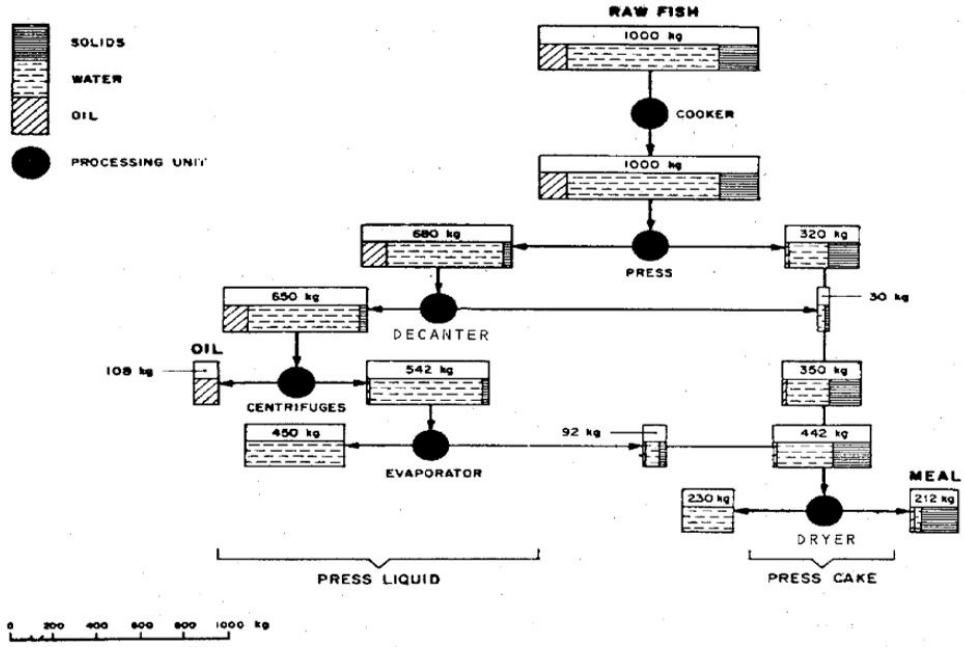
This drying activity may result in significant odor levels, and in populated areas the odor production requires use of air scrubbers that remove odors. Air scrubbers remove odors by spraying significant amounts of fine mist water through the evaporative coming off the drying of the fish meal. Evaporators for the stickwater, however expensive, may today be considered standard items of equipment for fish meal facilities because they recover dry matter that can increase the yield of meal by 20 percent or more, depending upon the freshness and nature of the raw material (Bykowski & Dutkiewicz, 1996).

Stickwater from fish meal facilities often contains high levels of proteins and oils, which has made recovery of oils and proteins financially feasible. Many seafood processing companies in Alaska who have begun using fish meal plants have also integrated fish oil recovery into their facility. These Alaska seafood processors in turn use the produced fish oil to supplant past diesel use. Consequently, the most current technology and best cost recovery systems in newly installed fish meal facilities now have fish oil and stickwater evaporation, where the liquid fraction after the press is evaporated and the proteins and oils are recovered (Bykowski & Dutkiewicz, 1996). The following measures reduce the volume of disposable waste generated from fish meal waste and wastewater treatment processes:

- Land application (as fertilizer) of wastes from onsite wastewater treatment in agricultural production;
- Sludge dewatering on sludge drying beds for small-scale factories and dewatering using belt presses and decanter centrifuges for medium and large-scale factories;
- Pathogens can be destroyed during controlled anaerobic digestion (biogas) or aerobic treatment (composting);
- Disposal of wastes in landfill if not used for biogas production or combustion.

Pressing during fish meal production removes approximately 70% of the raw material mass as water and 10% as oil.

Figure 6: Figure from FOA, 1996 – Mass Balance in Fish meal Production



Since permit limits (ELGs) are based on pounds of raw product processed, all raw product processed in the byproduct processing facility/lines needs to be tracked by weight (lbs seafood received). Permittees are required to record the total weight of seafood coming in for various commodity lines.

Each byproducts processing line should be depicted in the permittee's BMP Plan using process waste and wastewater flow diagrams, which should be updated as process lines are added and/or subtracted. The flow diagrams should clearly depict how the permittee calculates total seafood raw product coming into a facility and any interim or final commodities produced and how the permittee calculates flows for reporting on DMRs and in the Annual Report (Permit Part 2.8).

<u>Fish Oil</u>

Fish oil production is typically an integrated part of fish meal production. However, the production of cod liver oil and other specialty products can be established as standalone production units. The quality of the fish oil obtained depends largely on the quality and type of the fish raw material and the equipment used. Today, the extraction of fish oil is conducted typically by centrifugal machinery, three-phase decanters, and separators.

<u>Fish Hydrolysate</u>

Production of fish hydrolysate (silage) to be used as feed is the cheapest way of utilizing offal. Considering the capital needed and the operating costs for fish meal and hydrolysate production (cost ratio 4:1), production of the liquid form of this byproduct is very profitable and it can be done by small plants. The main phases of offal processing are the grinding of offal or whole fish, acidifying of the pulp, and liquefying what results in a self-digestion (autolysis) process or in an enzyme/chemically induced digestion process. Adequate grinding is a basic operation of the process.

Liquefaction is an autolytic process carried out by enzymes already present in the fish and accelerated by an acid that induces the proper conditions for the enzymes to break down the tissues and limit the growth of spoilage bacteria. Typically, malic acid is used, but pH is often adjusted with sodium chloride (NaCl) or hydrochloric acid (HCl). Preservatives are used to produce pyrosilage, such as

sodium pyrosulphite ($Na_2S_2O_5$) (1% for fatty and medium fatty offal, and 1.3% for lean product) or sulfuric or hydrochloric acid (both at 1% concentration in the mix).

Hydrolysate research indicates that measured pH should always be the final indicator of a proper level of acidification and should range from 3.5 to 4.5. Industry documents indicate the pH should never exceed 4.5.

Chitin and Chitosan Byproduct

Chitin is a structural component in crustacean exoskeletons, which contain 15–20% chitin by dry weight. The production of chitin and chitosan from food industry waste (crustacean canning) has proved environmentally attractive and economically feasible, especially when it includes the recovery of carotenoids. Considerable amounts of chitin are present in the wastes and are marketed as a fish food additive. Shrimp head waste (Penaeus indicus) can be treated with lime at different temperatures (75, 100, and 125 °C) to form chitin. Below are examples of chemicals used in the chitin and chitosan production mechanisms:

Crustacean shells→size reduction→protein separation → (NaOH) →washing demineralization → (HCl) →washing and dewatering → de-coloration → chitin →deacetylation (NaOH) → washing and dewatering → Chitosan

Chitosans also exhibit excellent film-forming ability with use of acetic or formic acids, resulting in flexible and transparent films that resemble plastic films (USDA, 2004). Additionally, chitosan forms aldimines and ketimines with the addition of aldehydes and ketones, respectively, at room temperature.

Biodiesel / Biogas

The use of animal fat to produce biodiesel is not a new technology. However, the adaptability of this technology to aquatic resources has only attracted public interest recently. The biodiesel produced from seafood waste would be a nontoxic and fully biodegradable renewable fuel easily adapted without any modification to current diesel engines. The fish oil is similar to a vegetable oil or animal oil, and it reacts with an alcohol (methanol) with the catalyst caustic soda. This produces a pure biodiesel, or B100 (100% biodiesel), with a valued byproduct glycerin. Glycerin is an important byproduct and is currently further being enhanced and could become a new source of income for biodiesel producers. It is a colorless, odorless liquid which is used for pharmaceutical, food, and cosmetic purposes. One other note of care is the acid content of the oil extracted. For example, salmon oil is high in acid, and this acid often needs to be removed. Therefore, an additional step in removing this acid is required. Sulfuric acid and a catalyst are added to reduce the acid value of the oil.

Typical Pollutant Loading

During fish meal and fish oil production, the effluent TSS results are often in the 30,000 mg/L range, while COD and BOD_5 have concentrations of 30,000 – 50,000 mg/L, and O&G of 10,000 mg/L (Colic et al., 2007; Sridang et al., 2006). Other research provides information that the large volume and high concentration of COD (80,000 to 100,000 ppm) can result in significant oxygen depletion in the area of discharge. Membrane filtration resulted in COD reduction from 170,000 to 15,000 mg/L – a 90% reduction (Bechtel & Smiley, 2009). Fish meal plants have been reported to have a BOD of 100–24,000 mg/L, COD of 150–42,000 mg/L, TSS of 70–20,000 mg/L, and fats, oils, and grease of 20–5,000 mg/L.

Byproduct Permit Requirements and Monitoring

The permit includes monitoring requirements for TSS, BOD, O&G, SS, temperature, pH, and ammonia during the discharge of fish meal, fish oil, fish hydrolysate or other byproduct effluents.

The permit requires reporting the daily flow (mgd) of effluent discharged. The calculation used to measure flow shall be included with the Annual Report.

Monitoring the effluent generated by the byproducts' commodity lines will provide data to the Department to evaluate compliance with the ELGs (40 CFR §408.155) applied by EPA through BPJ during the last permit cycle and continued in this permit, and to evaluate potential pollutant loading effects on water quality. The ELG development document references "the reduction of oily species such as menhaden and anchovy for fish meal, oil, and solubles." The words "such as" suggest that other species processed into byproducts, besides menhaden and anchovy, may be included in this subcategory, and EPA's study contemplated the same basic equipment and process steps yielding wastewater with the same conventional pollutants in similar concentrations and treatability as are found today in Alaskan fish meal processing. The single processor producing fish meal in Kodiak has not reported exceeding the ELGs during the previous permit term. The permit requires reporting the pounds of seafood waste received by the facility/processing line on the DMR. The permittee is required to report pollutant loading as pounds pollutant per 1,000 pounds of seafood processed.

Monitoring results will be reported on DMRs. Results shall include total daily flow volume (mgd) for the by-product line on the monitoring date, effluent parameters sampled, and daily and average monthly monitoring data. Fact Sheet Table 6 (Permit Table 7) below summarizes the frequency at which effluent parameters must be sampled and reported.

Table 5: Seafood By-product Effluent Limitations
(Fish Meal, Fish Powder, Fish Oil, Fish Hydrolysate, and Other) (Outfall 003)

Parameter	Units [a]	Monthly Average Limit	Daily Maximum Limit
BOD_5	lbs/1,000 lbs	3.8	6.7
TSS	lbs/1,000 lbs	1.5	3.7
O&G	lbs/1,000 lbs	0.76	1.4

Notes:
a. Units: lbs/1,000 lbs = pounds per 1,000 lbs raw product (screened solids received) processed.

Table 6: Seafood By-product Monitoring and Reporting Requirements (Fish Meal, Fish Powder, Fish Oil, Fish Hydrolysate and Other) (Outfall 003)

Parameter	Units [a]	Sample Frequency	Reporting Requirements	Sample Type
Daily Flow	mgd	record daily	report for the day of pollutant monitoring	metered/estimated
Monthly Flow	mgd	record daily	report monthly average	metered/estimated
Number of Days Processing [b]	days	daily	report monthly total	measured
Amount seafood received by the by-product recovery line	lbs	daily	report for sampling days and monthly total	measured (weighed)
BOD_5 [c, d]	mg/L	weekly	report	composite [e]
	lbs/day			
	lbs/1,000 lbs			
TSS [c, d]	mg/L	weekly	report	composite [e]
	lbs/day			
	lbs/1,000 lbs			
O&G [c,d]	mg/L	weekly	report	grab
	lbs/day			
	lbs/1,000 lbs			
Settleable Solids	mL/L	weekly	report	grab
Total Residual Chlorine (TRC) [f]	µg/l	weekly	report	grab
Total Ammonia	mg-N/L	weekly	report	grab
pH	SU	weekly	report	grab
Salinity	ppt	weekly	report	grab
Temperature	° C	weekly	report	grab

Notes:

a. Units: mgd = million gallons per day (24-hrs), lbs = pounds, mg/L = milligrams per liter, lbs/day = pounds per day, lbs/1,000 lbs = pounds per 1,000 lbs raw product (screened seafood waste received) processed, mL/L = milliliter per liter, µg/L = micrograms per liter, SU = standard units, ppt = parts per thousand, and °C = degrees Celsius.

b. The permittee shall report the number of days per month that by-product production occurred.

c. Permittees shall report the daily maximum and monthly average in pounds (lbs) BOD_5, TSS, and O&G / day each sample event during the calendar month.

d. Permittees shall report the pounds BOD_5, TSS, and O&G / 1,000 pounds raw product processed on the day of monitoring, as well as the monthly averages discharged. The calculations to determine pounds of pollutant discharged / 1,000 pounds of raw product processed, as well as calculations necessary to determine compliance with the effluent limitations in Table 5, are shown in Appendix D of this permit.

e. See Appendix C for a definition. The compositing period shall be for 24 hours or for the total amount of time on the sampling day during which there is flow from the outfall. The composite sample shall consist of at least one equal volume aliquot per every full three hours in the compositing period.

f. Monitoring for chlorine required only if chlorine is used as a disinfectant, or introduced elsewhere in the seafood processing area. Compliance with the receiving water limits for total residual chlorine cannot be determined using EPA-approved analytical methods. DEC will use the 0.1 mg/L as the compliance limit for this parameter.

