UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

OFFICE OF THE REGIONAL ADMINISTRATOR

Haines Borough's
Wastewater Treatment Plant
Application for a Modified NPDES Permit
Under Section 301(h) of the Clean Water Act

Tentative Decision of the Regional Administrator
Pursuant to 40 CFR Part 125, Subpart G

I have reviewed the attached evaluation analyzing the merits of the Haines Borough's request and application for a variance from secondary treatment requirements of the Clean Water Act (the Act) pursuant to Section 301(h) of the Act for the Haines wastewater treatment plant. It is my tentative decision that the Haines Borough be granted a variance pursuant to Section 301(h) of the Act for the Haines wastewater treatment plant in accordance with the terms, conditions, and limitations of the draft 301(h)-modified NPDES permit.

My decision is based on available information specific to the discharge from the Haines wastewater treatment plant. It is not intended to assess the need for secondary treatment in general, nor does it reflect on the necessity for secondary treatment by other publicly owned treatment works discharging to the marine environment.

Public notice and comment regarding this tentative decision and the accompanying draft NPDES permit is available to interested persons pursuant to 40 CFR Part 124. This tentative decision is subject to change based on information acquired during the public comment period. Following the public comment period on this tentative decision and accompanying draft NPDES permit, EPA Region 10 will issue a final decision under the procedures in 40 CFR Part 124.

/s/ May 3, 2023

Casey Sixkiller
Regional Administrator

Haines Borough Wastewater Treatment Plant

Application For A Modified NPDES Permit Under Section 301(h) Of The Clean Water Act

Tentative Decision Document

Draft, May 2023

United States Environmental Protection Agency

Region 10

1200 6th Avenue

Seattle, WA 98101

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1) Introduction

The Haines Borough, Alaska, ("the applicant," "Haines," or "the permittee") has requested a renewal of its variance (sometimes informally called a "waiver" or "modification") under Section 301(h) of the Clean Water Act (the Act or CWA) from the secondary treatment requirements contained in Section 301(b)(1)(B) of the Act, 33 USC § 1311(b)(1)(B).

The United States Environmental Protection Agency, Region 10 (EPA) approved Haines' most recent National Pollutant Discharge Elimination System (NPDES) permit for the Haines Wastewater Treatment Plant ("WWTP" or "the facility") and issued a CWA Section 301(h)-modified permit on November 20, 2001 (AK0021385) (hereafter referred to as the 2001 permit). The 2001 permit became effective on December 24, 2001 and expired on December 26, 2006. A timely and complete NPDES application for permit reissuance was submitted by the permittee on July 13, 2006. Pursuant to 40 CFR 122.6, the permit has been administratively continued and remains fully effective and enforceable.

The 301(h) variance is being sought for the Haines WWTP, a publicly owned treatment works (POTW). The applicant is seeking a 301(h) variance to discharge wastewater receiving less-than-secondary treatment from a single outfall into Portage Cove. The effluent quality attainable by secondary treatment is defined in the regulations at 40 CFR Part 133 in terms of biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. Pursuant to 40 CFR 133.102, secondary treatment requirements for TSS, BOD_5, and pH are as follows:

TSS: (1) The 30-day average concentration shall not exceed 30 mg/l;

(2) The 7-day average concentration shall not exceed 45 mg/l; and

(3) The 30-day average percent removal shall not be less than 85%.

BOD_5: (1) The 30-day average concentration shall not exceed 30 mg/l;

(2) The 7-day average concentration shall not exceed 45 mg/l; and

(3) The 30-day average percent removal shall not be less than 85%.

pH: The pH of the effluent shall be maintained within the limits of 6.0 to 9.0 pH standard units.

The permittee requested a modification for TSS and BOD_5, but not pH.

This document presents EPA's tentative findings, conclusions, and recommendations as to whether the applicant's proposed 301(h)-modified discharge (proposed discharge) will comply with the criteria set forth in Sections 301(h) of the Act, as implemented by regulations at 40 CFR Part 125, Subpart G, and Alaska Water Quality Standards (Alaska WQS), as amended.

2) Decision Criteria

Under Section 301(b)(1)(B) of the Act, POTWs in existence on July 1, 1977, are required to meet effluent limits based on secondary treatment as defined by the Administrator of EPA ("the Administrator"). Secondary treatment is defined by the Administrator in terms of three parameters: TSS, BOD_5, and pH. Uniform national effluent limitations for these pollutants were promulgated and included in NPDES permits for POTWs issued under Section 402 of the CWA, POTWs were required to comply with these limitations by July 1, 1977.

Congress subsequently amended the Act, adding Section 301(h) which authorizes the Administrator, with State concurrence, to issue NPDES permits that modify the secondary treatment requirements of the Act with respect to certain discharges. P.L. 95-217, 91 Stat. 1566, as amended by P.L. 97-117, 95 Stat. 1623; and S303 of the Water Quality Act of 1987. Section 301(h) provides that:

> *[T]he Administrator, with the concurrence of the State, may issue a permit under section 402 [of the Act] which modifies the requirements of subsection (b)(1)(B) of this section [the secondary treatment requirements] with respect to the discharge of any pollutant from a publicly owned treatment works into marine waters, if the applicant demonstrates to the satisfaction of the Administrator that:*

(1) there is an applicable water quality standard specific to the pollutant for which the modification is requested, which has been identified under section 304(a)(6) of [the CWA];
(2) the discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, and allows recreational activities, in and on the water;
(3) the applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota, to the extent practicable, and the scope of the monitoring is limited to include only those scientific investigations which are necessary to study the effects of the proposed discharge;
(4) such modified requirements will not result in any additional requirements on any other point or nonpoint source;
(5) all applicable pretreatment requirements for sources introducing waste into such treatment works will be enforced;
(6) in the case of any treatment works serving a population of 50,000 or more, with respect to any toxic pollutant introduced into such works by an industrial discharger for which pollutant there is no applicable pretreatment requirement in effect, sources introducing waste into such works are in compliance with all applicable pretreatment requirements, the applicant has in effect a pretreatment program which, in combination with the treatment of discharges from such works, removes the same amount of such pollutant as would be removed if such works were to apply secondary treatment to discharges and if such works had no pretreatment program with respect to such pollutant;
(7) to the extent practicable, the applicant has established a schedule of activities designed to eliminate the entrance of toxic pollutants from nonindustrial sources into such treatment works;

(8) there will be no new or substantially increased discharges from the point source of the pollutant into which the modification applies above that volume of discharge specified in the permit; and

(9) the applicant at the time such modification becomes effective will be discharging effluent which has received at least primary or equivalent treatment and which meets the criteria established under [section 304(a)(1) of the CWA] after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged.

For the purposes of this subsection the phrase "the discharge of any pollutant into marine waters" refers to a discharge into deep waters of the territorial sea or the waters of the contiguous zone, or into saline estuarine waters where there is strong tidal movement and other hydrological and geological characteristics which the Administrator determines necessary to allow compliance with paragraph (2) of this subsection, and [section 101(a)(2) of the Act]. For the purposes of paragraph (9), "primary or equivalent treatment" means treatment by screening, sedimentation, and skimming adequate to remove at least 30 percent of the biological oxygen demanding material and of the suspended solids in the treatment works influent, and disinfection, where appropriate. A municipality which applies secondary treatment shall be eligible to receive a permit pursuant to this subsection which modifies the requirements of subsection (b)(1)(B) of this section with respect to the discharge of any pollutant from any treatment works owned by such municipality into marine waters. No permit issued under this subsection shall authorize the discharge of sewage sludge into marine waters. In order for a permit to be issued under this subsection for the discharge of a pollutant into marine waters, such marine waters must exhibit characteristics assuring that water providing dilution does not contain significant amounts of previous discharged effluent from such treatment works. No permit issued under this subsection shall authorize the discharge of any pollutant into saline estuarine waters which at the time of application do not support a balanced, indigenous population of shellfish, fish and wildlife, or allow recreation in and on the waters or which exhibit ambient water quality below applicable water quality standards adopted for the protection of public water supplies, shellfish, fish and wildlife or recreational activities or such other standards necessary to assure support and protection of such uses. The prohibition contained in the preceding sentence shall apply without regard to the presence or absence of a causal relationship between such characteristics and the applicant's current or proposed discharge. Notwithstanding any of the other provisions of this subsection, no permit may be issued under this subsection for discharge of a pollutant into the New York Bight Apex consisting of the ocean waters of the Atlantic Ocean westward of 73 degrees 30 minutes west longitude and westward of 40 degrees 10 minutes north latitude.

On August 9, 1994, EPA promulgated final regulations implementing these statutory criteria at 40 CFR Part 125, Subpart G. The regulations provide that a Section 301(h)-modified NPDES permit may not be issued in violation of 40 CFR 125.59(b) which requires, among other things, compliance with provisions of the Coastal Zone Management Act, as amended, 16 USC 1451 *et seq.*, the Endangered Species Act, as amended, 16 USC 1531 *et seq.*, Title III of the Marine Protection Research and Sanctuaries Act, as amended, 16 USC 1431 *et seq.*, the Magnuson-Stevens Fishery Conservation and Management Act, as amended, 16 USC 1801 *et seq.*, and any other applicable provisions of local, state, and federal laws or Executive Orders.

In accordance with 40 CFR 125.59(i), the decision to grant or deny a CWA Section 301(h) waiver shall be made by the Administrator[1] and shall be based on the applicant's demonstration that it has met all the requirements of 40 CFR 125.59 through 125.68, as described in this 301(h) Tentative Decision Document (301(h) TDD). EPA has reviewed all data submitted by the applicant in the context of applicable statutory and regulatory criteria and has presented its findings and conclusions in this 301(h) TDD.

3) SUMMARY OF FINDINGS

Based upon review of the data, references, and empirical evidence furnished by the applicant and other relevant sources, EPA Region 10 makes the following tentative findings regarding the application with respect to the statutory and regulatory criteria:

1. The applicant's proposed discharge will comply with Alaska WQS for dissolved oxygen and turbidity. [CWA Section 301(h)(1), 40 CFR 125.61]
2. The applicant has demonstrated it can consistently achieve Alaska WQS and federal CWA Section 304(a)(1) water quality criteria at and beyond the zone of initial dilution (ZID). [CWA Section 301(h)(9), 40 CFR 125.62(a)]
3. The applicant's proposed discharge, alone or in combination with pollutants from other sources, will not adversely impact public water supplies or interfere with the protection and propagation of a balanced, indigenous population (BIP) of shellfish, fish, and wildlife, and will allow for recreational activities in an on the water. [CWA Section 301(h)(2), 40 CFR 125.62(b), (c), (d)]
4. The applicant has a well-established and adequate program to monitor the impact of its proposed discharge on aquatic biota and has demonstrated it has adequate resources to continue the program. These monitoring requirements will remain enforceable terms of the permit. [CWA Section 301(h)(3), 40 CFR 125.63]
5. The applicant's proposed discharge will not result in any additional treatment requirements on any other point or nonpoint sources. The applicant sent a letter to the Alaska Department of Environmental Conservation (ADEC) requesting concurrence with this determination. [CWA Section 301(h)(4), 40 CFR 125.64]
6. The facility serves a population less than 50,000 people, so does not need to develop an urban area pretreatment program [CWA Section 301(h)(6), 40 CFR 125.65]
7. The applicant will continue to implement its nonindustrial source control program, consisting of public outreach and education designed to minimize the amount of toxic pollutants that enter the treatment system from nonindustrial sources. [CWA Section 301(h)(7), 40 CFR 125.66]
8. There will be no new or substantially increased discharges from the point source of the pollutants to which the 301(h) variance applies above those specified in the permit. [CWA Section 301(h)(8), 40 CFR 125.67]
9. The 301(h) modified permit contains the special conditions required regarding effluent limitations and mass loadings, schedules of compliance, and monitoring and reporting requirements [40 CFR 125.68]

[1] The authority to make tentative (and final) decisions on the eligibility of publicly owned treatment works for variances from the secondary treatment requirements of the Clean Water Act pursuant to Section 301(h) of the CWA has been delegated to the Regional Administrators.

10. The discharge is not expected to conflict with applicable provisions of State, local, or other Federal laws or Executive Orders, including compliance with the Coastal Zone Management Act of 1972, as amended, 16 USC1451 *et seq*.; the Endangered Species Act of 1973, as amended, 16 USC 1531 *et seq*.; Title III of the Marine Protection, Research and Sanctuaries Act, as amended, 16 USC 1431 *et seq*.; and the Magnuson-Stevens Fishery Conservation and Management Act, as amended, 16 USC 1801 *et seq.* [40 CFR 125.59(b)(3)]
11. The applicant has demonstrated the proposed discharge will comply with federal primary treatment requirements. [CWA Section 301(h)(9), 40 CFR 125.60]

4) TENTATIVE DECISION AND RECOMMENDATION

Based on the tentative findings in Section 3, above, EPA has concluded that the applicant's proposed discharge will comply with the requirements of CWA Section 301(h), and 40 CFR Part 125, Subpart G. Accordingly, EPA has tentatively decided to grant the applicant a CWA Section 301(h) variance, contingent upon satisfaction of the following conditions:

1. All requirements determined necessary by ADEC as part of its final CWA Section 401 Certification to ensure that the proposed discharge will comply with applicable provisions of State law, including WQS, in accordance with Section 401 of the CWA and the regulations at 40 CFR 124.53, 124.54 and 125.61(b)(2).
2. The determination by ADEC that the proposed discharge will not result in any additional treatment requirements on any other point or nonpoint sources, in accordance with 40 CFR 125.64.
3. The determination by the National Marine Fisheries Service that issuance of a 301(h)-modified permit will not jeopardize the continued existence of any threatened or endangered species or result in the destruction of critical habitat and does not conflict with applicable provisions of the Magnuson-Stevens Fishery Conservation and Management Act, as amended.

5) DESCRIPTION OF TREATMENT SYSTEM

The WWTP serves the community of Haines, Alaska, which has a population of approximately 1,800 people. According to the facility, the design flow is 1.9 mgd monthly average flow and 2.9 mgd maximum daily flow. In accordance with 40 CFR 125.58(c), the facility is a "small applicant." The collection system is a separate sanitary sewer system. The effluent is all domestic in origin, except for industrial flow from the local brewery and distillery of 1,700 gpd. The existing outfall (001) discharges to Portage Cove in Chilkoot Inlet approximately 1,830 feet (558 meters) offshore at a depth of 80 feet (24.4 meters) below mean lower low water (MLLW). The outfall location is at the following latitude and longitude: 59.23710 N, -135.43118 W.

Raw sewage enters the WWTP 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). This supernatant is decanted back into the system and eventually discharged through the outfall. The sludge is dewatered and disposed of at landfills.

See Appendix A for facility figures, area maps, and the treatment process flow diagram.

6) DESCRIPTION OF RECEIVING WATERS

A. General Features

The WWTP discharges into the saline estuarine waters of Portage Cove in Chilkoot Inlet, approximately 1,830 feet from the shore off the east side of Haines, Alaska. Portage Cove is a tidal estuary located on the western shoreline of the eastern branch of Chilkoot Inlet. Chilkoot Inlet is on the northern end of Lynn Canal.

Surface water densities near the outfall vary due to local freshwater inputs from nearby streams and rivers. Freshwater input north of Portage Cove comes from the combined flow of the Skagway, Taiya, Ferebee, and Chilkoot Rivers, as well as West Creek and other streams.

Portage Cove is classified in Alaska WQS as classes IIA(I)(ii)(iii), B(I)(ii), 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. Currents and Flushing

According to the previous fact sheet, the mean tide range at Haines is 14.2 ft (4.3 m), and a mean tide level of 8.7 ft (2.7 m) above MLLW. At Battery Point, 3.15 miles south of Haines, 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 and 36.0 cm/sec respectively. Measurements in Lynn Canal, south of Haines, indicate a strong average southerly flow on the surface and a weak average northerly flow below a depth of 50 feet (15.2 m). Due to freshwater supplied by runoff, the net transport is out of Chilkoot Inlet at a rate of 4.8 miles (2.9 km) to the south every 12.4 hours. The period of lowest net circulation is expected to be December through April, during times of minimum river flow.

7) PHYSICAL CHARACTERISTICS OF THE DISCHARGE

A. Outfall/Diffuser Design and Initial Dilution

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 WQS at and beyond the boundary of the ZID during periods of maximum stratification and during other periods when discharge characteristics, water quality, biological seasons, or oceanographic conditions indicate more critical situations may exist.

The WWTP outfall and diffuser are made of a 16-inch diameter pipe. The outfall is 1,830 feet in length from MLLW, terminating in a diffuser 30 feet (9.1 m) in length. The effluent is directed horizontally through two ports in the diffuser, each with a diameter of 3 inches (7.6 cm). A third port on the diffuser was capped in 1986 and will not be used. The depth of the outfall is 80 feet at MLLW (i.e., on the bottom of Portage Cove).

