FACT SHEET

United States Environmental Protection Agency (EPA)
Region 10
Park Place Building, 13th Floor
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-0523

Date:

Permit No.: AK-002138-5

PROPOSED REISSUANCE OF A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE POLLUTANTS PURSUANT TO THE PROVISIONS OF THE CLEAN WATER ACT (CWA)

The City of Haines
P.O. Box 1049
Haines, Alaska 99827

has applied for reissuance of a NPDES permit to discharge pollutants pursuant to the provisions of the CWA. This Fact Sheet includes (a) the tentative determination of the EPA to reissue the permit, (b) information on public comment, public hearing and appeal procedures, (c) the description of the current discharge, (d) a listing of tentative effluent limitations, schedules of compliance and other conditions, and (e) a sketch or detailed description of the discharge location. We call your special attention to the technical material presented in the latter part of this document.

Persons wishing to comment on the tentative determinations contained in the proposed permit reissuance may do so by the expiration date of the Public Notice. All written comments should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the expiration date of the Public Notice, the Director, Water Division, will make final determinations with respect to the permit reissuance. The tentative determinations contained in the draft permit will become final conditions if no substantive comments are received during the public notice period.

The proposed NPDES permit and other related documents are on file and may be inspected at the above address any time between 8:30 a.m. and 4:00 p.m., Monday through Friday. Copies and other information may be requested by writing to EPA at the above address to the attention of the NPDES Permits Unit, or by calling (206) 553-0523. The draft permit, fact sheet, and tentative decision document are also available from the EPA Alaska Operations Office, Room 537, Federal Building, 222 W. 7th Avenue, #19, Anchorage, Alaska 99513 and EPA Alaska Operations Office, PO Box 20370, Juneau, Alaska 99802; physical address: Room 223A, 709 W. 9th Street, Juneau AK 99802.

TECHNICAL INFORMATION

The fact sheet and tentative decision document accompanying the reissuance of the permit set forth the principal facts, legal issues, and policy questions considered in the development of the terms and conditions of the permit.

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

On the basis of the conclusions presented in this fact sheet, EPA has determined that the proposed discharge from the City of Haines 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 Haines (the applicant) is seeking an updated 301(h) permit and has submitted an updated permit application and monitoring data.

EPA followed the guidance provided by the Revised Section 301(h) Technical Support Document (301(h) TSD, EPA 430/9-82-011, November 1982) for the evaluation of the discharge for the small applicant. The Region relied on information in the current 301(h) application, 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, water quality standards, or the biological community in the vicinity of the discharge. 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) variance from secondary treatment is contingent upon the following conditions:

1. State certification under Section 401 of the Act regarding compliance with State law and water quality standards, including a basis for the conclusions reached.

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

II. APPLICANT

City of Haines Wastewater Treatment Plant

Mailing Address	Facility Location
P.O. Box 1049	Fair Road (no number)
Haines, Alaska 99827	Haines, Alaska 99827

Contact: Vince Hansen, City Manager

Permit No. AK-002138-5

The City of Haines, Alaska, has applied for renewal of the National Pollutant Discharge Elimination System (NPDES) permit for its publicly owned treatment works (POTW), permit number AK-002138-5. The permit became effective January 20, 1995, and expired January 20, 2000. Haines submitted an application for renewal on January 12, 2000. Because the application for renewal was not timely, under the conditions of 40 CFR § 122.6, the permit was not administratively extended.

III. FACILITY DESCRIPTION

The facility discharges to Portage Cove in Chilkoot Inlet. The discharge point is 558 meters from shore, at approximately 24.4 meters below mean lower low water (MLLW) at 59°13'59" N latitude and 135°25'44" W longitude.

Currently, the City of Haines POTW provides primary treatment to all wastewater prior to discharge. Wastewater is routed through two primary screens and then to the grit chamber where polymer is added. The influent is then routed to the clarifier. Primary sludge and skimmings from the clarifier are moved to the aerobic digestion chamber for thickening (by periodic gravity settling). The supernatant is decanted back into the system and eventually discharged through the outfall. The sludge is dewatered and disposed of at landfills.

IV. RECEIVING WATERS

A. General Features

The facility discharges to Portage Cove in Chilkoot Inlet, a saline estuary. Portage Cove is classified by the Alaska State Water Quality Standards as classes IIA(i)(ii)(iii), C, and D, for use in aquaculture, seafood processing and industrial water supply, water contact and secondary recreation, growth and propagation of fish, shellfish, aquatic life and wildlife, and harvesting for consumption of raw mollusks or other raw aquatic life.

B. Circulation and Stratification

Chilkoot Inlet is part of the Lynn Canal - Chatham Strait system. The circulation in Lynn Canal can be represented by a two-layer flow system typical of estuaries or fjords. The surface layer [above approximately 15-m (50 ft) depth] flows seaward driven by freshwater inflow (maximum in summer), and the bottom layer moves landward. The freshwater discharge north of Portage Cove is due to the combined flow of the Skagway, Taiya, Ferebee, and Chilkoot Rivers, as well as West Creek and miscellaneous other streams.

The circulation patterns within Portage Cove are not known. However, the effluent discharged by the facility is subject to a net transport of water out of Chilkoot Inlet due to fresh water supplied by runoff. The period of low net circulation is expected to be December through April, during times of minimum river flow. In Lynn Canal, surface salinities range from as low as 10 ppt (parts per thousand) during the summer to 30 ppt in the winter. Salinities in the deeper portions of Lynn Canal remain in the approximate range of 32 to 33 ppt throughout the year. Surface temperatures range from 14° C during summer to near 0° C during the winter. The temperature in the deep water varies between 0° C and 4° C throughout the year.

C. Currents and Flushing

Little information is available on the currents in Portage Cove. The mean tidal range is 4.3 m (14.2 ft), with a mean tide level of 2.7 m (8.7 ft) above mean lower low water. Tidal currents average 10 cm/sec on a flooding tide (to the north) and 23 cm/sec on an ebbing tide (to the south), with maximum flood- and ebb-tide velocities of 15.4 cm/sec (0.3 kn) and 36.0 cm/sec (0.7 kn), respectively, at Battery Point. The net transport is 2.9 km (4.7 miles) to the south every 12.4 hr.

Current measurements in Lynn Canal indicate a strong average southerly flow on the surface and weak average northerly flow below a depth of 15.2 m (50 ft). A conservative value of 0 cm/sec for current speed was used in calculating the initial dilution.

V. PHYSICAL CHARACTERISTICS OF THE DISCHARGE

A. Outfall/Diffuser Design and Initial Dilution

Pursuant to 40 CFR §125.61(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 is a 16-inch pipe which extends 558 m (1,830 ft) into Portage Cove at a mean lower low water depth of 24.4 m (80 ft). The pipe ends in a three-port diffuser of 9.1 m (30.0 ft) length. The effluent is directed horizontally through two ports, each with a diameter of 7.6 cm (3 in). The third port on the original diffuser was capped in 1986 and will not be used.

The model UMERGE (Mullenhoff et al. 1985) was used to compute initial dilutions for the proposed discharge. This model was chosen because preliminary analysis predicted that the discharges from the two ports would merge during periods of maximum stratification (winter and spring).

