

EPA'S RESPONSE TO COMMENTS

ON THE DRAFT NPDES PERMIT FOR:
ALYESKA PIPELINE SERVICE COMPANY VALDEZ MARINE TERMINAL
NPDES No.: AK-002324-8
OCTOBER 30, 2012

On February 8, 2012, the Environmental Protection Agency (EPA) proposed reissuance of a National Pollutant Discharge Elimination System (NPDES) permit number AK-002324-8 to the Alyeska Pipeline Service Company to discharge pollutants from the Valdez Marine Terminal in Valdez, Alaska, pursuant to provisions of the Clean Water Act. The discharge from the facility consists of treated ballast and bilge water and other operational wastes associated with oil storage and transport. Treated sanitary wastes are also discharged. The receiving water is Port Valdez.

The State of Alaska, Department of Environmental Conservation also issued notice of their intent to certify that the subject discharge will comply with the applicable provisions of Sections 208(e), 301, 302, 303, 306 and 307 of the Clean Water Act. A final Certification of Reasonable Assurance was issued on October 29, 2012 and is attached to this RTC. The Certification was also used in developing this response to comment document.

The public notice for comments on the draft permit and certification was published in the Anchorage and Valdez, Alaska newspapers on February 8, 2012. The comment period ended on March 9, 2012. EPA received comments on the draft NPDES permit from Alyeska Pipeline Service Company via a letter to EPA from Mr. Carl Rutz, Senior Environmental Manager dated March 8, 2012, and the Prince William Sound Regional Citizens' Advisory Council (RCAC) via a letter to EPA from Mr. Mark Swanson, Executive Director, dated March 7, 2012. This document represents EPA's response to each of the comments received during the comment period. A portion of the comment or a summary is provided below followed by EPA's response.

COMMENTS SUBMITTED BY ALYESKA PIPELINE SERVICE CO.

COMMENT #1

Page 4 Table of Submittals.

The Discharge Monitoring Report (DMR) due date is identified as the 10th day of the month following the monitoring month. Alyeska requests that the DMR due date remain consistent with the current due date of the 15th day of the month following the monitoring month. The 15 days are needed to assure that all analytical data from samples collected late in the month can be received and compiled in the DMR.

RESPONSE #1 – *EPA has changed the submittal date for DMR Reporting as requested. The date originally included in the draft permit reflected standard Region 10 policy, which can be adjusted on a case-by-case basis.*

COMMENT #2

Environmental Monitoring Digital Data to be submitted by June 15th. Alyeska requests that the Digital Data associated with the annual Environmental Monitoring Program Report be submitted on July 15th which is the same date the Environmental Monitoring Report is due.

RESPONSE #2 – *EPA has changed the submittal date to July 15th for the Environmental Monitoring Digital Data reporting requirement.*

COMMENT #3

Page 6 Part I. B.

The Draft Permit omits language that has been consistently present in previous permits. Specifically the permit omits a paragraph of section I.A. of the current Permit that states:

"All discharges are subject to the following conditions: Waste streams from the sources listed by the Permittee in the Best Management Practices Plan for the Valdez Ballast Water Treatment Facility (in accordance with Part II of the permit) are permitted for treatment and discharge by the BWT through Outfall 001 in accordance with the requirements of this permit. Any wastestream not listed in the BMP Plan or in quantities significantly greater than the listed estimated amounts in the BMP Plan, shall not be discharged unless specifically authorized by the Environmental Protection Agency, in consultation with the Alaska Department of Environmental Conservation (ADEC) prior to discharge."

Alyeska requests this language be retained in the final permit as it provides a mechanism for changes in influents to be approved by EPA and ADEC without requiring the Permit application to be resubmitted. This has been a useful mechanism in past Permits. Further, the link between the BMP Plan to the control of influents and the discharge requirements properly characterizes the operation of the Facility and the expectation of performance. Finally, because the influents into the Facility are diluted forms of petroleum the expectation for treatment and discharge limits are made clear. This is particularly noteworthy for this proposed permit because the Agency has introduced for the first time in the draft Permit, standard conditions, I.E.1.(j) & (k), which prohibit the discharge of constituents that are identified as approved influent streams.

For all these reasons Alyeska requests the current Permit language be retained in Part I.B. of the final Permit.

RESPONSE #3 – *As discussed in more detail in RTC #22, EPA has removed the standard conditions I.E.1.(j) and I.E.1.(k) from the Permit because these restrictions are accounted for through total aromatic hydrocarbon effluent limitations and whole effluent toxicity*

Monitoring. These standard provisions (I.E.1.(j)&(k)) have never been requirements in any previous permit for the Alyeska Valdez Marine Terminal. This change should generally address the concern raised by the commenter. However, the final Permit will not include the language referenced above, allowing for the discharge of wastestreams significantly greater than the flow limitations in the Permit, or the discharge of wastestreams not identified in the BMP Plan. The Permit can be modified, if cause is found to exist, in accordance with 40 CFR 122.62 (Major Modifications) and 40 CFR 122.63 (Minor Modifications).

COMMENT #4

Page 6 Table I pH - There is no provision for continuously monitored pH as authorized by 40 CFR 401.17.

The current permit includes a footnote (4) in Table 1 that allows pH excursions beyond the limits for short durations (for up to 60 minutes for a single excursion and a cumulative 7 hours and 26 minutes per calendar month) without being considered violations for continuously monitored pH.

Alyeska requests this provision be incorporated into the final permit as allowed by 40 CFR 401.17.

RESPONSE #4 – *EPA has revised Table 1 of the Permit to include the following language regarding continuous pH monitoring (Footnote 1). This language is consistent with the administratively extended permit and 40 CFR §401.17*

“¹ Indicates the range of permitted values. Under 40 CFR §401.17, when pH is continuously monitored, excursions between 5.0 and 6.0, or 8.5 and 9.5 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 26 minutes per month. Any excursions below 5.0 and above 9.5 are violations. The instantaneous maximum and minimum pH shall be reported monthly.”

COMMENT #5

Total Suspended Solids (TSS) mass limits are incorrectly calculated and should be in pounds to remain consistent.

Alyeska requests that the mass calculation for TSS be corrected and converted to pounds for consistency with other analytes. Alyeska believes the correct mass limits are: 1,155 lb/day monthly average; 3,369.4 lb/day maximum daily and 14,319.8 lb/day (during stripper activation). The corrected monthly average TSS limit is based on the monthly average flow of 5.54 MGD and the monthly average concentration limit of 25 mg/L. The maximum daily limits are based on the proposed maximum daily concentration limits of 40 mg/l and 170 mg/l (air stripper activation) and the maximum daily flow of 10.1 MGD.

Alyeska also believes that the monthly average Total Aromatic Hydrocarbons (TAH) mass limit should be calculated using the 5.54 MGD monthly average flow rate. The revised average monthly limit for TAH would be 9.7lb/day.

RESPONSE #5 – *EPA has removed the mass limitations that were included in the draft Permit. Mass limits did not appear in previous permits. Since the permit also includes limits on flow, the concentration limits will provide the same restriction as the mass limitations (Loading (lb/day) = Concentration (mg/L) × Flow (MDG) × 8.34 (conversion factor)), and including those numbers would be redundant. There is no change to the concentration limits.*

COMMENT #6 (GEN-006)

Page 6 Table I footnote 3.

Alyeska agrees that using the EPA approved methods prescribed in 40 CFR Part 136 such as Method 602 and Method 625 for TAH and TAqH monitoring is appropriate and reasonable. Alyeska does not believe that alternative PAH analytical methods and any analytes that are not approved in Part 136, as proposed in previous renewal efforts, are justifiable for a variety of reasons including, but not limited to, the long standing purpose and regulatory framework of the VMT NPDES Permit program. Any change in the TAH and PAH analytical methods in the final Permit is unwarranted as has been documented in previous Permit renewal comments.

RESPONSE #6 – *It was not EPA’s intent to change quantitative method requirements in the permit. EPA has revised the footnote to read as follows:*

“⁴Total aromatic hydrocarbons (TAH) shall be determined by summing the concentrations of the isomers: benzene, toluene, ethylbenzene and xylene. Each aforementioned component shall be separately quantified by the methods identified in 40 CFR Part 136 or other applicable EPA-approved methods, and reported as TAH on the DMR.”

COMMENT #7 (GEN-007)

Page 7 Table 2 TAH sampling method is incorrect.

The sampling method is listed as "grab, meter". TAH samples are not metered so the "meter" should be deleted.

RESPONSE #7 – *EPA has made the requested change. As noted by the commenter, TAH samples are collected using grab sampling, rather than metering.*

COMMENT #8 (GEN-008)

Page 7 Table 2 Density

Alyeska requests agency approval to analyze BWT density by digital densitometer instead of the hydrometer method historically employed. The digital densitometer method provided equivalent if not superior performance compared to the hydrometer, requires smaller sample volumes and is much less labor intensive.

RESPONSE #8 – *Density is a fundamental physical property that measures the ratio of the density of a liquid to the density of water, and can be used in conjunction with other properties to characterize both the light and heavy fractions of petroleum and petroleum products. A hydrometer is a weighted, hollow glass bulb with a long, graduated tube*

attached for measuring the density of a liquid, it is placed in the liquid and the bulb sinks according to the density of the liquid. Graduations on the tube indicate the density. A digital densitometer gauges the density of liquids and gases based on an electronic measurement of the frequency of oscillation, from which the density value is calculated. The sample tube is electromagnetically excited to vibrate at its natural frequency. The change in frequency caused by a specific fluid inside the sample tube is then used to determine the density of the sample. A digital densitometer can be used in place of the hydrometer method – both instruments and methods will provide the same information. With the use of either instrument, the Permittee must follow an approved EPA Method under 40 CFR Part 136 or follow an appropriate Standard Test Method for conducting density measurements of a liquid.

COMMENT #9 (WET-001)

Page 7 Table 2 Acute Whole Effluent Toxicity testing

Alyeska requests that the monitoring requirement for acute toxicity be removed from the final permit if it is tied to trigger limits and Toxicity Reduction Evaluations as there has been no demonstrated reasonable potential for this parameter to impair water quality based on previous monitoring. As described in more detail later in these comments, the one historic acute WET sample that had a result of 1.1 acute toxicity unit (TUa) had not shown any toxicity and was assigned the value based on the requirement to add brine to raise the salinity into an acceptable range per the test protocol (see Attachment 1). In cases where no reasonable potential for water quality impairment occurs, then the elimination or reduction of monitoring is consistent with EPA guidance.

RESPONSE #9 – *The Clean Water Act prohibits the discharge of “toxic pollutants in toxic amounts”. On October 26, 1995, EPA promulgated a final rule under the CWA that adds whole effluent toxicity (WET) testing methods to the list of nationally applicable methods in 40 CFR Part 136.*

The reasonable potential to cause or contribute to an excursion above any state water quality criteria for a given pollutant is evaluated to determine whether or not an effluent limit is established for that parameter within an NPDES permit. EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is “reasonable potential” to exceed water quality standards and a water quality-based effluent limit (WQBEL) must be included in the permit for that parameter. If the projected receiving water concentration does not demonstrate a reasonable potential to exceed the criteria, then a WQBEL is not necessary. This does not equate to a finding, however, that monitoring is unwarranted. Indeed, it is EPA policy and practice to include monitoring requirements for such parameters in efforts to better characterize the effluent and assess treatment efficiency (40 CFR 122.44(i) and 122.48). Please also refer to Section 6.3 and 8.2.4 of EPA’s NPDES Permit Writer’s Manual (EPA-833-K-10-001, September 2010), and EPA’s Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies (US EPA 1996). Given the significant changes in the treatment process for the BWTF, the considerable change in influent characteristics (i.e. once

predominantly oily ballast water, now primarily stormwater and facility process water), and the removal of the Subtidal Benthic Organism Study, it is appropriate to establish a whole effluent toxicity monitoring program that will effectively characterize the effluent. The acute WET monitoring will ensure the provisions of the mixing zone dilution allocation authorized by the State of Alaska for acute WET are being met. Finally, flow data indicate seasonal trends with higher flows in winter, spring and August, such that one annual acute toxicity test conducted in January or February is not indicative of the effluent toxicity potential throughout the year and a quarterly monitoring frequency provides an accurate means of characterizing the effluent (NPDES Permit Writer's Manual (U.S. EPA 2010)).

Pursuant to CWA Section 308, EPA has the authority to require monitoring in NPDES permits and to adjust monitoring frequencies. Furthermore, the following requirements included in the Permit are consistent with EPA policy (US EPA Clarification Memo, 3/27/2001; 2011 NPDES WET Training), and CWA Sections 308 and 402: (1) routine WET monitoring that adequately characterizes the effluent discharge to ensure that the wasteload allocation is not exceeded and to support the reasonable potential determination at permit re-issuance; (2) requirements for accelerated WET testing and a TIE/TRE based on the exceedence of the permit-specified WET numeric monitoring triggers (Part I.H.5 – 7); and (3) A permit re-opener clause to allow the permitting authority to open the permit and modify it to include WET limits, should unacceptable levels of toxicity be demonstrated in future testing (Part V.M of the Permit).

