ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FACT SHEET – FINAL

Permit Number: **AK0021431**

Valdez Wastewater Treatment Facility

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

Public Comment Period Start Date: December 30, 2025
Public Comment Period Expiration Date: January 29, 2026
Alaska Online Public Notice System
DEC Online Public Notice System

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Issuance of an Alaska Pollutant Discharge Elimination System (APDES) permit to:

CITY OF VALDEZ

For wastewater discharges from
Valdez Wastewater Treatment Facility
800 South Sawmill Road
Valdez, AK 99686

The Alaska Department of Environmental Conservation (the Department or DEC) has reissued an APDES individual permit (permit) to the City of Valdez. The permit authorizes and sets conditions on the discharge of pollutants from this facility to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility and outlines best management practices to which the facility must adhere.

This fact sheet explains the nature of discharges from the Valdez Wastewater Treatment Facility (WWTF) and the development of the permit including:

- information on public comment, public hearing, and appeal procedures
- a listing of effluent limitations and other conditions
- technical material supporting the conditions in the permit
- monitoring requirements in the permit

Informal Reviews and Adjudicatory Hearings

A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See DEC's "Appeal a DEC Decision" web page https://dec.alaska.gov/commish/review-guidance/ for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200. Requests must be submitted no later than the deadline specified in 18 AAC 15.

Documents are Available

The permit, fact sheet, and related documents can be accessed at the Department's Wastewater Discharge Authorization Program website: https://dec.alaska.gov/water/wastewater/ or by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below.

- 555 Cordova Street; **Anchorage**, AK 99501; 907-269-6285
- 610 University Avenue; **Fairbanks**, AK 99709; 907-451-2100
- P.O. Box 1800; **Juneau**, AK 99811-1800
  Location: 410 Willoughby Street, Suite 303; **Juneau**, AK; 907-465-5300
- 43335 Kalifornsky Beach Road; **Soldotna**, AK 99615; 907-262-5210
- 1700 E Bogard Road #B, Suite #103; **Wasilla**, AK 99654; 907-376-1850

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1.0 APPLICANT

1.1 Applicant

This fact sheet provides information on the APDES permit for the following entity:

Permittee:	City of Valdez
Facility:	Valdez Wastewater Treatment Facility
APDES Permit Number:	AK0021431
Facility Location:	800 South Sawmill Road, Valdez, AK 99686
Mailing Address:	PO Box 307, Valdez, AK 99686
Facility Contact:	Mr. Brad Koch, Utilities Manager

1.2 Authority

Section 301(a) of the Clean Water Act (CWA) and AAC 18 AAC 83.015 provide that the discharge of pollutants to water of the U.S. is unlawful except in accordance with an APDES permit. The individual permit reissuance is being developed per 18 Alaska Administrative Code (AAC) 83. A violation of a condition contained in the Permit constitutes a violation of the CWA and subjects the permittee of the facility with the permitted discharge to the penalties specified in Alaska Statutes (AS) 46.03.760 and AS 46.03.761.

1.3 Permit History

The National Pollutant Discharge Elimination System (NPDES) permit for the facility was initially issued by the Environmental Protection Agency (EPA) in December 1978. EPA reissued the permit in 1985, 1990, and 2002. Authority of the permit transferred to DEC in October 2008 when EPA approved DEC's application to administer the NPDES Program as the APDES Program. The NPDES permit was administratively extended (continued in force and effect) until 2015 when DEC reissued it as an APDES permit. The permit was subsequently reissued in April 2021 for a five-year permit term. Under the Administrative Procedures Act and state regulations at 18 AAC 83.155(c), an APDES permit may be administratively extended provided that the permittee submit a timely and complete application for a new permit prior to the expiration of the current permit. A timely and complete application for a new permit was submitted by the City of Valdez in October 2025; therefore, the 2021 permit is administratively extended until such time a new permit is reissued.

2.0 BACKGROUND

2.1 Facility Information

The City of Valdez owns, operates, and maintains the Valdez WWTF, a publicly owned treatment works (POTW) located approximately four miles east of the city of Valdez. The WWTF was designed and constructed in 1978 to treat domestic wastewater as a zero-discharge facility with two aerated lagoons followed by a percolation pond. Due to the high groundwater table, the WWTF never functioned as a zero-discharge facility and what had been intended to be the percolation pond, now serves as the chlorine contact pond.

The Valdez WWTF, with an operational design flow of 1.5 million gallons per day (mgd) and a permitted peak flow of 2.5 mgd, services a residential and commercial business population of approximately 3,800. There are no significant industrial user contributions. Secondary treated domestic wastewater flows by gravity from the treatment system into Port Valdez through a 2-foot diameter outfall pipe measuring 2,259 feet long.The pipe terminates in a 60-foot diffuser that is equipped with six

8-inch ports. Storm water is conveyed through a separate sewer collection system. Figure 1 shows the location of the Valdez WWTF.

2.2 Wastewater Treatment

Nine pump stations move approximately 930,000 gallons of raw influent through bar screens and comminutors located in the main pump station upstream of the facility. Debris from the bar screens is disposed of at the landfill. After the comminutors, the influent flows four miles through a force main to the lagoon system where it is routed to two in-series 10-million-gallon aerated lagoon cells. The fully mixed and aerated solution of mixed liquor is disinfected by gas chlorination using a Regal chlorinator. The effluent then flows into the chlorine contact pond, which contains a baffle designed to increase detention time and prevent short circuiting of the flow. The pond is designed to provide a target detention time of three days. The final treated wastewater is discharged to Port Valdez. Figure 2 illustrates the Valdez WWTF process flow.

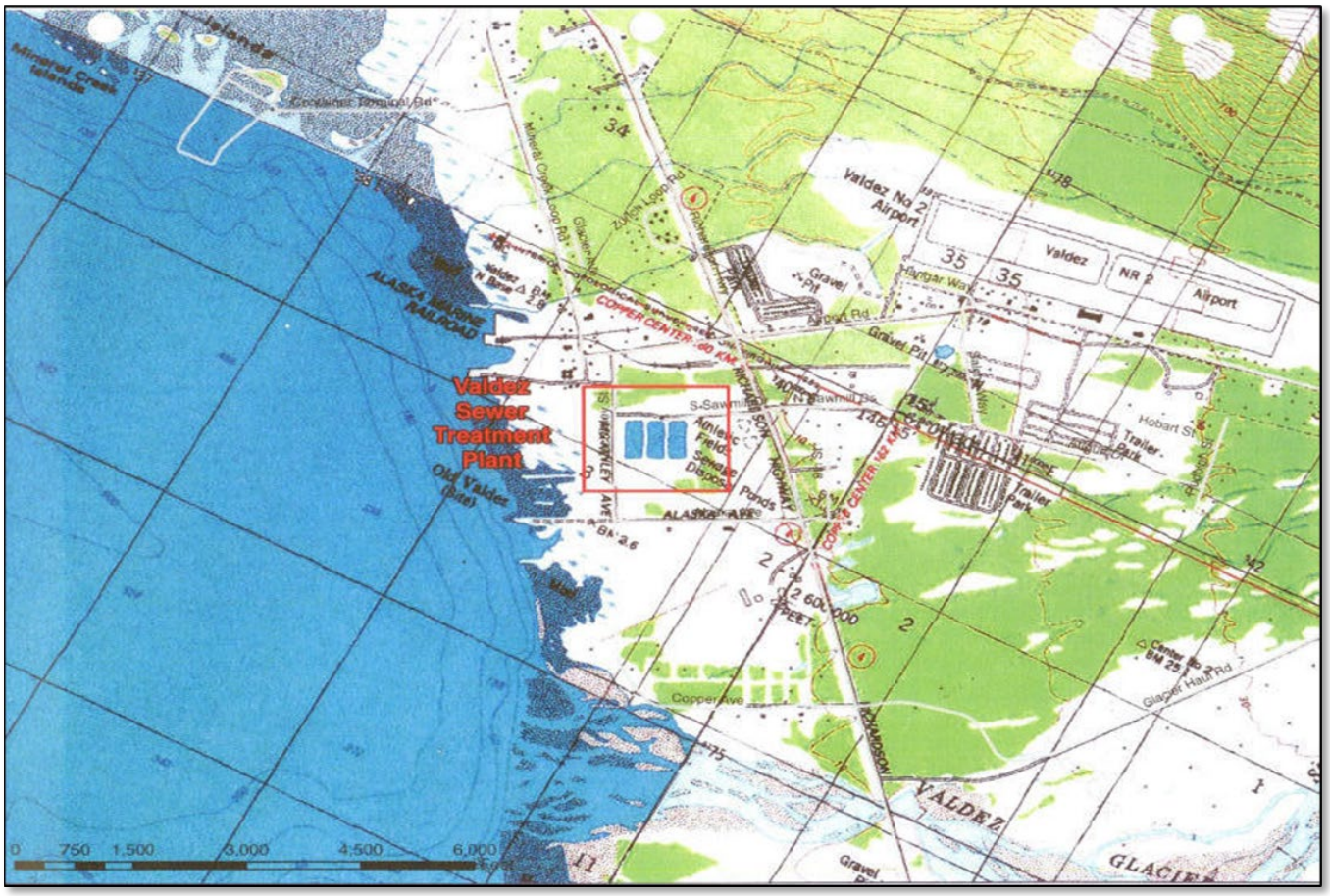

Figure 1- Valdez WWTF Location

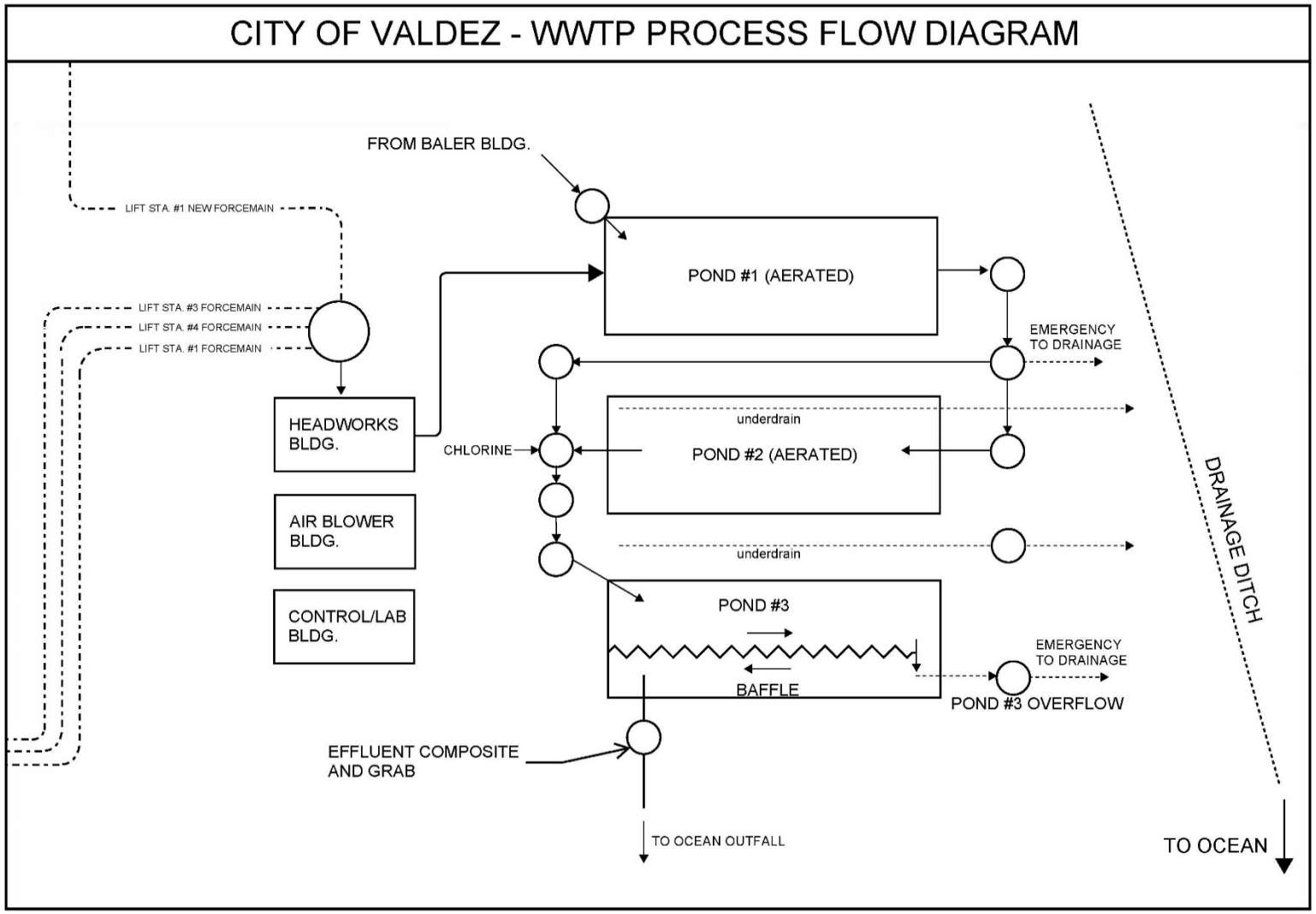

Figure 2- Valdez WWTF Process Flow

2.3 Pollutants of Concern

Pollutants of concern in treated domestic wastewater include the conventional pollutants: 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS) pH, fecal coliform bacteria (FC) and oil and grease. total ammonia as nitrogen (ammonia), total residual chlorine (TRC), copper, zinc, whole effluent toxicity (WET), and temperature were detected in the effluent above water quality criteria. Dissolved oxygen (DO) was detected in the effluent below water quality criteria; therefore, in addition to the conventional pollutants listed above, DEC identified these additional pollutants as pollutants of concern. The monitoring results submitted with the permit reissuance application did not indicate any other pollutants of concern. Pollutants observed in the effluent at least once above water quality criteria or an effluent limit between April 2021 and September 2025 are depicted in Table 1.