Zone of Initial Dilution (ZID)

Section 301(h)(9) of the CWA, and 40 CFR 125.62 require 301(h) discharges to meet state WQS and federal CWA Section 304(a) criteria at the boundary of the ZID, which is the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports. The ZID may not be larger than allowed by mixing zone restrictions in applicable WQS. 40 CFR 125.58(dd). The dilution ratio achieved at the completion of initial mixing at the edge of the ZID is used to determine compliance with these requirements. Dilution is defined as the ratio of the total volume of the sample (ambient water plus effluent) to the volume of effluent in the sample. The ZID is not intended to describe the area bounding the entire mixing process or the total area impacted. Rather, the ZID, or region of *initial mixing,* is the area of rapid, turbulent mixing of the effluent and receiving water and 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. In guidance, EPA has operationally delimited the ZID to include the bottom area within a horizontal distance equal to the water depth from any point on the diffuser and the water column above that area (Amended 301(h) Technical Support Document; 301(h) TSD). Beyond the ZID boundary (i.e., after initial mixing is complete), the effluent is diluted further by passive diffusion processes and far-field ambient receiving water conditions. The ZID is not inclusive of this far-field mixing process.

The 2001 permit used a dilution factor for the ZID of 52.9:1. EPA was unable to recreate this dilution factor using available effluent and receiving water data. Thus, EPA modeled the current discharge to determine the dilution achieved at the edge of the ZID using the discharge depth of the facility and tidal predictions from near the Haines facility, in combination with recent effluent and receiving water data provided by the nearby Skagway WWTP. At the time of dilution modeling, effluent and receiving water data from Haines were not available. Since Skagway is located nearby, 22 miles north in Chilkoot Inlet, EPA believes the dilution results are appropriate for Haines. In accordance with the 301(h) TSD, EPA used data reflecting critical discharge and receiving water conditions to determine dilution under critical conditions. The dilution modeling report is included in Appendix G.

According to the model, the discharge achieves initial mixing and a dilution of 100:1 about 50 feet from the outfall at a depth of approximately 65 feet within four minutes of discharge under critical discharge and receiving water conditions. EPA used 100:1 dilution as the basis for determining compliance with CWA Section 301(h)(9) and 40 CFR 125.62. Consistent with the recommendations in the 301(h) TSD for setting spatial boundaries for the ZID, EPA has established the spatial dimensions of the ZID which include the entire water column within 50 feet of any point of the 30-foot diffuser. This is the same ZID spatial boundary as the 2001 permit.

8) APPLICATION OF STATUTORY AND REGULATORY CRITERIA

The sections below describe the statutory and regulatory requirements that are applicable to CWA Section 301(h) discharges and explains the basis for certain water quality effluent limits in the draft permit.

A. Compliance with Primary or Equivalent Treatment Requirements [CWA Section 301(h)(9); 40 CFR 125.60]

Under CWA Section 301(h)(9) and 40 CFR 125.60, the applicant must demonstrate it will be discharging effluent that has received at least primary or equivalent treatment at the time the 301(h)-modified permit becomes effective. 40 CFR 125.58(r) defines primary or equivalent treatment as treatment by screening, sedimentation, and skimming adequate to remove at least 30 percent of the biochemical oxygen demanding material and other suspended solids in the treatment works influent, and disinfection, where appropriate. To ensure the effluent has received primary or equivalent treatment, 40 CFR 125.60 requires the applicant to perform monitoring of their influent and effluent and assess BOD_5 and TSS removal rates based on a monthly average.

Applicants for 301(h) waivers request concentration and loading (lb/day) limits for BOD_5 and TSS based on what the facility can achieve. Therefore, the technology-based requirements for POTWs with 301(h) waivers are established on a case-by-case basis taking into consideration facility performance and the federal primary treatment standards.

1. Total Suspended Solids

EPA reviewed influent and effluent monitoring data for TSS between 2016 and 2021. A summary table and graphical representation of the data is provided below.

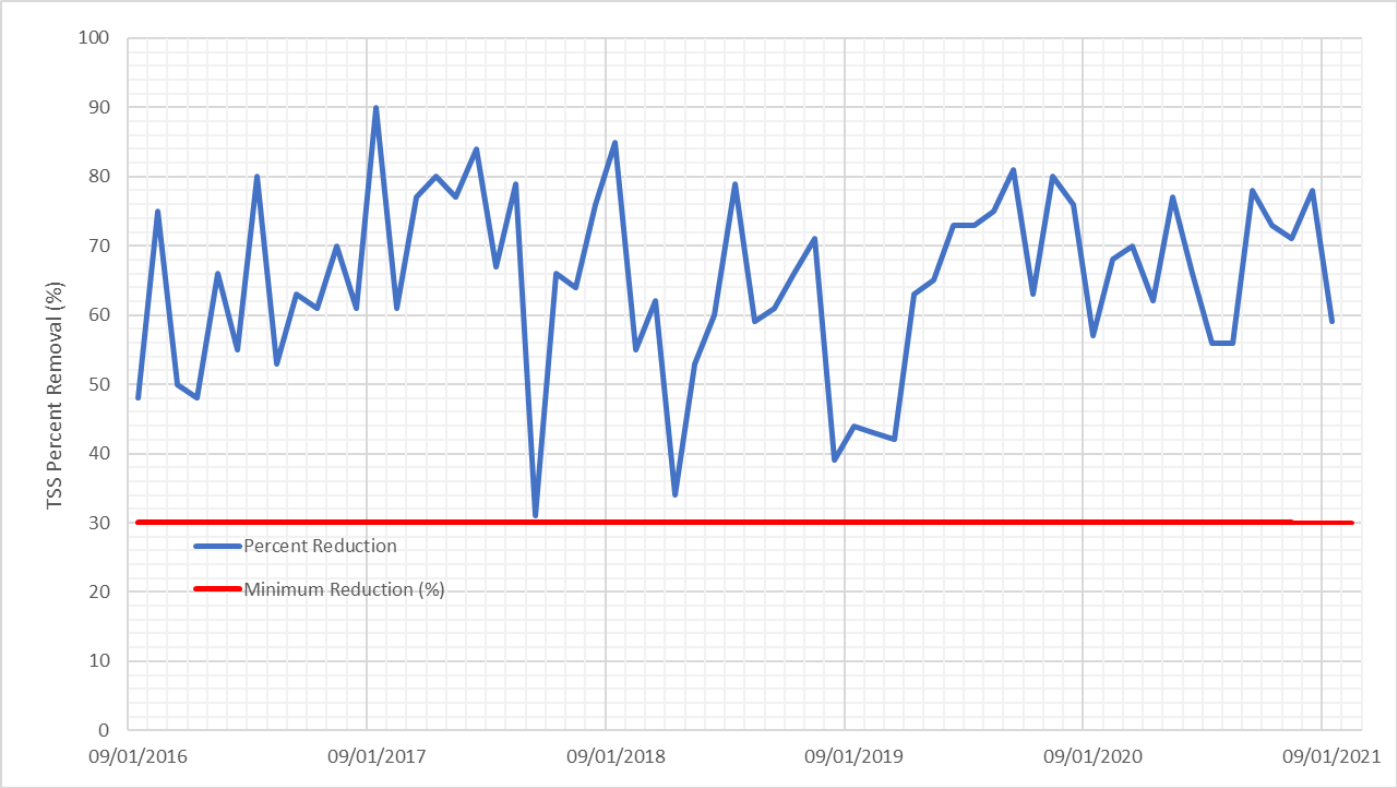

Figure 1. Minimum Monthly Percent TSS Removal (9/2016-9/2021)

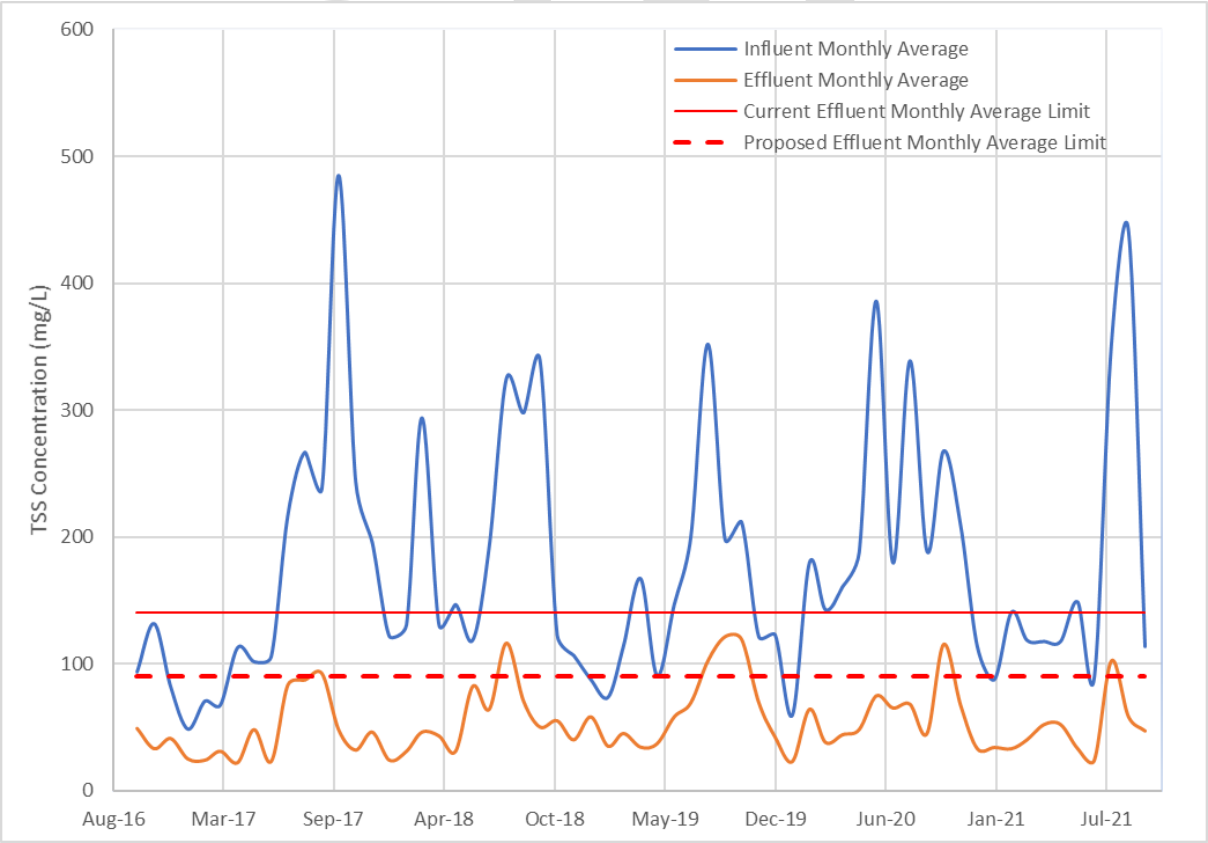

Figure 2. Average Monthly Influent and Effluent TSS Concentrations (9/2016-9/2021)

The facility achieved the minimum 30% removal requirement for TSS 100% of the time between 2016-2021, with the lowest monthly removal being 31%. Between 2016 and 2021 the facility achieved an average of nearly 65% removal of TSS, with maximum percent removal efficiencies as high as 90%.

Table 1. Influent and Effluent TSS Data (9/2016-9/2021)

Statistic	Influent, TSS, mg/L, Mo. Avg	Effluent, TSS, mg/L, Max Daily	Effluent, TSS, mg/L, Mo. Avg	Percent Removal
LIMIT	---	200	140	≥30%
COUNT	61	61	61	61
MEAN	178	88	54	65
MINIMUM	49	32	22	31
MAX	485	244	121	90
STDV	98	46	26	13
CV	0.55	0.521	0.478	0.20
5th	68	33	23	39
95th	383	200	116	84

The applicant has demonstrated that it will be discharging effluent that has received at least primary treatment for TSS when the 301(h)-modified permit becomes effective. [CWA section 301(h)(9) and 40 CFR 125.60].

2. Biochemical Oxygen Demand

EPA reviewed influent and effluent data for BOD_5 between 2016 and 2021. A summary table and graphical representation of the data is provided below.

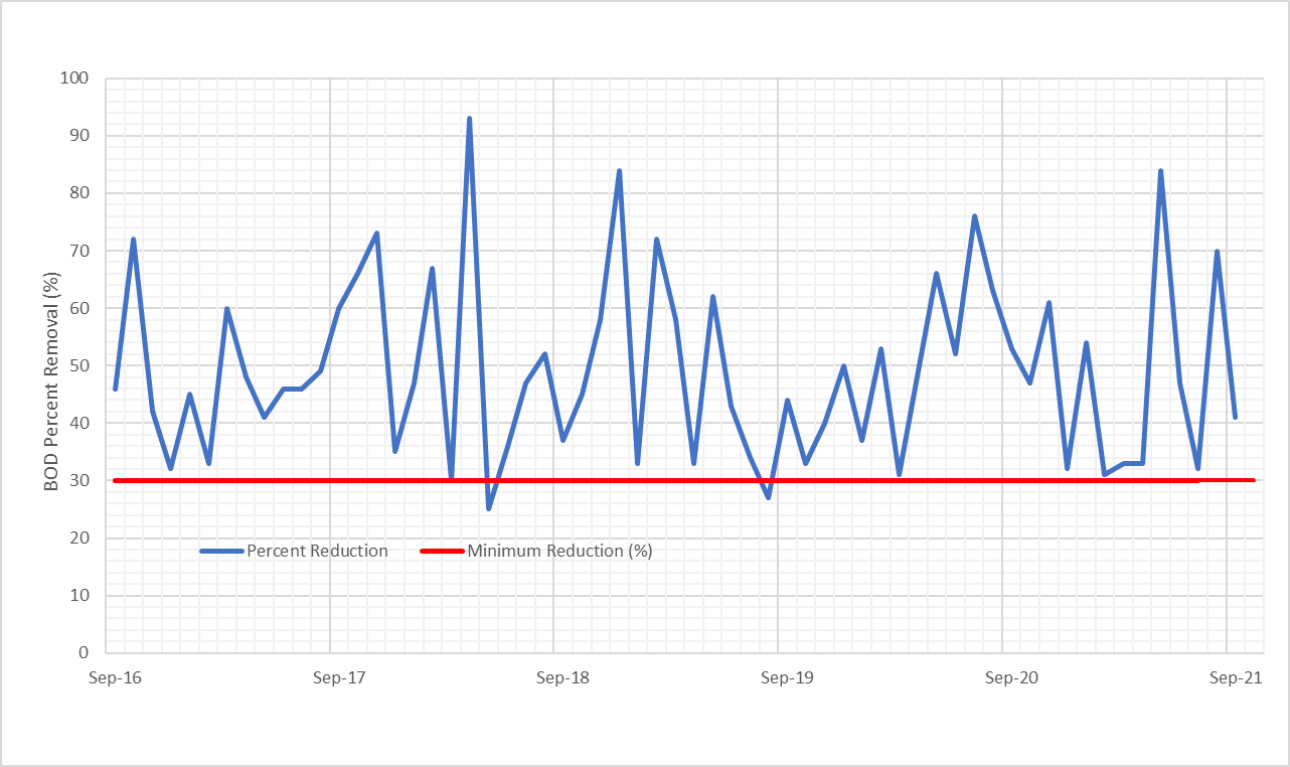

Figure 3. Minimum Monthly BOD_5 Removal (9/2016-9/2021)

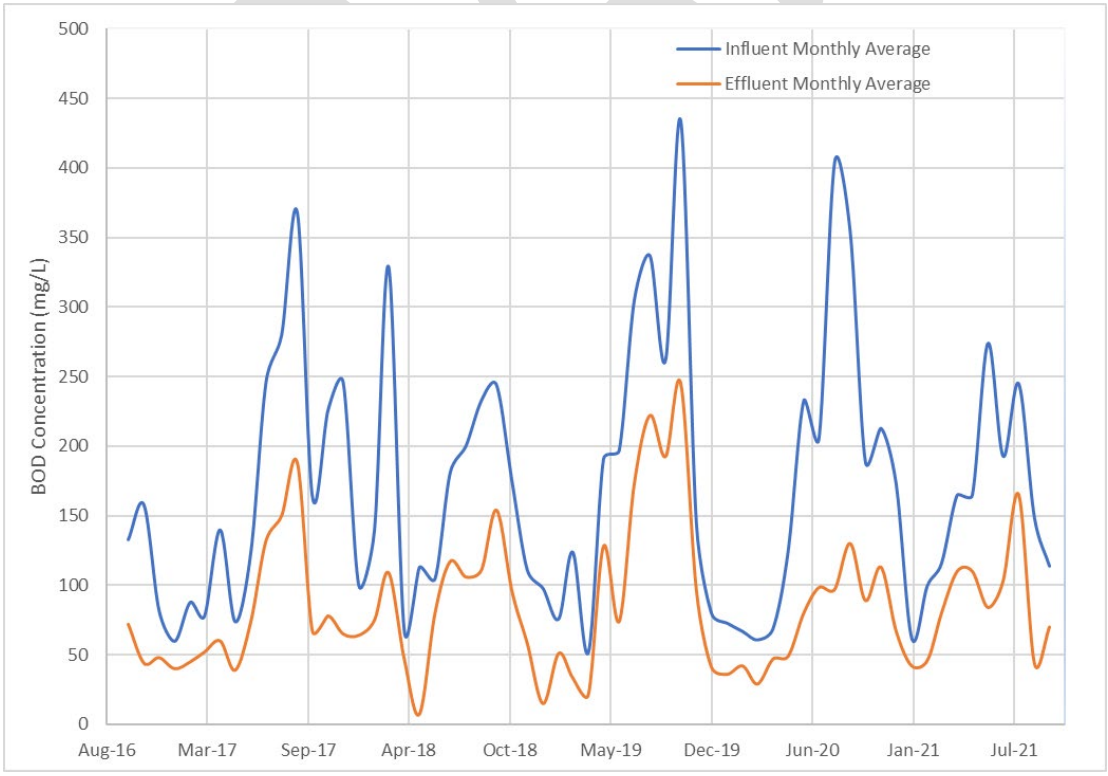

Figure 4. Monthly Influent and Effluent BOD_5 Concentrations (9/2016-9/2021)

The facility achieved the minimum 30% removal requirement for BOD_5 nearly 100% of the time, with two months below 30% removal (25%, May 2018 and 27%, August 2019). During these two months, the low percent removal was due to sampling error after equipment replacements. Between 2016 and 2021 the facility achieved an average of 48.8% removal of BOD_5, with maximum percent removal efficiencies as high as 93%.