It is important to clarify that toxicity triggers are not toxicity limits. Toxicity triggers are threshold levels for WET in an NPDES permit, established by the permitting authority, which are used to trigger accelerated WET monitoring, analyses, or corrective actions (e.g., TRE) when there is no reasonable potential for WET and no WET limit.

It is also important to clarify the purpose and intent of TIE/TRE requirements. The Technical Support Document for Water Quality Based Toxics Control (TSD; USEPA, 1991b) defines a TRE as a “site specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reductions in effluent toxicity.” A TIE is often a component of a TRE analysis and is a step-wise process used to identify the cause(s) of toxicity by means of accelerated WET testing and manipulation (chemical or physical) of the effluent. In the NPDES permitting program, TREs are used to identify and reduce, or eliminate, sources of effluent toxicity whether or not there are WET limits in the Permit. However, TREs are typically only required in the event the effluent is exceeding a toxicity limitation or, in the absence of a WET limitation, the toxicity allocation authorized by the appropriate State authority under the CWA Section 401 certification.

Since WET limits have not been established in this permit, the TRE triggers (for acute and chronic toxicity) were established using the WET dilution allocations (for acute and chronic toxicity) authorized by the State of Alaska. It is EPA policy to require reference steps to be taken to identify and control toxicant(s) (TRE/TIE) in the event that toxic

effluent results are observed (US EPA 2004 and US EPA 1996e, US EPA 3/27/2001: Policy Memorandum: Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program,). WET testing results exceeding the TRE trigger values indicate that the effluent toxicity is exceeding the WET allocation authorized by the State of Alaska, and corrective actions to reduce toxicity to authorized levels are warranted. Furthermore, the EPA has not provided WET limits (acute or chronic) within the Permit, but, as discussed above, EPA has the authority to require WET monitoring in NPDES permits.

Two toxicity triggers for acute toxicity have been established in the final permit. The first trigger value (the “lower trigger”; Part I.H.5. of the Permit) was established using the highest acute WET value observed in the historical data (see detailed discussion below); the second trigger value (the “higher trigger”; Part I.H.8.b. of the Permit) was established based upon the mixing zone dilution allocation authorized by the State of Alaska for acute WET. The higher and lower acute WET trigger values were set at 6.9 and 1.2 TU_A , respectively. The higher acute WET trigger value was established using the 23:1 dilution authorized for acute WET by the State of Alaska and the 0.3 TU_A threshold recommended in national guidance for the control of acute toxicity (TSD; USEPA, 1991b), resulting in a trigger value of 6.9 TU_A ($23:1 \times 0.3 TU_A = 6.9 TU_A$). The lower acute WET trigger was calculated using 10 years of historical acute WET data, and produced a starting value of 1.1 TU_A , the highest reported historical value in the data set. The standard deviation for this value is 0.04. To build in an appropriate margin of error, EPA added 2 standard deviations, which corresponds to a 95% confidence interval and is commonly applied as a margin of error. The resulting toxicity trigger based on this calculation is 1.2 TU_A .

Exceeding the lower trigger for acute WET (1.2 TU_A) would be an indication that WET levels within the effluent are increasing beyond historical levels reported in the data set. EPA believes that an increase in toxicity beyond historical levels is contrary to the goals of the CWA and NPDES program and would warrant further investigations and analyses to determine the cause(s) of the increase in WET. Pursuant to our authority under Section 308 of the CWA to require effluent monitoring, exceedance of the lower trigger values requires the permittee to conduct accelerated WET monitoring and, if the accelerated testing indicates persistent toxicity, the performance of a TIE to identify the cause(s) of the increase in toxicity. The data generated by a TIE in such circumstances (i.e., increased toxicity above historic levels) would be valuable to the permitting authority at permit reissuance.

Exceeding the higher trigger value for acute WET (6.9 TU_A) would be an indication that effluent toxicity levels are exceeding the WET allocation authorized by the State of Alaska and corrective actions must be taken by the permittee to bring the facility’s discharge into compliance with the WET allocation. For these reasons, exceedance of the higher trigger values requires accelerated testing and, if toxicity is persistent, performance of a TRE.

Incorporating the modifications discussed above, EPA will retain the acute toxicity monitoring requirements, accelerated testing, and TIE/TRE requirements, as described in Section I.H. of the final Permit.

EPA agrees that if there is no demonstrated acute toxicity, then the monitoring requirements may be reduced from quarterly to semi-annually (twice per year). The Permit has been revised to include this reduction in monitoring frequency if 4 consecutive acute toxicity results do not exceed the lower numeric monitoring trigger (Table 2, Footnote 6 and Part I.H.):

⁶ Acute WET testing frequency will be reduced from quarterly to semi-annually (twice per year) after the effluent exhibits 4 consecutive tests that do not exceed the acute toxicity trigger at Part I.H.5. The Permittee must notify EPA and ADEC upon receipt of the 4th consecutive acute toxicity test below the acute toxicity trigger (See Part I.H.).

Please also refer to Comments #25, #28, and #31.

Finally, the Subtidal Benthic Organism Monitoring component of the Environmental Monitoring Program, the purpose of which was to evaluate effluent toxicity and the effects on the abundance and community structure of the benthic organism populations, was removed from the Permit. Given the nature of the facility operations and the presence of toxic compounds in the effluent, EPA believes that a more robust WET program is required so that effluent toxicity can still be monitored in a manner consistent with the former objective of the Subtidal Benthic Organism study. EPA believes that continued WET monitoring pursuant to our authorities under Section 308 are warranted to ensure the continued protection of Alaska WQS.

EPA recognizes the addition of brine solution to effluent samples may preclude the use of a 100% effluent sample. EPA has revised the permit to reflect that the highest effluent concentration achievable after salinity adjustment will be used as a substitute for, and treated as, the 100% effluent concentration.

COMMENT #10 (WET-002)

Page 7 Table 2 Chronic Whole Effluent Toxicity testing

Alyeska requests that the proposed frequency of chronic toxicity monitoring be reduced in the final permit as there has been no demonstrated reasonable potential for this parameter to impair water quality based on previous monitoring. In cases where no reasonable potential for water quality impairment occurs, then the elimination or reduction of monitoring is consistent with EPA guidance. Alyeska does not agree that assigning trigger limits is a reasonable action for parameters that have conclusively demonstrated no reasonable potential for water quality impairment and for which a minimum effluent dilution of up to 56 to 1 is available at the edge of the authorized chronic aquatic life mixing zone.

Recognizing that EPA may not agree that the elimination or reduction of WET monitoring is acceptable, Alyeska's proposed alternative WET monitoring program is described later in the comments.

RESPONSE #10 – *EPA guidance recommends that major dischargers conduct monthly WET testing (Region 8, 9, 10 Toxicity Training Tool, 2010). Historically, the Permittee has only been required to monitor chronic WET quarterly (since at least the 1997 issuance of the Permit), in conjunction with effluent toxicity evaluations as part of the Environmental Monitoring Program. Whole effluent toxicity data has not shown reasonable potential to exceed chronic toxicity water quality criteria. In 1996, EPA issued Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies. This guidance generally does not support reductions in monitoring frequencies below quarterly (4/year). For chronic wet testing, which measures longer term effects, quarterly tests are necessary to ensure that the monitoring frequency adequately characterizes and represents any temporally variability in the effluent, and takes into consideration all pertinent features of the facility's entire operation and production. As discussed in RTC #9, pursuant to CWA Section 308, EPA has the authority to require monitoring in NPDES permits and to adjust monitoring frequencies. Given the nature of the facility operations and the presence of toxic compounds in the effluent, EPA believes that continued WET monitoring pursuant to our authorities under CWA Section 308 are warranted to ensure the continued protection of Alaska WQS.*

As discussed in RTC#9, EPA has revised the permit to establish two trigger values for both acute and chronic WET. The first chronic trigger value (the “lower trigger”; Part I.H.5. of the Permit) was established using the highest chronic WET value observed in the historical data (see detailed discussion below); the second chronic trigger value (the “higher trigger”; Part I.H.8.b. of the Permit) was established based upon the mixing zone dilution allocation authorized by the State of Alaska for chronic WET. The higher and lower chronic WET trigger values were set at 56 and 13.5 TU_C, respectively.

The higher chronic WET trigger value was established using the 56:1 dilution authorized for chronic WET and the Alaska criterion for chronic WET of 1.0 TU_C (56:1x1.0 TU_C=56 TU_C). The lower chronic WET trigger was calculated using 10 years of historical chronic WET data, and produced a starting value of 9.6 TU_C, the highest reported historical value in the data set. The standard deviation for this value is 1.94. To build in an appropriate margin of error, EPA added 2 standard deviations, which corresponds to a 95% confidence interval and is commonly applied as a margin of error. The resulting toxicity trigger based on this calculation is 13.5 TU_C.

Exceeding the lower trigger for chronic WET (13.5 TU_C) would be an indication that WET levels within the effluent are increasing beyond historical levels reported in the data set. EPA believes that an increase in toxicity beyond historical levels is contrary to the goals of the CWA and NPDES program and would warrant further investigations and analyses to determine the cause(s) of the increase in WET. Pursuant to our authority under Section 308 of the CWA to require effluent monitoring, exceedance of the lower

trigger value requires the permittee to conduct accelerated WET monitoring and, if the accelerated testing indicates persistent toxicity, the performance of a TIE to identify the cause(s) of the increase in toxicity. The data generated by a TIE in such circumstances (i.e., increased toxicity above historic levels) would be valuable to the permitting authority at permit reissuance.

Exceeding the higher trigger value for chronic WET (56 TU_C) would be an indication that effluent toxicity levels are exceeding the WET allocation authorized by the State of Alaska and corrective actions must be taken by the permittee to bring the facility's discharge into compliance with the WET allocation. For these reasons, exceedance of the higher trigger value requires accelerated testing and, if toxicity is persistent, performance of a TRE.

In addition the discussion above, and similar to the discussion for RTC#9, chronic WET monitoring will also ensure the provisions of the mixing zone dilution allocation authorized by the State of Alaska for chronic WET are being met.

For these reasons, as well as the discussion presented in RTC#9, EPA will retain the chronic toxicity monitoring requirements, incorporating the above revisions, as described in Section I.H. of the Permit.

Please also refer to Comment #31.

COMMENT #11 (WET-003)

Page 7 Table 2 WET sampling method

Historically, all WET samples have been grab samples and the draft permit has modified the requirement to a 24-hour composite. Alyeska requests that the final permit retain the WET grab sample requirement because the final effluent sample point is downstream of the Biological Treatment Tank (BTT) which acts as a physically mixed equalization tank and prevents a plug-flow condition which would be better represented by a 24-hour composite sample. The BTTs typically provide 3-5 days of retention time at average flows and are thoroughly mixed by the aeration system so the final effluent is well mixed and representative of the characteristics of the wastewater in the system at the time of sampling. In order to provide for the capability of obtaining twenty-four hour composite samples additional sampling equipment would be required. The cost and complexity of the new equipment would provide no additional benefit for obtaining a representative effluent sample as compared to the current approved grab sample method.

RESPONSE #11 – *The purpose of 24-hr composite sampling is to obtain a representative (well mixed) sample of effluent which is characteristic of the effluent over a 24-hr period, rather than an instantaneous grab. However, since the Biological Treatment Tank provides 3-5 days of retention time at average flows and is thoroughly mixed, EPA believes that grab samples will achieve the requirement for a representative and characteristic sample of effluent over a 24-hr period. EPA has revised the final Permit to retain the grab sampling method for WET testing that appeared in prior permits.*

COMMENT #12 (GEN-003)**Page 7 Table 2 Footnote 1**

Footnote 1 identifies the requirement to collect TSS samples and report air stripper operations in the DMR. The BWTF now has two air stripping systems and Alyeska requests that language be included in the footnote to clarify that the requirement is for the BTT effluent air strippers to avoid confusion with the 7-tray air strippers.

RESPONSE #12 – *This requirement pertains to the operation of the auxiliary packed-tower air strippers, which are used to further reduce total aromatic hydrocarbon (BTEX) concentrations in the biological treatment tanks (BTTs) effluent. EPA has clarified the language in Footnote 1 of Table 2 of the Permit to read as follows:*

“¹A minimum of three TSS samples shall be analyzed per week. If the BTT effluent packed-tower air strippers are activated then the effluent samples collected on the day of and the day after stripper activation shall also be analyzed for TSS. TSS samples associated with the BTT effluent packed-tower air stripper activation may satisfy the three times per week measurement frequency monitoring requirements. The Permittee shall submit with the DMR a monthly air stripper activity report, which identifies the dates and times of the BTT effluent packed-tower air stripper activation and deactivation.”

COMMENT #13 (GEN-009)**Page 7 Table 2 Footnote 2**

Footnote 2 in Table 2 should be identical to Footnote 3 in Table 1.