Table 1 - Pollutants Observed in Effluent above Water Quality Criteria or Permit Limit

Pollutant	Units	Maximum Observed Concentration or Measurement	Water Quality Criteria or Permit Limit
Ammonia	milligrams per liter (mg/L)	18	Water Quality Criteria 24.6 acute, 3.7 chronic
FC	FC/100 milliliter (mL)	267	Permit Limits 200 monthly average 400 weekly average 800 daily maximum
Enterococci	cfu/100 mL (colony forming units)	2,420	Water Quality Criteria 30-day period may not exceed geometric mean of 35, not more than 10% may exceed statistical threshold of 130
Copper	micrograms per liter (µg/L)	9.32	Water Quality Criteria 5.8 acute, 3.7 chronic Permit Limits 13 acute, 9.3 chronic
Zinc	µg/L	121	Water Quality Criteria 95.1 acute, 86.14 chronic
WET	chronic toxic units (TUc)	4.3 *Mytilus galloprovincialis* (Mediterranean mussel) normal embryo development	Water Quality Criterion 1.0 daily maximum
Temperature	Degrees Celsius (°C)	21	Wate Quality Criterion 15 daily maximum
TRC	µg/L	40	Water Quality Criteria 13 acute, 7.5 chronic Permit Limits 70 acute, 30 chronic

2.4 Compliance History

DEC reviewed Discharge Monitoring Reports (DMRs) from April 2021 to September 2025 to determine the facility's compliance with permit effluent limits. Table 2 contains a permit limit exceedances and Table 3 contains a summary of DEC's Compliance and Enforcement Program actions that occurred after the effective date of the most recent permit, April 1, 2021.

Table 2- Outfall 002A Permit Limit Exceedances

Parameter	Units	Basis	Permit Limit	Number of Exceedances	Maximum Reported Value	Date of Maximum Reported Value
Flow	mgd	Maximum Daily	2.5	1	2.51	January 2025
Copper, total recoverable	µg/L	Average Monthly	9.0	1	9.3	July, 2024
Flow	mgd	Maximum Daily	2.5	1	2.58	September 2022

Table 3- Compliance and Enforcement Actions

Date	Activity	Summary
November 16, 2022	Routine Inspection	3% flow exceedance September 30, 2022.Was reported to DEC and considered resolved. The City of Valdez reported on April 20, 2020 and May 3, 2020 that old air vents on the force main broke inside manhole. They closed them off and replaced them.
January 11, 2023	Compliance Letter	Compliance letter to summarize and provide regulatory basis of non-compliance findings from November 16, 2022 routine inspection..
May 1, 2024	Routine Inspection	Flow monitoring occurring in the wet well between Lagoon 2 and Lagoon 3 which does not comply with permit requirements.
May 29, 2024	Notice of Violation (NOV)	NOV to summarize and provide notification of violation of permit requirements and regulatory basis of non-compliance findings from May 29, 2024 routine inspection.
June 7,2024	NOV Closeout Letter	Deliverables requested by DEC were submitted by the City of Valdez by June 30, 2024. NOV closed out.

3.0 EFFLUENT LIMITS AND MONITORING REQUIREMENTS

3.1 Basis for Permit Effluent Limits

Per 18 AAC 83.015, the Department prohibits the discharge of pollutants to waters of the U.S. unless the permittee has first obtained a permit issued by the APDES Program that meet the purposes of AS 46.03 and is in accordance with the CWA Section 402. Per these statutory and regulatory provisions, the Permit includes effluent limits that require the discharger to (1) meet standards reflecting levels of technological capability, (2) comply with 18 AAC 70 – Water Quality Standards (WQS), and (3) comply with other state requirements that may be more stringent.

The CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are set according to the level of treatment that is achievable using available technology. A WQBEL is designed to ensure that the WQS of a water body are met and may be more stringent than TBELs. Both TBELs and WQBELs are included in the permit. A detailed discussion of the basis for the effluent limits contained in AK0021431 is provided in Appendix A.

3.2 Basis for Effluent and Receiving Water Monitoring

In accordance with AS 46.03.110(d), the Department may specify in a permit the terms and conditions under which waste material may be disposed. Monitoring in a permit is required to determine compliance with effluent limits. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limits are required and/or to monitor effluent impact on the

receiving waterbody quality. The permittee is responsible for conducting the monitoring and for reporting results on NetDMR or with the application for reissuance, as appropriate, to the Department. The prior permit required receiving waterbody monitoring for pH, temperature, salinity, ammonia, and copper. DEC has determined that the City of Valdez has submitted sufficient data to support the calculation of water quality criteria and continued receiving waterbody monitoring is not required in the reissued permit.

Total phosphorus monitoring was required in the prior permit. Alaska WQS does not contain water quality criteria for total phosphorus. EPA has recommended ambient water quality criteria for total phosphorus for aquatic life, but they are not fixed numeric values. Phosphorus-related criteria are typically addressed through narrative standards. Because Alaska does not have water quality criteria for total phosphorus to use as a basis in an analysis of the City of Valdez's total phosphorus monitoring results, total phosphorus monitoring has been removed in the reissued permit. Expanded effluent testing requirements in the permit reissuance application shall continue to include phosphorus testing.

40 CFR Part 403, General Pretreatment Regulations for Existing and New Sources of Pollution, contains general and specific prohibitions that states that industrial users who discharge to a POTW may not introduce into the POTW any pollutant that can pass untreated through the plant, interfere with the plant's operation, contribute to water quality problems, or that is otherwise incompatible with the treatment plant.

During the development of the prior permit, the Valdez New Harbor Bilge Water Treatment Facility (VNHBWTF) was identified as an industrial user. The City of Valdez established conditions for the discharge of the treated bilge water. Discharge may only occur between May-September and at a rate not exceeding 400 gallons per day or 900 gallons per week. Bilge water testing during the proposal stage of the VNHBWTF indicated that there were some pollutants of concern. These pollutants included zinc, manganese, total aromatic hydrocarbons (TAH), and total aqueous hydrocarbons (TAqH). DEC established these pollutants of concern as permit effluent monitoring requirements. Sampling of the effluent was required whenever bilge water was discharged to the facility.

Since the permit became effective in April 2021, The VNHBWTF has discharged bilge water to the Valdez WWTF three times. All the effluent samples, with the exception of one zinc result, were below water quality criteria. As the bilge water mixes with domestic wastewater in the lagoon cells, it becomes significantly diluted, making it unlikely that a spike in effluent monitoring results could confidently be attributed to the VNHBWF discharge. Rather than monitoring the effluent for pollutants that may be attributed to the bilge water contribution, the bilge water would be better monitored prior to its discharge to the WWTF. The VNHBWF has the capacity to store effluent prior to disposal to the Valdez WWTF. Therefore, pre-discharge sampling may be feasible. The City of Valdez could establish pre-discharge monitoring requirements to include limits for pollutants of concern that are protective of the City's WWTF and APDES permit effluent limits. Therefore, DEC is no longer requiring the City of Valdez to monitor the effluent for zinc, manganese, TAH, and TAqH whenever the VNHBWF discharges wastewater to the Valdez WWTF.

The City of Valdez has demonstrated their ability to consistently reduce BOD_5, TSS, and FC to levels below permit requirements. Since the permit became effective in April 2021, there have been no violations of BOD_5, TSS, and FC effluent limits; therefore, in order to reduce monitoring burden while maintaining a high level of environmental protection, DEC used the procedure in EPA's *Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies* (EPA, 1996) to reduce BOD_5 and TSS monitoring frequencies in the reissued permit from 1/week to 2/month and FC from 2/week to 1/week. The City of Valdez is expected to maintain the performance levels that were used as the basis for granting these monitoring reductions. If performance is not maintained DEC may require increased monitoring.

3.3 Effluent Limits and Monitoring Requirements

Monitoring is required to determine compliance with effluent limitations and/or for use in future reasonable potential analyses (RPA). The permit requires monitoring of secondary treated domestic wastewater effluent that is discharged through Outfall 002A. Flow, BOD_5, TSS, ammonia, TRC, copper, FC, pH, and DO all have associated effluent limits. See Appendix A for details regarding the basis of effluent limits for these parameters.

Monitoring frequencies are based on the nature and effect of a pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used in calculations and used for averaging if they are conducted using Department-approved test methods (generally found in 18 AAC 70 and 40 CFR Part 136 [adopted by reference in 18 AAC 83.010]) and if the method detection limits are less than the effluent limits.

The following summarizes the monitoring requirements for those parameters that are required to be monitored but do not contain specified effluent limits.

Enterococci

Alaska WQS at 18 AAC 70.020(b)(14)(B) for contact recreation specifies that enterococci shall not exceed 35 enterococci cfu/100mL, and not more than an 10% of the samples may exceed a concentration of 130 enterococci cfu/100mL. Contact recreation is defined as activities in which there is direct and intimate contact with water. These activities typically only take place during the summer season, May to September. Between May 2021 and September 2025, there were three exceedances of water quality criteria. Monitoring results ranged from 1.0 cfu/100mL to 2,420 cfu/100 mL. Because enterococci water quality criteria were not consistently met, monitoring shall continue as in the previous permit as a report only requirement May- September.

Temperature

Alaska WQS at 18 AAC 70.20(b)(22) states that temperature for aquaculture, growth and propagation of fish, shellfish, other aquatic life, and wildlife and harvesting for consumption of raw mollusks or other life, may not cause the weekly average temperature to increase more than 1 degree Celsius (°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. Temperature may not exceed 15°C. The maximum daily effluent temperatures between April 2021 and September 2025 ranged from 4.0 °C to 21 °C. DEC determined that temperature has reasonable potential to exceed water quality standards. Temperature requires less dilution than ammonia and fits within the chronic mixing zone sized for ammonia. The reissued permit requires continued effluent temperature monitoring twice per week.

Cyanide (CN), free available

WQS at 18 AAC 70.20(b)(22) states that for the protection of aquatic life, CN as free available may not exceed 1 µg/L. The prior permit required that the aquatic life criteria for free CN be measured as weak acid dissociable (WAD) CN or equivalent approved EPA method. CN monitoring results from July 2021-July 2025 ranged from non-detect to 5.3 µg/L. Free available CN includes hydrogen CN and CN ion. WAD includes Free CN and weakly bound metal-CN complexes such as zinc, cadmium, copper, nickel, and silver. Testing CN as WAD; would therefore result in higher CN concentrations than testing for CN as free available.

The preservative sodium hydroxide (NaOH) is added to CN samples that cannot be analyzed in less than 15 minutes. NaOH has been shown to interfere with CN test results and that it may not be necessary to

maintain sample integrity over typical holding times (Giudice, 2025). Therefore, while the reported monitoring data indicates that CN has reasonable potential to exceed water quality criteria, the data upon which that determination is made may be inaccurate. NaOH may have contributed to results that do not accurately reflect the concentration of CN in the Valdez WWTF effluent. Therefore, the CN monitoring data is unreliable and cannot be used in this permit reissuance to make any further determinations. In order to obtain reliable data for comparison with water quality criteria, CN monitoring shall continue in the reissued permit. Prior to removing NaOH from the sample, the permittee shall perform a hold time study and obtain approval from DEC. See Permit Section 1.2.4. Monitoring shall occur as in the prior permit, once per quarter. If CN monitoring results indicate that CN is not a pollutant of concern in the Valdez WWTF effluent, CN monitoring may be removed in the next permit reissuance. Table 4 contains Outfall 002A effluent limits and monitoring requirements and Table 5 contains effluent limit changes from the last permit issuance.

(Table 4- Effluent Limitations and Monitoring Requirements
located on the following page.)

