Fact Sheet

NPDES Permit Number: AK-002146-6
Date:
Public Notice Expiration Date:
Technical Contact: Cindi Godsey (907) 271-6561 or
1-800-781-0983 (within Alaska)
godsey.cindi@epa.gov

The U.S. Environmental Protection Agency (EPA) Plans To Reissue A Wastewater Discharge Permit To:

The City of Wrangell
Wastewater Treatment Plant

Wrangell, Alaska 99929

and the State of Alaska proposes to Certify the Permit and Issue a Consistency Determination

EPA Proposes NPDES Permit Reissuance.

The EPA proposes to reissue a *National Pollutant Discharge Elimination System* (NPDES) permit to the City of Wrangell. The draft permit sets conditions on the discharge of pollutants from the wastewater treatment plant to Zimovia Strait. 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 past and draft effluent limitations, monitoring requirements, and other conditions
- a description of the discharge location and a map and
- detailed technical material supporting the conditions in the permit and supporting the tentative determination to issue an NPDES permit incorporating a section 301(h) variance

Alaska State Certification.

The EPA requests that the Alaska Department of Environmental Conservation certify the NPDES permit to the City of Wrangell, Wastewater Treatment Plant under section 401 of the Clean Water Act. The EPA may not reissue the NPDES permit until the state has granted, denied, or waived certification. The state of Alaska has provided a draft certification for the City of Wrangell permit (See Attachment A). For more information concerning this review, please contact Clynda Luloff at (907) 465-5366 or 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801 or Clynda_Luloff@envircon.state.ak.us

Consistency Determination

The State of Alaska, Office of Management and Budget, Division of Governmental Coordination (DGC), intends to review this action for consistency with the approved Alaska Coastal Management Program (ACMP). For more information concerning this review, please contact Clancy DeSmet at (907) 465-3562 or P.O. Box 110030, Juneau, Alaska 99811-0030.

Public Comment

The EPA will consider all comments before reissuing the final permit. Those wishing to comment on the draft permit or request a public hearing may do so in writing by the expiration date of the Public Notice. All comments should include name, address, phone number, a concise statement of basis of comment and relevant facts upon which it is based. A request for public hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All written comments should be addressed to the Office of Water Director at U.S. EPA, Region 10, 1200 Sixth Avenue, OW-130, Seattle, WA 98101; submitted by facsimile to (206) 553-0165; or submitted via e-mail to godsey.cindi@epa.gov

After the Public Notice expires and all significant comments have been considered, EPA's regional Director for the Office of Water will make a final decision regarding permit reissuance. If no comments requesting a change in the draft permit are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If significant comments are received, the EPA will address the comments and reissue the permit along with a response to comments. The permit will become effective 30 days after the issuance date, unless an appeal is filed with the Environmental Appeals Board within 30 days.

Persons wishing to comment on State Certification should submit written comments by the public notice expiration date to the Alaska Department of Environmental Conservation c/o Clynda Luloff, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801 or Clynda_Luloff@envircon.state.ak.us

Persons wishing to comment on the State Determination of Consistency with the Alaska Coastal Management Program should submit written comments within this comment

period. Your comments, particularly on the proposed project's consistency with the affected local coastal district management program, are requested by the Division of Governmental Coordination. Comments regarding inconsistency with an affected coastal district's enforceable policy or a state standard set out in 6 AAC 80.040 - 6 AAC 80.150 must identify the enforceable policy or standard and explain how the project is inconsistent. Written comments must be received by **5:00 p.m. on the last day of the public comment period**, to be considered by the Division of Governmental Coordination. All written comments should be addressed to the attention of **Alaska Coastal Management Program Consistency Review** and submitted to the State of Alaska, Southeast Regional Office, Office of Management and Budget, Division of Governmental Coordination, PO Box 10030, Juneau, Alaska 99811. The contact is Clancy DeSmet at (907) 465-3562 or clancy_desmet@gov.state.ak.us

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). Draft permits, Fact Sheets, and other information can also be found by visiting the Region 10 website at www.epa.gov/r10earth/water.htm

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

The fact sheet and draft permit are also available at:

EPA Alaska Operations Office
222 W. 7th Avenue #19
Anchorage, Alaska 99513-7588
(800) 781-0983 toll free in Alaska only

Alaska Department of Environmental Conservation
410 Willoughby Avenue, Suite 303
Juneau, Alaska 99801

For technical questions regarding the permit or fact sheet, contact Cindi Godsey at (907) 271-6561 or godsey.cindi@epa.gov. Additional services can be made available to persons with disabilities by contacting Cindi Godsey at (907) 271-6561. Also, individuals with disabilities who may need auxiliary aids, services, or special modifications to participate in this review may contact the numbers above, or TDD (907) 465-3888.

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LIST OF ACRONYMS

ACMP	Alaska Coastal Management Program
ADEC	Alaska Department of Environmental Conservation
AML	Average Monthly Limit
BMP	Best Management Practices
BIP	Balanced Indigenous Population
BOD_5	five day Biochemical Oxygen Demand
BPT	Best Practicable control Technology currently available
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CV	Coefficient of Variation
DGC	Department of Governmental Coordination
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
FR	Federal Register
LTA	Long Term Average
MDL	Maximum Daily Limit or Method Detection Limit
mgd	Million gallons per day
mg/L	Milligrams per liter
MLLW	Mean Lower Low Water
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
POTW	Publicly Owned Treatment Works
QAP	Quality Assurance Plan
RP	Reasonable Potential
s.u.	Standard units
TMDL	Total Maximum Daily Load
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA 1991)
TSS	Total Suspended Solids
TVS	Total Volatile Solids
µg/L	Micrograms per liter
USFWS	United State Fish and Wildlife Service
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant
ZID	Zone of Initial Dilution

I. EXECUTIVE SUMMARY

On the basis of the conclusions presented in this fact sheet, EPA has determined that the discharge from the City of Wrangell Wastewater Treatment Plant, a publicly owned treatment works (POTW), will comply with the requirements of Section 301(h) of the Clean Water Act, as amended by the Water Quality Act of 1987, (the Act) and 40 CFR Part 125, Subpart G.

The City of Wrangell (the permittee) is seeking to continue a waiver of the secondary treatment requirements to discharge treated primary effluent from a treatment plant with a current design flow of 0.54 million gallons per day (mgd). The discharge is to Zimovia Strait and is 1500 feet from shore at roughly 100 feet below mean lower low water (MLLW). Changes to the treatment plant during the life of the permit are expected to change the design flow to 0.6 mgd.

The EPA followed the guidance provided by the Amended Section 301(h) Technical Support Document, EPA 842-B-94-007, September 1994, [301(h) TSD] for the evaluation of the discharge. The Region relied on information in the 301(h) application (Small Applicant Questionnaire, City of Wrangell), as well as the results of the monitoring conducted under the existing NPDES permit.

Available monitoring data and an evaluation of the discharge characteristics support this tentative decision because monitoring conducted under the current 301(h) permit has not shown any adverse impacts on solids accumulation or the biological community in the vicinity of the discharge. There has been concern in the past with WQS exceedences of fecal coliform but it is expected that the outfall extension has eliminated this concern. Continuing water quality, biological, and effluent monitoring programs will determine future compliance with the 301(h) criteria.

The applicant's receipt of a Section 301(h) waiver from secondary treatment is contingent upon the following conditions:

- State certification under Section 401 of the Act regarding compliance with State law and water quality standards, including a basis for the conclusions reached. The state may grant, deny, or waive its right to certify the permit

and

- State determination that the discharge will comply with the Alaska State Coastal Zone Management Program.

II. APPLICANT

City of Wrangell Wastewater Treatment Plant

Mailing Address:	Facility Location:
PO Box 531	Mile 1.7 Zimovia Highway
Wrangell, Alaska 99929	Wrangell, Alaska 99929

Contact: Robert Caldwell, Public Works Superintendent

III. BACKGROUND

The City of Wrangell's NPDES permit to discharge municipal waste was first issued on November 24, 1974. On March 2, 1976, a permit modification was issued due to delays in the design and construction of the secondary treatment plant. This permit contained an expiration date of June 30, 1977. The Act specified July 1, 1977, as the date by which publicly owned treatment works must comply with effluent limitations based upon secondary treatment. Wrangell did not achieve secondary treatment limitation in accordance with the July 1, 1977, deadline.

The secondary treatment plant began operation in October 1978. In September 1981, the plant began providing only primary treatment pursuant to a Court Order entered June 26, 1981, in the US District Court, District of Alaska (Pacific Legal Foundation, et al. vs. Costle, Civ. No. K-80-2). In accordance with the Court Order, the City reduced the treatment level to screening in April 1982. The current treatment level continues to be screening, which is the basis for the discharge proposed by the City under section 301(h) of the Act.

Section 301(h) of the 1977 amendments of the Act provides that "The Administrator, with the concurrence of the State, may issue a permit under section 402 which modifies the requirements of Section 301(b)(1)(B) ... with respect to the discharge of any pollutant from a publicly owned treatment works into marine waters..." On June 15, 1979, EPA published the 301(h) regulations (40 CFR 125) in the Federal Register (44 FR 34784) establishing the criteria EPA would use for issuing an NPDES permit with a variance from secondary treatment requirements. On November 26, 1982, the EPA published final amendments to the 301(h) regulations (47 FR 53666) which clarify, simplify, and update the regulations and application requirements. The Act was amended again in 1987 to define primary treatment, add restrictions on discharges to impaired estuarine waters, and add urban area pretreatment requirements.