RESPONSE #13 – *EPA has corrected Footnote 4 (formerly Footnote 3) in Table 1 to be consistent with Footnote 2, Table 2.*

COMMENT #14 (GEN-010)**Page 8 Table 3 Weekly Average Limit for the Sewage Treatment Plant Outfall 002 TSS & BOD.**

Alyeska requests that the Weekly Average Limit for 5-day Biochemical Oxygen Demand (BODs) and TSS be eliminated because the sampling frequency is once per month and the purpose of a weekly average limit is for permittees that sample daily or once per week to demonstrate that the effluent can achieve a weekly average. The requirement to sample once per month, combined with assigning a weekly average, sets the weekly average as the de facto maximum daily limit. It would be highly unlikely that additional samples could be collected within the same week that a weekly average limit was exceeded given the time it takes to collect and ship the sample, perform the analysis at a lab, Quality Control (QC) check the results and notify Alyeska, and for Alyeska to schedule a resample. The likely result would be a noncompliance with the weekly average limit.

Alyeska requests that only Maximum Daily and Monthly Average limitations for BODs and TSS be required for Outfall 002.

RESPONSE #14 – *Permittee is required to meet weekly average limits for BOD₅ and TSS under the 2004 administratively extended Permit, as well as previously issued permits. This requirement is retained in the 2012 final Permit. Inclusion of weekly average limits for BOD₅ and TSS is consistent with the regulatory definitions of secondary treatment, which include a 7-day average requirement for both BOD₅ and TSS. See 40 CFR § 133.102 and Alaska Wastewater Disposal Regulation 18 AAC 7, Definition 59.*

EPA further notes that the probabilities calculated for very low sampling frequencies reflects the risk assumed by the discharge operator that weekly average violations will be reported when in fact the process average is under permit limit (US EPA, 1996). Even with constant performance, the probabilities of reporting a permit violation increase as the sample size is reduced from daily sampling because the variance of the average is inversely proportional to the sample size. Although the Permittee is only required to monitor these parameters monthly (pursuant to the Permit requirements), there is no restriction on monitoring more frequently if there is concern regarding the TSS and BOD₅ effluent concentrations.

COMMENT #15 (BACT-001)

Page 8 Table 3 Fecal Coliform limits

Alyeska does not agree that EPA and ADEC have demonstrated the need or rationale to require Fecal Coliform limits for the STP or disallow a mixing zone for this parameter. Alyeska requested in the Mixing Zone Application that Fecal Coliform continue to be provided a mixing zone and that compliance be monitored at the shoreline. The basis for this request was the recognition that it was protective of the all uses of Port Valdez and that the VMT posed a unique set of conditions due to the inaccessibility to the public.

Comment 15A: The VMT is located on the south shore of Port Valdez within a secure perimeter that is fenced, patrolled, monitored and not accessible to the public. In addition, the Coast Guard maintains a marine exclusionary zone around the VMT and prohibits entry by vessels or personnel under penalty of arrest and fines (see Attachment 2). There is no contact recreation, seafood harvesting, industrial use or any other category of water use that occurs within at least 0.5 miles of Outfall 002 (STP). In fact, the VMT has operated the STP without Fecal Coliform limits for decades without environmental harm or water quality impairment. By applying the most stringent limits and not authorizing a mixing zone EPA and ADEC have not recognized the unique characteristics of the discharge, the cost to the permittee, nor provided a rationale for their actions.

Comment 15B: Alyeska disagrees that a reasonable potential exists that Fecal Coliform discharges from Outfall 002 will cause or contribute to exceedance of water quality standards in Port Valdez, and therefore, these proposed effluent limits should be deleted from the final permit. However, if these limits are retained, permittees are allowed by regulation to obtain a mixing zone upon a reasonable demonstration that designated and

existing uses of the water body as a whole will be maintained and protected, and that the overall biological integrity of the waterbody will not be impaired by the treated and dispersed effluent. Alyeska has made this demonstration in the Mixing Zone Application. In addition, Port Valdez is not an impaired waterbody nor have TMDLs been adopted because of water quality concerns, nor is Port Valdez a waterbody of National Significance that would disallow mixing zones. In situations like this it is common to authorize a mixing zone for contaminants that do not meet water quality standards at the point of discharge. But no mixing zone was authorized and no explanation was provided.

Comment 15C: For all the reasons stated herein and in the Mixing Zone Application, Alyeska restates our request that a mixing zone be afforded for Fecal Coliform and that monitoring for compliance with the water quality standards be at the shoreline. It is extremely unlikely that a small discharge into a restricted area of Port Valdez would result in any of the water uses being compromised and that end-of-pipe limits are necessary.

Comments 15D and 15E: The increase in frequency of the Fecal Coliform monitoring from quarterly to monthly and the inclusion of Enterococci monitoring also creates analytical method compliance issues related to the allowable hold time restriction of 6 hours. Due to the remoteness of Valdez, Alaska it is difficult to reliably collect, package and transport the sample to a laboratory within the specified holding time of 6 hours. Since the only transportation option available is using a commercial air carrier there are numerous weather related and operational delays and cancellations that prevent the successful delivery of the sample within the hold time, which are beyond the Permittee's control, and make frequent re-sampling necessary. Increasing the frequency of the monitoring has the consequence of creating additional burdensome re-sampling events attributable to the analytical method hold time restrictions and resultant dependence on a commercial air carrier's reliability that is affected by weather and operational constraints of the aircraft. Alyeska requests that a variance be provided for the Fecal Coliform and Enterococci analytical method hold time restriction as has been allowed for other Alaska locations due to the location remoteness and unpredictable and unreliable transportation methods.

In summary, Alyeska requests that Fecal Coliform monitoring frequency be retained at quarterly, no effluent limits be applied at the end of pipe, a Mixing Zone be authorized, compliance monitoring be based at the shoreline and a variance to the sample hold time be provided.

RESPONSE #15 –

Response 15A: *Although the Coast Guard has maintained a marine exclusionary zone around the VMT, this has no effect on the protected designated uses of the waterbody. Under Alaska Water Quality Standards, marine waterbodies are protected for all designated uses (18 AAC 70.050(3)):*

- *Water supply (aquaculture, seafood processing, industrial),*
- *Water recreation (contact recreation and secondary recreation),*
- *Growth and propagation of fish, shellfish, other aquatic life and wildlife, and*

- *Harvesting for consumption of raw mollusks or other raw aquatic life.*

The final Permit includes limitations and conditions that reflect currently applicable water quality standards and all designated uses protected by those standards. However, there is a formal process that can be undertaken in efforts to reclassify a waterbody, which would involve a Use Attainability Analysis (UAA). DEC's procedure for reclassification can be found at 18 AAC 70.230.

Response 15B: *ADEC authorized a mixing zone for fecal coliform bacteria and Enterococci. The mixing zone is described as a 0.32-meter radius chronic mixing zone around a single discharge port that extends from the seafloor to the sea surface, and it provides a 9.2:1 dilution. The reasonable potential analysis does indicate that the discharge has the potential to exceed water quality criteria (RTC#41). The WQBELs for fecal coliform bacteria have been revised from the draft permit to a Maximum Daily Limit of 396 cfu/100mL and a Monthly Average Limit of 129 cfu/100mL.*

The CWA requires that effluent limitations for a parameter be the more stringent value of either technology-based effluent limits (TBELs) or WQBELs. The approved mixing zone results in fecal coliform WQBELs that are more stringent than the fecal coliform TBELs (Maximum Daily Limit of 400 cfu/100mL and Average Monthly Limit of 200 cfu/100mL, 18 AAC 72.990(21)). As a result, the WQBELs were established in the Permit.

Response 15C: *Compliance with the effluent limitations must be achieved prior to discharge to the receiving water. Compliance with water quality criteria must be met at the edge of the approved mixing zone and will not be measured at the shoreline.*

Response 15D: *EPA has revised the final Permit to retain quarterly monitoring for fecal coliform and to include quarterly monitoring for Enterococci. Quarterly monitoring is consistent with the administratively extended Permit's frequency requirement for fecal coliform sampling. Consistent sampling frequencies for both parameters would provide greater opportunity to correlate the effluent data.*

Response 15E: *Pursuant to 40 CFR Part 136.3(e) Table II, the maximum sample hold times for fecal coliform bacteria and Enterococci is 8 hours. Although a request for a variance was made in the above comment, the request must be made through the appropriate procedures per EPA's regulations (40 CFR Part 136.3(e)). Under these regulations, the Permittee may apply for a change from the prescribed preservation techniques, container materials, and maximum holding times applicable to samples taken from a specific discharge. Applications for such limited use changes may be made by letter to the Regional Alternative Test Procedure (ATP) Program Coordinator or the permitting authority in the Region in which the discharge will occur. Sufficient data should be provided to assure such changes in sample preservation, containers or holding times do not adversely affect the integrity of the sample. The Regional ATP Coordinator or permitting authority will review the application and then notify the applicant and the appropriate State agency of approval or rejection of the use of the alternate test procedure. A decision to approve or deny any request on deviations from the prescribed*

Table II requirements will be made within 90 days of receipt of the application by the Regional Administrator.

COMMENT #16 (BACT-002)

Page 8 Table 3 Enterococci limits

Comment 16A: Alyeska requests that Enterococci monitoring be deleted from the final permit. Alyeska does not agree that Enterococci limits or monitoring are necessary. This parameter is normally used as an indicator for decisions regarding the safety of contact recreation at beaches. There is no reason to believe that Enterococci monitoring will provide any benefit beyond what Fecal Coliform monitoring will provide. As stated in these comments regarding Fecal Coliform limits, Alyeska does not agree that Outfall 002 represents any threat to water uses and represents an unjustifiable expense to the permittee with no reasonable benefit to water quality. Alyeska requests that Enterococci limits and monitoring requirements be deleted from the final permit or if retained, that the monitoring frequency be reduced, a mixing zone be afforded for this parameter and compliance monitoring be based at the shoreline.

The Enterococci bacteria standard is based on a geometric mean of 35 cfu/100ml and a single sample maximum of 276 cfu/100 ml based on "Light use coastal recreation waters" (40 CFR 131.41 (c)(2)) . The 35 cfu/100 ml value is imposed in the permit as a monthly average limit as a geometric mean of all sample analyses. The 276 cfu/100 ml standard is imposed in the permit as a maximum daily limit. The single sample maximum Enterococci standard in 40 CFR 131.41(c)(2) is actually four different numbers including 104 cfu/100 ml for designated bathing beach, 158 cfu/100 ml for moderate use coastal recreation waters, 276 cfu/100 ml for light use coastal recreation waters, and 501 cfu/100 ml for infrequent use coastal recreation waters.

Comment 16B: The Enterococci standard is for the protection of human health from contact recreation. There is no potential for human contact with the undiluted effluent. The edge of the 10 meter radius mixing zone would not be used at all for coastal recreation waters. The water by the shore within the VMT restricted area would be classified as an infrequent use coastal recreation water subject to the 501 cfu/100 mL single sample maximum standard.

If EPA retains Enterococci limits in the final permit, Alyeska requests that the sampling frequency for Enterococci be reduced to once per 6 months because both bacteria indicators (Fecal Coliform and Enterococci) are measures of disinfection efficiency and/or effluent dilutions and monitoring for both on a monthly basis is burdensome and redundant. Alyeska also requests that a mixing zone be provided for Enterococci, that the standard for infrequent use coastal recreation be applied and that compliance be monitored at the shoreline.

RESPONSE #16 –

Response 16A: *As discussed in RTC#15B, EPA has revised the final Permit to retain quarterly monitoring for fecal coliform and to include quarterly monitoring for*

Enterococci. Quarterly monitoring is consistent with the administratively extended Permit's frequency requirement for fecal coliform sampling. As noted above in RTC#15D, consistent sampling frequencies for both parameters would provide greater opportunity to correlate the effluent data.

ADEC authorized a mixing zone for fecal coliform bacteria and Enterococci. The mixing zone is described as a 0.32-meter radius chronic mixing zone around a single discharge port that extends from the seafloor to the sea surface, and it provides a 9.2:1 dilution. The WQBELs for Enterococci have been revised to a Maximum Daily Limit of 2,540 cfu/100mL and a Monthly Average Limit of 322 cfu/100mL. The CWA requires that effluent limitations for a parameter be the more stringent value of either technology-based effluent limits (TBELs) or WQBELs. There are no established TBELs for Enterococci at this time; therefore WQBELs were established.

Compliance with the effluent limitations must be achieved prior to discharge to the receiving water. Compliance with water quality criteria must be met at the edge of the approved mixing zone and will not be measured at the shoreline.

Response 16B- *As stated in RTC#15, the marine exclusionary zone around the VMT does not address the protected designated uses of the waterbody or the requirement to meet applicable water quality standards. Under Alaska Water Quality Standards, marine waterbodies are protected for all designated uses (18 AAC 70.050(3)), which includes contact recreation and secondary recreation. Furthermore, EPA-promulgated federal water quality criteria for bacteria for the State of Alaska (pursuant to the BEACH Act, 2000) are found at 40 CFR 131.41(c)(2). Thus EPA is retaining Enterococci limits in the Permit to ensure that there is no exceedance of water quality criteria.*

Please also refer to RTC#23.