Maximum flow rates used in the initial dilution calculations were predicted based on current discharge monitoring data. The city's current permit indicates that monthly average flow rate of the effluent is not to exceed 0.6 MGD. This maximum flow rate had been increased from the previous maximum of 0.307 MGD because an increase in population and a marked increase in tourist traffic had caused the city to begin to exceed the permitted flow limit. The city implemented an I&I program in 1992 which continues today. According to the city, flow monitoring results and the chemical characteristics of the influent suggest that

excessive I&I is not a contributing factor. Based on current flow, the current annual average flow rate is predicted to be 0.6 MGD. Design flow and effluent flow limitations for this facility are 1.9 mgd monthly average and 2.9 mgd daily maximum (see Appendix 4).

An ambient current of zero and water depth of 24.4 m (80 ft) below mean lower low water were used in the initial dilution calculations to yield conservative results (Tetra Tech 1985). A critical initial dilution of 52.9 is calculated for the dry weather density profile. The trapping depth is calculated to be 19.5 m (64.0 ft).

B. Zone of Initial Dilution (ZID)

The ZID is the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports. It can generally be considered to include the bottom area within a horizontal distance equal to the water depth from any point of the diffuser and the water column above that area.

The ZID for the applicant's final discharge is defined using the simplified method in the TSD. Using the discharge depth of 24.4 m (80.0 ft) below mean lower low water, a port height above sea bottom of 0.2 m (0.7 ft), and a mean tide level of 2.65 m (8.7 ft), the total water depth at mean sea level at the diffuser location is approximately 27.25 m (89.4 ft). Using the diffuser length of 9.1 m (30.0 ft) and diameter of 0.41 m (16 in), the ZID was calculated to be a rectangle 63.7 m (209 ft) long (perpendicular to shore) and 54.9 m (180 ft) wide. Centered on the diffuser and located perpendicular to the shoreline.

VI. STATUTORY BASIS FOR EFFLUENT LIMITATIONS AND OTHER PERMIT CONDITIONS

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

In general, EPA first determines which technology-based limits are required, as well as best management practices or other requirements. EPA then evaluates the effluent quality expected to result from these controls, to see if it could result in any exceedances of the water quality standards in the receiving water. If exceedances could occur, EPA must include water quality-based limits in the permit. The permit limits will thus reflect whichever limits (technology-based or water quality-based) are most stringent.

Under section 308 of the Act and 40 CFR §122.44(i), EPA must include monitoring requirements in the permit to determine compliance with effluent limitations. 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. Effluent and ambient monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance.

The basis for each permit condition is described in more detail below.

A. Applicable Technology-Based Requirements

Section 301(b)(1)(B) of the Clean Water Act requires POTWs in existence on July 1, 1977, or approved pursuant to Section 203 prior to June 30, 1974 (for which construction must be completed within four years of approval), to achieve effluent limits based on secondary treatment. Secondary treatment is defined at 40 CFR Part 133 as being a monthly average of 30 mg/L and 85 percent removal for BOD_5 and TSS, and a pH of 6.0 to 9.0. 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 the Act as 30 percent removal of biochemical oxygen demand (BOD) and total suspended solids (TSS).

Applicants for 301(h) waivers request concentration and loading (lb/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. In the case of the City of Haines, the BOD_5 and TSS limitations are a monthly average of 140 mg/L and a daily maximum limitation of 200 mg/L. The limits were requested by the Alaska Department of Environmental Conservation, after discussions with the permittee, and were transmitted to EPA in a letter of draft State stipulations dated June 26, 2001 (see Appendix 4). The concentrations are based on current influent conditions with 30 percent removal. The permit will also include a monthly average flow rate limitation of 1.9 mgd and a daily maximum limit of 2.9 mgd. The following projected average mass emission levels, based on a monthly design flow of 1.9 mgd, are also included as permit limitations:

Constituent	Monthly Average Mass Limitation	Daily Mass Limitation
BOD_5	2,200 lbs/day	3,200 lbs/day
TSS	2,200 lbs/day	3,200 lbs/day

B. Water Quality Evaluation

(1) Statutory Basis for Water Quality-based Limits

For 301(h) dischargers, water quality-based permit limits are based on four separate provisions. These provisions overlap to some extent.

The first is 40 CFR 122.44(d)(1), which 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."

The second provision that addresses compliance with water quality standards is 40 CFR §125.61(a)(1), which 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.

The third provision that addresses compliance with water quality standards is section 301(h)(9) of the Act. Section 301(h)(9) requires that, at the edge of the zone of initial dilution, the discharge must meet water quality criteria established under section 304(a)(1) of the Act, the section that establishes 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. On December 22, 1992, EPA promulgated numeric criteria for toxic pollutants for

the State of Alaska in the National Toxics Rule (57 FR 60848). Therefore, compliance with 40 CFR §125.61(a)(1) also results in compliance with this provision.

Finally, compliance with water quality standards is addressed at 40 CFR §125.60, which implements Section 301(h)(1) of the Act. This provision applies only to those parameters for which a modification is requested (i.e., BOD, TSS, and pH). Under this provision, there must be a water quality standard applicable to each pollutant for which the modification is requested (i.e., BOD and TSS or surrogates, and pH) and the applicant must demonstrate that the proposed modified discharge will comply with these standards.

In proposing to reissue this permit, EPA has considered Alaska's antidegradation policy (18 AAC 70.010(c)). This policy establishes three tiers of protection for state waters: tier 1, which requires that instream uses and the level of water quality necessary to protect those uses be protected; tier 2, which requires that existing water quality be maintained and protected where that quality is better than necessary to protect beneficial uses; and, tier 3, which requires that outstanding national resource waters be maintained and protected.

Tier 1 protection applies to all waters. Tier 2 and 3 protection applies to waters that have been designated as such. The state has not yet adopted implementation procedures for its antidegradation policy nor has it designated any waters as tier 2 or 3. Therefore, the limits in this permit were evaluated to determine whether they complied with tier 1 requirements. Because water quality standards were met at the edge of the mixing zone, EPA believes that this permit complies with the requirements of tier 1 of the State's antidegradation policy. As part of its 401 certification, the State may establish more stringent limits if it deems such limits are necessary to comply with its antidegradation policy.

The following discussion addresses compliance with each of the above requirements in more detail.

(2) Biochemical Oxygen Demand

Alaska State Water Quality Standards applicable to marine waters provide that for coastal water, the DO shall not be less than 6.0 mg/l for a depth of one meter and shall not be less than 4 mg/l at any point. For estuarine waters, the DO concentration shall not be below 5 mg/l at any depth. Based on the state's interpretation of this standard, the most stringent standard applies when the water body is both coastal and estuarine. Therefore, DO concentrations shall not be less than 6.0 mg/L at the surface and not less than 5.0 mg/l below the surface except where natural conditions cause this value to be depressed. Limited water quality monitoring conducted by the applicant shows that the majority of receiving water samples meet the DO criteria, however, one sample (out of 12) did not comply with water quality standards. Ambient water quality monitoring conducted at 0.5 m depth at the ZID South Station on August 13, 1998 showed 5.41 mg/L DO (See Appendix 2).

The revised 301(h) TSD provides equations for determining the DO depletion caused by the BOD of the effluent. These equations were used to calculate the DO depression in the waste field at the completion of initial dilution, using the following worst-case assumptions:

Ambient DO concentration $DO_a = 6.25$ mg/L[1]

[1] Ambient DO concentration determined as the 5th percentile value from water quality monitoring samples collected August, 1995; January, 1996; and August, 1998 between

Effluent DO limitation	DO_e = 2.0 mg/L
Immediate DO demand	IDOD = 10 mg/L
Initial dilution	S_a = 52.9 mg/L

Inserting these values into the equation

$$DO_f = DO_a + (DO_e - IDOD - DO_a)/S_a$$

$$6.25 + (2.0 - 10 - 6.25)/52.9 = 5.98 \text{ mg/L}$$

the minimum DO concentration of the receiving water immediately following initial dilution (DO_f) is 5.98, a depletion of 0.3 mg/L from the ambient DO.