Table 4- Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limits					Monitoring Requirements		
	Units [a]	Daily Minimum	Monthly Average	Weekly Average	Daily Maximum	Sample Location	Sample Frequency	Sample Type
Total Discharge Flow	mgd	N/A	Report	N/A	2.5	Effluent	Continuous	Recorded
BOD_5	mg/L	N/A	30	45	60	Influent and Effluent [b]	2/Month	24-hour Composite [c]
	lbs/day		375	563	751			Calculated [d]
TSS	mg/L	N/A	30	45	60	Influent and Effluent	2/Month	24-hour Composite
	lbs/day		375	563	75			Calculated
BOD_5 & TSS Minimum Percent (%) Removal [e]	%	N/A	85	N/A	N/A	Influent and Effluent	1/Month	Calculated
pH	S.U.	6.5	N/A	N/A	8.5	Effluent	2/Week	Grab
Temperature	°C	N/A	N/A	N/A	Report	Effluent	2/Week	Grab
DO	mg/L	2.0	N/A	N/A	17	Effluent	2/Week	Grab
TRC	µg/L	N/A	30	45	46	Effluent	2/Week	Grab
	lbs/day		0.4	0.56	0.57			
Ammonia	mg/L	N/A	21	32	39	Effluent	1/Month	24-hour Composite
	lbs/day		263	400	488			Calculated
FC	FC/ 100 mL	N/A	200	400	800	Effluent	1/Week [f]	Grab
Enterococci May-September	cfu/ 100 mL	N/A	Report	N/A	Report	Effluent	1/Month [f, g]	Grab
Copper, total recoverable	µg/L	N/A	9.0	Report	12	Effluent	1/Quarter	24-hour Composite
	lbs/day		0.11	Report	0.15			Calculated
Cyanide (CN), as free available [h]	µg/L	N/A	N/A	NA	Report	Effluent	1/Quarter	24-hour Composite

Footnotes:

a. Units: mgd = million gallons per day, mg/L = milligrams per liter, lbs/day = pounds per day, S.U.= standard units, °C= degrees Celsius, FC/100 mL = Fecal Coliform per 100 milliliters, cfu/100 mL = colony forming units per 100 milliliters, µg/L = micrograms per liter

b. Limits apply to the effluent. Report average monthly influent concentration. Influent and effluent composite samples shall be collected during the same 24-hour period.

c. See Appendix C for a definition.

d. lbs/day = concentration (mg/L) x flow (mgd) x 8.34 (conversion factor)

e. Minimum % Removal = [(monthly average influent concentration in mg/L – monthly average effluent concentration in mg/L) / (monthly average influent concentration in mg/L)] x 100. The monthly average percent removal must be calculated using the arithmetic mean of the influent value and the arithmetic mean of the effluent value for that month.

f. If more than one FC or enterococci sample is collected within the reporting period, the average result must be reported as a geometric mean. When calculating the geometric mean, replace all results of zero, 0, with a one, 1. The geometric mean of "n" quantities is the "nth" root of the product of the quantities. For example, the geometric mean of 100, 200, and 300 is $(100 \times 200 \times 300)^{1/3} = 181.7$.

g. Enterococci shall be sampled once a month, May-Sept, on the same day as FC sampling.

h. The aquatic life criteria for free cyanide shall be measured as weak acid dissociable (WAD) cyanide or equivalent approved EPA methods.

Table 5- Effluent Limit Changes from Prior Permit

Parameter	Units [a]	Monthly Average		Weekly Average		Daily Maximum	
		2020 Permit	2026 Permit	2020 Permit	2026 Permit	2020 Permit	2026 Permit
TRC	µg/L	30	No change	N/A	45	70	46
	lbs/day	0.4	No change	N/A	0.56	0.9	0.57
Ammonia	mg/L	23	21	N/A	32	41	39
	lbs/day	287	263	N/A	400	583	488
Copper, total recoverable	µg/L	9.0	No change	N/A	N/A	13	12
	lbs/day	0.11	No change	N/A	N/A	0.16	0.15
Units: lbs/day = pounds per day, µg/L = micrograms per liter							

3.4 Whole Effluent Toxicity Monitoring

Alaska WQS at 18 AAC 70.030 require that an effluent discharged to a water may not impart chronic toxicity to aquatic organisms, expressed as 1.0 chronic toxic units (TUc), at the point of discharge, or if the Department authorizes a mixing zone in a permit, approval, or certification, at or beyond the mixing zone boundary, based on the minimum effluent dilution achieved in the mixing zone.

WET tests are laboratory tests that measure the total toxic effect of an effluent on living organisms. WET tests use small vertebrate and invertebrate species and/or plants to measure the aggregate toxicity of an effluent. There are two different durations of toxicity test: acute and chronic. Acute toxicity tests measure survival over a 96-hour exposure. Chronic toxicity tests measure reductions in survival, growth, and reproduction over a 7-day exposure. State regulation 18 AAC 83.335 recommends chronic testing for facilities with dilution factors that are less than 100:1 at the boundary of the mixing zone, acute testing for facilities with dilution factors greater than 1000:1 at the boundary of the mixing zone, and either acute or chronic for dilution factors between 100:1 and 1000:1 at the boundary of the mixing zone.

The previous permit required that the City of Valdez conduct annual chronic toxicity tests on the test organisms *Crassostrea gigas* (oyster) or *Mytilus sp.* (mussels) and *Atherinops affinis* (topsmelt minnow). The permittee requested approval of *Meridia beryllinus* (Inland silverside) as a substitute for the topsmelt minnow due to the topsmelt minnow's unavailability. DEC approved the substitution.

The organisms were tested at 2.1, 4.2, 8.4, 17, and 34% effluent and a control (0% effluent). This test series corresponds to an instream waste concentration (IWC) of 8.4% effluent and 11.9 TUc. The highest test result, 4.3 TUc (23% effluent), was from the normal embryo development test conducted with *Mytilus galloprovincialis* (Mediterranean mussel).in July 2025.With the exception of one other result of 4.2 TUc for the same test and species in July 2024, all other test results were < 2.9 TUc (34% effluent).

The Valdez WWTF's effluent exceeds water-quality criteria for TRC, ammonia and copper at the end of the pipe which is 100% effluent. TRC, ammonia and copper are classified as toxic pollutants. There is reasonable potential to assume that WET at 100% effluent concentration will exceed 1.0 TUc at the end of the pipe. Therefore, WET is included in the mixing zone sized for ammonia.

The reissued permit contains a new chronic dilution factor (6.8) that corresponds to the required dilution for ammonia to meet chronic water quality criteria. This is the IWC and corresponds to 15 TUc. The dilution test series for WET testing must bracket the IWC and must include two dilutions above the

IWC, two dilutions below the IWC, and a control. No concentration shall be greater than two times that of the next lower concentration. Six bi-weekly WET tests are required over a twelve-week period if any test result exceeds 15 TUc. In response to comments received from the City of Valdez during public notice, the reissued permit has been revised to specify that TUc = 100/NOEC for survival endpoints and TUc = 100/IC25 for all other test endpoints.. Appendix C to the permit contains a definition of NOEC and IC25. If the permittee demonstrates through an evaluation of the facility operations that the cause of the exceedance is known and corrective actions have been implemented, only one accelerated test is required. If toxicity is greater than either of the toxicity triggers in any of the accelerated tests, the permittees must initiate a Toxicity Reduction Evaluation (TRE). A TRE is a site-specific process designed to identify the cause of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and confirm effluent toxicity reduction. The permittee may initiate a toxicity identification evaluation (TIE) as a part of the TRE. A TIE is a set of procedures that characterize, identify, and confirm the specific chemicals responsible for effluent toxicity. TREs and TIEs must be performed in accordance with EPA guidance manuals (see Permit Section 1.4.4 for further details).

3.5 Additional Effluent Monitoring Requirements

The permittee must perform the additional effluent testing in the APDES application Form 2A, Section 11 as well as all applicable supplemental monitoring listed in Section 12. The permittee must submit the results of this additional testing with their application for renewal of this APDES permit. Monitoring results must be included with the application for permit reissuance and will be used as a screening tool to identify pollutants that may exceed State WQS.

4.0 RECEIVING WATERBODY

4.1 Description of Receiving Waterbody

Port Valdez, the northern most ice-free year-round port in the U.S., is a glacially carved fjord located in Prince William Sound. It is oriented in an easterly-westerly direction and measures at its maximum approximately 13 miles long, 3-4 miles wide, and 790 feet deep. The City of Valdez is located on the eastern end; on the western end it connects to Valdez Arm via the Valdez Narrows. Lowe River, which originates from the Worthington Glacier in the Chugach Mountains is the primary freshwater source. Other sources include Mineral Creek, Valdez Glacier Stream fed by the Valdez Glacier, Solomon Gulch Creek and other small unnamed tributaries.

4.2 Outfall Location

The Valdez WWTF discharges secondary treated domestic wastewater into Port Valdez at 61° 6’ 58.91” North latitude and 146° 16’ 50.66” West longitude. Effluent flows through a two-foot diameter pipe that terminates 2,259 feet from the facility with a 12-inch diameter, 60-foot diffuser containing six eight-inch diameter ports located that is located 23 feet below mean lower low water. The diffuser is orientated perpendicular to the shoreline.

4.3 Water Quality Standards

Regulations in 18 AAC 70 require that the conditions in permits ensure compliance with the Alaska WQS. The State’s WQS are composed of use classifications, numeric and/or narrative water quality criteria, and an Antidegradation Policy. The use classification system identifies the designated uses that each waterbody is expected to achieve. The numeric and/or narrative water quality criteria are the

criteria deemed necessary by the state to support the designated use classification of each waterbody. The Antidegradation Policy ensures that the existing water uses and the level of water quality necessary to protect the uses are maintained and protected.

Waterbodies in Alaska are protected for all uses unless the water has been reclassified under 18 AAC 70.230, as listed under 18 AAC 70.230(e). Some waterbodies in Alaska can also have site– specific water quality criteria per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b).

Port Valdez has not been reclassified pursuant to 18 AAC 70.230, nor does it have site-specific water quality criteria pursuant to 18 AAC 70.235. Therefore, Port Valdez must be protected for all marine water use classes listed in 18 AAC 70.020(a)(2). These marine water use classes are water supply for aquaculture, seafood processing and industrial; contact and secondary recreation, and growth and propagation of fish, shellfish, other aquatic life, and wildlife, and harvesting for consumption of raw mollusks or other raw aquatic life.

4.4 Water Quality Status of Receiving Water

Any part of a waterbody for which the water quality does not or is not expected to meet applicable WQS is defined as a "water quality limited segment" and placed on the state's impaired waterbody list. For an impaired waterbody, Section 303(d) of the CWA requires states to develop a Total Maximum Daily Load (TMDL) management plan. The TMDL documents the amount of a pollutant a waterbody can assimilate without violating a state's WQS and allocates that load to known point sources and nonpoint sources. Port Valdez is not included in Alaska's 2024 Integrated Water Quality and Assessment Report.

4.5 Mixing Zone Analysis

In accordance with State regulations at 18 AAC 70.240, the Department may authorize a mixing zone in a permit. A chronic mixing zone is sized to protect the ecology of the waterbody as a whole and an acute mixing zone is sized to prevent lethality to passing organisms.

The City of Valdez's mixing zone submittal contained the same mixing zone dimensions that DEC authorized in the 2020 permit; however, some of the modeling inputs such as the maximum expected concentrations, ammonia water quality criteria, and the driver of the acute mixing zone (TRC rather than ammonia) have changed since the permit was last issued. Therefore, the prior mixing zone size cannot be re-authorized for this permit.

In order to ensure that the mixing zone complies with 18 AAC 70.240, DEC conducted an RPA using the last five years of effluent data and modeled the chronic and acute mixing zones using Cornell Mixing Zone Expert System (CORMIX) modeling software. CORMIX is a widely used and broadly accepted modeling tool for accurate and reliable point source mixing analysis. Inputs to CORMIX included the maximum expected effluent concentration of the pollutant requiring the most dilution to achieve water quality criteria, acute and chronic water quality criteria, receiving water characteristics such as depth of the receiving water at the outfall, currents and wind velocity, and outfall and diffuser specifications, such as the number and size of ports. Based on the inputs, CORMIX predicts the distance at which the modeled parameter meets water quality criteria as well as the corresponding dilution at that point.

Based on the maximum expected concentrations and chronic and acute water quality criteria, DEC determined that ammonia required the most dilution (6.8:1) of the parameters that demonstrated reasonable potential to exceed chronic water quality criteria and TRC required the most dilution of the parameters that demonstrated reasonable potential to exceed acute (3.5:1) water quality criteria. Therefore, DEC conducted the modeling of the chronic mixing zone using ammonia as the driver of the

chronic mixing zone and TRC as the driver of the acute mixing zone. TRC, copper, FC, enterococci, dissolved oxygen, temperature, and WET fit within the chronic mixing zone sized for ammonia. The following mixing zones are authorized in Port Valdez for the Valdez WWTF effluent:

The chronic mixing zone for Outfall 002A has a dilution factor of 6.8 and is defined as centered over the diffuser with the length oriented perpendicular to the shoreline and measuring 5.8 meters long by 16 meters wide.