COMMENT #17 (MZ-001)

Page 9 Mixing Zones.

Comment 17A: The shape of the mixing zone for Outfall 001 is characterized as a circle when in fact it is best represented by a rectangle as the diffuser has multiple ports along its 200 foot (61 meter) length. Figure A.2., in the Fact Sheet, which is taken from Alyeska's Mixing Zone Application, shows the size and shape of the Outfall 001 mixing zone. The mixing zone should be described as follows: "A rectangle that extends 50 meters in all directions from the 61 meter long diffuser barrel". It also appears that diameter and radius are used interchangeably in several instances throughout the permit. For example, a 10 meter radius would be a circle with a diameter of 20 meters.

The Mixing Zone Application provided ample evidence that reasonably demonstrates that the discharge from Outfall 001 will not cause exceedances of acute criteria or cause acute toxicity, and will not impair the designated or existing uses or biological integrity of the receiving waters because very little dilution is necessary and such dilution occurs rapidly (probably less than a few seconds) in a very short distance from the discharge ports. The

Alyeska Mixing Zone Application requested a 1 meter acute mixing zone based on the no reasonable potential conclusion for acute toxicity but if EPA and ADEC impose trigger values and Toxicity Reduction Evaluation requirements then, as discussed fully in these comments, a Mixing Zone greater than 1 meter will be required.

The acute mixing zone proposed in the draft permit for Outfall 001 is sized so small and allows so little dilution that it is not practicable. This in turn affects the acute WET monitoring trigger level, potentially imposing significant costs with no environmental benefit. In fact, if the acute WET trigger were exceeded, the obvious alternative for the Permittee would be to request an acute mixing zone with larger dimensions, which is discussed below. A larger mixing zone is easily justified based on the rapid dilution achieved by the diffuser at a very short distance from the ports.

Sizing the acute mixing zone as small as is specified in the proposed NPDES permit is not supported by ADEC's water quality standards regulation, ADEC mixing zone guidance (Alaska Department of Environmental Conservation, Implementation Guidance: 2006 Mixing Zone Regulation Provisions, as Amended through February 3, 2009) or EPA's mixing zone guidance (EPA, March 1991, Technical Support Document/or Water Quality-based Toxics Control, EPA1505/2-90-001, see Sections 2.2.2 and 4.3.3) (TSD). The allowable acute dilution factors need to be changed and the acute WET trigger and resultant consequences need to be removed from the permit. The Fact Sheet notes that "if the mixing zone changes in the final certification for the permit, then EPA will reevaluate the water quality assessments." (Fact Sheet at page 21).

Alyeska recommends that the acute mixing zone for Outfall 001 be set at 18 meters in all directions from the diffuser barrel which would be the most scientifically supported approach because it is based on the duration of exposure component of acute water quality criteria and is thus protective for prevention of lethality to passing organisms. This exposure approach is identified as an acceptable method for determining acute mixing zone dimensions in EPA's TSD (Section 4.3.3). At a distance of 18 meters from the diffuser barrel the minimum dilution factor (critical conditions) is 43 to 1 (see Attachment 3).

Alyeska could also accept an acute mixing zone for Outfall 001 of 5 meters in all directions from the diffuser barrel, which is based on a computational approach in ADEC's guidance (10% of the distance to the boundary of the 50-meter mixing zone), even though this approach has no relationship to the duration of exposure component of the criteria and is not required by ADEC's guidance. At a distance of 5 meters from the diffuser barrel the minimum dilution factor achieved is 25.5 to 1 (see Attachment 4). Either approach is sufficient to allow a demonstration that there is no potential to exceed acute numeric water quality criteria or to exceed EPA's acute toxicity WET guidance, and either approach is in accordance with ADEC's acute mixing zone guidance.

Both of these proposed acute Mixing Zone recommendations carry with them the caveat that the existing trigger values be eliminated.

Alyeska notes that ADEC has only adopted a chronic WET criterion in its water quality standards regulation and did not choose to adopt an acute WET criterion. We believe this gives EPA and ADEC the flexibility to modify the acute toxicity terms to fit a specific discharge.

Comment 17B: The acute mixing zone for Outfall 001 is described as having both a 3.7 meter radius and 3.7:1 dilution factor (see Fact Sheet Table 3, Outfall 001 dilution factors), which is not the case. Dilution modeling shows that at 3.7 meters from the diffuser port the dilution factor is at least 19.5:1 (See Attachment 4).

This error illustrates a fundamental flaw in the calculation and assignment of the trigger value limit for acute toxicity, which will be fully addressed later in these comments. The mixing zone for Outfall 002 provides a 600:1 dilution factor yet the proposed effluent limits were established for Fecal Coliform and Enterococci without regard to the dilutions afforded by the mixing zone. Neither the Fact Sheet nor the Draft Permit offers an explanation as to why the approved mixing zone was not applied to the reasonable potential analysis and proposed permit limits for Fecal Coliform or Enterococci.

Furthermore, if bacteria required a larger mixing zone, ADEC could provide one, as they do for many larger municipal sewage treatment plants in Alaska. The dilution factor of 600 for Outfall 002 is based on modeling at a high flow of 10,000 gallons per day. As noted on the first page of these comments, with reductions in staffing, the STP flow is now down to 1,000 to 2,000 gpd. The dilution factor will be greater than 600, but the discharge is so trivial that there is no need for further modeling.

Comment 17C: Alyeska requests that EPA and ADEC remove the proposed Fecal Coliform and Enterococci limits, or provide for the record why the mixing zone was not applied to these parameters and why it is necessary to monitor for both constituents when they are both representative of the same indicator monitoring goal and no designated uses of Port Valdez have been, or will be, impacted by the discharge.

RESPONSE #17 –

Response 17A: *The Permit (Part I.D.) has been revised to reflect the mixing zones authorized by ADEC in their Final CWA Section 401 Certification (October 29, 2012).*

D. MIXING ZONES

1. BWTF – Outfall 001

- (a) **Chronic Mixing Zone.** A 100-meter by 161-meter, rectangular chronic mixing zone for Outfall 001 has been granted by ADEC for TAH, TAqH, pH, ammonia-nitrogen, total zinc, and chronic WET. The chronic mixing zone is centered on a 61-meter diffuser barrel with 20 ports, such that the boundary of the chronic mixing zone is 50-meters from the outfall in all directions. It extends from the seafloor, excluding sediments, to the receiving water surface. This mixing zone provides a 56:1 dilution.

- (b) Acute Mixing Zone. A 10-meter by 71-meter rectangular, acute mixing zone for Outfall 001 has been granted by ADEC for WET and total zinc. The acute mixing zone boundary is 5-meters from the outfall in all directions, centered above the diffuser barrel described above in Part I.D.a. It extends from the sea floor, excluding sediments, to the receiving water surface. This mixing zone provides a 23:1 dilution.

2. STP – Outfall 002

- (a) A 0.32-meter mixing zone for Outfall 002 has been granted by ADEC for fecal coliform bacteria, pH, ammonia, *Enterococci* bacteria, and total residual chlorine. The mixing zone is defined as a cylinder with a radius of 0.32 meters centered on the outfall. It extends from the seafloor, excluding sediments, to the receiving water surface. This mixing zone provides a 9.2:1 dilution.

Response 17B: Please refer to RTC#9 and #10 regarding the implementation of toxicity monitoring triggers.

Response 17C: As discussed in RTC #15 and #16, the fecal coliform and *Enterococci* effluent limits are retained in the final Permit. ADEC authorized a mixing zone for both parameters, which has resulted in the following revised effluent limitations:

| | Maximum Daily Limit | Monthly Average Limit |
|-----------------------|---------------------|-----------------------|
| <i>Fecal Coliform</i> | 396 cfu/100mL | 129 cfu/100mL |
| <i>Enterococci</i> | 2,540 cfu/100mL | 322 cfu/100mL |

In the 1986 bacteria criteria document (US EPA, 1986) EPA determined that *Enterococci* bacteria were a more accurate indicator of bacterial contamination from sanitary/domestic wastewater. *Enterococci* are also more resilient than fecal coliform in marine environment. Pursuant to the BEACH Act (2000), EPA promulgated federal water quality criteria for *Enterococci* for the State of Alaska, which can be found at 40 CFR 131.41(c)(2). EPA is retaining *Enterococci* limits in the Permit to ensure that there is no exceedance of water quality criteria.

As discussed in RTC#15, marine waterbodies in Alaska are protected for all designated uses. Alaska Water Quality Standards dictate that the fecal coliform median MPN may not exceed 14 FC/100mL and not more than 10% of the samples may exceed a fecal coliform median MPN of 43 FC/100 mL. The final Permit limits are consistent with the mixing zones established by ADEC, and have been certified to be protective of water quality standards (see Final CWA 401 Cert and ADEC’s Response to Comments, October 29, 2012).

COMMENT #18 (MZ-002)**Page 10 Part I.E.1.(a) TAqH no mixing zone dilution allowance is described.**

Alyeska requests that TAqH be added to this section that identifies parameters that are afforded dilution in the chronic mixing zone as described in Table 3 of the Fact Sheet. Although Alyeska understands that EPA determined that there is no reasonable potential to exceed the water quality standard for TAqH at the edge of the chronic mixing zone, for clarity this provision should acknowledge that TAqH is a wastewater constituent that is granted a mixing zone.

RESPONSE #18 – *This was an oversight. EPA has corrected the exclusion of TAqH as a mixing zone parameter and has revised the Permit language to reflect the Section 401 Certification. The Section I.E.1(a) of the Permit reads as follows:*

“The Permittee shall not discharge any parameter in concentrations that exceed applicable State water quality criteria, except for those parameters for which ADEC has authorized a mixing zone. A chronic mixing zone has been authorized by ADEC for the following parameters (Part I.D.1): TAH, TAqH, pH, ammonia-nitrogen, total zinc, and chronic WET. Mixing zones in State waters and State water quality standards are defined at 18 AAC 70.240.”

COMMENT #19 (GEN-011)**Page 10 Part I.E. 1.(f) Influent Sampling**

Alyeska requests that the requirement for Influent Sampling be deleted from the Permit because it is an archaic requirement that was inserted into previous permits at a time when the constituents in ballast water being discharged from the tankers to the BWTF were not well understood. Since the initial inclusion of this requirement into the NPDES permit dozens of influent sampling events occurred and the knowledge of ballast water characteristics was solidified. Since no sampling events have occurred since 2004 (the last Permit renewal), it appears that a basis for this requirement no longer exists. If there were an occasion for influent sampling to become necessary then EPA and ADEC retain the authority to request it regardless of whether this provision is included in the permit.

If EPA and ADEC choose to retain the requirement then a basis for the decision should be made part of the record to preserve the intent and purpose of the requirement. In addition, the Fact Sheet is silent on this requirement which would indicate that it was carried over from the current permit without consideration of the basis or the efficacy of the requirement.

RESPONSE #19 – *Permit Part I.E.1(f) was previously included as required by the CWA § 401 Certification of the 2004 Permit. EPA has removed the Influent Sampling requirement applicable to ballast water influent samples from deballasting tankers as ADEC has not included this requirement in its final CWA § 401 Certification for this Permit, and it does not appear necessary to ensure implementation of water quality*

standards or protection of designated uses. In particular, this sampling requirement does not accurately characterize the influent to the ballast water treatment facility (BWTF). The influent to the BWTF now consists largely of stormwater, while this previous requirement only samples and characterizes influent tanker ballast water. Finally, EPA retains the authority under CWA Section 308 to request this data if it is determined to be necessary in the future.

COMMENT #20 (GEN-012)

Page 11 Part I.E.1.(h) Scraper Pigs

The requirement to perform certain tasks associated with scraper pigs has no basis in the NPDES permit as it is not an activity that creates adverse impacts to treatment nor does it result in the discharge of additional pollutants. It is unknown what the purposes of this requirement are or why it should be carried over from permit to permit or how it is protective of waters of the US. Alyeska requests that this requirement be deleted in the final permit.

RESPONSE #20 – *EPA disagrees with the comment regarding scraper pigs. Pigging operations have the potential to generate wax, cleaning and wash-down wastewater streams, and other debris, which may affect the treatment system and/or the discharge. EPA is retaining the scraper pig requirements under the Best Management Practices Requirement of the Permit at Part II.D.8.(b).*

CWA Section 402(a)(1) authorizes EPA to include such miscellaneous requirements in permits on a case-by-case basis which are deemed necessary to carry out the provisions of the Act. Similarly, BMPs, in addition to numerical effluent limits, are required to control or abate the discharge of pollutants in accordance with 40 CFR 122.44(k). The BMP Plan requirement has also been incorporated into this Permit in accordance with EPA BMP guidance (EPA, 1993). The requirements are also reflective of the pollution prevention provision in AWQS at 18 AAC 70.001(2)(D), which is part of an antidegradation policy and requires that “methods of pollution prevention, control, and treatment” should be applied to “wastes and other substances to be discharged.”