The simplified method for small dischargers described in the revised 301(h) TSD was used to calculate the maximum farfield dissolved oxygen depression, given a requested BOD_5 limitation of 140 mg/L, a critical initial dilution of 52.9 and the equation applicable to estuarine waters:

$$DO = BOD_5/[10(S_a)]$$

Where:

DO = farfield oxygen depression, mg/L
BOD_5 = 5 day BOD concentration in the effluent
S_a = initial dilution

$$DO = 140 \text{ mg/L}/[10(52.9)] = 0.26 \text{ mg/L}$$

The calculated depression was found to be 0.26 mg/L. The resulting dissolved oxygen concentration is 5.72 mg/L (5.98 - 0.26 = 5.72). This value is below the minimum state standard of 6.0 mg/L for dissolved oxygen in the receiving water.

The data suggest the background DO in the receiving water may be below Alaska WQS's. Simplified modeling shown above, with conservative assumptions, suggest the effluent may contribute to already low DO in the receiving water, although, the data set is limited with four sampling dates. In order to further investigate ambient DO concentrations, the draft permit requires the permittee to increase ambient monitoring frequency to annual testing for the life of the permit. Also, a DO limit has been included in the permit. Additional receiving water data is needed to further evaluate the impact of the permitted BOD concentration on ambient DO levels. BOD limitations based on the state stipulations are also significantly reduced in this permit reissuance over the previous permit.

(3) Total Suspended Solids

Alaska State water quality standards applicable to marine waters 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 percent. In addition, the turbidity shall not reduce the maximum Secchi disc depth by more than 10 percent.

---

surface and 0.5 m depth at Ref North and Ref South stations.

The City of Haines provided twelve values for Secchi depths - three at each of two stations within the ZID and three at each of two reference stations[2]. Average Secchi values at the ZID stations were more than 10 percent lower than average Secchi disk depths at the reference stations in the August 1995 and August 1998 samples (See Appendix 2). This may be evidence that effluent discharge from the Haines facility causes or contributes to an exceedance of state standards for Secchi disc depth. The proposed permit will require continued surface water quality monitoring to determine whether this may be the case. The monitoring frequency will be increased to annual testing for the life of the permit, however, since the previous frequency is inadequate to develop a satisfactory data base. A frequency of once per year will result in five sampling events prior to the next permit issuance**.**

The applicant did not provide data on turbidity. However, the effluent TSS limitation requested by the permittee was used to determine if the discharge would result in an increase in suspended solids that could cause exceedances of the turbidity standard. In using this approach, it is important to note that the correlation between suspended solids and turbidity is not certain. Turbidity is caused not only by suspended solids, but also by colloidal matter. Furthermore, turbidity is not a conservative pollutant. This means that turbidity is affected not only by dilution, but also by physical and chemical changes that may occur as the effluent interacts with the receiving water. However, suspended solids can be used as an estimate of light transmittance for the purposes of determining compliance with the above water quality standard.

The applicant did not provide calculations for the increase in receiving water suspended solids concentration. As part of the review, the simplified method for small dischargers described in the revised 301(h) TSD was used to calculate the receiving water suspended solids concentration:

$$SS = SS_e/S_a$$

where:

SS = change in suspended solids concentration following initial dilution

SS_e = effluent suspended solids concentration

S_a = initial dilution

$$SS = 140/52.9 = 2.7 \text{ mg/L}$$

Using the effluent suspended solids concentrations of 140 mg/L and a minimum dilution of 52.9, the maximum increase in receiving water suspended solids concentration was calculated to be 2.7 mg/L. The maximum increases of 2.7 mg/L is not expected to cause an exceedance of the 25 NTU established by the Alaska state water quality standards. Turbidity has been added as a parameter to measure in the ambient monitoring program in order to investigate compliance with the State's turbidity water quality criteria. Monitoring will

[2] Secchi disk depths from water quality monitoring samples collected August, 1995; January, 1996; and August, 1998 at ZID North, ZID South, Ref North and Ref South stations.

provide information on background concentrations as well as ambient concentrations at the ZID boundary.

(4) pH

Alaska water quality standards for pH stipulate that pH may not vary more than 0.1 standard unit from natural conditions and must be within the range of 6.5 to 8.5 standard units.

The effect of on receiving water pH following initial dilution was estimated utilizing the Amended 301(h) Technical Support Document as part of this review. Utilizing the minimum pH of 6.5 included in the permit, an effluent alkalinity of 0.5 meq/L (TSD p. 63), a seawater temperature of 5° C and a critical dilution of 52.9, the maximum change in receiving water pH following initial dilution is determined from Table 1 to be 0.04 pH units over a seawater pH range of 7.00 to 8.50. This meets the Alaska water quality criteria as described in the paragraph above. Therefore, pH limits in the draft permit (6.5 - 8.5) are unchanged from the current permit.

(5) Toxic Pollutants

As discussed in section (1) above, water quality-based limits must be established that result in compliance with water quality standards at the edge of the ZID.

40 CFR §122.44(d)(1)(ii) requires that, in evaluating the "reasonable potential" for criteria to be exceeded, procedures must be used which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for whole effluent toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

This regulation also specifically addresses when toxicity and chemical-specific limits are required. A whole effluent toxicity limit is required whenever toxicity is at a level of concern (as discussed above) relative to either a numeric or narrative standard for toxicity. The only exception is where chemical-specific limits will fully achieve the narrative standard. A chemical-specific limit is required whenever an individual pollutant is at a level of concern (as described above) relative to the numeric standard for that pollutant. The regulations also provide three options for developing a chemical-specific limit needed to control a pollutant which does not have a numeric standard, but is contributing to a problem with achieving the narrative standard. To determine compliance with the above requirements, effluent data were compared to state standards, using the statistical procedures recommended in EPA's Technical Support Document for Water Quality-based Toxics Control.

Priority pollutant studies were performed in August, 1995 and January, 1998 on effluent samples collected at the Haines treatment plant. Samples from each study were analyzed for a suite of 129 priority pollutants as determined by EPA protocol.

Analytical results of effluent samples for the 1995 study indicated that six organic compounds and three metals were detected. Analytical results for the 1998 study indicated that four volatile compounds and four metals were detected. The following constituents were detected in the combined effluent at levels higher than the detection limit:

Constituent	Effluent Concentration (µg/L)
Chromium	1.3
Copper	76
Lead	3
Zinc	80
Chloroform	5
Methylene Chloride	1.5
Toluene	3
Diethyl phthalate	1.3
1,4-dichlorobenzene	2
1,2-dichlorobenzene	11
Bis (2-ethyl hexyl) phthalate	14

To determine whether there is reasonable potential for a pollutant to result in an exceedance of water quality standards at the edge of the ZID, the maximum reported effluent concentration was multiplied by an uncertainty factor recommended in EPA's Technical Support Document for Water Quality-based Toxics Control (EPA 505/2-90-001) to determine the maximum probable effluent concentration. The uncertainty factor is based on both the number of samples and the coefficient of variation (a measure of variability) of the data. If there are not enough data to calculate a coefficient of variation, the Technical Support Document recommends using 0.6 as a default value. The resulting maximum concentration was then divided by the minimum critical dilution, which was determined to be 52.9, using the initial dilution model UMERGE. Appendix 1 compares the maximum effluent concentration reported, the projected maximum concentration at the edge of the ZID, and the water quality criterion for each pollutant detected in the two studies.