The acute mixing zone for Outfall 002A has a dilution factor of 3.5 and is defined as centered over the diffuser with the length oriented perpendicular to the shoreline and measuring 3.3 meters long by 16 meters wide.

The chronic mixing zone length was sized using the distance predicted by CORMIX where ammonia achieves the criterion continuous concentration (CCC) or the chronic criterion. Generally, surface currents in Port Valdez tend to move eastward with the ebb tide and westward with the flood tide; therefore, DEC applied the length dimension predicted by CORMIX to either side of the diffuser's width to account for the switching of the ebb and flood tides and added on the diameter of the diffuser, 0.3048 meters.

The chronic mixing zone width is calculated using the half-width that CORMIX predicted in the same mixing zone session from which the CCC length was determined. The half-width was added to both ends of the effective length of the diffuser (15.24 meters port to port) to account for the switching of the ebb and flood tides. Prior permits had incorporated the entire length of the diffuser into the mixing zone sizing calculations. It is more appropriate to only use that section of the diffuser that contains the ports.

The same procedure using the criterion maximum concentration (CMC) or the acute criterion (for TRC), was used to calculate the acute mixing zone dimensions. The chronic and acute mixing zone widths in the authorized mixing zones have been rounded. Prior to rounding, the acute mixing zone width is slightly narrower at 15.74 meters and the chronic acute mixing zone width is 15.98 meters.

According to EPA, lethality is generally not expected to organisms passing through the plume along the path of maximum exposure if the organism is not exposed to concentrations exceeding the acute criteria when averaged over a one-hour time period. Specifically, the travel time of a drifting organism traveling through the path of maximum exposure should occur within 15 minutes if a one-hour exposure is not to exceed the acute criterion.

CORMIX predicted that the travel time of an organism drifting through the acute mixing zone with TRC as the driver to be approximately 1.5 seconds; therefore, in accordance with18 AAC 70.240(d)(7), there will be no lethality to organisms passing through the acute mixing zone.

Appendix D outlines regulatory criteria that must be met in order for the Department to authorize a mixing zone. These criteria include the size of the mixing zone, treatment technology, existing uses of the waterbody, human consumption, spawning areas, human health, aquatic life, and endangered species.

The following summarizes this analysis:

Size

18 AAC 70.240(k) states that mixing zones must be as small as practicable. In order to ensure that the mixing zone is as small as practicable, DEC used CORMIX version 12.0GTD to model the chronic and acute and mixing zones. CORMIX is a widely used and broadly accepted modeling tool for accurate and reliable point source mixing analysis and predicts the distance at which a modeled parameter meets water quality criteria as well as the corresponding dilution at that point.

18 AAC 70.240(b)(2) requires the Department to consider the characteristics of the effluent after treatment of the wastewater. DEC reviewed the facility's effluent monitoring data from April 2021 through September 2025 to identify pollutants of concern and to determine which pollutants have reasonable potential to exceed water quality criteria and then which pollutant requires the most dilution to meet both chronic and acute water quality criteria. As described above in this Section, ammonia requires the most dilution to meet chronic water quality criteria, and TRC requires the most dilution to meet acute water quality criteria. Therefore, the mixing zones are sized large enough to provide enough dilution for these driving parameters (and all parameters that require less dilution to meet water quality criteria) but are not larger than necessary. Table 6 contains a summary of the inputs that were used for the mixing zone modeling. These inputs help ensure that the mixing zones are as small as practicable.

Table 6- Summary of CORMIX Version 12.0 GTD Inputs

Parameter Modeled	Discharge Excess Concentration (MEC - ambient concentration)	Ambient Concentration	Water Quality Criteria Excess (water quality criterion - ambient concentration)
Ammonia	25.01 mg/L	0 mg/L	24.6 mg/L (acute) 3.7 mg/L (chronic)
TRC	45.71 µg/L	0 µg/L	13 µg/L (acute) 7.5 µg/L (chronic0
Outfall and Receiving Waterbody Characteristics			
Discharge Geometry	60-foot multiport diffuser (50 -feet effective length port to port)		
Nearest Bank	Right		
Diffuser Length	60 feet		
Number & Size of Ports	6 ports, 8 inch-diameter		
Nozzle Direction	Same direction		
Port Height	0.76 meters		
Depth at Discharge	7.01 meters		
Ambient Velocity	0.1 m/s		
Wind Speed	7 meters per second		
Effluent Characteristics			
Flow Rate	2.5 million gallons per day		
Density	996.8 kilograms per cubic meters		

Technology

In accordance with 18 AAC 70.240(c)(1), the most effective technological and economical methods should be used to disperse, treat, remove, and reduce pollutants. Wastewater treatment operations at the Valdez WWTF often meet and exceed secondary treatment requirements. The wastewater treatment system includes two-aerated lagoons and a third chlorine contact pond. The treatment methods incorporated at the Valdez WWTF are commonly employed and accepted for treatment of similar discharges throughout the U.S.

Existing Use

In accordance with 18 AAC 70.240(c)(2)and (3) and 18 AAC 70.240(c)(4)(B) and (C), the mixing zones are appropriately sized to fully protect the existing uses of Port Valdez. Port Valdez's existing uses and biological integrity have been maintained and protected under the terms of the previous permit and shall continue to be maintained and protected under the terms of the reissued permit. Water quality criteria are

developed to specifically protect the uses of the waterbody as a whole. Because water quality criteria for pollutants that demonstrated reasonable potential to exceed water quality criteria will be met prior to or at the boundary of the chronic mixing zone, designated and existing uses in Port Valdez that are beyond the boundary of the chronic mixing zone will be maintained and protected.

Human Consumption

In accordance with the conditions of the permit, and in accordance with 18 AAC 240(d)(6),the pollutants discharged cannot produce objectionable color, taste, or odor in aquatic resources harvested for human consumption. There is no indication that the pollutants discharged have produced objectionable color, taste, or odor in aquatic resources harvested for human consumption. The permit requires the permittee to post a sign on the shoreline near the discharge area to inform the public that certain activities such as harvesting of aquatic life for raw consumption should not take place in the mixing zones.

Spawning Areas

In accordance with 18 AAC 70.240(f), the mixing zone may not be authorized in a known spawning area for anadromous fish or resident fish spawning redds for Arctic grayling, northern pike, rainbow trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic char (Dolly Varden), burbot, and landlocked coho, king, and sockeye salmon. The Valdez WWTF discharges into marine water; therefore, this condition is not applicable.

Human Health

In accordance with 18 AAC 70.240(d)(1), the mixing zone must not contain bioaccumulating, bioconcentrating, or persistent chemicals above natural or significantly adverse levels. 18 AAC 70.240(d)(2), states that the mixing zone must not present an unacceptable risk to human health from carcinogenic, mutagenic, teratogenic, or other effects as determined using risk assessment methods approved by DEC and consistent with 18 AAC 70.025.An analysis of the effluent data that was included with the Valdez WWTF wastewater discharge application, DMRs, and the results of the RPAs conducted on pollutants of concern indicate that the level of treatment at the Valdez WWTF is protective of human health. The effluent data was used in conjunction with applicable water quality criteria, which serve the purpose of protecting human and aquatic life to size the mixing zones to ensure all water quality criteria are met in the waterbody at the boundary of the chronic mixing zone.

Aquatic Life and Wildlife

In accordance with 18 AAC 70.240, the mixing zone authorized in the permit shall be protective of aquatic life and wildlife. The mixing zones do not form a barrier to migratory fish species or fish passage nor will they result in a reduction of fish population levels. A toxic effect will not occur in the water column, sediments, or biota outside the boundaries of the mixing zones. CORMIX modeling conducted for this discharge to Port Valdez incorporated the most stringent water quality criteria in the models for protection of the growth and propagation of fish, shellfish, other aquatic life, and wildlife, and all water quality criteria will be met at the boundary of the authorized chronic mixing zone.

Endangered Species

In accordance with 18 AAC 70.240(c)(4)(F), the authorized mixing zones will not cause an adverse effect on threatened or endangered species. DEC accessed IPaC: Home for information on endangered or threatened species that may be present near the vicinity of the Valdez WWTF outfall that are under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). There are no marine mammals listed.

The short-tailed albatross is listed as endangered; there are no critical habitats for the short-tailed albatross listed at the location of the outfall.

DEC will provide a copy of the permit and fact sheet to the National Marine Fisheries Service (NMFS) and the USFWS when it is publicly noticed. Any comments received from the agencies regarding endangered species will be considered prior to issuance of the permit.

5.0 ANTIBACKSLIDING

18 AAC 83.480 requires that "interim effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit.". 18 AAC 83.480(c) also states that a permit may not be reissued "to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed or reissued."

EPA's *Interim Guidance for Performance-Based Reduction of NPDES Monitoring Frequencies* (EPA, 1996), states that monitoring requirements are not considered effluent limitations under the Clean Water CWA, and therefore Antibacksliding prohibitions would not be triggered by reductions in monitoring frequencies.

Effluent limitations may be relaxed under 18 AAC 83.480, CWA Section 402(o) and CWA Section 303(d)(4). 18 AAC 83.480(b) allows relaxed limitations in renewed, reissued, or modified permits when there have been material and substantial alterations or additions to the permitted facility that justify the relaxation, or where new information is available that justifies the relaxation, or if the Department determines that technical mistakes or mistaken interpretations of the law were made.

All permit effluent limits, standards, and conditions are as stringent as in the previously issued permit and are consistent with 18 AAC 83.480. Accordingly, no further backsliding analysis is required for this permit reissuance.

6.0 ANTIDEGRADATION

Section303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the waterbody's designated uses, WQBELs may be revised as long as the revision is consistent with the State's Antidegradation policy. The State's Antidegradation policy is found in the 18 AAC 70 WQS regulations at 18 AAC 70.015. The Department's approach to implementing the Antidegradation policy is found in 18 AAC 70.016 *Antidegradation implementation methods for discharges authorized under the federal Clean Water Act.* Both the Antidegradation policy and the implementation methods are consistent with 40 CFR 131.12 and approved by EPA. This section analyzes and provides rationale for the Department's decisions in the permit issuance with respect to the Antidegradation policy and implementation methods.

Using the policy and corresponding implementation methods, the Department determines a Tier 1 or Tier 2 classification and protection level on a parameter-by-parameter basis. A Tier 3 protection level applies to a designated water. At this time, no Tier 3 waters have been designated in Alaska.

18 AAC 70.015(a)(1) states that the existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected (Tier 1 protection level).

Port Valdez is a Category 3 waterbody in Alaska's 2024 Integrated Water Quality and Assessment Report for Copper, DO, Nickel, pH, Zinc, enterococcus, and FC The Integrated Report helps the State prioritize waterbodies for data gathering, watershed protection, and restoration of impaired waters.

Category 3 waterbodies lack sufficient information for DEC to determine their status; therefore, this antidegradation analysis conservatively assumes that the Tier 2 protection level applies to all parameters, consistent with 18 AAC 70.016(c)(1).

18 AAC 70.015(a)(2) states that if the quality of water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected, unless the Department authorizes a reduction in water quality (Tier 2 protection level).

The Department may allow a reduction of water quality only after the specific analysis and requirements under 18 AAC 70.016(b)(5)(A-C), 18 AAC 70.016(c), 18 AAC 70.016(c)(7)(A-F), and 18 AAC 70.016(d) are met.

The Department's findings are as follows:

18 AAC 70.016(b)(5)

(A) existing uses and the water quality necessary for protection of existing uses have been identified based on available evidence, including water quality and use related data, information submitted by the applicant, and water quality and use related data and information received during public comment;
(B) existing uses will be maintained and protected; and
(C) the discharge will not cause water quality to be lowered further where the department finds that the parameter already exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b).

18 AAC 70.020 and 18 AAC 70.050 specify the protected water use classes for the State; therefore, the most stringent water quality criteria found in 18 AAC 70.020 and in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (DEC 2022) apply and were evaluated. This will ensure existing uses and the water quality necessary for protection of existing uses of the receiving waterbody are fully maintained and protected.

The permit places limits and conditions on the discharge of pollutants. The limits and conditions are established after comparing TBELs and WQBELs and applying the more restrictive of these limits. The water quality criteria, upon which the permit effluent limits are based, serve the specific purpose of protecting the existing and designated uses of the receiving water. WQBELs are set equal to the most stringent water quality criteria available for any of the protected water use classes. This also ensures that the resulting water quality at and beyond the boundary of any authorized mixing zone will fully protect all existing and designated uses of the receiving waterbody as a whole.

