Fact Sheet

Public Comment Start Date: October 30, 2008
Public Comment Expiration Date: December 3, 2008

The U.S. Environmental Protection Agency (EPA)
Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

Icicle Seafoods, Inc. (M/V Stellar Sea)

EPA Contact:
Kathleen Collins
206-553-2108;
800-424-4372, ext. 2108 (within Alaska, Idaho, Oregon and Washington)
collins.kathleen@epa.gov

EPA Proposes to Reissue NPDES Permit
EPA proposes to issue an individual NPDES permit to the M/V Stellar Sea seafood processor which is owned by Icicle, Inc. The draft permit places conditions on the discharge of pollutants from the facility to waters within 3 nautical miles of the Pribilof Islands which are waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a description of the discharge locations
- technical material supporting the conditions in the permit

Alaska State Certification
EPA is requesting that the Alaska Department of Environmental Conservation (ADEC) certify the NPDES permit for this facility, under section 401 of the Clean Water Act. The State is considering allowing a mixing zone to allow for the dispersion of fish waste within the water column. Additionally, the Alaska water quality standards at 18 AAC 70.910 allow ADEC to include a compliance schedule in an NPDES permit when water quality based effluent limits are being incorporated into the permit for the first time. The facilities have water quality based effluent limits for total residual chlorine and ammonia, and a one to two year compliance schedule may be needed to allow the facility time to install the necessary equipment to comply with the effluent limitations. Persons may request, in writing, that ADEC provide them with notice of ADEC's draft certification. Requests should be sent to:

Alaska Department of Environmental Conservation
Water Quality Division
Attn: Fran Roche
410 Willoughby, Suite 303
Juneau, Alaska 99801-1795

Consistency Determination under the Alaska Coastal Management Program
The State of Alaska, Department of Natural Resources (ADNR), Division of Coastal and Ocean Management (DCOM), intends to review these actions for consistency with the approved Alaska Coastal Management Program (ACMP). For more information concerning these reviews, please contact Jennifer Wing, State of Alaska, Department of Natural Resources (ADNR), Division of Coastal and Ocean Management (DCOM) at jennifer.wing@alaska.gov.

Public Comment
Persons wishing to provide comment on, or request a public hearing on the draft permit for this facility may do so in writing by the expiration date of the public comment period. A request for a public hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for public hearings must be in writing and should be submitted to EPA as described in the public comments section of the attached public notice.

After the public notice expires, and all comments have been considered, EPA's Regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. If no substantive comments are received, the conditions in the draft permit will become final and the permit will become effective upon issuance. If comments are received, EPA will address the comments and issue the permit. The permit will become effective 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available for Review
The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permit, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "http://epa.gov/r10earth/waterpermits.htm."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900, OWW-130
Seattle, Washington 98101
(206) 553-6251 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

EPA Alaska Operations Office
Room 537 Federal Building
222 West 7th Avenue, #19,
Anchorage, Alaska 99513

Acronyms

ADEC	Alaska Department of Environmental Conservation
AML	Average Monthly Limit
BOD_5	Biochemical oxygen demand, five-day
$^{\circ}C$	Degrees Celsius
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
lbs/day	Pounds per day
mg/L	Milligrams per liter
ml	milliliters
mgd	Million gallons per day
MSD	Marine sanitation device
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
QAP	Quality Assurance Plan
s.u.	Standard Units
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
USFWS	U.S. Fish and Wildlife Service
WQBEL	Water quality-based effluent limit

I. Permit Issuance Authority

Currently, EPA is the NPDES permitting authority in Alaska and issues all NPDES permits to facilities with point sources which discharge pollutants to waters of the United States. On May 1, 2008, the State of Alaska formally submitted an NPDES application to the EPA for authority to implement the NPDES permitting program in Alaska. EPA is scheduled to review and make a final decision on Alaska's NPDES program application by October 31, 2008. Pending the final decision, the NPDES permitting program may transfer to the State of Alaska on November 1, 2008. If this occurs, the State will issue the final permit for this facility.

II. Applicant

This fact sheet provides information on the draft NPDES permit for:

Icicle Seafoods, Inc (M/V Stellar Sea)

Mailing Address:
Icicle Seafoods, Inc
Mailing Address:
4019 21st Ave West
Seattle, WA 98119

Physical Location:
For purposes of this draft permit the vessel is located within 3 nautical miles of the Pribilof Islands

Facility contact: Michael Clutter

III. Facility Information

A. General Information

The Stellar Sea is a 281.4 foot floating seafood processor. This facility processes opilio and/or bairdi crab from January through May in the Pribilof Islands. This vessel has been processing in this location since 1992.

Crab harvesting vessels offload their catch by brailer while moored alongside the vessel. During crab processing the body shell and guts are removed, then the two leg sections are washed, cooked, cooled, and frozen. The facility processes while at anchor. Weather and sea conditions can change frequently and as a result the vessel moves frequently. It is not unusual to move daily. When the crab season is finished the Stellar Sea leaves the Pribilof Islands to process in other areas of Alaska.

The facility has submitted an application to process crab and associated wastes within 3 nautical miles of the Pribilof Islands from January through May 5th. The discharges include the following:

- Outfall 1 – refrigerator condenser water – 450,000 gallons per day (gpd) (discharge located on forward, starboard and port side)
- Outfall 2 – fresh water maker – 576,000 gpd seawater and brine
- Outfalls 3(a),3(d),3(e), 3(g), 3(h) – chlorinated crab processing water for ((a) crab butchering waste, (d) ambient tank water, (e) pre-chill tank water, (g) glaze tank water, (h) wash down water) - 2,160,000 gpd
- Outfall 3(c) – crab cooking water – 6000 gpd
- Outfall 3(f) – brine freezing tank – 6000 gpd
- Outfall 4 – galley freezer water – 8,208 gpd
- Outfall 5 – marine sanitation device waste water – 2000 gpd
- Outfalls 6 – 10 – generator/engine cooling water – 1,152,000 gpd
- Outfall 11 – Grey water system – 6,000 gpd
- Outfall 12 – Propulsion system – 288,000 gpd
- Outfalls 13-14 – Fire system – 1,152,000 gpd

The facility has the capacity to process 200,000 lbs of crab per day. The material remaining after processing (e.g., crab shells, viscera, and other waste portion of shellfish) is ground to ½ inch and discharged through a 6 inch pipe located on the aft, starboard side of the vessel. Approximately 78,000 lbs per day of the crab is discharged as waste. On a monthly basis the facility can potentially process 6 million pounds of crab, and discharge almost 2.4 million pounds of crab waste. The remainder of the discharges described above are discharged through various outfalls on either the starboard or port side of the ship. See Appendix A for a schematic of the outfall locations.

Table 1, below summarizes the amount of crab processed and the waste discharged through the Stellar Sea outfall since 1996.

TABLE 1: Stellar Sea

Stellar Sea	**Opilio Crab**		**Biardi Crab**	
Year	**Processed (lbs)**	**Waste discharged (lbs)**	**Processed (lbs)**	**Waste discharged (lbs)**
1996[1]	3,399,990	1,278,611	0	0
1997[1]	1,100,495	418,610	0	0
1998[1]	1,297,663	496,416	0	0
1999	5,799,805	2,146,985	0	0
2000	545,575	204,935	0	0
2001	406,723	147,208	0	0
2002	2,177,139	785,432	0	0
2003	759,049	258,096	0	0

Stellar Sea	Opilio Crab	Biardi Crab		
Year	**Processed (lbs)**	**Waste discharged (lbs)**	**Processed (lbs)**	**Waste discharged (lbs)**
2004	446,003	292,052	0	0
2005	1,777,176	645,856	0	0
2006 (Jan-Apr)	4,030,837	1,723,255	18,805	7,073
2007 (Feb-Mar)	6,259,293	2,225,916	0	0
2008	0	0	0	0
1. Information is taken from the *Ocean Discharge Criteria Evaluation for the Proposed Pribilof Islands Seafood Processing General NPDES Permit*, EPA, August 1998.				

B. Outfalls and Receiving Water Information

The facility has a number of different outfall locations. The location of each outfall and the associated waste discharge is depicted in Appendix A. The facility discharges to various locations in the Bering Sea that are within three nautical miles of the Pribilof Islands. In general, the facility operates in and around St. Paul Island.

C. Compliance History

Overall, the facility has complied with the terms and conditions of the existing general permit for the Pribilof Islands.

IV. Receiving Water

A. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Federal regulations at 40 CFR 122.44(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected states. A State's water quality standards are composed of use classifications and numeric and/or narrative water quality criteria. The use classification system designates the beneficial uses (e.g., aquatic life, drinking water supply, contact recreation) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The State of Alaska's water quality standards protect the Bering Sea for: Water Supply (aquaculture, seafood processing, industrial), water recreation (contact recreation, secondary recreation), growth and propagation of fish, shellfish, other

aquatic life, and harvesting for consumption of raw mollusks or other raw aquatic life (18 AAC 70.020(2)).

B. Ocean Discharge Criteria Evaluation

The Ocean Discharge Criteria regulations at 40 CFR Part 125 Subpart M establish guidelines for permitting discharges into the territorial seas, the contiguous zone, and the ocean. EPA uses these guidelines to conduct an Ocean Discharge Criteria Evaluation (ODCE) to determine, on the basis of available information, whether or not the discharge will cause unreasonable degradation of the marine environment. Unreasonable degradation of the marine environment is defined as:

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

The regulations establish ten criteria to be considered in the determination of unreasonable degradation. These factors include the amount and nature of the pollutants, the potential transport of the pollutants, the character and uses of the receiving water and its biological communities, the existence of special aquatic sites (e.g., parks, refuges, etc), and applicable requirements of an approved Coastal Zone Management Program plan, and potential impacts on water quality, ecological health, and human health (40 CFR 125.122).