Table 2. Influent and Effluent BOD Data (9/2016-9/2021)

Statistic	Influent, BOD_5, mg/L, Mo. Avg	Effluent, BOD_5, mg/L, Max Daily[1]	Effluent, BOD_5, mg/L, Mo. Avg[1]	Percent Removal
LIMIT	---	300	260	≥30%
COUNT	58	58	58	58
MEAN	174	87	87	49
MIN	52	7	7	25
MAX	434	245	245	93
STDV	95	51	51	16
CV	0.55	0.59	0.59	0.32
5th	62	28	28	31
95th	356	189	189	77
1) The 2001 permit required monthly influent/effluent BOD_5 monitoring, so reported values for maximum and average are identical				

The applicant has demonstrated that it will be discharging effluent that has received at least primary treatment for BOD_5 when the 301(h)-modified permit becomes effective. [CWA Section 301(h)(9) and 40 CFR 125.60].

B. ATTAINMENT OF WATER QUALITY STANDARDS RELATED TO TSS AND BOD_5 [CWA 301(h)(1); 40 CFR 125.61]

Under 40 CFR 125.61, which implements CWA Section 301(h)(1), there must be water quality standards applicable to the pollutants for which the modification is requested, and the applicant must demonstrate that the proposed discharge will comply with these standards. The applicant has requested modified secondary treatment requirements for BOD_5, which affects dissolved oxygen (DO), and TSS, which affects the color or turbidity in the receiving water. The State of Alaska has water quality standards for DO and turbidity.

1. Turbidity and Light Transmittance/Attenuation

Alaska WQS applicable to the estuarine waters of Portage Cove provide that turbidity shall not exceed 25 nephelometric turbidity units (NTU), may not interfere with disinfection, may not cause detrimental effect on established levels of water supply treatment, and may not reduce the depth of the compensation point for photosynthetic activity by more than 10%. In addition, turbidity may not reduce the maximum secchi disc depth by more than 10%. Alaska WQS for turbidity can be found in Appendix E.

The applicant has been collecting annual receiving water data for turbidity and secchi depth. Sampling is conducted in August 2003, February 2004, and September 2005 at depth intervals of 5 meters at the following sites:

Site 1:1000m north-northeast of ZID

Site 2: North boundary of ZID

Site 3: South boundary of ZID

Site 4: 1000m south-southeast of ZID

Sites 1 and 4 are considered reference sites and sites 3 and 4 are ZID boundary sites. Monitoring results are presented in Table 3, Table 4, and Table 5 below.

Secchi depths were similar between reference sites 1 and 4 and ZID boundary sites 2 and 3, with minimum secchi depths of 4 feet observed in September 2005. The average of reference sites 1 and 4 was 13.6 feet, while the average for the ZID boundary sites was 13.3, approximately 2% lower.

Table 3. Secchi Depth Monitoring

Site	Secchi Depth (ft)					
	Aug 2003	Feb 2004	Sept 2005	Avg	Max	Min
Site 1: Ref. North	7	27	4	12.6	27	4
Site 2: North ZID	7	26	5	12.6	26	5
Site 3: South ZID	7	30	5	14.0	30	5
Site 4: Ref. South	7	32	5	14.6	32	5

Average receiving water turbidity values at reference sites 1 and 4 were 4.80, 3.37, 2.88, 1.90, 2.14, and 2.58 NTU for 0m, 5m, 10m, 15m, 20m, and 25m, respectively. Average values for ZID boundary sites 2 and 3 were 5.18, 3.44, 2.70. 2.02, and 1.77 NTU for 0m, 5m, 10m, 15m, 20m, and 25m, respectively. The maximum turbidity values of 8.77 NTU and 8.26 NTU were observed in surface samples taken at the ZID boundary and reference sites during September and August, respectively. The turbidity measured in all samples is below Alaska's water quality criteria for turbidity of 25 NTU.

Table 4. ZID Boundary Turbidity Monitoring (NTU)

Year	Site	0m	5m	10m	15m	20m	25m
Aug 2003	Site 2	7.74	4.36	2.64	1.88	1.24	2.03
	Site 3	8.26	8.26	3.59	2.31	1.43	-
Feb 2004	Site 2	1.09	1.11	1.45	1.4	1.06	1.22
	Site 3	1.09	0.98	0.98	1.09	0.83	2.74
Sept 2005	Site 2	6.98	2.91	4.15	2.59	3.03	-
	Site 3	5.92	3.03	3.39	2.83	3.03	-
Max	-	8.26	8.26	4.15	2.83	1.06	2.74
Min	-	1.09	0.98	0.98	1.09	3.03	1.22
Average	-	5.18	3.44	2.7	2.02	1.77	1.99

Table 5. Reference Site Turbidity Monitoring (NTU)

Year	Site	0m	5m	10m	15m	20m	25m	30m
Aug 2003	Site 1	5.49	6.38	2.45	2.32	2.4	2.9	-
	Site 4	6.37	2.43	2.3	1.83	1.71	2.05	-
Feb 2004	Site 1	1.13	1.11	1.21	1.21	1.19	1.29	-
	Site 4	1.15	0.93	1.05	0.75	2.49	-	-
Sept 2005	Site 1	8.77	5.81	7.71	2.76	2.15	1.58	2.16
	Site 4	5.92	3.57	2.54	2.54	2.88	5.07	-
Max	-	8.77	6.38	7.71	2.76	2.88	5.07	2.16
Min	-	1.13	0.93	1.05	0.75	1.19	1.29	2.16
Average	-	4.80	3.37	2.88	1.90	2.14	2.58	2.16

The turbidity results indicate that turbidity is generally higher at the surface and that there is a seasonal difference in turbidity levels. Portage Cove has elevated levels of sediment in the summer months due to freshwater and sediment inputs from nearby rivers.

The change in suspended solids in the water column is indirectly related to turbidity measurements. To further assess the potential for the discharge to cause or contribute to a violation of Alaska WQS for turbidity and light transmittance, EPA determined the maximum change in suspended solids concentration of TSS in the discharge at the edge of the ZID using formula B-32 from the 301(h) TSD. The results show a 1.9 mg/L increase in suspended solids in the receiving water after initial dilution, or 1%.

As discussed in the 301(h) TSD, an increase in TSS of less than 10% after initial dilution is not expected to have a substantial impact on water quality.

Based on the above analyses, the proposed discharge is expected to comply with AK WQS for turbidity and light transmittance/attenuation. See Appendix E for the full equations.

2. Dissolved Oxygen

The effect of the effluent on ambient DO can occur in the nearshore and far-field as effluent mixes with the receiving water and the oxygen demand of the effluent BOD_5 load is exerted. Pursuant to 40 CFR 125.61(b)(1) and 125.62(a)(1), the applicant must demonstrate that the proposed discharge will comply with WQS for DO and that the outfall and diffuser are located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed WQS at and beyond the ZID. Alaska WQS for DO applicable to the estuarine waters of Portage Cove provide that DO may not be less than 5.0 mg/L except where natural conditions cause this value to be depressed, and in no case may DO levels exceed 17 mg/L [18 AAC 70.15(a)(i)]. Alaska WQS for DO are shown in in Appendix D.

In accordance with EPA's 301(h) TSD, EPA assessed attainment of the WQS for DO based on review of effluent (Sept 2016 - Sept 2021) and receiving water monitoring data (2003-2005).

The 301(h) TSD (USEPA 1994) provides several procedures for assessing whether a proposed discharge will meet WQS for DO at the edge of the ZID. Methods include calculating the final DO concentration of the

effluent at the edge of the ZID using discharge and receiving water data and assessing the accumulation of suspended solids around the outfall.

DO Concentration at the Edge of the ZID

EPA calculated the DO concentration at the ZID boundary using receiving water data provided by the applicant and the procedures described in Equation B-5 of the 301(h) TSD.

The discharge results in a maximum near field DO depletion at the ZID of 0.12 mg/L (1.3%) reduction from ambient concentrations(Appendix E of this TDD). The minimum DO concentration of the receiving water immediately following initial dilution is between 5.15 mg/L and 8.9 mg/L and varies by water depth and location (reference or outfall), with a minimum DO concentration of 6.1 mg/L on the surface, and a maximum DO concentration on the edge of the ZID of 8.90 mg/L. These values meet Alaska WQS as described in Appendix D.

Far Field DO Impacts

To assess the potential for far field impacts to DO, the final BOD_5 concentration after initial mixing was determined using the simplified procedures described in Appendix B of the 301(h) TSD and outlined in Appendix E of this 301(h) TDD. The calculation resulted in a final BOD_5 concentration of 4.38 mg/L after initial mixing, a concentration that is not anticipated to cause or contribute to any measurable far field DO impacts beyond the ZID.

Suspended Solids Accumulation

Impacts to DO concentrations resulting from the discharge of wastewater can also be assessed by examining the accumulation of suspended solids. 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. The accumulation of suspended solids may lower DO 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. Hence, sedimentation of suspended solids is generally of little concern for small discharges into well-flushed receiving waters.

The applicant provided a certification on August 8, 2022 stating that there are no known water quality issues associated with the accumulation of suspended solids from the discharge in accordance with 40 CFR 125.66(d)(2).

To evaluate the potential impact of solids sedimentation, a simplified approach for small dischargers that are not likely to have sediment accumulation problems can be found in Figure B-2 of the 301(h) TSD. To use Figure B-2 of the 301(h) TSD to evaluate whether steady state solids accumulation will result in excess sediment accumulation to cause a 0.2 mg/L oxygen depression, the TSS mass emissions rate is needed, as well as plume height-of-rise. The mass emission or loading rate was calculated using the TSS concentration limit, facility design flow, and a conversion factor (Loading (lbs/day)) = 190 mg/L X 1.9 mgd X 8.34 = 3,011 lbs/day, or 1,366 kg/day). Plume height-of-rise was calculated to be 46.4 feet (14.1 meters) using the approach on page B-5 in the 301(h) TSD, which involves multiplying the water depth at the point of discharge (24.4 feet at MLLW) by the design flow of 1.9 mgd. When a height-of-rise of 14.1 meters and a loading rate of 1,366 kg/day are input

in Figure B-2, steady state accumulation is well below the line at which greater than 0.2 mg/L oxygen depression is expected. Per the 301(h) TSD, no further analysis is needed to demonstrate that accumulating solids will not result in unacceptable DO depressions.

Based on the above analyses of DO depletion and suspended solids accumulation, the proposed discharge is expected to comply with AK WQS for DO. For the complete equations used in this analysis refer to Appendix E.

C. Attainment of Other Water Quality Standards and Impact of the Discharge on Shellfish, Fish And Wildlife; Public Water Supplies; And Recreation [CWA Section 301(h)(2), 40 CFR 125.62]

CWA Section 301(h)(2) requires that the proposed discharge not interfere, either alone or in combination with other sources, with the attainment or maintenance of that water quality which assures protection of public water supplies and protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and allows recreational activities in and on the water. Pursuant to 40 CFR 125.62(a), the applicant's outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed, at and beyond the ZID, all applicable EPA-approved state WQS and, where no such standards exist, EPA's CWA Section 304(a)(1) aquatic life criteria for acute and chronic toxicity and human health criteria for carcinogens and noncarcinogens, after initial mixing in the waters surrounding or adjacent to the outfall. In addition, 40 CFR 125.59(b)(1) prohibits issuance of a 301(h)-modified permit that would not assure compliance with all applicable NPDES requirements of 40 CFR Part 122; under these requirements a permit must ensure compliance with all applicable WQS[2].

Attainment of WQS for DO and turbidity was previously discussed. In accordance with 40 CFR 125.62(a), the applicant must also demonstrate that the proposed discharge will attain other WQS, including those for pH, temperature, toxic pollutants, and bacteria.

EPA used Alaska WQS and the processes described in the 301(h) TSD and the 1991 *Technical Support Document for Water Quality-based Toxics Control* to determine whether the proposed discharge has the reasonable potential to cause or contribute to an excursion above Alaska WQS, to calculate WQBELs, and to assess compliance with CWA Section 301(h)(2) and 40 CFR 125.62.

To determine reasonable potential, EPA compares the maximum projected receiving water concentration after mixing to the WQS for that pollutant. If the projected receiving water concentration exceeds the WQS, there is reasonable potential for that pollutant to cause or contribute to an excursion above Alaska WQS, and a WQBEL must be included in the permit. If a permittee is unable to meet their WQBEL, it would fail to satisfy CWA Section 301(h)(9) and 40 CFR 125.62 and would be ineligible for a CWA Section 301(h) modification.

Pursuant to 40 CFR 125.62(a)(1)(iv), EPA's evaluation of compliance with WQS must be based upon conditions reflecting periods of maximum stratification and during other periods when discharge characteristics, water

[2] Based on ADEC's review of the preliminary draft permit, EPA expects ADEC to authorize acute and chronic dilution of 11:1 and 19:1, respectively, in its 401 certification. These dilutions are based on meeting ADEC's mixing zone guidance. To meet Alaska WQS, EPA is using the chronic dilution factor to calculate pollutant effluent limits. Since these dilutions fall within the boundary of the ZID, these effluent limits also comply with CWA Section 301(h)(9) and 40 CFR 125.62.

quality, biological seasons, or oceanographic conditions indicate more critical situations may exist, commonly referred to as critical conditions.

1. pH

The applicant did not request a CWA Section 301(h) modification for pH. But the proposed discharge must still meet the WQS for pH. Alaska's WQS provide that pH may not be less than 6.5 or greater than 8.5 and may not vary more than 0.2 pH unit outside of the naturally occurring range.

The effect of pH on the receiving water following initial dilution was estimated using Table 1 in the 301(h) TSD (*Estimated pH Values After Initial Dilution).*

EPA reviewed DMR data for pH between 2016 and 2021. The facility met the pH limits in the 2001 permit 100% of the time. The effluent pH ranged from 6.5 to 8.0, meeting the Alaska WQS for pH at the point of discharge (end of pipe). By utilizing the minimum measured effluent pH value of 6.5, an effluent alkalinity of 0.5 meq/L (suggested as reasonable for primary effluents with no industrial component on page 65 of the 301(h) TSD), a seawater temperature of 15^{o}C (95th percentile of trapping depth temperature was 12.5C), and an initial dilution of 100, the expected resulting pH range after initial dilution is 6.99 to 8.49 over an assumed seawater pH range of 7.00 to 8.50. This is within the range of 6.5 to 8.5, does not vary more than 0.2 pH units outside the naturally occuring range, and therefore meets the Alaska WQS for pH.

The proposed discharge is expected to comply with Alaska WQS for pH after initial mixing at the edge of the ZID.

2. Temperature

Alaska's WQS for temperature provide that the discharge may not cause the temperature of the receiving water to exceed 15°C and the discharge may not cause the weekly average temperature to increase more than 1°C. The maximum rate of change may not exceed 0.5°C per hour. Normal daily temperature cycles may not be altered in amplitude or frequency.