3.6. Other Outfalls (Permit Part 2.6)

Discussion of the 1998 Permit's "Non-process wastewaters" and Other Outfall Monitoring

Previously, "Non-process Wastewaters" stated:

> **1998 AKG528000 (2.4)** "Non-process wastewaters include non-contact cooling water, boiler water, freshwater pressure relief water, refrigeration condensate, water used to transfer seafood to the facility, live tank water, and other non-process water (except wastewater from floor drains). These wastewaters may be discharged without treatment to the receiving water through conveyances, provided that the discharges are in compliance with Alaska State Water Quality Standards."

Permittees interpreted the "Other Wastewaters" language found in the 1998 permit to allow the discharges of "Other Wastewaters" (or 'non-process' wastewater from multiple outfall configurations and discharge points), without monitoring. The seafood processing ELGs made no differentiation for these "Other Wastewater" discharges from seafood processing facilities.

The permit includes new requirements that all outfalls, discharging any effluents to waters of the U.S., be monitored and BMPs implemented to treat the wastewaters to ensure permit requirements are met. Monitoring is required to ensure compliance with Alaska state WQS.

The permit proposes monitoring requirements applicable to the discharge from any outfall separate from the seafood processing main outfall or the byproduct effluent's main outfall. If the permittee discharges from a single outfall line, the monitoring under this part does not apply. If the permittee has multiple discharge points (outfalls) that historically have been considered "other wastewaters" outfalls, or non-process wastewater outfalls, these outfalls are now required to be monitored.

The permit allows commingling of industrial storm water discharges, as long as the permittee has obtained APDES MSGP coverage or has submitted No Exposure Certification under the 2015 APDES MSGP. This monitoring is not applicable to non-commingled storm water discharges covered under the APDES MSGP permit, or non-commingled storm water outfalls where No Exposure Certifications have been submitted to the Department.

When catch transfer waters are accepted into the facility, they become part of the facility's process wastewaters, per the definition found in 18 AAC 83.990(54). Facilities often route all or a portion of the catch transfer water back to vessels, which may subsequently discharge that process wastewater. Catch transfer water comes into direct contact with raw, unprocessed seafood and may contain significant amounts of solids and pollutant loading from blood, slime, and fish excrement. If these wastewaters are left untreated, receiving water pollutant loading increases. Therefore, the permit establishes that the screening treatment required prior to discharge is applicable to all effluents that have come into contact with seafood at the facility.

DEC acknowledges the industry concern that currently-installed seafood waste treatment pumps often do not function as designed when large hydraulic loads (such as catch transfer flows) are forced through treatment pump systems. Sending the catch transfer waste streams through the currently-installed seafood waste treatment system is not the only way to meet the screening treatment requirements. If permittees do not have the existing capability to treat catch transfer water as required prior to discharging to the vessel, they must submit a Catch Transfer Water Treatment Practicability Report to DEC within two years of the permit effective date. The Department will use the submitted reports, along with screened and unscreened effluent data, to determine whether screening is the best practicable control technology available for treating catch transfer water. This determination will consider all applicable evaluation criteria, in accordance with CWA Section 304(b)(1)(B).

Monitoring these "other outfall" discharges, and writing and implementing BMPs to control these documented waste streams, is a new permit requirement. If a permittee is planning on discharging toxics (ammonia, chlorine) and other deleterious organic or inorganic discharges through these other outfalls, the facility's QAPP shall discuss the permittee's monitoring procedures for these effluents. Additionally, the NOI shall discuss in which waste streams the chemicals and pollutants are found. The BMP Plan shall discuss the standard operating procedures for how these substances are handled and how discharges will be controlled to meet WQS. Note, the permit does not authorize the discharge of spills or other non-monitored, uncontrolled releases.

Identify All Other Outfalls on the NOI

Additionally, based on experience administering the AKG528000 permit, DEC found permittees often made changes to seafood processing line and outfall configurations, which occasionally resulted in plumbing cross connections, grinding before screening, or other unanticipated routing. Non-process drain pipes would be cut off, reconnected, rerouted, or often left uncapped in seafood processing plants, discharging directly to the receiving water. Reconnected or rerouted storm water discharges were often found to be connected to seafood processing plant floor clean up drains, loading and unloading areas, seafood and fish transfer areas, and processing water drains that then were discharged directly to waters of the U.S. without passing through the correct waste treatment systems. The permit now requires the permittees to identify all outfalls and waste streams on the NOI.

Calculating Flow Volumes for Other Outfalls

Historically, permittees have not been required to calculate or measure flow of these other outfalls. To provide further information to the Department regarding other outfall discharges, the permit requires the operator to meter or calculate other outfall flow volumes (mgd). As discussed previously, flow meter installation is required by the end of a 24-month timeframe (except for on outfalls with intermittent flows). Calculating flow volumes is allowed to continue for two years after the permit's effective date, except for existing washed mince/paste wastewater discharge lines, which must be metered and have flow measured within six months of the permit's effective date. Permittees have expressed concern that this new requirement (i.e., to calculate, estimate, or measure flow) would be used by the Department for compliance actions if the DEC Compliance inspector measured the flow rate and found the volume to be incorrect as compared to the NOI. Since not historically measured, it is not expected that all operators would know the exact flow volumes to be proposed on the NOI for the initial application. DEC expects the operator's initial application for other outfalls to be a 'proposed' or 'estimated' flow. As the permit cycle progresses, if the permittee finds through the installation of meters, or refining of pump discharge rate calculations, that the initial estimate was inaccurate, the permittee may need to submit an updated NOI. The Department expects it may take the permittee one to two discharge seasons to better refine flow volume(s).

Similar to most food processing industries, effluents from seafood processing plants are characterized by high concentrations of nutrients, high levels of nitrogen content as ammonia (NH3-N; 29 to 35 mg/L), high TSS (0.26 to 125,000 mg/L), increased BOD (10 to 110,000 mg/L) and COD (496 to 140,000 mg/L), and the presence of sanitizers (Theriault et al., 2007).

Ammonia

Monitoring of ammonia is a new permit requirement. Ammonia was documented as a pollutant in the 1975 Development Document for Seafood Processing Effluent Limit Guidelines (40 CFR Part 408). DEC is requiring monitoring for ammonia to determine whether ammonia is a pollutant of concern in these waste streams.

The permit requires ammonia (to include pH, temperature, and salinity) monitoring for all other outfalls. Ammonia monitoring is required from seafood processing discharges because monitoring performed in other seafood processing locations around the state has found ammonia as a pollutant.

Monitoring of ammonia is required in facilities that discharge evaporator, fish meal plant condenser (scrubber water), cooling waters, and other non-process wastewaters from other outfalls. Typically, facilities can contain oil fired boilers to operate ammonia refrigeration plants, fish meal dryers, process heat boilers, fish meal plants with a wet scrubber for odor control, vapor extraction systems, an assortment of small heaters, and home heating units. Facilities that use various generators and scrubbers may have DEC Air Quality permits that limit their output of NO_x in an air stream. NO_x can disassociate in water, and total ammonia and ammonia ions are then found in the wastewater stream. In these types of systems, ammonia is highly soluble in water, with one volume of water absorbing 1.148 volumes of ammonia at 32 °F. Thus, if found as an air pollutant, ammonia in air can be stripped or "scrubbed" out of air streams by fine mist vapor and condensation, but then the ammonia is found in the wastewater stream. The amount of free ammonia at the base of the scrubber's columns can range from 100 ppm to 200 ppm (https://www3.epa.gov/ttn/catc/dir1/ammonia.pdf). An ammonia destructor can be used to condense and remove the ammonia, but if there is not one in place, these levels of ammonia can enter the wastewater discharge stream.

Ammonia may also be lost to wastewater by various facility activities, such as seafood processing's ammonia refrigeration system leaks and purging. The permit requires the permittee to analyze effluent for ammonia, temperature, and pH from the same grab sample.

WQS information for ammonia is located in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances (Toxics Manual)*, dated December 12, 2008, adopted by reference in 18 AAC 70.020(b). Alaska's ammonia WQS criteria are dependent on pH, temperature, and salinity.

If any wastewaters are discharged through 'other outfalls,' including discharged to vessels who may then discharge to waters of the U.S., the new monitoring requirements found in Fact Sheet Table 7 (Permit Table 8) are required. This monitoring information is being collected for future potential permit limit development. Permittees are required to sample these other outfalls monthly.

Temperature

The discharge of non-contact cooling water, retort water, boiler water blowdown, etc., have the potential to affect the temperature of the receiving water. If these effluents are discharged through outfalls separate from the seafood processing outfall, directly to waters of the U.S., the new monitoring requirements found in Permit Table 8 are required. This monitoring information is being collected for future potential permit limit development. Permittees are required to sample these other outfalls monthly.

Permittees discharging wastewater to waters of the U.S from any outfall(s) other than the main seafood processing outfall (commingled or non-commingled) are required to monitor the discharge as specified in Fact Sheet Table 7 (Permit Table 8). Each separate outfall shall be monitored prior to discharge for all parameters established. If the permittee only discharges from a single outfall (all discharges commingled and monitored under Permit Part 2.3 or Part 2.5), the permit does not require "other outfall" monitoring.

Table 7: Other Outfall(s) Monitoring and Reporting Requirements (Outfall 004)

Parameter	Units [a]	Sample Frequency[f]	Reporting Requirements	Sample Type
Daily Flow	mgd	record daily	report for the day of pollutant monitoring	metered/estimated [e]
Monthly Flow	mgd	record daily	report monthly average	metered/estimated [e]
BOD_5	mg/L	monthly	report	composite / grab [b]
TSS	mg/L	monthly	report	composite / grab [b]
O&G	mg/L	monthly	report	grab
Settleable Solids	mL/L	monthly	report	grab
pH	SU	monthly	report	grab
Temperature [c]	^{o} C	monthly	report	grab
Total Ammonia	mg-N/L	monthly	report	grab
Salinity	ppt	monthly	report	grab
Total Residual Chlorine (TRC) [d]	µg/L	monthly	report	grab

Notes:

a. Units: mgd = million gallons per day (24-hrs), mg/L = milligrams per liter, mL/L = milliliter per liter, µg/L = micrograms per liter, SU = standard units, ppt = parts per thousand, and °C = degrees Celsius
b. If the flow from the outfall is intermittent, grab samples that are representative of the waste stream flow may be taken. Otherwise, composite samples shall be taken, in accordance with the definition in Appendix C.
c. For thermal discharges, temperature must be taken and reported during the time of thermal discharge. In line temperature metering is acceptable.
d. Monitoring for chlorine required only if chlorine is used as a disinfectant, or introduced elsewhere in the seafood processing area. Compliance with the receiving water limits for total residual chlorine cannot be determined using EPA-approved analytical methods. DEC will use the 0.1 mg/L as the compliance limit for this parameter.
e. Catch transfer water flow discharged to vessels after offloading, and other flows that are intermittent, may be estimated instead of metered.
f. The permittee may request in writing that parameter monitoring frequencies be reduced to quarterly after one year of monitoring and reporting if results indicate no detections above applicable WQS. Monitoring reductions can only occur once written approval from the Department is received.

4.0 Receiving Waterbody

4.1. Limits and Monitoring Requirements

The permit requires monitoring procedures to determine compliance with WQS. The Department may require additional receiving water monitoring, which would be listed in an authorization, for site-specific purposes.

4.2. Sea Surface and Shoreline Monitoring (Permit Part 2.7.1)

Permittees are required to conduct visual sea surface and shoreline monitoring. The permit requires visual monitoring of the receiving water for all points of discharge and shoreline areas, including areas surrounding docks and piers and areas where the seafood processing waste and wastewater residues typically come ashore (if any). The purpose of the monitoring is to record the occurrence and extent of films, foam, scum, or sheens (compliance with water quality criteria at 18 AAC 70.020(b)).

Historic EPA AKG528000 permit development records include the '1994 Ocean Discharge Criteria Evaluation for the NPDES General Permit for Alaskan Seafood Processors' as well as Federal Register entries granting Steller's eider threatened status in 1997 and establishing critical habitat in 2000. In 1997, EPA initiated the federal consultation process for the AKG528000 permit. Both the U.S. Department of the Interior and the USFWS requested that seafood processing facilities record the occurrence and numbers of Black-legged Kittiwake (*Rissa tridactyla*), Western Steller sea lions (*Eumetopias jubatus*), Steller's eiders (*Polysticta stelleri*), and Southwest Alaska Distinct Population northern sea otters (*Enhydra lutris kenyoni*) and record any incidents of injured or dead endangered or threatened species while performing the sea surface monitoring. In 2008, EPA and DEC established a workshare agreement to create a document titled 'Protected Areas in Alaska' that identified sensitive locations (e.g., wildlife refuges, critical habitat areas, harbors and bays, etc.) as well as the endangered and threatened species protected. This document identified protected areas and waters in or near Kodiak. Thus, endangered and threatened species monitoring is required to be conducted daily during sea surface and shoreline monitoring while processing is occurring.