EPA has updated the *Ocean Discharge Criteria Evaluation for the Proposed Pribilof Islands General NPDES Permit* that was prepared for the 1999 General Permit for the Pribilof Islands. The update provides information on the conditions in the proposed permit for this facility, and the types and amount of seafood processing that is occurring within three nautical miles of the Pribilof Islands. The 2008 Ocean Discharge Criteria Evaluation document relies on the data and conclusions of the 1999 document. EPA believes it is appropriate in this case because the discharges authorized in the draft permit for this facility are substantially the same as those evaluated in the 1998 Ocean Discharge Criteria Evaluation and because EPA not authorizing halibut seafood waste through outfall 001. EPA's determination that the discharges authorized for this individual permit will not cause unreasonable degradation of the marine environment, provided the discharges comply with the limitations and conditions of the permit, is based on the factual information provided in the 1998 *Ocean Discharge Criteria Evaluation*.

C. Mixing Zones

A mixing zone is a limited area or volume of water where initial dilution of an effluent discharge takes place. States may, at their discretion, adopt certain policies in their water quality standards affecting the application and implementation of standards (40 CFR 131.13). Mixing zones are an example of such a policy. The State of Alaska has a mixing zone policy

in its water quality standards (18 AAC 70.240). ADEC is considering authorizing a small mixing zone for the residues within the water column. This is explained in more detail in Appendix B, Part C.2 (Residues).

D. Zone of Deposit

The Alaska water quality standards at 18 AAC 70.210 have a water quality standard that allows the State to certify a permit that "…allows deposit of substances on the bottom of marine waters within limits set by the department….the standards must be met at every point outside the zone of deposit. In no case may the water quality standards be violated in the water column outside the zone of deposit by any action, including leaching from, or suspension of, deposited materials…." A zone of deposit has not been authorized by ADEC for this facility. Given that this is a floating seafood processor that changes its discharge location frequently it is unlikely that seafood would accumulate on the sea floor. To ensure that seafood does not accumulate on the sea floor, the permit is requires the facility to move, at least ½ mile every 7 days.

V. NPDES Permit Issuance

A. National Environmental Policy Act

An Environmental Assessment (EA) was completed for the discharge of crab and associated wastes (Environmental Assessment for the Proposed Pribilof Islands Seafood Processing General NPDES Permit, EPA, Region 10, August 1998). Pursuant to EPA's National Environmental Policy Act (NEPA) implementing regulations at 40 CFR 6.204(a)(1)(iv), EPA has reviewed the previous EA and determined that the conclusions of the Finding of No Significant Impacts (FONSI) are still valid. There will be no degradation of the receiving waters and the permit conditions in the proposed permit either do not change, or are more environmentally protective. As such, this permit reissuance meets the criteria for a categorical exclusion. Furthermore, no extraordinary circumstances are involved with this permit action pursuant to 40 CFR 6.204(b).

B. Authorized Discharges

Icicle Seafoods, Inc (M/V Stellar Sea) applied to discharge from the following outfalls:

- Outfall 1 – refrigerator condenser water
- Outfall 2 – fresh water maker
- Outfalls 3(a),(d),(e), (g), (h) – chlorinated crab processing water ((a) crab butchering waste, (d) ambient tank water, (e) pre-chill tank water, (g) glaze tank water, (h) wash down water))
- Outfall 3(c) – crab cooking water
- Outfall 3(f) – brine freezing tank
- Outfall 4 – galley freezer water
- Outfall 5 – marine sanitation device waste water
- Outfalls 6 – 10 – generator/engine cooling water

- Outfall 11 – Grey water system (galley, bath, shower water)
- Outfall 12 – Propulsion system
- Outfalls 13-14 – Fire system

This permit authorizes all of the above discharges.

VI. Effluent Limitations and Conditions

A. Basis for Effluent Limitations and Conditions

The CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the minimum level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and these limits may be more stringent than technology-based effluent limits.

The statutory, regulatory and scientific bases for the proposed effluent limits are provided in Appendices B, C and D of this fact sheet.

B. Proposed Prohibited Discharges, Effluent Limitations, and Other Conditions

1) The proposed permit prohibits discharge in the following areas:

- Within 3 nautical miles of Walrus Island.
- Within one-half nautical mile of Sea Lion Rock and Northeast Point on St. Paul Island.
- Within one-half nautical mile of Dalnoi Point and South Rookery on St. George Island.
- Within one-half nautical mile of the Alaska Maritime National Wildlife Refuge, Bering Sea Unit.

2) The proposed permit prohibits any discharge starting May 1st in the following areas:

- Within one-half nautical mile of land owned and/or managed by the National Marine Fisheries Service for the protection of northern fur seal rookeries and haulout areas.
- Within one-half nautical mile of land owned and/or managed by the U.S. Fish and Wildlife Service for the protection of seabird and seabird nesting areas.

3) The proposed permit prohibits the discharge of the following:

- Discharge from a severed, failed or leaking outfall.
- Discharge of any equipment or incidental items (e.g. gloves, earplugs, rubber bands, etc.) entrained in the waste conveyance system or the waste treatment system.
- The discharge of any wastewaters that contain floating solids, debris, sludge, deposits, foam, scum, or other residues which cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines; or cause a sludge solid or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shoreline, except for incidental foam and scum produced by the discharge of seafood catch transfer water.

  NOTE: This provision may change as it relates to residues within the water column because ADEC is considering authorizing a small mixing zone for residues which occur within the water column. This mixing zone is intended to recognize the fact that residues will occur in the water column, to some degree, prior to being fully dispersed by wave and tidal action.
- Discharges of oil and grease that cause a film, sheen, or discoloration on the water.

4) The proposed effluent limits and requirements are provided below:

- Discharge through the outfall must be a minimum of three (3) feet below the sea surface.
- All seafood processing wastes and incidental seafood processing waste in floor drains must be routed through a waste conveyance system and waste treatment system prior to discharge through outfall 3(a).
- The discharge from outfall 3(a) is authorized from January 1st through May 5th each year and must be limited as specified in Table 2.

TABLE 2: Effluent Limitations for Outfall 3(a)

Parameter	Average Monthly Limit	Maximum Daily Limit	Range	Instantaneous Maximum Limit
Allowable size of seafood processing waste & incidental seafood processing waste	N/A	N/A	N/A	0.5 inches
Volume of crab waste	N/A	78,000	N/A	N/A
Total Ammonia	4.7 mg/L 42.3 lbs/day	9.3 mg/L 83.8 lbs/day	N/A	N/A
Total Residual Chlorine[1]	6.2 µg/L 0.06 lbs/day	12.4 µg/L 0.11 lbs/day	N/A	N/A
pH	N/A	N/A	6.5-8.5 s.u.	

1. The average monthly and maximum daily concentration limits for chlorine are not quantifiable using EPA approved test methods. The discharge will be in compliance with the concentration based effluent limits for chlorine provided the average monthly, and maximum daily chlorine residual concentrations are at or below the compliance evaluation level of 100 µg/L. The discharge will be in compliance with the mass based effluent limits for chlorine provided the average monthly, and maximum daily chlorine residual concentrations are at or below the compliance evaluation level of 0.9 lbs/day.

- The State may authorize a compliance schedule to allow the facility time to make process changes and/or install the treatment technology necessary to meet the effluent limits for ammonia and chlorine.
- All sewage waste must be routed through a marine sanitation device (MSD) that meets the requirements of Coast Guard pollution control standards (see 33 CFR Part 159) and discharged in accordance with Coast Guard regulations. Discharges from malfunctioning or undersized MSDs is prohibited.

VII. Monitoring Requirements

A. Basis for Effluent, Surface Water, Shoreline, and Biological Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent, surface water, and biological data to determine if additional effluent limitations are required in the future, and/or to monitor effluent impacts on the receiving water. Therefore, receiving water, effluent, and biological monitoring have been incorporated into the draft permit.

B. Proposed Monitoring Requirements

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. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-

approved test methods (40 CFR Part 136), and if the Method Detection Limits for the test methods are less than the effluent limits.

Monitoring Requirements for Outfall 3(a)

Table 3 presents the proposed monitoring requirements for outfall 3(a). Samples must be collected when seafood processing is occurring.

In the past, crab seasons have lasted from a few weeks to several months. In order to obtain sufficient monitoring data the permit is requiring the following monitoring schedule:

(1) Ground seafood processing wastes must be analyzed daily.

(2) Four samples per calendar month are required for chlorine, ammonia, pH. If the facility operates from February 25th through March 20th, 4 samples should be collected for the month of February and 4 samples should be collected for the month of March.

(3) Oil and grease, BOD, TSS, and metals must be collected 5 times during each crab season.

(4) Sample collection for parts (2), and (3), above, may be collected on consecutive days as long as there is 24 hours between each sample collection.

This data will be used to determine compliance with effluent limits and/or to determine if additional effluent limitations may be needed in the next permit.

Finally, because the aquatic life, and human health criteria for metals are very low it is important to use analytical methods with low method detection limits. This will ensure that the data can be used to determine if the effluent has the potential to cause or contribute to an exceedance of a water quality standard. Analytical test methods with method detection limits below the aquatic life and human health criteria must be used to analyze samples. The draft permit requires the permittee to use test methods that achieve the method detection limits in Table 3.