In deriving the water quality-based permit limits, Region 10 applied the statistical permit limit derivation approach described in the Technical Support Document for Water Quality-based Toxics Control. This approach takes into account effluent variability, as well as the difference in timeframes between the water quality standards and monthly average and daily maximum limits, and sampling frequency. EPA used the following values in deriving limits using the formulas in the Technical Support Document for Water Quality-based Toxics Control.

Probability value for long-term average calculation	99%
Probability value for monthly average limit calculation	95%
Probability value for daily maximum limit calculation	99%
Coefficient of Variation	0.6
Frequency of monitoring for copper	Quarterly

Based on this analysis, only copper shows the reasonable potential to violate water quality standards at the edge of the ZID. Therefore, the draft permit includes an effluent limit for copper of 156 µg/L as a daily maximum, with a monthly average limit of 78 µg/L.

(7) Fecal Coliform Bacteria

Alaska's most restrictive standard for receiving water fecal coliform bacteria concentrations is in shellfish harvest areas, which specifies that the median value shall not exceed 14 MPN/100 mL, and that not more than 10 percent of the samples shall exceed 43 MPN/100 mL. Because the receiving water is protected for this use, the discharge must result in this standard being met at the edge of the ZID.

Treatment scenarios do not include disinfection. Effluent fecal coliform abundance data is available from January, 1995 through November, 2000. The highest effluent fecal coliform abundance measurement was 340,000 colonies/100 mL for January 1995. The highest abundance value measured during the dry season was 312,000 colonies/100 mL for July 1995. However, fecal coliform concentrations have not exceeded 165,000 colonies/100 mL since August, 1996.

Using an initial dilution of 52.9, the receiving water fecal coliform abundance was calculated as 5,898 colonies/100 mL. However, as shown in Appendix 3, ambient receiving water monitoring data collected in August 1996 and August 1998 show that the receiving water is meeting the standard. As part of the Clean Water Act Section 401 State Certification of the permit, ADEC stipulates an effluent limitation for fecal coliform bacteria of 1.0 million per 100 ml for a monthly average and 1.5 million per 100 ml as the daily maximum with sampling required once per month. ADEC also stipulates a fecal coliform bacteria mixing zone 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. Outside of the mixing zone, fecal colofiorm bacteria shall not exceed 14 FC/100 ml for a monthly average and 43 FC/100 ml for a daily maximum. Fecal coliform shall not exceed 200 per 100 ml at the shoreline within the designated mixing zone. ADEC also stipulates a monitoring program at the outside edge of a mixing zone conducted four times per year; January, May, August, November, at three locations and at the shoreline. ADEC also stipulates a sign on the shoreline in order to notify the public of the location of the outfall.

(8) Additional Parameters

18 AAC 70.023 of the Alaska State Water Quality Standards states the following: ″An effluent discharge to a water may not impart chronic toxicity to aquatic organisms expressed as 1.0 chronic toxic unit, at the point of discharge, or if the department authorizes a mixing zone in a permit, approval, or certification, at or beyond the mixing zone boundary, based on the minimum effluent dilution achieved in the mixing zone.″

EPA has determined that whole effluent toxicity data is necessary to ensure that the discharge is not causing chronic toxicity at the edge of the ZID. The previous permit required monitoring for whole effluent toxicity during the fourth year of the permit term. The No Effect Concentration (NOEC) for this test was 18 percent. To simplify the statistical analysis, NOEC data are converted into chronic toxic units (TU_c) by dividing 100 by the NOEC concentration. The TU_c of the Haines effluent is 5.56 at the point of discharge. With a dilution ratio of 52.9:1, the TU_c at the edge of the mixing zone is 0.1, within compliance with the Alaska water quality standards of 1.0 chronic toxic unit. In order to account for effluent variability, EPA has conducted a reasonable potential analysis with this effluent data based on worst-case scenario values. Utilizing the TU_c of 5.56 and a multiplier of 13.2 (from the TSD based on 1 sample and a coefficient of variation of 0.6), the calculated TU_c at the edge of the ZID would be 73.4. Based on an estimated minimum initial dilution of 52.9, the toxicity of the effluent should be less than or equal to 52.9 TU_c. These results show that

there is reasonable potential for effluent toxicity to occur at the edge of the ZID, however, the result is based on only one sampling event. Since only one sample result is available, a limitation will not be developed at this time. Instead, the proposed permit requires the facility to test for WET in the first and fourth years of the permit term so that toxicity can be evaluated further. If additional testing indicates toxicity exceedances, the permit may be reopened and additional effluent limits established.

C. Maintenance of that Water Quality which Assures Protection of Public Water Supplies, a Balanced Indigenous Population (BIP) of Shellfish, Fish, and Wildlife, and Recreational Activities in and on the Water [40 CFR § 125.61]

(1) Transport and Dispersion of Diluted Wastewater and Particulates [40 CFR § 125.61(a)(2)]

Paragraph 125.61(a)(2) of 40 CFR 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.

A simplified approach to determining the need for detailed analysis of suspended solids accumulation was developed to aid small dischargers that are not likely to have sediment accumulation related problems. Two types of problems (dissolved oxygen depletion and biological effects) were considered. Data indicates that biological effects are minimal when accumulation rates are estimated to be below a steady-state sediment accumulation of 25 g/m^2 for estuaries and semi-enclosed embayments, which are potentially more sensitive than open coastal areas.

The applicant provided an analysis of potential for suspended solids deposition in the vicinity of the discharge using the Small Discharger Approach as described in the revised 301(h) TSD. Using the following assumptions:

- Estuarine receiving environment
- Critical influx of 25 g/m^2
- Particle settling velocity distribution as shown on B5 of the revised 301(h) TSD
- Current velocity of 2.5 cm/sec
- Particle composition 80% organic and 20% inorganic
- Plume height rise is 60 percent of water depth (worst case)
- TSS concentration at May-Sept. daily max of 273 mg/L

the mass emission rate is calcualted as follows:

Mass Emission Rate at Proposed Flow Limit (0.6 mgd)

MER (kg/day) = 273 mg/L x 600,000 gal/day X 3.785 l/gal X 10^{-6} kg/mg = 620 kg/day

A steady state organic accumulation of 25 g/m^2 is predicted to occur over an area of 52,500 m^2. A steady-state accumulation of organic matter of less than 25 g/m^2 in semi-enclosed embayments and estuaries is not expected to adversely affect benthic organisms or aquatic biota in general (U.S. EPA 1982, p. III-25). The predicted steady-state sediment oxygen demand due to the accumulation of organic solids is less than 0.05 mg/L. Therefore, adverse effects to water quality are not predicted to occur under the conditions assumed in the model.

(2) Impact of the Discharge on Public Water Supplies [40 CFR § 125.61(b)]

The applicant's proposed improved discharge must allow for the attainment or maintenance of water quality which assures protection of public water supplies and must not interfere with the use of planned or existing public water supplies. There are no planned or existing public water supply intakes in Portage Cove.

(3) Biological Impact of Discharge [40 CFR § 125.61(c)]

In addition to complying with applicable water quality standards, the proposed improved 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 previous permit required required the collection of benthic invertebrate and total volatile solids (TVS) samples during August of the second and fourth years of the permit term (August, 1996 and August, 1998). Three replicate sediment samples were collected for TVS analysis and five replicate benthic samples were taken at each of the following three stations:

- Station 1, at the outfall within the ZID;
- Station 2, the reference station south of the ZID; and
- Station 3, 5 meters beyond the ZID.