The Department concludes the terms and conditions of the permit will be adequate to fully protect and maintain the existing uses of the water and that the findings under 18 AAC 70.016(b)(5) are met.

18 AAC 70.016(c)(7)(A –F) *if, after review of available evidence, the department finds that the proposed discharge will lower water quality in the receiving water, the department will not authorize a discharge unless the department finds that*

18 AAC 70.016(c)(7)(A) *the reduction of water quality meets the applicable criteria of 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b), unless allowed under 18 AAC 70.200, 18 AAC 70.210, or 18 AAC 70.240;*

Permit Section 1.2.2 requires that the discharge shall not cause contamination of surface or ground waters or a violation of the WQS at 18 AAC 70 except if excursions are allowed in the permit and the excursions are authorized in accordance with applicable provisions in 18 AAC 70.200 – 70.240 (e.g., variance, mixing zone). As a result of the facility's reasonable potential to exceed water quality criteria

for ammonia, TRC, FC, enterococci, copper, dissolved oxygen, temperature and WET, a chronic and acute mixing zone is authorized in the Valdez WWTF's wastewater discharge permit in accordance with 18 AAC 70.240. The resulting effluent end-of-pipe limits (See Fact Sheet Table 4) protect applicable water quality criteria found at 18 AAC 70.020.

Alaska WQS at 18 AAC 70.030 requires that an effluent discharged to a waterbody may not impart chronic toxicity to aquatic organisms, expressed as 1.0 TUc, at the point of discharge, or if the Department authorizes a mixing zone in a permit, approval, or certification, at or beyond the mixing zone boundary, based on the minimum effluent dilution achieved in the mixing zone. DEC has authorized a chronic mixing zone in this permit with a dilution of 6.8. DEC also established a chronic WET trigger (12 TUc) based on the minimum effluent dilution achieved in the mixing zone. If the WET trigger is not exceeded, the Valdez WWTF effluent will not violate 18 AAC 70.030.

There are no site-specific criteria associated with 18 AAC 70.236(b).The permit does not authorize short term variances or zones of deposit under 18 AAC 70.200 or 18 AAC 70.210.

DEC determined that the reduction in water quality will not violate the criteria of 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b) and that the finding is met.

18 AAC 70.016(c)(7)(B) *each requirement under (b)(5) of this section for a discharge to a Tier 1 water is met;*

See 18 AAC 70.016(b)(5) analysis and findings above.

18 AAC 70.016(c)

> ***(c) Tier 2 analysis for the lowering or potential lowering of water quality not exceeding applicable criteria.*** *Tier 2 applies when the water quality for a parameter in a water of the United States within this state does not exceed the applicable criteria under 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b) and receives the protection under 18 AAC 70.015(a)(2).*
>
> *(3) the department will not conduct a Tier 2 antidegradation analysis for*
>
> *(A) reissuance of a license or general or individual permit for a discharge that the applicant is not proposing to expand;*

18 AAC 70.016(c)(2)(A) states that when evaluating development of a license or general or individual permit for a discharge, the department will conduct a Tier 2 antidegradation analysis for a proposed new or expanded discharge. 18 AAC 70.990(75) states that new or expanded with respect to discharges means discharges that are regulated for the first time or discharges that are expanded such that they could result in an increase in a permitted parameter load or concentration or other changes in discharge characteristics that could lower water quality or have other adverse environmental impacts. Discharge is further defined in 18 AAC 83.990(22) as a discharge of a pollutant.

All pollutants regulated under the permit were also regulated under the prior permit, therefore, not considered a new discharge. The discharge covered under AK0021431 is not expanded from the previous permit. There will not be an increase in a permitted parameter load, concentration, or other change in discharge characteristics that could lower water quality of have other adverse environmental impacts.

18 AAC 70.016(c)(3)(A) states that the Department will not conduct a Tier 2 antidegradation analysis for reissuance of a license or general or individual permit for a discharge that the applicant is not proposing to expand. Therefore, consistent with 18 AAC 70.016(c)(2)(A) and 18 AAC 70.16(c)(3)(A), DEC is not conducting a Tier 2 antidegradation analysis for this permit reissuance.

18 AAC 70.016(c)(7)(F) *18 AAC 70.015 and this section have been applied consistent with 33 U.S.C. 1326 (Clean Water Act, sec. 316) with regard to potential thermal discharge impairments.*

Discharges authorized under the permit are not associated with a potential thermal discharge impairment;therefore, the finding is not applicable.

7.0 OTHER PERMIT CONDITIONS

7.1 Quality Assurance Project Plan (QAPP)

The permittee is required to develop procedures to ensure that the monitoring data submitted are accurate and to explain data anomalies if they occur. The permittee is required to review and update as necessary, the facility's QAPP within 180 days of the effective date of the final permit. The QAPP shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples; laboratory analysis; precision and accuracy requirements; data reporting, including method detection/reporting limits; and quality assurance/quality control criteria. The permittee is required to amend the QAPP whenever any procedure addressed by the QAPP is modified. The QAPP shall be retained electronically or physically at the facility's office of record and made available to the Department upon request.

7.2 Operation and Maintenance Plan (O&M Plan)

The permit requires the permittee to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to review and update as necessary, the facility's O&M Plan within 180 days of the effective date of the permit. The plan must be reviewed annually and retained electronically or physically at the facility's office of record and made available to the Department upon request.

7.3 Industrial User Survey

18 AAC 83.340 requires POTWs to identify and locate all significant industrial users that discharge process wastewaters and associated pollutants to their wastewater treatment system. General and specific pretreatment prohibitions at 40 CFR 403.5, adopted by reference at 18 AAC 83.010(g)(2), contain prohibitions that apply to each industrial user introducing pollutants into a POTW whether or not the industrial user is subject to other National Pretreatment Standards, or any national, State, or local pretreatment requirements. Therefore, in order to assess whether an industry or business has the potential to violate any general or specific pretreatment prohibition, and to determine if a pretreatment program should be developed and/or if pretreatment requirements should be included in the Valdez WWTF wastewater discharge permit, the permittee is required to submit with their permit reissuance application a list of those industries or businesses that discharge and/or have the potential to discharge non-domestic wastewater to the Valdez WWTF's collection system. DEC may request further information on specific industries or businesses to assist in this evaluation.

7.4 Electronic Discharge Monitoring Report

The permittee must submit DMR data electronically through NetDMR per Phase I of the E-Reporting Rule (40 CFR 127) upon the effective date of the permit. Authorized persons may access permit information by logging into the NetDMR Portal https://cdx.epa.gov/). DMRs submitted in compliance with the E-Reporting Rule are not required to be submitted as described in permit Appendix A – Standard Conditions unless requested or approved by the Department. Any DMR data required by the

Permit that cannot be reported in a NetDMR field (e.g. mixing zone receiving water data), shall be included as an attachment to the NetDMR submittal. DEC has established an e-Reporting Information website at https://dec.alaska.gov/water/compliance/electronic-reporting-rule that contains general information about this new reporting format. Training materials and webinars for NetDMR can be found at https://usepa.servicenowservices.com/oeca_icis?id=netdmr_homepage.

Phase II of the E-Reporting rule integrates electronic reporting for all other reports required by the Permit (e.g., Annual Reports and Certifications). All wastewater permit required submissions (e.g., Notices of Intent (NOI's), Notice of Terminations (NOT), Annual Reports, Noncompliance Notification, and Corrective Action reports are to be submitted electronically through DEC's Environmental Data Management System (EDMS, accessible via https://dec.alaska.gov/water/edms), unless prior approval has been obtained from DEC for an alternative means.

7.5 Standard Conditions

Appendix A of the permit contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an individual APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

8.0 OTHER LEGAL REQUIREMENTS

8.1 Ocean Discharge Criteria Evaluation (ODCE)

Section 403(a) of the CWA, Ocean Discharge Criteria, prohibits the issuance of a permit under Section 402 of the CWA for a discharge into the territorial sea, the water of the contiguous zone, or the oceans except in compliance with Section 403. Permits for discharges seaward of the baseline of the territorial seas must comply with the requirements of Section 403, which include development of an ODCE.

Interactive maps and downloadable data showing the U.S. baseline, territorial sea, and contiguous zone are available at U.S. Office of Coast Survey. The charts and maps are provided for information purposes only. The U.S. Baseline committee makes the official determinations on baseline. Ocean Discharge Criteria are not applicable for marine discharges to areas located landward of the baseline of the territorial sea.

A review of the baseline line maps revealed that the Valdez WWTF outfall is positioned landward of the baseline of the territorial sea; therefore, Section 403 of the CWA does not apply and an ODCE analysis is not required to be completed for this permit reissuance. Further, the permit requires compliance with WQS such that 40 CFR 125.122(b) is met and therefore the discharge is presumed not to cause unreasonable degradation of the marine environment.

8.2 Endangered Species Act (ESA)

The ESA requires federal agencies to consult with the USFWS and NMFS to determine whether their authorized actions could beneficially or adversely affect any threatened and endangered species or habitats. NMFS is responsible for administration of the ESA for listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, and sea otters) are administered by the USFWS.

As a state agency, DEC is not required to consult with these federal agencies regarding permitting actions; however, DEC voluntarily contacts the agencies to notify them of the proposed permit issuance and to obtain listings of threatened and endangered species near the discharge.

DEC accessed IPaC: Home for information on endangered or threatened species that may be present near the vicinity of the Valdez WWTF outfall that are under the jurisdiction of USFWS. There are no marine mammals listed. The short-tailed albatross is listed as endangered; there are no critical habitats for the short-tailed albatross listed at the location of the outfall.

This permit and fact sheet will be provided to the agencies for review during the public notice period. Any comments received from these agencies will be considered prior to issuance of the permit.

8.3 Essential Fish Habitat (EFH)

EFH includes the waters and substrate (sediments, etc.) necessary for fish from commercially fished species to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires federal agencies to consult with National Oceanic Atmospheric Administration (NOAA) Fisheries (NMFS) when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. As a State agency, DEC is not required to consult with NMFS regarding permitting actions but voluntarily contacts NMFS to notify them of the proposed permit issuance and to obtain listings of EFH in the area.

DEC accessed NOAA Fisheries Alaska EFH https Mapper at ://www.fisheries.noaa.gov/national/habitat-conservation/essential-fish-habitat#essential-fish-habitat-mapper which identified the following EFH species and their life stages in the vicinity of the Valdez WWTF outfall:

- Walleye pollock (early juvenile summer)
- Pacific ocean perch (early juvenile summer)
- Arrowtooth flounder (early juvenile summer)
- Sablefish (settled early juvenile summer)
- Northern rock sole (early juvenile summer)
- Southern rock sole (early juvenile summer)
- English sole (early juvenile summer)
- Pacific cod (settled early juvenile summer)
- Starry flounder (early juvenile summer)

DEC will provide NMFS with copies of the permit and fact sheet during the public notice period. Any comments received from NMFS regarding EFH will be considered prior to issuance of the permit.

8.4 Sludge (Biosolids) Requirements

Sludge means any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. State and federal requirements regulate the management and disposal of sewage sludge (biosolids). The permittees must consult both state and federal regulations to ensure proper management of the biosolids and compliance with applicable requirements.

State Requirements

The Department separates wastewater and biosolids permitting. The permittees should contact the Department's Solid Waste Program for information regarding state regulations for biosolids. The

permittees can access the Department's Solid Waste Program webpage for more information and who to contact.

Federal Requirements

EPA is the permitting authority for the federal sewage sludge regulations at 40 CFR Part 503. Biosolids management and disposal activities are subject to the federal requirements in Part 503. The Part 503 regulations are self-implementing, which means that a permittee must comply with the regulations even if no federal biosolids permit has been issued for the facility.

A POTW is required to apply for an EPA biosolids permit. The permittees should ensure that a biosolids permit application has been submitted to EPA. In addition, the permittees are required to submit a biosolids permit application to EPA for the use or disposal of sewage sludge at least 180 days before this APDES permit expires in accordance with 40 CFR §§122.21(c)(2) and 122.21(q) [See also 18 AAC 83.110(c) and 18 AAC 83.310, respectively]. NPDES Form 2S can be found on EPA's website, www.epa.gov, under NPDES forms. A completed NPDES Form 2S should be submitted to:

U.S. Environmental Protection Agency
Region 10, NPDES Permits Unit OWW-130
Attention: Biosolids Contact
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

The EPA Region 10 telephone number is 1-800-424-4372. Information about EPA's biosolids program and CWA Part 503 is available at https://www.epa.gov/biosolids and either search for 'biosolids' or go to the EPA Region 10 website link and search for 'NPDES Permits'.