4.3. Seafloor Surveys (Permit Part 2.7.2 and Appendix E)

The 1998 permit did not authorize a zone of deposit. This permit also does not authorize a zone of deposit, as there is no site-specific data available showing deposits resulting from the facilities' discharges. To the contrary, a 2015 seafloor survey, one of the few available from a Kodiak processing facility, noted that wastewater discharged from the outfall "was observed to quickly rise toward the surface and did not appear to contain any significant particulate matter that might be expected to settle to the seafloor. No seafood waste was observed on the seafloor in the vicinity of the outfall terminus, diffuser ports, or anywhere else that the divers observed… no seafood waste has been observed on the seafloor during previous surveys and none was expected during these surveys." Therefore, the Department does not expect that there will be detectable deposits but is requiring permittees to perform a seafloor survey to investigate this assumption. If deposits are identified during the seafloor survey study required during this permit term, the Department will use that information to evaluate authorizing a zone of deposit under 18 AAC 70.210 during the next reissuance.

The extent of bottom waste accumulation over the long term depends primarily on the amount of waste discharged, the decay rate of the waste organic matter, and the degree of resuspension and transport of the deposited waste.

Settling of seafood discharges on the seafloor occurs at varying rates according to the size of the particles and ocean currents. Once settled, these particles can form organic mats or seafood waste piles

(residue deposits) that can smother the underlying substrate and benthic communities within it. The degradation of seafood processing's organic material occurs at varying rates according to different characteristics of the discharge area (i.e., biological, physical, and chemical factors).

Following discharge to the receiving water, the particulate and soluble wastes are subjected to chemical and biological transformations that result in the decomposition of the waste materials and the production of bacteria and chemical compounds. The decomposition of the soluble and particulate organic matter consumes DO. This can result in the production of varying quantities of soluble compounds, including carbon dioxide, methane, ammonia, soluble phosphorus, and hydrogen sulfide. Scavenging organisms, including sharks, fish, crabs, and polychaete and tube worms, may also feed on the particulate waste that is suspended in the water column or fresh waste that has accumulated on the bottom.

A number of biological, chemical, and physical factors control the fate of the discharged wastes. Biological factors include microbial decay and scavenging of the waste by organisms. Chemical factors include the chemical composition of the waste, particularly the content of protein and soluble organic compounds, fats and carbohydrates, and skeletal and connective tissue. Each of these components has a characteristic chemical composition and decay rate. Physical factors that control the fate, transport, and persistence of the waste include density stratification, storm-, tidal-, and wind-induced currents, and water temperature. Current speed, direction, and duration strongly influence the transport and dispersion of the waste, and critical current speeds can resuspend and transport waste solids deposited on the bottom.

In one study where salmon waste was widely distributed, the waste was completely absent within 33 days following discharge and no adverse effects on DO concentrations were noted. Studies in Kodiak, prior to the implementation of screening, did not find this to be the case. Thick piles of seafood waste had accumulated on the seafloor in this area due to a combination of factors. The accumulation of these deposits in some waterbody areas with different flushing characteristics indicates that the rate of discharge exceeds the assimilation capacity of some waterbodies and, more specifically, the assimilation capacity of the benthic community and other aquatic life that metabolize this material. The permit requires that processors discharge only screened seafood wastewaters in hydrodynamically energetic waters to assist in dispersion, dilution, and assimilation of the seafood wastewaters and to minimize accumulation of these deposits. If permit limits are adhered to, DEC expects the effects on aquatic biota in areas of seafood waste discharge should be minimal.

The permit requires a seafloor survey be completed within one year of permit coverage and then subsequently per the schedule established in Fact Sheet Table 8 (Permit Table 9) through the life of the permit. Permit Appendix E contains the Seafloor Survey Protocol, which provides the acceptable approaches for performing seafloor surveys. Seafloor survey results from the studies this permit term will be used to gather data to determine whether additional limitations are needed to monitor effluent impact on receiving water quality and to inform future permit reissuance decisions (including the potential allowance of a zone of deposit under 18 AAC 70.210). The survey methods described in permit Appendix E, as well as the survey frequency, are new permit requirements.

The 1998 permit did not clearly define methodology for performing seafloor surveys, nor were seafood waste coverage terms clearly defined (continuous, discontinuous, or trace deposits).

The new methodology and data gathering parameters are based on seafloor surveys performed around the state and established to understand benthic impacts of seafood processing residues settling on the seafloor.

Permittees are required to sample for DO gases if bubbles are seen escaping from seafood waste deposit areas. DO samples are required to be taken within 12 inches of the seafloor near where gas(es) are

escaping, which often occurs near the *Beggiatoa* mats and seafood waste pile decay. The deposits can cause the release of methane and sulfur gases, which can impact WQS by reducing DO. This is due to the shallow oxygen penetration in coastal marine sediments. Anoxic conditions prevail and sulfate is a major electron acceptor in these ecosystems. If oxygen is available near the surface of the *Beggiatoa* mats, it will be used up first during oxidative reactions. While it has been found that DO levels in marine water columns greater than 12 inches above the seafloor may be normal (8.5 or greater), the DO is affected in the water column directly above the seafood waste deposits (Unalaska Bay, 1998 - 2004, Akutan Bay, 2011) and in those areas within 12 inches above the *Beggiatoa* mats (or other bacterial mats) from seafood waste deposits. These white, filamentous bacterial colonies only appear at the sediment surface when DO concentrations in the benthic boundary layer drop below 1 mg/L. In conditions of extreme organic loading, *Beggiatoa* often presents as a mat covering much of the sediment surface, an effect that can be observed in both sediment profile imaging (SPI) and plan view (PV) images. PV images permit the measuring of the percent of the seafloor in each image that is covered with *Beggiatoa*, and SPI images allow the detection of *Beggiatoa* at low densities that are often not detectable in PV images.

The permit requires the identification of *Beggiatoa* mats and their approximate coverage area(s). *Beggiatoa* and other filamentous bacteria can be found in marine environments and, as applicable to the permit, use seafood waste (a type of organic waste) as a food source. They can usually be found in habitats where the reduction of sulfur and nitrates in the sediment and waste materials is occurring. As the seafood wastes decay, the nitrates and sulfur consume the oxygen molecules, thus depleting the oxygen in the water column directly above *Beggiatoa* mats. These environments may also include cold seeps, sulfur springs, areas where high levels of organic pollutant loading (other than seafood waste discharge) is occurring in the receiving water, and near deep hydrothermal vents. Thus, if these features are found by the surveyor, it should be noted in the Seafloor Survey Report.

Additionally, as a new monitoring requirement, permittees are required to produce a map depicting seafood waste deposits and other water quality data required to be gathered in permit Appendix E. The permit requires the surveyor to map the discontinuous coverage areas and continuous subcategories.

<u>Continuous, Discontinuous, and Trace Coverage.</u> The 1998 permit did not clearly define what level of seafood waste coverage (continuous, discontinuous, or trace deposits) on the seafloor had to be reported. The permit establishes clear data gathering and reporting protocols in permit Appendix E.

Table 8: Seafloor Survey Schedule

Survey Type [a]	Requirement	Sample Location	Survey Frequency and Requirements
Initial Seafloor Survey	Seafloor Survey	Seafloor area	Perform within one year of obtaining permit coverage. Dependent on initial seafloor survey results, subsequently either perform Additional Seafloor Survey or Annual Seafloor Surveys.
Additional Seafloor Survey If no detectable seafood processing waste found in Initial Seafloor Survey	Seafloor Survey	Seafloor area	Performed every four years
Annual Seafloor Surveys Required if Initial Seafloor Survey reveals detectable seafood processing waste deposits [b]	Seafloor Survey	Seafloor area	Surveys performed annually Evaluation of source control and remediation options developed once
Pre-Discharge Survey Installation of a new outfall location, or facility re-starting production after not operating for more than 12 months	Pre-Discharge Seafloor Survey	Proposed Discharge Area	Prior to discharging

Notes:
a. The seafloor surveys must be performed as established in the Appendix E Seafloor Survey protocol, or with other Department approved methodologies.
b. The permit does not authorize a zone of deposit. If a deposit is found to be above detectable in any 3-foot by 3-foot square sample plot within the mapped survey area, annual seafloor surveys and an evaluation of source control and remediation options are required.

If a seafloor survey documents seafood waste deposits (residues), then annual seafloor survey(s) are required. Permittees must also complete and submit an evaluation of source control and remediation options.

Permittees may request to use protocol methods other than those described in Appendix E to gather required seafloor survey information.

For informational purposes, the following table compares the various survey methods and the data that they provide. The video survey is somewhat similar to the dive survey in that visual evaluation is the primary tool for collecting the necessary data. The grab sample technique is similar to the SPI in that subsurface data about the seafloor can be obtained.

Survey Method	Depth Limit	Current Limit	Low Visibility Limit	Survey Area Daily Limit	Seafood waste pile size determination	Waste Thickness	Particle Size	Percent Waste Coverage	Benthic Assessment
Dive Survey	120+ ft depending on equipment	2 knots	15 feet	2 acres/day	Excellent	Good	Good	Good	Poor
Video Survey	1500+ ft	3 to 5 knots	3 inches	12 acres/day	Good (depth of waste estimated)	Estimated	Good if laser scale is used	Good if visibility is acceptable	Poor
Grab Sampler Survey	200 ft	3 knots	0 inches	500 acres/day (Depends on method)	Good (depends on method and substrate)	Good (depends on sample method and equip.)	Good	N/A	Good
SPI Survey	400+ ft	2 knots	0 inches except plan view photos	12 acres/day	Good (depends on substrate)	Poor beyond depth of probe window	Good	Good	Good

The first year's initial seafloor survey (see Appendix E) shall be conducted during the last quarter of the year (October – December), in compliance with the schedule set out in Fact Sheet Table 8 (Permit Table 9). The permit requires that if surveys cannot be conducted within given timeframes due to weather, availability of survey services (provided there is documented evidence that survey services were requested greater than three months in advance of when the survey is due to be performed), or other adverse conditions, the circumstances which delayed the survey shall be documented in the final seafloor survey report. DEC requires the survey to be performed during the last quarter of the year to get a consistent reflection of the facility's seafloor impacts.

The NPDES program is based on the premise of permittee self-monitoring and reporting based on specific performance objectives. The seafloor surveys are performed by third party contractors hired by permittees. A new permit requirement is that a signed copy of the original seafloor survey produced by the surveyor must be submitted and any changes to the survey must be documented in a track changes document signed by the permittee's signatory. This third party audit allows for more accountability in reporting of seafloor residues. DEC may at any time request a copy of the original seafloor survey from the surveyor or the permittee.

4.4. Water Quality Standards

The CWA Section 301(b)(1)(C) requires the development of limits in permits necessary to meet WQS. State regulations at 18 AAC 83.435 require that the conditions in APDES permits ensure compliance with the Alaska WQS, which are codified in 18 AAC 70. The WQS are composed of use classifications, numeric and/or 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/or narrative water quality criteria are the criteria deemed necessary by the State to support the use

classification of each waterbody. The antidegradation policy ensures that the existing water quality is maintained.

Waterbodies in Alaska are designated for all uses unless the waterbody has been reclassified under 18 AAC 70.230, listed under subpart 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).

The permit authorizes discharge to marine receiving waters of the state that are designated for all uses. The most stringent of the WQS for these uses shall be met. The designated use classes are: water supply (aquaculture, seafood processing, and industrial); water recreation (contact and secondary); growth and propagation of fish, shellfish, and other aquatic life; and harvesting for consumption of raw mollusks or other raw aquatic life.

The applicable WQS applied to the permit are in 18 AAC 70, as revised through April 6, 2018, with the exception of the residues standard. EPA has not approved the revised residues standard; therefore, the water quality criteria for residues at 18 AAC 70.020(b)(20), as revised through June 26, 2003, applies.

4.5. Mixing Zones

Mixing zones are DEC authorized areas where an effluent undergoes initial dilution. A mixing zone is an allocated impact zone in the receiving waterbody where water quality criteria can be exceeded as long as toxic conditions are prevented and the designated uses of the water as a whole are not impaired as a result of the mixing zone. All water quality criteria must be met at the boundary of the mixing zone.

In accordance with 18 AAC 70.240, as amended through March 23, 2006, DEC may authorize a mixing zone in a permit upon receipt of a complete application. Form 2M, and the associated information (including modeling) required by the form, serves as the mixing zone application under the general permit. The application provides information required by 18 AAC 70.240(a), including the information and available evidence necessary to demonstrate consistency with 18 AAC 70.240. Permittees may request modification to effluent limits, but the burden of proof for justifying a mixing zone rests with the applicant. The Department will consider mixing zone requests on a case-by-case basis, and the Department will, in its discretion, only authorize a mixing zone if it finds that available evidence reasonably demonstrates that the requirements of 18 AAC 70 will be met. New or modified mixing zones will be public noticed in accordance with 18 AAC 83.120. The Department may, in its discretion, include individual facility mixing zones authorized during this permit term in the next (reissued) general permit.