Table 3. Outfall 3(a): Monitoring Requirements During Processing Periods

Parameter	Units	Sample Frequency	Sample Type	Method Detection Limit
Flow	mgd	Continuous	Recording	N/A
Size of seafood processing waste & incidental seafood processing waste	inches	Once per day	Grab	N/A
Volume of crab waste	lbs/day	Daily	Report	N/A
Total Residual Chlorine	µg/L	4/calendar month	Grab	N/A
Total Ammonia	mg/L	4/calendar month	Grab	N/A
pH	standard units	4/calendar month	Grab	N/A
Oil and grease	mg/L	5/crab season	Grab	N/A
BOD_5	mg/L	5/crab season	Grab	N/A
TSS	mg/L	5/crab season	Grab	N/A
Arsenic, total recoverable	µg/L	5/crab season	Grab	10
Copper, total recoverable	µg/L	5/crab season	Grab	1
Cadmium, total recoverable	µg/L	5/crab season	Grab	0.1
Lead, total recoverable	µg/L	5/crab season	Grab	0.1
Mercury, total	µg/L	5/crab season	Grab	0.005
Nickel, total recoverable	µg/L	5/crab season	Grab	5
Selenium, total recoverable	µg/L	5/crab season	Grab	2
Silver, total recoverable	µg/L	5/crab season	Grab	0.2
Zinc, total recoverable	µg/L	5/crab season	Grab	10

Table 4, below, presents the proposed monitoring requirements for outfall 3(h) when wash down activities are occurring.

Table 4. Outfall 3(h): Monitoring Requirements During Washdown Periods

Parameter	Units	Sample Frequency	Sample Type	Method Detection Limit
Flow	mgd	Continuous	Recording	N/A
Size of seafood processing waste & incidental seafood processing waste	inches	Once per day	Grab	N/A
Total Residual Chlorine	µg/L	Once per day	Grab	N/A
Total Ammonia	mg/L	1/calendar month	Grab	N/A
pH	standard units	1/calendar month	Grab	N/A

Monitoring Requirements for Outfall 1

Table 5, below, presents the proposed effluent monitoring requirements for outfall 1, refrigerator condenser water.

Table 5. Outfall 1 Effluent Monitoring Requirements

Parameter	Units	Sample Frequency	Sample Type	Method Detection Limit
Flow	mgd	Continuous	Recording	N/A
Total Ammonia	mg/L	1/ crab season	Grab	N/A
pH	standard units	1/ crab season	Grab	N/A

The above monitoring requirements are needed to ensure that the non-contact cooling water discharge is not being contaminated.

Monitoring Requirements for influent water

Table 6 below presents the proposed monitoring requirements for the influent water used to process crab.

Table 6. Monitoring Requirements for influent water

Parameter	Units	Sample Frequency	Sample Type	Method Detection Limit
Flow	mgd	Continuous	Recording	N/A
Arsenic, total recoverable	µg/L	5/crab season	Grab	10
Copper, total recoverable	µg/L	5/crab season	Grab	1
Cadmium, total recoverable	µg/L	5/crab season	Grab	0.1
Lead, total recoverable	µg/L	5/crab season	Grab	0.1
Mercury, total	µg/L	5/crab season	Grab	0.005
Nickel, total recoverable	µg/L	5/crab season	Grab	5
Selenium, total recoverable	µg/L	5/crab season	Grab	2
Silver, total recoverable	µg/L	5/crab season	Grab	0.2
Zinc, total recoverable	µg/L	5/crab season	Grab	10

The above monitoring is required to help determine the source of metal contamination.

Additional Monitoring Requirements

The following monitoring is required to ensure that the facility's systems are working properly and to ensure that effluent limitations and conditions are met.

1. Waste Conveyor system:

The waste conveyance and waste treatment system must be inspected daily whenever seafood processing occurs. This inspection is necessary to ensure that miscellaneous items (e.g., earplugs, rubber bands, etc.) are not entrained within the conveyance system and discharged through the outfall. A daily log must be maintained on site, and the results of the inspection must be submitted with the monthly discharge monitoring report.

2. Grinder System:

The grinder system must be inspected daily whenever seafood processing occurs. This inspection is necessary to confirm that the grinder(s) is (are): (1) operating, and (2) reducing the size of the seafood residues to one-half inch or smaller in any dimension. This will require inspecting the size of the ground residues reduced in grinding. A daily log must be maintained on site, and the results of the inspection must be submitted with the monthly discharge monitoring report.

3. Outfall:

The structural integrity of the outfall line 3(a) must be inspected once every year prior to crab season. The inspection must confirm that the outfall line is structurally sound. Results of the inspection must be submitted to EPA.

4. Sea surface monitoring and shoreline monitoring:
To ensure that Alaska's residue water quality standard[1] is attained, sea surface and shoreline monitoring is necessary. Sea surface and shoreline monitoring is required daily.

5. Biological Monitoring:
This monitoring is required to determine if seabirds or mammals are attracted to the seafood waste discharged from the outfall, and if they may be affected by the discharge. The following information must be gathered:

- Determine if, when and how many seabirds and/or marine mammals are attracted to the seafood waste discharge;
- Identification and number of birds and/or mammals attracted to discharge;
- Determine if birds/mammals are feeding on waste from discharge;
- Determine if wastes are getting in feathers or fur;
- Determine if interaction with the wastewater plume from the outfall causes seabirds or marine mammals to accumulate oils on their feathers or fur;
- Determine if there are any noticeable effects on birds/mammals from feeding on wastes;
- Determine if the discharge is attracting gulls or other birds not usually found in the Pribilof Islands (identify and count number of birds and mammals attracted to discharge); and,
- Identify day, weather and sea conditions, time and length of observation and other pertinent information occurring during observations.

C. Surface Water Monitoring

Table 7 presents the proposed surface water monitoring requirements for the draft permit. Samples must be taken from the effluent plume created in the receiving water from outfall 3(a), and at a location in the receiving water that is not influenced by the effluent plume. Receiving water samples must be collected when the facility is discharging seafood waste. Surface water monitoring results should be submitted on the appropriate Discharge Monitoring Report.

Surface water monitoring is required to assess whether additional effluent limits may be needed to protect the designated uses of the waterbody.

[1] 18 AAC 70.020(b)(2) – Floating solids, debris, sludge, deposits, foam, scum, or other residues may not alone or in combination with other substances or wastes, make the water unfit or unsafe for the use, or cause acute or chronic problem levels as determined by bioassay or other appropriate methods. May not alone or in combination with other substances, cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines, cause leaching of toxic or deleterious substances, or cause a sludge, solid or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines.

Table 7. Surface Water Monitoring Requirements from discharge plume

Parameter	Units	Sample Frequency	Sample Type	Method Detection Limit
Flow	mgd	Continuous	Recording	N/A
BOD_5	mg/L	1/ crab season	Grab	N/A
TSS	mg/L	1/ crab season	Grab	N/A
Salinity	g/kg	1/ crab season	Grab	N/A
Total Residual Chlorine	µg/L	1/ crab season	Grab	N/A
Total Ammonia	mg/L	1/ crab season	Grab	N/A
Oil and grease	mg/L	1/ crab season	Grab	N/A
Temperature	º C	1/ crab season	Grab	N/A
pH	standard units	1/ crab season	Grab	N/A
Arsenic, total recoverable	µg/L	1/crab season	Grab	10
Copper, total recoverable	µg/L	1/crab season	Grab	1
Cadmium, total recoverable	µg/L	1/crab season	Grab	0.1
Lead, total recoverable	µg/L	1/crab season	Grab	0.1
Mercury, total	µg/L	1/crab season	Grab	0.005
Nickel, total recoverable	µg/L	1/crab season	Grab	5
Selenium, total recoverable	µg/L	1/crab season	Grab	2
Silver, total recoverable	µg/L	1/crab season	Grab	0.2
Zinc, total recoverable	µg/L	1/crab season	Grab	10

VIII. Other Permit Conditions

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is complete, accurate and representative of the environmental or effluent condition. The facility is required to update its Quality Assurance Plan (QAP) within 30 days of the effective date of the final permit. The QAP shall be prepared in accordance with EPA guidance documents (*EPA Requirements for Quality Assurance Project Plans*, EPA/QA/R-5, and *Guidance for Quality Assurance Project Plans*, EPA/QA/G-5, and consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The QAP must be retained on site and made available to EPA and ADEC upon request.

B. Best Management Practices Plan

Section 402 of the CWA, and federal regulations at 40 CFR § 122.44(k) authorize EPA to require best management practices (BMPs) in NPDES permits. BMPs are measures that are intended to prevent or minimize the generation and potential release of pollutants to waters of the United States. These measures are important tools for waste minimization and pollution prevention, and should apply to all components of operation at the facility.

The draft permit requires the permittee to prepare and implement a BMP Plan within 60 days of the permit effective date. The intent of the BMP plan is to recognize the hazardous nature of various substances used at the facility, and the way in which these substances may be accidentally dispersed or released into the environment. The BMP Plan should incorporate

elements of pollution prevention as set forth in the Pollution Prevention Act of 1990, 42 U.S.C § 13101 to 13109.

C. Standard Permit Provisions

Sections III, IV, and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

IX. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species.

The following federally-listed endangered and threatened species may be located in the vicinity of the discharge.