The applicant submitted a final 301(h) application on August 29, 1979. In response to EPA's request, the applicant submitted additional information on the proposed treatment level and the outfall description in November 1982. Following an evaluation by the 301(h) Review Team of EPA, Region 10, a tentative determination was made that the proposed modified discharge met the requirements of 40 CFR 125 [which implements section 301(h)]. The variance was granted through issuance of a permit on October 6, 1983, on the basis of the

existing screened discharge and the repair of the outfall diffuser. The 1983 permit expired on October 5, 1988, however, the City submitted a timely application for renewal and therefore under the conditions of 40 CFR 122.6, the City is authorized to continue discharging under the terms of the existing permit until a new permit is issued.

IV. FACILITY AND OUTFALL DESCRIPTION

A. Wastewater Treatment Plant (WWTP)

The WWTP serves the city of Wrangell (approximately 2600 people, 1999 figure). Plant influent is entirely of domestic origin as there are no combined (i.e., sewage and storm water) sewers. The existing WWTP is designed to treat an average flow of 0.54 mgd. The actual average daily discharge from 1989 through 1999 was approximately 0.473 mgd, with an average over the last 3 years of 0.456 mgd. Population extrapolations provided in the application anticipate growth of about 0.8% per year. With this prediction, the population of the city is expected to be less than 2800 by the end of the five year life of the permit.

Existing treatment consists of screening using two wedge-wire screens with a hydraulic capacity of 1250 gallons per minute (gpm) with 0.02 inch openings. Wastewater from the screens flows to one of two 45 foot diameter trickling filters. The wastewater then flows through the outfall to Zimovia Strait. The screenings are sent to a sludge holding tank in the operations building. When the sludge holding tank is full, the screenings are bagged and shipped out of state. A diagram for the future WWTP overlaying the previous WWTP can be found in Appendix B.

Future improvements are designed to continue providing at least 30% removal of BOD_5 and TSS. The purpose of the improvements is to reduce the overall maintenance and operating costs incurred by the City. The future treatment process will have influent entering the WWTP through a mechanical screen where screenings will be automatically washed and bagged for later hauling to the municipal landfill. Wastewater will then flow to an aeration basin that will have a detention time of six days. Aeration will be provided by fine bubble membrane diffusers attached to floating aeration chains which are moved across the basin by the air released from the diffusers. From the aeration basin, wastewater will move through a settling basin that has a detention time of two days. The effluent will leave the settling basin by gravity flowing through the outfall into Zimovia Strait. Sludge from the settling basin will be removed on a 10 year cycle by contracting sludge dewatering services. Such services will dewater, lime and/or heat treat the sludge to create a Class A material. The Class A material can be used as fertilizer on the local golf course or other local lands.

Work on the new WWTP is anticipated to begin during the summer of 2001 with the construction of the aeration basin while current treatment is being

provided by the existing plant. During 2002, the influent would be directed into the aeration basin and then the settling basin would be constructed on the site of the existing treatment plant. It is anticipated that this phased approach should provide for adequate treatment of the effluent throughout the construction project.

B. Outfall/Diffuser

Pursuant to 40 CFR §125.62(a)(1), the outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater to meet all applicable water quality standards at and beyond the boundary of the zone of initial dilution (ZID) during periods of maximum stratification and during other periods when more critical situations may exist. Except as otherwise noted, dilution is expressed as the ratio of the total volume of sample (effluent plus dilution water) to the volume of effluent in that sample.

The outfall and diffuser are made of 12 inch diameter high density polyethylene pipe. The outfall is 1500 feet in length from MLLW including a diffuser which is 240 feet in length. The outfall is at 100 feet MLLW (i.e., on the bottom of Zimovia Strait). The diffuser has sixteen 12 inch ports spaced 16 feet apart on alternate sides of the pipe.

The City of Wrangell's outfall is located at approximately 56°27'10" N, 132°22' 40" W (Petersburg B-2, T62S, R83E, Sec 36). See Appendix C for a general map of the treatment plant and discharge location.

V. RECEIVING WATERS

A. Characteristics

The outfall discharges to the saline estuarine waters of Zimovia Strait. The ocean bottom is generally flat and uniform covered with silt and shells of various kinds with outcrops of rock ridges generally less than one foot high.

Zimovia Strait has a net northwest seaward exchange with the Gulf of Alaska. The maximum current velocity is around 51.4 cm/sec (1.0 knot) and the water circulation patterns do not vary seasonally. Dilution modeling for Zimovia Strait used a conservative current speed of 2.35 cm/sec and no stratification. Strong currents provide vertical mixing, minimizing the vertical density gradient, and preventing stratification. The Ketchikan tidal station is the reference station for Zimovia Strait. The published mean tidal range from (www.co-ops.nos.noaa.gov) is 13.0 ft (3.4 m).

Zimovia Strait is protected by the State of Alaska for marine water supply (aquaculture, seafood processing and industrial); water recreation (contact and secondary); growth and propagation of fish, shellfish, other aquatic life,

and wildlife; and harvesting for consumption of raw mollusks or other raw aquatic life.

B. Initial Dilution and Zone of Initial Dilution

Initial dilution is the rapid, turbulent mixing of the effluent and receiving water. It results from the interaction between the buoyancy and momentum of the discharge and the density and momentum of the receiving water. Initial dilution is normally complete within several minutes after discharge.

The ZID is the region of initial mixing surrounding or adjacent to the end of the diffuser ports and includes the underlying seabed, see Appendix D. The ZID describes an area in which inhabitants, including the benthos, may be chronically exposed to concentrations of pollutants in violation of water quality standards and criteria or at least to concentrations more severe than those predicted for critical conditions. The ZID is not intended to describe the area bounding the entire mixing process for all conditions or the total area impacted by the sedimentation of settleable material. In general, the ZID can be considered to include that bottom area and the water column above that area circumscribed by distance d from any point of the diffuser, where d is equal to the water depth, in the case of Wrangell this would be 100 feet. ADEC has tentatively determined that the ZID would have a dilution of 880:1 (See Appendix A).

Although marine water quality criteria must be achieved at the edge of the ZID for those parameters to which the 301(h) modification applies (BOD_5 and TSS), the permit effluent limitations for all parameters must be met at the end of the pipe. The state has included in their pre-certification (See Appendix A) of the permit, a ZID for dissolved oxygen (DO), nutrients, pH, temperature, metals and whole effluent toxicity equal to the ZID for BOD_5 and TSS. The state is also included a mixing zone (MZ) for fecal coliform described as the volume contained within a 1,600 meter radial distance from the outfall.

VI. EFFLUENT LIMITATIONS

The EPA followed the Clean Water Act, State and federal regulations, EPA's 1991 *Technical Support Document for Water Quality-Based Toxics Control (TSD)*, and EPA's 301(h) TSD to develop the draft effluent limits. In general, the Clean Water Act requires that the effluent limits for a particular pollutant be the more stringent of either the technology-based or water quality-based limits. Appendix E provides the basis for the development of effluent limits.

Technology-based limits are established according to the level of treatment achievable using available technology. The 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 sufficient, the EPA must develop water quality-based limits. These limits are designed to prevent exceedences of the Alaska water quality standards in Zimovia Strait. The draft

permit includes technology-based limits for the percent removal of BOD_5 and TSS and water quality-based limits for pH and fecal coliform.

Table VI-1 contains the draft permit limits for outfall 001 as well as those found in the 1983 permit for comparison purposes.

Table VI-1: Outfall 001 Effluent Limits

Parameter	Average Monthly		Maximum Daily	
	1983	**Draft**	**1983**	**Draft**
Flow, mgd	0.64	0.6	---	3.6*
BOD_5[1] mg/L lbs/day	120 641	120 601	---	200* 1001
TSS[1] mg/L lbs/day	150 801	140* 701	---	200* 1001
Fecal Coliform[2], colonies/100 ml	---	1.0×10^6*	---	1.5×10^6*

Notes:
1 The average monthly percent removal shall be greater than or equal to 30%.
2 The average monthly test shall be based on a 5 tube decimal dilution test.
* Indicates inclusion or change from the previous permit based on the pre-cert by ADEC.

The draft permit requires that the pH of the WWTP effluent be within range of **6.5 to 8.5 standard units*** (s.u.), the 1983 permit requirement was between 6.0 and 9.0 s.u.

The draft permit prohibits the discharge of waste streams that are not part of the normal operation of the facility, as reported in the permit application. The draft permit also requires that the discharge be free from floating, suspended, or submerged matter in concentrations that cause or may cause a nuisance.

Disinfection of the discharge is not required at this time. Should future studies indicate that public health is endangered or that violations of water quality standards are occurring, disinfection may be required.

VII. MUNICIPAL SEWAGE SLUDGE/BIOSOLIDS MANAGEMENT

EPA Region 10 has recently decided to separate the permitting of wastewater discharges and the disposal of biosolids. Under the Act, the EPA has the authority to issue separate "sludge only" NPDES permits for the purposes of regulating biosolids. The EPA has historically implemented the biosolids standards by inclusion of the requirements in facility's NPDES wastewater permit, the other option authorized by the Act.

The facility has applied for a permit for a sludge incinerator which has been used in previous years but the City of Wrangell is not currently producing sludge. A biosolids permit application (Form 2S) for the new facility will need to be filed for storing sludge over an extended period of time and also removing it from the facility. The City of Wrangell expects that the sludge will be composted for use around the community. The EPA will issue a sludge-only permit to the WWTP at a later date. This will likely be in the form of a general permit through which the EPA can cover multiple facilities.