The regulations at 18 AAC 70.240 outline the criteria that must be met prior to the Department authorizing a mixing zone. These criteria include an analysis of the size of the mixing zone, treatment technology, existing uses of the waterbody, human consumption, spawning areas, human health, aquatic life, and endangered species. All criteria must be met in order to authorize a mixing zone. If criteria are not met, then a mixing zone is prohibited and effluent limits must be met at the end of the outfall line prior to discharge to the receiving waterbody.

As part of a mixing zone application, permittees must also submit Form 2G and include sufficient information for the Department to complete an antidegradation analysis and make findings under 18 AAC 70.016 (b), (c), and (d). Parameters limited in a mixing zone fall under the “new or expanded” definition under 18 AAC 70.990(75), as this includes “discharges that are regulated for the first time or discharges that are expanded such that they could result in an increase in permitted parameter load or concentration or other changes in discharge characteristics that could lower water quality or have other adverse environmental impacts.” A parameter limited for the first time under the reissued permit (with WQBELs associated with mixing zones that are higher than the WQS) represents an increase from a previously unpermitted parameter load or concentration, and these parameters do lower water quality. Therefore, a complete antidegradation analysis for each requested mixing zone parameter, including the

range of practicable alternatives that have the potential to prevent or lessen the degradation associated with the proposed discharge [18 AAC 70.016(c)(4)], is required.

The Department completes an antidegradation analysis for discharges subject to Department authorization under the 18 AAC 83 APDES program. When developing a permit, if the discharge will lower or potentially lower water quality of Tier 2 waters, the Department will conduct a Tier 2 antidegradation analysis for new or expanded discharges. A Tier 2 analysis is on a parameter-by-parameter basis. The definition of "new or expanded discharge" means, among other things, discharges that are regulated for the first time. The 18 AAC 83 definition of discharge is specific to "a pollutant." Therefore, if a single pollutant is being regulated for the first time in an APDES permit, an antidegradation analysis is required. Regulated for the first time for the permit means a parameter that has an effluent limit which is not included in the general permit upon the effective date. Permittees will be required to submit the analysis required under 18 AAC 70.016(c)(4) for each parameter for each outfall that a mixing zone and modified WQBEL is being requested for.

The Department may establish limits at the boundary of an authorized mixing zone in the receiving waterbody. These limits shall be based on the limits and requirements of 18 AAC 70. Additionally, mass-based limits (based on the outfall's projected maximum flow rate on the NOI) will be implemented for pollutants as appropriate, per 18 AAC 83.540. The permittee will be notified of any receiving waterbody limits when issued authorization by DEC to discharge under the general permit.

4.6. Water Quality Status of Receiving Water

The Department evaluated the waterbodies (including Kodiak Harbor, St. Paul Harbor, Gibson Cove, Near Island Channel, Women's Bay, and Woody Island Channel) proposed to be covered under this permit for impaired waterbody status.

Any part of a waterbody for which the water quality does not or is not expected to meet applicable WQS is defined as a "water quality limited segment" and placed on the state's impaired waterbody list. Section 303(d) of the CWA requires states to develop a Total Maximum Daily Load (TMDL) management plan for a waterbody determined to be water quality limited. The TMDL documents the amount of a pollutant a waterbody can assimilate without violating a state's WQS and allocates that load to known point sources and nonpoint sources.

The receiving waterbodies covered by the permit are not included in the *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report*, July 15, 2010, as impaired waterbodies, nor are any of them listed as a CWA section 303(d) waterbody subject to a pending or approved TMDL. See the State of Alaska DEC Water Quality website for the most recent integrated report, (http://dec.alaska.gov/water/water-quality/integrated-report/).

The Department finds it necessary to further evaluate receiving water quality. Permittees shall monitor the receiving water as indicated in Fact Sheet Table 9 (Permit Table 10). The Department is requiring the data collection for evaluation regarding the pollutants being discharged in comparison to the receiving water conditions and seafloor conditions. In accordance with AS 46.03.020 (13) and Section 308 of the CWA, DEC has the authority to require the owner or permittee of a facility to undertake this type of monitoring, sampling, and reporting as codified in 33 U.S.C 1318. The Department has specifically required this monitoring to occur inside the confines of the permit instead of a separate CWA Section 308 letter to ensure that effluent monitoring and receiving water monitoring data can be correlated.

Receiving water monitoring is required twice per year in months where seafood processing is actually occurring. The permit requires the monitoring to occur in the second and fourth years of the permit term. Monitoring data is required to be submitted with the Annual Report (Permit Part 2.8).

DEC will evaluate the compiled Annual Report data as compared to variable commodity line effluent discharges and facility outfall configurations. The receiving water monitoring and seafloor survey protocol will provide oceanographic data (local current speeds), pollutants of concern and discharge-related impacts, and chemistry data needed to address existing data gaps for those parameters listed in the permit.

Table 9: Receiving Water Quality Monitoring

Parameter	Units	Sample Frequency [a]	Reporting Requirement	Sample Type
Color	Color unit	2 per year	report	grab
O&G	mg/L	2 per year	report	grab
Turbidity	NTU	2 per year	report	grab
Total ammonia [b]	mg-N/L	2 per year	report	grab
Dissolved Oxygen	mg/L	2 per year	report	grab
pH [b]	SU	2 per year	report	grab
Temperature [b]	^{o} C	2 per year	report	grab
Salinity [b]	ppt	2 per year	report	grab
Total Residual Chlorine (TRC)	µg/l	2 per year	report	grab

Notes:
a. Samples shall be taken during the 2nd and 4th years of permit coverage, twice per year.
b. Ammonia, pH, salinity, and temperature shall be analyzed from the same, single grab sample.

5.0 Other Permit Requirements

5.1. Quality Assurance Project Plan (QAPP)

The permittee is required to develop QAPP sampling and other monitoring procedures to ensure that the monitoring data submitted is accurate and explains data anomalies if they occur. The permittee is required to develop and implement the QAPP within 60 days of authorization to discharge under the permit. A permittee with current authorization shall review and update the QAPP annually or more frequently, in compliance with the permit. The QAPP shall consist of standard operating procedures the permittee must follow for collecting, handling, storing, and shipping samples; conducting laboratory analysis; calculating limits; and reporting data. The QAPP shall be retained on site and made available to the Department upon request.

5.2. Best Management Practices (BMP) Plan

In accordance with AS 46.03.110 (d), the Department may specify in a permit the terms and conditions under which waste material may be disposed or discharged. The permit requires the permittee to develop a BMP Plan in order to prevent or minimize the potential for the release of pollutants to waters of the U.S. through plant site runoff, spillage or leaks, or erosion. The permit contains certain BMP conditions that must be included in the BMP Plan. The BMP Plan must be kept on site and made available to the Department upon request.

A new permittee shall develop and implement a BMP Plan within 60 days of authorization to discharge under the permit. A previously permitted permittee shall review and update the BMP Plan. The BMP Plan shall be reviewed at least annually and be revised as needed, and the permittee shall ensure that the BMP Plan has been implemented.

Facilities may use BMPs, in addition to numerical effluent limitations, to control or abate the discharge of pollutants in accordance with 18 AAC 83.475. National policy requires that, whenever feasible, pollution should be prevented or reduced at the source, that pollution which cannot be prevented should be recycled in an environmentally safe manner, and that discharge or release of the pollution into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner. EPA's reassessment of the ELGs for seafood processors (Jordan, 1979; EPA, 1980) recommended inplant management directed towards total utilization of the raw materials and byproduct recovery as a fundamental and central element of waste reduction. Materials accounting, audits of inplant utilization of water and materials, and BMPs were repeatedly recommended as the profitable approach to waste management in seafood processing plants at the "Wastewater Technology Conference and Exhibition for Seafood Processors" convened by the Fisheries Council of British Columbia in Vancouver, Canada in February 1994 (Ismond, 1994).

The NPDES program is based on the premise of permittee self monitoring and reporting based on specific performance objectives described in the permit (see CWA Section 308). As such, APDES permits are often crafted with stated performance objectives that must be met by the permittee and, as discussed in the Fact Sheet NPDES regulations at 40 CFR §122.44(k), allow for use of BMPs when numeric limits are infeasible.

Purged Ammonia from Refrigeration Systems. Ammonia can be lost to wastewater by various means, such as seafood processing, cleaning, and refrigeration system leaking and purging. Historically, seafood processing facilities have "purged" their refrigerant systems to remove the air and water from the refrigeration lines for proper system operation. Historically, DEC has found that purged ammonia refrigeration system wastewater has typically been placed in a barrel, diluted, and disposed into the effluent stream as a routine maintenance procedure. The ammonia can also enter the effluent stream through refrigeration transport lines' breaks or leaks. Therefore, the permit requires the permittee to develop BMPs that minimize refrigerant release and propose treatment and discharge plans. The BMPs must include how maintenance, purging, and wastewater disposal is handled at the facility. The permit also requires analyzing purge water pH prior to commingling with other wastewater flows, in addition to the final effluent ammonia monitoring included in the permit. Finally, the permittee is required to develop plans for mitigating and reporting any ammonia accidental or emergency releases (not a covered discharge).

The permit provides the permittee with flexibility to formulate a site-specific plan consisting of pollution control measures to meet the stated performance objectives while still providing instructive guidance on minimum, permit mandated requirements. The BMP Plan should be continually updated to reflect any future operational and design modifications or monitoring practices that are found to control or minimize the potential pollutant discharges, as allowed by the permit.

The permit requires the development and implementation of BMPs that prevent or minimize the generation and release of pollutants to receiving waters.

EPA developed a general handbook to assist industry in identifying and using BMPs and in developing and implementing materials accounting and BMP Plans (EPA, 1993). EPA also developed an industry-specific handbook to assist seafood processors in identifying and using BMPs and in developing and implementing materials accounting and BMP Plans. These documents are still available for permittees during facility specific BMP Plan development.

The BMP Plan must be amended whenever a change in the seafood processor or in the operation of the seafood processor occurs that materially increases the generation of pollutants and their release or potential release to the receiving water.

5.3. Annual Report (Permit Part 2.8)

The purpose of the Annual Report is to document the status of implementation of the permit's limitations and requirements, including:

- A self-assessment review of compliance with the permit conditions,
- An assessment of the progress towards achieving the measurable goals,
- A summary of results of monitoring information that has been collected and analyzed,
- A discussion of proposed process changes or improvements for the next permit year and submittal of an updated NOI, if needed,
- An assessment of the appropriateness of the selected BMPs along with a discussion of any changes to the BMPs or measurable goals, and
- Reference to any reliance on another entity (e.g. a fish meal plant for reducing seafood waste discharges) for achieving any measurable goal.

The permit includes a new requirement in the Annual Report to provide a summary of any occurrences of leaks or breaks in the refrigerator condenser system or outfall. The permit also requires the permittee to provide a list of chemicals, disinfectants, cleaners, biocides, and food processing additives (salts, acids, bases, enzymes, etc.) used and discharged during the annual reporting period. If substances are not used per the manufacturer's recommended use and application rates, the report must include the total annual amounts used, dilution ratio during use, and what the product is used for (e.g., 55 lbs of sodium hydroxide for Chitin production, 55 3-gallon containers of 12% hydrochloric acid used as 1% solution disinfectant and 3% solution for washed mince bleaching). Permittees that do not use chemicals in their seafood processing operations (e.g. hand or mechanical filleting only) are not required to submit this list.

The increase in seafood processing byproduct production often results in the increased use of chemicals in production. Extremes of pH or rapid pH changes (often can occur during improper discharge of these chemicals) can exert stress conditions or cause mortality to aquatic life (EPA, 1975).

Permittees need to perform an inventory of chemicals used on site to inform updated NOI submittals. The permit does not address the separate requirements of hazardous waste or solid waste reporting. As previously discussed, many chemicals and food processing additives can be used in various seafood processing commodity lines. These chemicals have not been included on operators' NOIs, nor in previous permits, and thus have not been tested for in waste streams. Requiring industrial facilities to identify chemicals in their processing wastewater discharges is an integral part of the CWA.

5.4. Standard Conditions

Permit Appendix A 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 requirements.

6.0 Antibacksliding

Regulations at 18 AAC 83.480 require that "effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit." Regulations at 18 AAC 83.480(c) also state 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."

The previous permit did not include mixing zones, and this permit allows permittees the option of applying for mixing zones. This could result in a relaxation of effluent limits, as under the current permit all WQS are required to be met at the point of discharge. Per CWA Section 303(d)(4)(B), limitations based on state WQS can only be relaxed where the action is consistent with the state's antidegradation policy. This requirement will be fulfilled through the application process for individual authorizations, as the permit requires permittees requesting a mixing zone to submit Form 2G and include sufficient information for the Department to complete an antidegradation analysis and make findings under 18 AAC 70.016 (b), (c), and (d).

All other effluent limits in the permit are at least as stringent as in the previously issued permit and are consistent with 18 AAC 83.480. Accordingly, no further backsliding analysis is required for this permit reissuance.