Threatened, Endangered, Proposed, and Sensitive Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Status
Marine Mammals		
Bowhead whale	*Balaena mysticetus*	FE, SSC
North Pacific right whale	*Eubalaena japonica*	FE, SE
Sperm whale	*Physeter macrocephalus*	FE
Blue whale	*Balaenoptera musculus*	FE, SE
Fin whale	*Balaenoptera physalus*	FE
Humpback whale	*Megaptera novaeangliae*	FE, SE
Steller sea lion	*Eumetopias jubatus*	FE, SSC
Sea otter	*Enhydra lutris kenyoni*	FT, SSC
Northern fur seal	*Callorhinus ursinus*	D
Seabirds		
Short-tailed albatross	*Phoebastria albatrus*	FE, SE
Waterfowl		
Steller's eider	*Polysticta stelleri*	FT, SSC
Spectacled eider	*Somateria fischeri*	FT, SSC

FE = federally listed endangered; FT = federally listed threatened; FP = federally proposed for listing; SE = state-listed endangered; ST = state-listed threatened; SSC = state species of concern; R = rare; D = depleted stock (Marine Mammal Protection Act designation)

EPA has prepared a Biological Evaluation for this permit (*Biological Evaluation of Endangered, Threatened, and Special Species Status in the Pribilof Islands*, August 2008) and has determined that the issuance of this permit will have no effect on the Bowhead whale,

North Pacific right whale, Sperm whale, Blue whale, and Fin whale, EPA has determined that the issuance of this permit is not likely to adversely affect the Humpback whale, Sea otter, Short-tailed albatross, Stellers eider, and Spectacled eider, and the Stellar sea lion. EPA is in the process of consulting with the NOAA Fisheries and the USFWS. The final permit may be modified as a result of consultation.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the water and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH; and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Several specific mechanisms by which offshore seafood processors could impact aspects of essential fish habitat have been described in the *Biological Evaluation of Endangered, Threatened, and Special Species Status in the Pribilof Islands*, August 2008. For example, various fish and crab species have a diet composed mainly of small benthic invertebrates. Impacts from accumulated processing wastes can alter benthic habitat, reduce locally associated invertebrate populations and lower dissolved oxygen levels in overlying waters. This could result in reduced prey availability or loss of habitat for some of the EFH managed species. A number of important species including, walleye pollock, Pacific cod, rock sole, and sand lance release demersal eggs. Seafood waste discharges resulting in waste piles are typically anoxic due to decay and decomposition of the waste which could affect the viability of the demersal eggs. In addition, demersal eggs could be smothered if located beneath a discharge.

EPA expects that these effects, while possible, are likely to be limited in extent for several reasons. First, the spatial scale of impacts to EFH would be limited given the large geographic ranges of EFH species' habitat and the limited aggregate size of offshore seafood processor discharges relative to other available coastal water. In addition, some EFH species may have the ability to avoid areas where seafood processing discharges are located. Secondly, in areas with strong currents and high tidal ranges, waste materials disperse rapidly. Two of the seafood processors are floating seafood processors that are likely to be at least 1 nm from shore, therefore the seafood processing discharges from these vessels would be in areas with strong currents and high tidal ranges and would dissipate rapidly preventing accumulation of the seafood discharge in waste piles.

Due to the possibility that adverse effects on EFH may arise from offshore seafood processors, and because the provisions in the regulation do not ensure that adverse effects to EFH will be avoided, EPA has determined that EPA's proposed approval of this NPDES permit may adversely affect essential fish habitat.

C. Marine Mammal Protection Act (16 U.S.C. § 1361)

Section 2 of the marine Mammal Protection Act states that marine mammals are resources of great international significance, aesthetic, recreational, and economic, and should be protected, conserved, and encouraged to develop optimum populations. In particular, efforts should be made to protect the rookeries, mating ground, and areas of similar significance for each species of marine mammal from the adverse effect of human actions.

EPA has evaluated the effects of the issuance of this permit on Northern Fur Seals, which have been designated as depleted under the Marine Mammal Protection Act (see Appendix F). Compliance with the conditions of the permit and appropriate waste management practices should result in no adverse effects to northern fur seals populations. However, indirect effects may occur due to increased vessel traffic including disturbance, increased incidental takes, and greater likelihood of spill or discharges of materials (e.g., fuels and oil). Vessel traffic in close proximity to fur seal habitat may lead to disturbance or modification of such areas.

D. State Certification

Section 401 of the CWA requires EPA to seek state certification before issuing a final NPDES permit to assure the permit meets state water quality standards, including the antidegradation policy.

E. Permit Expiration

The permit will expire five years from the effective date.

X. References

Alaska Code. 2003. *Department of Environmental Conservation, 18 AAC 70, Water Quality Standards,* As amended through June 26, 2003

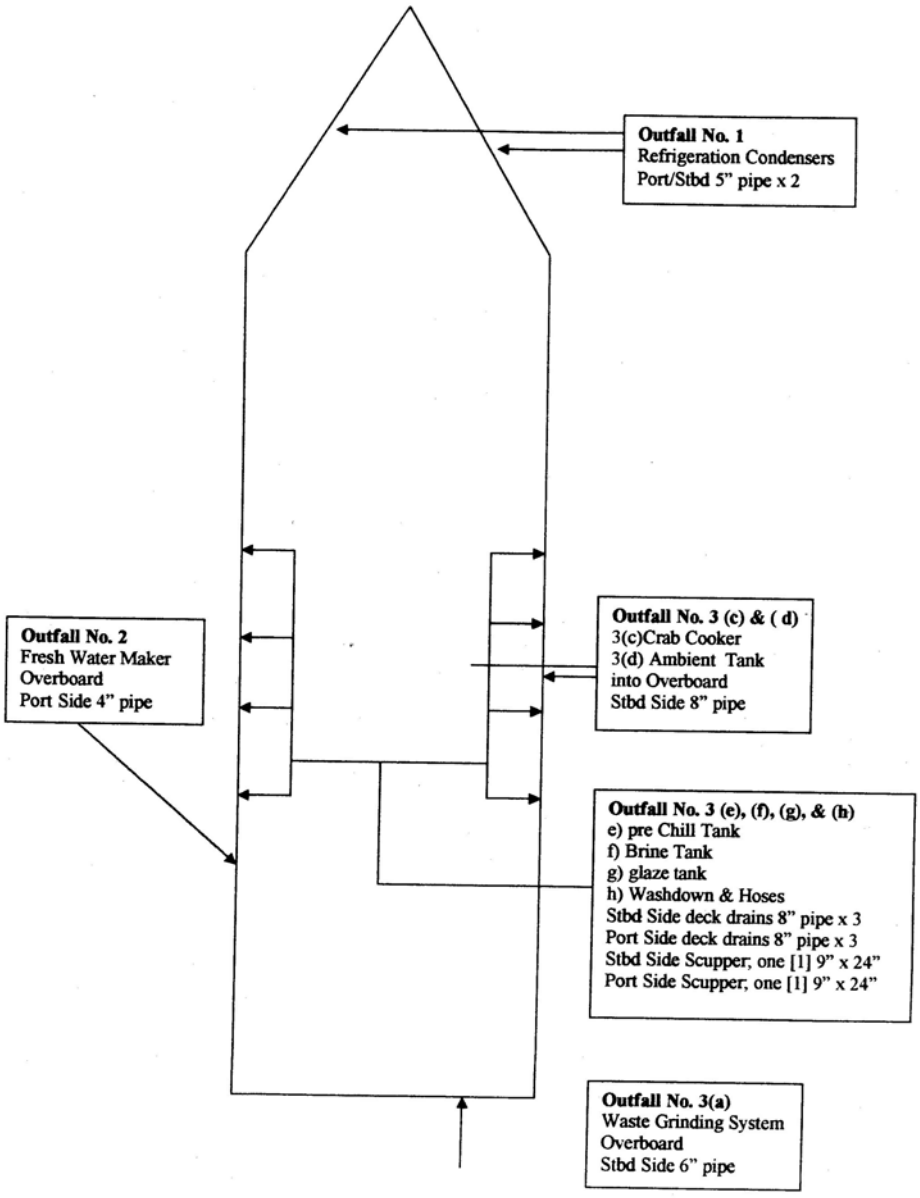
Alaska Code. 2007. *Department of Environmental Conservation, 18 AAC 70, Water Quality Standards,* Amended as of December 28, 2006

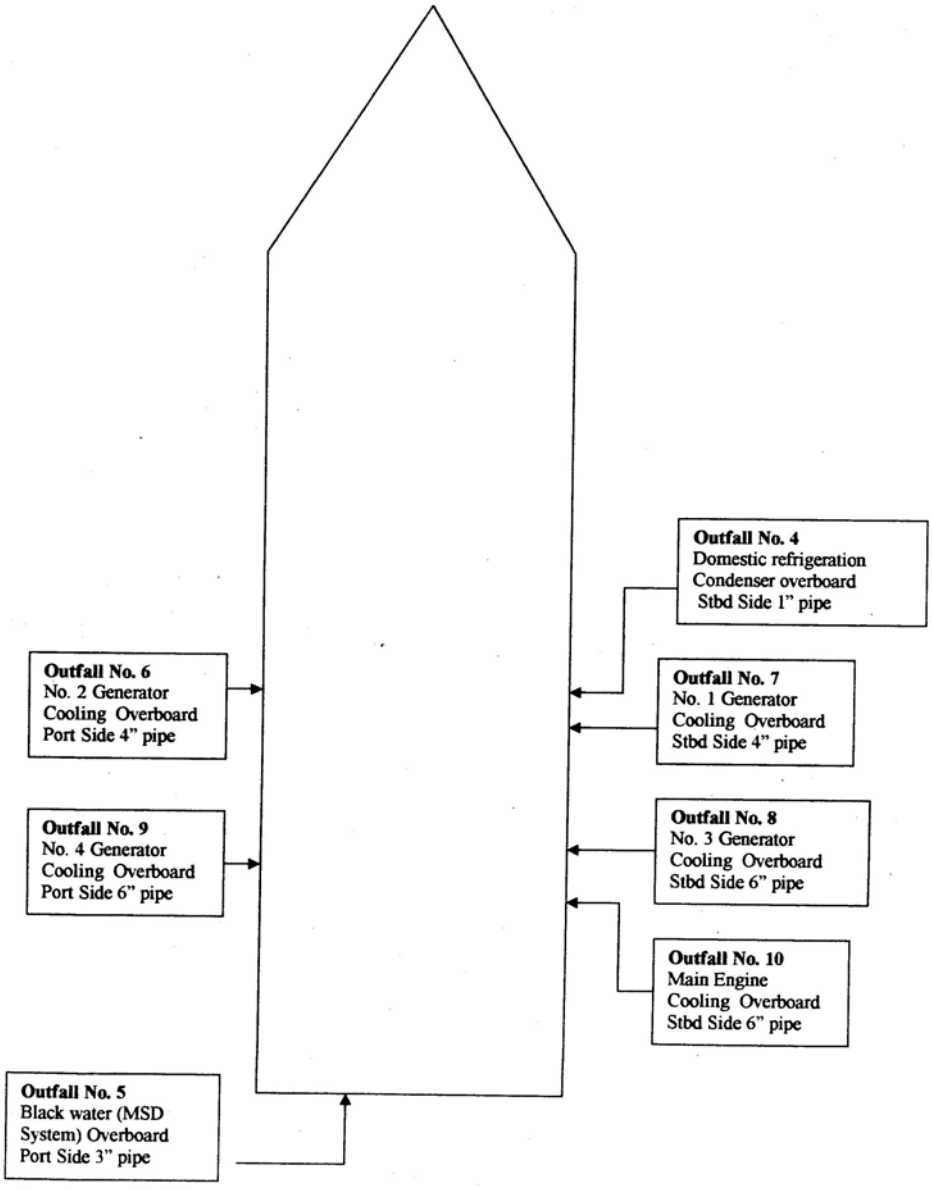
EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