Prior to issuing a sludge-only permit, the environment will be protected since 1) any sludge activities will continue to be subject to the national sewage sludge standards at 40 CFR 503 and 2) ADEC conducts a program to review and approve biosolids activities. Part 503 contains provisions relating to pollutants in sewage sludge, the reduction of pathogens in sewage sludge, the reduction of the characteristics in sewage sludge that attract vectors, the quality of the exit gas from a sewage sludge incinerator stack, the quality of sewage sludge that is placed in a municipal solid waste landfill unit, the sites where sewage sludge is either land applied or placed for final disposal, and sewage sludge incinerators. The Act prohibits any use or disposal of biosolids not in compliance with these standards. The EPA has the authority under the Act to enforce these standards directly even in the absence of a permit. The Act does not require the facility to have a permit prior to the use or disposal of its biosolids.

VIII. MONITORING REQUIREMENTS

Under 40 CFR § 125.63, which implements Section 301(h)(3) of the Act, the applicant must have a monitoring program designed to provide data to evaluate the impact of the discharge on the marine biota, demonstrate compliance with applicable water quality standards, and measure toxic substances in the discharge. The applicant must demonstrate the capability to implement these programs upon issuance of a 301(h) modified NPDES permit. In accordance with 40 CFR § 125.63(a)(2), the applicant's monitoring programs are subject to revision if required by the EPA.

A. Effluent Monitoring

Section 308 of the Act and federal regulation 40 CFR 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on monthly Discharge Monitoring Reports (DMRs) to the EPA. Under Section 301(h)(3) of the Act, the applicant must have in place, a system of monitoring the impact of the discharge on aquatic biota. 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.

Table VIII-1 presents the draft monitoring requirements as well as the monitoring requirements in the 1983 permit. Effluent monitoring for Outfall 001 shall occur after the last treatment unit and prior to discharge to Zimovia Strait.

TABLE VIII-1: Outfall 001 Monitoring Requirements

Parameter[1]	Draft Sample Frequency	Draft Sample Type	1983 Sample Frequency
Flow, mgd	continuous	recording	continuous
$BOD_{5,}$ mg/L[2]	1/week	24-hour composite	1/week
TSS, mg/L[2]	1/week	24-hour composite	1/week
Settleable Solids, mg/L	---	---	1/week
pH, standard units[3]	1/week	grab	1/week
Fecal Coliform Bacteria, colonies/100 ml	1/week	grab	---
Total Ammonia as N, mg/L	1/month	24-hour composite	---
Temperature. °C	1/week*	grab	---
Dissolved Oxygen, mg/L	1/week*	grab	---

Notes:

1 If the discharge concentration falls below the method detection limit (MDL), the permittee shall report the effluent concentration as "less than {numerical MDL}" on the DMR. Actual analytical results shall be reported on the DMR when the results are greater than the MDL. For averaging, samples below the MDL shall be assumed equal to zero. The permittee shall report the number of non-detects for the month in the "Comments Section" of the DMR.

2 Influent and effluent monitoring is required. The percent BOD_5 and TSS removal will be reported on each monthly DMR form.

3 The permittee shall report the number of pH excursions during the month with the DMR for that month.

* Indicates Inclusion or change from the previous permit based on the 401 pre-cert from ADEC.

B. Representative Monitoring

40 CFR 122.41(j) requires that samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. In addition to monitoring of routine activity, the draft permit 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 under the permit. This provision is included in the draft permit because routine monitoring could easily 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 these occurrences on the final effluent discharge.

C. Whole Effluent Toxicity (WET) Monitoring

Because the modeled dilution in the ZID is 880:1, WET testing is not proposed in the draft permit.

D. Receiving Water Quality Monitoring

40 CFR § 125.63(c) requires that the receiving water monitoring program provide data adequate to evaluate compliance with applicable water quality standards. The draft permit contains the ambient water quality monitoring requirements and locations established based on the location of the new outfall. The ambient monitoring program was created based on the size of the facility, monitoring frequency for other 301(h) facilities, desire to track long-term trends, assessing compliance with Alaska water quality standards, and projected growth.

Ambient monitoring for turbidity, DO, pH, salinity, and temperature shall occur at two sampling stations on the ZID boundary and at two reference stations. The ZID for turbidity, dissolved oxygen, pH, salinity, and temperature is a column of water centered over the outfall diffuser with a radius of 100 meters and depth equal to the water column. In addition to ambient monitoring for fecal coliform at the edge of the mixing zone, additional shoreline monitoring shall occur at a minimum of six stations monthly during the summer. The fecal coliform MZ is defined as the volume contained within 1,600 meters radially of the outfall.

Both the procedures and equipment used to establish a navigational position contribute to errors that effect the overall accuracy[1] of the ambient monitoring program. For coastal positioning, the EPA recommends theodolites, sextants, electronic distance measuring instruments (EDMIs), total stations, and microwave and range-azimuth systems.

[1] Absolute or predictable accuracy is a measure of nearness to which a system can define a position by latitude and longitude. Repeatable or relative accuracy is a measure of a system's ability to return the user to a given position with coordinates that were previously measured with the same system.

The ambient monitoring requirements are as follows:

Table VIII-2 Ambient Monitoring Requirements

Parameter	Station Location[1]	Depth	Monitoring Frequency
Turbidity, nephelometric turbidity units (NTU)	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	surface, mid-depth, and bottom	Annually in August or September
Secchi Disk Depth*	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	surface waters only	Annually in August or September
Dissolved oxygen, mg/L	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	surface, mid-depth, and bottom	Annually in August or September
pH, s.u.	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	surface, mid-depth, and bottom	Annually in August or September
Salinity, ppt	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	every 3 m (w/one station at outfall depth)	Annually in August or September
Temperature, °C	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	every 3 m (w/one station at outfall depth)	Annually in August or September
Total Ammonia as N, mg/L	1000 feet* NW of ZID 1000 feet* SE of ZID <5m NW of ZID boundary <5m SE of ZID boundary	surface waters only (above 1.0 m)	Annually in August or September
Fecal coliform, #/100ml	NW of outfall at MZ boundary* SE of outfall at MZ boundary* <5m NW of ZID boundary <5m SE of ZID boundary	surface waters only (above 15-30 cm)	April, June, August, November[2]*
Fecal coliform, #/100ml	At low tide or when a minus tide coincides with peak daily flow: Station 1: 1.5 m from shore along length of outfall Stations 2 & 3: 91 m to either side of station 1. Stations 4 & 5: where 1600m MZ touches the shoreline* Area A: 1.5 m from shore (See map in Appendix B)*	surface waters only (above 15-30 cm)	Monthly, May through August for the life of the permit

[1] Reference stations should be located at sites where water depth is equivalent to the outfall depth.
[2] Monitoring may be decreased after two years if the results indicate that discharge has not caused WQS to be exceeded outside the mixing zone.
* Indicates inclusion or change from previous permit based on pre-cert from ADEC.

E. Biological Monitoring Program for Total Volatile Solids and Benthic Infauna

40 CFR 125.63(b) requires permittees to implement a biological monitoring program that provides data adequate to evaluate the impact of the applicant's discharge on the marine biota.

The permittee indicates that there are no kelp beds or coral reefs in the vicinity of the outfall and there is little life on the bottom near the diffuser. The ocean bottom is generally flat and uniform covered with silt and shells of various kinds with outcrops of rock ridges generally less than one foot high. No baseline survey of TVS or benthic infauna for the location of the new outfall has been submitted to EPA.

The 1983 NPDES permit required benthic organism collection and sediment analyses at five locations. The sediment samples conducted under the 1983 permit demonstrated no detrimental environmental impacts but were inconclusive regarding sediment enrichment. In order to meet the regulatory requirement to implement a biological monitoring program and in order to gather adequate data to evaluate the impact of the applicant's discharge on the marine biota, the draft permit requires the permittee conduct sediment analysis for total volatile solids (TVS) and benthic surveys at least once during the life of the permit. The TVS sediment testing will be useful in confirming whether the discharge, at the new outfall location, has an adverse effect on the marine biota. The benthic surveys track whether populations are affected by the discharge and provide a record to evaluate long-term trends in the discharge area. The testing shall utilize similar methods as the 1983 permit. Although the location and dimensions of the ZID have changed, samples shall be taken at the following five comparable stations: the northwestern boundary of the ZID, the southeastern boundary of the ZID, inside the ZID near the middle of the diffuser, and two reference stations at least 1000 feet* northwest and southeast of the outfall. Sampling stations shall be located and referenced using whatever navigational aids will assure accurate reoccupation of the same site in subsequent years.

F. Effect of Discharge on Other Point and Nonpoint Sources

Under 40 CFR 125.64, which implements Section 301(h)(4) of the Act, the applicant's discharge must not result in the imposition of additional treatment requirements on any other point or nonpoint source. Prior to permit issuance, ADEC must determine that the discharge will not affect treatment requirements for any other point or nonpoint sources.

IX. OTHER PERMIT CONDITIONS

A. Toxics Control Program

1. Chemical Analysis and Identification of Sources

Under 40 CFR 125.66(a) and (b), applicants are required to submit a chemical analysis of their discharge that identifies any toxic pollutants and pesticides under both dry- and wet-weather conditions. An analysis of the sources of the identified toxic pollutants and pesticides is also required. Unless required by the state, these requirements do not apply to any small section 301(h) applicant which certifies that there are no known or suspected sources of toxic pollutants or pesticides and documents the certification with an industrial user survey as described by 40 CFR 403.8(f)(2).