The benthic samples were placed in glass jars or plastic bags and preserved in buffered formalin. These samples are in storage and analyses would be required only if EPA determined substantial changes have occurred in the TVS content of the sediments in the area of the discharge.

The TVS concentrations in the 1998 samples were much higher than the TVS concentrations at the same stations in 1996. In 1998 every sample was greater than 10 percent TVS by weight, while in 1996 every sample was less than 2 percent TVS by weight. In 1996, Station 1 (at the outfall) had the highest average TVS percentage (2.2 percent) relative to the other stations, while in 1998, Station 2 (the reference station) had the highest average TVS percentage (31.5 percent).

Additional TVS and benthic monitoring data were obtained through a 308/309 Information Request and Compliance Order that EPA Region 10 issued the facility in June 1993. TVS data were reported for three stations: (1) within the current and proposed ZID (represents the interior of both ZIDs due to overlap); (2) beyond the existing and proposed ZID boundaries (within 5 m of the boundary); and (3) a reference station. A review of the data indicates no

significant difference in TVS among the three stations. The observations from the dive survey made at this time corroborate this finding.

Thus, neither the current nor the historical data show trends toward increased TVS concentrations within or near the ZID relative to the reference station. Stations at and beyond the ZID boundary (current Stations 1 and 3) do not show increased TVS percentages relative to the reference station (Station 2). These data indicate that the discharge is not contributing to increased TVS concentrations in receiving waters.

The applicant also provided biological monitoring data from monitoring conducted in August, 1996 and August, 1998. These data show that the habitat and biotic communities at each stations are similar to each other and that they have remained similar over time. Surface sediments at all three stations consist of fine silty material approximately 1-1.5 inches thick. At Stations 1 and 3, gravel and cobbles underlie the surface silt, and boulders are present in the immediate vicinity of both of these stations. The underlying sediments at Station 2 are composed of sandy material and woody debris, and there were no cobbles, gravel or boulders observed at Station 2 in 1996 or 1998.

Both the 1996 and the 1998 surveys note that infaunal abundance was lower at the reference station (Station 2) than at the stations within the ZID (Stations 1 and 3). Hermit crabs were the most abundant organisms at all three stations during both the 1996 and 1998 surveys. The green sea urchin (*Strongylocentrus droebachiensis*) was observed at Stations 1 and 3 in 1996 and again at Station 3 in 1998. The snail *Fusitron oregonensis* was observed near Station 1 in 1996 and near Station 3 in 1998 but was observed at Station 2 in both 1996 and 1998. In addition, the holothuroidean *Leptosynapa sp.*, a sea cucmuber that feeds primarily on detrital material, was found in sediment samples from Stations 1 and 3 in both 1996 and 1998, but it was not observed at Station 2 in either observation period. This is most likely because the outfall provides a ready food source.

In conclusion, there do not appear to be major differences between the habitat or the biological communities at the monitoring stations within the ZID relative to the reference station. This indicates that the Haines outfall does not adversely affect the existing biological community or habitat. However, in order to ensure that potential changes in biological communities are monitored, the draft permit retains the TVS and benthic infauna monitoring programs. As in the previous permit, benthic infaunal monitoring and TVS sampling will be required in August of the second and fourth years of the permit term.

(4) Additional Requirements for Saline Estuaries Regarding Benthic Populations within the ZID, Migratory Pathways within the ZID, and the Accumulation of Toxic Pollutant or Pesticides within the ZID [40 CFR § 125.61(c)(4)]

The applicant did not provide any data concerning the biological community in Portage Cove with the reapplication; instead the tentative decision document prepared for the previous 301(h) waiver (U.S. EPA 1985) was cited. Based on the previous Technical Review Report (Tetra Tech 1985), EPA concluded that the existing discharge probably had no adverse impact on the shellfish, fish, and wildlife within, and beyond the ZID. The reasons given for this conclusion included the following:

- The discharge was located at a depth sufficient to allow for thorough dilution of the effluent.

- The steady-state accumulation of suspended solids was predicted to be low.
- Distinctive habitats of limited distribution were not present in the vicinity of the discharge.
- Toxics were absent or present only in low concentrations in the effluent.

Analysis of the TVS data obtained in June 1993 lends support to the conclusion reached by EPA in the 1985 Technical Review Report. A review of the 1993 data indicates sediment accumulation is low and the discharge does not appear to create an adverse impact on the shellfish, fish, and wildlife within, and beyond the ZID (1/21/94 memorandum from Bruce Duncan).

It has been reported (Tetra Tech 1985) that Portage Cove provides shelter for schooling juvenile salmonids; it was concluded that adverse effects on the migratory pathways of the fish were not expected due to the small discharge volumes, the small size of the ZID in relation to the size of Portage Cove, and the mobility of the organisms.

Possible adverse effects on the various biological communities of Portage Cove due to the prermitted discharge of 0.6 MGD of primary effluent are discussed below:

Phytoplankton. The proposed discharge could negatively affect the phytoplankton if any of the following occurred:

- A large decrease in light levels due to suspended material in the effluent
- A large increase in nutrient levels leading to blooms of nuisance species of phytoplankton
- Exposure of phytoplankton to toxic substances in the effluent.

As discussed above, none of these effects is likely to occur due to the size and nature of the proposed discharge. It is unlikely that suspended solids in the discharge will significantly decrease light penetration, and nutrient levels are not expected to result in plankton blooms. The exposure of phytoplankton to increased levels of nutrients and toxic substances is not likely given the small amount of nutrient loading and level of toxic substances attributable to the proposed discharge.

Zooplankton. The zooplankton in Portage Cove could be negatively affected if either of the following occurred:

- A decrease in water column oxygen levels due to increased levels of effluent causing increased water column oxygen demand.
- Exposure of zooplankton to toxic substances in the effluent.

Neither of these possibilities is likely to occur due to the size and nature of the proposed discharge. As discussed above, the effluent will cause no large decreases in water column oxygen levels in Portage Cove and will not contain high levels of toxic substances.

Benthos. The benthic communities in the intertidal and subtidal areas near Haines could be adversely affected by the proposed discharge if any of the following occurred:

- Increased organic loading due to the accumulation of effluent-derived organic particulates causing changes in the composition of the benthic community.

- Accumulation of sediments causing burial of resident fauna

- A decrease in sediment oxygen levels due to increased effluent levels causing increased sediment oxygen demand

- Exposure of benthic organisms to toxic substances in the effluent.

None of these possibilities is likely to occur due to the size and nature of the proposed discharge. As discussed above, based on the low levels of toxics in the effluent, and the proposed initial dilution, the risk of exposure to benthic organisms to toxic substances seems small. Also, TVS sampling indicates that sediments are not accumulating significantly.

Fish. In addition to toxicity, the bioaccumulation of toxic compounds is the primary concern when considering the effects of the proposed discharge on the fish populations in Portage Cove. Given the levels of toxics expected in the discharge, it does not appear that adverse impacts will occur to the fish populations of Portage Cove as a result of the proposed discharge.

Marine Mammals. Marine mammals are not expected to be adversely affected by the proposed discharge due to their transitory nature in the area and the negligible effects expected for the other organisms inhabiting Portage Cove and the surrounding waters.

(5) Impact of Discharge on Recreational Activities [40 CFR § 125.61(d)]

The applicant did not provide any data concerning the recreational activities that occur in or near Portage Cove; instead, the tentative decision document (U.S. EPA 1985) was cited. This document was based on a review prepared by Tetra Tech (1985). The Tetra Tech (1985) document stated that the major recreational activities in Portage Cove are boating and fishing. Sport fishing for salmon, Dolly Varden char, steelhead trout, cutthroat trout, halibut, rockfish, Dungeness crab, snow crab, king crab, clams, and cockles was said to occur.

