



FACT SHEET

September 16, 2004

NPDES Permit Number: **AK-002064-8**

Public Notice Start Date:
Public Notice Expiration Date:

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The U.S. Environmental Protection Agency (EPA)
Proposes to Reissue a Wastewater Discharge Permit to:

**United States Coast Guard
Integrated Support Command Kodiak
Bldg. N38
Kodiak, Alaska 99619-5025**

and

the State of Alaska Proposes

Certification of the Permit

and

a Review of the Permit for Consistency with
the Alaska Coastal Management Program

EPA Proposes NPDES Permit Reissuance

EPA proposes to reissue a National Pollutant Discharge Elimination System (NPDES) permit to the United States Coast Guard for discharge from its wastewater treatment plant (WWTP) at the Integrated Support Command (ISC) Kodiak. The draft permit sets conditions on the discharge of pollutants from the WWTP to St. Paul Harbor. 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.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures
- a description of the current discharge
- a listing of proposed effluent limitations and other conditions
- a map and description of the discharge location
- background information supporting the conditions in the draft permit

The State of Alaska Proposes Certification

The Alaska Department of Environmental Conservation proposes to certify the NPDES permit for the U.S. Coast Guard ISC Kodiak WWTP under provisions of Section 401 of the Clean Water Act. The Alaska Department of Natural Resources, Office of Project Management and Permitting also proposes to review this action for consistency with the Alaska Coastal Management Program.

Public Comments on the Draft Permit

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

If no significant comments are received during the public comment period, the proposed conditions in the draft permit will be included in the final permit and will become effective upon reissuance of the permit.

Any significant comments will be considered before EPA Region 10's Director of the Office of Water and Watersheds makes a final decision regarding permit issuance. EPA will address significant comments when it issues the permit. In such a case, the permit will become effective 33 days after the reissuance date, unless a request for an appeal is filed with the Environmental Appeals Board within 33 days.

Public Comment on the State Preliminary 401 Certification

The Alaska Department of Environmental Conservation (ADEC) provides the public with the opportunity to review and comment on preliminary 401 certification decisions. Any person may request in writing that ADEC provide that person notice of ADEC's preliminary 401 certification decision, including, where appropriate, the draft certification. Persons wishing to comment on the preliminary 401 certification should submit written comments by the public notice expiration date to:

Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501.

Public Comment on the State Determination of Consistency with the Alaska Coastal Management Program

EPA requests the State of Alaska Department of Natural Resources, Office of Project Management and Permitting (DNR/OPMP) to review this action for consistency with the Alaska Coastal Management Program. DNR/OPMP intends to conduct such a review. For more information on the consistency review process and the comment deadline, or to submit comments, please contact DNR/OPMP at the address below or at (907) 269-7470. All comments must be submitted in writing to the following address:

Alaska Department of Natural Resources
Office of Project Management and Permitting
550 West 7th Avenue, Suite 1660
Anchorage, AK 99501.

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 (see address below).

United States Environmental Protection Agency Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-0523 or 1-800-424-4372 x0523 (within Alaska, Idaho, Oregon,
and Washington)

The fact sheet and draft permit are also available at:

EPA Alaska Operations Office
222 West 7th Ave, #19
Anchorage, AK 99513-7588
907-271-5083

A. Holmes Johnson Memorial Library
319 Lower Mill Bay Road
Kodiak, AK 99615
907-486-8686

The draft permit and fact sheet can also be found by visiting the Region 10 website at <http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/DraftPermitsAK>

For technical questions regarding the permit or fact sheet, contact Sharon Wilson at the phone number or e-mail address at the top of this fact sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384 (ask to be connected to Sharon Wilson at the above phone number). Additional services can be made available to a person with disabilities by contacting Sharon Wilson.

TABLE OF CONTENTS

List of Abbreviations and Acronyms	5
I. FACILITY INFORMATION	<u>6</u>
A. <u>Applicant</u>	<u>6</u>
B. <u>Facility Activity</u>	<u>6</u>
C. <u>Facility Background</u>	<u>6</u>
II. RECEIVING WATER	<u>7</u>
A. <u>Location of Discharge</u>	<u>7</u>
B. <u>Water Quality Standards</u>	<u>7</u>
C. <u>Water Quality Limited Segment</u>	<u>8</u>
III. EFFLUENT LIMITATIONS	<u>8</u>
IV. MONITORING REQUIREMENTS	<u>10</u>
A. <u>Basis for Effluent Monitoring</u>	<u>10</u>
B. <u>Whole Effluent Toxicity (WET) Testing</u>	<u>12</u>
C. <u>Additional Effluent Testing</u>	<u>12</u>
D. <u>Landfill Leachate Testing</u>	<u>12</u>
E. <u>Basis for Surface Water Monitoring</u>	<u>12</u>
F. <u>Representative Sampling</u>	<u>13</u>
V. OTHER PERMIT CONDITIONS	<u>13</u>
A. <u>Quality Assurance Plan</u>	<u>13</u>
B. <u>Facility Planning Requirement</u>	<u>14</u>
C. <u>Sewage Sludge</u>	<u>14</u>
D. <u>Standard Permit Provisions</u>	<u>14</u>
VI. OTHER LEGAL REQUIREMENTS	<u>14</u>
A. <u>Endangered Species Act</u>	<u>14</u>
B. <u>Essential Fish Habitat</u>	<u>15</u>
C. <u>State Certification</u>	<u>15</u>
D. <u>Coastal Zone Management Act</u>	<u>17</u>
E. <u>Antidegradation</u>	<u>17</u>
F. <u>Permit Expiration</u>	<u>18</u>
APPENDICES	
Appendix A: Facility Location	A-1
Appendix B: Waste Streams and Treatment Processes	B-1
Appendix C: Basis for Effluent Limitations	C-1
Appendix D: Biological Assessment	D-1
LIST OF TABLES	
Table 1: Proposed Effluent Limitations for Outfall 001	9
Table 2: Proposed Effluent Monitoring Requirements	10
Table 3: Proposed Surface Water Monitoring Requirements	11

LIST OF ABBREVIATIONS AND ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AML	Average monthly limit
AWL	Average weekly limit
BOD ₅	Five day biochemical oxygen demand (a measure of organic matter)
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CFR	Code of Federal Regulations
CV	coefficient of variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DNR	Alaska Department of Natural Resources
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FWS	U.S. Fish and Wildlife Service
ISC	Integrated Support Command
LTA	long-term average
MDL	maximum daily limit
µg/l	micrograms per liter
MGD	million gallons per day
mg/l	milligrams per liter
ml	milliliter
N	nitrogen
NH ₃	ammonia
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
pH	a measure of the acidity or alkalinity of a solution
POTW	Publicly-owned treatment works
QAP	Quality Assurance Plan
RPM	reasonable potential multiplier
s.u.	Standard Unit (<i>for measuring pH; 7=neutral; <7=acid; >7= alkaline</i>)
TSD	<i>Technical Support Document for Water Quality-Based Toxics Control</i>
TSS	Total Suspended Solids
TU	Toxicity Unit
TWTDS	Treatment works treating domestic sewage
USCG	United States Coast Guard
WET	whole effluent toxicity
WLA	wasteload allocation
WWTP	wastewater treatment plant

I. FACILITY INFORMATION

A. Applicant

Name: **United States Coast Guard (USCG)
Integrated Support Command (ISC) Kodiak**

NPDES Permit No.: **AK-002064-8**

Mailing Address: **P.O. Box 195025
Kodiak, Alaska 99619-5025**

Facility Location: **Building N38
USCG ISC Kodiak
Kodiak, Alaska (see Appendix A for map)**

Facility Contacts: **Ed Denoylles, Environmental Staff Engineer,
907/487-5320 x208
Ernie Scheidler, Operator, 907/487-5728**

B. Facility Activity

The United State Coast Guard (USCG) Integrated Support Command (ISC) Kodiak operates a wastewater treatment plant (WWTP), which was built in 1976, that provides secondary treatment of domestic wastes, landfill leachate, and oily bilge water prior to discharge to St. Paul Harbor, Kodiak Island, on the west side of the Gulf of Alaska. The maximum month design flow of the facility is 1.5 million gallons per day (MGD). During the period October 2000 – September 2003, the treatment plant had a average annual flow of 0.531 MGD and a maximum daily flow of 2.013 MGD. This facility serves a population of approximately 2500. The plant receives domestic wastewater from residential sources on the Coast Guard Station as well as from the Kodiak Airport; it also receives landfill leachate and oily bilge water from Coast Guard vessels. Oily wastewater is processed through the Liquid Oily Waste System at the WWTP before discharging into the headworks for treatment along with the rest of the influent. Biosolids generated in the treatment process are hauled to the City of Kodiak WWTP for processing and disposal to land application.