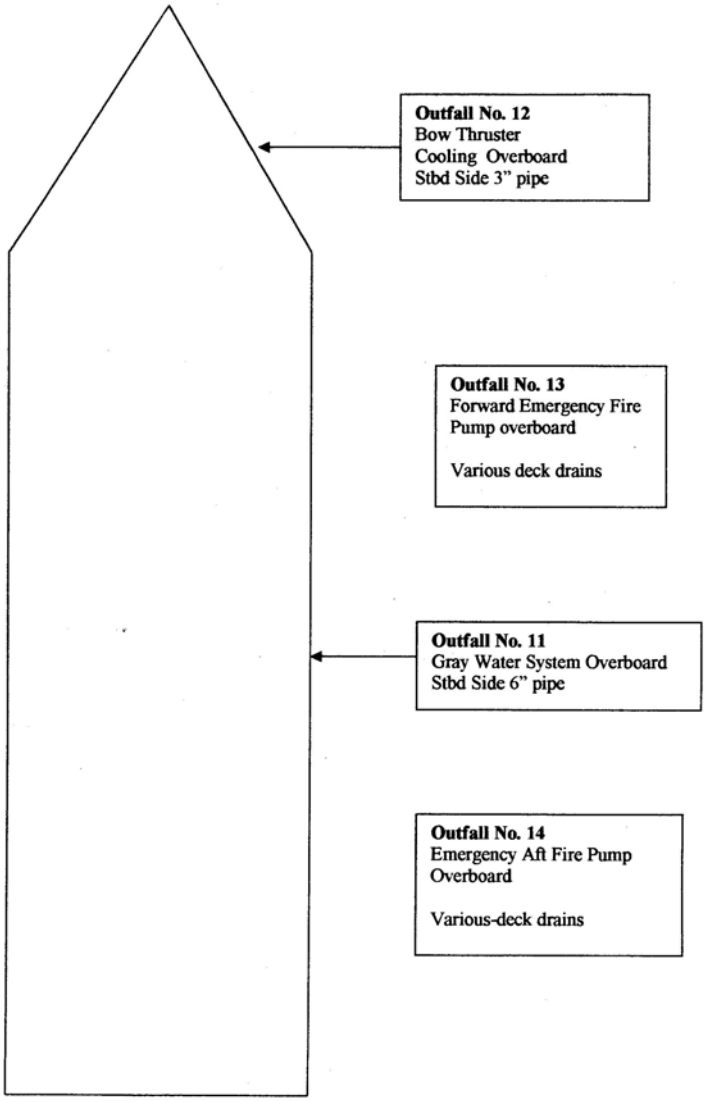
EPA. 2001. EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5. EPA/240/B-01/003. March 2001.

EPA. 2002. *Guidance for Quality Assurance Project Plans,* EPA QA/G-5. EPA/240/R-02/009. December 2002.

Appendix A: Schematic of Outfall Locations


Outfall No. 1
Refrigeration Condensers
Port/Stbd 5" pipe x 2
Outfall No. 2
Fresh Water Maker
Overboard
Port Side 4" pipe
Outfall No. 3 (c) & (d)
3(c)Crab Cooker
3(d) Ambient Tank
into Overboard
Stbd Side 8" pipe
Outfall No. 3 (e), (f), (g), & (h)
e) pre Chill Tank
f) Brine Tank
g) glaze tank
h) Washdown & Hoses
Stbd Side deck drains 8" pipe x 3
Port Side deck drains 8" pipe x 3
Stbd Side Scupper; one [1] 9" x 24"
Port Side Scupper; one [1] 9" x 24"
Outfall No. 3(a)
Waste Grinding System
Overboard
Stbd Side 6" pipe


Outfall No. 4
Domestic refrigeration
Condenser overboard
Stbd Side 1" pipe
Outfall No. 6
No. 2 Generator
Cooling Overboard
Port Side 4" pipe
Outfall No. 7
No. 1 Generator
Cooling Overboard
Stbd Side 4" pipe
Outfall No. 9
No. 4 Generator
Cooling Overboard
Port Side 6" pipe
Outfall No. 8
No. 3 Generator
Cooling Overboard
Stbd Side 6" pipe
Outfall No. 10
Main Engine
Cooling Overboard
Stbd Side 6" pipe
Outfall No. 5
Black water (MSD
System) Overboard
Port Side 3" pipe


Outfall No. 12
Bow Thruster
Cooling Overboard
Stbd Side 3" pipe
Outfall No. 13
Forward Emergency Fire
Pump overboard
Various deck drains
Outfall No. 11
Gray Water System Overboard
Stbd Side 6" pipe
Outfall No. 14
Emergency Aft Fire Pump
Overboard
Various-deck drains

Appendix B: Basis for Effluent Limits

Effluent limitations and conditions were summarized in Section V of this fact sheet. The following discussion explains the statutory and regulatory basis for the technology and water quality-based effluent limits in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits (WQBELs) and the general methodology EPA uses to develop WQBELs, and Part C discusses facility specific effluent limits.

A. Technology-Based Effluent Limits

The federal regulations at 40 CFR 122.44(a) require NPDES permits to incorporate technology based effluent limitations and standards promulgated under section 301 and 306 of the CWA. Technology based effluent limitations and performance standards have been established by the EPA for different industrial categories. These guidelines are developed based on the degree of pollutant reduction attainable by an industrial category through the application of control technologies, irrespective of the facility location. Technology based effluent limitations and standards for crab meat processing in Alaska can be found at 40 CFR 408 subpart F and G. The technology based effluent limitations for crab meat processing in Alaska have been divide into two subcategories:

- Non-Remote Alaskan Whole Crab and Crab Section Processing, and
- Remote Alaskan Whole Crab and Crab Section Processing

The technology based effluent limits for Non-Remote Alaskan Whole Crab and Crab Section Processing require facilities to meet numerical limits for total suspended solids, oil and grease and pH. These limitations apply to facilities located in population centers that include, but are not limited to Anchorage, Cordova, Juneau, Ketchikan, Kodiak, and Petersburg. The technology based effluent limits for Remote Alaskan Whole Crab and Crab Section Processing state that "no pollutants may be discharged which exceed 1.27 cm (0.5 inches) in any dimension." The above subcategories have been established because facilities located in population or processing centers have access to more reliable, cost-effective waste handling alternatives such as solids recovery or other forms of solids disposal such as barging.

The Stellar Sea facility is located near the Pribilof Islands and, thus, is currently considered a "remote" processing facility. As a remote processing facility, the Stellar Sea is subject to the "no pollutants may be discharged which exceed 1.27 cm (0.5 inches) in any dimension" requirement (40 CFR 408.52).

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires effluent limitations in permits necessary to meet and protect State water quality standards by July 1, 1977. Discharges to state or tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.44(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected states. The NPDES regulations (40 CFR 122.44(d)(1)) which implement Section 301(b)(1)(C) of the CWA require permits to include limits for all pollutants or parameters which

are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an exceedance above any EPA-approved state or tribal water quality standard, including narrative criteria for water quality.

The NPDES regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

Reasonable Potential Analysis

When evaluating the effluent to determine if water quality-based effluent limits are needed based on numeric criteria, EPA projects the receiving water concentration for each pollutant of concern. EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific chemical, then the discharge has the reasonable potential to cause or contribute to an exceedance of the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it is appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body, and decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water volume, and the receiving water is less than the criteria necessary to protect the designated uses of the water body. Mixing zones must be authorized by the State.

The effluent must also be evaluated to determine if water quality-based effluent limits or requirements are needed based on the State's narrative criteria. For this facility the relevant narrative criteria are the aesthetic criteria such as the residue criterion (18 AAC 72 (20), from Alaska's 2003 Water Quality Standards) and the oil and grease criterion (18 AAC 72 (17), from Alaska's 2006 Water Quality Standards). Evaluations to determine if a facility has the reasonable potential to exceed narrative criteria may be based on public complaints, photographic records, monitoring data, or general knowledge of the industry and its discharges.

Procedure for Deriving Water Quality-based Effluent Limits based on numeric criteria

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A WLA is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water.