The City of Wrangell has submitted the required certification and an updated industrial user survey. It is a small discharger because it serves less than 50,000 people (the population is approximately 2,600 people) and the average dry weather flow is less than 0.6 mgd. Based on the permittees certification and the results of the priority pollutant scan, the applicant will not be required to conduct another priority pollutant analysis prior to reapplying for the permit. The Permittee is required in the draft permit to update the industrial user survey and priority pollutant scan with a reapplication package (See IV.F Duty to Reapply in the draft permit).

2. Non-industrial Source Control Program

40 CFR 125.66(d), which implements Section 301(h)(6) of the Act, requires the applicant to implement a public education program designed to minimize the entrance of nonindustrial toxic pollutants and pesticides into the POTW and to develop a nonindustrial source control program. In addition, the permittee must have a schedule of activities for identifying nonindustrial sources of toxic pollutants and pesticides and for developing and implementing control programs, to the extent practicable.

This regulation allows small section 301(h) applicants that certify that there are no known or suspected water quality, sediment accumulation, or biological problems related to toxic pollutants or pesticides in its discharge, to develop a public education program. The identification of nonindustrial sources is not required. The City of Wrangell has provided this certification and has implemented a public education program. Elements of the program include publicizing:

a. non-hazardous alternatives to hazardous household products and pesticides; and

b. proper disposal methods for hazardous wastes shall be identified in local newspapers.

In addition to the above elements, signs shall be placed on the shoreline near the fecal coliform mixing zone and the outfall line. The signs shall state that primary treated domestic wastewater is being discharged, that mixing zones exist, and certain activities, such as the harvesting of shellfish for raw consumption and bathing, should not take place within the mixing zone. The signs shall also have the name and owner of the facility, approximate location and size of the mixing zone and give a facility contact phone number for additional information. An outfall sign must also be placed at the beach designated as a shellfish collection area, see Appendix B. The sign shall state that the consumption of raw shellfish is not advised along with the advice of steaming shellfish for 4 - 9 minutes, discarding shellfish that do not open after steaming.*

A condition is included in the permit that requires Wrangell to report to the EPA on the progress of the program **annually** (with the January DMR).

B. Effluent Volume and Amount of Pollutants Discharged

Under 40 CFR §125.67, which implements section 301(h)(7) of the Act, the permittee's discharge may not result in any new or substantially increased discharges of the pollutant to which the modification applies above the discharge specified in the 301(h) permit.

Wrangell's draft permit is designed for an average flow of 0.6 mgd. The draft concentration and mass-based effluent limitations for BOD_5 and TSS and pH range are as stringent or more stringent than the 1983 permit limits and therefore comply with the regulation.

C. Quality Assurance Plan

Federal regulation 40 CFR 122.41(e) requires the permittee to develop a Quality Assurance Plan (QAP) to ensure that the monitoring data submitted are accurate and to explain data anomalies if they occur. The permittee is required to complete and implement a QAP within **120 days of the effective date** of the permit. The QAP shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

D. Operation & Maintenance Plan

Section 402 of the Act and federal regulations 40 CFR 122.44(k)(2) and (3) authorize the EPA to require best management practices (BMPs) in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. For municipal facilities, these measures are typically included in the facility's Operation & Maintenance (O&M) plan. These measures are important tools for waste minimization and pollution prevention.

The draft permit requires the City of Wrangell to incorporate appropriate BMPs into their O&M plan within **180 days of the effective date of the**

permit. Specifically, the permittee must consider spill prevention, control and optimization of chemical use, and sludge disposal plans. The City's public education program currently aims at controlling the introduction of household hazardous materials to the sewer system. The City should also consider ways to encourage the conservation of water as part of the O&M plan. The O&M plan must be revised as new practices are developed.

As part of proper O&M, the draft permit requires the City of Wrangell to develop a facility plan when the annual average flow exceeds 85 percent of the design flow of the plant (0.51 mgd). This facility plan includes a strategy for remaining in compliance with effluent limits in the permit.

E. Additional Permit Provisions

In addition to facility-specific requirements, sections II, III, and IV of the draft permit standard regulatory language that applies to all permittees and must be included in NPDES permits. Because they are federal regulations, they cannot be challenged in the context of an NPDES permit action. The standard language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and general requirements.

X. OTHER LEGAL REQUIREMENTS

Pursuant to 40 CFR 125.59(b)(3), a modified NPDES permit may not be issued unless the discharge complies with applicable provisions of state, local, or other federal laws or Executive Orders, including the Coastal Zone Management Act, 16 U.S.C. 1451 et seq., the Endangered Species Act, 16 U.S.C. 1531 et seq., and the Marine Protection, Research, and Sanctuaries Act 16 U.S.C. 1431 et seq.

A. State Coastal Zone Management Program

The draft permit and Fact Sheet will be submitted to the State of Alaska Division of Governmental Coordination for state interagency review at the time of public notice. The requirements for State Coastal Zone Management Review and approval must be satisfied before the permit may be reissued.

B. Endangered and Threatened Species

The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) if the actions could beneficially or adversely affect any threatened or endangered species. The EPA has tentatively determined that the discharge has **no effect** on the listed threatened and endangered species identified by the Services below.

The EPA requested lists of threatened and endangered species from the USFWS and NMFS in a letter dated March 20, 2000, and again from NMFS on May 4, 2001. In a letter dated March 27, 2000, USFWS stated that they were not aware of any threatened or endangered species under their jurisdiction

occurring in the vicinity of the outfall. In a letter dated May 18, 2001, NMFS indicated that of the listed species, the Steller sea lion (*Eumetopias jubatus*) and the Humpback whale (*Megaptera novaeangliae*) occur in the area of discharge. NMFS considers the likelihood of an adverse impact to these endangered species to be low. The project site is not known as a concentration area for either species and both should be able to easily avoid the area.

C. Essential Fish Habitat

Section 305(b) of the Magnuson-Stevens Act [16 USC 1855(b)] requires federal agencies to consult with NMFS 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 Magnuson-Stevens 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.

The EPA has tentatively determined that issuance of this permit is **not likely to adversely effect** EFH in the vicinity of the discharge. An EFH assessment has been prepared in Appendix F. NMFS has been provided with copies of the draft permit and fact sheet during the public notice period. Any comments received from NMFS regarding EFH will be considered prior to reissuance of this permit.

D. Marine Protection, Research, and Sanctuaries Act

The discharge is not located in a federal marine sanctuary nor is it located in a sanctuary designated under Title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, or the Coastal Zone Management Act of 1972, as amended.

E. State Certification

Section 401 of the Clean Water Act requires EPA to seek certification from the State 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 a certification to include statements of the extent to which each condition of the permit can be made less stringent without violating the requirements of State law.

Alaska State law [18 AAC 72.050(a)(4)] requires secondary treatment for all POTWs that discharge to natural surface waters unless a modification of the secondary treatment requirement is granted in accordance with Section 301(h) of the Clean Water Act.

Section 301(h) of the Act and 40 CFR §125.59(i)(2) provides that a waiver from secondary treatment may not be granted until the State grants, denies, or waives its right to certify under section 401 of the Act. Certification indicates compliance with applicable provisions of local law. If ADEC waives certification, 40 CFR 125 Subpart G still allows EPA to issue a 301(h) permit with a zone of initial dilution (ZID).

ADEC has provided a pre-certification letter dated August 2, 2001, which is included in Appendix A.

F. Permit Expiration

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

REFERENCES

www.co-ops.nos.noaa.gov, Tidal Current Tables, National Oceanic and Atmospheric Administration, National Ocean Survey.

EPA 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. Washington, D.C., March 1991. EPA/505/2-90-001.

Amended Section 301(h) Technical Support Document, EPA 842-B-94-007, September 1994.

EPA, 1996a. EPA Region 10 Guidance For WQBELs Below Analytical Detection/Quantitation Level. NPDES Permits Unit, EPA Region 10, Seattle, WA, March, 1996.

APPENDIX A - 401 Pre-cert from ADEC

410 Willoughby Avenue, Ste. 303
Juneau, AK 99801-1795
PHONE: (907) 465-5300

DIVISION OF AIR AND WATER QUALITY
Wastewater Discharge Permits Program

August 2, 2001

Ms. Cindi Godsey
NPDES Permits Unit
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

RE: State of Alaska Review of Pre-draft NPDES Permit No. AK-002146-6

Dear Ms. Cindi Godsey;

I have reviewed the above referenced pre-draft NPDES Permit and Fact Sheet for the City of Wrangell. I have the following comments.

Draft Permit

State of Alaska Certification Stipulations

1.) The State of Alaska's certification of this permit will require a flow rate limitation of 0.6 million gallons per day (mgd) for monthly average and 3.6 mgd for a daily maximum.

Rationale: In accordance with State Regulations 18 AAC 70.245, the Department will consider the characteristics of the effluent, including flow rate, when determining the appropriateness and size of a mixing zone. Restricting the amount of flow will assure that the size of the mixing zone is appropriate and that the treatment capacity of the facilities is not exceeded.

2.) The State of Alaska certification of this permit will require a maximum Biochemical Oxygen Demand, (BOD5) limitation of 140 mg/l for a monthly average and 200 mg/l for a daily maximum.

Rationale: In accordance with State Regulations 18 AAC 15.090, the Department may attach terms and conditions to a permit, variance, or approval, including operating, monitoring, inspection, sampling, access to records and reporting requirements, and the posting of a performance bond or other surety, that it considers necessary to ensure that all applicable criteria will be met.