No adverse impacts on the recreational fishing and boating activities due to the existing discharge have been reported. Adverse impacts on the recreational activities occurring in Portage Cove due to the proposed discharge are not likely.

D. Establishment of Monitoring Programs [40 CFR §125.62]

Under 40 CFR §125.62, 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 modified 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 §125.62(a)(2), the applicant's monitoring programs are subject to revision as may be required by EPA.

(1) Biological Monitoring Program [40 CFR §125.62(b)]

The biological monitoring program must provide data adequate to evaluate the impact of the applicant's discharge on the marine biota.

The previous NPDES permit for the Haines discharge required monitoring for infauna and total volatile solids (TVS) at each of three station locations: (1) within the ZID; (2) beyond the ZID boundary (within 5 m of the boundary); and (3) at a reference station. Monitoring was to be conducted once during August of the second and fourth years of the permit period. The results of sampling conducted in August 1998 and August 1996 are discussed in VI.C.(3) of this fact sheet.

The draft permit requires continued TVS and benthic infauna sampling in the second and fourth years of the permit.

Sampling will be conducted at the following stations: (1) within the ZID; (2) at a reference station; and (3) beyond the ZID boundary (within 5 m of the boundary). The applicant is required to take three replicate grab samples for TVS analysis and five replicate grab samples for evaluating the benthic community. Sampling stations shall be located and referenced using whatever navigational aids will assure accurate reoccupation of the same site in subsequent years. Analyses for TVS shall be done according to a single protocol (e.g., Standard Methods 17th edition or other methods as listed in 40 CFR §136.)

(2) Receiving Water Quality Monitoring Program [40 CFR §125.62(c)]

The receiving water quality monitoring program must provide data adequate to evaluate compliance with applicable water quality standards.

The previous permit required monitoring for the parameters listed below:

- temperature
- salinity
- dissolved oxygen (DO)
- pH
- Secchi disk depth (surface only)

Sampling was conducted at the surface and at depth intervals of 5 m in the following locations: two stations on the boundary of the ZID at opposite sides (on the north and south boundaries or, if the plume is visible, in the plume and at the opposite side of the ZID); two reference stations; and the shoreline recreation area. The reference stations were required to be at least 1000 m from the ZID and in approximately opposite directions (north-northeast/south-southeast) at sites where water depth is equivalent to that at the outfall.

The draft permit requires sampling for all parameters (temperature, salinity, dissolved oxygen, pH, and Secchi disk depth) once per year during the term of the permit. Monitoring will be conducted in August (when minimal initial dilution occurs) in years 2 and 4 and during January (when discharge flows are greatest) in years 1, 3, and 5. This frequency will provide EPA with more recent information in evaluating the permit for reissuance. Receiving water monitoring for fecal coliforms has also been retained in the draft permit but revised based on state stipulations. Fecal coliform monitoring will be required as discussed in Section VI.B.7 above.

(3) Effluent Monitoring Program [40 CFR §125.62(d)]

The previous permit's influent and effluent monitoring program required weekly sampling for TSS, monthly sampling for BOD_5, and quarterly sampling for copper. pH was sampled five times per week.

The draft permit will require analyses of the effluent to determine compliance with permit limitations (flow, BOD_5, TSS, copper, and pH) and analysis of the influent for BOD_5 and TSS to determine compliance with the primary treatment requirements. The draft permit requires continuous flow monitoring, weekly sampling for TSS, five samples per week for pH, monthly sampling for BOD_5, and quarterly sampling for copper.

As discussed in section VI.B.(6), 40 CFR §122.44(d) requires limits in permits when there is "reasonable potential" to cause or contribute to an exceedance of water quality standards. As a condition of their current permit, the permittee has performed whole effluent toxicity testing on its effluent. These data indicate that the discharge has potential to cause a violation of the water quality standard at the edge of the ZID. In order to comply with the monitoring requirements of the 301(h) waiver, the draft permit requires continued whole effluent toxicity testing during the first and fourth years of the permit. In addition, the draft permit continues to require effluent sampling for fecal coliform eight times a year.

The applicant has certified that there are no industrial inputs to the collection system. Therefore, as provided in 40 CFR §125.64(a)(2), the draft permit would not usually require the permittee to perform chemical analyses of its effluent for toxic pollutants. However, as discussed in section VII.B, EPA is requiring testing in the first and fourth years of the permit for priority pollutants. Testing in the first year will be during the dry period (May through September) in the month of July and monitoring during the fourth year will be during the wet period (October through April) in the month of January. This will address the issue of potential seasonal variability.

E. Effect of Discharge on Other Point and Nonpoint Sources [40 CFR §125.63]

Under 40 CFR §125.63, which implements Section 301(h)(4) of the Act, the applicant's proposed discharge must not result in the imposition of additional treatment requirements on any other point or nonpoint source. The state has determined that the discharge will not affect treatment requirements for any other point or nonpoint sources.

F. Toxics Control Program [40 CFR §125.64]

(1) Chemical Analysis and Toxic Pollutant Source Identification [40 CFR §§125.64(a) and (b)]

Under 40 §125.64(a), applicants are required to perform chemical testing for toxic pollutants and pesticides, unless they certify to the Agency that there are no known or suspected toxic pollutants, and verify this certification by performing an industrial user survey. In response to the EPA Request for Information and Compliance Order, Docket No. 1093-05-28-308/309(a), the applicant provided certification stating that there were no industrial inputs to the collection system and documented the certification with an industrial user survey as described by 40 CFR §403.8(f)(2).

As discussed above, although a priority pollutant scan would not normally be required for this permittee, based on EPA's consultation with USFWS, monitoring for priority pollutants will be required in the first and fourth years of this permit.

(2) Industrial Pretreatment Program [40 CFR §125.64(c)]

Applicants which have known or suspected industrial sources of toxic pollutants shall either have or develop an approved pretreatment program in accordance with the requirements of 40 CFR Part 403 (Pretreatment Regulations). This program is subject to revision as may be required by EPA.

The applicant provided certification stating that there are no known or suspected sources of toxic pollutants to the sewer system. Therefore, the applicant is not required to develop an industrial pretreatment program.

(3) Nonindustrial Source Control Program [40 CFR §125.64(d)]

40 CFR §125.64(d), which implements Section 301(h)(6) of the Act, requires the applicant to submit a proposed public education program designed to minimize the entrance of non-industrial toxic pollutants and pesticides into its POTW. In addition, the applicant 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.

A small section 301(h) applicant, which certifies there are no known or suspected water quality, sediment accumulation, or biological problems related to toxic pollutants or pesticides in its discharge, is required only to develop the public education program. The applicant has furnished this certification.

The previous permit required the applicant to distribute public education pamphlets on a yearly basis, hold semi-annual public meetings, and submit an annual report summarizing actions taken during the previous year to control nonindustrial sources of toxic pollutants and pesticides. This program is continued in the draft permit.

G. Effluent Volume and Amount of Pollutants Discharged [40 CFR §125.65]

Under 40 CFR §125.67, which implements section 301(h)(7) of the Act, the applicant's modified 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) modified permit.