C. Facility Background

1. Permit Status

- a. 1979 NPDES Permit – The U.S. Environmental Protection Agency (EPA) last issued an NPDES permit for the ISC Kodiak WWTP on September 27, 1979; it became effective on October 29, 1979 and expired on October 29, 1984.
- b. 1988 State Waste Disposal Permit – On March 30, 1988, the Alaska Department of Environmental Conservation (ADEC) issued a State Waste Disposal Permit for the discharge of domestic wastewater from wastewater treatment plant; the permit expired January 1, 1993.

- c. 1998 State Waste Disposal Permit – On January 23, 1998, the Alaska Department of Environmental Conservation (ADEC) issued a State Waste Disposal Permit for the discharge from wastewater treatment plant of domestic wastewater and groundwater and surface water collected during site investigation/remediation of underground storage tanks and associated pipelines as well as waters from solid waste management units and hazardous waste management units. The state permit limited flow, TSS, BOD, pH, fecal coliform, and total aromatic hydrocarbons; the permit expired January 1, 2003.
- d. 2001 NPDES permit application – On June 25, 2001, EPA received an updated NPDES permit application. Further information requested by EPA was submitted in April 2002 and in January, February and March 2004.

2. Compliance History

- a. Fecal coliform levels have consistently been reported far above the limits in the 1979 permit (800 colonies/100 ml–maximum daily limit; 400 colonies/100 ml–weekly average limit; 200 colonies/100 ml–monthly average limit) over the past 8 years of discharge monitoring reports (DMRs), which were reviewed for this permit reissuance. The 1998 state waste discharge permit allowed 30,000 colonies/100 ml as a daily maximum limit; occasional violations of this limit have also been noted. However, the conditions of the state permit are not federally enforceable under the Clean Water Act.
- b. TSS loading levels above the maximum loading allowed (381 lbs/day) were reported in January 1997 and March 1998.
- c. BOD₅ loading levels above the maximum loading allowed (381 lbs/day) were reported in February 1997.
- d. No enforcement actions were taken by EPA on these exceedances.

II. RECEIVING WATER

A. Location of Discharge

The permittee discharges from Outfall 001, located at latitude: 57° 44' 28.5156" N and longitude: 152° 28' 43.1803" W to St. Paul Harbor on the northeastern coast of Kodiak Island, facing the Gulf of Alaska.

B. Water Quality Standards

The USCG Integrated Support Command WWTP discharges to St. Paul Harbor at a point that is 1300 feet from shore at a depth of 13 feet below mean low low water. Alaska state water quality standards apply to this receiving water.

Alaska's water quality standards are composed of classification of waters, numeric and/or narrative water quality criteria, and an anti-degradation policy. The State designates the characteristic uses for each class. The State further designates the numeric and/or narrative water quality criteria necessary to protect the characteristic uses for which its water bodies are protected. A third component of the water quality standard is the State's anti-degradation policy, which aims to maintain existing in-stream uses and the level of water quality necessary to protect them.

St. Paul Harbor is a marine water on the western side of Chiniak Bay, which opens onto the west side of the Gulf of Alaska. Protected uses for marine waters include water supply for aquaculture, seafood processing, and industry; contact and secondary recreation; growth and propagation of fish, shellfish, other aquatic life, and wildlife; and harvesting for consumption of raw mollusks or other raw aquatic life.

Section III of this fact sheet shows in more detail how the Alaska water quality standards were considered in developing limits and conditions proposed in the draft permit.

C. Water Quality Limited Segment

In accordance with section 303(d) of the Clean Water Act, the state of Alaska must identify state waters not achieving water quality standards in spite of application of technology-based controls in the NPDES permits for point sources. Such water bodies are known as water quality limited segments (WQLSs). A water quality limited segment is any water body or definable portion of a water body where it is known that water quality does not meet applicable water quality standards and/or is not expected to meet applicable water quality standards. St. Paul Harbor is not listed as an impaired water on Alaska's Final Draft 2002 - 2003 Integrated Water Quality Monitoring and Assessment Report (August 2003), which was approved by EPA Region 10 on February 27, 2004.

III. EFFLUENT LIMITATIONS

EPA adhered to the requirements of the Clean Water Act (CWA), state and federal regulations, and EPA's 1991 *Technical Support Document for Water Quality-Based Toxics Control* (TSD) to develop the effluent limits in the draft permit. In general, the CWA requires that the effluent limit for a particular pollutant be the more stringent of either the technology-based limit or water quality-based limit. Appendix C provides discussion on the legal basis for the development of technology-based and water quality-based effluent limits.

EPA sets technology-based limits based on the effluent quality that is achievable using readily available technology. EPA evaluates the technology-based limits to determine whether they are adequate to ensure that water quality standards are met in the receiving water. If the limits are not adequate, EPA must develop more stringent water quality-based limits. Water quality-based limits are designed to prevent exceedances of the water quality standards in the receiving waters. The proposed permit includes technology-based limits for BOD₅, total suspended solids (TSS), and fecal coliform and water-quality based limits for pH, total residual chlorine, dissolved oxygen, total aromatic hydrocarbons, and total aqueous hydrocarbons. At the state's request, effluent flow volume is also limited. Appendix C describes in detail how the effluent limits were developed.

Table 1 summarizes the effluent limitations that are proposed in the draft permit along with the limits imposed in the 1979 permit.

In addition to the requirements listed in Table 1 below, the following limitations shall also apply:

1. The permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have clearly been identified in the permit application process.
2. The discharge may not cause nor contribute to concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life.
3. The discharge may not cause nor contribute to a film, sheen, floating oil, discoloration, sludge, solid, or emulsion on the surface of the water, in the water column, or on the bottom of the receiving waterbody or on adjoining shorelines.
4. The discharge may not include, alone or in combination with other substances or wastes, floating solids, debris, sludge, deposits, foam, scum or other residues that make the water unfit or unsafe for any marine use.

Table 1 Proposed Effluent Limitations Compared to Current Limitations for Outfall 001							
Parameters	Units	Average Monthly Limits		Average Weekly Limits		Maximum Daily Limits	
		<u>1979 EPA Permit</u>	Proposed	<u>1979 EPA Permit</u>	Proposed	<u>1979 EPA Permit</u>	Proposed
BOD ₅	mg/l	30	30	45	45	60	60
	lbs/day	190	380	286	560	381	750
	% removal	85%	85%	--	--	--	--
TSS	mg/l	30	30	45	45	60	60
	lbs/day	190	380	286	560	381	750
	% removal	85%	85%	--	--	--	--
Fecal coliform	FC/100 ml	200	200	400	400	800	800
Total Residual Chlorine	mg/l	--	0.12	--	--	2.0 mg/l	0.33
pH	Standard Units (s.u.)	--	--	--	--	6.0 – 9.0	6.0 - 9.0
Outfall flow	MGD	--	--	--	--	--	1.5
Dissolved Oxygen	mg/l	--	--	--	--	--	2.0 minimum

Table 1 <u>Proposed Effluent Limitations Compared to Current Limitations</u> for Outfall 001							
Parameters	Units	Average Monthly Limits		Average Weekly Limits		Maximum Daily Limits	
		<u>1979 EPA Permit</u>	<u>Proposed</u>	<u>1979 EPA Permit</u>	<u>Proposed</u>	<u>1979 EPA Permit</u>	<u>Proposed</u>
Total Aqueous hydrocarbons	µg/l	–	–	–	–	–	15
Total Aromatic hydrocarbons	µg/l	--	--	--	--	--	10

IV. MONITORING REQUIREMENTS

Section 308 of the Clean Water Act and the federal regulation at 40 CFR §122.44(i) require that monitoring requirements be included in permits to determine compliance with effluent limitations. Section 308 also provides EPA authority to require additional effluent monitoring to gather information for possible future effluent limitations or to evaluate effluent impacts on receiving water quality.

A. Basis for Effluent Monitoring

The draft permit requires monitoring of the effluent for BOD₅, TSS, fecal coliform, total residual chlorine (if used for disinfection), dissolved oxygen, and pH to determine compliance with the limits; it also requires monitoring of the influent for BOD₅ and TSS in order to calculate monthly removal rates. In addition, the permit includes requirements to monitor the effluent for copper, nickel, zinc, ammonia, priority pollutants, oil and grease, whole effluent toxicity, and temperature to gather data to determine if there is a reasonable potential for pollutants from this discharge to cause a violation of the Alaska water quality standards in St. Paul Harbor.

The permittee is responsible for conducting the monitoring and reporting the results to EPA and to ADEC on monthly discharge monitoring reports (DMRs).

Table 2 presents the proposed plant monitoring requirements for the draft permit.