3.) The State of Alaska's certification of this permit will require a maximum Total Suspended Solids limitation of 140 mg/l for a monthly average and 200 mg/l for a daily maximum.

Rationale: In accordance with State Regulations 18 AAC 15.090, the Department may attach terms and conditions to a permit, variance, or approval, including operating, monitoring, inspection, sampling, access to records and reporting requirements, and the posting of a performance bond or other surety, that it considers necessary to ensure that all applicable criteria will be met

4.) The State of Alaska certification of this permit will require effluent limitations for Fecal Coliform Bacteria of 1.0 million per 100 ml for a monthly average and 1.5 million per 100 ml for a daily maximum. Sampled at one time per month.

Rationale: In accordance with State Regulations 18 AAC 70.045, the Department will consider the characteristics of the effluent, including flow rate, when determining the appropriateness and size of a mixing zone. Restricting the amount of flow will assure that the size of the mixing zone is appropriate and that the treatment capacity of the facilities is not exceeded.

5.) The ADEC will designate a Mixing Zone (MZ) for Fecal Coliform Bacteria contained in the discharge from the City of Wrangell Wastewater Treatment Facility. The mixing zone is defined as an arc of a circle, radius 1600 meters, centered on the outfall, going from one shoreline to the other extending on either side of the outfall line and over the diffuser.

Rationale: In accordance with State Regulations 18 AAC 70.240, the Department has authority to designate mixing zones in permits or certifications. This mixing zone will ensure that the most stringent water quality standard limitations for fecal coliform bacteria; 14 FC/100 ml, 30 day average, (not more than 10% of the samples may exceed 43 FC/100 ml.), is met at all points outside of the mixing zone.

6.) The ADEC will require monitoring at the outside edge of the mixing zone for fecal coliform bacteria. Fecal coliform sampling shall be conducted in the months of June, August, November, and April of each year of the permit. The monitoring may be decreased after two years if the results indicate that discharge has not caused the State of Alaska Water Quality Standards to be exceeded outside of the mixing zone. The sampling sites are identified in Appendix C of the NPDES permit and in the permit's Table 3 – Receiving Water Quality Monitoring.

Rationale: In accordance with State Regulations 18 AAC 70.245, the Department has authority to ensure that existing uses of the waterbody outside the mixing zone are maintained and fully protected. The specified monitoring will provide evidence to the Department that the treatment and mixing zone size is adequate and also provide assurance to receiving water users that they may conduct their activities outside of the mixing zone without fear of damaging effects caused by the discharge.

7.) The ADEC will designate a Zone of Initial Dilution (ZID) for contained in the discharge from the City of Wrangell Wastewater Treatment Facility. The ZID is defined in the fact sheet as an oval of 440.0 X 100 feet (see Appendix C), centered

on the diffuser and located perpendicular to the shoreline. Dilution ratio of 880:1. The most stringent limits for the parameters listed in the State of Alaska Water Quality Standards must be met outside of the ZID, (except for fecal coliform bacteria which must be met outside of the mixing zone).

Rationale: In accordance with State Regulations 18 AAC 70.240, the Department has authority to designate mixing zones in permits or certifications. This mixing zone will ensure that the most stringent water quality standard limitations for all parameters, (except fecal coliform bacteria) are met at all points outside of the ZID.

8.) The ADEC will require Fecal Coliform Bacteria limitations of 200 FC/100 ml at the shoreline; {{except in "Area A" (see appendix C) where 14 FC/100 ml for a monthly average and 43 FC/100 ml for a daily maximum must be met}} within the designated mixing zone.(See Appendix C).

Rationale: In accordance with State Regulations 18 AAC 70.020, the Department has authority to protect classes of use of the state's water. The limitation (14 FC/100 ML) is protective of the water quality for growth & propagation of fish, shellfish, and other aquatic life and wildlife; and (200 FC/100 ML) of secondary recreation.

9.) ADEC will require Fecal Coliform Bacteria limitations of 14FC/100 ml for a monthly average and 43 FC/100 ml for a daily maximum be met outside edge of the mixing zone.

Rationale: In accordance with State Regulations 18 AAC 70.020, the Department has authority to protect classes of use of the state's water. The limitations are protective of the most stringent State of Alaska Water Quality Standards for Fecal Coliform Bacteria.

10.) ADEC will require a pH effluent limitation of 6.5 to 8.5.

Rationale: In accordance with State Regulations 18 AAC 70.020, the Department has authority to protect classes of use of the state's water. The limitations are protective of the most stringent State of Alaska Water Quality Standards for pH.

10.) The ADEC will require that signs be placed on the shoreline near the mixing zone and outfall line. The signs should state that treated domestic wastewater is being discharged, the name and owner of the facility and the activities, such as the harvesting of shellfish for raw consumption and bathing should not take place in the mixing zone and give a contact number for additional information approximate location and size of the mixing zone. The signs should inform the public that certain.

Rationale: In accordance with AS 46.03.110, (d), the department may specify in a permit the terms and conditions under which waste material may be disposed of. The notification requirement is intended to inform and provide assurances to the public that the wastewater is being treated in accordance with Alaska Water Quality Standards, 18 AAC 70.

State of Alaska Recommendations and Suggestions

Draft Permit

1.) Page 3 Effluent Limitations - limitations for effluent limits of Dissolved Oxygen has not been established. Suggest: 2.0 mg/L.

2.) Page 5 – Temperature of effluent required once per month. Suggest: Increase in monitoring to once per week.

3.) Page 5 – Fecal Coliform required once per wk. Suggest: Decrease to once per month.

4.) Page 5 - Total Ammonia required once per month. Suggest: once per quarter.

5.) Page 5 – Dissolved Oxygen required once per month. Suggest: Once per week.

6.) Page 5 – There is a footnote 5 on Dissolved Oxygen, but no footnote is defined.

7.) Page 5 – 4) Receiving Water Quality Monitoring Requirements, second sentence – The turbidity, dissolved oxygen, pH, salinity and temperature ZID is a column of water centered over the outfall diffuser an oval of 440.0 X 100 feet (see Appendix C), located perpendicular to the shoreline.

8.) Page 5 – Separate Water Quality Monitoring for a) ZID and b) MZ (for FC). Suggest using Petersburg draft permit wording:

a. Water Quality Sampling

The permittee shall implement the receiving water quality monitoring program as described below. The primary objectives of this program are: 1) to determine compliance with the water quality standards and the criteria in Section 301(h) of the Act, 2) to assess whether changes in permit conditions are warranted, and 3) to provide data for evaluating the reissuance of this permit.

Sampling stations shall be established using an electronic navigational aid to ensure that the same sampling stations are occupied during subsequent sampling events. In addition, efforts shall be made to prevent the sampling vessel from drifting off the sampling site.

Physical/Chemical Monitoring Program. Using standard monitoring and quality control procedures, the following parameters shall be measured at the surface, mid-depth and bottom at four locations:

I. temperature
II. salinity
III. dissolved oxygen (DO)
IV. pH
V. Secchi disk depth (surface only)
VI. turbidity

Two stations shall be located on the boundary of the zone of initial dilution (ZID) on the northwest and southeast sides; or if the plume is visible, samples shall be collected in the plume and at the opposite sides of the ZID.

The other two stations will be reference stations, one located at least 1000 feet southeast of the ZID, the second located at least 1000 feet northeast of the ZID. Reference stations should be located at sites where water depth is equivalent to that at the outfall. To the extent practicable, reference sites shall be the same locations as those used in the previous receiving water sampling.

Water quality sampling shall be conducted annually in August or September and reported by January 15 of the following year the data is collected. .

b. Fecal Coliform Monitoring Program.
Receiving water sampling for fecal coliform bacteria (FC) shall be conducted in accordance with the protocol in Quality Assurance/Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods (EPA 430/9-86-004, March 1987). Fecal coliform sampling shall be conducted in the months of June, July, August, November, and April of each year of the permit, except "Area A" which will be monitored on a monthly basis at the shoreline, results being reported on the monthly DMR. Fecal coliform bacteria shall be measured at the surface at the following locations: **This also affects tables 3-pg 6 in the permit and Table VII-2 in the fact sheet**.)

Station No.	Location (see also Appendix C)
Area A	Shoreline designated as shellfish collection area. An outfall sign must be placed at this beach stating consumption of raw shellfish is not advised along with the advise of steaming shellfish for 4-9 minutes, discarding shellfish that do not open after steaming.
1	Shoreline area closest to discharge point/diffuser.
2	Shoreline area just outside of the two points where the outer edges of the 1600 meter mixing zone touch the shoreline.
3	Just outside of the down current edge of the 1600 meter mixing zone.
4	Just outside of the open ocean edge of the 1600 meter mixing zone.

Samples shall be collected at the surface or just below the surface at each location. Samples shall be collected on the same day that the effluent is sampled for FC concentrations and during the month of August the same day the ambient sampling is performed.