The projected maximum mass emission levels are based on effluent BOD_5 and TSS concentration limits of 140 mg/L monthly average and 200 mg/L daily maximum along with the design flow of 1.9 mgd. The mass limitations are as shown below:

Constituent	Monthly Average Mass Limitation	Daily Mass Limitation
BOD_5	2,100 lbs/day	3,000 lbs/day
TSS	2,100 lbs/day	3,000 lbs/day

H. Percent Removal Requirements

Pursuant to Section 301(h)(9) of the Act, 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 biological oxygen demanding material and of the suspended solids in the treatment works influent..."

The applicant states (letter dated October 19, 1992) that the plant is expected to achieve 30 percent of BOD and suspended solids removal much of the time using just screening, skimming, and settling. The applicant will add chemicals (i.e., polymers) at those times (e.g., during high flow) when 30 percent removal by physical methods is unlikely to be achieved. The applicant provided results of jar tests using chemical addition. Based on these tests, BOD and suspended solids removal appear well in excess of 30 percent.

I. Sludge Management Requirements

The biosolids management regulations at 40 CFR §503 were designed so that the standards are directly enforceable against most users or disposers of biosolids, whether or not they obtain an NPDES permit. Therefore, the publication of Part 503 in the *Federal Register* on February 19, 1993 served as notice to the regulated community of its duty to comply with the requirements of the rule, except those requirements that indicate that the permitting authority shall specify what has to be done.

Requirements are included in Part 503 for pollutants in biosolids, the reduction of pathogens in biosolids, the reduction of the characteristics in biosolids that attract vectors, the quality of the exit gas from a biosolids incinerator stack, the quality of biosolids that is placed in a municipal solid waste landfill (MSWLF) unit, the sites where biosolids are either land applied or placed for final disposal, and for a biosolids incinerator.

Even though Part 503 is self-implementing, Section 405(f) of the CWA requires the inclusion of biosolids use or disposal requirements in any NPDES permit issued to a Treatment Works Treating Domestic Sewage (TWTDS). In addition, the biosolids permitting regulations in 40 CFR §122 and §124 have been revised to expand its authority to issue NPDES permits with these requirements. This includes all biosolids generators, biosolids treaters and blenders, surface disposal sites and biosolids incinerators. In the future, EPA Region 10 will be issuing a separate NPDES general permit which deals only with the use and disposal of biosolids. Facilities that generate biosolids, including the City of Haines, will be required to be covered under the biosolids general permit. As mentioned earlier, even though the permittee does not presently have a permit for biosolids use or disposal, the Permittee is responsible for complying with the requirements of 40 CFR 503.

Presently, the permittee processes biosolids through an aerated digester. Biosolids are dewatered on a belt filter press, and then they are moved to dump trucks for eventual disposal by landfilling. Accumulated biosolids may be stored in the dump trucks for several weeks (biolsolids are stored for longer periods before disposal in the winter) before they are trucked away. The draft permit requires the permittee to comply with 40 CFR Part 503 during biosolids storage and removal.

VII. COMPLIANCE WITH PROVISIONS OF OTHER STATE, LOCAL OR FEDERAL LAWS

Pursuant to 40 CFR §125.59(b)(3), a modified NPDES permit may not be issued unless the proposed 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

EPA has determined that the activities authorized by this permit are consistent with local and state Coastal Management Plans. The proposed permit and consistency determination will be submitted to the State of Alaska for state interagency review. A draft of the proposed permit was sent to ADEC for review. Comments received were incorporated into the public notice version. The requirements for State Coastal Zone Management Review and approval must be satisfied before the permit may be issued.

B. Endangered or Threatened Species

EPA Region 10 requested and received a species list from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. This list indicated that threatened or endangered species that had the potential to occur in the vicinity of the Haines discharge included the Humpback whale (*Megaptera novaeangliae*) and the Steller sea lion (*Eumetopias jubatus*). EPA has determined that the discharge authorized by this permit is not likely to adversely impact any threatened or endangered species or critical habitat listed pursuant to the Endangered Species Act. A Biological Evaluation document for the Haines wastewater treatment facility has been prepared to support this conclusion.

C. Essential Fish Habitat

The Magnuson-Stevens Act (January 21, 1999) requires federal agencies to consult with the National Marine Fisheries Service (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 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.

In a February 21, 2001, letter to EPA, NMFS indicated that the NPDES analysis should include an EFH assessment. The EFH species for the area of the discharge include chinook (king), sockeye (red), pink, and chum salmon, and a number of groundfish species (Habitat Assessment Reports for Essential Fish Habitat, NMFS, 1998). The NMFS letter specifically listed salmon, flatfish, rockfish, and sculpin as species using near-shore habitats which potentially could be degraded by insufficient treatment of waste-water or by chlorine residuals.

For the following reasons, EPA has tentatively determined that issuance of this permit is not likely to adversely affect any EFH in the vicinity of the discharge. The proposed permit has been developed to protect all aquatic life species in the receiving water in accordance with the Alaska water quality standards, including meeting Alaska water quality standards at the edge of the zone of initial dilution. The facility has a relatively small zone of initial dilution as described in the fact sheet. EPA believes that the Alaska water quality criteria for the protection of aquatic life should protect both the managed EFH species and their prey. The effluent is treated wastewater of domestic origin with no significant industrial component. Chlorine is not used as a disinfection agent at this facility. Monitoring has shown compliance with Alaska fecal criteria in the vicinity of the discharge.

EPA will provide NMFS 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 proposed discharge will not be located in a federal marine sanctuary. The State of Alaska has designated an area near Haines, the Chilkat River Critical Habitat area as protected, but this area is a riverine habitat and will not be affected by the proposed discharge.

E. Other State, Local, or Federal Laws

Alaska State law (Title 18, Alaska Administrative Code, Section 72.029) requires secondary treatment for all POTWs which 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. The state must certify that the modified discharge complies with applicable provisions of local law before a 301(h) modified permit can be issued. As discussed in Section VI.G., reissuance of this permit will not result in an additional pollutant loading to the receiving water. Therefore, reissuance is consistent with the State of Alaska's antidegradation policy [18 AAC 70.010(c)].

VIII. STATE CONCURRENCE IN VARIANCE

Section 301(h) of the Act and 40 CFR §125.59(g)(2) provide that a 301(h) variance may not be granted except with State concurrence. State concurrence has not yet been given. In accordance with the procedures of 40 CFR §124.54(b), before EPA can issue the applicant a 301(h) modified NPDES permit, the state must either grant its certification pursuant to Section 401 of the Act or waive certification, which will serve as state concurrence in the variance. The state will make this determination upon review of the draft and proposed final permits.

IX. CONCLUSION

It is the conclusion of EPA, Region 10, that the applicant's proposed discharge will comply with the requirements of Section 301(h) of the Clean Water Act, as amended by the Water Quality Act of 1987, and 40 CFR Part 125, Subpart G.

APPENDIX 1
Priority Pollutants Detected In
1995 and 1998 Effluent Sampling Events
Table 1

Detected Pollutant	Max Reported Effluent Conc (µg/L)	Projected Max Edge of ZID Conc[1] (µg/L)	Most Stringent Marine Criterion
Chromium	1.3	0.2	50
Copper	76	3.6	2.9
Lead	2.3	0.3	8.5
Zinc	50	7.0	86
Chloroform	2.9	0.4	470
Methylene Chloride	1.5	0.2	1600
Toluene	0.78	0.1	200000
Diethylphthalate	1.3	0.2	120000

[1]Based on Max reported effluent concentration divided by dilution and multiplied by uncertainty factors from EPA's Technical Support Document for Water Quality-based Toxics Control(EPA/505/2-90-001, March 1991).