8.5 Permit Expiration

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

9.0 REFERENCES

Alaska Department of Environmental Conservation (ADEC). https://dec.alaska.gov/water/water-quality/integrated-report, accessed November 12, 2025.

ADEC, 2025. 18 AAC 83, Alaska Pollutant Discharge Elimination System, as amended through August 13, 2025.

ADEC, 2022. 18 AAC 70, Water Quality Standards, as amended through November 13, 2023.

ADEC, 2022. Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances, as amended through September 8, 2022.

ADEC, 2014. Alaska Pollutant Discharge Elimination System Permits Reasonable Potential Analysis and Effluent Limits Development Guide.

Doneker, Robert and Jirka, Gerhard. 2007. CORMIX user manual, U.S. Environmental Protection Agency,EPA-823-K-07-001, December 2007, updated July 2021.

Giudice, M.S., B.D., M. Bryan, P.E., corresponding author Robertson Bryon-Inc., B. Jorgenson. Problems Associated with Using Current EPA Approved Total Cyanide Analytical Methods for Determining Municipal Wastewater Treatment Plant NPDES Permit Compliance. Technical Articles - EZkem. Accessed November 12, 2025.

NOAA. https://www.fisheries.noaa.gov/national/habitat-conservation/essential-fish-habitat#essential-fish-habitat-mapper. Accessed November 12, 2025.

U.S. Environmental Protection Agency. (USEPA), 1996. Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequencies, EPA/833-B-96-001, USEPA Office of Water, Washington D.C., April 1996.

USEPA, 1991. Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001, USEPA Office of Water, Washington D.C., March 1991.

U.S. Fish and Wildlife Service iPac Information for Planning and Consultation https://ecos.fws.gov/ipac/. Accessed November 12, 2025.

APPENDIX A. – BASIS FOR EFFLUENT LIMITATIONS

A.1 Statutory and Regulatory Basis

18 Alaska Administrative Code (AAC) 70.010 prohibits conduct that causes or contributes to a violation of the water quality standards (WQS). 18 AAC 15.090 requires that permits include terms and conditions to ensure criteria are met, including operating, monitoring, and reporting requirements.

The regulations require the permitting authority to make this evaluation using procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving waterbody. The limits must be stringent enough to ensure that WQS are met and must be consistent with any available wasteload allocation (WLA). The Clean Water Act (CWA) requires a Publicly Owned Treatment Works (POTW) to meet effluent limits based on available wastewater treatment technology, specifically, secondary treatment effluent limits. The Alaska Department of Environmental Conservation (the Department or DEC) may find, by analyzing the effect of an effluent discharge on the receiving waterbody, that secondary treatment effluent limits are not sufficiently stringent to meet water quality WQS. In such cases, the Department is required to develop more stringent water quality-based effluent limits (WQBELs), which are designed to ensure that the WQS of the receiving waterbody are met.

Secondary treatment effluent limits for POTWs do not limit every parameter that may be present in the effluent. Limits have only been developed for five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. Effluent from a POTW may contain other pollutants, such as bacteria, total residual chlorine (TRC), total ammonia as nitrogen (ammonia), or metals, depending on the type of treatment system used and the quality of the influent to the POTW (e.g., industrial facilities, as well as residential areas discharging into the POTW). When technology-based effluent limits (TBELs) do not exist for a particular pollutant expected to be in the effluent, the Department must determine if the pollutant may cause or contribute to an exceedance of a water quality criterion for the waterbody. If a pollutant causes or contributes to an exceedance of a water quality criterion, a WQBEL for the pollutant must be established in the permit. Table A-1 summarizes the basis for effluent limits contained in the permit. Further details for each effluent limit follows in this section.

(Table A-1: Basis for Effluent Limits
is located on the following page.)

Table A-1: Basis for Effluent Limits

Parameter	Units	EFFLUENT LIMITS				
		Daily Minimum	Monthly Average	Weekly Average	Daily Maximum	Basis for Limit
Flow	mgd	N/A	N/A	N/A	2.5	18 AAC 72.245
BOD_5	mg/L	N/A	30	45	60	18 AAC 83.010(e) 18 AAC 83.540
	lbs/day	N/A	375	563	751	
TSS	mg/L	N/A	30	45	60	18 AAC 83.010(e) 18 AAC 83.540
	lbs/day	N/A	375	563	751	
BOD_5 & TSS Minimum Percent (%) Removal	%	85				18 AAC 83.010(e)
TRC	µg/L	N/A	30	45	46	18 AAC 83.530(d) 18 AAC 83.480 18 AAC 83.540 18 AAC 70.020(b)(23)
	lbs/day		0.4	0.56	0.57	
Fecal Coliform Bacteria	FC/100 mL	N/A	200	400	800	18 AAC 72.050(a)(3) 18 AAC 72.990(21)
Ammonia	mg/L	N/A	21	32	39	18 AAC 83.530(d) 18 AAC 83.540 18 AAC 70.020(b)(23)
	lbs/day		263	400	488	
Copper, total recoverable	µg/L	N/A	9.0	N/A	12	18 AAC 83.530(d) 18 AAC 83.480 18 AAC 83.540 18 AAC 70.020(b)(23)
	lbs/day		0.11	N/A	0.15	
pH	S.U.	6.5	N/A	N/A	8.5	18 AAC 70.020(b)(18)
Dissolved Oxygen	mg/L	2.0	N/A	N/A	17	18 AAC 70.020(b)(15)

Units: mgd = million gallons per day, mg/L = milligrams per liter, lbs/day = pounds per day, S.U.= standard units, FC/100 mL = Fecal Coliform per 100 milliliters, cfu/100 mL, µg/L = micrograms per liter.

A.2 Technology-Based Effluent Limitations in the Valdez WWTF Permit

A.2.1 BOD_5 and TSS

The CWA requires a POTW to meet requirements based on available wastewater treatment technology. Section 301 of the CWA established a performance level, referred to as "secondary treatment," that all POTWs were required to meet by July 1, 1977. The Department has adopted the "secondary treatment" effluent limits in 40 Code of Federal Regulations (CFR) §133.102 at 18 AAC 83.010(e). The TBELs apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH. In addition to the federal secondary treatment regulations in 40 CFR Part 133.102, the State of Alaska requires a maximum daily limitation of 60 mg/L for both BOD_5 and TSS. This is defined in DEC Wastewater Disposal Regulations at 18 AAC 72.990. The Wastewater Disposal regulations do not specify percent

removal requirements; therefore, DEC applied those found in 40 CFR 133. The secondary treatment effluent limits are listed in Table A-2.

Table A-2: Secondary Treatment Effluent Limits

Parameter	Units	Monthly Average	Weekly Average	Daily Maximum	Minimum Removal
BOD_5	mg/L	30	45	60	85%
TSS	mg/L	30	45	60	85%
pH	S.U.	Between 6.0 – 9.0 S.U. at all times			
Units: mg/L = milligrams per liter, S.U.= standard units					

A.2.2 Fecal Coliform (FC) Bacteria

Alaska Wastewater Regulations at 18 AAC 72.050, Minimum treatment (a)(3) states that the department may authorize a person to discharge domestic wastewater into or onto water or land if the discharge to surface waters has received secondary treatment and has been disinfected. 18 AAC 72.990(25) defines disinfect as meaning to treat by means of chlorination, ozonation, application of ultraviolet light, sterilization, or another chemical, physical, or other process designed to reduce or eliminate pathogenic organisms and produce an effluent with the following characteristics:

- an arithmetic mean of the values for a minimum of five effluent samples collected in 30 consecutive days that does not exceed 200 FC/100 mL; and
- an arithmetic mean of the values for effluent samples collected in seven consecutive days that does not exceed 400 FC/100/mL.

The above limits are based on the technological capability of disinfection; therefore, DEC is applying them as TBELs in the permit. In order to ensure the attainment of the arithmetic mean FC concentrations, DEC has also established 800 FC/100 mL as a daily maximum TBEL. Establishing a maximum limit creates an upper boundary whereby if FC concentrations do not exceed the daily maximum limit, there will be an increased likelihood that the FC concentrations used for averaging will comply with the monthly and weekly FC concentration average limits.

A.3 Water Quality – Based Effluent Limitations

WQBELs included in Alaska Pollutant Discharge Elimination System (APDES) permits are derived from WQS. APDES regulation 18 AAC 83.435(a)(2) requires that permits include WQBELs that can achieve WQS established under CWA Section 303, including state narrative criteria for water quality. The State's WQS are composed of use classifications, numeric and/or narrative water quality criteria, and an antidegradation policy. The use classification system identifies the designated uses that each waterbody is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the state to support the designated use classification of each waterbody. Designated uses are those uses specified in WQS for each waterbody or segment whether or not they are being attained [40 CFR Section 131.3(f)]. Existing uses are those uses actually attained in a waterbody on or after November 28, 1975, whether or not they are included in the WQS [40 CFR Section 131.3].

Waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230 as listed under 18 AAC 70.230(e). Some waterbodies in Alaska can also have site–specific water quality criteria per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b).

Permit AK0021431 authorizes discharge of secondary treated domestic wastewater to marine water. The designated uses for marine water that have not been reclassified are water supply for aquaculture, seafood processing and industrial; contact and secondary recreation, and growth and propagation of fish,

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

A.4 Reasonable Potential Analysis

The Department used the process described in the Technical Support Document (TSD) for Water Quality-Based Toxics Control (Environmental Protection Agency, 1991) and DEC's guidance, APDES *Permits Reasonable Potential Analysis and Effluent Limits Development Guide* (June 30, 2014) to evaluate the Valdez WWTF's effluent. Discharge monitoring reports (DMRs) from April 2021 to September 2025 and Form 2A Application to Discharge were reviewed to identify pollutants of concern. Pollutants of concern are those pollutants that already have a TBEL or WQBEL for a particular pollutant, pollutants with a total maximum load waste load allocation or watershed analysis, pollutants identified as present in the effluent through monitoring, or those pollutants that are likely to be present in the effluent based on the nature of the operation. Pollutants that are present in the effluent in concentrations above water quality criteria are selected for reasonable potential analysis (RPA).

When evaluating the effluent to determine if WQBELs based on chemical-specific numeric criteria are needed, the Department projects the receiving waterbody concentration downstream of where the effluent enters the receiving waterbody for each pollutant of concern. The chemical-specific concentration of the effluent and receiving waterbody and, if appropriate, the dilution available from the receiving waterbody, are factors used to project the receiving waterbody concentration. If the projected concentration of the receiving waterbody exceeds the numeric criterion for a limited parameter, then there is reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality criterion. DEC assesses reasonable potential to exceed both acute and chronic criterion. Appendix B contains more details on the RPA conducted for this permit.

The Department may authorize a small volume of receiving water to provide dilution of the effluent; this volume is called a mixing zone. Mixing zone allowances will increase the allowable mass loadings of the pollutant to the waterbody. A mixing zone can be used only when there is adequate receiving waterbody flow volume, and the concentration of the pollutant of concern in the receiving waterbody is below the numeric water quality criterion necessary to protect the designated uses of the waterbody.

A.5 Specific Effluent Limits in the Valdez WWTF Permit

A.5.1 Dissolved Oxygen (DO)

Alaska WQS at 18 AAC 70.020(b)(15)(A)(i) Aquaculture states that surface marine DO concentrations for aquaculture, contact recreation, secondary recreation, the harvesting for consumption of raw mollusks or other raw aquatic life, and the growth and propagation of fish, shellfish, other aquatic life, and wildlife, must not be less than 6.0 milligrams per liter (mg/L) and that in no case may DO levels exceed 17 mg/L.

Between April 2021 – September 2025 DO concentrations ranged from 2.68 mg/L to 11.37 mg/L. The facility has not demonstrated that they can consistently meet the minimum DO water quality criterion; therefore, the DO effluent limits contained in the prior permit (minimum 2.0 mg/L, maximum 17 mg/L) are carried forward in the reissued permit. Monitoring shall occur twice per week.

A.5.2 pH

Alaska WQS at 18 AAC 70.020(b)(18)(A)(i) (aquaculture) and 18 AAC 70.020(b)(18)(C) (Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife) states that the pH water quality criteria for marine water, "May not be less than 6.5 or greater than 8.5. Standard Units (S.U.) and may not vary

more than 0.2 pH unit outside the naturally occurring range.". pH effluent monitoring results between April 2021 and September 2025 ranged from 6.98 S.U. to 8.39 S.U. The effluent consistently meets pH water quality criteria; therefore, the pH water quality-based limits contained in the prior permit (6.5 S.U. daily minimum, 8.5 S.U. daily maximum) are carried forward in the reissued permit. Monitoring shall occur twice per week.