EPA reviewed surface water and DMR data from the facility to assess whether the modified discharge will comply with Alaska WQS for temperature. The maximum ocean temperature recorded at the trapping depth of the discharge during receiving water monitoring from 2003 to 2005 was 11.2°C, and the maximum recorded effluent temperature between 2016 and 2021 was 15.8°C. EPA conducted a mass balance analysis using these values and calculated a final receiving water temperature of 11.2°C after initial dilution. Based upon the above analysis the proposed discharge is expected to comply with Alaska WQS for temperature at the edge of the ZID.

3. Toxics

Alaska WQS for toxics for marine uses can be found in 18 AAC 70.020(b)(23) and the *Alaska Water Quality Criteria Manual for Toxics* (ADEC, 2008).

To assess whether the proposed discharge will comply with Alaska WQS for toxics after initial mixing, EPA reviewed DMR data collected between 2016 and 2021 and the results of two priority pollutant scans submitted with the 2006 permit application.

Several pollutants were reported above their respective detection limits. Using this data, EPA performed reasonable potential analyses using the numeric criteria in the *Alaska Water Quality Criteria Manual* (ADEC 2008) and the processes outlined in the *Technical Support Document for Water Quality-based Toxics Control* (USEPA 1991). No pollutants have the reasonable potential to cause or contribute to a violation of Alaska WQS at the edge of the ZID.

4. Bacteria

Alaska's WQS for bacteria are found at 18 AAC 17.020(b)(14).

Fecal Coliform

Alaska's most restrictive marine criterion for fecal coliform bacteria concentrations is in areas protected for the harvesting and use of raw mollusks and other aquatic life. The WQS specifies that the geometric mean of samples shall not exceed 14 MPN/100 mL, and that not more than 10 percent of the samples shall exceed:

- 43 MPN/100 mL for a five-tube decimal dilution test;
- 49 MPN/100 mL for a three-tube decimal dilution test;
- 28 MPN/100 mL for a twelve-tube single dilution test;
- 31 CFU/100 mL for a membrane filtration test.

This standard must be met at the edge of the ZID.

On June 21, 2001, ADEC provided a CWA Section 401 Certificate of Reasonable Assurance (401 Certification) that included a mixing zone defined as an arc of a circle with a 1600-meter radius, centered on the outfall going from one shoreline to the other extending on either side of the outfall line and over the diffuser, and extending from the marine bottom to the surface. In the 2001 permit, the number of fecal coliform bacteria in the primary treated effluent was not to exceed a 30-day average of 1.0 million FC per 100 mL and a daily limit of 1.5 million FC per 100 mL of sample. Outside this mixing zone, the fecal coliform concentrations were not to exceed a maximum of 14 FC/100 mL for a monthly average and 43 FC/100 mL for a daily maximum.

Haines WWTP DMR data from the past 5 years shows fecal coliform values ranges from 10,000—1,430,000 FC/100mL, with a 95th percentile of 1,140,500 FC/100mL and a geometric mean of 455,600 FC/100mL. Summary statistics of DMR data are provided in Table 6 below.

Table 6. Fecal Coliform DMR Summary Data (9/2016-9/2021)

	# of samples	Min	Max	95th Percentile	Average	Geomean
Fecal Coliform (FC/100mL)	40	10,000	1,430,000	1,140,500	596,925	455,600

The 2001 permit required the facility to conduct fecal coliform sampling at four receiving water locations and one shoreline sample within the mixing zone during January, May, August, and November for the life of the permit. The results of the facility's available fecal coliform sampling results are presented in Table *7* below.

Table 7. Fecal Coliform Statistics by Station (2016 - 2021)

	# of samples	Max (FC/100mL)	Average (FC/100mL)
Station 1	12	6	1.8
Station 2	12	11	1.3
Station 3	12	6	1.2
Station 4	12	117	14.3
Station 5	12	7	2
Station 1: Garbage Point, north edge of 1,600 m mixing zone Station 2: Hays Beach, 1600m south along shoreline from Station 1 Station 3: PC Beach, east edge of 1600m mixing zone, south from Station 2 Station 4: Last Hydrant, south edge of 1600m mixing zone Station 5: PC Dock, 300 meters from shoreline			

The maximum fecal coliform result of 117 FC/100mL occurred at Station 4 at the shoreline east of the diffuser at the east edge of the mixing zone. CWA Section 301(h)(9) requires 301(h) discharges to meet WQS and federal CWA Section 304(a) criteria at the edge of the ZID. The current 1,600 m mixing zone for fecal coliform is inconsistent with the statutory or regulatory definition of a ZID: *the region of initial mixing surrounding or adjacent to the outfall.* ADEC will not reauthorize the 1,600 m mixing zone for fecal coliform and the point of compliance for all bacteria limits is now the edge of the ZID. Consistent with CWA Section 301(h)(9) and 40 CFR 125.62, EPA used the 100:1 dilution achieved at the edge of the ZID to evaluate reasonable potential and assess compliance with CWA Section 301(h)(9) and 40 CFR 125.62.

Using effluent data from 2016 to 2021 and the same process and equations as those used for toxics, EPA conducted a reasonable potential analysis and determined fecal coliform has the reasonable potential to cause or contribute to a violation of Alaska WQS at the point of discharge. For more information on the effluent limits for fecal coliform, refer to the Fact Sheet.

The effluent limits developed for fecal coliform will be protective of Alaska WQS after initial mixing at the edge of the ZID and will satisfy the requirements of CWA Section 301(h)(9) and 40 CFR 125.63(a).

Enterococcus Bacteria

Enterococci bacteria are indicator organisms of harmful pathogens recommended by the EPA to protect primary contact recreation for marine waters. The EPA Beaches Environmental Assessment and Coastal Health Act (BEACH Act) requires states and territories with coastal recreation waters to adopt enterococci bacteria criteria into their WQS. EPA approved Alaska's WQS for enterococcus in 2017. The WQS at 18 AAC 70.020(b)(14)(B) for contact recreation specifies that the enterococci bacteria concentration shall not exceed 35 enterococci CFU/100mL, and not more than 10% of the samples may exceed a concentration of 130 enterococci CFU/100mL.

The 2001 permit does not contain an effluent limitation for enterococcus bacteria because there was no applicable enterococcus WQS in effect when the permit was issued in November 2001.

40 CFR 122.44(d)(1) requires EPA to account for existing controls on discharges when determining whether a discharge has the reasonable potential to cause or contribute to an excursion of state WQS. The WWTP does

not currently disinfect its effluent, resulting in the high bacterial loads observed in the available fecal coliform data. The 2001 permit did not require enterococcus monitoring, but it reasons that the high fecal coliform loads observed are also indicative of high loads of other pathogens commonly found in WWTP effluents, including enterococcus. With the available fecal coliform data and lack of disinfection capacity at the facility, EPA has determined there is reasonable potential for the discharge to cause or contribute to a violation of Alaska WQS for enterococcus.

The effluent limit developed for enterococcus will be protective of Alaska WQS after initial mixing at the edge of the ZID and will satisfy the requirements of CWA Section 301(h)(9) and 40 CFR 125.63(a).

D. Impact of the Discharge on Public Water Supplies [40 CFR 125.62(b)]

40 CFR 125.62(b) requires that the applicant's proposed discharge must allow for the attainment or maintenance of water quality that assures protection of public water supplies and must not interfere with the use of planned or existing public water supplies. According to the facility, there are no existing or planned public water supply intakes in the vicinity of the discharge. [3] Therefore, EPA concludes that the applicant's proposed discharge will have no effect on the protection of public water supplies and will not interfere with the use of planned or existing public water supplies.

E. Biological Impact of Discharge [40 CFR 125.62(c)]

40 CFR 125.62(c) requires that in addition to complying with applicable WQS, the proposed discharge must allow for the attainment or maintenance of water quality that assures the protection and propagation of a balanced indigenous population (BIP) of shellfish, fish, and wildlife. A BIP of shellfish, fish, and wildlife must exist immediately beyond the ZID and in all other areas beyond the ZID where marine life is actually or potentially affected by the applicant's discharge. In addition, conditions within or beyond the ZID must not cause or contribute to extreme adverse biological impacts, including, but not limited to, the destruction of distinctive habitats of limited distribution, the presence of disease epicenter, or the simulation of phytoplankton blooms which have adverse effects beyond the ZID, interfere with estuarine migratory pathways within the ZID, or result in the accumulation of toxic pollutants or pesticides at levels which exert adverse effects on the biota within the ZID. In accordance with the guidance for small dischargers in the 301(h) TSD, EPA has considered the following characteristics of the Haines WWTP discharge as indicators that there is a low potential for impact on the biota in the vicinity of the discharge: the location of the discharge is greater than 10m, the steady-state accumulation of suspended solids is less than 25 g/m^2, there are no distinctive habitats of limited distribution in the vicinity of the discharge, there is a low potential for impact on local fisheries, and less than 0.1% of the flow is from industrial users. Toxic conditions are not expected because the effluent achieves rapid mixing within minutes of discharge, minimizing the potential exposure area. There is no evidence that the ZID is a disease epicenter, interfering with estuarine migratory pathways, or resulting in the accumulation of toxics at levels exerting adverse effects on biota within the ZID.

Further, EPA also considered the results of biological monitoring from the 2001 permit and other available information to evaluate the potential for the discharge to cause or contribute to significant biological impacts. Biological monitoring required in the 2001 permit consisted of a benthic survey and sediment analysis for total

[3] Communication with Dennis Durr, March 2022

volatile solids (TVS) within the ZID, at a reference location, and within 5m beyond the ZID boundary. Based on the results of the TVS analysis of sediment presented in Appendix F, it does not appear that excess organic sediment is accumulating around the outfall as compared to stations at the ZID boundary and reference sites. The results of the TVS analysis are presented in Appendix F. Based on visual observations of the benthic infauna collected in sediment samples, it does not appear that the Haines WWTP discharge is causing significant changes in the benthic community structure. The Biological Monitoring Program from the 2001 permit is being retained in the draft permit.

Additionally, there have been no known cases of mass mortalities of fish or invertebrates, no increased incidence of disease in marine organisms, and no other known cases of adverse biological impacts. Portage Cove provides shelter for molting crabs and schooling juvenile salmonoids, but there is no indication that these are affected by the discharge. The small volume of the discharge, the small area of the ZID relative to the width of Lynn Canal, the mobility of juvenile salmonids, and the results of the biological monitoring indicate that the discharge will have not cause or contribute to significant biological impacts.

Considering the above evidence, EPA has concluded that the discharge allows for the attainment or maintenance of water quality that assures the protection and propagation of a BIP of shellfish, fish, and wildlife, and will not cause or contribute to adverse biological impacts.

F. Impact of Discharge on Recreational Activities [40 CFR 125.62(d)]

Under 40 CFR 125.62(d), the applicant's discharge must allow for the attainment or maintenance of water quality that allows for recreational activities beyond the ZID, including, without limitation, swimming, diving, boating, fishing, and picnicking, and sports activities along shorelines and beaches. There must be no federal, state, or local restrictions on recreational activities within the vicinity of the applicant's outfall unless such restrictions are routinely imposed around sewage outfalls.

The applicant stated that no impacts on recreational activities were expected due to the proposed discharge.[4] Swimming is not common in Portage Cove due to the cold water temperatures and diving is expected to be rare due to the turbid nature of the receiving water. The permittee also stated that sport fishing, kayaking, and boating occur in the receiving water. No adverse effects have been reported.

The 2001 permit required signs to be placed on the shoreline near the 1600-meter fecal coliform mixing zone and the outfall line that state primary treated domestic wastewater is being discharged, 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. EPA has retained the requirement to place these signs on the shoreline and outfall line in the draft permit until the final fecal coliform and enterococcus limits are maintained.

The applicant has demonstrated that the proposed discharge meets the requirements to allow for the attainment or maintenance of water quality which allows for recreational activities beyond the ZID.

[4] Communication with Dennis Durr, May 4 2022

G. Establishment of Monitoring Programs [CWA 301(h)(3), 40 CFR 125.63]

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 proposed discharge on the marine biota, demonstrate compliance with applicable WQS, 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 as may be required by EPA.

1. Influent/Effluent Monitoring Program [40 CFR 125.63(d)]

40 CFR 125.63(d) requires an effluent monitoring program and the applicant proposes continuation of the current monitoring program. In addition to the 301(h) specific monitoring requirements, Section 308 of the CWA, and 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. Throughout the previous permit term (and the administratively continued period), the applicant submitted effluent monitoring data as required by the 2001 permit.

Summary statistics of the effluent data submitted by the permittee between 2016 and 2021 is presented in Appendix C.

The draft permit retains largely the same effluent and influent monitoring requirements and includes the new requirement to monitor the effluent for enterococcus and per-and polyfluoroalkyl substances, and increases monitoring frequency for BOD_5, fecal coliform, and copper. Consistent with 40 CFR 125.66, the draft permit also includes a new requirement for the permittee to perform an analysis of their effluent for all toxics and pesticides, identified in 40 CFR 401.15, twice during the term of the permit, once during the wet season and once during the dry season.

2. Receiving Water Quality Monitoring Program [40 CFR 125.63(c)]

40 CFR 125.63(c) requires that the receiving water quality monitoring program must provide data adequate to evaluate compliance with applicable WQS. The applicant proposes continuation of the current receiving water monitoring program. As is the case of effluent monitoring, NPDES permits include receiving water monitoring requirements to allow for compliance assessment, and to determine if additional effluent limitations and/or monitoring requirements are necessary in future permitting actions.

EPA is retaining most of the receiving water monitoring program from the 2001 permit in the draft permit. Changes to the receiving water monitoring program include the addition of enterococcus to the suite of parameters analyzed and the movement of the ZID boundary sites from the edge of the 2001 mixing zone at 1600 meters to the edge of the ZID in the draft permit at 50 feet. Sampling at the edge of the 1600-meter mixing zone is no longer required because the 1600-meter mixing zone is not being reauthorized by ADEC and the point of compliance for all parameters is now the edge of the ZID, which is 50 feet from the outfall.

3. Biological Monitoring Program [40 CFR 125.63(b)]

40 CFR 125.63(b) requires a permittee to implement a biological monitoring program that provides data adequate to evaluate the impact of the applicant's discharge on the marine biota. Such a program should, at a minimum, allow for evaluation of any ecosystems impacts; any changes in the amount of organic material in the seafloor sediment; any changes to benthic communities; and the effectiveness/bases for permit conditions.

The Biological Monitoring Program in the 2001 permit consisted of a benthic survey and sediment analysis for total volatile solids (TVS) within the ZID, at a reference location, and within 5 m beyond the ZID boundary. Based on the results of the TVS analysis of sediment, it does not appear that excess organic sediment is accumulating around the outfall as compared to stations at the ZID Boundary and reference sites. Based on visual observations of the benthic infauna collected in sediment samples, it does not appear that the Haines outfall discharge is causing significant changes in the benthic community structure. The Biological Monitoring Program from the 2001 permit is being retained in the draft permit.

H. Effect of Discharge on Other Point and Nonpoint Sources [CWA 301(h)(4), 40 CFR 125.64]

Under 40 CFR 125.64, 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 applicant reports that the proposed discharge would not place any additional treatment requirements on point or nonpoint sources. Pursuant to 40 CFR 125.64(b), the applicant is required to submit a determination signed by the State of Alaska indicating whether the applicant's discharge will result in an additional treatment pollution control, or other requirement on any other point or nonpoint sources. The State determination must include a discussion of the basis for its conclusion. EPA cannot take final action on the 301(h)-modified permit until it receives this determination. EPA expects that this determination will be included with ADEC's 401 certification.

I. Urban Area Pretreatment Program [CWA 301(h)(6), 40 CFR 125.65]

Under 40 CFR 125.65, dischargers serving a population greater than 50,000 are required to have a pretreatment program. As previously discussed, the Haines WWTP serves a population of approximately 1,800 people, so this provision is not applicable to this analysis.

J. Industrial and Nonindustrial Sources and Toxics Control [CWA 301(h)(7), 40 CFR 125.66]

1. Chemical Analysis and Toxic Pollutant Source Identification [40 CFR 125.66(a) and (b)]

Under 40 125.66(a) and (b), applicants are required to perform chemical testing for toxic pollutants and pesticides and identify the source of any parameters detected.

As previously discussed, the permittee conducted two toxics pollutant scans in 2006, the results of which EPA used in development of the draft permit. In 2022, the permittee provided an updated certification that there are no known sources of toxic pollutants and no known industrial sources of toxics into the treatment system.

Pursuant to 40 CFR 125.66, the draft permit requires submittal of two updated toxics and pesticides scans and an industrial user survey at the time of permit reapplication.