In some cases, the State may authorize a mixing zone for the discharge. In such cases the WLA is calculated by using a simple mass balance equation which takes into account the available dilution provided by the mixing zone and the background concentrations of the pollutant. In other cases, a mixing zone may not be appropriate. In such cases, the criterion becomes the wasteload allocation. Establishing the criterion as the wasteload allocation ensures that the discharge will not contribute to an exceedance of the criteria.

Once the wasteload allocation has been developed, the EPA applies the statistical permit limit derivation approach described in Chapter 5 of the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to obtain monthly average, and weekly average or daily maximum permit limits. This approach takes into account effluent variability, sampling frequency, and water quality standards.

Procedure for Deriving Water Quality-based Effluent Limits based on narrative criteria

As stated previously, in general, these criteria may be evaluated based on public complaints, photographic records, monitoring requirements, or general knowledge about the industry and its discharges.

C. Facility-Specific Water Quality-based Effluent Limits

The water quality standards for marine waters in the State of Alaska are contained in the Alaska Administrative Code, 18 AAC Chapter 70. Most of the applicable water quality standards are contained in Alaska's 2006 Water Quality Standards document except for mixing zones, residues, and enterococci. The water quality standards for mixing zones and residues are contained in the 2003 Water Quality Standards document. The enterococci criteria for Alaska waters were promulgated by EPA on November 16, 2004 (69 FR 67218). The following discusses the relevant water quality standards applicable to this facility.

1) Petroleum Hydrocarbons and Oils and Grease, for Marine Waters

The narrative water quality standard states:

> "*Total aqueous hydrocarbons in the water column may not exceed 15 µg/L. Total aromatic hydrocarbons in the water column may not exceed 10 µg/L. There may be no concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life. Surface waters must be virtually free from floating oil, film, sheen, or discoloration.*"

The facility's 1999 permit contained a condition which prohibited the discharge of oil and grease that would cause a film, sheen, or discoloration on the surface of the water or adjoining shoreline. The effluent from the facility was monitored for oil and grease. The results of the monitoring are presented below:

Oil and Grease Monitoring Results	
February 1997	799 mg/L
March 1999	479 mg/L
January 2006	533 mg/L
March 2006	2120 mg/L
April 2006	non-detect
February 2007	191 mg/L
April 2007	29 mg/L
Note: All samples were taken during processing except the April 2006 sample which was taken during a clean up period.	

As can be seen from the monitoring results the facility can, at times, discharge large quantities of oil and grease, therefore a narrative effluent requirement to implement this water quality standard will be in the draft permit.

Oils of any kind can cause (a) drowning of water fowl because of loss of bouyancy, exposure because of loss of insulating capacity of feathers, and starvation and vulnerability to predators because of lack of mobility; (b) lethal effects on fish by coating the epithelial surfaces of gills, thus preventing respiration; (c) potential fish kills resulting from biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shorelines and beaches. Oils of animals or vegetables are generally chemically non-toxic to humans and aquatic life, however, floating sheens of such oils can result in deleterious environmental effects as described above (*Quality Criteria for Water, 1986*, USEPA, May 1, 1986).

It has been documented that birds are frequently attracted to this discharge (see facility Discharge Monitoring Reports). Because of the adverse effects that oil and grease may have on birds and mammals, increased effluent monitoring will be required for oil and grease to more accurately quantify the amount of oil and grease being discharged by the facility. Additionally, the draft permit requires a more rigorous biological monitoring program to ascertain the effects of the discharge, if any, on birds and mammals.

2) Residues, for Marine Water Uses: Floating solids, debris, sludge, deposits, foam, scum, or other residues

The narrative water quality standard states that floating solids, debris, sludge, deposits, foam, scum, or other residues:

> *"May not alone or in combination with other substances or wastes, make the water unfit or unsafe for the use, or cause acute or chronic problem levels as determined by bioassay or other appropriate methods. May not alone or in combination with other substances, cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines, cause leaching of toxic or deleterious substances, or cause a sludge, solid or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines."*

Some equipment used in processing areas such as rubber gloves or ear plugs can be inadvertently washed into sumps during wash down periods and subsequently discharged along with processing wastes. There have been reports of gloves, earplugs and rubber packing bands deposited on the shoreline in the vicinity of seafood processing areas on St. Paul Island (ODCE 1998, page 2-6). These items could be ingested by birds or mammals and result in adverse effects. Because of these incidents the following condition were contained in the previous permit and is retained in the proposed permit:

> "Discharge of any equipment or incidental items (e.g. gloves, earplugs, rubber bands, etc.) is prohibited."

Additionally, seafood wastes from this facility are simply ground to ½ inch and discharged through the outfall. The fact sheet for the 1999 permit stated that at various times crab wastes have been observed at East Landing (1998 Fact Sheet, page 16). Furthermore, on March 6, 1999 there was an accumulation of 500 – 1000 pounds of crab waste, ranging in size from 1 to 4 inches along a 300 yard stretch of beach between East Landing and Kitovi Point on St. Paul Island (see March 7, 1999 report from Dave Hambleton, Trident Seafoods). And finally, the DMRs for the facility have noted that there was at least one instance of foam on the water resulting from the discharge of crab waste (see facility DMRs, 2005). Because of these incidents

the draft permit contains the following condition to ensure that Alaska's residue criterion is achieved:

> "The discharge of any wastewaters that contain floating solids, debris, sludge, deposits, foam, scum, or other residues which cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines; or cause a sludge solid or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines **is prohibited**, except for incidental foam and scum produced by discharge of seafood catch transfer water."

ADEC is considering authorizing a small mixing zone for solids within the water column. While there is adequate tidal and wave action to disperse the seafood solids there will be solids within the water column as dispersion is occurring. The mixing zone is needed to allow adequate time for the wave and tidal action to adequately disperse all of the solids.

3) pH, for Marine Water Uses

The water quality standard states that pH:

"May not be less than 6.5 or greater than 8.5, and may not vary more than 0.2 pH units outside of the naturally occurring range."

A reasonable potential analysis has shown that the discharge does have a reasonable potential to cause or contribute to an exceedance of the water quality standards. Therefore, water quality-based effluent limits will be incorporated into the draft permit. The draft permit requires the effluent to be within the range of 6.5-8.5 standard units. See Appendix C for the reasonable potential analysis for this parameter.

4) Ammonia, Total (as Nitrogen)

The criteria for ammonia are based on the salinity, temperature, and pH of marine waters. As pH and temperature increase the criteria become more restrictive, whereas increased salinity results in the criteria becoming less restrictive.

On July 23, 1997 samples of pH, salinity and temperature were taken from 8 different sampling stations[2]. Data was taken at one meter intervals from one meter below the surface to 1 meter above the sea bottom. The highest temperature recorded 6.77°C, the highest pH was 7.1 s.u., and the lowest salinity was 31.7 g/kg. Given these values a relatively conservative estimate of the acute and chronic criteria can be developed using a salinity of 30 g/kg, pH of 7.6 standard units, and a water temperature of 10° C. This results in an acute criterion of 37 mg/L total ammonia as N, and a chronic criterion of 5.6 mg/L total ammonia as N (See Tables VIII and IX of *Alaska Water Quality Criteria Manual for Toxic And Other Deleterious Organic and Inorganic Substances*, State of Alaska Department of Environmental Conservation, May 2003).

A reasonable potential analysis has shown that the discharge does have a reasonable potential to cause or contribute to an exceedance of the water quality standards. Therefore, water quality-

[2] Four of the stations were located immediately around the St. Paul Island stationary outfalls, one was located off of Tonki Point, northeast of the stationary outfalls, one was northeast of the outfalls near Lukania Point, one was southwest of the outfalls, near Sea Lion Rock, and the last was just north of the previous listed station.

based effluent limits will be incorporated into the draft permit. The draft permit includes an average monthly limit of 4.7 mg/L (42.3 lbs/day) and a maximum daily limit of 9.3 mg/L (83.8 lbs/day). See Appendix C for the reasonable potential analysis and Appendix D for the development of the effluent limits for this parameter.

5) Chlorine

The aquatic life saltwater acute criterion for total residual chlorine is13 µg/L and the aquatic life saltwater chronic criterion is 7.5 µg/L.

A reasonable potential analysis has shown that the discharge does have a reasonable potential to cause or contribute to an exceedance of the water quality standards. Therefore, water quality-based effluent limits will be incorporated into the draft permit. The average monthly effluent limit is 6.2 µg/L (0.6 lbs/day), and the maximum daily limit is 12.4 µg/L (0.11 lbs/day). See Appendix C for the reasonable potential analysis and Appendix D for the development of the effluent limits for this parameter.

6) Metals

In January of 2006, the facility submitted monitoring for metals sampling. Because there were some high metals concentrations EPA requested the facility to conduct additional metals monitoring on the influent and effluent in 2008. These values also indicated some high metals levels. The table below presents the applicable acute and chronic marine aquatic life criteria, the human health criteria, and the metals results for the effluent discharge.

	Acute criterion	**chronic criterion**	**human health criterion**	**Jan 2006**	**2/24/08**	**2/25/08**	**2/26/08**	**2/27/08**	**2/28/08**
Arsenic	69	36	---	977	40	70	70	30	50
Cadmium	40	8.8	---	145	48.5	87.4	79.6	34.3	78.5
Copper	4.8	3.1	---	1560	196	283	283	<1.0	283
Lead	210	8.1	---	---	<10	16	10	10	14
Mercury	1.8	0.94	0.051	----	0.9	0.8	0.9	0.3	6.5
Nickel	210	8.1	---	---	50	11	50	96	50
Selenium	290	71	---	499	<1.0	4	67	31	56
Zinc	90	81	---	1050	12	480	357	<1.0	382

1. All values are expressed as micrograms per liter.
2. Monitoring in 2006 occurred in the Pribilof Islands. Monitoring in 2008 occurred in Akutan, Alaska.
3. Monitoring results show that the influent lead levels were similar to the effluent levels.