7.0 Antidegradation

Section 303(d)(4) of the CWA states that, for waterbodies where the water quality meets or exceeds the level necessary to support the waterbody's designated uses, WQBELs may be revised as long as the revision is consistent with the State's Antidegradation policy. The State's Antidegradation policy is found in the 18 AAC 70 WQS regulations at 18 AAC 70.015. 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*. Both the Antidegradation policy and the implementation methods are consistent with 40 CFR §131.12 and approved by EPA. This Part analyzes and provides rationale for the Department's decisions in the permit issuance with respect to the Antidegradation policy and implementation methods.

Using the policy and corresponding implementation methods, the Department determines a Tier 1 or Tier 2 classification and protection level on a parameter by parameter basis. A Tier 3 protection level applies to a Tier 3 designated water. At this time, no Tier 3 waters have been designated in Alaska.

Regulatory requirements of 18 AAC 70.015(a)(1) state that the existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected (Tier 1 protection level).

There are no marine waters (and specifically St. Paul Harbor) covered under the general permit listed as impaired (Category 4 or 5) on DEC's most recent *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report*; therefore, no parameters have been identified where <u>only</u> the Tier 1 protection level would apply. Accordingly, this antidegradation analysis conservatively assumes that the Tier 2 protection level applies to all parameters, consistent with 18 AAC 70.016(c)(1).

Regulations at 18 AAC 70.015(a)(2) state that 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 authorizes a reduction in water quality (Tier 2 protection level). The Department may allow a reduction of water quality only after the specific analysis and requirements under 18 AAC 70.016(b)(5)(A-C), 18 AAC 70.016(c)(7)(A-F), and 18 AAC 70.016(d) are met. The Department's findings are as follows:

7.1. 18 AAC 70.016(b)(5)

(A) *existing uses and the water quality necessary for protection of existing uses have been identified based on available evidence, including water quality and use related data, information submitted by the applicant, and water quality and use related data and information received during public comment;*

(B) *existing uses will be maintained and protected; and*

(C) *the discharge will not cause water quality to be lowered further where the department finds that the parameter already exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b).*

Per 18 AAC 70.020 and 18 AAC 70.050, all marine waters are protected for all uses; therefore, the most stringent water quality criteria found in 18 AAC 70.020 and in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (DEC 2008) apply and were evaluated. This will ensure existing uses and the water quality necessary for protection of existing uses of the receiving waterbody are fully maintained and protected.

The permit places limits and conditions on the discharge of pollutants. The limits and conditions are established after comparing TBELs and WQBELs and applying the more restrictive of these limits. The water quality criteria, upon which the permit effluent limits are based, serve the specific purpose of protecting the existing and designated uses of the receiving water. WQBELs are set equal to the most stringent water quality criteria available for any of the protected water use classes. The permit also requires ambient water quality monitoring to evaluate possible impacts to the receiving waters and existing uses.

Pollutants of concern in seafood waste are primarily the biological wastes generated by processing raw seafood into a marketable form and the chemicals used for processing or cleaning processing equipment and fish containment structures in order to maintain sanitary conditions. Biological wastes are primarily seafood parts: heads, fins, bones, entrails, and shells. The chemicals used for cleaning are primarily disinfectants, which shall be used in accordance with EPA specifications. Refrigerants used are generally ammonia and Freon. Monitoring for ammonia is a new permit requirement to evaluate whether WQS are being met.

The general permit includes numeric or narrative effluent limits and BMPs addressing each of these pollutants of concern. The permit requires facilities to implement BMP Plans to minimize the production of waste and the discharge of pollutants to waters of the U.S. to ensure that seafood processing facilities provide for the protection or attainment of existing and designated uses.

Part 2.2.5.1 of the permit requires that the discharge shall not cause or contribute to a violation of the WQS at 18 AAC 70. As previously stated, there are no marine waters covered under the general permit that are listed as impaired; therefore, no parameters were identified as already exceeding the applicable criteria in 18 AAC 70.020(b) or 18 AAC 70.030. Marine waters covered under the general permit are not listed under 18 AAC 70.236(b) as subject to site-specific criteria.

The Department concludes that the terms and conditions of the permit will be adequate to fully protect and maintain the existing uses of the water and that the findings under 18 AAC 70.016(b)(5) are met.

7.2. 18 AAC 70.016(c)(7)(A –F) *If, after review of available evidence, the department finds that the proposed discharge will lower water quality in the receiving water, the department will not authorize a discharge unless the department finds that:*

7.2.1 *18 AAC 70.016(c)(7)(A) the reduction of water quality meets the applicable criteria of 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b), unless allowed under 18 AAC 70.200, 18 AAC 70.210, or 18 AAC 70.240;*

As previously stated, Part 2.2.5.1 of the permit requires that the discharge shall not cause or contribute to a violation of the WQS at 18 AAC 70. WQBELs are set equal to the most stringent water quality criteria available under 18 AAC 70.020(b) for any of the protected water use classes. Because of the nature of the permitted discharges, other pollutants are not expected to be present in the discharges at levels that would cause, have the reasonable potential to cause, or contribute to an exceedance of any Alaska WQS, including the whole effluent toxicity limit at 18 AAC 70.030. The Department will not

authorize a discharge under the general permit to waters that have established or adopted site-specific criteria in the vicinity of the discharge. Currently, marine waters covered under the general permit are not listed under 18 AAC 70.236(b) as subject to site-specific criteria.

The permit does not authorize short term variances or zones of deposit under 18 AAC 70.200 or 18 AAC 70.210.

Except where a mixing zone has been authorized by the Department, all parameters at the point of discharge must meet the most stringent water quality criteria available for any of the protected water use classes. In addition, if a mixing zone is authorized, all water quality criteria must be met at the boundary of the mixing zone to ensure all criteria are met in the waterbody and the waterbody as a whole is protected. The water quality criteria in 18 AAC 70.020 is a legal basis for the permit effluent limits, of which serve the specific purpose of protecting the existing and designated uses.

The Department has determined that the reduction of water quality meets the applicable criteria of 18 AAC 70.020(b), 18 AAC 70.030, and 18 AAC 70.236(b), and that the finding is met.

7.2.2 ***18 AAC 70.016(c)(7)(B)*** *each requirement under (b)(5) of this section for a discharge to a Tier 1 water is met;*

See 18 AAC 70.016(b)(5) analysis and findings above.

7.2.3 ***18 AAC 70.016(c)(7)(C)*** *point source and state-regulated nonpoint source discharges to the receiving water will meet requirements under 18 AAC 70.015(a)(2)(D); to make this finding the department will (i) identify point sources and state-regulated nonpoint sources that discharge to, or otherwise impact, the receiving water; and (ii) consider whether there are outstanding noncompliance issues with point source permits or required state-regulated nonpoint source best management practices, consider whether receiving water quality has improved or degraded over time, and, if necessary and appropriate, take actions that will achieve the requirements of 18 AAC 70.015(a)(2)(D); and (iii) coordinate with other state or federal agencies as necessary to comply with (i) and (ii) of this subparagraph;*

The requirements under ***18 AAC 70.015(a)(2)(D)*** state:

(D) all wastes and other substances discharged will be treated and controlled to achieve

(i) for new and existing point sources, the highest statutory and regulatory requirements; and

(ii) for nonpoint sources, all cost-effective and reasonable best management practices;

The highest statutory and regulatory requirements are defined at ***18 AAC 70.015(d)***:

(d) For purposes of (a) of this section, the highest statutory and regulatory requirements are

(1) any federal technology-based effluent limitation identified in 40 C.F.R. 122.29 and 125.3, revised as of July 1, 2017 and adopted by reference;

(2) any minimum treatment standards identified in 18 AAC 72.050;

(3) any treatment requirements imposed under another state law that is more stringent than a requirement of this chapter; and

(4) any water quality-based effluent limitations established in accordance with 33 U.S.C. 1311(b)(1)(C) (Clean Water Act, sec. 301(b)(1)(C)).

The first part of the definition includes all federal TBELs. The permit requires permittees of seafood processing facilities to comply with 40 CFR Part 408, Canned and Preserved Seafood Processing Point Source Category. The effluent limitations guidelines (ELGs) set standards of performance and are incorporated in the permit.

The second part of the definition references the minimum treatment standards found at 18 AAC 72.050, which refers to domestic wastewater discharges only. The permit does not authorize the discharge of domestic wastewater (Permit Part 1.3.1). The permit requires support vessel sanitary wastewater to be routed to the local municipal domestic wastewater treatment facility. Therefore, a finding under this Part is not applicable.

The third part of the definition refers to treatment requirements imposed under another state law that are more stringent than 18 AAC 70. Other regulations beyond 18 AAC 70 that apply to this permitting action include 18 AAC 15 and 18 AAC 72. Neither the regulations in 18 AAC 15 and 18 AAC 72 nor another state law that the Department is aware of impose more stringent requirements than those found in 18 AAC 70.

The fourth part of the definition refers to WQBELs. A WQBEL is designed to ensure that the WQS of a waterbody are met and may be more stringent than TBELs. Section 301(b)(1)(C) of the CWA requires the development of limits in permits necessary to meet WQS by July 1, 1977. WQBELs included in APDES permits are derived from EPA-approved 18 AAC 70 WQS. APDES regulation 18 AAC 83.435(a)(1) requires that permits include WQBELs that can "achieve water quality standards established under CWA §303, including state narrative criteria for water quality." The permit requires compliance with the 18 AAC 70 WQS, including effluent limits for pH and temperature and monitoring for other applicable WQS pollutants.

The Department reviewed available information on known point source discharges to receiving waters covered under the permit and found no outstanding noncompliance issues. There are no state regulated nonpoint sources that discharge to, or otherwise impact, the receiving waters covered under the permit.

After review of the methods of treatment and control and the applicable statutory and regulatory requirements, including 18 AAC 70, 18 AAC 72, and 18 AAC 83, the Department finds that the discharge authorized under this general permit meets the highest applicable statutory and regulatory requirements; therefore, the 18 AAC 70.016(c)(7)(C) finding is met.

7.2.4 ***18 AAC 70.016(c)(7)(D)(i-ii)*** *the alternatives analysis provided under (4)(C-F) of this subsection demonstrates that*

(i) a lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary; when one or more practicable alternatives that would prevent or lessen the degradation associated with the proposed discharge are identified, the department will select one of the alternatives for implementation; and

(ii) the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are found by the department to be the most effective and practicable;

The Department performed an alternatives analysis and found that temporary lowering of water quality to accommodate important economic development in the area is necessary. Alternatives were evaluated based on practicability, as defined at 18 AAC 70.990(48). Alternatives, such as ceasing discharge, sending seafood processing waste streams to the City of Kodiak's Wastewater Treatment Facility, and moving processing locations offshore were determined to be non-practicable. Therefore, discharge under the limitations and requirements of the permit is identified as the practicable alternative, and the 18 AAC 70.016(c)(7)(D)(i) finding is met.

As described in Part 4.5, if the permittee applies for a mixing zone a complete antidegradation analysis, including all information and findings under 18 AAC 70.016(c)(7)(D) and 18 AAC 70.016(c)(7)(E), is required. The complete antidegradation analysis will be public noticed with the mixing zone analysis and draft authorization.

Permit requirements include the implementation of ELG-required production based limits, implementation of BMPs, installation of flow meters, and increased ambient water quality monitoring to evaluate the need for updated limits in future permits.

The permit requires permittees of seafood processing facilities to follow prescribed BMPs to minimize pollutant discharges, as well as to comply with 40 CFR Part 408, Canned and Preserved Seafood Processing Point Source Category. The regulations at 40 CFR Part 408 require seafood processors to meet the ELGs as discussed in earlier parts of the Fact Sheet, including the mass-based effluent limitations for TSS and O&G and an allowable range for pH. These limitations are included as permit conditions. No mixing zones will be issued that conflict with the ELGs applied in the general permit. As part of the ELG process, EPA prepared a report in support of 40 CFR Part 408 titled 'Development Document for the Seafood Processing Industry Point Source Category,' which provides more documentation regarding treatment technologies used to develop the performance standards.

With the permit-required implementation of BMP controls and the requirement to meet ELGs and WQS, the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are found by the Department to be the most effective and practicable; therefore, the 18 AAC 70.016(c)(7)(D)(ii) finding is met.

7.2.5 ***18 AAC 70.016(c)(7)(E)*** *except if not required under (4)(F) of this subsection, the social or economic importance analysis provided under (4)(G) and (5) of this subsection demonstrates that a lowering of water quality accommodates important social or economic development under 18 AAC 70.015(a)(2)(A); and*

Commercial fishing is by far the largest private sector industry in Kodiak. Kodiak is consistently one of the top three fishing ports in the United States. The 2015 ex-vessel value of all fish coming into Kodiak was approximately $155.4 million, as compared to 2014 which was approximately $147.4 million, an increase of 5.15%. Volume in 2015 was approximately 527 million pounds, an increase from 2014 which was approximately 458 million pounds.

Kodiak is the center of fishing activities for the Gulf of Alaska. The fishery is among the most diverse in the state, with approximately 53 different seafood species being delivered and processed in Kodiak in 2015. Salmon has traditionally been the mainstay of Kodiak's fisheries. Because of the cyclical nature of the salmon fisheries, the annual volume and value of Kodiak's salmon catch varies greatly. Increased competition in world markets has also driven prices down. However, in the last few years, prices have been rebounding. During recent years, the ground fish (bottom fish) fishery has become increasingly important to Kodiak's economy. (https://www.commerce.alaska.gov/dcra/dcrarepoext/RepoPubs/FinDocs/KodiakFY2018Budget.pdf).