A.5.3 Total Residual Chlorine (TRC)

Alaska WQS at 18 AAC 70.020(b)(23)(C) states that TRC concentrations for aquatic life for marine water may not exceed 7.5 micrograms per liter (µg/L) (chronic) 13 µg/L (acute). Effluent TRC monitoring results from April 2021- September 2025 ranged from 10 µg/L to 40 µg/L. TRC continues to have reasonable potential to exceed water quality criteria yet requires less dilution than ammonia, the driver of the mixing zone to meet chronic water quality criteria. Using the chronic dilution from ammonia, and the acute dilution for TRC (the driver of the acute mixing zone), DEC developed TRC WQBELs (46 µg/L daily maximum limit (DML) and 31 µg/L average monthly limit (AML)).

18 AAC 83.480, Reissued Permits, states that a reissued permit may not contain effluent limits that are less stringent than the previous permit (70 µg/L DML and 30 µg/L AML); therefore, DEC has selected the more stringent ammonia effluent limits for the reissued permit. The TRC limits in the prior permit were expressed in terms of mg/L. For consistency with how TRC water quality criteria is expressed in Alaska WQS, the TRC effluent limits in the reissued permit are expressed in terms of µg/L. In 2002, the Environmental Protection Agency calculated the TRC mass-based limits using TRC concentrations containing only one significant figure. For this permit reissuance, DEC has retained the average monthly mass-based limit as it had originally been calculated with one significant figure, but converted the concentration to µg/L.

AAC 83.530(d) requires effluent limits from a continuously discharging POTW to be stated as average weekly and average monthly limits unless impracticable. Secondary treatment standards establishes average weekly limits (AWLs) as being 1.5 times the AML. Following this precedent, the AWL for TRC is derived by multiplying the TRC AML 30 µg/L 1.5 times to obtain the AWL 45 µg/L.

A.5.4 Total Ammonia, as Nitrogen (ammonia)

Alaska WQS at 18 AAC 70.020(b)(23)(C) states that the concentration of substances in water may not exceed the numeric criteria in the Alaska Water Quality Criteria Manual. Total ammonia is the sum of ionized (NH_4^+) and un-ionized ammonia (NH_3). Temperature and pH affect which form, NH_4^+ or NH_3 is present. NH_3 is more toxic to aquatic organisms than NH_4^+ and predominates with higher temperature and pH. Biological wastewater treatment processes reduce the amount of ammonia in domestic wastewater; however, without advanced treatment, wastewater effluent may still contain elevated levels. Excess ammonia in the environment can lead to dissolved oxygen depletion, eutrophication, and toxicity to aquatic organisms.

DEC used the 85th percentile of pH and temperature receiving water data collected by the City of Valdez over term of the prior permit to establish ammonia water quality criteria (24.6 mg/L (acute) and 3.7 mg/L (chronic)). Daily maximum effluent ammonia monitoring results from April 2021 to September 2025 ranged from 3.0 mg/L to 18 mg/L. The ammonia RPA demonstrates that there is reasonable potential for ammonia to exceed water quality criteria; therefore, DEC developed ammonia WQBELs (39 mg/L DML , 21 mg/L AML)

18 AAC 83.480, Reissued Permits states that a reissued permit may not contain effluent limits that are less stringent than the previous permit. DEC compared the previous permit limits (41 mg/L DML and 23

mg/L AML) with the newly developed limits and selected the more stringent limits for this permit reissuance.

18 AAC 83.530(d) requires effluent limits from a continuously discharging POTW to be stated as average weekly and average monthly limits unless impracticable. Secondary treatment standards establishes AWLs as being 1.5 times the AML. Following this precedent, the AWL for ammonia is derived by multiplying the ammonia AML 21 mg/L 1.5 times to obtain the AWL 32 mg/L.

A.5.5 Copper

Alaska WQS at 18 AAC 70.020(b)(23) states that the concentration of substances in water may not exceed the numeric criteria for aquatic life for marine water shown in the Alaska Water Quality Criteria Manual.

The acute aquatic life copper concentration (total recoverable) may not exceed 5.8 micrograms per liter (µg/L) and the chronic aquatic life copper concentration (total recoverable) may not exceed 3.7 µg/L.

DEC reviewed Copper monitoring data from April 2021 to July 2025. Results ranged from 0.004 µg/L to 9.32 µg/L. The RPA of the effluent data indicates that there is reasonable potential for copper to exceed water quality criteria. Since there is reasonable potential for copper to exceed water quality criteria at the end of the pipe, WQBELs were developed for copper (DML 19 µg/L, AML 12 µg/L.

18 AAC 83.480, Reissued Permits states that a reissued permit may not contain effluent limits that are less stringent than the previous permit (13 µg/L DML and 9.0 µg/L AML); therefore, DEC has selected the more stringent ammonia effluent limits (12 µg/L DML and 9.0 µg/L AML) for the reissued permit.

18 AAC 83.530(d) requires effluent limits from a continuously discharging POTW to be stated as average weekly and average monthly limits unless impracticable. Secondary treatment standards establishes AWLs as being 1.5 times the AML. Following this precedent, the AWL for copper is derived by multiplying the copper AML 9.0 µg/L 1.5 times to obtain the AWL 13 µg/L. It is impracticable to apply an AWL greater than the DML; therefore, DEC is not applying a copper AWL in this permit reissuance.

APPENDIX B. – REASONABLE POTENTIAL DETERMINATION

The following describes the process the Alaska Department of Environmental Conservation (the Department or DEC) used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of Alaska Water Quality Standards (WQS). The Department used the process described in the *Technical Support Document* (TSD) *for Water Quality-Based Toxics Control* (Environmental Protection Agency, 1991) and DEC's guidance, *Alaska Pollutant Discharge Elimination System Permits Reasonable Potential Analysis and Effluent Limits Development Guide* (June 30, 2014) (RPA Guide) to determine the reasonable potential for any pollutant to exceed a water quality numeric criterion.

To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the Department compares the maximum projected receiving waterbody concentration to the criteria for that pollutant. Reasonable potential to exceed exists if the projected receiving waterbody concentration exceeds water quality criteria, and a water quality-based effluent limit (WQBEL) must be included in the permit (18 Alaska Administrative Code 83.435).

The ambient concentration in the mass balance equation is based on a reasonable worst-case estimate of the pollutant concentration upstream from the discharge. For criteria that are expressed as maxima, the 85th percentile of the ambient data is generally used as an estimate of the worst case. If ambient data is not available, DEC uses 15% of the most stringent given pollutant's criteria as a worst-case example. Total ammonia as Nitrogen (ammonia) is used as an example to demonstrate the reasonable potential determination process.

B.1 Mass Balance

For a discharge to a flowing waterbody, the maximum projected receiving waterbody concentration is determined using a steady state model represented by the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \qquad \text{(Equation B-1)}$$

Where,

C_d = Receiving waterbody concentration downstream of the effluent discharge

C_e = Maximum projected effluent concentration

C_u = Assumed receiving waterbody ambient concentration

Q_d = Receiving waterbody flow rate = $Q_e + Q_u$

Q_e = Effluent flow rate (set equal to the design flow of the wastewater treatment facility (WWTF)

Q_u = Receiving waterbody flow rate

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_e Q_e + C_u Q_u}{Q_e + Q_u} \qquad \text{(Equation B-2)}$$

The above form of the equation assumes that the discharge is rapidly and completely mixed with the receiving waterbody. If a mixing zone based on a percentage of the critical flow in the receiving waterbody is authorized based on the assumption of incomplete mixing with the receiving waterbody, the equation becomes:

$$C_d = \frac{C_e Q_e + C_u(Q_U \times MZ)}{Q_e + (Q_u \times MZ)} \quad \text{(Equation B-3)}$$

Where, MZ = the fraction of the receiving waterbody flow available for dilution.

Where mixing is rapid and complete, MZ is equal to 1 and equation B-2 is equal to equation B-3 (i.e., all of the critical low flow volume is available for mixing). If a mixing zone is not authorized, dilution is not considered when projecting the receiving waterbody concentration, and

$$C_d = C_e \quad \text{(Equation B-4)}$$

In other words, if a mixing zone is not authorized, the Department considers only the concentration of the pollutant in the effluent regardless of the upstream flow and concentration. If the concentration of the pollutant in the effluent is less than the WQS numeric criteria, the discharge cannot cause or contribute to a water quality violation for that pollutant. In this case, the mixing or dilution factor (% MZ) is equal to zero and the mass balance equation is simplified to $C_d = C_e$.

Equation B-2 can be simplified by introducing a dilution factor (D):

$$D = \frac{Q_e + Q_u}{Q_e} \quad \text{(Equation B-5)}$$

After the D simplification, this becomes:

$$C_d = \frac{(C_e - C_u)}{D} + c_u \quad \text{(Equation B-6)}$$

B.2 Maximum Projected Effluent Concentration

To calculate the maximum projected effluent concentration, the Department used the procedure described in Section 3.3 of the TSD, "*Determining the Need for Permit Limits with Effluent Monitoring Data*" and the process described in Section 2.4 of DEC's RPA Guide. In this procedure, the 99th percentile of the effluent data is the maximum projected effluent concentration which is used in the calculation of the maximum projected receiving waterbody concentration.

Since there are a limited number of data points available, the 99th percentile is calculated by multiplying the maximum observed effluent concentration (MOC) by a reasonable potential multiplier (RPM). The RPM is the ratio of the 99th percentile concentration to the MOC and accounts for the statistical uncertainty in the effluent data. The RPM is calculated from the coefficient of variation (CV) of the data and the number of data points. The CV is defined as the ratio of the standard deviation of the data set to the mean. When fewer than 10 data points are available, the TSD and DEC's RPA Guide recommends assuming that the CV is equal to 0.6. A CV value of 0.6 is a conservative estimate that assumes a relatively high variability. In the example of copper, the Department used ProUCL, a statistical software program, to determine a CV of 0.5. ProUCL indicated that the data set follows a lognormal statistical distribution. Therefore, the RPM equation in Section 2.4.2.2 of the RPA Guide is used to determine the RPM for ammonia.

$$RPM = \frac{\exp(z_{99}\hat{\sigma}_y - 0.5\hat{\sigma}_y^2)}{\exp(p_n\hat{\sigma}_y - 0.5\hat{\sigma}_y^2)} \quad \text{(Equation B-7)}$$

Where,

z_{99} = the z − statistic at the 99th percentile = 2.326

$\hat{\sigma}$ = the lognormal standard deviation calculated by ProUCL = 0.458

$\hat{o}_y^2$ = the lognormal variance (square of the standard deviation calculated by ProUCL) = 0.210

p_n = the z − statistic at the 95th percent confidence level of $(1 - 0.95)^{\frac{1}{n}} = 0.946$

n = number of valid data samples = 54

RPM = 1.4

The maximum expected concentration (MEC) is determined by multiplying the MOC by the RPM:

$$MEC = (RPM)(MOC) \quad \text{(Equation B-8)}$$

MOC = 18 milligrams per liter (mg/L)

In the case of ammonia,

MEC = (1.4)(18) = 25.2 mg/L

* The above MEC calculation is simplified. The Department's RPA tool calculates the MEC using unrounded figures than contain a higher degree of precision. The actual MEC as calculated in the RPA tool is 25.01 mg/L.

Comparison with ammonia water quality criteria

In order to determine if reasonable potential exists for this discharge to exceed water quality criteria, the highest projected concentration is compared with the most stringent water quality criteria.

MEC = 25.01 mg/L > 3.7 mg/L (chronic aquatic life)

YES, there is reasonable potential for ammonia to exceed water quality criteria; therefore, effluent limits must be developed. See Appendix C for a description of the development of WQBELs.

Table B-1 summarizes the data, multipliers, and criteria used to determine reasonable potential to exceed water quality criteria.

Table B-1: Reasonable Potential Determination at the End of Pipe

Parameter	Max Observed Effluent Conc.	Number of Samples	Coefficient of Variation (CV)	Reasonable Potential Multiplier (RPM)	Max Expected Effluent Conc. (MEC)	Most Stringent Water Quality Criterion	Reasonable Potential to Exceed WQ criteria?
Ammonia (mg/L)	18	54	0.4831	1.4	25.01	3.7 chronic aquatic life	Yes
Copper, total recoverable (µg/L)	9.32	20	0.3451	1.3	12.23	3.7 chronic aquatic life	Yes
Total Residual Chlorine µg/L	40	54	0.2923	1.1	45.71	7.5 chronic aquatic life	Yes
Temperature (ºC)	21	54	0.5683	1.2	25.48	15	Yes
Units: mg/L = milligrams per liter, µg/L = micrograms per liter, °C= degrees Celsius							

APPENDIX C. – SELECTION OF EFFLUENT LIMITS

If the Alaska Department of Environmental Conservation (the Department or DEC) does not authorize a mixing zone, water quality standards (WQS) numeric criteria are applied at the end of the pipe, and technology-based effluent limits (TBELs) are selected for those parameters that are solely technology based.