It is unclear why the metal levels are so high since metals are not a component of the processing system. It is possible that metals are being leached from pipes, or are in the intake water used in processing.

A condition has been incorporated into the permit requiring the facility to conduct metals monitoring of the influent and effluent for Outfall 3(a), and for surface water. If monitoring indicates the concentrations of metals exceeds the criteria, and the source of contamination is not attributable to raw seafood or from the influent sea water then the source of metals contamination must be identified and eliminated from the discharge no later than 4 years from

the effective date of the permit. The permittee must submit a report detailing the findings of their study and their method of eliminating pollutant sources.

Appendix C: Reasonable Potential Calculations

This Section describes the process EPA has used to determine if the discharge has the reasonable potential to cause or contribute to a violation of Alaska's numeric water quality standards. EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential.

To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit [40 CFR 122.44(d)(1)(i)]. This section discusses how the maximum projected receiving water concentration is determined.

(1) Reasonable Potential Analysis for Total Ammonia

The ammonia criteria for saltwater are dependent on salinity, pH, and temperature of marine waters. A relatively conservative estimate of the acute and chronic criteria can be developed using a salinity of 30 g/kg, pH of 7.6 standard units, and a water temperature of 10° C. This results in an acute criterion of 37 mg/L total ammonia as N, and a chronic criterion of 5.6 mg/L total ammonia as N (See Tables VIII and IX of *Alaska Water Quality Criteria Manual for Toxic And Other Deleterious Organic and Inorganic Substances*, State of Alaska Department of Environmental Conservation, May 2003). The acute criterion protects against short term impacts to aquatic life, and the chronic criterion protects against long term impacts to aquatic life.

When evaluating the effluent to determine if a water quality based effluent limit (WQBEL) is needed based on chemical specific numeric criteria, a projection of the receiving water concentration, at the edge of the mixing zone, for the pollutant of concern is made. If the projected concentration of the receiving water exceeds the applicable numeric criterion, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standards, and a WQBEL is required.

The following mass balance equation is used to determine the projected receiving water concentration:

$$C_d = \frac{C_e}{\text{dilution factor}} + C_b$$

where,
C_d = projected receiving water concentration
C_e = maximum projected effluent concentration
C_b = background concentration of ammonia = 0 mg/L (no data)
dilution factor - mixing zones have not been authorized for the discharge from this facility, therefore the dilution factor is 0

When dilution is not available, as in this case, then the equation becomes:

$$C_d = C_e$$

When determining the projected receiving water concentration, EPA's *Technical Support Document for Water Quality-based Toxics Controls* (TSD, 1991) recommends using the maximum projected effluent concentration. To determine the maximum projected effluent concentration (C_e) EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV has been calculated, the reasonable potential multiplier used to derive the maximum projected effluent concentration (C_e) can be found in Table 3-1 of EPA's TSD. A reasonable potential multiplier may vary from 1 to 368. When less than 10 samples are available the TSD recommends using a CV of 0.6.

The maximum projected concentration (C_e) for the effluent is equal to the highest observed concentration value of the data set multiplied by the reasonable potential multiplier. The following are the results of ammonia sampling:

Ammonia Monitoring Results	
February 1997	6.48 mg/L
March 1999	28.2 mg/L
January 2006	20.9 mg/L
April 2006	non-detect
February 2007	45.6 mg/L
March 2007	17.9 mg/L
April 2007	350 mg/L
Note: All samples were taken during processing except the April 2006 sample which was taken during a clean up period.	

Since there are less than 10 samples the CV of the data set is 0.6. The reasonable potential multiplier is 3.6. The maximum projected concentration (C_e) is (350.0 mg/L X 3.6) = 1260 mg/L.

The projected receiving water concentration (C_d) is:

$C_d = C_e = 1260$ mg/L

The projected concentration of ammonia in the receiving water exceeds the acute criterion for ammonia (37 mg/L) and the chronic criterion for ammonia (5.6 mg/L), therefore, a water quality based effluent limit is required. See Appendix D for details on developing the effluent limitations

(2) Reasonable Potential Analysis for Total Residual Chlorine:
The maximum projected concentration (C_e) for the effluent is equal to the highest observed concentration value of the data set multiplied by the reasonable potential multiplier. The following are the results of chlorine sampling:

Total Residual Chlorine Monitoring Results	
March 1999	0.1 mg/L
January 2006	<0.5 mg/L
April 2006	2.0 mg/L
February 2007	<0.5 mg/L
March 2007	<0.5 mg/L
April 2007	<0.5 mg/L
Note: All samples were taken during processing except the April 2006 sample which was taken during a clean up period.	

Since there are less than 10 samples the CV of the data set is 0.6. The reasonable potential multiplier is 3.6. The maximum projected concentration (C_e) is
(2.0 mg/L X 3.6) = 7.2 mg/L.

The projected receiving water concentration (C_d) is:

$C_d = C_e = 7.2$ mg/L

The projected concentration of total residual chlorine in the receiving water exceeds the acute criterion for chlorine 13 µg/L (0.013 mg/L) and the chronic criterion for chlorine 7.5 µg/L (0.0075 mg/L), therefore, a water quality based effluent limit is required. See Appendix D for details on developing the effluent limitations.

(3) Reasonable Potential Analysis for pH:
In general, EPA does not calculate a maximum projected concentration (C_e) for pH because in effluent is generally not as variable as other parameters. Therefore, the actual sample results are used to determine reasonable potential. The following are the results of pH sampling:

February 1997 – 6.33 standard units
March 1999 – 5.9 standard units
January 2006 – not measured
April 2006 – 6 to 7 standard units (sample taken during a clean up period)
February 2007 – 6 to 7 standard units
March 2007 – 7.0 standard units
April 2007 – 7.0 standard units

As can be from the sample results the effluent can, at times, exceed the water quality criterion (i.e., 6.5 standard units – 8.5 standard units.), therefore, a water quality based effluent limit is required. The water quality based effluent limit will require the effluent to be within the range of 6.5 standard units to 8.5 standard units.

Appendix D: Water Quality Based Effluent Limit Calculations

The reasonable potential analysis has determined the need to derive a water quality-based effluent limit (WQBEL) for ammonia and total residual chlorine. The following calculations demonstrate how the WQBELs in the draft permit were calculated. The WQBELs are intended to protect aquatic life criteria.

I. Ammonia

A. Calculate the Wasteload Allocations (WLAs) and Long term averages (LTAs)

A wasteload allocation is the maximum allowable pollutant concentration (C_e) that can be discharged in the effluent (after accounting for available dilution, if allowable) without causing a water quality exceedance. Wasteload allocations (WLAs) are calculated using the same mass balance equations used to calculate the projected receiving water concentration of the pollutant in the reasonable potential calculation (see Appendix C).

$$C_d = \frac{C_e}{\text{dilution factor}} + C_b$$

where,

C_d = projected receiving water concentration
C_e = maximum allowable pollutant concentration (WLA)
C_b = background concentration of ammonia = 0 mg/L (no data)
dilution factor - mixing zones have not been authorized for the discharge from this facility, therefore the dilution factor is 0

To calculate a wasteload allocation, C_d is set equal to the acute or chronic criterion and the equation is solved for C_e (i.e., the WLA).

$$C_e = [C_d - C_b] \text{ X dilution factor}$$

The calculated C_e is the acute or chronic WLA. In cases where there is no authorized mixing zone (i.e., no dilution) C_e (i.e., the WLA) is set equal to the acute or chronic criterion. For ammonia the acute criterion is 9.6 mg/L and chronic criterion is 1.4 mg/L. The acute and chronic WLAs are:

$C_e = WLA_{acute} = 37$ mg/L
$C_e = WLA_{chronic} = 5.6$ mg/L

The next step is to compute the "long term average" (LTA) concentrations which will be protective of the WLAs. This is done using the following equations from Section 5.4 of the TSD:

$$LTA_{acute} = WLA_{acute} \times \exp(0.5\sigma^2 - z\,\sigma)$$
$$LTA_{chronic} = WLA_{chronic} \times \exp(0.5\,\sigma_4^2 - z\,\sigma_4)$$

where,

$$\sigma^2 = \ln(CV^2 + 1)$$
$$\sigma = \sqrt{\sigma^2}$$

$\sigma_4^2 = \ln(CV^2/4 + 1)$
$\sigma = \sqrt{\sigma_4^2}$
z = 2.326 for 99th percentile probability basis

In the case of ammonia,

$\sigma^2 = \ln(0.6^2 + 1) = 0.31$
$\sigma = \sqrt{\sigma^2} = 0.55$
$\sigma_4^2 = \ln(0.6^2/4 + 1) = 0.086$
$\sigma_4 = \sqrt{\sigma_4^2} = 0.294$
z = 2.326 for 99th percentile probability basis

Therefore,

$LTA_{acute} = 37 \text{ mg/L} \times \exp^{((0.5 \times 0.31) - (2.326 \times 0.559))}$
LTA_{acute} = 11.9 mg/L

$LTA_{chronic} = 5.6 \text{ mg/L} \times \exp^{((0.5 \times 0.086) - (2.326 \times 0.294))}$
$LTA_{chronic}$ = 3.0 mg/L

To ensure that aquatic life is not adversely effected by acute or chronic toxic effects the LTAs are compared and the more stringent is used to develop the daily maximum (MDL) and monthly average (AML) permit limits as shown below. The chronic LTA of 3.0 mg/L is more stringent.