The Department has determined that the operation of the seafood processing facilities and discharges authorized by the permit demonstrate that the lowering of water quality accommodates important economic development; therefore, the 18 AAC 70.016(c)(7)(E) finding is met.

7.2.6 ***18 AAC 70.016(c)(7)(F)*** *18 AAC 70.015 and this section have been applied consistent with 33 U.S.C. 1326 (Clean Water Act, sec. 316) with regard to potential thermal discharge impairments.*

Discharges authorized under the permit are not associated with a potential thermal discharge impairment; therefore, the finding is not applicable.

8.0 Other Legal Requirements

8.1. Ocean Discharge Criteria Evaluation

Section 403(a) of the CWA, Ocean Discharge Criteria, prohibits the issuance of a permit under Section 402 of the CWA for a discharge into the territorial sea, the water of the contiguous zone, or the oceans except in compliance with Section 403. Permits for discharges seaward of the baseline of the territorial seas must comply with the requirements of Section 403, which include development of an Ocean Discharge Criteria Evaluation (ODCE). An interactive map depicting Alaska's baseline plus additional boundary lines is available at:

https://alaskafisheries.noaa.gov/mapping/arcgis/rest/services/NOAA_Baseline/MapServer

The map is provided for informational purposes only. The U.S. Baseline Committee makes the official determinations on baseline.

A review of the baseline maps revealed that all discharges proposed to be authorized under the general permit are landward of the baseline of the territorial sea; therefore, Section 403 of the CWA does not apply to the permit, and an ODCE analysis is not required to be completed for this permit reissuance. Further, the permit requires compliance with WQS such that 40 CFR §125.122(b) is met, and therefore the discharge is presumed not to cause unreasonable degradation of the marine environment.

8.2. Endangered Species Act

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 USFWS.

The ESA requires federal agencies to consult with NOAA, NMFS, and the USFWS if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with these federal agencies regarding permitting actions. However, DEC voluntarily contacted the agencies to notify them of the proposed permit issuance and to obtain listings of threatened and endangered species near the discharge. The permit has integrated specific monitoring and permit requirements applicable to those seafood processing facilities located near critical habitat areas. The permit requires permittees to collect data regarding threatened and endangered species during sea surface and shoreline monitoring activities and provide the data to the agency(ies).

DEC provided the USFWS a list of existing facilities and discharge locations on July 23, 2012, October 2015, and November – December 2016. DEC also provided discharge locations and discharge amounts of existing seafood processing facilities currently discharging to waters with listed critical area habitats within 3.0 miles. In an August 16, 2012 response, the USFWS indicated that discharges to waters in Kodiak and Chignik harbors could present significant risk to Steller's eiders in those harbors and provided recommendations for authorizations discharging to those areas

In 2016, the USFWS directed the Department to consult their Information for Planning and Consultation system (https://ecos.fws.gov/ipac) to obtain lists of threatened and endangered species within the jurisdiction of the USFWS in the discharge area. The Department used this website to gain an approximate determination that the area surrounding the discharges may contain endangered Short-tailed Albatross, threatened Steller's eiders, threatened northern sea otters, and critical habitat for northern sea otters.

In 2016, NOAA/NMFS directed the Department to consult their Marine Mammal Species Range and Critical Habitat Interactive Map at http://alaskafisheries.noaa.gov/mapping/esa/. The Department used this website to make an approximate determination that the area surrounding the discharges may contain

endangered Steller sea lions, humpback whales, North Pacific right whales, and fin whales. Additionally, many of these discharges are located within 1.0 nautical mile of nesting seabird colonies identified to have 1,000 or more Black-legged Kittiwakes. Authorizations may incorporate site-specific water quality-based and threatened or endangered species-related requirements, as established in the permit.

This fact sheet and the permit will be submitted to the agencies for review during the public notice period, and any comments received from these agencies will be considered prior to issuance of the permit.

8.3. Essential Fish Habitat

Essential Fish Habitat (EFH) includes the waters and substrate (sediments, etc.) necessary for fish from commercially-fished species to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires federal agencies to consult with NOAA 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 NOAA on EFH. However, DEC voluntarily contacted NOAA to notify them of the proposed permit issuance and to obtain listings of EFH in the area. NOAA has generally directed the Department to consult their EFH Mapper at http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html to obtain locations of EFH in the area of proposed discharges. The Department used this website to make an approximate determination that the area of proposed discharges could be EFH for all five species of Pacific salmon, skate, Pacific cod, sculpin, arrowtooth flounder, yellowfin sole, squid, walleye pollock, rock sole, and flathead sole.

Additionally, during permit development for a separate seafood processing general permit, AKG523000 Offshore Seafood Processors, NMFS and the ADF&G provided comment that anchoring and discharge of seafood waste should not occur into or onto “living substrates,” such as submerged aquatic vegetation, kelp, or eelgrass. This recommendation has been directly incorporated into a requirement to perform seafloor surveys prior to placements of new outfalls. The protocol can be found in Permit Appendix G to assist the permittee and DEC in determining that siting requirements are being met. The pre-discharge survey provides information to DEC regarding the existing benthos prior to installation of an outfall and/or prior to restarting discharge from a pre-existing outfall that has not operated in 12 months or more. The pre-discharge survey is due with submittal of the NOI, prior to installation or operation of an inactive outfall.

DEC will provide NMFS with copies of the permit and fact sheet during the public notice period. Any comments received from NMFS regarding EFH will be considered prior to issuance of the permit.

8.4. Permit Expiration

The permit will expire five years from the effective date of the permit, but it may be administratively continued.

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Appendix A

EPA 2006 Existing and New Source Memorandum

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM **September 28, 2006**

OFFICE OF WATER

SUBJECT: **New Source Dates for Direct and Indirect Dischargers**

FROM: **Linda Boornazian, Director /s/**
Water Permits Division, Office of Wastewater Management
Office of Water

Mary Smith /s/
Engineering & Analysis Division, Office of Science & Technology
Office of Water

TO: **Regional Water Division Directors**

The Clean Water Act (CWA) requires the U.S. Environmental Protection Agency (EPA) to establish Federal standards of performance for new sources from which there are or may be discharges of pollutants for specified categories of sources. 33 U.S.C. § 1316 (Section 306). Section 306 requires a new source to meet a standard that reflects the greatest degree of effluent reduction that EPA determines can be achieved by application of the best available demonstrated technology, processes, operating methods, or other alternatives. 33 U.S.C. §1316. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, standards of performance for new sources should represent the most stringent controls attainable through the application of the best available control technology for all pollutants (i.e., conventional, non-conventional, and priority pollutants).

This memorandum summarizes EPA regulatory requirements for determining what sources are new sources. Specifically, this document provides a summary of relevant regulatory criteria for consideration in this determination as well as a listing of applicable new source dates used in making new source determinations.

The statutory provisions and EPA regulations contain legally binding requirements. This memorandum does not impose any new legally binding requirements on EPA, States or the regulated community. This memorandum does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling.

The general descriptions provided here may not apply to particular situations based upon the circumstances. Interested parties are free to raise questions and objections about the substance of this memorandum and the appropriateness of the application of this memorandum to a particular situation. EPA and other decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from those described in this memorandum where appropriate.

Mention of trade names or commercial products does not constitute an endorsement or recommendation for their use.

1. What Are the Practical Effects of a New Source Determination?

After the effective date of any applicable new source standard of performance, the CWA prohibits the owner or operator of any new source from operating the source in violation of that standard. 33 U.S.C. §1316(e), §1317(d). The CWA requires EPA to establish new source performance standards (NSPS) in the case of "direct dischargers", or sources that discharge directly to waters of the United States. 33 U.S.C. §1316. For "indirect dischargers", or sources that introduce pollutants to POTWs, EPA must establish pretreatment standards for new sources (PSNS). The promulgation of NSPS should represent the most stringent controls attainable through the application of the best available demonstrated control technology for all pollutants. PSNS represent the most stringent controls attainable for pollutants that pass through, interfere with, or are other wise incompatible with the operation of POTWs. 67 Fed. Reg. 64219 (October 17, 2002). PSNS are generally issued at the same time as NSPS. 33 U.S.C. §1317(c). Both PSNS and NSPS are referred to individually or collectively as "new source standards" in this memorandum.

New sources face more immediate compliance deadlines than existing sources. When EPA establishes new technology-based effluent limitations, existing direct dischargers must comply with such standards when their NPDES permits are issued, reissued, or modified. In practice, this means, in the case of a direct discharger whose permit is reissued just before EPA promulgates new limitations, that the discharger may not be required to comply for up to five years. In the case of existing indirect dischargers, EPA generally requires compliance with new pretreatment standards within three years of publication of the standard. In comparison, after the effective date of a new source standard, the CWA stipulates that it is unlawful for any owner or operator to operate such a source in violation of those standards. 33 U.S.C. 1316(e) and 1317(d). For both direct and indirect dischargers, the regulations specify that new sources "shall install and have in operating condition, and shall 'start up' all pollution control equipment" required to meet applicable standards prior to commencing discharge. The regulations also indicate that the owner or operator of a new source must meet all applicable standards within "the shortest feasible time (not to exceed 90 days)." 40 CFR 122.29(d)(4), 40 CFR 403.6(b).

If construction results in a new source, the discharger will be affected differently depending on what changes occurred at the site. The discharger's entire facility may be subject to new source standards, or, if the new source is a new installation of process equipment at an existing facility, part of the facility may be subject to existing source standards and other parts of the facility subject to new source standards.

Additionally, it should be noted that EPA-issued NPDES permits for new sources are deemed major Federal actions subject to the National Environmental Policy Act's (NEPA's) requirements, 33 U.S.C. §1371(c)(1). See also, 40 CFR Part 6, Subpart F at 6.600 et seq.

2. New Source Dates - Regulatory Background

Under the CWA, any source, the construction of which is commenced after promulgation of NSPS or publication of proposed PSNS for most indirect dischargers applicable to the source, is a new source. 33 U.S.C. §1316(a)(2). The term "source" means any building, structure, facility or installation from which there is or may be a discharge of pollutants. Because the statute broadly defines "construction" as "any placement, assembly, or installation of facilities or equipment (including contractual obligations to purchase such facilities or equipment) at the premises where such equipment will be used, including preparation work at such premises" (see Section 306(a) of the CWA), a number of activities may give rise to new source status. EPA's regulations provide specific criteria for determining when construction of a source is a new source. The new source criteria for direct dischargers, at 40 CFR 122.29(b), and for indirect dischargers, at 40 CFR 403.3(m), use essentially the same language. See Appendix A for the full regulatory text for both direct and indirect dischargers.

Perhaps the most fundamental step in determining whether a particular source is a new source is to determine whether its construction commenced after the applicable new source date. This step corresponds to the statutory definition of "new source" which includes within its scope "sources, the construction of which *commenced after the publication of proposed regulations*[1] *prescribing a standard of performance* ... if such standard is thereafter promulgated." (italics added) 33 U.S.C. §1316(a)(2). This step can be broken down into three separate questions: (a) did *construction* occur; (b) did construction *commence*; and (c) did construction commence *after the new source date*? The applicable new source date is the critical frame of reference in this step of the new source determination. New source dates are generally either the dates of the proposal of an applicable new source standard in the case of indirect dischargers, or the dates of promulgation in the case of direct dischargers. Appendix B includes a comprehensive listing of the applicable new source dates for each effluent guideline category.

[1] In practice, the new source dates are different depending on whether the source is a direct or indirect discharger. See Section 2.c for further discussion.

2.a. Did *construction* occur?

As previously noted, the CWA defines new sources as those *constructed* after the new source date (see, also, discussion below in 2.c). EPA emphasizes that a source, whether it is a direct or indirect discharger, may be either something as large-scale as a facility or something as small as a piece of equipment installed as part of an existing operation. The CWA defines "source" to include "any building, structure, facility, or installation" and defines construction to include "any placement, assembly, or installation of facilities and equipment." Thus, under the CWA, "construction" refers both to the construction of any building, structure, or facility, and to the installation of equipment. A "new source," then, is the placement, assembly or installation of facilities or equipment which commenced after the new source date and which satisfies the other regulatory criteria discussed below. As a consequence, a wide range of activities may potentially result in a new source classification. Throughout the remaining portions of this memorandum document, the words "facilities or equipment" will be used interchangeably with the term "source", and "building, structure, facility, or installation."