2. Industrial Pretreatment Program [40 CFR 125.66(c)]

40 CFR 125.66(c) requires that applicants that have known or suspected industrial sources of toxic pollutants shall have an approved pretreatment program in accordance with the requirements of 40 CFR Part 403 (Pretreatment Regulations). This requirement shall not apply to any applicant which has no known or suspected industrial sources of toxic pollutants or pesticides and so certifies to EPA. Because the facility certified that there are no known industrial sources of toxic pollutants on April 8, 2022, under 40 CFR 125.66(c)(2), the facility is not required to have an approved pretreatment program.

Pursuant to 40 CFR 126.66, the draft permit requires submittal of an updated industrial user survey at the time of permit reapplication.

3. Nonindustrial Source Control Program [40 CFR 125.66(d)]

40 CFR 125.66(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. The applicant must also develop and implement additional nonindustrial source control programs on the earliest possible schedule. The requirement to develop and implement additional nonindustrial source control programs does not apply to a small Section 301(h) applicant that certifies there are no known or suspected water quality, sediment accumulation, or biological problems related to toxic pollutants or pesticides in its discharge.

The applicant provided this certification to EPA on April 8, 2022, as well as documentation that a public education program meeting the requirements of 40 CFR 125.66(d)(1) has been developed and implemented. The applicant publishes a biannual Citizens Advisory notice in the local newspaper and an annual Household Hazardous Waste bulletin in the newspaper and online. Therefore, EPA concludes that Haines has satisfied the requirements for nonindustrial source control.

K. Effluent Volume and Amount of Pollutants Discharged [40 CFR 125.67]

Under 40 CFR 125.67, which implements Section 301(h)(7) of the Act, the applicant's proposed 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 applicant has applied on the basis of the current discharge and does not propose any new or substantially increased discharges of TSS or BOD_5, the two parameters for which the facility has requested a waiver.

L. COMPLIANCE WITH OTHER APPLICABLE LAWS [40 CFR 125.59]

Under 40 CFR 125.59(b)(3), a 301(h)-modified permit may not be issued if such issuance would conflict with applicable provisions of state, local, or other federal laws or executive orders. As part of the application renewal, the applicant must demonstrate compliance with all applicable Alaska and federal laws and regulations, and executive orders, including the Coastal Zone Management Act, Marine Protection Research and Sanctuaries Act, the Endangered Species Act, and the Magnuson-Stevens Fishery Conservation and Management Act.

1. Coastal Zone Management Act

Alaska withdrew from the voluntary National Coastal Zone Management Program on July 1, 2011 (NOAA 2019c); therefore, this requirement is not applicable.

2. Marine Protection, Research, and Sanctuaries Act

Under 40 CFR 125.59(b)(3), no section 301(h) modified permit shall be issued if such issuance would conflict with Title III of the Marine Protection, Research, and Sanctuaries Act (MPRSA), 16 USC 1431 *et seq.*, which authorizes the Secretary of Commerce (i.e., NOAA) to designate and protect areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational or esthetic qualities as national marine sanctuaries. In the U.S., there are 14 national marine sanctuaries and two marine national monuments, none of which are in Alaska (NOAA 2019d).

The draft permit is therefore expected to comply with Title III of the MPRSA.

3. Endangered Species Act

Under 40 CFR 125.59(b)(3), no section 301(h) modified permit shall be issued if such issuance would conflict with the Endangered Species Act (ESA), 16 USC 1531 *et seq.* The ESA requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or the U.S. Fish and Wildlife Service (USFWS) (collectively, "the Services") if any activity proposed to be permitted, funded, or undertaken could beneficially or adversely affect any threatened or endangered species (ESA-listed species) or such species designated critical habitat.

EPA has prepared a biological evaluation that identified the following species and/or critical habitat in the vicinity of the discharge using the following web-based applications. All lists will be verified with the Services.

- NOAA's Alaska Protected Resource Division Species Distribution Mapper: (https://alaskafisheries.noaa.gov/portal/apps/webappviewer/index.html?id=0c4a81f75310491d9010c17b6c081c81)
    - Western Distinct Population Segment (Western DPS or WDPS) Steller sea lions
- USFWS' Information for Planning and Consultation (IPaC): https://ecos.fws.gov/ipac/
    - None

EPA has determined the draft permit may affect these ESA-listed species and/or their critical habitats and, pursuant to Section 7 of the ESA, will consult with the NMFS prior to taking final action.

4. Magnuson-Stevens Fishery Conservation and Management Act

Under 40 CFR 125.59(b)(3), no section 301(h) modified permit shall be issued if such issuance would conflict with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), 16 USC 1801 *et seq*., which protects against adverse impacts to Essential Fish Habitat (EFH).The MSFCMA 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 EFH as defined by the MSFCMA. The EFH regulations define an *adverse effect* as any impact that 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.

EPA will prepare an EFH Assessment to determine the impacts of the discharge on EFH. If the EFH assessment concludes there will be adverse impacts, EPA will consult with NMFS prior to final permit action.

M. STATE DETERMINATION AND CONCURRENCE [40 CFR 125.61(b)(2); 40 CFR 125.64(d)]

Under 40 CFR 125.61(b)(2), the applicant must provide a determination signed by the state or interstate agency(s) authorized to provide certification under 40 CFR 124.53 and 124.54 that the proposed discharge will comply with applicable provisions of state law, including WQS. This determination must include a discussion of the basis for the conclusion reached. Furthermore, pursuant to 40 CFR 124.53 and 124.54, the state must either grant a certification pursuant to Section 401(a)(1) of the CWA or waive this certification before EPA may issue a 301(h)-modified permit. The applicant did not provide this certification at the time of application. EPA will request 401-certification from ADEC during the public notice period of the draft permit.

40 CFR 125.64(d) requires applicants to provide a determination from the state or interstate agency(s) having authority to establish wasteload allocations indicating whether the applicant's discharge will result in an additional treatment pollution control, or other requirement on any other point or nonpoint sources. The state determination shall include a discussion of the basis for its conclusion. The applicant did not submit this determination with their application. EPA will request that this determination be included in ADEC's 401-certification of the permit.

9) References

ADEC. 2003. *18 AAC 70, Water Quality Standards, As Amended Through June 26, 2003.* Approved by the EPA in 2004. Available at: https://www.epa.gov/wqs-tech/water-quality-standards-regulations-alaska.

ADEC. 2008. *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances*. Available at: https://www.epa.gov/sites/default/files/2014-12/documents/ak-toxics-manual.pdf

USEPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* EPA/505/2-90-001.

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

NOAA. 2019a. High and Low Water Predictions West Coast of North and South America Including the Hawaiian Islands. Retrieved at https://tidesandcurrents.noaa.gov/tide_predictions.html

NOAA. 2019b. Tidal Current Tables 2020 Pacific Coast of North America and Asia. Retrieved at https://tidesandcurrents.noaa.gov/historic_tide_tables.html.

NOAA. 2019c. *Coastal Zone Management Programs*. Web. https://coast.noaa.gov/czm/mystate/.

NOAA. 2019d. *National Marine Sanctuaries*. Web. https://sanctuaries.noaa.gov/.

10) Appendices

A. Facility and Outfall Locations

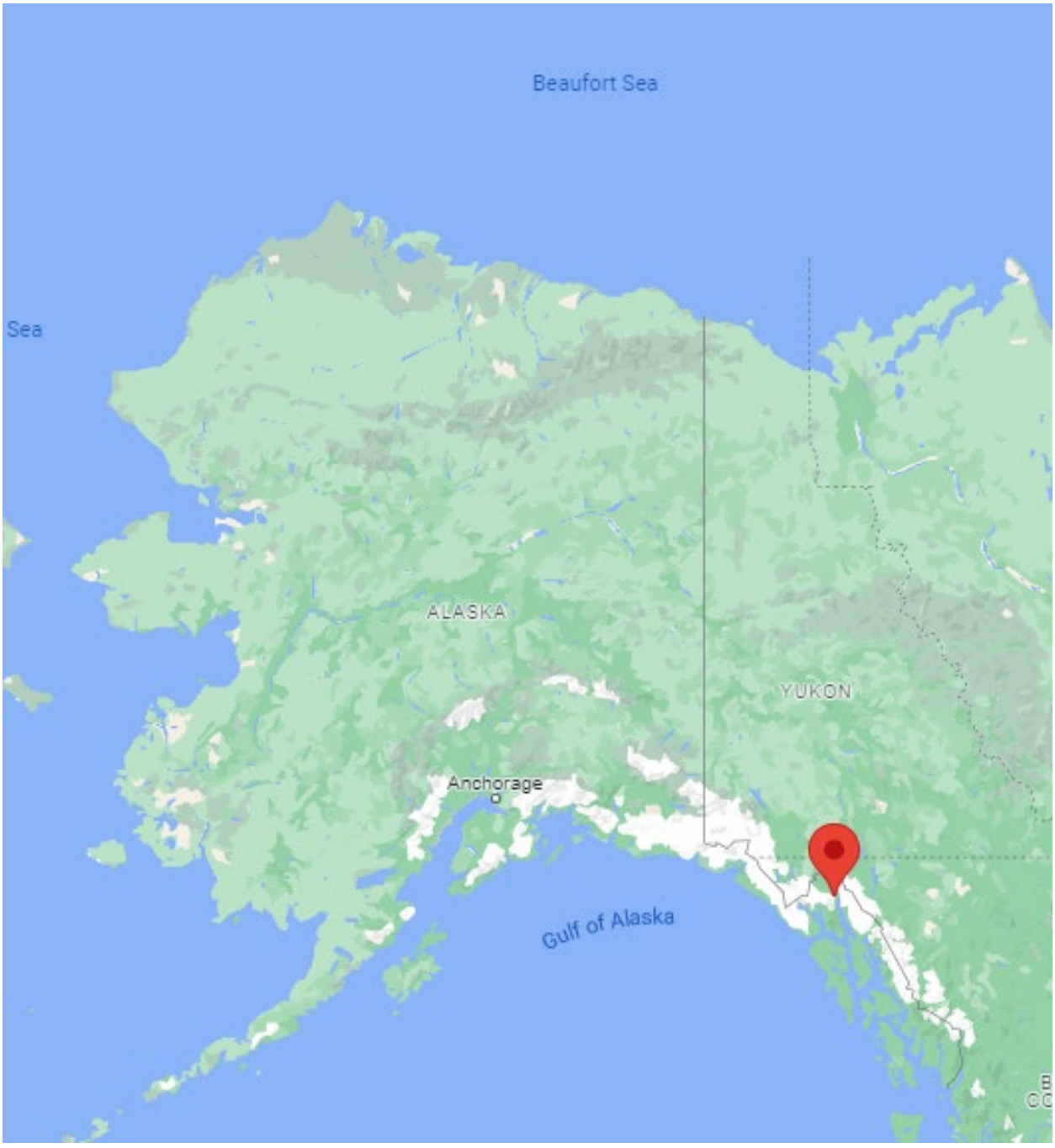

Figure 5. Facility Location in Alaska

Figure 6. Facility Location Small Scale

B. Facility Figures and Process Flow Diagram

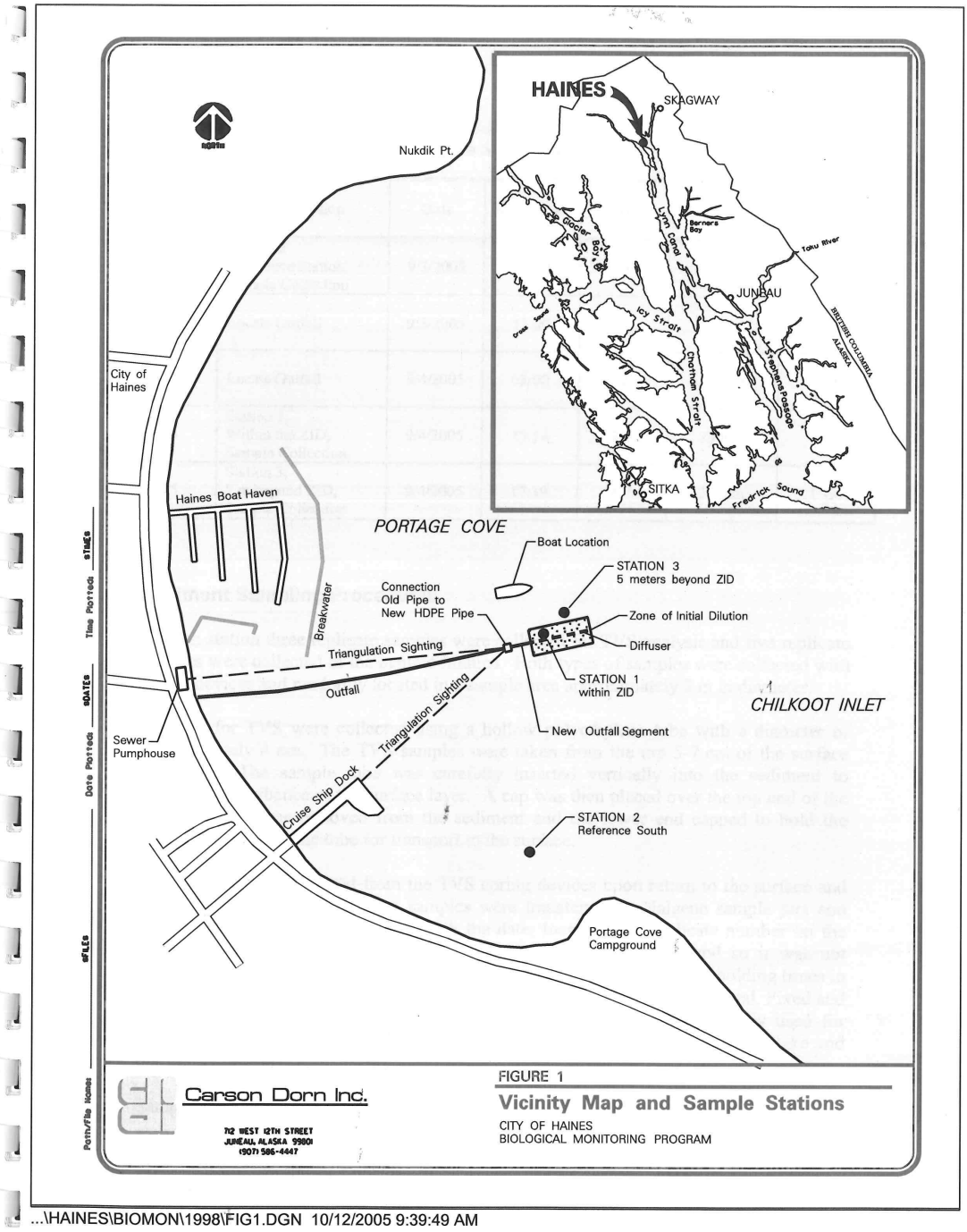

Figure 7. Haines WWTP Map and Sample Stations

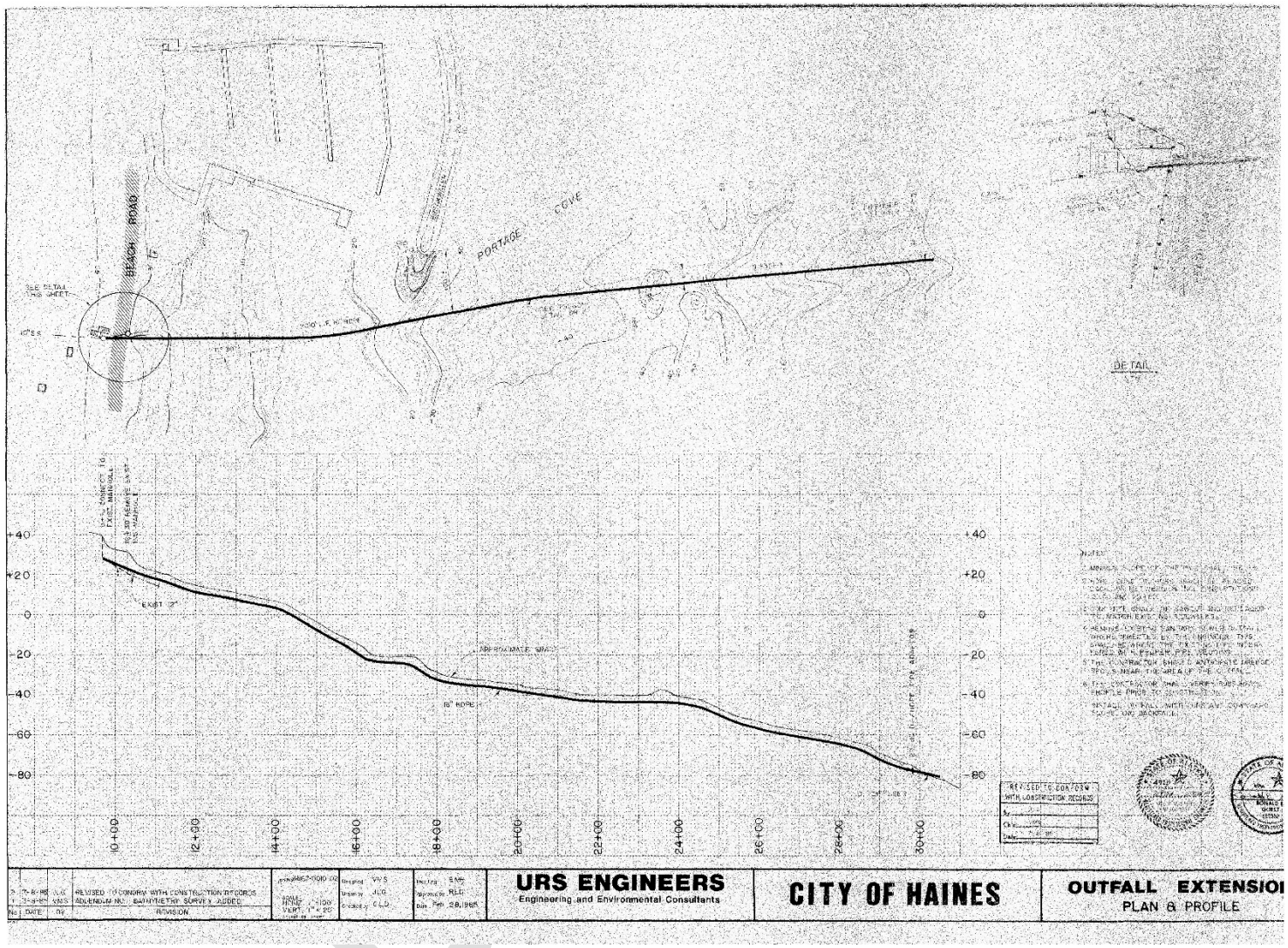

Figure 8. Haines Borough Sewer Outfall Plan View and Cross Section

267 Cubic Yards of native sand and gravel in a 4-foot deep by 4-foot wide by 450 linear foot ditch covering 0.04 acres was removed and replaced after installation of sewer outfall pipe. The project was completed in 1985.