Thus, the Permit requires the development, or update of an existing plan, and implementation of a BMP Plan that prevents or minimizes the generation and potential release of pollutants from the facility to waters of the United States through best management practices. Under the CWA, the discharges to be controlled by BMPs include, but are not limited to, material storage areas, site run off, stormwater, in-plant transfer, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990 (42 U.S.C. 13101). As noted above, the Permit requirements relating to scraper pigs are appropriately included as BMP Plan requirements to ensure that the resulting cleaning and wash-down wastewater is appropriately treated prior to discharge.

COMMENT #21 (GEN-013)**Page 11 Part I.E.1.(i) Sludge Handling**

Alyeska requests that the requirement to notify ADEC prior to any sludge removal activity be deleted as it is an onerous and unsupported requirement that has no basis or value. This appears to be requirement that has been carried over from a previous iteration of the permit and no longer is relevant based on sludge management practices or other specific interest to the agencies, Alyeska requests that ADEC consider whether this notification requirement has provided any value and should continue or, as Alyeska believes, that the ADEC does not act upon nor otherwise find this notification necessary. It should be noted that either EPA or ADEC could request this information from Alyeska in absence of a Permit condition at any time.

RESPONSE #21 – *EPA disagrees with the comment regarding sludge handling and has retained the sludge handling requirement in the final Permit, however, the notification requirement has been revised. The Permittee is required to document sludge handling activity in the Discharge Monitoring Reports (DMRs) associated with the month the sludge handling operation occurred. Due to the local interest associated with Alyeska's operations, it is important that the activity is reported in the associated DMR. EPA has also moved this provision under the Best Management Practices requirement of the Permit at Part II.D.8.(c). Please see RTC #20.*

COMMENT #22**Page 11 Part I.E.1.(j) & (k).**

Alyeska requests that these new prohibitions on certain discharges be deleted from the final permit because they are in direct conflict with the approved influents that normally occur and are treated through the BWTF.

These pollutants are identified in the permit application and are approved for treatment in the BMP Plan. These waste streams are present in the influents and are subsequently treated to below permit limits is an accepted function of the BWTF. However, if read literally or by lay persons these proposed prohibitions would appear to forbid the BWTF from treating these waste streams because some post treatment artifacts of these waste streams may be present. EPA will have created an apparent permit conflict where on one hand it acknowledges that these waste streams are permissible for treatment through acknowledgement of the permit application materials and on the other hand forbid their discharge with these conditions later in the permit. Alyeska requests the removal of the new discharge prohibitions from the Permit. The permit discharge limits and other conditions are sufficiently protective that these terms are unnecessary to protect waters of the US.

RESPONSE #22 – *Inclusion of these standard sections was done in error. Water quality based effluent limitations were developed for total aromatic hydrocarbons and are protective of water quality criteria. The Permittee is required to monitor for total aqueous hydrocarbons, which consists of dissolved and water-accommodated*

monoaromatic and polynuclear aromatic petroleum hydrocarbons that are persistent in the water column. In addition, pursuant to the WET requirements in the Permit, if toxicity triggers are exceeded, the facility would be required to identify any source of toxicity and the re-opener clause (IV.M.) would enable the permitting authority to develop limits for the identified toxic constituent. As a result, the constituents restricted under I.E.1. (j) & (k) are addressed by the Permit and the standard restrictions are unnecessary.

COMMENT #23

Page 12 Part I.E.2. (a) STP Outfall 002

If EPA and ADEC retain Fecal Coliform and Enterococci monitoring and limits then Alyeska requests a Mixing Zone be provided as allowed under 18 AAC 70.240. Alyeska requested a Mixing Zone for Fecal Coliform in the Mixing Zone Application and specifically that monitoring for compliance be determined at the shoreline, neither of which is provided in the draft permit.

Alyeska was unaware that a limit and monitoring requirement would be established for Enterococci and does not believe it is necessary in light of the requirement for Fecal Coliform monitoring which essentially is an indicator of the same pollutants (bacteria) that Enterococci monitoring indicates. Enterococci monitoring is usually required for locations where contact recreation is expected occur, such as beaches, and serves no purpose for areas where contact recreation does not occur such as the VMT. Enterococci monitoring will create an unjustified expense for the Permittee without a commensurate environmental benefit as described elsewhere within these comments.

RESPONSE #23 – *ADEC has authorized a mixing zone for both fecal coliform and Enterococci. Please refer to RTC #15 and #16.*

COMMENT #24 (DIS-001)

Page 12 Part I.E.2. (d) Disinfectant requirement.

Alyeska objects to the proposed onerous requirement that a disinfection system be designed, constructed and operational within 36 months or at all, as EPA and ADEC have not demonstrated a reasonable potential that an undisinfectated effluent will degrade water quality or impair designated uses. Since contact recreation, secondary recreation, harvesting of seafood for consumption and water supply do not occur within the area offshore of the VMT, disinfection of discharges from Outfall 002 is an excessive and overly burdensome permit requirement.

It is estimated that the installation of a chlorine disinfection system for Outfall 002, including design engineering, purchase of equipment, implementation of design, training and documentation is \$535,000.00. In addition, there will be long-term ongoing operating and maintenance requirements that will add to the cost. In consideration of the lack of environmental risk, it is not reasonable to require disinfection given that the costs substantially outweigh the need and benefits of such a system. Alyeska does not consider

disinfection to be cost beneficial and requests that the requirement be deleted from the final permit.

Alyeska provides additional information below on mixing zones for Fecal Coliform at Publicly Owned Treatment Works to illustrate the commonality of providing large mixing zones rather than disinfection. It should also be noted that all of the outfalls associated with the identified facilities are unrestricted in terms of public access within the proximity of the discharge, unlike the VMT's restricted access.

Many POTWs in Alaska do not disinfect and have mixing zones for bacteria much larger than their mixing zones for acute and chronic criteria. The following table presents a summary of mixing zone sizes for bacteria in Alaska POTW permits for marine discharges.

| City | mixing zone size and/or area for bacteria |
|-----------------|---|
| Anchorage | 650 m radius covering arc of 220°. Area = >800,000 m ² . |
| Cordova | 200 m x 3,200 m. Area = 640,000 m ² . |
| Juneau Douglass | 90 m radius. Area = 25,447 m ² . |
| Ketchikan | 800,000 m ² . |
| Petersburg | 1,600 m radius. |
| Sitka | 1,600 m radius. Area = >8,000,000 m ² |
| Unalaska | 150 m radius. Dilution factor of 3,500. |
| Wrangell | 1,600 m radius. Area > 8,000,000 m ² . |

The VMT has discharged from this source for over 25 years without the need for disinfection and there has been no evidence that impairment of the designated uses has occurred. However, if the agencies intend to retain this requirement, Alyeska would propose as an alternative that the limits for Fecal Coliform and Enterococci (both of which otherwise are being requested to be eliminated from the final permit) be applied at the shoreline and that a mixing zone be provided for both parameters. If after a 3-year period of quarterly monitoring at the shoreline there is a demonstrated basis for disinfection, then Alyeska would be receptive to working with the agencies to address the issue.

RESPONSE #24 – *For the reasons set forth in RTC#15 and RTC#16 fecal coliform and Enterococci limits are retained in the final Permit. ADEC has authorized a mixing zone for each parameter. Compliance with water quality standards for these parameters must be achieved at the edge of the mixing zone.*

EPA further notes that the technology of disinfection, usually chlorination (with or without dechlorination) or ultraviolet radiation, is widely used in POTWs throughout the country and the world. Disinfection easily achieves the fecal coliform and Enterococci limits proposed in this permit. Fecal coliform and Enterococci are indicators of bacteriological contamination and limits are established in the Permit, consistent with the mixing zone authorized by ADEC, to ensure ongoing protection of the designated uses of the receiving water, and to ensure compliance with Alaska Wastewater Disposal requirements (please see 18 AAC 72.990(21)).

EPA further notes that the Alyeska facility currently employs no disinfection and the comment suggests that Alyeska objects to installing any such system. In contrast, several of the municipal wastewater treatment facilities identified by the commenter have installed or are in the process of installing disinfection systems. In particular, Juneau's Douglass facility employs ultraviolet (UV) disinfection, whereas the Anchorage POTW (AK-002255-1) disinfects using chlorination. Pursuant to a federal consent decree entered in the United States District Court in the District of Alaska, Unalaska is required to install a disinfection system by December 2014. Moreover, once the Unalaska disinfection system is operational, the facility is required to meet end-of-pipe fecal coliform limits of 400 cfu/100 mL (weekly average; AWL) and 200 cfu/100 mL (monthly average; AML).

Similarly-sized industrial facilities with domestic wastewater treatment plants also employ disinfection and are subject to similar fecal coliform limits. A primary example is Pogo Mine, which provides UV disinfection (as well as secondary treatment) for its domestic wastewater. As above, Pogo Mine is required to meet end-of-pipe fecal coliform limits of 400 cfu/100 mL (AWL) and 200 cfu/100 mL (AML). The sanitary wastewater discharge (Outfall 003) from the Cook Inlet Energy Osprey Platform, which chlorinates, has both end-of-pipe fecal coliform limits (AML = 137 cfu/100mL and maximum daily limit (MDL) = 200 cfu/10mL) and Enterococci limits (AML = 35 cfu/100mL and MDL = 276 cfu/100mL). Finally, the General Permit for Small Sewage Treatment Plants Discharging to Marine Water (AKG-57-1000) permit also sets end-of-pipe limitations for fecal coliform that assume the use of disinfection.

COMMENT #25 (WET-004)

Page 15 Part H. Whole Effluent Toxicity Testing

In discussing effluent chemistry and effluent toxicity and related monitoring tools, the Fact Sheet describes how the Permittee should ensure that acute criteria are met at the edge of the initial zone of dilution (Fact Sheet at page 29) and this is to address the hypothesis WI (Fact Sheet page 28) that contaminants in the effluent are not exceeding levels protective of the environment outside of the acute mixing zone for lethality to passing organisms and outside the chronic mixing zone. Hypothesis WI describes the acute mixing zone for contaminants in terms of protecting for lethality to passing organisms. This concept is important in EPA's Technical Support Document for Water Quality-based Toxics Control (EPA TSD at sections 2.2.2 and 4.3.3), Alaska's regulations (18 AAC 70.240.(d)(7)&(8) and Alaska's Implementation Guidance: 2006 Mixing Zone Regulation Revisions (pages 4 and 9). Hypothesis W2, that effluent toxicity is not adversely impacting survival, growth or reproduction of aquatic organisms outside the mixing zone in the fjord as a whole (Fact Sheet at page 28) is associated with chronic toxicity and the chronic mixing zone, and not with acute toxicity and the acute mixing zone. Alaska has adopted criteria approved by EPA for chronic WET (1 TUc) (18 AAC 70.030). Alaska chose not to adopt criteria for acute WET in ADEC standards. EPA's acute WET guidance of 0.3 TUa is informative but has no regulatory basis in Alaska. Based on the long standing monitoring program and knowledge of the characteristics of the BWT effluent it is not reasonable to increase toxicity monitoring

and establish trigger limits for constituents that have no reasonable potential to impair water quality. As described in these comments Alyeska does not agree that increased WET testing frequency, toxicity trigger limits, accelerated testing and Toxicity Reduction Evaluations are justified.

RESPONSE #25 – *Pursuant to CWA Section 308, EPA has the authority to require monitoring in NPDES permits and to adjust monitoring frequencies. For the reasons described below, and given the nature of the facility operations and the presence of toxic compounds in the effluent, EPA believes that continued WET monitoring pursuant to our authorities under Section 308 are warranted to ensure the continued protection of Alaska WQS.*

In order to conclusively prove that Water Hypothesis W2 is true, effluent toxicity studies need to be conducted. Since the Subtidal Benthic Organism Monitoring Study is no longer a requirement of the Environmental Monitoring Program, the purpose of which was to evaluate effluent toxicity and the effects on the abundance and community structure of the benthic organism populations, a more robust WET Program needs to be conducted. This WET program will provide data that is solely indicative of the effluent toxicity potential, rather than evaluating toxic effects that may be a result of other environmental pressures/triggers in the receiving water body. This WET program is required to evaluate the effluent toxicity characteristics in a manner consistent with the former objective of the Subtidal Benthic Organism study.

Whole effluent toxicity tests are an integral tool in the assessment of water quality. For the protection of aquatic life, EPA's integrated strategy includes the use of three control approaches: 1) the chemical-specific approach, 2) the WET control approach, and 3) the biological criteria/bioassessment approach. The two primary advantages of using WET controls over individual, chemical-specific controls are (1) WET tests evaluate the integrated effects of all the chemical(s) in the aqueous sample; and (2) while EPA has established aquatic life criteria for a relatively small number (126) of chemical-specific pollutants, WET tests can measure toxicity caused by other compounds for which EPA does not have chemical-specific numeric criteria for the protection of aquatic life or approved parameter-specific analytical test methods. Reliance solely on chemical-specific numeric criteria or bioassessments could result in a considerably less effective toxics control program. WET testing is a vital component of the water quality standards implementation through the NPDES permitting process and supports meeting the goals of the Clean Water Act (Section 402), "...maintain the chemical, physical and biological integrity of the nation's waters."