In addition, it is important to recognize that the "source" of a discharge from an industrial operation is the facility generating the discharge, not the system treating it. Mahelona v. Hawaiian Electric Company, Inc., 418 F. Supp 1328 (Aug. 27, 1976), 49 Fed. Reg. 38044 (Sept. 26, 1984). More specifically, the source of the discharge is the production or wastewater generating processes of the operation. The treatment system used to reduce pollutants in the waste stream, on the other hand, is not the source of the discharge. This distinction is significant for making new source determinations, especially for new construction at existing sites. Applying this approach, EPA has previously determined that a newly constructed facility is a new source even if its discharge is conveyed through an existing waste treatment system. 49 Fed. Reg. 38044 (Sept. 26, 1984). Similarly, in EPA's view, where an owner or operator makes changes only to its wastewater treatment systems, and no changes occur in the production or wastewater generating processes of the plant, the source should not be reclassified as a new source. Dischargers in the Centralized Waste Treatment (CWT) category are generally the exception to this principle. Unlike other industrial categories, because waste treatment *is* the industrial process for CWT facilities, new changes in treatment may very well trigger new source requirements.

EPA also points out that certain types of changes to the operation of a source are not considered construction for new source purposes, and therefore should not require that the source be reclassified as a new source. For instance, where the only change made is in the ownership or management of a source, without any associated changes to the internal processes of the operation, there is no new construction and, therefore, there is no new source.

2.b. Did construction *commence*?

The new source regulations explain that construction commences if an entity either undertakes or begins certain work as part of a continuous on-site construction program, or enters into contractual obligations to purchase facilities or equipment. 40 CFR 122.29(b)(4), 40 CFR 403.3(m)(3). EPA notes that the regulations recognize that construction commences not only after the traditional physical aspects of construction have begun, but also after the associated purchase orders or contracts have been agreed upon (see further discussion below). The initiation of either one of these activities represents triggering events for the new source analysis.

Physical Commencement of Construction

The new source regulations clarify what types of actual physical construction may signal the commencement of construction. One type of activity is the "placement, assembly, or installation of facilities or equipment." 40 CFR 122.29(b)(4)(i)(A), 40 CFR 403.3(m)(3)(i)(A). The other type of activity is "significant site preparation work, including clearing, excavation, or removal of existing buildings, structures, or facilities" related to the placement, assembly, or installation of facilities or equipment. The scope of the activities covered highlights the fact that the regulations capture not only the construction of a new or renovated building, structure, or facility, but also smaller scale activities, such as the installation of equipment (e.g., a new process tank).

It is also noteworthy that the new source regulations *do not* specify *new* facilities or *new* equipment being placed, assembled, or installed. Therefore, construction may commence if an entity reassembles old equipment or relocates it in a new location. For example, in certain circumstances, EPA has concluded that construction of a new source would commence when moving existing equipment into an existing building that did not previously have an industrial discharge to the sewer. 53 FR 40562 at 40602 (October 17, 1988).

Commencement of Construction by Purchase Contract

As noted previously, construction can sometimes commence at a point prior to the initiation of any placement, assembly, or installation of facilities or equipment, or of any related site preparation work. The new source regulations provide that construction may begin when the owner or operator has entered into a binding contractual obligation to purchase facilities or equipment intended to be used for operational purposes within a reasonable period of time. 40 CFR 122.29(b)(4)(ii), 40 CFR 403.3(m)(3)(ii). The initiation of a binding purchase contract is included as a triggering event because it may indicate the owner's or operator's intent to construct a source, represent a critical time in the commitment of resources towards construction, and, therefore, signal an opportunity to install more effective treatment or processes to meet a higher standard of performance.

There are some notable exceptions to this contract formation provision. The following types of contractual obligations do not cause the commencement of construction for new source purposes: options to purchase; contracts which can be terminated or modified without substantial loss; and contracts for feasibility, engineering, and design studies. 40 CFR 122.29(b)(4)(ii), 40 CFR 403.3(m)(3)(ii).

EPA emphasizes that the important moment in time for the discharger is the date construction commenced, and not the date on which the discharge of pollutants first occurs. (Note: The discharger is generally required to comply with the standards upon commencement of discharge.) This distinction is important, since the date construction commences occurs at a point in time prior to the date the discharge begins, and is consistent with the purpose of the new source requirements to incorporate new treatment technologies when the owner or operator has the opportunity to do so.

2.c. Did construction commence *after the new source date*?

To be considered a new source, the construction must have commenced after the applicable new source date. The new source dates are critical to the new source analysis. If construction commenced after the new source date, there is a possibility that the source could be considered a new source if it meets the regulatory criteria on 40 CFR 122.29(b) or 403.3(m)(1). However, if the construction begins before the new source date, the source will generally be considered an existing source, not subject to new source standards, unless there was other construction after the new source date which constitutes a "total replacement" or is "substantially independent from the existing source" (see 40 CFR 122.29(b)(ii) and (iii) and 40 CFR 403.3(m)(1)(ii) and (iii)). Similarly, if construction commenced before the new source date, and ends after the new source date, the source would generally be considered an existing source, unless there was other construction after the new source date which constitutes a total replacement or is substantially independent from the existing source.

New source dates are either the dates of proposal of an applicable new source standard in the case of indirect dischargers or the dates of promulgation in the case of direct dischargers. The statute provides that the date for purposes of determining whether a source is a new source is the date of publication of a proposed standard for all dischargers, as long as the standard is thereafter promulgated in accordance with section 306 (33 U.S.C. §1316(a)(2)). These dates may differ from the proposal date, however, depending on whether the source is a direct or indirect discharger. The new source date for direct dischargers is the date on which an applicable new source standard is promulgated.[2] EPA notes that the regulations specify the new source date is the date of *proposal* only if the standard is promulgated within 120 days. Because

[2] EPA regulations promulgated in 1985 provide that, for the purpose of judicial review, the time and date of EPA action in promulgation of a Federal Register notice is the date two weeks after the notice appears in the Federal Register (see 40 CFR 23.2). For that reason, EPA has added two weeks to the publication date for new source dates for direct discharge categories which have been promulgated since 1985.

EPA has rarely finalized these standards in fewer than 120 days, this provision has not often come into play. In comparison, EPA regulations provide that the new source date for indirect dischargers is the date on which the pretreatment standard for new sources is *proposed*. 40 CFR 403.3(m)(1). In addition, EPA has varied from this general rule of thumb in some instances when establishing new source dates for either direct or indirect dischargers for certain new or revised effluent guidelines. Refer to Appendix B.

If you have any questions, please feel free to contact Greg Schaner at (202) 564-0721 or Jan Pickrel at (202) 564-7904.

cc: Water Division Directors
Regions 1 - 10

APPENDIX A New Source Regulatory Text

APPENDIX B New Source Dates by Effluent Guideline Category

Appendix A
New Source Regulatory Text

1. Regulatory Definitions Applicable to Direct Dischargers

40 CFR 122.2

"New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:

(a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or

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

40 CFR 122.29

"(a) *Definitions.* (1) *New source* and *new discharger* are defined in §122.2. [See Note 2.]

(2) *Source* means any building, structure, facility, or installation from which there is or may be a discharge of pollutants.

(3) *Existing source* means any source which is not a new source or a new discharger.

(4) *Site* is defined in §122.2;

(5) *Facilities or equipment* means buildings, structures, process or production equipment or machinery which form a permanent part of the new source and which will be used in its operation, if these facilities or equipment are of such value as to represent a substantial commitment to construct. It excludes facilities or equipment used in connection with feasibility, engineering, and design studies regarding the source or water pollution treatment for the source.

(b) *Criteria for new source determination.* (1) Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets the definition of "new source" in §122.2, and

(i) It is constructed at a site at which no other source is located; or

(ii) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Director shall consider

such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

(2) A source meeting the requirements of paragraphs (b)(1) (i), (ii), or (iii) of this section is a new source only if a new source performance standard is independently applicable to it. If there is no such independently applicable standard, the source is a new discharger. See §122.2.

(3) Construction on a site at which an existing source is located results in a modification subject to §122.62 rather than a new source (or a new discharger) if the construction does not create a new building, structure, facility, or installation meeting the criteria of paragraph (b)(1) (ii) or (iii) of this section but otherwise alters, replaces, or adds to existing process or production equipment.

(4) Construction of a new source as defined under §122.2 has commenced if the owner or operator has:

(i) Begun, or caused to begin as part of a continuous on-site construction program:

(A) Any placement, assembly, or installation of facilities or equipment; or

(B) Significant site preparation work including clearing, excavation or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

(ii) Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation with a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility engineering, and design studies do not constitute a contractual obligation under the paragraph.

(c) *Requirement for an environmental impact statement.* (1) The issuance of an NPDES permit to new source:

(i) By EPA may be a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA), 33 U.S.C. 4321 *et seq.* and is subject to the environmental review provisions of NEPA as set out in 40 CFR part 6, subpart F. EPA will determine whether an Environmental Impact Statement (EIS) is required under §122.21(l) (special provisions for applications from new sources) and 40 CFR part 6, subpart F;

(ii) By an NPDES approved State is not a Federal action and therefore does not require EPA to conduct an environmental review.

(2) An EIS prepared under this paragraph shall include a recommendation either to issue or deny the permit.

(i) If the recommendation is to deny the permit, the final EIS shall contain the reasons for the recommendation and list those measures, if any, which the applicant could take to cause the recommendation to be changed;

(ii) If the recommendation is to issue the permit, the final EIS shall recommend the actions, if any, which the permittee should take to prevent or minimize any adverse environmental impacts;

(3) The Regional Administrator, to the extent allowed by law, shall issue, condition (other than imposing effluent limitations), or deny the new source NPDES permit following a complete evaluation of any significant beneficial and adverse impacts of the proposed action and a review of the recommendations contained in the EIS or finding of no significant impact.

(d) *Effect of compliance with new source performance standards.* (The provisions of this paragraph do not apply to existing sources which modify their pollution control facilities or construct new pollution control facilities and achieve performance standards, but which are neither new sources or new dischargers or otherwise do not meet the requirements of this paragraph.)

(1) Except as provided in paragraph (d)(2) of this section, any new discharger, the construction of which commenced after October 18, 1972, or new source which meets the applicable promulgated new source performance standards before the commencement of discharge, may not be subject to any more stringent new source performance standards or to any more stringent technology-based standards under section 301(b)(2) of CWA for the soonest ending of the following periods:

(i) Ten years from the date that construction is completed;

(ii) Ten years from the date the source begins to discharge process or other nonconstruction related wastewater; or

(iii) The period of depreciation or amortization of the facility for the purposes of section 167 or 169 (or both) of the Internal Revenue Code of 1954.

(2) The protection from more stringent standards of performance afforded by paragraph (d)(1) of this section does not apply to:

(i) Additional or more stringent permit conditions which are not technology based; for example, conditions based on water quality standards, or toxic effluent standards or prohibitions under section 307(a) of CWA; or

(ii) Additional permit conditions in accordance with §125.3 controlling toxic pollutants or hazardous substances which are not controlled by new source performance standards. This includes permit conditions controlling pollutants other than those identified as toxic pollutants or hazardous substances when control of these pollutants has been specifically identified as the method to control the toxic pollutants or hazardous substances.

(3) When an NPDES permit issued to a source with a "protection period" under paragraph (d)(1) of this section will expire on or after the expiration of the protection period, that permit shall require the owner or operator of the source to comply with the requirements of section 301 and any other then applicable requirements of CWA immediately upon the expiration of the protection period. No additional period for achieving compliance with these requirements may be allowed except when necessary to achieve compliance with requirements promulgated less than 3 years before the expiration of the protection period.

(4) The owner or operator of a new source, a new discharger which commenced discharge after August 13, 1979, or a recommencing discharger shall install and have in operating condition, and shall "start-up" all pollution control equipment required to meet the conditions of its permits before beginning to discharge. Within the shortest feasible time (not to exceed 90 days), the owner or operator must meet all permit conditions. The requirements of this paragraph do not apply if the owner or operator is issued a permit containing a compliance schedule under §122.47(a)(2).

(5) After the effective date of new source performance standards, it shall be unlawful for any owner or operator of any new source to operate the source in violation of those standards applicable to the source."

2. Regulatory Definitions Applicable to Indirect Dischargers

40 CFR 403.3(m)

(1) The term New Source means any building, structure, facility or installation from which there is or may be a Discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under section 307(c) of the Act which will be applicable to such source if such Standards are thereafter promulgated in accordance with that section, provided that:

(i) The building, structure, facility or installation is constructed at a site at which no other source is located; or

(ii) The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) The production or wastewater generating processes of the building, structure, facility or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source should be considered.

(2) Construction on a site at which an existing source is located results in a modification rather than a New Source if the construction does not create a new building, structure, facility or installation meeting the criteria of paragraphs (m)(1)(ii) or (m)(1)(iii) of this section, but otherwise alters, replaces, or adds to existing process or production equipment.

(3) Construction of a new source as defined under this paragraph has commenced if the owner or operator has:

(i) Begun, or caused to begin as part of a continuous onsite construction program:

(A) Any placement, assembly, or installation of facilities or equipment; or

(B) Significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

(ii) Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under this paragraph." *[40 CFR § 403.3(m)]*

Appendix B
New Source Dates
by Effluent Guideline Category

EPA has promulgated regulations under the Clean Water Act (CWA) that establish effluent limitations guidelines for existing sources, standards of performance for new sources and pretreatment standards for new and existing sources. EPA has codified these regulations at 40 CFR. Subchapter N. EPA has published effluent guidelines for 56 major industrial categories (over 450 subcategories) since the passage of the 1972 CWA. These regulations limit the discharge of pollutants to surface waters by point source dischargers ("direct dischargers"). These regulations also limit the introduction of pollutants into publicly owned treatment works (POTWs) by industrial users ("indirect dischargers"). The CWA and EPA regulations define when a source is a "new source." A discharger is defined as a "new source" in CWA sections 306(a)(2) and 307(c) and 40 CFR 122.2 (for direct dischargers) and 403.3(m) (for indirect dischargers). In general, a facility is a "new source" if it commences construction after either the date of promulgation of pretreatment standards for new sources applicable to an indirect discharger or the date of publication of a proposed pretreatment standards for new sources applicable to an indirect discharger.