B. Derive the maximum daily and average monthly effluent limits

Using the equations in Section 5.4 of the TSD, the MDL and AML effluent limits are calculated as follows:

$MDL = LTA \times \exp(z_m \sigma - 0.5 \sigma^2)$
$AML = LTA \times \exp(z_a \sigma_n - 0.5 \sigma_n^2)$

where σ, and σ^2 are defined as they are for the LTA equations and,

$\sigma_n^2 = \ln(CV^2/n + 1)$
$\sigma_n = \sqrt{\sigma_n^2}$
z_a = 1.645 for 95th percentile probability basis
z_m = 2.326 for 99th percentile probability basis
n = number of sampling events required per month =4

In the case of ammonia,

MDL = 9.3 mg/L
AML = 4.7 mg/L

The federal regulations at 122.45(f) requires all pollutants limited in permits to be expressed in terms of mass except for pH, temperature, radiation or other pollutants which cannot be appropriately expressed as mass. Therefore, in addition to the

concentration based limits, mass limits will be incorporated into the permit. The following equation is used to develop mass limits:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34[3]

MDL = (9.3 mg/L) X (1.08 mgd) X 8.34 = 83.8 lbs/day
AML = (4.7 mg/L) X (1.08 mgd) X 8.34 = 42.3 lbs/day

(Note: the flow (1.08 mgd) was taken from the facility permit application, Form 2C)

II. Chlorine

The procedures used for developing the total residual chlorine effluent limits are the same as those described for ammonia and will not be repeated here. The acute aquatic life criterion is 13 µg/L, and the chronic aquatic life criterion is 7.5 µg/L.

$C_e = WLA_{acute} = 13$ µg/L
$C_e = WLA_{chronic} = 7.5$ µg/L

$LTA_{acute} = WLA_{acute} \times \exp(0.5\sigma^2 - z\,\sigma)$ = 4.2 µg/L
$LTA_{chronic} = WLA_{chronic} \times \exp(0.5\,\sigma_4^2 - z\,\sigma_4)$ = 4.0 µg/L

$MDL = LTA_{chronic} \times \exp(z_m\,\sigma - 0.5\,\sigma^2)$ = 12.4 µg/L (0.11 lbs/day)
$AML = LTA_{chronic} \times \exp(z_a\,\sigma_n - 0.5\,\sigma_n^2)$ = 6.2 µg/L (0.06 lbs/day)

The proposed water quality based effluent limits for chlorine fall below the level at which chlorine can be accurately quantified using EPA analytical test methods. In such cases it is difficult to determine compliance with the effluent limits. The inability to measure to the necessary level of detection is addressed by establishing the Minimum Level[4] as the compliance evaluation level for use in reporting Discharge Monitoring Report data. Effluent discharges at or below the Minimum Level would be considered in compliance with the water quality-based effluent limit. The minimum level for chlorine is 100 µg/L (0.1 mg/L). Therefore, in addition to the water quality-based effluent limits the Minimum Level will be incorporated into the permit. EPA will consider the permittee in

[3] 8.34 is a conversion factor with units (lb × L)/(mg × gallon × 106)

[4] Minimum Level - the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed.

compliance with the water quality based effluent limits for chlorine provided the effluent does not exceed the minimum level.

Appendix E: Categorical Exclusion

Appendix F: Northern Fur Seals

Two Northern Fur Seal (Callorhinus urinus) stocks are found within the United States: the Pribilof Islands and San Miguel Island stocks. Designation of stocks is based primarily on geographic location during the breeding season. the Pribilof Island stock, including those seals breeding at Bogoslof Island, was declared depleted under the Marine Mammal Protection Act in June 1998.

Rookeries of the Pribilof Island stock occur primarily on St. Paul and St. George Islands (Final Conservation Plan for northern Fur Seal (Callorhinus ursinus). National Marine Fisheries Service (NMFS), 1993). Potential reasons for the decline include commercial harvesting, entanglement in marine debris, and changes in the quantity and/or quality of available prey. A moratorium on commercial harvest of males and St. George Island went into effect in 1973. At the end of 1984 all harvesting, except regulated subsistence harvesting, was halted NMFS (1993).

The Northern Fur Seal is endemic to the North Pacific Ocean. In the U.S., these seals range from the Channel Islands of southern California to the Pribilof Islands in the Bering Sea. It is estimated that 72 % of the world's population of fur seals are in the Pribilof Island stock. Further, the Pribilof stock represents approximately 99% of the species located within U.S. waters. The 1996 census conducted on St. Paul Island indicated that the number of pups born on St. Paul Island was 163,288. In 1999 the estimated number of pups born on St. Paul Island was 179,149. Since 1999 the number of pups has steadily declined by 6.2 % each year, and in 2006 the number of pups born was 109,937.

Adult males are counted annually and categorized as territorial with females (harem), territorial without females and non-territorial. Numbers of harem males are highly correlated with the number of pups born. Fowler and Robson (Fowler, C.W. and B.W. Robson, 1994. Population assessment, Pribilof Islands, Alaska. Pages 9-12, in Sinclair, E.H. (editor), Fur Seal Investigations, 1993. NOAA Technical Memorandum, NMFS-AFSC-46) reported an increase in the total number of adult males from 1985 through 1993 related to the cessation of the commercial harvest on St. Paul Island. Recent adult male counts on St. Paul and St. George are lower than any period in the last 50 to 100 years (Conservation Plan for the Eastern Pacific Stock of Northern Fur Seal, December 2007, National Marine Fisheries Service, Protected Resource Division, Alaska Region).

The majority of adult northern fur seals are found on land between June and October. To minimize impacts to the stock, subsistence harvesting of fur seals on the Pribilof Islands is limited to the period from June 23 to August 8. St. Paul juvenile male subsistence harvests have ranged from a high of 1704 in 1987 declining to 396 in 2006. On St. George subsistence harvests have remained relatively stable during the past 20 years (range 329- 92; NMML unpublished data). Harvests are coordinated and implemented locally based on the harvest methods developed commercially to humanely take only two - four year-old male fur seals (Final Conservation Plan for northern Fur Seal, 2007).

Direct Effects

Northern fur seals may come into contact with seafood process waste discharges and/or waste accumulations. However, due to the proposed permit restrictions (seafood waste may only be disposed of at sea from May through November), the potential for contact with discharges is reduced during the critical rookery period. Fur seals occupation of rookeries during the breeding season occurs from May to November. Breeding occurs primarily for Jun through August, and lactating females continue to nurse pups and forage in the waters surrounding the Pribilof Islands until December. Due to the permit restrictions, discharge in fur seal critical habitat will not occur during the breeding season, or when pups are learning to swim and developing their foraging skills. Therefore, direct contact with seafood waste during the rookery period is unlikely.

Because fur seal rookeries may be used as haulout areas throughout the year, fur seals may come into direct contact with process wastes discharges during non-critical periods. In 1990 the National Marine Fisheries described a previously unknown condition termed "white muscle syndrome" that was observed in fur seal pups inhabiting three rookeries (Lukanin, Kitovi, and Reef) located in close proximity to East Landing. Although the exact cause of the syndrome is unknown, it is believed to be due to ingestion or absorption of chemical oxidizing agents, such as the solvents found in cleaning solutions, which in turn, may have been released in the shallow, near shore environment following a rupture in the city sewer pipeline that occurred in 1990. White muscle syndrome was not observed prior to 1990, despite annual surveys. In 1990, only one seafood processing facility was operating at St. Paul Island, and this facility was discharging its effluent through the city outfall. The 1998 Biological Assessment (Biological Assessment of Seafood Processing Discharges on Threatened Endangered and Special Status Species of the Pribilof Islands, EPA, August 1998) hypothesized that since the white muscle syndrome had not been observed when the number of seafood processors and the volume of processing effluent discharge increased at St. Paul Island, and since the seafood waste is discharged when fur seal pups are not present, it is unlikely that white muscle syndrome was caused by the effluent discharge. The proposed permit limits the allowable discharge of seafood waste from December through April such that discharge does not occur when fur seal pups are present.

In addition oil and grease discharged could potentially affect the fur seal ability to maintain thermoregulation should the oils adhere to their fur. This would be particularly detrimental to pups. However, because discharges of oil and grease must meet Alaska Water Quality Standards for floating or suspended residues, and monitoring will be conducted to ensure that the standards are met, levels of oil and grease that would be detrimental t the fur seals are not expected.

Seafood processing waste may contain anthropogenic materials such as ear plugs, rubber packing bands, and other articles used during processing. Such wastes were observed both in February and September of 1994 on the beach at Kitovi northern fur seal rookery on St. Paul Island. The potential exists for these materials, if discharged, to be ingested by foraging fur seals.

Indirect Effects

Potential indirect effects to northern fur seals include entanglement in debris or disturbance from vessel traffic. Increased fishing activity could lead to greater numbers of incidental fur seal takes during trawling or through entanglement in debris such as netting and lines. The potential for disturbances is also greater if vessel numbers increase. Although vessel disturbance events are likely to be localized and temporary, other related accidents such as oil spills would have more widespread effects.

Summary

The conditions in the proposed permit that are designed to limit the potential for direct contact with northern fur seals are (1) the condition which prohibits any discharges in certain locations within the Pribilof Islands, (2) the discharge is authorized from January through May 5th only. Compliance with this condition and appropriate waste management practices should result in no adverse effects to northern fur seals populations. However, indirect effects may occur due to increased vessel traffic including disturbance, increased incidental takes, and greater likelihood of spill or discharges of materials (e.g., fuels and oil). Vessel traffic in close proximity to fur seal habitat may lead to disturbance or modification of such areas. Although pinniped (e.g., seals and sea lions) response to vessel traffic is not well documented, reports indicate that disturbance from fishing activities near the Farallon Islands, California, resulted in the shift of a breeding group to an undisturbed site (Recovery Plan for the Steller Sea Lion, National Marine Fisheries Service, 1992).