EPA regional and national guidance recommends the 0.3 TU_A threshold be used as the criterion maximum concentration for the control of acute toxicity (Region 8, 9, 10 Toxicity Training Tool, 2010; TSD, USEPA, 1991b). While the State of Alaska does not have numeric criterion for acute WET, there are narrative criteria that do apply to acute toxicity. AWQS (18 AAC 70.020(b)) states that for the protection of marine waters for the growth and propagation of fish, shellfish, other aquatic life, and wildlife, "there may be no concentrations of toxic substances in water....that, singly or in combination, cause,

or reasonably can be expected to cause, adverse effect on aquatic life...” ADEC’s mixing zone regulations (18 AAC 70.240) state that mixing zones may not “exceed acute aquatic life criteria at and beyond the boundaries of a smaller initial mixing zone,” and may not “result in an acute or chronic toxic effect in the water column.” In the absence of a numeric criterion for acute WET in AWQS, EPA has historically interpreted and implemented the narrative criteria for acute toxicity using the 0.3 TU_A threshold.

WET testing evaluates the integrated effects of all the chemical(s) in an effluent, and can measure toxicity caused by compounds for which EPA does not have chemical-specific numeric criteria. EPA will retain the whole effluent toxicity requirements as described in Section I.H. of the Permit, which have been revised and the changes are described in detail in RTC#9. However, EPA agrees that if there is no demonstrated acute toxicity, then the monitoring requirements will be reduced from quarterly to semi-annually after 4 consecutive acute toxicity results that do not exceed the numeric monitoring trigger under Part I.H.5. EPA has updated the Permit to reflect this acute WET monitoring requirement change. Please refer to RTC #9.

COMMENT #26 (WET-005)

Page 15 Part I.H.2 (a-b) Chronic Toxicity Test Species and Methods

EPA and ADEC determined that there was no reasonable potential to cause or contribute to exceedences of Alaska Water Quality Standards for WET and that no permit limits need to be developed (Fact Sheet at page 31). (Alyeska concurs with this conclusion).

The Fact Sheet shows that ADEC has authorized a mixing zone for chronic toxicity with a dilution factor of 9.6. The permit uses this to establish a chronic WET TU_c trigger limit of 9.6 in the permit. Exceeding the trigger limit imposes significant additional chronic toxicity testing and the possibility of implementing Toxicity Reduction Evaluations (TRE). EPA guidance shows that if there is reasonable potential to exceed either acute or chronic WET criteria at acute or chronic mixing zone dilutions, then limits are needed, but if there is no reasonable potential, then all that is needed is toxicity testing to be repeated at a frequency of at least once every 5 years as a part of the permit application. (EPA TSD, Section 3.3.3 Effluent Characterization for Whole Effluent Toxicity) There is no reasonable potential to exceed ADEC's chronic WET toxicity standard at the edge of the chronic mixing zone which is 50 meters in all directions from the diffuser barrel. The minimum dilution factor achieved at the edge of the chronic mixing zone is 56 to 1 (Fact Sheet, Table 3 at page 22). There is no need to set a chronic WET trigger based on a dilution factor of 9.6, which lies well within the zone of initial dilution (ZID) that is described earlier in these comments. The permit and Fact Sheet should acknowledge that the discharge does not result in acute or chronic toxicity in the receiving waters and that the WET monitoring is essentially just informational to demonstrate the effectiveness of the ballast water treatment and therefore trigger limits are not necessary.

It is important to recognize that ADEC has authorized a 50-meter Mixing Zone (in all directions from the 61 meter long diffuser) that provides a minimum dilution factor at critical conditions of 56 to 1 (1.8% effluent at the edge of the mixing zone). The

requirement to perform a TRE has no basis given the authorized chronic Mixing Zone, unless the chronic WET IC" (Inhibition Concentration) results in a TUC greater than 56, (IC_s at 1.8 % effluent = 56 TUC) which is extremely unlikely. If, for example, the effluent exhibited a chronic WET IC" of 10% effluent which results in 10 TUC, (which exceeds the TUC trigger limit in the draft Permit) Alyeska would simply request the use of a larger portion of the chronic Mixing Zone which would be allowed up to the full SO-meters and affording a dilution factor of 56 to 1 which would be protective of chronic toxicity. This illustrates that the chronic whole effluent toxicity trigger limits are not necessary because there is no reasonable potential to exceed the Alaska Water Quality Standard of 1 TUC beyond the edge of the Mixing Zone. The assignment of a TUC trigger limit in the draft Permit of 9.6 TUC is onerous and unnecessary and should be removed from the final Permit. In the event a chronic toxicity trigger for accelerated WET testing is included in the final Permit it should be set at 56 TUC to correspond with the allowable dilution factor at the edge of the approved chronic mixing zone.

RESPONSE #26 – *As discussed in RTC #9 and #10, EPA revised the numeric monitoring triggers in the Permit. The determinations made in RTC #9 and #10 are consistent with EPA guidance (TSD Section 3.3.3., and guidance documents referenced in the previous responses).*

As discussed previously, EPA has the authority under Section 308 of the CWA to develop monitoring requirements in NPDES permits. Given the nature of the facility operations and the presence of toxic compounds in the effluent, EPA believes that continued WET monitoring pursuant to our authorities under Section 308 are warranted to ensure the continued protection of AWQS. Pursuant to Section 402 of the CWA, WET testing is a vital component of the water quality standards implementation through the NPDES permitting process and helps to "...maintain the chemical, physical and biological integrity of the nation's waters."

Toxicity triggers and associated accelerated testing and TIE/TRE requirements are established to ensure protection of receiving waters from unacceptable levels of toxicity. As discussed in RTC #9 and #10, exceedance of a toxicity trigger and implementation of the accelerated testing and TIE/TRE requirements will only occur in the event that the effluent toxicity is either (1) increasing beyond levels reported in the historical data (i.e. exceeding the lower trigger values; Permit Part I.H.5.) or (2) exceeding the WET allocation provided by ADEC (i.e. exceeding the higher trigger values; Permit Part I.H.8.b.), which the commenter acknowledges "is extremely unlikely." The purpose of the numeric monitoring trigger and associated accelerated testing and TIE/TRE requirements is to determine if the observed toxicity was a isolated occurrence and, if not, implement actions to identify (in the case of an exceedance of the lower trigger, indicating increasing toxicity beyond historical levels) and/or control (in the case of an exceedance of the higher trigger, indicating an exceedance of the WET allocation) the level of toxicity. Numeric monitoring triggers and TIE/TRE requirements will not be removed from the final permit.

COMMENT #27 (WET-006)**Page 15 Part I.H.2 Table 4**

If the chronic WET monitoring requirement is retained Alyeska needs clarification as to whether the chronic toxicity tests should be performed on each of the 2 species every quarter or if the frequency is 2 quarters per year per species as described in Table 4, footnote 1, because it is unclear what the correct frequency is.

Alyeska requests that it have the latitude to test either the sand dollar or the sea urchin and not be held to using the sea urchin only if the sand dollar is not available as described in footnote 2. Both organisms represent notably sensitive tests and given past availability issues we believe this request is reasonable.

Table 4 identifies the acute toxicity test as the "48 hour mysid test". If the acute WET monitoring requirement is retained Alyeska requests confirmation on the duration of the test as previous permits have used the 96 hour test and the Fact Sheet is silent on the test duration. Alyeska is comfortable performing the 48-hour mysid test but would need verification of the required test duration.

RESPONSE #27 – *Chronic toxicity testing is to be conducted quarterly for both the invertebrate and vertebrate tests (i.e., four tests per year per species). The Permit has been revised to provide more clarification in this regard.*

EPA agrees with the comment regarding the use of either the sand dollar or sea urchin, and has revised the Permit to reflect that either species may be used interchangeably, as available.

The 48-hour mysid test is the correct test reference, and test duration, for the acute toxicity testing.

COMMENT #28 (WET-007)**Page 16 J.H.3 (a-d) Acute Test Species and Methods**

Alyeska requests that acute toxicity monitoring be deleted from the final Permit if tied to trigger values, accelerated testing and Toxicity Reduction Evaluation. The Mixing Zone Application provided evidence that there is no reasonable potential for the discharge from Outfall 001 to cause exceedences of acute toxicity criteria or to cause acute toxicity in the receiving waters because very little dilution is necessary and that occurs rapidly in a very short distance from the diffuser ports. Fixing the acute mixing zone so close to the ports and allowing so little dilution is not practicable as it affects the acute WET monitoring trigger level, potentially imposing significant costs for no environmental benefit. In any case, the trigger limits and associated TRE should be removed as they are not necessary to be protective of water quality and create an unjustifiable expense.

Setting the acute mixing zone at 3.7 meters and allowing a dilution factor of only 3.7 is not supported by ADEC regulations, ADEC mixing zone guidance nor EPA's mixing zone guidance. The allowable dilution factors need to be changed and the acute WET

trigger and resultant consequences need to be removed from the permit. The Fact Sheet notes that "if the mixing zone changes in the final certification for the permit, then EPA will reevaluate the water quality assessments." (Fact Sheet at page 21).

If monitoring of acute toxicity is retained, then a reasonable frequency would be once per year because the risk of toxicity is unlikely as demonstrated by the results of decades of testing, significantly reduced flows (with concomitant reduction of any toxic effect components) and the establishment of a smaller mixing zone which demonstrates the risk of a toxic effect has been minimized.

RESPONSE #28 – *The toxicity triggers for acute toxicity have been revised to include a lower and higher trigger value. The lower trigger value is based upon the highest acute WET value reported in the data set, and the higher trigger was established using the dilution allocation authorized by the State of Alaska. For a detailed discussion please refer to RTC #9, 10, and 25.*

COMMENT #29 (WET-008)

New vertebrate species

The draft NPDES permit proposes a new vertebrate species, the topmelt, for chronic WET monitoring of the Outfall 001 effluent. Alyeska requests that EPA consider the elimination of the proposed new vertebrate species, the topmelt, for chronic WET monitoring of the Outfall 001 effluent.

The topmelt is not an approved WET test species identified in 40 CFR 136 Table I but is used widely in West Coast NPDES permits. However, because the topmelt WET test methodology was not developed as one of the Part 136 methods, it lacks certain QA/QC requirements that can become problematic for evaluating test results. The trigger value for the survival component of the topmelt testing is based on the NOEC obtained during testing. The NOEC is defined as the highest concentration of toxicant at which the values for the observed responses are not statistically different from the controls. The determination of a statistical difference can be strongly affected by the "power" of the test (i.e., the ability of the test to detect a significant difference). Depending on the within-test variability, a large effect size (i.e., a significant biological effect) might not be statistically significant, but in another case a small effect size (i.e., small biological effect) might be statistically significant (Denton et al. 2007, p. 57). EPA recognizes this property of biological testing and offers solutions to both situations by stipulating that the variability of the test be evaluated by using the percent minimum significant difference (PMSD; EPA 2000a, p. 3-8). An upper bound PMSD is used to evaluate the sensitivity of the test. If the test variability exceeds the upper bound PMSD, the test should be repeated with a new sample within 14 days. However, of particular importance to Alyeska in the context of the proposed permit is the case that a small biological effect would be found to be significant. In this case, the resulting NOEC and its associated TUc could trigger accelerated testing even though the biological effect was small. In such cases, USEPA allows that a lower bound PMSD evaluation, rather than statistical significance, be used to determine the NOEC (EPA 2000a, p. 6-8; Denton et al. 2007, p.

62ff). Analyses would be done to determine the smallest concentration for which the treatment mean differs significantly from the control mean Qlld has a relative difference from the control that is not smaller than lower bound PMSD. Thus, "concentrations having a very small relative difference with control (smaller than the lower PMSD bound) would be treated as if they do not differ significantly from control (even if they do so), for the purpose of determining the NOEC." There is no single lower bound PMSD applicable across the various species tests. USEPA provided the lower bound PMSD values for several species tests (EPA 2000a, Table 3-6; Denton et al. 2007, Table 4-1), but those tests do not include the topsmelt. Alyeska's consultants have not been able to find a lower bound value for topsmelt although the West Coast testing guidance does give an upper bound PMSD value for the species (EPA 1995, p. 101).

If the requirement is retained, Alyeska requests that the permit have allowances for the calculation of an NOEC value using the lower bound PMSD approach to cover the scenario in which a small biological effect is determined to be statistically significant. One option might be to use the value (11 percent) provided for the inland silverside. There is example language for including the review of with-in test variability in an NPDES permit (Denton et al. 2007, Appendix D, page D-14). However, that language refers to upper and lower PMSD bounds variability criteria tables, which does not exist for topsmelt. If the topsmelt test remains in the final Permit WET requirements, then the Permit should provide upper and lower PMSD bounds for this species and language allowing retesting if the lower or upper bound PMSD for a test is not achieved, as recommended by EPA (2000a) and Denton, et al. (2007).

Alyeska requests that EPA consider elimination of the topsmelt WET testing to avoid any false positives that could occur due to the statistical concerns with the test. The echinoderms are a sufficiently sensitive species and it is doubtful that inclusion of a vertebrate chronic WET test will increase the protection of water quality provided by the vertebrate testing provisions so it can be justified that topsmelt testing be omitted in the final Permit.