APPENDIX 2
SURFACE WATER DISSOLVED OXYGEN CONCENTRATIONS AND SECCHI DISK DEPTHS IN THE VICINITY OF THE CITY OF HAINES WASTEWATER TREATMENT FACILITY

STATION		DATE		
North ZID		8/14/95	2/14/96	8/13/98
	Surface D.O. (mg/L)	11.2	10.7	7
	Secchi Disk Depth (ft)	4	23	7
South ZID				
	Surface D.O. (mg/L)	11.8	9.6	5.4
	Secchi Disk Depth (ft)	6	24	6
North Reference				
	Surface D.O. (mg/L)	12	11.2	6.0
	Secchi Disk Depth (ft)	6	23	11
South Reference				
	Surface D.O. (mg/L)	11.8	9.8	7.1
	Secchi Disk Depth (ft)	7	25	7

APPENDIX 3
FECAL COLIFORM ABUNDANCES[a] IN THE VICINITY OF THE CITY OF HAINES WASTEWATER TREATMENT FACILITY

	STATION[b]				
Date	1	2	3	4	5
August 29, 1996	0	1	0	1	--
August 13, 1998	0	2	1	2	0

[a] Number colonies/100 mL using the MPN method for fecal coliform

[b] Station locations as follows: 1) North ZID; 2) South ZID (Beach PC Dock); 3) Reference North (North side of beach); 4) Reference South; and 5) Shoreline Recreation Area.

APPENDIX 4

410 Willoughby Avenue, Ste. 303
Juneau, AK 99801-1795
PHONE: (907) 465-5300
FAX: (907) 465-5274

DIVISION OF AIR AND WATER QUALITY
Wastewater Discharge Permits Program

June 21, 2001

Mr. Mike Lidgard
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-002138-5

Dear Mr. Mike Lidgard;

I have reviewed the above referenced pre-draft NPDES Permit and Fact Sheet for the City of Haines. 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 1.9 million gallons per day (mgd) monthly average and 2.9 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 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.

3.) 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.

4.) 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

5.) The ADEC will designate a Mixing Zone (MZ) for Fecal Coliform Bacteria contained in the discharge from the City of Haines 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 designate a Zone of Initial Dilution (ZID) for fecal coliform bacteria contained in the discharge from the City of Haines Wastewater Treatment Facility. The ZID is defined in the fact sheet as a rectangle 63.7 X 54.9 m meters, centered on the diffuser and located perpendicular to the shoreline. Dilution ratio of 52.9:1. 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.

7.) The ADEC will require that fecal coliform numbers shall not exceed 200 FC/100 ML at the shoreline within the designated 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 limitation (200 FC/100 ML) is protective of the water quality for secondary recreation.

8.) 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.

9.) The ADEC will require monitoring at the outside edge of the mixing zone for fecal coliform bacteria. The samples must be collected from minimum of three locations; on the North, East and South edges of the mixing zone at a frequency four times per year (January, May, August and November). In addition, a minimum of one shoreline sample shall be collected from areas in the mixing zone each time the mixing zone sampling is conducted.

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.

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 approximate location and size of the mixing zone. The signs should inform the public that certain 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.

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 1 – Perhaps it is translation problem from 1 version of WordPerfect to another, but latitude and longitude were in "symbols" not degrees, min, and seconds.

2.) Page 7 – Table 2. Influent/Effluent Monitoring Requirements (footnotes) table boarders are not lined up.

3.) Page 7 – # 4. Receiving Water Quality Monitoring Requirements. Monitoring as been increased from 1st and 4th year monitoring to twice per year monitoring. Small communities require their operators to function in multiple aspects in public works. Twice per year will place a financial and personnel burden on the City of Haines, while not providing for a measurable increase in water quality simply by performing the testing.

Decreasing BOD loading incorporated in State Stipulations, above, will allow for better protection of Dissolved Oxygen (refer to page 14 in Fact sheet to DO vs. BOD) and water quality. While not agreeing with increased monitoring; Suggest: Testing be decreased to once per year, alternating between wet season (1st , 3rd, and 5th year) and dry season (2nd and 4th year) testing.

4.) Page 9 – Flow rate consideration 0.6mgd limitation. This number are not reference anywhere in the fact sheet or application as to why the numbers were chosen (no daily design flow or peak plant flow design rates). It is only stated Haines was

exceeding flow "because an increase in populations and a marked increase in tourist traffic had caused the city to begin to exceed the permitted flow limit."(pg. 9, 3rd paragraph).

After discussions with Jim Dorn, owner and engineer for Carson & Dorn, Inc., (who performed construction/conversion to primary treatment for the City of Haines), correct plant design numbers were found. Limiting daily design flow is based upon 50 ft (1,963 ft^2) diameter clarifier capacity. At 1,963 ft^2 daily max. times 1,000 $g/d/ft^2$ = 1.96mgd daily ave. flow, and 1,962ft^2 times 1,500$g/d/ft^2$ = 2.94mgd peak design flow.

5.) Page 12 – C#1 – Whole Effluent Toxicity (WET) Testing Requirements. The Permittee shall conduct chronic testing in the first year of the permit with one of the following organisms: - 4th year testing protocol not established in Section C. Suggest: Providing Permittee with type of testing to be performed during 4th year.

6.) Page 14 – C #10 – Preparation of Generic TRE Workplan - Haines is a small community without industrial development. None of the pollutants, except copper, detected in Toxic pollutant testing had potential to exceed water quality criterion set by EPA. TRE development in this small discharge community is not recommended at this time. Please keep the following thoughts in mind in making a decision. The wastewater operator is the City's Fire Chief and assists in public work projects, as well. 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, more than 90 days, for the City of Haines to develop their TRE is advised.

7.) Page 22 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 2 – Correct Address for Juneau EPA Alaska Operations Office to:

EPA Alaska Operations Office
PO Box 20370
Juneau, AK 99802-0370

Physical Address:
Room 223 A
709 W. 9th Street
Juneau, AK 99802

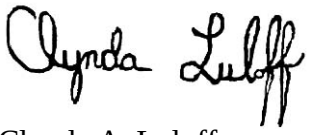
2) Page 2 – All three permit FACT SHEETS should have the same information on where information may be obtained from for Haines, Petersburg and Sitka.

3) "city of Haines" is a proper noun in describing the city and thus should be capitalized in all cases referring to: the City of Haines.

4) Page 9 – 3rd paragraph. Reads – "…an increase in population and a marked increase in tourist traffic had caused the city has to begin to exceed the permitted flow limit." Suggest: "…an increase in population and a marked increase in tourist traffic had caused **the city to begin** to exceed the permitted flow limit."

5) Page 13 and 14, state stipulations should address concerns regarding BOD loading and DO counts.

Sincerely,



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

REFERENCES

City of Haines, Alaska, 2000. Application for renewal of National Pollutant Discharge Elimination System (NPDES) permit AK-002138-5 under Section 301(h) of the Clean Water Act, as amended 1987.

Tetra Tech, 1982. Revised Section 301(h) Technical Support Document, EPA 400/9-83-011. U.S. Environmental Protection Agency, Office of Water Enforcement and Permits and Office of Water Regulations and Standards, Washington, D.C.

U.S. Environmental Protection Agency, 1985. Technical Support Document for Water Quality-based Toxics Control. U.S. Environmental Protection Agency, Office of Water Enforcement and Permits and Office of Water Regulations and Standards, Washington, D.C.

U.S. Environmental Protection Agency, 1993. 40 CFR Part 257. Final Standards for the Use or Disposal of Sewage Sludge; (58 FR 9248, February 19, 1993)