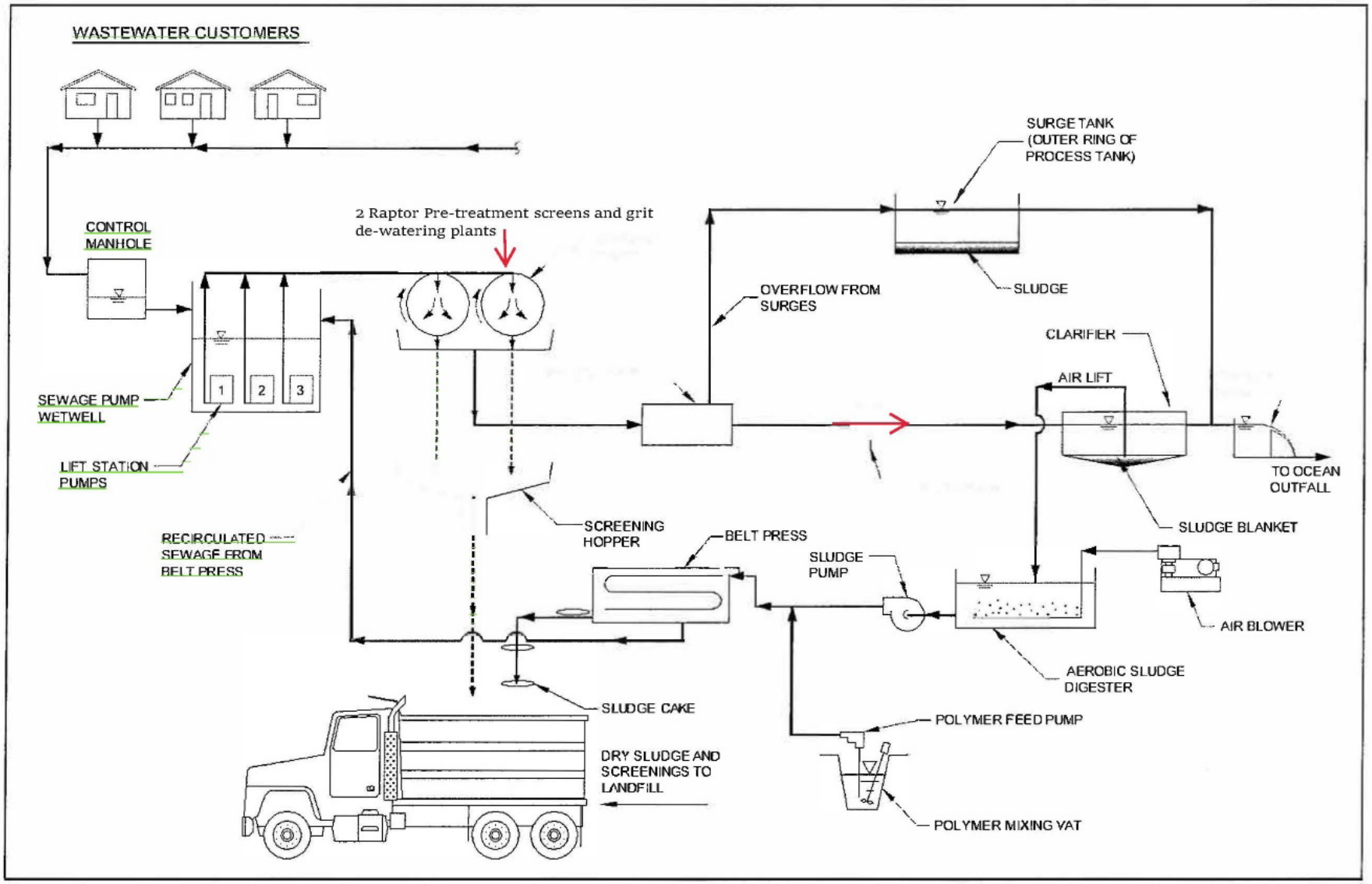

Figure 9. Primary Settling Process Schematic

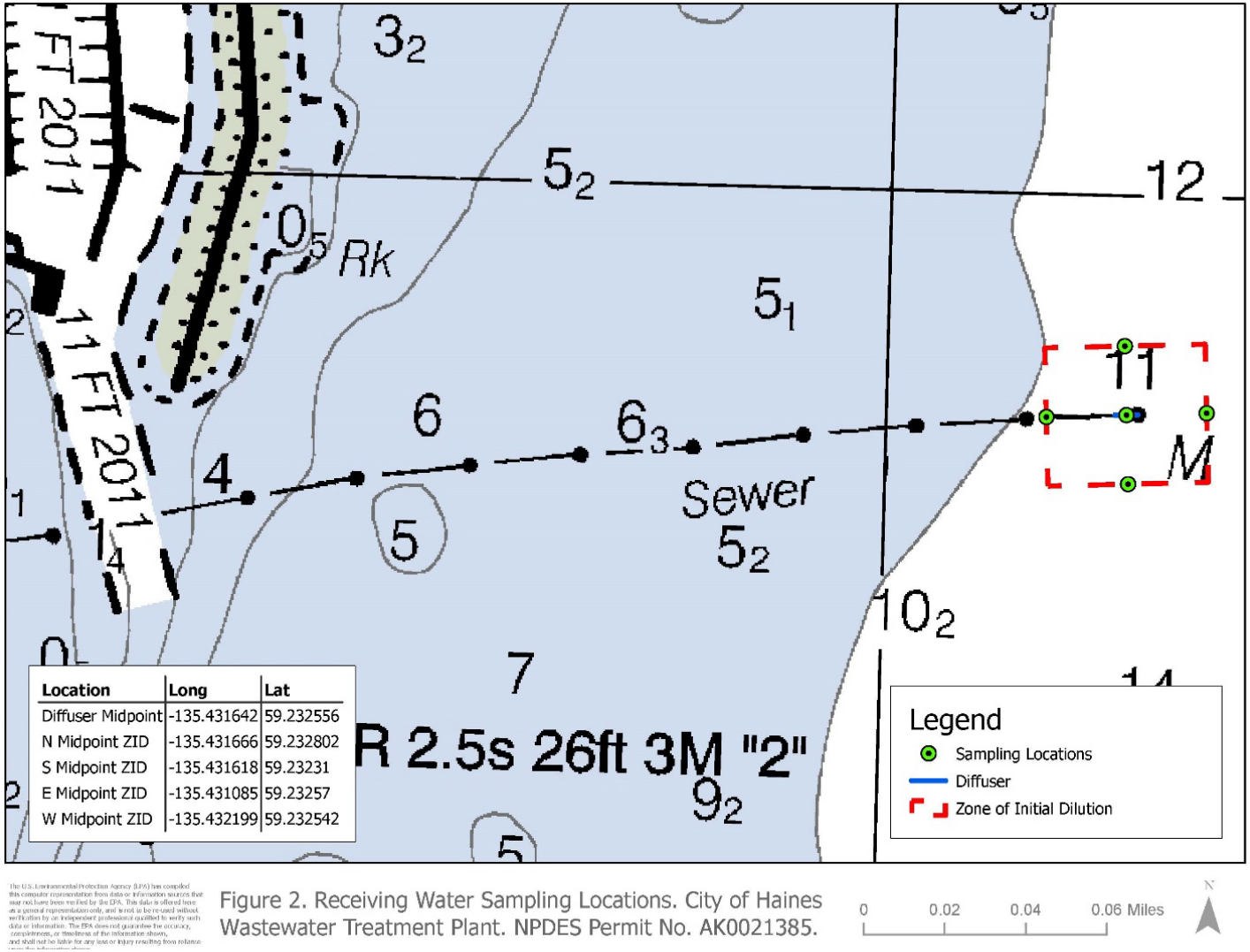

Figure 2. Receiving Water Sampling Locations. City of Haines Wastewater Treatment Plant. NPDES Permit No. AK0021385.

Figure 10. Receiving Water Sampling Locations Small Scale

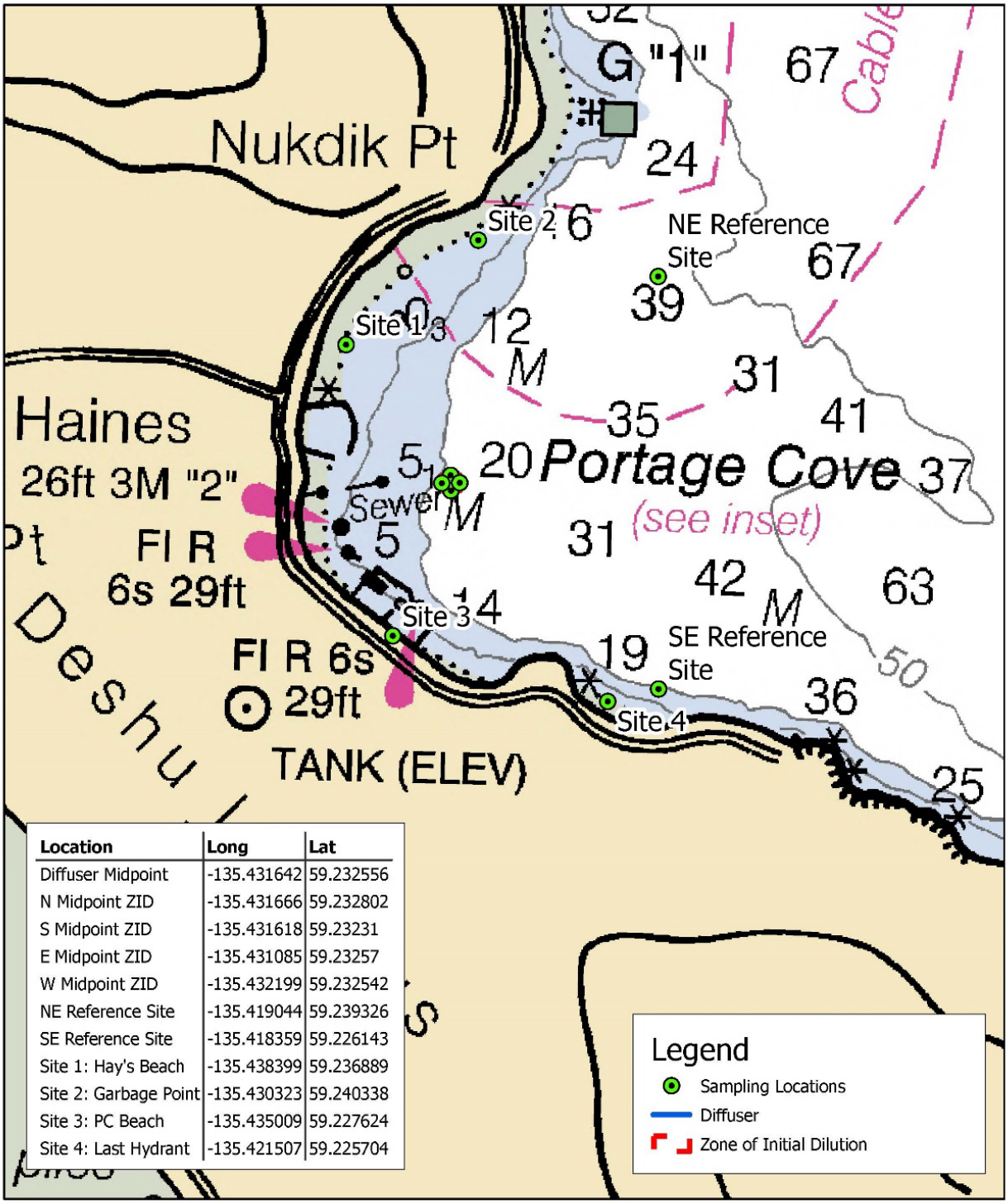

Figure 1. Receiving Water Sampling Locations. City of Haines Wastewater Treatment Plant. NPDES Permit No. AK0021385.

Figure 11. Receiving Water Sampling Locations Large Scale

C. Discharge Monitoring Data (2016-2021)

Table 8. Discharge Monitoring Data (2016-2021)