Table 2: Proposed Monitoring Requirements for Outfall 001

<u>Parameter</u>	<u>Units</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Location</u>
Outfall flow	MGD	continuous	recording	effluent
Biochemical Oxygen Demand (BOD ₅)	mg/l	1/week	24 hour composite	influent & effluent
Total Suspended Solids (TSS)	mg/l	1/week	24 hour composite	influent & effluent
Fecal Coliform	#/100 ml	1/week	grab	effluent
Total Residual Chlorine (only if discharge is chlorinated)	mg/l	daily	grab	effluent
pH	s.u.	daily	grab	effluent
Temperature	degrees Celsius	daily	continuous	effluent
Total Ammonia (NH ₃)	mg/l	quarterly	24 hour composite	effluent
Copper	mg/l	quarterly	24 hour composite	effluent
Nickel	mg/l	quarterly	24 hour composite	effluent
Zinc	mg/l	quarterly	24 hour composite	effluent
Oil and Grease	mg/l	3 in 4½ years	grab	effluent
Dissolved oxygen	mg/l	1/month	grab	effluent
Total aqueous hydrocarbons	µg/l	1/month	grab	effluent
Total aromatic hydrocarbons	µg/l	1/month	grab	effluent
Total Kjeldahl Nitrogen (TKN)	mg/l	3 in 4½ years	24 hour composite	effluent
Nitrate plus nitrite Nitrogen	mg/l	3 in 4½ years	24 hour composite	effluent
Total phosphorus	mg/l	3 in 4½ years	24 hour composite	effluent
Total Dissolved solids	mg/l	3 in 4½ years	24 hour composite	effluent
Priority Pollutants	mg/l	3 in 4½ years ¹	grab	effluent
Whole effluent toxicity	T.U.	4 in 1 st 4 years ¹	grab	effluent

1. One test must be in the first year of the permit term with report due with the next DMR.

B. Whole Effluent Toxicity (WET) Testing

Landfill leachate comprises about 9% of the influent to the WWTP; in addition, it receives frequent lesser volumes from the Liquid Oily Waste System. Therefore, WET testing is included in the permit to demonstrate any potential toxicity resulting from the WWTP discharge. The permittee must collect effluent samples once in each of the first four years of the permit term, each in a different calendar quarter, to determine if the effluent is creating chronic toxicity in the receiving water. Samples should be timed to assess the impact of bilge water and landfill leachate influent on the effluent water quality.

C. Additional Effluent Testing

The permittee must conduct testing for conventional and nonconventional compounds listed in Part B.6 of Form 2A of the NPDES permit application form as well as expanded effluent (priority pollutants) testing as described in Part D of Form 2A; at least three pollutant scans must be conducted in four and one-half years before the next permit application is due.

D. Landfill Leachate Testing

The landfill leachate discharge to the WWTP comprises about ten percent of the influent flow. In a municipality, this large flow would be considered a significant industrial user and would be subject to annual inspection and at least semiannual sampling requirements in order to characterize the flow and protect against adverse impacts to the treatment plant, the receiving water, the biosolids quality, or the worker health and safety at the WWTP. In order to provide a similar level of knowledge about the inflow to the permittee's WWTP, EPA is including in the permit a requirement for semi-annual monitoring of the landfill leachate being discharged to the WWTP. The parameters being monitored are those included in the expanded effluent testing of the WWTP plus other parameters that have been detected in the leachate in previous testing or that are usually pollutants of concern in landfill leachate¹

E. Basis for Surface Water Monitoring

The purpose of surface water monitoring is to determine water quality conditions as part of the effort to evaluate the reasonable potential for the discharge to cause an excursion above water quality criteria in the receiving water. Monitoring at the edge of the zone of initial dilution is used to determine background levels in the receiving water. This data will be used during the next permitting cycle to determine the need for incorporating water quality-based effluent limits in the permit.

The draft permit requires monitoring at the edge of the zone of initial dilution, five meters from the outfall, four times each year, including at least once in the summer and once in the winter.² Table 3 summarizes the proposed surface water monitoring requirements for the draft permit.

¹ U.S. Environmental Protection Agency. 1998. Development Document for Proposed Effluent Limitations Guidelines and Standards for the Landfills Point Source Category. (EPA-821-R-97-022, January 1998).

² E-mail communication from Kenwin George (ADEC) to Renee Evans (ADEC) & Tim Wingerter (ADEC), August 19, 2004.

Table 3: Proposed Surface Water Monitoring Requirements (At 5 meters from the outfall)				
<u>Parameter</u>	<u>Units</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Method Detection Level</u>
pH	s.u.	quarterly	grab	--
Total Ammonia (NH ₃) as N	mg/l	quarterly	grab	50 µg/l ³
Temperature	°C.	quarterly	grab	--
Salinity	%	quarterly	grab	--
Total Residual Chlorine ⁴	µg/l	quarterly	grab	100 µg/l ⁴
Copper	µg/l	quarterly	grab	0.5 µg/l ⁴
Nickel	µg/l	quarterly	grab	0.5 µg/l ⁴
Zinc	µg/l	quarterly	grab	1.8 µg/l ⁴
Dissolved Oxygen	mg/l	quarterly	grab	2.0 mg/l

F. Representative Sampling

The draft permit has expanded the requirement in the federal regulations regarding representative sampling (40 CFR §122.41[j]). This provision now specifically also requires representative sampling whenever a bypass, spill, or non-routine discharge of pollutants occurs, if the discharge may reasonably be expected to cause or contribute to a violation of an effluent limit in the permit. This provision is included in the draft permit because routine monitoring could miss permit violations and/or water quality standards exceedences that could result from bypasses, spills, or non-routine discharges. This requirement directs the permittee to conduct additional, targeted monitoring to quantify the effects of such occurrences on the final effluent discharge.

V. **OTHER PERMIT CONDITIONS**

A. Quality Assurance Plan

Federal regulations at 40 CFR §122.41(e) require permittees to properly operate and maintain their facilities, including “adequate laboratory controls and appropriate quality assurance procedures.” To implement this requirement, the draft permit requires that the permittee develop or update a Quality Assurance Plan (QAP) to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The QAP must include standard operating procedures that the permittee must follow for collecting, handling, storing, and shipping samples, for laboratory analysis, and for data

³ If all previous tests have shown positive values at levels above the method detection levels of a less sensitive method, the permittee may request EPA’s permission to use the less sensitive method.

⁴ Chlorine monitoring is only required if chlorination is used for disinfection of the effluent.

reporting. The draft permit requires the permittee to submit to EPA within 120 days of the effective date of the permit its certification that the QAP has been developed or updated and is being implemented.

B. Facility Planning Requirement

The draft permit requires the permittee to develop a plan when the annual average flow reaches 85% of the design flow of the plant. The plan requires the permittee to develop a strategy for remaining in compliance with the effluent limits in the permit.

C. Sewage Sludge

Under the Clean Water Act (CWA), facilities which generate sewage sludge are subject to national standards for sewage sludge and to NPDES sludge permitting.

EPA Region 10 separates wastewater and sludge permitting. Under the CWA, EPA has the authority to issue separate sludge-only permits for the purposes of regulating biosolids. EPA will issue a sludge-only permit to this facility at a later date. The NPDES rules require the facility to submit an application for a sewage sludge permit (Form 2S).

Until future issuance of a sludge-only permit, sludge management and disposal activities at the facility continue to be subject to the national sewage sludge standards at 40 CFR §503. These regulations are self-implementing; therefore, permittees must comply with them, whether or not a permit has been issued.

D. Standard Permit Provisions

In addition to facility-specific requirements, most of sections II, III, and IV of the draft permit contain standard regulatory language. Standard regulatory language applies to all permittees and must be included in NPDES permits. Because it is based on regulations, standard regulatory language cannot be challenged in the context of an NPDES permit action. Standard regulatory language addresses conditions, such as monitoring, recording, and reporting requirements, compliance responsibilities, and general requirements.

VI. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act (ESA) requires federal agencies to consult with the U.S. National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (collectively referred to as “the Services”) regarding potential effects that a federal action may have on threatened or endangered species. The Services have identified the following threatened species in the vicinity of St. Paul Harbor.

Endangered Species:

Stellar Sea Lion (*Eumetopias jubatus*)

Threatened Species:

Steller's eider (*Polysticta stelleri*)

Proposed Threatened Species:

Northern sea otter (*Enhydra lutris kenyoni*)

EPA has determined that permitting the continued discharge from this facility is **not likely to adversely impact** any of these species. Appendix D provides further information on the listed species.

B. Essential Fish Habitat

Under the Magnuson-Stevens Fishery Conservation and Management Act, NOAA Fisheries and various fisheries management councils must identify and protect "essential fish habitat" for species managed under the Act. Appendix D provides further information on the managed species in the area of Kodiak Island. The EPA tentatively has determined that reissuance of this NPDES permit will have **no effect** on essential fish habitat. Any comments received from the NOAA Fisheries regarding the finding of **no effect** will be considered prior to reissuance of this permit.