RESPONSE #29 – *The use of the west coast WET methods is supported by EPA policy and regulations [40 CFR 122.41(j)(4) and 122.44(i)(1)(iv); 67 FR 69955]. While EPA acknowledges that the west coast WET methods manual [EPA/600/R-95-136] does not set a lower bound PMSD for the topsmelt test, the statistical analysis prescribed in the manual for analyzing test data does set the false positive (alpha error) error rate at 0.05, or 5%, while the rate of false negatives (beta error) is uncontrolled. EPA believes that the WET testing design, with replicates, controls, and an alpha level set at 0.05 all provide an adequate protection from false positives. EPA's WET Interlaboratory Variability Study (EPA/821/B-01/004 and EPA.821/B-01/005) reported that of the twelve testing methods evaluated, the highest rate of false positives was 4.35%, lower than the theoretical value of 5% established for most WET statistical analyses. There is no requirement within the regulations or EPA's methods manuals to establish a lower bound PMSD for the topsmelt test. The topsmelt test will not be removed from a final permit and lower bound PMSD will not be provided.*

COMMENT #30 (WET-009)**Page 17 Part I.H.4 (b)**

The section states that if the dilution water differs from the culture water, a second control using culture water must be tested. Many toxicity labs use mysids obtained from an outside culture facility for testing and topmelt likely would also be obtained from an offsite culture facility. Those labs often transfer the test animals to laboratory holding facilities for a short time before the initiation of a test. This step is useful to ensure the initial condition of the test organism is appropriate and may serve to acclimate the organisms to the laboratory dilution water. The proposed permit language would require each culture facility to ship a sample of culture water to the testing lab to be included as a second control in the testing. This has not been the standard practice with previous Alyeska WET testing requirements.

Alyeska requests that this requirement be either removed or clarified as it has not been the practice to set up controls using culture water in the past and it is not clear what scientific justification supports it.

RESPONSE #30 – *EPA guidance and the west coast methods manuals recommend that if organisms have been cultured in water that is different from the test dilution water, a second set of controls, using culture water, should be used in the test (Regions 8, 9, 10 Toxicity Training Tool, 2010, Pg. Section 3.7; EPA/600/R-95-136, 1995, Section 7). This requirement will not be removed from the final Permit. Most suppliers of WET organisms utilize synthetic dilution water prepared in accordance with EPA’s WET methods manuals as culture water. Unless receiving water is used as dilution water, the laboratory performing the WET tests will likely be preparing the same synthetic dilution water (as prescribed by EPA’s WET methods manuals) as that used as culture water. As a result, the control organisms will effectively be cultured in the same water as that used for dilution, eliminating the need for the organism supplier to ship additional samples of culture water.*

COMMENT #31 (WET-010)**Page 17 Part I.H.S. Toxicity triggers*****Acute Toxicity:***

Alyeska strongly objects to the increased monitoring and trigger values as required by the draft permit and believes EPA and ADEC have no basis to require permittees to increase monitoring and set trigger value limits for parameters that show no reasonable potential to impair water quality. Alyeska requests that the trigger value for acute toxicity be deleted from the final Permit. It is not required to be protective of water quality because the BWTF effluent has not demonstrated a reasonable potential to be acutely toxic. Setting trigger values and increasing monitoring for acute WET is not supported by EPA or ADEC guidance. The historical absence of acute toxicity indicates that monitoring for acute toxicity should be either reduced or eliminated. In addition, due to the rapid and complete mixing provided by the discharge diffuser and the corresponding low risk that the effluent poses to water quality there is virtually no risk posed from acute toxicity.

The acute toxicity trigger limit is set at an unacceptably low artificial threshold and is not representative of a toxic effluent. The basis of the limit is not reasonable and will result in unnecessary and costly testing that cannot be supported by any reasonable analysis of the risk to the environment.

Alyeska understands that the acute toxicity trigger limit was based on a single data point taken from a dataset of eight tests over an eight year span. One reported sample of 1.1 TUa (all others were 1.0 TUa with 100% survival of all test animals) was converted to a trigger value by dividing by a dilution factor of 3.7:1 to meet the EPA recommended TUa of 0.3. It needs to be pointed out that the single data point of 1.1 TUa was the result of dilution of the effluent sample by the addition of hypersaline brine to adjust the test solution salinity to be within the range of the test specifications (See Attachment 1). The test result showed no statistically significant toxicity in comparison to the control group at any of the test dilutions and was assigned a LC50 of >90% effluent because the sample was diluted with the brine addition. Since TUa is computed by using $100/LC50$, the resulting TUa became $100/90=1.1$. As the test results indicate, the effluent exhibited no relative acute toxicity yet the 1.1 TUa value has been used to set a trigger that suggests that a toxic effect had occurred. In fact, the historic acute toxicity test data demonstrate that the effluent has no reasonable potential to exhibit acute WET. It is unreasonable to assign a toxicity threshold trigger that was based on a single TUa result that exhibited no toxicity to the test organisms and to require subsequent testing and a Toxicity Reduction Evaluation when no toxicity was indicated.

In addition, the frequency of the testing has been increased to quarterly which will accelerate the likelihood that trigger values will be exceeded and costly testing and Toxicity Reduction Evaluations (TRE) will be performed unnecessarily. As a likely result, a TRE would not be able to establish the cause of toxicity because the effluent did not exhibit toxicity but rather was indicative of the requirement to dilute the sample with brine to elevate the salinity into a range necessary for the test organisms. This would create a situation where the agencies would have to provide relief to the permittee because the permit requirement was not reasonable and a revision to the permit and mixing zone authorization would be required to correct the issue.

If the acute trigger limit were to be retained, Alyeska requests that EPA and ADEC recalculate the acute toxicity trigger limit to represent an actual indicator of toxicity at the edge of the acute mixing zone or Zone of Initial Dilution (ZID) and should not be based on results caused by the preparation of the dilution series that are used to meet a range of salinity requirement or adjust the test dilution series to reflect the actual dilutions afforded by the assumed 3.7 meter rectangular acute mixing zone. As stated previously in these comments, the ZID should be set at either 18 meters or 5 meters, which provides minimum effluent dilution factors of 43 to 1 and 25.5 to 1, respectively. Thus, the correctly calculated acute toxicity triggers using an appropriate ZID should be 12.9 TUa (18 meters) or 7.65 TUa (5 meters).

Lastly, the State of Alaska has not set water quality criteria for acute toxicity and has instead adopted the EPA's recommended national criteria to establish the toxicity trigger limit. Alaska has not demonstrated that this is necessary in order to be protective of water quality as demonstrated by the lack of acute toxicity criteria in Title 18, Chapter 70 of the Alaska Administrative Code.

Chronic Toxicity:

No reasonable potential exists to exceed Alaska's chronic WET toxicity standard at the edge of the chronic mixing zone. Therefore, there is no need to set a chronic WET trigger based on a dilution factor of 9.6, which lies well within the Zone of Initial Dilution (ZID) and is much less than the mixing zone critical dilution factor of 56.

There is no regulatory basis or justification for the following sections in the permit and they should be deleted.

Section I.H.5. Toxicity Triggers
 Section I.H.6. Accelerated Testing
 Section I.H.7. Toxicity Reduction Evaluation (TRE)

The Fact Sheet shows that ADEC has authorized a mixing zone for chronic toxicity with a dilution factor of 9.6. The permit uses this to establish a chronic WET TUC trigger of 9.6 in the permit. Exceeding the trigger imposes significant additional chronic toxicity testing and possible Toxicity Reduction Evaluation programs. As described earlier in these comments, ADEC and EPA have authorized a 50-meter chronic mixing zone for Outfall 001 with a corresponding minimum dilution of 56 to 1. The appropriate TUC trigger would thus be 56 and no historic chronic WET test has ever reported toxicity greater than 9.6 TUC, which is 17% of the allowable chronic toxicity at the edge of the mixing zone (1 TUC). This conclusively shows that the effluent has no reasonable potential to exhibit chronic WET at the edge of the approved mixing zone. EPA guidance shows that if there is reasonable potential to exceed either acute or chronic WET criteria at acute or chronic mixing zone dilutions, then limits are needed, but if there is no reasonable potential, then all that is needed is toxicity testing to be repeated at a frequency of at least once every 5 years as a part of the permit application. (EPA TSD, Section 3.3.3 Effluent Characterization for Whole Effluent Toxicity).

If EPA and ADEC determine that the Whole Effluent Toxicity testing program can be justified based on the desire to offset the loss of information resulting from the phase out of the benthic monitoring program and the need to supplement the Environmental Monitoring program with increased WET testing, then Alyeska would be willing to consider the quarterly WET test requirement (without the associated trigger limits and TRE requirements) for a defined period of time. Alyeska proposes that if after 4 quarters of WET testing there is no demonstrated acute or chronic toxicity (within the standard deviation of 10 years of historical levels) then the frequency would revert to annual testing for both acute and chronic WET testing.

RESPONSE #31 – *Please refer to RTC #9, #10, and #25.*

COMMENT #32 (WET-011)**Page 18 Accelerated Testing and Toxicity Reduction Evaluation.**

Alyeska requests that the accelerated toxicity testing only become part of the final permit if the trigger values for acute and chronic toxicity are modified as requested in this comment letter. If the trigger values remain unchanged, then Alyeska requests that the accelerated toxicity testing required in Parts 1.0.6.(a) (b) (c) and Toxicity Reduction Evaluations required in parts I.H.7.(a) (b) (c) (d) be deleted from the final permit.

RESPONSE #32 – *The chronic and acute numeric monitoring triggers have been revised. Please refer to RTC #9 and #10. The revised numeric monitoring triggers, as well as the accelerated testing and TIE/TRE requirements, will remain in the final Permit with the revisions identified in the responses listed above.*

COMMENT #33 (WET-012)**Page 19 WET test reports**

Alyeska requests that the WET testing results be submitted within 45 days of sample collection to align with the current permit requirement for submittal deadlines. The draft Permit requires the WET report be submitted with the DMR, which is not possible given the length of time the test requires and the QA/QC reviews that take place. Alyeska requests that the full WET report not be teamed with the DMR submittal but rather be a separate report submitted on its own with only the final TU results included in the DMR, as is the current practice.

RESPONSE #33 – *EPA has revised the Permit to reflect the requirement to submit the WET report separate from the DMR, which is consistent with the administratively extended permit. Part I.H.9.(a) has been updated accordingly.*

COMMENT #34 (GEN-015)**Page 20 Part II.C. 1 & 2 Pollution Prevention Requirements**

Alyeska request that the Pollution Prevention (P2) Requirements of the permit be deleted. Alyeska has been complying with this requirement since the 1997 NPDES Permit. The on-going requirement to produce an annual report on Pollution Prevention as it pertains to Valdez Marine Terminal operations is onerous, time consuming and repetitive because of the limited potential for new pollution prevention activities. Unlike manufacturing facilities the VMT does not generate waste products as a result of manufacturing and does not fit into typical pollution prevention efforts that are geared toward source reduction. As a result, the VMT has difficulty identifying and reporting on significant and meaningful P2 efforts that justify the need for annual reporting. There appears to be diminishing value for continuing this requirement after 14 years and we do not see the need to continue at this point in time. Alyeska would accept a once in the term of the permit reporting requirement if elimination of the requirement is not acceptable.

If EPA retains the Pollution Prevention requirement then Alyeska requests that the basis for the requirement be part of the public record as we are unable to identify any other wastewater treatment facility in Alaska that has a similar NPDES permit requirement.

RESPONSE #34 – *It is EPA and ADEC’s intent to retain the pollution prevention framework requirement, which is consistent with State Water Quality Standards as they pertain to water quality degradation (pursuant to 18 AAC 70.015(a)(2)(D)). However, EPA has revised the reporting requirement such that the Permittee must submit a letter to EPA and ADEC within 90 days of the effective date of the Permit certifying that the Pollution Prevention Framework Program is in place and that the Permittee has ensured that its objectives, goals, and priorities are current and effective. See Permit Part II.C.*

COMMENT #35 (GEN-016)

Page 26 Part III.A.S. Sediment Monitoring.

Alyeska requests that the following requirement be deleted because it is specific to the collection of sediment samples related to the benthic studies that have been discontinued in the draft permit.

"The description of the gross characteristics of the sediment shall also address the presence or absence of oil, oil globules, tar balls, and visible sheen in the aqueous or solid phase of the sediment samples. These written descriptions shall be included in the monitoring report. "

The sediments collected for hydrocarbon analysis are not visually described because the sampling method and subsequent analysis is different from the benthic sediment collection. Samples collected for hydrocarbon analyses use a barrel core device to collect undisturbed sediments. During the collection process a small sample is collected directly from the barrel and placed into a sample jar. This process eliminates any cross contamination of the sample but it does not provide for a detailed visual examination of the sample as was the case for the benthic sediment sample collection method. The discontinued benthic sample collection was performed using a sampling device and preparation step that provided the opportunity to visually check the samples unlike the sediment collection method for hydrocarbon analyses.