~~1.)~~Page 8 - C Whole effluent Toxicity (WET) Testing – EPA said would remove testing requirement. ~~ADEC suggests a change in monitoring years. Suggests: 1st and 4th year testing. This will allow the community to prepare the test results by the beginning of the 5th year and submit test results with new NPDES permit application 180 days prior to expiration.~~

10.) Page 10 – 5– Preparation of Initial Investigation Toxicity Reduction Evaluation (TRE) - Wrangell is a small community without industrial development. TRE development in this small discharge community is not recommended at this time. IF the TRE requirement is kept in the permit, A VERY GENERIC TRE should be accepted, NOEC will have to be contracted out (all monitoring samples must go to and come back from Colorado testing lab). A greater length of time, perhaps 180 days, for the City of

Wrangell to develop their TRE is advised. Perhaps a generic plan would be acceptable similar to the wording of Haines & Petersburg permits

1. Preparation of Generic TRE Workplan

The permittee shall submit to EPA a copy of the permittee's toxicity reduction evaluation (TRE) workplan [1-2 pages] within 180 days of the effective date of this permit. This plan shall describe the steps the permittee intends to follow in the event that toxicity is detected, and should include at a minimum:

a. A description of the investigation and evaluation techniques that would be used to identify potential causes/sources of toxicity, effluent variability, treatment system efficiency;

b. A description of the facility's method of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in operation of the facility;

c. If a toxicity identification evaluation (TIE) is necessary, who will conduct it (i.e., in-house or other)

~~2.~~ Page 12 #6 Accelerated Testing- N/A if WET Testing Removed. ~~a.) If chronic toxicity as defined in Part I.C.3. above is detected during the~~ quarterly ~~tests,…~~

~~In order to agree with testing protocol set up in C. (pg 8) Whole Effluent Testing it seems that only one test should be performed during 1st and 4th years (see year change above)~~ Suggest~~: Remove the word quarterly.~~

3. Page 14 – sign should be changed to signs. The following wording should also be included. One sign near outfall line, one sign in Area A. Also, finish sentence: …and give a facility??????

4. Page 15 – Part F Design Criteria Requirement – 1st paragraph, last sentence. The plan must include the permittee's strategy for continuing to maintain compliance with effluent limits and will be made available to the Director, ADEC or authorized representative upon request.

5. Page 16 II (C) Monitoring, Recording and Reporting Requirements – Copy to: should be changed to:

Alaska Department of Environmental Conservation
Division of Air and Water Quality
410 Willoughby Ave., Suite 303
Juneau, AK 99801
907-465-5300
907-465-5274(fax)
may be submitted via scanned and saved (.pdf, .bmp or .tif) document to:
wq permit@envircon.state.ak.us

Fact Sheet

1. Page 6 – Executive Summary, 2nd paragraph - upon close investigation for the copy of the old permit I have, the plant used to be permitted for 0.64mgd. Please verify 1983 permitted value vs. current design flow 0.54mgd is correct?

2. Page 8 - A. Wastewater Treatment Plant- Sludge from the settling basin will be removed on a 10 year cycle by contracting sludge dewatering services. No facility in Wrangell to provide this service. Who does the City have in mind? 2nd What protocol will be used to identify if sludge needs to be removed prior to the 10 year mark? Perhaps address in O&M.

3. Page 11 – B. Initial Dilution and Zone of Initial Dilution 3rd Paragraph – Marine water quality criteria must be met at the edge of the ZID for DO and metals. pH, temperature, BOD, TSS, FC & nutrients must be met at the end of pipe. In addition, WQ standards for FC must be met at the edge of mixing zone.

4. Page 12 pH must be 6.5-8.5 see stipulation.

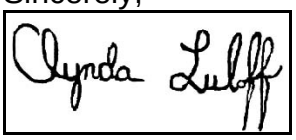
5. Page 14 – Footnote 4 Monitoring should be performed in 1st and 4th years see comment # 9 draft permit comment above.

6. Page 17 FC numbers 14 #FC/100 ml in Area A. and 200 #FC/100ml on other shorelines.

7. Page 19 6th paragraph include wording from permit about location of signs.

8. Page 20 – In the O&M plan, Suggest: adding how plant plans to address sludge removal/ sludge accumulation on bottom of aeration basin and sedimentation basin as well as maintenance of aerators.

Sincerely,



Clynda A. Luloff
Environmental Specialist
Clynda_Luloff@envircon.state.ak.us
907-465-5366

APPENDIX B - Wrangell Wastewater Treatment Plant Process

APPENDIX C - Wrangell Wastewater Treatment Plant Discharge Location

APPENDIX D - Diffuser Design and Zone of Initial Dilution (ZID)

APPENDIX E
Statutory and Regulatory Basis for Effluent Limitations

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

In general, the EPA first determines which technology-based limits must be incorporated into the permit. Then, the EPA evaluates the effluent quality expected to result from these controls, to see if they could result in any exceedences of the water quality standards in the receiving water. If exceedences could occur, EPA must include water quality-based limits in 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 VI of this fact sheet. This Appendix describes the technology-based and water quality-based evaluation for the Wrangell WWTP.

I. Technology-based Evaluation

The 1972 Clean Water Act required that POTWs meet performance-based requirements based on available wastewater treatment technology. Section 301 of the Clean Water Act established a required performance level, referred to as "secondary treatment," that all POTWs were required to meet by July 1, 1977. Section 301(h) of the Act provides for a waiver from secondary treatment, if the permittee meets several specific criteria, including a requirement to achieve primary treatment. Primary treatment is defined in Section 301(h) of the Act as 30 percent removal of BOD_5 and TSS from the influent.

Applicants for 301(h) waivers request concentration and loading (i.e. in lbs/day) limits for BOD_5 and TSS based on what the facility is capable of achieving. Therefore, the technology-based requirements for POTWs with 301(h) waivers are established on a case-by-case basis. Table E-1 shows the BOD_5 and TSS concentration and loading limits of the current permit and those included in the draft permit limit table (Table VI-1, Section VI). A pH range from 6.5 to 8.5 s.u. is included in the draft permit consistent with the WQS.

Table E-1. Technology-Based Effluent Limitations for Outfall 001

Parameter	1983 Average Monthly Limit	2001 Average Monthly Limit	2001 Daily Maximum Limit
Biochemical Oxygen Demand (BOD_5)	120 mg/L (641 lbs/day)	120 mg/L (601 lbs/day)	200 mg/L* (1001 lbs/day)
Total Suspended Solids (TSS)	150 mg/L (801 lbs/day)	140 mg/L* (701 lbs/day	200 mg/L* (1001 lbs/day)
pH	6.5 - 8.5*		

* Indicates inclusion or change from previous permit based on 401 pre-cert from ADEC

II. Water Quality-based Evaluation

For 301(h) dischargers, water quality-based permit limits must consider the following four separate provisions which overlap to some extent.

A. 40 CFR 122.44(d)(1) requires that permits include limits on 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." This provision applies to all NPDES permits.

B. 40 CFR §125.62(a)(1) states that the permittee must demonstrate that its discharge will not result in exceedances of state water quality standards at the edge of the ZID. This provision is specific to permits with 301(h) waivers.

C. Section 301(h)(9) of the Act requires that the discharge meet water quality criteria established under section 304(a)(1) of the Act at the edge of the ZID. Section 304(a)(1) of the Act establishes water quality criteria for toxic pollutants. Where a state has adopted numeric criteria for a given pollutant, that criterion can be used in place of the 304(a)(1) criteria. Therefore, compliance with 40 CFR 122.44(d)(1) also results in compliance with this provision.

D. 40 CFR § 125.61 implements Section 301(h)(1) of the Act. This provision applies only to those parameters for which a modification is requested (i.e., BOD_5 and TSS). Under this provision, there must be a water quality standard applicable to each pollutant for which the modification is requested (i.e., BOD_5 and TSS or surrogates) and the applicant must demonstrate that the proposed modified discharge will result in compliance with these standards at the edge of the ZID.

III. Pollutant-specific Analysis

The following section outlines the basis for each of the effluent limitations, or the absence of limitations, in the draft permit.

A. Dissolved Oxygen

The Alaska State Water Quality Standards applicable to marine waters provide that for estuarine water, the concentration of DO shall not be less than 5.0 mg/L except where natural conditions cause this value to be depressed.

The amended 301(h) TSD provides the following equation for determining the DO depletion caused by the BOD_5 of the effluent. This equation was used by the permittee to calculate the DO concentration (DO_f) in the waste field at the completion of initial dilution, using the following recommended worst-case assumptions.

$$DO_f = DO_a + (DO_e - IDOD - DO_a)/S_a$$
$$8.4 + (2.2 - 2 - 8.4)/880$$

8.393 mg/L

DO_a = Ambient DO concentration (minimum average water column DO concentration measured in the vicinity of the outfall)
8.4 mg/L

DO_e = Effluent DO concentration
2.2 mg/L (minimum from daily monitoring data during 2000)

IDOD = Immediate DO demand
2.0 mg/L (from Table B-3 in the amended 301(h) TSD, page B-15)

S_a = Initial dilution (880:1)

The minimum DO concentration of the receiving water immediately following initial dilution (DO_f) is 8.393 mg/L, a depletion of 0.007 mg/L from the ambient DO. This represents a DO depression of less than 1 percent and is greater than the 5 mg/L standard.

The permittee did not calculate a farfield DO concentration based on equations from the TSD. The permittee conducted daily DO monitoring of its effluent during 2000. The average DO was 8.0 mg/L. With this level of DO, it is expected that DO depression will not significantly affect water quality. Ambient monitoring for DO has been included in the draft permit to assure future compliance with the water quality standards.