C. State Certification

Section 401 of the Clean Water Act requires EPA to seek certification from the State of Alaska for any discharges into state waters that the permit is adequate to meet State water quality standards before issuing a final permit. The regulations allow for the state to stipulate more stringent conditions in the permit, if the certification cites the Clean Water Act or State law references upon which that condition is based. In addition, the regulations require that the state's certification include statements on the extent to which each condition of the permit can be made less stringent without violating the requirements of State law.

The state submitted its preliminary certification of the draft permit, conditions of which were incorporated into the draft permit. Those conditions are the following:

1. The ADEC requires an effluent flow rate limitation of 1.5 million gallons per day (mgd) for a daily maximum to be measured at outfall 001. The minimum monitoring frequency is daily measurement and recording.
2. The ADEC requires a maximum biochemical oxygen demand (BOD₅) effluent limitation of 30 mg/l for a monthly average, 45 mg/l for a weekly average and 60 mg/l for a daily maximum to be measured at outfall 001. The minimum monitoring frequency is weekly.
3. The ADEC requires a maximum total suspended solids (TSS) effluent limitation of 30 mg/l for a monthly average, 45 mg/l for a weekly average and 60 mg/l for a daily maximum to be measured at outfall 001. The minimum monitoring frequency is weekly.
4. The ADEC requires a maximum effluent limitation for fecal coliform bacteria of 15,000 per 100 ml of sample for a monthly average, and 20,000 per 100 ml of

sample for a daily maximum to be measured at outfall 001. The minimum monitoring frequency is weekly.

5. The ADEC requires a maximum fecal coliform bacteria limit of 14 per 100 ml of sample for a monthly average and 43 per 100 ml of sample for a daily maximum to be measured at the edge of the mixing zone. The minimum monitoring frequency is twice per year (once in the summer and once in the winter).
 - a. EPA does not apply limits in the ambient receiving water; limits protective of the ambient standards are applied at the outfall. However, receiving water monitoring is required, in this case, well within the mixing zone specified by the state.
6. The ADEC requires a maximum effluent limitation for total chlorine residual of 0.5 mg/l for a monthly average, 0.75 mg/l for a weekly average, and 1.0 mg/l for a daily maximum at outfall 001. The minimum monitoring frequency is 3 times per week if chlorine is used as a disinfectant.
7. The ADEC requires a maximum limit for total chlorine residual of 0.0075 mg/l to be measured at the edge of the zone of initial dilution (ZID) for outfall 001. The detection limit for total chlorine residual shall be 0.1 mg/L. The minimum monitoring frequency is twice per year (once in the summer and once in the winter) if chlorine is used as a disinfectant.
 - a. EPA does not apply limits in the ambient receiving water; to meet water quality standards in the receiving water, appropriate limits are applied at the outfall. Receiving water monitoring is required at 5 meters from the outfall.
8. The ADEC requires a maximum effluent limitation for pH of 6.0 to 9.0 standard units, to be measured at outfall 001. The minimum monitoring frequency is 3 times per week.
9. The ADEC requires a maximum limitation for pH of 6.5 to 8.5 standard units and within 0.2 standard units of the receiving water, to be measured at the edge of the ZID. The minimum monitoring frequency is twice per year (once in the summer and once in the winter).
 - a. EPA does not apply limits in the ambient receiving water; limits protective of the ambient standards are applied at the outfall. Receiving water monitoring is required at 5 meters from the outfall.
10. The ADEC requires a minimum effluent limitation for dissolved oxygen (DO) of 2.0 mg/l to be measured at outfall 001. The minimum monitoring frequency is once per month.
11. The ADEC requires a minimum limitation for dissolved oxygen (DO) of 5.0 mg/l and maximum of 17 mg/l to be measured at the edge of the ZID. The minimum monitoring frequency is twice per year (once in the summer and once in the winter).

- a. EPA does not apply limits in the ambient receiving water; limits protective of the ambient standards are applied at the outfall. Receiving water monitoring is required at 5 meters from the outfall.
12. The ADEC requires that floating solids, debris, sludge, deposits, foam, scum and other residues cannot be disposed of alone or in combination with other substances in quantities that would make the water unfit or unsafe for any marine use.
13. The ADEC requires a minimum of one warning sign be placed on the shoreline near the outfall line. The sign(s) shall state that secondary treated domestic wastewater is being discharged and shall provide the name and owner of the facility and a contact number for additional information.
14. The ADEC will require monitoring of the effluent at a minimum of monthly for total aqueous and total aromatic hydrocarbons. The water quality standard limit that must be met in the effluent is 15 ug/l for total aqueous hydrocarbons and 10 ug/l for total aromatic hydrocarbons.

After the public comment period, a proposed final permit will be sent to ADEC for final certification. If ADEC authorizes different requirements in its final certification, EPA will incorporate those requirements into the permit.

D. Coastal Zone Management Act

The USCG Kodiak certifies that the activities authorized by this draft permit are consistent with local and state coastal management plans. The draft permit and consistency determination will be submitted to Alaska Department of Natural Resources for interagency review during the public comment period. The requirements for State Coastal Management Review and approval must be satisfied before the permit may be issued.

E. Antidegradation

In setting permit limitations, EPA must consider the State's antidegradation policy. This policy is designed to protect existing water uses and the level of water quality necessary to protect existing uses. If the water quality 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 ADEC allows the reduction of water quality for a short-term variance after application and submittal of sufficient evidence. Such variances are allowed only in certain circumstances, when necessary to accommodate important economic or social development in the area where the water is located.

The draft permit has effluent limits for biochemical oxygen demand, total suspended solids, fecal coliform, pH, and total residual chlorine from outfall 001. Because the issuance of this permit places continuing and more restrictive limits on an already existing discharge, the requirements in the permit will improve water quality and therefore will comply with the State's antidegradation requirements.

F. Permit Expiration

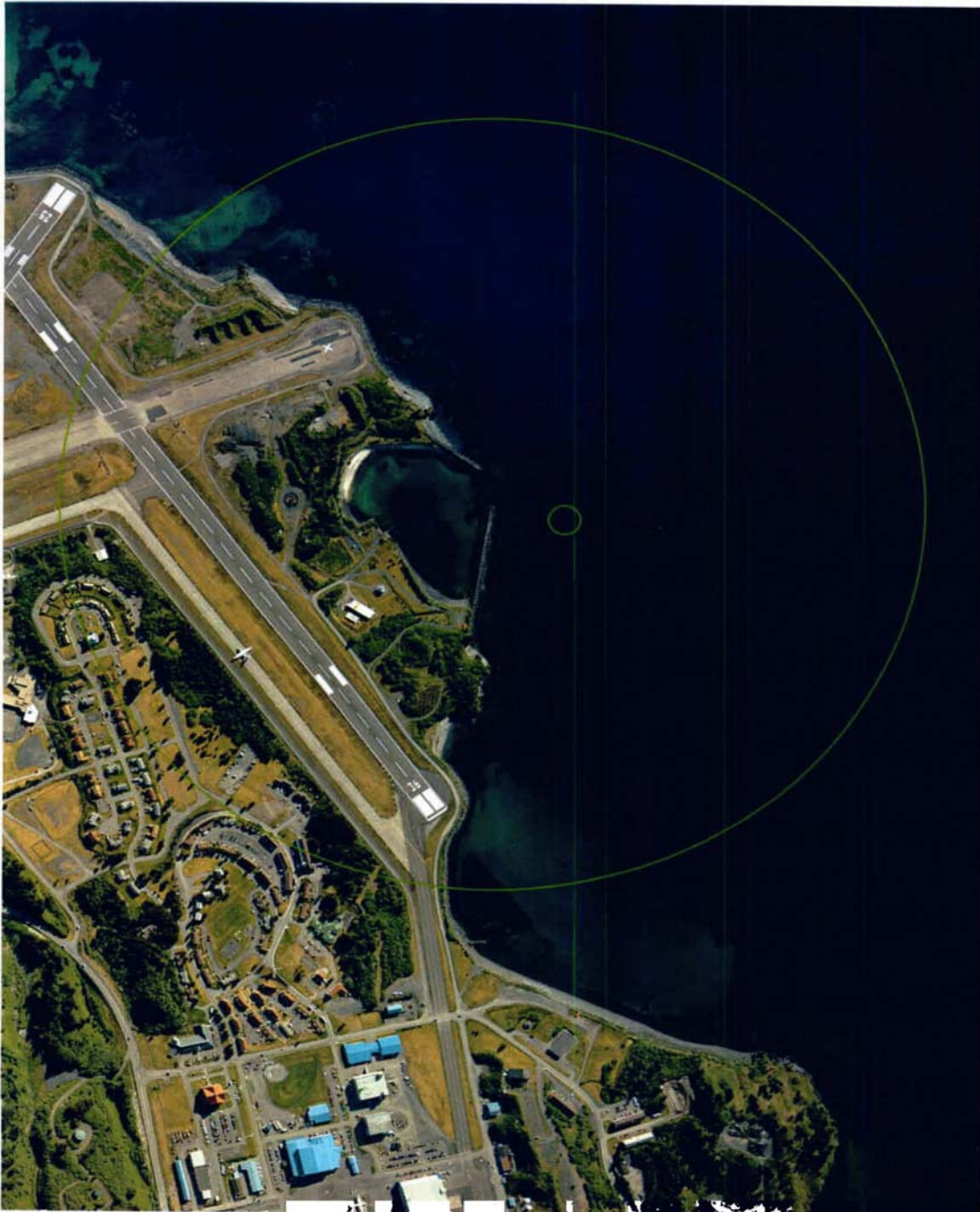
This permit will expire five years from the effective date of the permit.