The table below lists new source dates for direct or indirect dischargers based on regulatory definitions. In some cases, effluent guidelines in 40 CFR Chapter I, Subchapter N, specify New Source Dates, and these dates are reported in the table below. If dates are not specified in the rule language, EPA relied on the regulatory definitions of "New Source," which are cited above. Pretreatment regulations state that the New Source date for indirect dischargers is the date on which EPA publishes the proposed rule, as long as the proposed standard is later finalized (40 CFR 403.3(m)). For direct dischargers, 40 CFR 122.2 states that the New Source date is the proposal date if the standard is finalized within 120 days after its proposal; otherwise, the New Source date is the "promulgation date." According to February 1985 EPA regulations, the "promulgation date" is the date on which the rule is promulgated for the purposes of judicial review, which is two weeks after the rule appears in the Federal Register (see 40 CFR 23.2). Prior to February 1985, the date on which the final rule was published was considered the promulgation date.

This document is not a regulation itself, nor does it substitute for any requirements under the CWA or EPA's regulations. Thus, it does not impose legally binding requirements on EPA, states or the regulated community. While EPA has made every effort to ensure the accuracy of this table, dischargers' obligations are determined, in the case of direct dischargers, by the terms of their NPDES permit and the CWA and EPA's regulations, and, in the case of indirect dischargers, by permits or equivalent control mechanisms issued to POTW industrial users and the CWA and EPA regulations. Nothing in this document changes any statutory or regulatory requirement. In the event of a conflict between the discussion in this memorandum and any permit or regulation, this document would not be controlling.

40 CFR Part	Category	New Source Date for Direct Dischargers	New Source Date for Indirect Dischargers
467	Aluminum Forming	Subparts A-F: 10/24/83	Subparts A-F: 11/22/82
427	Asbestos Manufacturing	Subparts A-K: 10/30/73[1]	Not Applicable
461	Battery Manufacturing	Subparts A-G: 3/9/84	Subparts A-G 11/10/82
407	Canned and Preserved Fruits and Vegetables Processing	Subparts A-H: 3/21/74	Not Applicable

[1] The rule was finalized within 120 days of its October 30, 1973, proposal (38 FR 22606).

40 CFR Part	Category	New Source Date for Direct Dischargers	New Source Date for Indirect Dischargers
408	Canned and Preserved Seafood Processing	Subparts A-J, N: 6/26/74 Subparts O-AG: 12/1/75	Not Applicable
458	Carbon Black Manufacturing	Subparts A-D: 1/9/78	Subparts A-D: 5/18/76
411	Cement Manufacturing	Subparts A-C: 2/20/74	Not Applicable
437	Centralized Waste Treatment (CWT)	Subparts A-D: 1/5/01	Subparts A-D: 1/13/99
434	Coal Mining	Subparts B-E, H 5/4/84[2] Subpart G 2/22/02[3]	Not Applicable
465	Coil Coating	Subparts A-C: 12/1/82 Subpart D: 11/17/83	Subparts A-C: 1/12/81 Subpart D: 2/10/83
412	Concentrated Animal Feeding Operations (CAFO)	Subparts A-B: 2/14/74 Subparts C-D: 4/14/03[4]	Subpart B: 9/7/73
451	Concentrated Aquatic Animal Production	Subparts A-B: 9/7/04	Not Applicable
468	Copper Forming	Subpart A: 8/15/83	Subpart A: 11/12/82
405	Dairy Products Processing	Subparts A-L: 5/28/74	Not Applicable
469	Electrical and Electronic Components	Subparts A-B: 4/8/83 Subparts C-D: 12/14/83	Subparts A-B: 8/24/82 Subparts C-D: 3/9/83
413	Electroplating	Not Applicable[5]	See Metal Finishing[6]
457	Explosives Manufacturing	Not Applicable	Not Applicable
424	Ferroalloy Manufacturing	Subparts A-C: 2/22/74	Not Applicable
418	Fertilizer Manufacturing	Subparts A-D: 4/8/74 Subpart E: 1/16/76 Subparts F-G: 10/7/74[7]	Subparts A-D:[8] 12/7/73 Subpart E: 1/16/76 Subparts F-G: 10/7/74

[2] The New Source date is specified in 40 CFR 434.11(j)(1).
[3] The New Source date is specified in 40 CFR 434.11(j)(1).
[4] New Source date derived from the 10-year protection period (see 40 CFR 412.35(d) and 412.43(d)).
[5] Direct dischargers formerly regulated under Part 413 are now regulated under Part 433 (metal finishing).
[6] Pretreatment categorical standards in Part 413 currently apply only to job shop electroplaters and independent printed circuit board manufacturers that were in existence before the New Source date for Part 433 (metal finishing). Job shop electroplaters and independent printed circuit board manufacturers that are "New Sources" must comply with PSNS in Part 433. Except for these "existing" job shop electroplaters and independent printed circuit board manufacturers, all other operations formerly subject to Part 413 are now subject to Part 433.

40 CFR Part	Category	New Source Date for Direct Dischargers	New Source Date for Indirect Dischargers
426	Glass Manufacturing	Subpart A: 1/22/74 Subparts B-D: 2/14/74 Subparts E-G: 2/14/74 Subparts H, J-M: 1/16/75	Subparts H, K-M: 8/21/74
406	Grain Mills	Subparts A-J: 12/4/73[9]	Subparts A: 12/4/73
454	Gum and Wood Chemicals	Not Applicable	Not Applicable
460	Hospitals	Not Applicable	Not Applicable
447	Ink Formulating	Subpart A: 7/28/75	Subpart A: 2/26/75
415	Inorganic Chemicals	Subparts B-F, H, K-N, P, Q, T, V, W, AJ [$CuSO_4$ manufacturing], AH, AP, AU [$NiSO_4$ manufacturing], BB: 6/29/82 Subparts AJ [except $CuSO_4$ manufacturing], AU [except $NiSO_4$ manufacturing], BL - BO: 8/22/84	Subparts B - F, H, K-N, P, Q, V, AH, AJ [$CuSO_4$ manufacturing], AP, AU [$NiSO_4$ manufacturing], BB: 7/24/80 Subparts T, AA, AC, AE, AI, AJ [except $CuSO_4$ manufacturing], AL, AN, AQ, AR, AU [except $NiSO_4$ manufacturing],AX, BC, BH, BK-BO: 10/25/83
420	Iron and Steel Manufacturing	Subparts A & B: 11/18/02[10] Subpart C: 5/27/82 Subpart D, Semi-Wet: 10/31/02 Subpart D, Other: 5/27/82 Subparts E-L: 5/27/82 Subpart M: 10/31/02	Subparts A & B: 11/18/02[11] Subpart C: 1/7/81 Subpart D, Semi-Wet: 12/27/00 Subpart D, Other: 1/7/81 Subparts E-F,H-J,L: 1/7/81 Subpart M: 12/27/00
445	Landfills	Subparts A-B: 2/2/00	Not Applicable

[7] The rule was finalized within 120 days of its October 7, 1974, proposal.
[8] Section 41 8.46 (the PSNS under Subpart D) was suspended until further notice, at 40 FR 26275, June 23, 1975, effective July 20, 1975.
[9] The rule was finalized within 120 days of its December 4, 1973, proposal (38 FR 33438).
[10] Date specified in 40 CFR 420.14(a)(2), 420.16(a)(2), 420.24(b), and 420.26(a)(2).
[11] See previous footnote.

40 CFR Part	Category	New Source Date for Direct Dischargers	New Source Date for Indirect Dischargers
425	Leather Tanning and Finishing	Subparts A, B, D-I: 11/23/82 Subpart C: 4/4/88	Subpart A, B, D-I: 7/2/79 Subpart C: 1/21/87
432	Meat and Poultry Products	Subparts A-D: Small Facilities: 2/28/74[12] Others: 9/22/04 Subparts E-I: Small Facilities: 1/3/75[13] Others: 9/22/04 Subpart J-L: 9/22/04	Not Applicable
433	Metal Finishing	Subpart A: 7/15/83	Subpart A: 8/31/82
464	Metal Molding and Casting	Subparts A-D: 11/13/85	Subparts A-D: 11/15/82
438	Metal Products and Machinery	Subpart A: 6/12/03[14]	Not Applicable
436	Mineral Mining and Processing	Not Applicable	Not Applicable
471	Nonferrous Metals Forming and Metal Powders	Subparts A-J: 9/6/85	Subparts A-J: 3/5/84
421	Nonferrous Metal Manufacturing	Subparts B-I (except molybdenum acid plants), K-M: 3/8/84 Subparts N-AE, molybdenum acid plants in subpart I: 10/4/85 Subpart J: 2/4/88	Subparts B-I (except molybdenum acid plants), K-M: 2/17/83 Subparts N-AE, molybdenum acid plants in subpart I: 6/27/84 Subpart J: 1/22/87
435	Oil and Gas Extraction[15]	Subparts C (Onshore), D (Coastal), and E (Agriculture & Wildlife): 3/4/93 Subparts A and D (Synthetic-Based Drilling Fluids): 2/5/01	Subpart D: 2/17/95

[12] The 2004 Amendment did not revise NSPSs for small meat products facilities in Subparts A-I, so the 2004 New Source date does not affect these facilities.
[13] See previous footnote.
[14] Date specified in 40 CFR 438.15.
[15] See promulgated standards at 40 CFR 58 FR 12505 and 66 FR 6850 for complete information on the applicability of New Source standards.

40 CFR Part	Category	New Source Date for Direct Dischargers	New Source Date for Indirect Dischargers
440	Ore Mining and Dressing	Subparts A-F, J, M 12/3/82	Not Applicable
414	Organic Chemicals, Plastics, and Synthetic Fibers	Subparts B-H: 11/19/87	Subparts B-H: 3/21/83
446	Paint Formulating	Subpart A: 7/28/75	Subpart A: 2/26/75
443	Paving and Roofing Materials (Tars and Asphalt)	Subparts A-D: 7/28/75	Subparts A-D: 1/10/75
455	Pesticide Chemicals	Subparts A-B: 10/12/93 Subparts C, E: 11/20/96	Subparts A-B: 4/10/92 Subparts C, E: 4/14/94
419	Petroleum Refining	Subparts A-E: 10/18/82	Subparts A-E: 12/21/79
439	Pharmaceutical Manufacturing	Subparts A-D: 11/20/98[16]	Subparts A-D: 5/2/95
422	Phosphate Manufacturing	Subparts D-F: 6/23/76	Not Applicable
459	Photographic	Not Applicable	Not Applicable
463	Plastics Molding and Forming	Subparts A-C: 12/17/84	Not Applicable
466	Porcelain Enameling	Subparts A-D: 11/24/82	Subparts A-D: 1/27/81
430	Pulp, Paper, and Paperboard	Subparts B, E: 6/15/98[17] Subparts A, C, D, F, G, I-L: 11/18/82	Subparts B, E: 12/17/93 Subparts A, C, D, F, G, I-L: 1/6/81
428	Rubber Manufacturing	Subparts A-D: 2/21/74 Subparts E-J: 1/10/75	Subparts E-K: 8/23/74
417	Soap and Detergents Manufacturing	Subparts A-S: 4/12/74	Subpart Q: 12/26/73 Subparts O,P,R: 2/20/75
423	Steam Electric Power Generation	11/19/82[18]	10/14/80
409	Sugar Processing	Subpart A: 1/31/74 Subparts B, C: 12/7/73[19]	Not Applicable

[16] New Source date derived from the 10-year protection period (see 40 CFR 439.15(c), 439.35(c), and 439.45(b)).
[17] Date specified in 40 CFR 430.25(b) and 430.55(b). Refer to these sections for additional information regarding the applicability of NSPSs.
[18] NSPS promulgated were not removed via the 1982 regulation; therefore wastewaters generated by Part 423-applicable sources that were New Sources under the 1974 regulations are subject to the 1974 NSPS. The New Source date for the 1974 regulations was 10/8/1974.
[19] The rule was finalized within 120 days of its December 7, 1973, proposal (38 FR 33846).

40 CFR Part	Category	New Source Date for Direct Dischargers		New Source Date for Indirect Dischargers	
410	Textile Mills	Subparts A-I:	9/2/82	Not Applicable	
429	Timber Products Processing	Subparts A-P:	1/26/81	Subparts F-H:	10/31/79
442	Transportation Equipment Cleaning	Subparts A-D:	8/28/00	Subparts A-C:	6/25/98
444	Waste Combustors	Subpart A:	2/10/00	Subpart A:	2/6/98