Parameter	Flow		BOD, 5 day, 20 deg C (mg/L)	BOD, 5 day, 20 deg C (mg/L)		BOD, 5 day, 20 deg C (lbs/day)		BOD % removal	TSS (mg/L)	TSS (lbs/day)		TSS % removal
Statistical Base	MX DAY	MO AVE	Influent	MO AVE	MX DAY	MO AVE	MX DAY	MO AVE	Influent	MO AVE	MX DAY	MO AVE
Sep-16	0.72	0.3857	133	72	72	231	432	46	81	157	260	48
Oct-16	0.45	0.229	158	44	44	84	165	72	56	63	210	75
Nov-16	0.762	0.326	82	48	48	130	305	42	77	111	489	50
Dec-16	0.618	0.326	60	40	40	109	109	32	32	68	87	48
Jan-17	1.2	0.456	88	45	45	170	450	45	32	83	320	66
Feb-17	1.101	0.3	78	52	52	130	477	33	35	77	321	55
Mar-17	0.408	0.218	140	60	60	109	204	60	35	40	119	80
Apr-17	0.45	0.255	74	39	39	83	146	48	93	102	198	53
May-17	0.501	0.219	124	74	74	135	309	41	58	42	242	63
Jun-17	0.405	0.202	246	132	132	225	445	46	106	153	566	61
Jul-17	0.447	0.2	280	150	150	250	559	46	124	145	462	70
Aug-17	0.318	0.199	368	188	188	312	528	49	148	153	392	61
Sep-17	0.669	0.302	164	67	67	169	374	60	59	121	329	90
Oct-17	0.45	0.262	226	78	78	170	189	66	118	70	443	61
Nov-17	0.453	0.192	246	65	65	104	246	73	59	74	223	77
Dec-17	0.825	0.391	100	64	64	209	440	35	33	78	227	80
Jan-18	0.486	0.288	140	75	75	180	304	47	46	74	186	77
Feb-18	0.369	0.184	329	109	109	167	335	67	60	70	185	84
Mar-18	0.552	0.266	68	47	47	104	216	30	55	97	187	67
Apr-18	0.424	0.263	113	7.3	7.3	16	23	93	54	68	167	79
May-18	0.437	0.257	105	80	87	171	313	25	135	176	260	31
Jun-18	0.258	0.202	181	117	117	197	251	36	79	108	170	66
Jul-18	0.238	0.182	200	106	106	161	209	47	203	176	403	64
Aug-18	0.287	0.187	233	111	111	172	266	52	81	172	194	76
Sep-18	0.213	0.167	244	154	154	214	274	37	82	70	146	85
Oct-18	0.77	0.313	174	95	95	248	610	45	92	144	591	55
Nov-18	0.67	0.253	111	58	58	122	292	58	55	84	277	62
Dec-18	0.762	0.342	98	15	15	43	95	84	128	165	813	34
Jan-19	0.698	0.307	76	51	51	131	297	33	87	90	506	53
Feb-19	0.435	0.195	124	33.4	33.4	55	121	72	76	74	276	60
Mar-19	0.952	0.319	52	21.5	21.5	57.2	166	58	52	86	423	79
Apr-19	0.449	0.269	191	128	128	287	479	33	41	83	153	59
May-19	0.36	0.204	197	74	74	126	222	62	82	99	174	61
Jun-19	0.266	0.192	305	173	173	277	383	43	106	110	318	66
Jul-19	0.25	0.184	337	222	222	340	462	34	126	157	263	71
Aug-19	0.237	0.171	262	192.5	192.5	275	294	27	208	173	328	39
Sep-19	0.322	0.192	434	245	245	345	345	44	244	175	350	44
Oct-19	0.61	0.272	145	96.5	96.5	213	213	33	122	148	255	43
Nov-19	0.771	0.376	80	41	45	125	137	40	108	180	287	42
Dec-19	0.986	0.414	73	36	36	74	74	50	36	91	92	63
Jan-20	0.789	0.328	67	42	42	118	118	37	76	160	232	65
Feb-20	0.724	0.401	61	29	29	96	96	53	52	125	185	73
Mar-20	0.68	0.359	69	47	47	218	218	31	54	142	159	73
Apr-20	0.507	0.357	125	49	49	120	120	49	59	129	162	75
May-20	0.39	0.222	232.9	80.1	80.1	148	148	66	172	123	261	81
Jun-20	0.231	0.17	205.7	98.4	98.4	136	136	52	128	91	178	63
Jul-20	0.275	0.178	404	97	97	123	123	76	104	96	132	80
Aug-20	0.283	0.211	354	130	130	162	162	63	64	67	80	76
Sep-20	0.405	0.174	189	89	89	116	116	53	140	157	207	57
Oct-20	0.413	0.231	213	113	113	175	175	47	108	110	185	68
Nov-20	0.547	0.234	173	67	67	108	108	61	66	72	109	70
Dec-20	1.65	0.658	62	42	42	157	157	32	59	124	165	62
Jan-21	1.07	0.458	100	46	46	171	171	54	35	131	214	77
Feb-21	0.3	0.236	116	80	80	159	159	31	52	83	102	66
Mar-21	0.486	0.265	165	110	110	258	258	33	105	52	173	56
Apr-21	0.486	0.265	165	110	110	257	257	33	105	122	173	56
May-21	0.449	0.233	274	84	84	138	138	84	67	61	123	78
Jun-21	0.253	0.22	193	103	103	155	155	47	49	40	74	73
Jul-21	0.222	0.163	245	165	165	263	263	32	126	140	162	71
Aug-21	0.286	0.174	149	44	44	58	58	70	156	96	200	78
Sep-21	0.578	0.25	114	70	70	96	96	41	63	117	117	59
Average	0.5327627	0.264983	174.8724138	86.86	87.05	163.917	242.91	48.7759	88.2542	108.898	251.102	64.949153
Minimum	0.213	0.163	52	7.3	7.3	16	23	25	32	40	74	31
Maximum	1.65	0.658	434	245	245	345	610	93	244	180	813	90
Count	59	59	58	58	58	58	58	58	59	59	59	59
Std Dev	0.2809443	0.091609	94.73749104	51.11	51.04	73.9836	136.96	15.8037	46.609	39.3476	143.284	13.011167
CV	0.5273348	0.345717	0.541752064	0.588	0.586	0.45135	0.5638	0.32401	0.52812	0.36132	0.57062	0.2003285
95th Percentile	1.0731	0.4182	356.1	188.7	188.7	290.75	486.35	77.2	175.1	175.1	512	81.3
5th Percentile	0.2364	0.1709	61.85	27.88	27.88	56.87	91.85	30.85	34.8	51	91.5	41.7
90th percentile	0.8504	0.379	312.2	157.3	157.3	266.6	453.6	70.6	141.6	166.4	446.8	80
50th percentile	0.45	0.25	164.5	76.5	76.5	158	214.5	47	77	102	200	66

Parameter	pH (s.u.)		Fecal Coliform (#100/mL)		Copper (ug/L)		Dissolved Oxygen (mg/L)		Temperature (deg C)
Statistical Base	max	min	DAILY MAX	MO GEO	DAILY MAX	MO AVG	MAX	MIN	MO AVG
Sep-16	7.58	6.99	470,000.00	470,000.00	3	3.00	4.04	2.55	13.6
Oct-16	7.72	6.98					6.78	5.23	11.8
Nov-16	7.9	7.1	270,000.00	243,721.00			9.9	6.7	9.45
Dec-16	7.8	7.4			4	4.00	10.7	6.7	7.6
Jan-17	7.96	7.34	270,000.00	270,000.00			11.33	8.08	5.85
Feb-17	7.36	6.88					11.47	9.47	5.95
Mar-17	7.9	7	660,000.00	544,977.00	2	2.00	9.3	8.9	5.6
Apr-17	7.9	7.14					9.4	8	6.7
May-17	7.37	7.31	340,000.00	314,006.00			8.61	3.77	10.5
Jun-17	7.4	7.2	1,030,000.00	836,899.00	3	3.00	9.1	2.7	11.6
Jul-17	7.38	7.28	1,150,000.00	976,985.00			2.93	2.32	12.6
Aug-17	7.39	7.19	600,000.00	579,655.00			3.72	2.95	14
Sep-17	7.2	7.1	270,000.00	270,000.00	4	4.00	4.31	2.08	13.9
Oct-17	7.1	7					5.62	2.13	12.4
Nov-17	7.14	7.06	180,000.00	179,722.00			5.28	2.31	10.4
Dec-17	7.13	7.02			4	4.00	9.72	8.05	8.3
Jan-18	7.2	7.3	790,000.00	540,648.00			9.3	7.7	7.3
Feb-18	7.32	7.19					9.66	6.94	7.9
Mar-18	7.28	7.04	300,000.00	256,905.00	3	3.00	9.45	7.11	7.5
Apr-18	7.24	7.14					9.32	7.2	7.1
May-18	7.1	7	210,000.00	177,482.00			6.6	5.3	8.2
Jun-18	7.22	7.13	530,000.00	519,903.00	2	2.00	3.9	3.51	12.1
Jul-18	7.32	6.89	920,000.00	830,662.00			2.2	2.1	14.8
Aug-18	7.45	7.08	1,100,000.00	932,201.00			4.62	2.07	14.8
Sep-18	7.33	7.19	210,000.00	210,000.00	4	4.00	3.9	2.9	14
Oct-18	7.52	7.17					9.6	3.68	13.5
Nov-18	7.5	6.7	960,000.00	924,337.00			16.5	9.8	11
Dec-18	7.19	7.07			3	3.00	13.2	8.4	9
Jan-19	7.2	7.1	345,000.00	321,714.00			9.17	7.47	8.5
Feb-19	7.32	7.1					14.6	7.8	7.9
Mar-19	7.1	6.8	360,000.00	344,674.00	0	0.00	11.4	7.3	8.15
Apr-19	7.5	6.9					9.6	9.3	8.1
May-19	7.2	6.83	590,000.00	590,000.00			6.58	3.98	11.125
Jun-19	7.22	6.74	790,000.00	519,904.00	23	23.00	4.33	4.16	9.175
Jul-19	7.19	6.94	980,000.00	980,000.00			4.4	2.45	15.35
Aug-19	7.25	6.78	850,000.00	819,451.00			4.62	2.83	15.6
Sep-19	6.97	6.91	610,000.00	610,000.00	0	0.00	6.91	2.12	15.8
Oct-19	7.17	6.85					8.24	4.27	12.92
Nov-19	7.15	6.83	520,000.00	420,476.00			10.25	8.33	11.3
Dec-19	7.12	6.56			0	0.00	12.13	7.64	8.85
Jan-20	7.44	7.02	10,000.00	14,142.00			10.02	8.72	8.13
Feb-20	7.37	6.51					10.39	9.43	8.34
Mar-20	7.31	7.11	750,000.00	739,932.00	0	0.00	11.4	9.05	8.95
Apr-20	7.31	7.08					10.9	8.88	7.3
May-20	7.21	7.09	42,000.00	388,844.00			9.55	6.52	11.13
Jun-20	7.23	7.02	980,000.00	980,000.00	0	0.00	4.02	3.62	14
Jul-20	7.17	7.02	710,000.00	604,618.00			4.1	2.15	14.55
Aug-20	7.22	7.08	760,000.00	616,441.00			5.02	2.53	14.4
Sep-20	7.16	7.09	670,000.00	542,955.00			8.71	2.96	13.7
Oct-20	7.22	7.11					7.7	3.6	12.15
Nov-20	7.45	7.14	170,000.00	92,195.00			8.66	7.23	10.8
Dec-20	7.16	6.98			0	0.00	13.33	11.18	7
Jan-21	7.15	6.74	360,000.00	317,490.00			11.92	10.43	8.1
Feb-21	7.04	6.86					10.64	10.39	9.2
Mar-21	7.14	6.86	500,000.00	374,166.00	0	0.00	11.2	8.51	7.05
Apr-21	7.14	6.86					11.2	8.51	7.05
May-21	7.23	6.98	510,000.00	468,295.00			8.68	5.33	7.09
Jun-21	7.39	7.05	810,000.00	661,362.00	30	30.00	7.33	4.31	13
Jul-21	7.34	7.05	1,140,000.00	900,000.00			4.4	3.03	14.5
Aug-21	7.28	7	1,430,000.00	770,324.00			6.69	2.42	14.52
Sep-21	6.99	6.89	200,000.00	200,000.00	0	0.00	9.25	3.48	13
Average	7.3041	7.014	596,925.00	522,127.15	4.32	4.32	8.42	5.78	10.49
Minimum	6.97	6.51	10,000.00	14,142.00	0.00	0.00	2.20	2.07	5.60
Maximum	7.96	7.4	1,430,000.00	980,000.00	30.00	30.00	16.50	11.18	15.80
Count	59	59	40.00	40.00	19.00	19.00	59.00	59.00	59.00
Std Dev	0.2186	0.178	345,851.26	273,040.15	8.08	8.08	3.15	2.82	3.01
CV	0.0299	0.025	0.58	0.52	1.87	1.87	0.37	0.49	0.29
95th Percentile	7.9	7.301	1,140,500.00	977,135.75	23.70	23.70	13.21	9.86	14.86
5th Percentile	7.094	6.736	163,600.00	173,217.65	0.00	0.00	3.88	2.12	6.63
90th percentile	7.504	7.192	1,037,000.00	925,123.40	7.80	7.80	11.56	9.33	14.53
50th percentile	7.23	7.04	595,000.00	530,276.00	2.00	2.00	9.25	6.52	10.40

D. Alaska WQS

Table 9. Alaska WQS for Turbidity for Marine Uses

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(24) TURBIDITY, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	May not exceed 25 nephelometric turbidity units (NTU).
(A) Water Supply (ii) seafood processing	May not interfere with disinfection.
(A) Water Supply (iii) industrial	May not cause detrimental effects on established levels of water supply treatment.
(B) Water Recreation (i) contact recreation	Same as (24)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (24)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	May not reduce the depth of the compensation pointfor photosynthetic activity by more than 10%. May not reduce the maximum secchi disk depth by more than 10%.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (24)(C).

Table 10. Alaska WQS for Dissolved Gas for Marine Uses

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(15) DISSOLVED GAS, FOR MARINE WATER USES	
(B) Water Supply (i) aquaculture	Surface dissolved oxygen (D.O.) concentration in coastal water may not be less than 6.0 mg/l for a depth of one meter except when natural conditions cause this value to be depressed. D.O. may not be reduced below 4 mg/l at any point beneath the surface. D.O. concentrations in estuaries and tidal tributaries may not be less than 5.0 mg/l except where natural conditions cause this value to be depressed. In no case may D.O. levels exceed 17 mg/l. The concentration of total dissolved gas may not exceed

	110% of saturation at any point of sample collection.
(A) Water Supply (ii) seafood processing	Not applicable.
(A) Water Supply (iii) industrial	Not applicable.
(C) Water Recreation (i) contact recreation	Same as (15)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (15)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (15)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (15)(A)(i).

Table 11. Alaska WQS for pH for Marine Uses

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(18) pH, for marine water uses (variation of pH for waters naturally outside the specified range must be toward the range)	
(A) Water Supply (i) Aquaculture	May not be less than 6.5 or greater than 8.5, and may not vary more than 0.2 pH unit outside of the naturally occurring range.
(A) Water Supply (ii) seafood processing	May not be less than 6.0 or greater than 8.5.
(A) Water Supply (iii) industrial	May not be less than 5.0 or greater than 9.0
(D) Water Recreation (i) contact recreation	May not be less than 6.0 or greater than 8.5. If the natural pH condition is outside this range, substances may not be added that cause any increase in buffering capacity of the water.
(B) Water Recreation (ii) secondary recreation	Same as (18)(A)(iii).

(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (18)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (18)(A)(ii).

Table 12. Alaska WQS for Temperature for Marine Uses

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(22) TEMPERATURE, FOR MARINE WATER USES	
(C) Water Supply (i) aquaculture	May not cause the weekly average temperature toincrease more than 1° C. The maximum rate of change may not exceed 0.5° C per hour. Normal daily temperature cycles may not be altered inamplitude or frequency.
(A) Water Supply (ii) seafood processing	May not exceed 15° C.
(A) Water Supply (iii) industrial	May not exceed 25° C.
(E) Water Recreation (i) contact recreation	Not applicable.
(B) Water Recreation (ii) secondary recreation	Not applicable.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (22)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (22)(A)(i).

Table 13. Alaska WQS for Toxics for Marine Uses

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(23) TOXIC AND OTHER DELETERIOUS ORGANIC AND INORGANIC SUBSTANCES, FOR MARINE WATER USES	
(D) Water Supply (i) aquaculture	Same as (23)(C).
(A) Water Supply (ii) seafood processing	The concentration of substances in water may not exceed the numeric criteria for aquatic life for marinewater shown in the *Alaska Water Quality Criteria Manual* (see note 5). Substances may not be introduced that cause, or can reasonably be expected to cause, either singly or in combination, odor, taste, or other adverse effects on the use.
(A) Water Supply (iii) industrial	Concentrations of substances that pose hazards to worker contact may not be present.
(F) Water Recreation (i) contact recreation	There may be no concentrations of substances in water, that alone or in combination with other substances, make the water unfit or unsafe for theuse.
(B) Water Recreation (ii) secondary recreation	Concentrations of substances that pose hazards to incidental human contact may not be present.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	The concentration of substances in water may not exceed the numeric criteria for aquatic life for marine water and human health for consumption of aquatic organisms only shown in the *Alaska Water Quality Criteria Manual* (see note 5), or any chronic and acute criteria established in this chapter, for a toxic pollutant of concern, to protect sensitive and biologically important life stages of resident species of this state. There may be no concentrations of toxic substances in water or in shoreline or bottom sediments, that, singly or in combination, cause, or reasonably can be expected to cause, adverse effects onaquatic life or produce undesirable or nuisance aquatic life, except as authorized by this chapter. Substances may not be present in concentrations that individually or in combination impart undesirable odor or taste to fish or other aquatic organisms, as determined by either bioassay or organoleptic tests.

(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (23)(C).

Table 14. Alaska WQS for Bacteria for Marine Uses

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(14) BACTERIA, FOR MARINE WATER USES, (see note 1)	
(E) Water Supply (i) aquaculture	For products normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 200 fecal coliform/100 ml, and not more than 10% of the samples may exceed 400 fecal coliform/100 ml. For products not normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 20 fecal coliform/100 ml, and not more than 10% of the samples may exceed 40 fecal coliform/100 ml.
(A) Water Supply (ii) seafood processing	In a 30-day period, the geometric mean of samples may not exceed 20 fecal coliform/100 ml, and not more than 10% of the samples may exceed 40 fecal coliform/100 ml.
(A) Water Supply (iii) industrial	Where worker contact is present, the geometric meanof samples taken in a 30-day period may not exceed 200 fecal coliform/100 ml, and not more than 10% of the samples may exceed 400 fecal coliform/100 ml.
(G) Water Recreation (i) contact recreation	In a 30-day period, the geometric mean of samples may not exceed 35 enterococci CFU/100 ml, and notmore than 10% of the samples may exceed a statistical threshold value (STV) of 130 enterococci CFU/100 ml.
(B) Water Recreation (ii) secondary recreation	In a 30-day period, the geometric mean of samples may not exceed 200 fecal coliform/100ml, and not more than 10% of the samples may exceed 400 fecal coliform/100ml.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Not applicable.