APPENDIX A

Facility Location

**United States Coast Guard
Integrated Support Command Kodiak
Wastewater Treatment Plant**

Figure A-1



APPENDIX B

Waste Streams and Treatment Processes

I. DISCHARGE COMPOSITION

In its NPDES application and in Discharge Monitoring Reports, the USCG Integrated Support Command Kodiak reported the pollutants listed in Table B-1 as being detected in its discharge from outfall 001. The toxic and conventional pollutant categories are defined in the regulations (40 CFR §401.15 and §401.16, respectively). The category of nonconventional pollutants includes all pollutants not included in toxic or conventional categories.

Table B-1 Pollutants Detected in Discharge		
Pollutant Type	Parameter	Maximum Reported
Conventional	Biochemical oxygen demand (BOD ₅), weekly average	37.8 mg/l 153.1 lbs/day
	Total suspended solids (TSS) weekly average	49.2 mg/l 136.5 lbs/day
	pH, min - max	6.5– 7.6
	Fecal coliform bacteria average	109,000 colonies/100 ml 6533 colonies/100 ml
Toxic	Copper	4.65 µg/l
	Nickel	2.98 µg/l
	Zinc	15 µg/l
	Di-n-butyl phthalate	1.9 µg/l
Unconventional	Ammonia	2.37 mg/l

II. TREATMENT PROCESS

Domestic wastewater, as well as effluent from the Liquid Oily Waste System (see below) and from the Coast Guard landfill, enters the treatment plant at the headworks, in which a bar screen catches larger solids.

Activated sludge is introduced into the wastewater in the headworks and the resultant mixed liquor flows to the distribution boxes that split the flows between the two aeration basins. In the aeration basins, large amounts of air are entrained in the wastewater to enable the bacterial processes to break down the organic matter in the wastewater. Treated water is routed to two secondary clarifiers where solids settle out of the water. Secondary effluent from the clarifiers is routed through the chamber designed to provide contact time for chlorine disinfection. However, chlorine is not being used at this time because past state permits have allowed higher levels of fecal coliform in the effluent, so that the use of chlorine would not be required.

Some of the sludge from the clarifiers is returned to the headworks to augment the activated sludge in the aeration basins. Most of the sludge is routed to the aerobic digester, where it is digested and then dewatered to 6 to 7% using a filter belt press before being hauled to the City of Kodiak's wastewater treatment plant. There, the sludge is further dewatered and caked to 30% solids before it is sent to the Kodiak Island Borough Landfill.

The Liquid Oily Waste System processes oily wastewater including bilge water from cutters and other boats, and used oil from hangers, shops, and various fuel tanks and spills. Used oil is processed separately from oily wastewater, which is treated with flocculent and has the pH adjusted to 8.5 – 9.0 before filtration to remove solids and oil. Each batch is sampled for pH, total petroleum hydrocarbons, and BTEX (benzene, toluene, ethylbenzene, and xylenes) and held until results are received, before discharging to the treatment plant. The 1998 State Waste Discharge Permit limited BTEX in non-domestic discharges to 10 µg/l. Total yearly discharge to the WWTP is on the order of 100,000 gallons (about 0.05% of the total yearly discharge of the WWTP).

The WWTP also receives leachate from the Coast Guard landfill through its collection system. The flow varies with precipitation and runoff and averages around 20 million gallons per year (about 9% of the total influent flow to the WWTP). Samples have shown detectable levels of arsenic, barium, selenium, vinyl chloride, and chloroethane.

APPENDIX C

Basis for Effluent Limitations

I. Statutory and Legal Basis for Limits

Sections 101, 301(b), 304, 308, 401, 402, and 405 of the Clean Water Act (CWA) provide the basis for the effluent limitations and other conditions in the draft permit. EPA evaluates the discharge with respect to these sections of the CWA and the relevant NPDES regulations to determine which conditions to include in the draft permit.

Section 301(b)(2) of the CWA requires technology-based limits on effluents. A technology-based effluent limit assumes a minimum level of treatment for a discharger, based on currently available treatment technology. EPA determines which technology-based limits must be incorporated into the permit.

The Clean Water Act requires a publicly owned treatment works (POTW) to meet effluent limits based on the assumption of secondary (biological) treatment in the POTW. Treatment works owned by municipalities or states are defined as POTWs under the CWA and are subject to technology-based *secondary treatment effluent limits*.

Al though it does not fall under the strict definition of a POTW, the USCG Integrated Support Command Kodiak wastewater treatment plant treats domestic sewage, as well as wastewater from a landfill and an oily water separating system located at a distance from the plant. For such discharges, effluent limitations are developed using Best Professional Judgment (BPJ). The authority for using BPJ is contained in §402(a)(1) of the CWA. Because this facility is analogous in all physical respects to a POTW, the BPJ-based limits incorporated into the draft permit are based on technology-based secondary treatment effluent limits for POTWs.

The Clean Water Act further requires that the effluent limits for a particular pollutant be the more stringent of either the technology-based or the water quality-based limit. To meet this requirement, EPA evaluates the effect of the effluent at secondary treatment limits on the water quality in the receiving water to see if it could result in any exceedances of the water quality standards in the receiving water. If exceedances could occur using the technology-based limits, EPA must calculate and apply more stringent water quality-based effluent limits, which are designed to ensure that the water quality standards are met.

Secondary treatment effluent limits apply to five-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH; however, effluent from a POTW may contain other pollutants, such as bacteria, chlorine, ammonia, metals, or toxic organics, depending on the type of treatment system used and the constituents of the influent to the treatment works. When technology-based effluent limits do not exist for a particular pollutant expected to be in the effluent, EPA must determine if the pollutant may cause or contribute to an exceedance of the water quality standards in the receiving water. If a pollutant causes or contributes to an exceedance of a water quality standard, water quality-based effluent limits for the pollutant must be incorporated into the permit.

The draft permit limits reflect whichever requirements (technology-based or water quality-based) are more stringent. The limits that EPA is proposing in the draft permit are found in Section III in the body of this fact sheet. This Appendix describes the technology-based and water quality-based evaluation for the permittee's discharge.

II. Technology-based Evaluation

A. Secondary Treatment – Concentration-based Limits

1. BOD₅, TSS, and pH – The 1972 Clean Water Act required POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the Act established a required performance level, referred to as “secondary treatment,” that all POTWs were required to meet by July 1, 1977. EPA specified secondary treatment requirements in 40 CFR §133.102. They identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD₅, TSS, and pH. In addition, the Alaska state regulations at 18 AAC §72.990(59) define secondary treatment similarly, but add the limit of 60 mg/l for the arithmetic mean of all samples collected in a 24-hour period. The ADEC included these limits in its pre-certification of the draft permit
2. Chlorine – A technology-based average monthly chlorine effluent limitation of 0.5 mg/l for wastewater treatment plants is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater (1976)* states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/l chlorine residual is maintained after 15 minutes of contact time. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/l limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. The AWL is derived by multiplying the AML by 1.5, resulting in an AWL for chlorine of 0.75 mg/l.
3. Fecal coliform – There are no technology-based effluent guidelines for publicly owned treatment works for fecal coliform. In the absence of such guidelines, Section 402(a)(1) of the CWA authorizes the Administrator to issue a permit containing “such conditions as the Administrator determines are necessary to carry out the provisions of the Act.” In such cases, technology-based limits are developed using Best Professional Judgment (BPJ) under 40 CFR §125.3. The BPJ analysis follows:
 - a. Best Professional Judgment (BPJ) Determination
 - (1) The technology of disinfection, usually chlorination (with or without dechlorination) or ultraviolet radiation, is widely used in POTWs throughout the country and the world. It easily achieves the fecal coliform limits proposed in this permit at a cost that is borne by the vast majority of POTWs. Fecal coliform is an indicator of bacteriological contamination, which presents a probable detriment to human health and wildlife, including threatened and endangered species, in the area. Therefore, requiring disinfection that is widely used in similar facilities does not represent an unusual economic burden compared to the benefits of fostering a healthy environment both for humans and

wildlife. (Recent autopsies on Steller's eiders, which are listed as threatened under the Endangered Species Act, from the Unalaska area have found subcutaneous bacteriological infections that may be related to high fecal coliform levels in the water. Further investigations are ongoing.⁵)