When DEC authorizes a mixing zone, parameters are identified in the mixing zone that will require dilution to meet WQS numeric criteria. If there are TBELs for an identified parameter in the mixing zone, TBELs apply at the end of the pipe, and WQS numeric criteria for that parameter, apply at the boundary of the mixing zone. If the reasonable potential analysis (RPA) requires the development of water-quality based effluent limits (WQBELs) for specific parameters in order to protect human health criteria at the boundary of the mixing zone, WQBELs are applied as end-of-pipe effluent limits. Those parameters that are not identified in the authorized mixing zone, must meet applicable water quality numeric criteria at the end of pipe. In the absence of water quality criteria for a particular pollutant, such as for 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS), TBELs are applied as end-of pipe effluent limits.

For the Valdez WWTF, total ammonia as nitrogen (ammonia), demonstrated reasonable potential to exceed at the end of pipe and required the most dilution to meet the ammonia chronic water quality criterion at the boundary of the authorized mixing zone; therefore, the Department developed ammonia WQBELs.

C.1 Effluent Limit Calculation

Once the Department determines that the effluent has a reasonable potential to exceed a WQS, a WQBEL for the pollutant is developed. The Department used the process described in the *Technical Support Document* (TSD) *for Water Quality-Based Toxics Control* (Environmental Protection Agency, 1991) and DEC's guidance, *Alaska Pollutant Discharge Elimination System RPA and Effluent Limits Development Guide* (June 30, 2014) (RPA Guide) to calculate WQBELs for copper. The first step in calculating WQBELs is the development of a wasteload allocation (WLA) for the pollutant.

C.2 Mixing Zone-based WLA

When the Department authorizes a mixing zone for the discharge, the WLA is calculated using the available dilution, background concentrations of the pollutant, and the WQS. For human health criteria, the WLA is applied directly as an average monthly limit (AML). The daily maximum limit (DML) is then calculated from the AML by applying a multiplier.

C.3 "End-of-Pipe" WLAs

In many cases, there is no dilution available, either because the receiving waterbody exceeds the criteria or because the Department does not authorize a mixing zone for a particular pollutant. When there is no dilution available, the criterion becomes the WLA. Establishing the criterion as the WLA ensures that the permittee's discharge does not contribute to an exceedance of the criterion. When a human health criteria applies to a pollutant, the chronic dilution factor is used to calculate a WLA.

C.4 Permit Limit Derivation

The Department applies the statistical approach described in Chapter 5 of the TSD to calculate the DML and AML. This approach accounts for effluent variability (using the coefficient of variation (CV)) and sampling frequency.

The DML is based on the CV of the data and the probability basis, while the AML is dependent on these two variables and the monitoring frequency. As recommended in the TSD, the Department used a probability basis of 95% for the AML calculation and 99% for the DML calculation.

The following is a summary of the steps to derive WQBELs from WQS numeric criteria for pollutants that have reasonable potential to exceed water quality numeric criteria. These steps are found in the RPA Guide. The guidance and its accompanying Excel RPA tool were used to calculate the Valdez WWTF's ammonia effluent limits. Ammonia is illustrated below as an example.

Step 1- Determine the WLA

The first step in developing a WQBEL is to develop a wasteload allocation (WLA) for the pollutant. A WLA is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality criteria or a total maximum daily load in the receiving waterbody.

In cases where a mixing zone is not authorized, either because the receiving waterbody already exceeds the criterion, the receiving waterbody flow is too low to provide dilution, or for some other reason one is not authorized, the criterion becomes the WLA. Establishing the criterion as the WLA ensures that the permittee will not cause or contribute to an exceedance of the criterion.

The acute and chronic aquatic life criteria are converted to WLAs using the following equation:

$$WLA_{a,c,hh} = (WQC_{a,c,hh})(D_{a,c,hh}) + C_s(1 - D_{a,c,hh})$$

$$WLA_{a,c,hh} = WQC_{a,c,hh}\left(\frac{Q_d + Q_s}{Q_d}\right) + C_s\left(1 - \left[\frac{Q_d + Q_s}{Q_d}\right]\right)$$

Where: $D_{a,c} = Dilution = \frac{(Q_d + Q_s)}{Q_d}$

$D_{hh} = (Dilution\,[Human\ Health]) = D_c\,(Dilution[Chronic\ Aquatic\ Life])$

$Q_d = Critical\ Discharge\ Flow$

$C_s = Critical\ Upstream\ Concentration$

$WLA_{a,c} = Wasteload\ Allocation\ (\ acute, copper, or\ human\ health)$

$WQC_{a,c} = C_r = Water\ Quality\ Criterion(acute, chronic, or\ human\ health)$

For ammonia,

$D_a = 3.5$

$D_c = 6.8$

$C_s = 0\ milligrams\ per\ liter$ (mg/L)

$WLA_a = 86.47\ mg/L$

$WQC_c = 25.09\ mg/L$

Step 2 - Determine the Long-Term Average (LTA)

The WLAs are converted to LTAs using multipliers that are derived from equations in Section 5.4 of the TSD:

$$LTA_a = WLA_a * exp(0.5\sigma^2 - z_{99}\,\sigma)$$

$$LTA_c = WLA_c * exp(0.5\sigma_4^2 - z_{99}\sigma_4)$$

Where:

$z_{99} = the\ z-statistic\ at\ the\ 99^{th} percentile = 2.326$

$LTA_a\ only: \sigma = ln[CV^2 + 1]^{1/2}$

$LTA_a\ only: \sigma^2 = ln[CV^2 + 1]$

$LTA_c\ only: \sigma_4 = ln\left[\left(\frac{CV^2}{4}\right) + 1\right]^{1/2}$

$LTA_c\ only: \sigma_4^2 = ln\left[\left(\frac{CV^2}{4}\right) + 1\right]$

$CV = coefficient\ of variation$

For ammonia:

$LTA_a = 33.10\ mg/L$

$LTA_c = 14.84\ mg/L$

Step 3 – Choosing the More Limiting LTA

To protect a waterbody from both acute and chronic effects, the more limiting of the two LTAs is used to derive the effluent limits. In the case of ammonia, the LTA_c is more limiting.

Step 4 - Calculate the Permit Limits

The DML and AML are calculated using the following equations that are found in Table 5-2 of the TSD:

$$DML_{aquatic\ life} = LTA * exp(z_{99}\sigma - 0.5\sigma^2)$$

Where:

$z_{99} = the\ z-statistic\ at\ the\ 99^{th} percentile = 2.326$

$\sigma_n = ln[CV^2 + 1]^{1/2}$

$\sigma_n^2 = ln[CV^2 + 1]$

$CV = coefficient\ of variation$

$$AML_{aquatic\ life} = LTA * exp(z_{95}\sigma_n - 0.5\sigma_n^2)$$

Where:

$z_{95} = the\ z-statistic\ at\ the\ 95^{th} percentile = 1.645$

$\sigma_n = ln\left[\left(\frac{CV^2}{n}\right) + 1\right]^{1/2}$

$\sigma_n^2 = ln\left[\left(\frac{CV^2}{n}\right) + 1\right]$

$CV = coefficient\ of variation$

$n = number\ of\ samples\ per\ month$

For ammonia:

$DML = 39\ mg/L$

$AML = 21\ mg/L$

C.5 Mass-Based Limits

Alaska Pollutant Discharge Elimination System regulations at 18 Alaska Administrative Code (AAC) 83.540 require that effluent limits be expressed in terms of mass unless they cannot appropriately be expressed by mass, if it is infeasible, or if the limits can be expressed in terms of other units of measurement. In addition, 18 AAC 83.520 requires that effluent limits for a publicly owned treatment works be calculated based on the design flow of the facility. Expressing limitations in terms of concentration as well as mass encourages the proper operation of a facility at all times. The mass-based limits are expressed in pounds per day and are calculated as follows:

mass-based limit (pounds (lbs)/day) = concentration limit (milligrams per liter) × design flow (million gallons per day (mgd)) × 8.34 (lbs/gallon)

C.6 Flow

Flow is based on the hydraulic design capacity of the WWTF (flow rate as gallons or mgd) and is determined by a professional engineer and approved by the Department during the WWTF plan review process conducted per 18 AAC 72. A flow limit based on the design capacity ensures that the WWTF operates within its capabilities to receive and properly treat sustained average flow quantities and specific pollutants.

C.7 Effluent Limit Summary

The following table indicates where the bases for effluent limits in the Valdez WWTF discharge are located.

Table C-1: Summary of Effluent Limitations

Parameter	Fact Sheet Reference
BOD_5	Appendix A– Section A.2.1
TSS	Appendix A– Section A.2.1
Fecal Coliform Bacteria	Appendix A– Section A.2.2
Dissolved Oxygen	Appendix A– Section A.5.1
pH	Appendix A– Section A.5.2
Total Residual Chlorine	Appendix A– Section A.5.3
Ammonia	Appendix A– Section A.5.4
Copper	Appendix A– Section A.5.5

APPENDIX D. – MIXING ZONE ANALYSIS CHECKLIST

The purpose of the Mixing Zone Checklist is to guide the permit writer through the mixing zone regulatory requirements to determine if all the mixing zone criteria at 18 AAC 70.240 are satisfied, as well as provide justification to authorize a mixing zone in an Alaska Pollutant Discharge Elimination System permit. See Fact Sheet Section 4.5 for the Valdez Wastewater Treatment Facility mixing zone analysis.

Criteria	Description	Resources	Regulation
Size	Is the mixing zone as small as practicable?	Technical Support Document for Water Quality-Based Toxics Control DEC's Reasonable Potential Analysis Guidance Environmental Protection Agency's Permit Writers' Manual CORMIX	18 AAC 70.240(k)
Technology	Were the most effective technological and economical methods used to disperse, treat, remove, and reduce pollutants?		18 AAC 70.240(c)(1)
Low Flow Design	For streams, rivers or other flowing fresh waters. Determine low flow calculations or documentation for the applicable parameters.		18 AAC 70.240(l))
Existing Use	Does the mixing zone… (1) maintain and protect designated and existing uses of the waterbody as a whole? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(2)
	(2) impair overall biological integrity of the waterbody? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(3)
	(3) create a public health hazard that would preclude or limit existing uses of the waterbody for water supply or contact recreation? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(4)(B)
	(4) preclude or limit established processing activities or established commercial, sport, personal use, or subsistence fish and shellfish harvesting? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(4)(C)

Criteria	Description	Resources	Regulation
Human consumption	Does the mixing zone… (1) produce objectionable color, taste, or odor in aquatic resources harvested for human consumption? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(d)(6)
Spawning Areas	Does the mixing zone… (1)discharge in a spawning area for anadromous fish or Arctic grayling, northern pike, rainbow trout, lake trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic char (Dolly Varden), burbot, and landlocked coho, chinook, and sockeye salmon? If yes, mixing zone prohibited.		18 AAC 70.240(f)
Human Health	Does the mixing zone… (1) contain bioaccumulating, bioconcentrating, or persistent chemical above natural or significantly adverse levels? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(d)(1)
	2) contain chemicals expected to present an unacceptable risk to human health from carcinogenic, mutagenic, teratogenic, or other effects as determined using risk assessment methods approved by the Department? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(d)(2)
	(5) occur in a location where the department determines that a public health hazard reasonably could be expected? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(k)(4)
Aquatic Life	Does the mixing zone… (1) result in a reduction in fish or shellfish population levels? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(4)(d)
	(2) form a barrier to migratory species or fish passage? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(4)(G)

Criteria	Description	Resources	Regulation
Aquatic Life	(3) result in undesirable or nuisance aquatic life? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(d)(5)
	(4) result in permanent or irreparable displacement of indigenous organisms? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(4)(E)
	(5) result in a reduction in fish or shellfish population levels? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(c)(4)(D)
	(6) prevent lethality to passing organisms; or exceed acute aquatic life criteria at and beyond the boundaries of a smaller initial mixing zone surrounding the outfall, the size of which shall be determined using methods approved by the Department? If yes, mixing zone may be approved as proposed or authorized with conditions.		18 AAC 70.240(d)(7) 18 AAC 70.240(d)(8)
	(7) cause a toxic effect in the water column, sediments, or biota outside the boundaries of the mixing zone? If yes, mixing zone may be approved as proposed or authorized with condition		18 AAC 70.240(c)(4)(A)
Endangered Species	Are there threatened or endangered species (T/E spp) at the location of the mixing zone? If yes, are there likely to be adverse effects to T/E spp based on comments received from the United States Fish and Wildlife Service or National Oceanic and Atmospheric Association? If yes, will conservation measures be included in the permit to avoid adverse effects?		18 AAC 70.240(c)(4)(F)