(D) Harvesting for Consumptionof Raw Mollusks or Other Raw Aquatic Life	The geometric mean of samples may not exceed 14 fecal coliform/100 ml; and not more than 10% ofthe samples may exceed; - 43 MPN per 100 ml for a five-tube decimal dilution test; - 49 MPN per 100 ml for a three-tube decimal dilution test; - 28 MPN per 100 ml for a twelve-tube single dilution test; - 31 CFU per 100 ml for a membrane filtrationtest (see note 14).

E. Equations and Analysis

1. Section 8.B.1: Attainment of TSS Standard

EPA calculated the maximum change in the concentration of TSS at the edge of the ZID using formula B-32 from the 301(h) TSD. The average weekly TSS limitation of 190 mg/L and the modeled critical initial dilution of 100:1 were used in the equation. The results show a 1.9 mg/L increase in suspended solids in the receiving water after initial dilution, or 1%.

Formula B-2

$SS = SS_e/S_a$

where,

SS = change in suspended solids concentration following initial dilution

SS_e = effluent suspended solids concentration (45 mg/L)

S_a = critical initial dilution (100:1)

45/100 = 0.45 mg/L

2. Section 8.B.2: Attainment of DO Standard

EPA calculated the final concentration of DO at the boundary of the ZID and at the edge of the chronic mixing zone using equation B-5 from the 301(h) TSD. The analysis is presented in Table 14 below.

Table 15. Dissolved Oxygen Analysis

Dissolved Oxygen in mg/L	Surface	Mid[1]	Bottom	Notes
Ambient DO concentration (DO_a) = (reference sites)	6.2	5.8	5.23	minimum observed at two reference sites
Ambient DO concentration (DO_a) = (ZID boundary sites)	7.05	8.91	9.02	minimum observed at two outfall sites
Effluent DO concentration (DO_e) =	2.1	2.1	2.1	5th Percentile
Immediate DO demand (IDOD) =	5.0	5.0	5.0	Table B-3 301(h) TSD[2]
Initial dilution (S_a) =	100	100	100	Dilution modeling results
Chronic mixing zone (S_a) =	19	19	19	ADEC Preliminary Comments
Final DO at ZID boundary using reference site ambient DO $DO_f = DO_a + (DO_e - IDOD - DO_a)/S_a$ = (using reference site ambient DO)	6.11	5.71	5.15	Equation B-5 from 301(h) TSD, using reference site ambient DO and 100:1 ZID dilution
Final DO at ZID boundary assuming 0 mg/L effluent (worst-case) $DO_f = DO_a + (DO_e - IDOD – DO_a)/S_a$ =	>6.09	>5.69	>5.13	Worst-Case
FINAL DO at ZID Boundary using outfall site ambient DO $DO_f = DO_a + (DO_e + IDOD – DO_a)/S_a$ = (using ZID boundary ambient DO)	6.95	8.79	8.90	Equation B-5 from 301(h) TSD, using outfall site ambient DO and 100:1 ZID dilution
Final DO at chronic MZ boundary using outfall site ambient DO $DO_f = DO_a + (DO_e + IDOD – DO_a)/S_a$ =	6.53	8.29	8.39	Equation B-5 from 301(h) TSD, using outfall site ambient DO and 19:1 chronic mixing zone dilution
Depletion at Refence Sites (Reference Site DO – Final DO at ZID using reference site ambient DO)	-0.09 (1.5%)	-0.09 (1.5%)	-0.08 (1.6%)	
Depletion at ZID Boundary Sites (Outfall site DO – Final DO at ZID boundary using outfall site ambient DO)	-0.10 (1.4%)	-0.12 (1.3%)	-0.12 (1.3%)	

Depletion at Chronic Mixing Zone (Outfall site DO – Final DO at chronic MZ boundary using outfall site ambient DO)	-0.52 (7.4%)	-0.62 (7.0%)	-0.63 (7.0%)	
[1]DO sampled at 5m intervals between surface and bottom depths. [2] Primary facility, effluent BOD_5 150-200 mg/L, travel time 0-100 minutes.				

The final BOD_5 after initial dilution was also calculated to assess the potential for far field DO using a simplified procedure from Appendix B of the 301(h) TSD. The maximum reported average monthly BOD_5 value is first converted to ultimate BOD_5 by multiplying it by the constant 1.46. The ultimate BOD_5 is then divided by the initial dilution factor (100) to determine the final BOD_5 after initial dilution.

Max BOD_5: 300 mg/L

Ultimate BOD_5: 300 mg/L x 1.46 = 438 mg/L

Final BOD_5: 438 mg/L ÷ 100 = 4.38 mg/L BOD_5

A final BOD_5 concentration of 4.38 mg/L after initial dilution is not expected to cause or contribute to any measurable far field DO impacts.

3. Section 8.C.3. Toxics Analysis

The following mass-balance equation was used to determine whether the discharge has reasonable potential to cause or contribute to an excursion above Alaska WQS:

$$Cd = \frac{Ce + [\, Cu\, (\, Sa - 1\,)\,]}{Sa} \quad \text{where}$$

Cd = Resultant magnitude or predicted concentration at edge of mixing zone, µg/L

Ce = Maximum projected effluent concentration, µg/L

Cu = Background receiving water concentration, µg/L

Sa = dilution factor

The maximum projected effluent concentration (Ce) 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 (n<10), 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, Cu, which is represented by the 95th percentile value from the background data set (the 5th percentile value is used

for DO). The sum Cd 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 at the edge of the ZID exceeds the water-quality criteria a water-quality based effluent limitation is developed. If a permittee is unable to meet their WQBEL they would fail to satisfy CWA 301(h)(9) and 40 CFR 125.62 and would be ineligible for a 301(h)-modified permit.

No pollutants have reasonable potential at the edge of the ZID. A summary of the reasonable potential analyses used to develop WQBELs is located in Appendix C of the Fact Sheet.

F. TVS Survey Results

Table 16. Total Volatile Solids Results

Sample Location	Date	Method	Result (% Volatile Solids)
Station 1-TVS #1 within ZID	9/4/05	SM 2540G	0.43
Station 1-TVS #2 within ZID	9/4/05	SM 2540G	1.29
Station 1-TVS #3 within ZID	9/4/05	SM 2540G	0.97
Station 2-TVS #1 5m outside ZID	9/3/05	SM 2540G	4.95
Station 2-TVS #2 5m outside ZID	9/3/05	SM 2540G	5.52
Station 2-TVS #3 5m outside ZID	9/3/05	SM 2540G	9.62
Station 3-TVS #1 Reference Station	9/4/05	SM 2540G	0.90
Station 3-TVS #2 Reference Station	9/4/05	SM 2540G	0.96
Station 3-TVS #2 Reference Station	9/4/05	SM 2540G	1.26

G. Dilution Modeling Report

The dilution model is available on our website with the other permit documents: https://www.epa.gov/npdes-permits/npdes-permit-haines-wastewater-treatment-facility-alaska

H. Minimum Levels

The Table below lists the maximum Minimum Level (ML) for pollutants that may have monitoring requirements in the permit. ML means either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in

several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor. The permittee may request different MLs. The request must be in writing and must be approved by EPA. If the Permittee is unable to obtain the required ML in its effluent due to matrix effects, the Permittee must submit a matrix-specific detection limit (MDL) and a ML to EPA with appropriate laboratory documentation.

CONVENTIONAL PARAMETERS

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Biochemical Oxygen Demand	2 mg/L
Soluble Biochemical Oxygen Demand	2 mg/L
Chemical Oxygen Demand	10 mg/L
Dissolved Organic Carbon	1 mg/L
Total Organic Carbon	1 mg/L
Total Suspended Solids	5 mg/L
Total Ammonia (as N)	50
Dissolved oxygen	+/- 0.2 mg/L
Temperature	+/- 0.2°C
pH	N/A

NONCONVENTIONAL PARAMETERS

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Total Alkalinity	5 mg/L as CaCO3
Chlorine, Total Residual	50.0
Color	10 color units
Fluoride (16984-48-8)	100
Nitrate + Nitrite Nitrogen (as N)	100
Nitrogen, Total Kjeldahl (as N)	300
Soluble Reactive Phosphorus (as P)	10
Phosphorus, Total (as P)	10
Oil and Grease (HEM) (Hexane Extractable Material)	5,000
Salinity	3 practical salinity units or scale (PSU or PSS)
Settleable Solids	500 (or 0.1 mL/L)
Sulfate (as mg/L SO4)	0.2 mg/L
Sulfide (as mg/L S)	0.2 mg/L

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Sulfite (as mg/L SO3)	2 mg/L
Total dissolved solids	20 mg/L
Total Hardness	200 as CaCO3
Aluminum, Total (7429-90-5)	10
Barium Total (7440-39-3)	2.0
BTEX (benzene +toluene + ethylbenzene + m,o,p xylenes)	2
Boron Total (7440-42-8)	10.0
Cobalt, Total (7440-48-4)	0.25
Iron, Total (7439-89-6)	50
Magnesium, Total (7439-95-4)	50
Molybdenum, Total (7439-98-7)	0.5
Manganese, Total (7439-96-5)	0.5
Tin, Total (7440-31-5)	1.5
Titanium, Total (7440-32-6)	2.5

PRIORITY POLLUTANTS

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
METALS, CYANIDE & TOTAL PHENOLS	
Antimony, Total (7440-36-0)	1.0
Arsenic, Total (7440-38-2)	0.5
Beryllium, Total (7440-41-7)	0.5
Cadmium, Total (7440-43-9)	0.1
Chromium (hex) dissolved (18540-29-9)	1.2
Chromium, Total (7440-47-3)	1.0
Copper, Total (7440-50-8)	2.0
Lead, Total (7439-92-1)	0.16
Mercury, Total (7439-97-6)	0.0005
Nickel, Total (7440-02-0)	0.5
Selenium, Total (7782-49-2)	1.0
Silver, Total (7440-22-4)	0.2
Thallium, Total (7440-28-0)	0.36

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Zinc, Total (7440-66-6)	2.5
Cyanide, Total (57-12-5)	10
Cyanide, Weak Acid Dissociable	10
Cyanide, Free Amenable to Chlorination (Available Cyanide)	10
Phenols, Total	50
2-Chlorophenol (95-57-8)	2.0
2,4-Dichlorophenol (120-83-2)	1.0
2,4-Dimethylphenol (105-67-9)	1.0
4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	2.0
2,4 dinitrophenol (51-28-5)	2.0
2-Nitrophenol (88-75-5)	1.0
4-nitrophenol (100-02-7)	1.0
Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	2.0
Pentachlorophenol (87-86-5)	1.0
Phenol (108-95-2)	4.0
2,4,6-Trichlorophenol (88-06-2)	4.0
VOLATILE COMPOUNDS	
Acrolein (107-02-8)	10
Acrylonitrile (107-13-1)	2.0
Benzene (71-43-2)	2.0
Bromoform (75-25-2)	2.0
Carbon tetrachloride (56-23-5)	2.0
Chlorobenzene (108-90-7)	2.0
Chloroethane (75-00-3)	2.0
2-Chloroethylvinyl Ether (110-75-8)	2.0
Chloroform (67-66-3)	2.0
Dibromochloromethane (124-48-1)	2.0
1,2-Dichlorobenzene (95-50-1)	7.6

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
1,3-Dichlorobenzene (541-73-1)	7.6
1,4-Dichlorobenzene (106-46-7)	17.6
Dichlorobromomethane (75-27-4)	2.0
1,1-Dichloroethane (75-34-3)	2.0
1,2-Dichloroethane (107-06-2)	2.0
1,1-Dichloroethylene (75-35-4)	2.0
1,2-Dichloropropane (78-87-5)	2.0
1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) (542-75-6) 6	2.0
Ethylbenzene (100-41-4)	2.0
Methyl bromide (74-83-9) (Bromomethane)	10.0
Methyl chloride (74-87-3) (Chloromethane)	2.0
Methylene chloride (75-09-2)	10.0
1,1,2,2-Tetrachloroethane (79-34-5)	2.0
Tetrachloroethylene (127-18-4)	2.0
Toluene (108-88-3)	2.0
1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	2.0
1,1,1-Trichloroethane (71-55-6)	2.0
1,1,2-Trichloroethane (79-00-5)	2.0
Trichloroethylene (79-01-6)	2.0
Vinyl chloride (75-01-4)	2.0
BASE/NEUTRAL COMPOUNDS	
Acenaphthene (83-32-9)	0.4
Acenaphthylene (208-96-8)	0.6
Anthracene (120-12-7)	0.6
Benzidine (92-87-5)	24
Benzyl butyl phthalate (85-68-7)	0.6
Benzo(a)anthracene (56-55-3)	0.6
Benzo(b)fluoranthene (3,4-benzofluoranthene) (205-99-2) 7	1.6

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Benzo(j)fluoranthene (205-82-3) 7	1.0
Benzo(k)fluoranthene (11,12-benzofluoranthene) (207-08-9) 7	1.6
Benzo(r,s,t)pentaphene (189-55-9)	1.0
Benzo(a)pyrene (50-32-8)	1.0
Benzo(ghi)Perylene (191-24-2)	1.0
Bis(2-chloroethoxy)methane (111-91-1)	21.2
Bis(2-chloroethyl)ether (111-44-4)	1.0
Bis(2-chloroisopropyl)ether (39638-32-9)	0.6
Bis(2-ethylhexyl)phthalate (117-81-7)	0.5
4-Bromophenyl phenyl ether (101-55-3)	0.4
2-Chloronaphthalene (91-58-7)	0.6
4-Chlorophenyl phenyl ether (7005-72-3)	0.5
Chrysene (218-01-9)	0.6
Dibenzo (a,h)acridine (226-36-8)	10.0
Dibenzo (a,j)acridine (224-42-0)	10.0
Dibenzo(a-h)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	1.6
Dibenzo(a,e)pyrene (192-65-4)	10.0
Dibenzo(a,h)pyrene (189-64-0)	10.0
3,3-Dichlorobenzidine (91-94-1)	1.0
Diethyl phthalate (84-66-2)	7.6
Dimethyl phthalate (131-11-3)	6.4
Di-n-butyl phthalate (84-74-2)	1.0
2,4-dinitrotoluene (121-14-2)	0.4
2,6-dinitrotoluene (606-20-2)	0.4
Di-n-octyl phthalate (117-84-0)	0.6
1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	20
Fluoranthene (206-44-0)	0.6
Fluorene (86-73-7)	0.6

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Hexachlorobenzene (118-74-1)	0.6
Hexachlorobutadiene (87-68-3)	1.0
Hexachlorocyclopentadiene (77-47-4)	1.0
Hexachloroethane (67-72-1)	1.0
Indeno(1,2,3-cd)Pyrene (193-39-5)	1.0
Isophorone (78-59-1)	1.0
3-Methyl cholanthrene (56-49-5)	8.0
Naphthalene (91-20-3)	0.6
Nitrobenzene (98-95-3)	1.0
N-Nitrosodimethylamine (62-75-9)	4.0
N-Nitrosodi-n-propylamine (621-64-7)	1.0
N-Nitrosodiphenylamine (86-30-6)	1.0
Perylene (198-55-0)	7.6
Phenanthrene (85-01-8)	0.6
Pyrene (129-00-0)	0.6
1,2,4-Trichlorobenzene (120-82-1)	0.6
DIOXIN	
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16) (2,3,7,8 TCDD)	5 pg/L
PESTICIDES/PCBs	
Aldrin (309-00-2)	0.05
alpha-BHC (319-84-6)	0.05
beta-BHC (319-85-7)	0.05
gamma-BHC (58-89-9)	0.05
delta-BHC (319-86-8)	0.05
Chlordane (57-74-9)	0.05
4,4'-DDT (50-29-3)	0.05
4,4'-DDE (72-55-9)	0.05
4,4' DDD (72-54-8)	0.05

Pollutant & CAS No. (if available)	Minimum Level (ML) µg/L unless specified
Dieldrin (60-57-1)	0.05
alpha-Endosulfan (959-98-8)	0.05
beta-Endosulfan (33213-65-9)	0.05
Endosulfan Sulfate (1031-07-8)	0.05
Endrin (72-20-8)	0.05
Endrin Aldehyde (7421-93-4)	0.05
Heptachlor (76-44-8)	0.05
Heptachlor Epoxide (1024-57-3)	0.05
PCB-1242 (53469-21-9)	0.5
PCB-1254 (11097-69-1)	0.5
PCB-1221 (11104-28-2)	0.5
PCB-1232 (11141-16-5)	0.5
PCB-1248 (12672-29-6)	0.5
PCB-1260 (11096-82-5)	0.5
PCB-1016 (12674-11-2)	0.5
Toxaphene (8001-35-2)	0.5