- (2) The facility was built in 1976, including a chlorine contact chamber, which was used for the first years of its operation, including at the time of the issuance of the 1979 permit. The contact chamber still exists, but is not used for chlorination.
- (3) No process changes have occurred which would mitigate against the reinstatement of disinfection at this facility.
- (4) The facility could reinstate chlorination, potentially coupled with dechlorination because of the low chlorine limit proposed in this permit. UV disinfection is also a technology that may be installed successfully.

b. Choice of technology-based limit

- (1) A technology-based limit for fecal coliform (FC) was promulgated in the 1973 secondary treatment effluent limitations at 40 CFR §133.102(c): 200 FC/100 ml as a monthly geometric mean and 400FC/100 ml as a weekly geometric mean. The basis for applying this technology-based limit to POTW effluents was the large number of organisms that accompany fecal coliform in typical domestic wastewater, organisms that may cause plant, animal, or human diseases.⁶

Though later rescinded as part of the *secondary treatment effluent limitations*⁷, the same limits have been applied widely across the country to secondary treatment effluents. This wide experience has shown that these limits are technologically and economically achievable using standard disinfection technology in POTWs.

- (2) Alaska defines *disinfection* in terms of technology-based standards⁸ as producing an effluent with limits of 200 FC/100 ml (30 day average), and 400 FC/100 ml (7 day average).
- (3) An average monthly limit of 200 FC/100 ml and an average weekly limit of 400 FC/100 ml, as well as a daily maximum limit of 800 FC/ml, were applied in the previous EPA permit, at which

⁵ Telephone conversation with Ellen Lance, US Fish and Wildlife Service. May 26, 2004.

⁶ Water Pollution Control Federation. *Chlorination of Wastewater*. 1976. p.25

⁷ *41 Federal Register 30289 (7/26/76)*

⁸ *18 Alaska Administrative Code 72.990(21)*

time the facility was disinfecting its effluent and achieving an average of 20 FC/100 ml.

These technology-based limits are listed in Table C-1 below.

Table C-1: Technology-based Limits				
Parameter	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Minimum Percent Removal
BOD ₅	30 mg/l	45 mg/l	60 mg/l	85%
TSS	30 mg/l	45 mg/l	60 mg/l	85%
Chlorine, Total residual	0.5 mg/l	0.75 mg/l	--	--
Fecal coliform	200 FC/100 ml	400 FC/100 ml	--	--
pH	between 6.0 and 9.0 standard units			

B. BOD₅ and TSS, mass based limits: Federal regulations at 40 CFR §122.45(f) require BOD₅ and TSS limitations to be expressed as mass based limits using the design flow of the facility.

1. **Monthly Average Loading** – BOD₅ and TSS

a. $30 \text{ mg/l} \times (\text{Design flow}) \times (\text{Conversion factors}) = \text{loading}$

$(30 \text{ mg/l}) \times (1.5 \times 10^6 \text{ gallons/day}) \times (3.8 \text{ l/gal}) \times (2.2 \text{ lbs}/10^6 \text{ mg}) = 380 \text{ lbs/day}$

2. **Weekly Average Loading** – BOD₅ and TSS:

a. $45 \text{ mg/l} \times (\text{Design flow}) \times (\text{Conversion factors}) = \text{loading}$

$(45 \text{ mg/l}) \times (1.5 \times 10^6 \text{ gallons/day}) \times (3.8 \text{ l/gal}) \times (2.2 \text{ lbs}/10^6 \text{ mg}) = 560 \text{ lbs/day}$

3. **Daily Maximum Loading** – BOD₅ and TSS:

a. $60 \text{ mg/l} \times (\text{Design flow}) \times (\text{Conversion factors}) = \text{loading}$

$(60 \text{ mg/l}) \times (1.5 \times 10^6 \text{ gallons/day}) \times (3.8 \text{ l/gal}) \times (2.2 \text{ lbs}/10^6 \text{ mg}) = 750 \text{ lbs/day}$

III. Water Quality-based Evaluation

A. Water Quality Standards

EPA evaluated the USCG ISC Kodiak WWTP discharge to determine compliance with Section 301(b)(1)(C) of the CWA. This section requires the establishment of limitations in permits necessary to meet water quality standards.

The regulations at 40 CFR §122.44(d) implement section 301(b)(1)(C) of the CWA. These regulations require that NPDES permits 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 excursion above any State water quality standard, including State narrative criteria for water quality. The limits must be stringent enough to ensure that water quality standards are met.

EPA uses the approach outlined below in determining whether water quality-based limits are needed and in developing those limits when necessary:

1. Determine the appropriate water quality criterion;
2. Determine whether there is “reasonable potential” to exceed the criterion;
3. If there is “reasonable potential”, develop a wasteload allocation (WLA);
4. Develop an effluent limitation based on WLA.

The first step in developing water quality-based limits is to determine the applicable water quality criteria. The state of Alaska’s water quality standards are found at 18 AAC §70.

The currently applicable criteria were approved by EPA in 2004.

The applicable standards for marine waters are specified in 18 AAC §70.020(b)(13) - (24). Ambient monitoring data is not available for the immediate area of St. Paul’s Harbor.

As discussed in §III of the Fact Sheet and based on review of a priority pollutant scan on the effluent conducted on 1/29/04, the primary pollutants of concern in the discharge include BOD₅, TSS, fecal coliform, and pH; ammonia, temperature, copper, nickel, and zinc have also been measured in the effluent and will be monitored to provide data to evaluate reasonable potential to violate the standards in the next permit cycle. If chlorination is instituted for disinfection in the future, total residual chlorine would also be a pollutant of concern. Each of these is discussed in detail below.

1. BOD₅: – There is no state criteria for BOD₅; therefore, the technology-based limits are applied.
2. Total Suspended Solids – There is no state criteria for TSS; therefore, technology-based limits are applied.
3. pH: The Alaska water quality standard for marine water uses specifies a pH range of 6.5 to 8.5 standard units, with a variation caused by the discharge of not more than 0.2 pH units outside of the naturally occurring range (18 AAC §70.020(b)(18)(A)(i)). Historically, the pH of the effluent has ranged from 6.5 to 7.6. In its pre-certification of this permit, the state specified a limit in the pH values in the effluent of 6.0 to 9.0.

4. **Fecal Coliform:** The most stringent Alaska water quality standard for marine water uses, that for protecting water quality for harvesting for consumption of raw mollusks or other raw aquatic life, requires that the fecal coliform levels shall both not exceed a median most probable number (MPN) of 14 fecal coliform (FC)/100 ml and not have more than 10 percent of all samples obtained for calculating the MPN value exceeding 43 FC/100 ml. (18 AAC §70.020(b)(14))

Between October 1996 – January 2004, fecal coliform levels in the plant effluent ranged as high as 109,000 colonies/100 ml and averaged 6733 colonies/100 ml.

In the state’s pre-certification of this permit, “ADEC requires a maximum effluent limitation for fecal coliform bacteria of 15,000 per 100 ml of sample for a monthly average, and 20,000 per 100 ml of sample for a daily maximum to be measured at outfall 001.

In accordance with state regulation 18 AAC 70.020(14), the most stringent fecal coliform (FC) bacteria limitations for disposals into marine water are a monthly average of 14 FC/100 ml. and a daily maximum of 43 FC/100 ml, these limits must be met at the edge of the mixing zone. Based on the information provided in the State of Alaska Wastewater Discharge Permit Application and site specific conditions, a mixing zone is allowed for fecal coliform bacteria. The mixing zone is defined as 1300 meters in length in the direction of the prevailing current and 55 meters in width, from the diffuser to the to the surface. The limitations are protective of the most stringent State of Alaska Water Quality Standards for Fecal Coliform Bacteria.”⁹

The draft permit limits reflect whichever requirements (technology-based or water quality-based) are more stringent.

Table C-3: Fecal Coliform Limits (FC/100ml)			
	Monthly Average	Weekly Average	Daily Maximum
Water Quality based limits	15,000	--	20,000
Technology-based limits	200	400	--
Selected Limits	<u>200</u>	<u>400</u>	<u>20,000</u>

The monthly average and weekly average technology based limits are as the most stringent. The water quality based limit is the only daily maximum limit available.