B. Biochemical Oxygen Demand

In addition to the water quality-based concentration limits requested by the permittee, 40 CFR 122.45(f) requires that NPDES permits contain mass-based limits for most pollutants. The draft permit establishes loading limits based on Wrangell future design capacity of 0.6 mgd [40 CFR 122.45(b)]. The loading limits are calculated by multiplying the concentration limits by the design flow and a conversion factor of 8.34 pound•liter/milligram•million gallons, as shown below:

Monthly Average Load: = (0.6 mgd)(120 mg/L)(8.34)
= **601 lbs/day**

Pursuant to Section 301(h)(9) of the Act and 40 CFR 125.60, the applicant must be discharging effluent that has received at least primary or equivalent treatment by the time the modified permit becomes effective. Primary or equivalent treatment is defined as "...treatment by screening, sedimentation, and skimming adequate to remove 30 percent of the biochemical oxygen demanding material and of the suspended solids in the treatment works influent..." The existing plant meets the primary or equivalent treatment requirements as required by federal regulations. DMR data from May 1994 through December 2000 demonstrates a range of BOD_5 percent removal from

20 - 88% with the average of only 3 months (3.75%) being below 30%. A **30% removal** of BOD_5 is included in the draft permit.

C. Turbidity and/or Light Attenuation

Alaska water quality standards applicable to marine waters of Zimovia Strait provide that turbidity shall not exceed 25 nephelometric turbidity units (NTU) and shall not reduce the depth of the compensation point for photosynthetic activity by more than 10%. In addition, the turbidity shall not reduce the maximum Secchi disc depth by more than 10%. Turbidity and secchi disk monitoring have been included in the ambient monitoring program.

D. Total Suspended Solids

The change in suspended solids in the water column is indirectly related to turbidity measurements. The increase in receiving water suspended solids concentration following initial dilution can be calculated from the formula in the 301(h) TSD:

$SS = SS_e/S_a$ where,
SS = change in suspended solids concentration following initial dilution
SS_e = effluent suspended solids concentration (140 mg/L)
S_a = initial dilution (880:1)

Therefore, suspended solids increase by 0.16 mg/L based upon the critical initial dilution of 880:1 and the draft effluent SS limit of 140 mg/L. The increase in suspended solids is not expected to have a substantial effect of turbidity.

Therefore, the average monthly suspended solids concentration of 140 mg/L is protective of the water quality-based turbidity standard. In addition to the concentration limits, 40 CFR 122.45(f) requires that NPDES permits contain mass-based limits for most pollutants. The water quality-based limit is calculated by multiplying the concentration limits by the design flow and a conversion factor of 8.34 pound•liter/milligram•million gallons, as shown below:

Monthly Average Load: = (0.6 mgd)(140 mg/L)(8.34)
= **701 lbs/day**

The existing plant meets the primary or equivalent treatment requirements as required by federal regulations. DMR data from May 1994 through December 2000 demonstrates a range of TSS percent removal from 21% - 97% with the average of only 1 month (1.25%) under 30% removal. Therefore, the **30% removal** technology-based requirement is included in the draft permit.

E. pH

40 CFR 133.102 requires that effluent pH be within the technology-based range of 6.0 to 9.0 standard units (s.u.) for POTWs. In addition, the Alaska water quality standards for the protection of aquatic life requires that ambient pH be in

the range of 6.5 to 8.5 s.u. and that pH not vary more than 0.1 standard unit from natural conditions. The effluent pH from 1989 through 2000 ranged between 6.0 and 8.5 s.u. The draft permit incorporates a range limit from **6.5 to 8.5 s.u.***

F. Fecal Coliform Bacteria

Alaska's most restrictive criterion for fecal coliform (FC) bacteria concentrations is for areas protected for shellfish harvesting. The criterion specifies that the median fecal coliform value not exceed 14 Most Probable Number (MPN)/100 mL, and that not more than 10 percent of the samples shall exceed 43 MPN/100 mL. Because Zimovia Strait is protected for shellfish harvesting, the discharge in the current permit must result in this standard being met at the edge of the MZ certified by ADEC.

The previous permit did not require effluent monitoring of fecal coliform so there is no effluent data available from the facility to evaluate. There is limited ambient monitoring in the vicinity of the ZID for the previous permit which shows a range of fecal coliform from 0 to 6 FC/100 mL. ADEC has provided the permittee with an MZ for fecal coliform (see Appendix A) that is defined as the volume contained within a 1,600 m radius of the diffuser. The state has indicated that an average monthly limit of 1.0×10^6 FC/100 mL and a maximum daily limit of 1.5×10^6 FC/100 mL would comply with state water quality standards and have been included in the draft permit.

In addition to the fecal coliform effluent monitoring, the draft permit includes an intertidal (shoreline) and ambient fecal coliform monitoring requirement. The intertidal monitoring will consist of monitoring 1.5 meters offshore on a line along the outfall pipe, two stations 91 meters along the shore on either side of the pipe, a point on the beach where shellfish harvesting occurs, and two points in the shoreline area where the outer edges of the 1600 meter mixing zone touch the shoreline*. The ambient monitoring program will provide information to evaluate compliance with Alaska fecal coliform water quality standards. The ambient sampling program shall include two sampling stations at the ZID boundary and at two nearfield stations.

G. Toxic Pollutants

As discussed above, water quality-based limits must be established that result in compliance with water quality standards at the edge of the ZID, if a ZID is available.

The regulations at 40 CFR 122.44(d)(1) implement section 301(b)(1)(C) of the Act. 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, and must be consistent with any available wasteload allocation (WLA).

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

a. Determine the appropriate water quality criteria
b. Determine whether there is "reasonable potential" to exceed the criteria
c. If there is "reasonable potential", develop a WLA
d. Develop effluent limitations based on the WLA

To determine if there is "reasonable potential" to cause or contribute to an exceedence of the water quality criteria for a given pollutant, EPA compares applicable water quality criteria to the maximum expected receiving water concentrations for a particular pollutant. If the expected receiving water concentration exceeds the criteria, there is "reasonable potential" and a water quality-based effluent limit must be included in the permit.

EPA used the recommendations in Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD, EPA 1991) to conduct this "reasonable potential" analysis for the City of Wrangell WWTP.

The maximum expected receiving water concentration is determined using the following mass balance equation.

$C_r = (C_e \text{ X } D) + C_b$ where,

C_r = receiving water concentration of the effluent at the edge of the ZID
C_e = maximum projected effluent concentration
= maximum reported effluent value X reasonable potential multiplier
C_b = background concentration of pollutant
D = dilution factor as a % (880:1 for BOD_5, TSS, copper, lead, and zinc equals 0.11%)

The maximum projected effluent concentration (C_e) in the mass balance equation is represented by the highest reported concentration measured in the effluent multiplied by a reasonable potential multiplier. The reasonable potential multiplier accounts for uncertainty in the data. The multiplier decreases as the number of data points increases and variability of the data decreases. Variability is measured by the coefficient of variation (CV) of the data. When there is not enough data to reliably determine a CV, the TSD recommends using 0.6 as a default value. A partial listing of reasonable potential multipliers can be found in Table 3-1 of the TSD.

The resulting maximum projected effluent concentration is then divided by the minimum critical dilution. This product represents the maximum effluent concentration at the edge of the ZID. The maximum effluent concentration at the edge of the ZID is then added to the background concentration, $C_{b,}$ which is

represented by the 95th percentile value from the background data set (the 5th percentile value is used for DO). The sum, C_r, represents the projected maximum receiving water concentration at the edge of the ZID. This concentration is compared to the water quality criterion to determine whether a water-quality based effluent limitation is needed. If the receiving water concentration exceeds the water-quality criteria then a water-quality based effluent limitation is developed.

Table C-2 shows the values used to calculate a maximum potential receiving water concentration and compared to the most stringent marine criteria for toxics.

Table C-2. Determination of Need for Water-Quality Based Limits

Parameter	Background (µg/l), C_b	Max Report Effluent (µg/l)	Reasonable Potential Multiplier☼	Dilution Factor (%)	Max Potential RWC, C_r	Most Stringent WQ Criteria	WQ Based Limit Required?
Copper	0	114	7.4	0.11	0.93	2.9	No
Lead	0	6.5	7.4	0.11	0.05	5.6	No
Zinc	0	62	7.4	0.11	0.50	58	No

☼ When less than 10 data points are available, the TSD recommends using a coefficient of variation of 0.6.

The potential receiving water concentrations do not exceed the most stringent Alaska water quality criteria for any parameter, therefore effluent limitations for these parameters are not necessary for this discharge.

H. Ammonia

Total ammonia data is unavailable in the NPDES renewal application for ammonia. The 1983 permit did not require effluent monitoring of ammonia. Although ammonia is a common constituent of POTW effluent, it is reasonable to expect that this facility would not cause exceedances of the State criteria given the dilution available within the ZID. To confirm this expectation, EPA has included total ammonia effluent and ambient monitoring in the draft permit.

I. Floating, Suspended or Submerged Matter

The state water quality standard 18 AAC 70.020(b)(2) requires that the permittee not discharge floating solids, debris, sludge, foam, scum, or other residues which produce a film, sheen, or discoloration on the surface of the receiving water. This condition was included in the 1983 permit and has been retained in the draft permit.

IV. Antidegradation

In addition to water quality-based limitations for pollutants that could cause or contribute to exceedences of standards, EPA must consider the State's antidegradation policy. This policy is designed to protect existing water quality when the existing quality is better than that required to meet the standard and to prevent water quality from being degraded below the standard when existing quality just meets the standard. For high quality waters, antidegradation requires that, before any degradation is authorized, the State must find that allowing lower water quality is necessary to accommodate important economic or social development. This means that, if water quality is better than necessary to meet the water quality standards, increased permit limits can be authorized only if they do not cause degradation or if the State makes the determination that it is necessary. Reissuance of this permit will not result in additional pollutant loading to the receiving water. Therefore, reissuance is consistent with the State of Alaska's antidegradation policy (18 AAC 70.015).