- a. Anti-backsliding provision – Under the anti-backsliding provisions Section 402(o) of the CWA and of 40 CFR §122.44(l)(1), effluent

⁹ Letter from Renee Evans (ADEC) to Sharon Wilson (EPA), August 25, 2004

limitations in a prior NPDES permit cannot be relaxed except in the following cases:

- (1) There have been material and substantial alterations or additions to the permitted facility which justify the relaxation;
- (2) New information (other than revised regulations, guidance, or test methods) is available that was not available at the time of permit issuance which would have justified a less stringent effluent limitation;
- (3) Technical mistakes or mistaken interpretations of the law were made in issuing the permit under Section 402(a)(1)(b);
- (4) Good cause exists due to events beyond the permittee's control (e.g., acts of God) and for which there is no reasonably available remedy;
- (5) The permit has been modified under 40 CFR §122.62, or a variance has been granted; or
- (6) The permittee has installed and properly operated and maintained required treatment facilities but still has been unable to meet the permit limitations (relaxation may only be allowed to the treatment levels actually achieved).

b. **Prior Permit Limits** – EPA has determined that none of the exceptions listed in §III.A.4.a, above, apply. Therefore, the prior NPDES limits are compared with the chosen limits in Table C-3, above. Prior limits are the same as the technology-based limits for the monthly average and weekly average limits; they are less than the water quality based daily maximum limit allowed by the state in its pre-certification of this permit. Therefore, the prior limit of 800 FC/100 ml. is chosen as the daily maximum limit.

Table C-4: Anti-Backsliding Comparison Fecal Coliform Limits (FC/100ml)			
	Monthly Average	Weekly Average	Daily Maximum
Previous permit limits	200	400	800
Selected Limits	200	400	20,000
Most Stringent Limits	<u>200</u>	<u>400</u>	<u>800</u>

5. **Ammonia:** The Alaska state water quality standard for marine water uses sets a limit on ammonia based on ambient salinity, temperature, and pH. Since there is not enough ambient or effluent data to evaluate the reasonable potential of this discharge to violate the ammonia standard since the standard is determined on the basis of these parameters, effluent monitoring for ammonia, pH, and temperature and ambient monitoring for ammonia, salinity, pH, and temperature are required in this permit. This will produce the data that will be used in the next permit cycle to evaluate whether there is a reasonable potential for the discharge to violate the ammonia standard.

6. Temperature: The Alaska water quality standard for temperature for marine water uses is 15° C. or less; in addition, no discharge may cause the weekly average temperature to increase more than 1° C. The maximum rate of change may not exceed 0.5° C per hour. Ambient and effluent monitoring for temperature have been incorporated into the draft permit to determine if effluent limits for temperature may be necessary in the future.

 7. Chlorine: The Alaska water quality standard for chlorine for protection of aquatic life in marine water is 7.5 µg/l as a four-day average and 13 µg/l as a one-hour average. Since the facility does not disinfect its effluent with chlorine and since the one sample analyzed for chlorine (1/29/04) did not detect chlorine in the effluent, there is no indication that the effluent would contribute to the violation of the state standard. However, the chlorine limit calculated below is applied in the permit as the effluent limit if the facility does institute chlorination. Effluent and ambient monitoring would also be required.
-

Calculation of Water Quality Based Effluent Limits

Wasteload allocations (WLAs) – The WLA is the concentration at the outfall that would be needed to meet the criteria at the edge of the mixing zone; it is calculated by multiplying the ambient criteria by the dilution ratio; in its pre-certification of this permit, the state allowed a minimum dilution of 27:1 as a mixing zone. This dilution is used to calculate the WLA from the criteria.

$$\text{Acute WLA} = 0.013 \text{ mg/l} \times 27 = 0.35 \text{ mg/l}$$

$$\text{Chronic WLA} = 0.0075 \text{ mg/l} \times 27 = 0.20 \text{ mg/l}$$

Long-Term Averages (LTAs) – The LTA concentrations are the average concentrations in the effluent that will assure that 99% of the time the effluent will be at or below the WLA. The coefficient of variation (CV) varies with the number and spread of samples in the data set. Since there were no effluent data for chlorine, the recommended¹ default CV of 0.6 was used.

¹

EPA 1991. Page 107

Acute LTA: $LTA_a = WLA_a \times e^{-z \sigma}$

where $\sigma^2 = \ln[CV^2 + 1]$

CV = 0.6

z = 2.326 for 99th percentile occurrence probability

$$LTA_a = 0.35 \text{ mg/l} \times 0.321^2 = 0.112 \text{ mg/l}$$

Chronic LTA: $LTA_c = WLA_c \times e^{-z \sigma_4}$

where $\sigma_4^2 = \ln[CV^2/4 + 1]$

CV = 0.6

z = 2.326 for 99th percentile occurrence probability

$$LTA_c = 0.20 \text{ mg/l} \times 0.527^3 = 0.105 \text{ mg/l}$$

Choice of limiting LTA

$LTA_a = 0.112 \text{ mg/l}$

$LTA_c = 0.105 \text{ mg/l}$ – **the limiting LTA**

Limit Derivation - The lowest LTA calculated above is used to derive both the maximum daily and average monthly limits.

Maximum Daily Limit (MDL):

MDL = $LTA \times e^{z \sigma - 0.5 \sigma^2}$

where $\sigma^2 = \ln[CV^2 + 1]$

CV = 0.6

z = 2.326 for 99th percentile occurrence probability

$$MDL = 0.105 \text{ mg/l} \times 3.11^4 = \underline{\underline{0.33 \text{ mg/l}}}$$

² EPA 1991. Table 5-1: *Back Calculations of Long-Term Average.*

³ Ibid.

⁴ EPA 1991. Table 5-2: *Calculation of Permit Limits*

Average Monthly Limit (AML)

$$\text{AML} = \text{LTA} \times e^{-z\sigma_n - 0.5\sigma_n^2}$$

where $\sigma^2 = \ln[\text{CV}^2/n + 1]$

CV = 0.6

z = 1.645 for 95th percentile occurrence probability

n = numbers of samples/month, i.e. 30 in this case

$$\text{AML} = 0.105 \text{ mg/l} \times 1.19^5 = \underline{\underline{\mathbf{0.12 \text{ mg/l}}}}$$

Comparison between Technical & Water Quality Based Chlorine Limit

	Average Monthly	Average Weekly	Maximum Daily
Technical Limit	0.50 mg/l	0.75 mg/l	
Water Quality Limit	0.12 mg/l	--	0.33 mg/l
Selected Limit:	0.12 mg/l	—*	0.33 mg/l

* The selected maximum daily limit is more stringent than the average weekly technology based limit; therefore, the weekly limit is not applied.

Maximum Daily Limit for Total Residual Chlorine: 0.33 mg/l

Average Monthly Limit for Total Residual Chlorine: 0.12 mg/l

8. Dissolved Oxygen: The state’s pre-certification of the permit requires a minimum effluent limitation of 2.0 mg/l with at least monthly monitoring as well as monitoring at the edge of the zone of initial dilution at least twice each year to assess compliance with water quality standards; the permit includes quarterly ambient monitoring.

9. Copper: The Alaska water quality standard for copper for protection of aquatic life in marine water is 3.1 µg/l (dissolved) as a four-day average and 4.8 µg/l (dissolved) as a 24-hour average. Converting to total recoverable using 0.83 as a conversion factor⁶, the most stringent applicable standard is 3.73 µg/l (total recoverable) copper. There is one data point (1/29/04) showing effluent copper at 4.65 µg/l. There is not enough information to calculate a permit limit. Therefore, quarterly monitoring of effluent and receiving water for copper is required in the permit.

⁵ Ibid.

⁶ Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances, as amended through May 15, 2003. Page 25, note 17.