V. Maintenance of that Water Quality which Assures Protection of Public Water Supplies, a Balanced Indigenous Population of Shellfish, Fish, and Wildlife, and Recreational Activities in and on the Water [40 CFR § 125.62]

A. Transport and Dispersion of Diluted Wastewater and Particulates

40 CFR § 125.62 states that wastewater and particulates must be adequately dispersed following initial dilution so as not to adversely affect water use areas. Assuring compliance with this section requires an analysis of solids accumulation.

The accumulation of suspended solids may lower dissolved oxygen concentrations in near-bottom waters and cause changes in the benthic communities. Accumulation of suspended solids in the vicinity of a discharge is influenced by the amount of solids discharged, the settling velocity distribution of the particles in the discharge, the plume height-of-rise, and current velocities. Sedimentation of suspended solids is generally of little concern for discharges into very well-flushed receiving waters.

The discharge of Wrangell's effluent is not expected to cause adverse solids accumulation or have a significant impact on sediment DO demand. An estimate of a steady-state sediment accumulation of less than 25 g/m^2 for particles from the outfall was made using Figure B-2 of the amended TSD. The estimate is based on an annual effluent flow of 0.03 m^3/sec (0.6 mgd) and an annual average suspended solids effluent concentration of 140 mg/L to calculate mass emission rate. At less than 25 g/m^2, the amended TSD indicates that no biological impacts are expected to occur.

B. Impact of the Discharge on Public Water Supplies

40 C.F.R. § 125.62(b) requires that the applicant's discharge allow for the attainment or maintenance of water quality which assures protection of public

water supplies and not interfere with the use of planned or existing public water supplies. There are no existing or planned public water supply intakes in the vicinity of the discharge. The major source of water for the city of Wrangell are two surface reservoirs south of town.

C. Biological Impact of Discharge

40 CFR § 125.62(c) requires that in addition to complying with applicable water quality standards, the discharge must comply with any additional requirements necessary to maintain water quality which provides for the protection and propagation of a balanced indigenous population (BIP) of fish, shellfish, and wildlife. Specifically, this requirement means that a BIP must exist immediately beyond the boundary of the ZID and in all areas beyond the ZID that are actually or potentially affected by the applicant's discharge.

The discharge has complied in the past and is expected to continue complying with the State of Alaska water quality standards for DO, turbidity, and pH. Other water quality standards applicable to the discharge include fecal coliform, temperature, ammonia, and toxic and deleterious substances.

The guidelines in the TSD indicate that the potential for adverse biological impacts due to the sewage effluent is low since the outfall is located in relatively deep water (100 feet) and strong, fairly steady currents provide adequate dilution. Transport and dispersion of the diluted wastewater following initial dilution should continue to prevent accumulation of sewage-derived solids which could have adverse effects on benthic communities.

Wrangell’s existing permit requires sediment analyses for Total Volatile Solids (TVS) as an approximation of the amount of organic matter in the solid fraction of the discharge. The existing permit requires the sampling and archiving of benthic infauna at the same time that the TVS samples were collected. In the event that TVS concentrations increased, Wrangell would have been required to statistically analyze the benthic infauna to show whether the composition of the benthic communities changed significantly in response to organic enrichment, indicated by TVS.

The TVS and benthic infauna monitoring program in the existing permit should have provided data adequate to evaluate the effects of the discharge on the biological community. However, due to the change in the outfall location that occurred at Wrangell, the existing TVS and benthic infauna data neither supports nor refutes a determination regarding the effects of diluted wastewater and particulates on the marine biota within or at the boundary of the ZID. The draft permit contains requirements for TVS data collection.

D. Biological Impacts for Saline Estuaries Regarding Benthic Populations within the ZID, Migratory Pathways within the ZID, and Accumulation of Toxic Pollutants or Pesticides within the ZID

40 CFR § 125.62(c)(4) requires that for discharges within a saline estuary, the benthic populations within the ZID may not differ from the BIP immediately beyond the ZID. The discharges may also not interfere with estuarine migratory pathways within the ZID, and the discharge may not result in the accumulation of toxic pollutants or pesticides at levels which exert adverse effects on the biota within the ZID.

The existence of a BIP within the ZID has not been established. The application indicates there is a BIP immediately beyond the ZID. The permittee has not supplied any data regarding migratory pathways in the proximity of the ZID because such data for fish and wildlife in this area is lacking.

With respect to the accumulation of toxic pollutants or pesticides within the ZID, Wrangell stated in their application that there are no known or suspected sources of toxic pollutants or pesticides detected in the effluent. Therefore, no bioaccumulation is anticipated among biota within the ZID. Sampling conducted in 1988 and 1992 showed the following pollutants in a composite sample of the effluent at concentrations above detection levels:

Table C-3 - Monitoring Results

Parameter	Effluent Concentration (µg/L)	
	1988	1992
Phenol		5.6
4-Methyl Phenol		63
Diethyl Phthalate		2.9
Bis (2-ethylhexyl) Phthalate		3.5
Chromium VI	2.1	
Copper	84	114
Lead	6.5	2.0
Nickel	6.1	
Silver	1.2	Nondetect
Zinc	62	36

Of the reported pollutants, copper, lead and zinc were present at levels exceeding the marine water quality criteria. Assuming a dilution of 880:1 in the ZID, all parameters meet water quality standards. No effluent limits have been proposed for any these parameters.

E. Impact of Discharge on Harvesting and Recreational Activities

40 C.F.R. § 125,62(d) requires that the City of Wrangell's discharge allow for the attainment and maintenance of water quality protective of activities outside the ZID. The applicant identified commercial crabbing, subsistence clamming and sport salmon and halibut fishing as the major activities. The permittee states that commercial and recreational fisheries have not been impacted adversely (e.g., warnings, restrictions, closures or mass mortalities) by the current discharge. With improvements to the outfall/diffuser, the permittee expects no impact on these activities. Effluent limits have been placed in the permit that protect for the most stringent designated use of Zimovia Strait shellfish harvesting). Shoreline fecal monitoring on a monthly basis during the summer has also been proposed for the known area of shellfish harvesting.

APPENDIX F - Essential Fish Habitat Assessment

Pursuant to the requirements for Essential Fish Habitat (EFH) assessments, this appendix contains the following information:

(1) Listing of EFH Species in the Facility Area
(2) Description of the Facility and Discharge Location
(3) EPA's Evaluation of Potential Effects to EFH

1. Listing of EFH Species in the Facility Area

In a letter dated May 18, 2001, NMFS stated that the facility would be located in EFH for the following species: arrowtooth flounder, ducky rockfish, yelloweye rockfish, shortraker rockfish, rougheye rockfish, Pacific cod, Pacific ocean perch, sable fish, sculpin, skate, walleye pollock and all five species of Pacific salmon (chinook, coho, chum, sockeye and pink).

2. Description of the Facility and Discharge Location

The activities and sources of wastewater at the WWTP are described in detail in Part IV ("Facility and Outfall Description") of this fact sheet. The location of the outfall is described in Part V ("Receiving Water").

3. EPA's Evaluation of Potential Effects to EFH

Water quality is an important component of aquatic life habitat. NPDES permits are developed to protect water quality in accordance with state water quality standards. The standards protect the beneficial uses of the waterbody, including all life stages of aquatic life. The development of permit limits for an NPDES discharger include the basic elements of ecological risk analysis. The underlying technical process leading to NPDES permit requirements incorporates the following elements of risk analysis:

<u>Effluent Characterization</u>

Characterization of Wrangell's effluent was accomplished using a variety of sources, including:
Permit application monitoring
Permit compliance monitoring
Effluent variability
Quality assurance evaluations

<u>Identification of Pollutants of Concern and Threshold Concentrations</u>

Identification of pollutants of concern, including:

Pollutants with aquatic life criteria in the Alaska Water Quality Standards
Other pollutants of concern based on available information

Exposure and Wasteload Allocation

Analysis of the transport of pollutants near the discharge point with respect to the following:

Mixing zone policies in the Alaska Water Quality Standards
Dilution modeling and analysis
Exposure considerations (e.g., prevention of lethality to passing organisms)
Consideration of multiple sources and natural background concentrations

Statistical Evaluation for Permit Limit Development

Calculation of permit limits using statistical procedures addressing the following:

Effluent variability and non-continuous sampling
Fate/transport variability
Duration and frequency thresholds identified in the water quality criteria

Monitoring Programs

Development of monitoring requirements, including:

Compliance monitoring of the effluent
Ambient monitoring

EPA's approach to aquatic life protection is outlined in detail in the Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, March 1991).

EPA and states evaluate toxicological information from a wide range of species and life stages in establishing water quality criteria for the protection of aquatic life. For example, the criteria for ammonia in saltwater adopted by the State of Alaska are based on bioassays (predominantly acute tests) of 21 marine species in 18 genera.

The NPDES program evaluates a wide range of chemical constituents (as well as whole effluent toxicity testing results) to identify pollutants of concern with respect to the criteria values. When a facility discharges a pollutant at a level that has a "reasonable potential" to exceed the water quality criteria, permit limits are established to prevent exceedences of the criteria in the receiving water (outside any authorized mixing zone).

Since the draft permit has been developed to protect aquatic life species in Zimovia Strait in accordance with the Alaska water quality standards, the EPA has tentatively determined that issuance of this permit is **not likely to adversely affect** any EFH in the vicinity of the discharge. The EPA will provide NMFS with copies of the draft permit and fact sheet during the public notice period. Any recommendations received from NMFS regarding EFH will be considered prior to reissuance of this permit.