10. Nickel: The most stringent Alaska water quality standard for nickel is for protection of aquatic life in marine water at 8.2 µg/l (dissolved) as a four-day average and 74 µg/l (dissolved) as a one-hour average. Converting to total recoverable using 0.99 as a conversion factor⁷, the most stringent applicable standard is 8.3 µg/l (total recoverable) Nickel. There is one data point (1/29/04) showing effluent nickel at 2.98 µg/l. There is not enough information to determine if there is a reasonable potential to violate the water quality standard. Therefore, quarterly monitoring of effluent and receiving water for nickel is required in the permit.
11. Zinc: The most stringent Alaska water quality standard for zinc is for protection of aquatic life in marine water at 81 µg/l (dissolved) as a four-day average and 90 µg/l (dissolved) as a one-hour average. Converting to total recoverable using 0.946 as a conversion factor⁸, the most stringent applicable standard is 85.6 µg/l total recoverable zinc. There is one data point (1/29/04) showing effluent zinc at 15 µg/l (total recoverable). Although this data point is considerably below the criteria, this is not enough data to determine if there is a reasonable potential to violate the water quality standard. Therefore, quarterly monitoring of effluent and receiving water for zinc is required in the permit.
12. Petroleum hydrocarbons and oil & grease: The most stringent Alaska water quality standard for petroleum hydrocarbons and oils and grease is for protection of water supply for aquaculture at 15 µg/l total aqueous hydrocarbons in the water column and 10 µg/l total aromatic hydrocarbons in the water column. There also may be no concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life. In addition, surface waters and adjoining shorelines must be virtually free from floating oil, film, sheen, or discoloration. The priority pollutant scan, which includes petroleum hydrocarbons, that was conducted on 1/29/04, did not detect any of these compounds. Furthermore, a sample collected on 1/28/04 and analyzed for oil and grease did not show any oil and grease at the detection level of 4.08 mg/l.

In its pre-certification of this permit, the ADEC required monitoring of the effluent at a minimum of monthly for total aqueous and total aromatic hydrocarbons. "The water quality standard limit that must be met in the effluent is 15 ug/l for total aqueous hydrocarbons and 10 ug/l for total aromatic hydrocarbons."⁹

13. Priority pollutants: A priority pollutant scan of an effluent sample collected on 1/29/04 detected only di-n-butyl phthalate and that at 1.9 µg/l, well below the reporting limit of 10 µg/l. There is no state criteria for this pollutant for protection of aquatic life. The state human health criterion for consumption of

⁷ *Ibid.* Page 29, notes 25 and 26.

⁸ *Ibid.* Page 32, notes 31 and 32.

⁹ Letter from Renee Evans (ADEC) to Sharon Wilson (EPA), August 25, 2004

aquatic organisms is 12,000 µg/l. Because the detected level in the effluent is so low compared with the standard, no specific monitoring is required in the permit beyond the standard priority pollutant scan required for permit renewal, i.e. three priority pollutant scans during the first 4½ years of the permit term.

14. Whole effluent toxicity (WET): Toxicity of the effluent was tested on samples taken on 1/29, 1/30, and 2/2/04. Survival of *Mysidopsis bahia* (brine shrimp) was evaluated on five concentrations of effluent (6%, 13%, 25%, 50%, and 100% effluent). No toxic effect was shown at any concentration. Therefore, no WET limit is warranted nor any additional monitoring beyond that required for permit renewal, i.e. four WET tests in the first 4½ years of the permit term.

APPENDIX D

Biological Assessment

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (FWS) regarding potential effects an action may have on listed endangered species.

According to communication with Brad Smith of NOAA¹⁰, the Stellar sea lion is listed as an endangered species in the area of Kodiak Island; he also pointed out that certain whales that are found further offshore are also endangered. Ellen Lance of U.S. Fish and Wildlife Service said¹¹ that Steller's eiders are listed as threatened and that Northern Sea Otters will soon be listed as threatened (On 2/11/04, FWS proposed this listing in the Federal Register); both species frequent the vicinity of the discharge.

ENDANGERED SPECIES ACT

Endangered Species

Stellar Sea Lion (*Eumetopias jubatus*) – Stellar Sea Lions in the North Pacific region are considered in two distinct stocks. West of 144 deg. W. longitude, they are listed as endangered, but as threatened east of that longitude. According to the NOAA website at http://www.fakr.noaa.gov/protectedresources/stellers/criticalhabitat_map.pdf, haulouts for Stellar sea lions are located within about ten miles to the north and east of the permittee's discharge. The closest rookery is about forty miles to the north.

The population west of 144 deg. W. longitude declined 70% between the mid-1970s and 1991 and declined about 21% from 1990 to 1994. Declines in population are thought to be due to reduced food availability, possibly resulting from competition with commercial fisheries, incidental take and intentional kills during commercial fish harvest, subsistence take, entanglement in marine debris, disease, pollution, and harassment. Although Steller sea lions do forage occasionally in shoreline waters and may occasionally transit the area surrounding the outfall, exposure would be extremely limited due their mobility and the rapid dilution of any pollutants to background conditions. In addition, the pollutants in discharges are not directly or indirectly (through foraging) toxic to this species. In addition, Stellar Sea Lions do not haul-out or breed in the immediate area of the discharge. The reissued permit will authorize a continuing discharge with decreased discharge of pollutants; therefore, EPA has determined that issuance of the this permit will have **no effect** on the species.

¹⁰ Telephone conversation on February 3, 2004.

¹¹ Telephone conversation on January 12, 2004.

Humpback Whale (*Megaptera novaeangliae*)

Humpback whales are usually found offshore, but are occasionally seen in the inland waters of Kodiak Island. Historically, populations were greatly reduced by commercial whaling. They have been further impacted by marine pollution, disturbance by boat traffic, and entanglement in fishing gear.

Because of their minimal exposure to the discharge and because the reissued permit will authorize a continuing discharge with decreased pollutant load, EPA has determined that this discharge will have **no effect** on humpback whales.

Threatened Species

Steller's eider (*Polysticta stelleri*)

The Steller's eider is a small diving duck that breeds almost exclusively in recent years on the Arctic coastal plain. Kodiak Island is within its wintering range, and surveys over the past ten years have shown numbers to be dropping precipitously. In Chiniak Bay, the larger body of water of which St. Paul Harbor is a part, 2024 Steller's eiders were observed in 1994; 1318 were observed in 2002. They have been noted in the vicinity of the discharge outfall. However, it is not a location in which they remain for any appreciable period of time, since there are more sheltered areas nearby.

It is thought that their decline may have been hastened by lead poisoning caused by eiders ingesting spent lead shot as they feed. Predation by ravens, large gulls and foxes on the breeding grounds may also be increasing. They are vulnerable to oil spills and other marine contaminants as well as to disruption of their food supply due to fishing practices.

Issuance of this NPDES permit will not cause deterioration of the near-field habitat, since the discharge has been ongoing in its present location and at its present volume for 28 years. Since the draft permit imposes Alaska water quality standards for the protection of marine aquaculture, including harvesting for consumption of raw mollusks, the permit issuance is **not likely to adversely affect** the Steller's eiders in the vicinity.

Proposed Threatened Species

Northern Sea Otter (*Enhydra lutris kenyoni*)

Populations in southwestern Alaska, which includes the Aleutian Islands, the Alaska Peninsula, and Kodiak Island, have declined 70% between 1992 and 2002. From 1986 to 2001, the decline in the Kodiak Archipelago was 56%. During surveys in 1994 and 2001, northern sea otters were noted in the eastern part of Chiniak Bay, about ten miles from the discharge point.

The cause of the precipitous decline in the populations in this area is unclear and is being studied. One of the theories with the most support is increased predation by orcas, whose preferred prey, harbor seals and Steller sea lions, are in decline in the area also. These declines may be due to changes in composition and abundance of forage fish as a result of climate change and/or fishing practices. Thus, the orcas may be shifting their focus more to the sea otters as their other prey become more scarce.

Since the draft permit imposes Alaska water quality standards for the protection of marine aquaculture, including harvesting for consumption of raw mollusks, the permit issuance is **not likely to adversely affect** the Northern sea otters in the vicinity.

ESSENTIAL FISH HABITAT

Section 305(b) of the Magnuson-Stevens Act [16 USC 1855(b)] requires federal agencies to consult with NOAA Fisheries when any activity proposed to be permitted, funded, or undertaken by a federal agency may have an adverse effect on designated Essential Fish Habitat (EFH) as defined by the Act. 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.

Adverse impact from federal actions must be minimized.

According to NOAA¹², the following species are present in the general area of the permitted discharge:

- Pacific Cod -- Adults, Late Juveniles
- Arrowtooth Flounder -- Adults, Late Juveniles
- Atka Mackerel -- Adults, Late Juveniles
- Walleye Pollock -- Adults, Late Juveniles
- Weathervane Scallop -- Adults, Late Juveniles
- Sculpin -- Adults, Late Juveniles
- Flathead Sole -- Adults, Late Juveniles

EPA has determined that issuance of this permit is will have **no effect** on EFH. Effluent limitations have been incorporated into the draft permit based on criteria considered to be protective of overall water quality in St. Paul Harbor. Furthermore, the permitted discharge has been continuing for the past 28 years; this permit further restricts the discharge of pollutants. NOAA Fisheries will be provided with a the draft permit and this fact sheet during the public comment period. Any comments received from NOAA Fisheries regarding EFH will be considered prior to final issuance of this permit.

¹² <http://akr-mapping.fakr.noaa.gov/Website/EFH/viewer.htm>,