RESPONSE #35 – *This requirement was included in error. The requirements under the sediment chemistry study do not include visual monitoring of the sediment samples. This requirement was incorrectly carried over from the previous permit and was only a requirement under the Subtidal Benthic Organism Study, which was removed from the draft Permit. EPA has removed this language from the final Permit.*

COMMENT #36 (GEN-017)**Page 27 Part III.A.6.(a) (ii) Annual Data Report**

Alyeska requests that the reference to benthic community be deleted from the following requirement because it is related to the benthic studies that have been discontinued in the draft Permit. (see strikethrough)

"Discuss how the monitoring addresses the environmental monitoring program purpose (.see Part III.A. 1) and objectives (see Part III.A.2) by using appropriate descriptive, analytical, and statistical methods to test for and describe impacts of the effluent on the receiving water and sediment, ~~and benthic community...~~"

RESPONSE #36 – *EPA removed the Subtidal Benthic Organism Study from the draft permit. The reference to the "benthic community" was included in error. EPA has corrected the language in the final Permit (Part III.A.6.(a)(ii)).*

COMMENT #37 (GEN-018)**Page 27 Part III.A.8. Digital data submission date.**

Alyeska requests that the date for the submission of digital data be the same as the Environmental Monitoring report date, which is July 15. The draft Permit requires the data be submitted by June 15 and is an obvious error that was carried over from the existing Permit.

RESPONSE #37 – *EPA has changed the submittal date to July 15th for the Environmental Monitoring Digital Data reporting requirement. See also RTC #2.*

COMMENT #38 (GEN-019)**Page 28 Part III.C.1. DMR due date.**

Alyeska requests that the due date for the monthly DMR be changed to the 15th day of the month following the monitoring month to retain the same schedule of the current permit for consistency with the processes established. Alyeska uses many contract laboratories and it is unlikely that all of the analytical results would be available in time to submit the DMR by the 10th day of the month following the monitoring month.

RESPONSE #38 – *EPA has changed the submittal date for DMR Reporting. The date originally included in the draft Permit reflected standard Region 10 policy, which can be adjusted on a case-by-case basis. See also RTC #1.*

COMMENT #39 (GEN-020)**Page 32 Part III.K. Reporting requirement for Construction and Maintenance Activities.**

The initial requirement for the 15 day advance reporting requirements for abrasive blasting projects was included in the NPDES permit during a period when the Valdez based ADEC personnel had oversight responsibilities of NPDES issues at the VMT. The purpose of the notification was to allow the local ADEC personnel the opportunity to

plan a site visit to the VMT to observe the activities. Alyeska requests that EPA and ADEC reconsider the necessity of this requirement, as the original basis is no longer valid.

ADEC has not, in the life of the Permit, acted on this notification and Alyeska presumes that this requirement is no longer necessary. EPA and ADEC can, at any time, request this information if they have a need for it in lieu of this being a requirement of the Permit. The requirement to keep records of the abrasive blasting activities is also superfluous and EPA should seriously consider if this requirement has any value and what benefit this information provides.

If EPA chooses to retain the requirement then Alyeska requests that the permit condition be modified to specify that only those abrasive blasting events that occur over the open water of Port Valdez need to provide 15 day advance notice. The current language could be interpreted to mean notifying EPA of all abrasive blasting projects at the VMT which would include many routine activities that occur in areas that do not have the potential to cause discharges to waters of the US. This was never the basis for the condition and it was limited exclusively to abrasive blasting of the VMT berths and related over-water structures.

RESPONSE #39 – *It was EPA’s intent to retain this requirement in the Permit. EPA disagrees with the commenter that the basis for the provision is no longer valid and that it lacks any value or benefit. To the contrary, advance notification of abrasive blasting projects allows agency personnel to assess potential water quality impacts from such activities and to determine if a site visit or other response is warranted. EPA similarly disagrees that advance notification is only warranted for blasting activities in VMT berths and related over-water structures. No such restriction appeared in the prior permit. Moreover, depending on the nature, location, and scope of the blasting, as well as local weather conditions, debris from blasting activities in other facility areas may impact water quality. The current Permit provision allows agency personnel to assess this potential on a case-by-case basis. However, EPA has revised the language with respect to reporting/notification requirements to allow an exception to the 15-day notice requirement for activities that need to be conducted on a more expedited basis. Please See Part II.D.8.(e). and Part III.K.*

COMMENT #40 (GEN-021)

Page 34 Part IV.G.1. Bypass of Treatment Facilities.

The last sentence in this section incorrectly references Parts IV.E.2 & IV.E.3 and should be changed to IV.B.2 and IV.B.3.

RESPONSE #40 – *EPA has corrected the internal Permit reference in Part IV.G.1.:*

COMMENT #41 (FS-001)**Fact Sheet**

The reasonable potential analysis for fecal coliform in Appendix B of the Fact Sheet (page 50) appears to have calculation errors. First, the cited maximum reported fecal coliform concentration of 294,000 colony forming units (cfu)/100 milliliters (mL) is not consistent with the VMT DMR records. The highest reported fecal coliform concentration in the January 2004 to July 2011 period is 257,500 cfu/100 mL in September 2009. **Alyeska believes that there may have been a data entry error in EPA 's DMR database.**

More important, the calculated coefficient of variation (CV) of 1 8.5 appears to be incorrect. The fecal coliform data fit a log normal distribution and the log normal data analysis method described on page 56 of EPA 's TSD should be used to analyze the data. There are 31 fecal coliform analyses in the database and using the methodology shown on page 56, the calculated CV is 0.26 (using the log mean and log standard deviation) and the reasonable potential multiplier (RPM) is 1.3 at a 95% confidence level or 1 .4 at a 99% confidence level. The low RPM values are consistent with the large number of samples in the VMT Fecal Coliform database, which reduces the width of the confidence interval. Thus, the maximum projected effluent fecal coliform concentration is 334,750 cfu/100 mL or 360,500 cfu/100 mL, depending on the confidence level used.

RESPONSE #41 – *EPA calculated an arithmetic mean and an arithmetic standard deviation using the raw data. Although the general process is conducting a lognormal analysis, it is EPA policy to use the arithmetic mean and standard deviation (illustrated on Page 130 and 135 of the TSD). In addition, EPA had used the last 12 years of fecal coliform data, as there had been no operational or configuration changes at the STP, and the larger data set added statistical strength to the analysis.*

However, only using data reported since the effective date of the 2004 administratively extended permit, as the commenter suggests yields the following reasonable potential analysis based on the 99% confidence level:

| | |
|--|--|
| <i>n=</i> | <i>31</i> |
| <i>Maximum Value =</i> | <i>257,500 cfu/100mL</i> |
| <i>CV =</i> | <i>2.45</i> |
| <i>Reasonable Potential Multiplier =</i> | <i>5.62</i> |
| <i>Maximum Projected Effluent =</i> | <u><i>1,433,936 cfu/100mL</i></u> |

This calculation demonstrates that the STP has a reasonable potential to exceed water quality standards.

The reported coefficient of variation (CV) was an error in the Fact Sheet. The correct CV was 2.53. As mentioned above, this number was based on the full data set available. The maximum value of 294,000 cfu/100mL was reported during the October, 2000 DMR reporting period.

COMMENTS SUBMITTED BY PRINCE WILLIAM SOUND RCAC

COMMENT #42

Oily ballast water will comprise only 25-55% of the future influx and the onsite IWSS influents are likely to be much more variable in composition than the consistently-oiled ballast water. We suggest a special study to characterize the effluent stream from the redesigned system under various flow and seasonal conditions to more fully understand the BWTF constituents and treatment efficacy. At a minimum, we would like to see a broad spectrum analysis of hydrocarbons and other constituents using full-scan GC/MS in addition to selected ion monitoring (SIM) GC/MS to include alkylated PAH, aliphatics, and sterane/triterpane biomarkers (all available using EPA methods 8260 and modified 8270D—see further discussion below).

RESPONSE #42 – *The facility is required to characterize the effluent during the NPDES permit application renewal process. To the extent that the commenter is concerned about the broader presence of pollutants not quantified during the renewal process and potential toxic effects of these compounds, EPA has included WET testing requirements to evaluate and, where necessary, reduce the toxic nature of the effluent.*

WET tests are an integral tool in the assessment of water quality. While EPA has established aquatic life criteria for a relatively small number (126) of chemical-specific pollutants, WET tests can evaluate toxicity cause by other compounds for which EPA does not have parameter-specific analytical methods. The WET monitoring requirements were included in the final Permit so that the Permittee would not be required to monitor the effluent, or “screen” the effluent, for any variety of pollutants in efforts to find a contaminant, but rather appropriately respond (TIE/TRE) when effluent toxicity is observed.

COMMENT #43

Considering the industrial origins of the waste, we also support precautionary, periodic scans of the outfall effluent for heavy metals and persistent organic pollutants.

RESPONSE #43 – *The Permittee is required to test for metals and organic pollutants during the NPDES permit renewal process. The specific constituents are listed and data are reported on Form 2C of the application package. Additionally, the Permittee is required to monitor for total recoverable zinc twice a year. To the extent the commenter is concerned about the broader impacts of pollutants not specifically limited in the Permit, please refer to RTC#42.*

COMMENT #44

We recommend collecting seasonal receiving-water-column structure data (CTD) at the diffuser location to create a more realistic model and thus better assurance of mixing compliance within the permitted mixing zone.

RESPONSE #44 – *ADEC evaluated the mixing zone analysis submitted by the facility during the Permit issuance process. ADEC has certified that Alaska Water Quality Standards are met at the edge of the mixing zone. EPA believes that the ongoing effluent and environmental monitoring, as set forth in the Permit, are appropriate for determination of compliance with the Alaska Water Quality Standards. Please refer to the ADEC’s Response to Comments document.*

COMMENT #45

Regarding residues, the permit says no sludge, solid, or emulsion shall be deposited beneath or upon the surface of the water, within the water column on the bottom, or upon the adjoining shorelines. LTEMP and EMP studies clearly show that oil residues have accumulated in the sediments (and LTEMP Intertidal mussels) as determined by PAH analysis, but these facts weren’t considered in the permit.

RESPONSE #45 – *EPA disagrees that these issues were not considered in the Permit. As the commenter notes, the Permit includes a prohibition on the discharge of floating solids, garbage, grease, or foam; and the discharge, alone or in combination with other substances, is not allowed to cause a film, sheen or discoloration of the surface of the receiving water or adjoining shorelines. Compliance with these provisions is expected, and will address concerns about the facility’s potential contribution to oil residues found in sediments. In addition, as explained in the Fact Sheet and accompanying references, studies have shown that there are other sources of hydrocarbons to the Port of Valdez, and there has been no evidence to suggest that the facility has violated these Permit provisions in the past.*

COMMENT #46

Salinity Effects on BTT Efficiency

Another concern is the changing salinity of the incoming wastewater. From our own studies (Payne et al., 2005 b,c), the BWTF is quite effective at degrading BTEX, saturated hydrocarbons (SHC), and selected lower-molecular-weight PAH, but it has historically been a saline system with tankers emptying up to 20 MGD of oceanic water into the process. With reduced ballast input and record rain and snowfalls at times within the last few years, are precipitation patterns changing and how do the quickly changing saltwater/freshwater conditions affect the bacteria living in the BTT? If there are bacterial die-off events in the BTT with the changing conditions, how does a microbial decline affect efficiency of degrading hydrocarbons, and how long does it take to recover the populations? The DMRs do not report salinity. Does Alyeska have data showing the system’s effectiveness during lower salinity conditions? Is operational mitigation required or feasible?

RESPONSE #46 – *The Permit limits have to be met regardless of the salinity of the discharge and how it may affect the inner workings of the treatment plant. Since few exceedances have been experienced in recent years, it is assumed that the Permittee is managing the treatment process effectively and that salinity concerns are not an issue.*

COMMENT #47 (GEN – 000)

Mentioned in the last NPDES review, we again strongly advise analyzing effluent and environmental samples for the full suite of alkylated PAH. This is the standard regulatory, research, and industry practice for unambiguously tracking petroleum products in the environment. To continue the current practice, reporting just a subset (<4-10%) of the PAH suite, seriously compromises the ability to understand BWTF efficacy, output composition, and the effluent's transport-and-fate in the environment. The knowledge is available, the method is available, and the need is unquestionable. We strongly advise analyzing effluent and environmental samples for the full suite of alkylated PAH. The modified EPA 8270D method is the standard regulatory, research, and industry practice for unambiguously tracking petroleum products in the environment. By only focusing on the EPA Priority Pollutant PAH components with EPA Method 625 (as stipulated in the current and proposed Permit), greater than 90% of the PAH burden in the effluent is being ignored.

RESPONSE #47 – *The decision to not include monitoring requirements for alkylated PAH homologs is based on uncertainty regarding the reliability of quantified results and the availability of standards for instrument calibration.*

EPA evaluated this concern during the 2004 permit reissuance and found that although there are commercially available standards for unsubstituted or parent PAH compounds, the same is not true of C1-C4 alkylated PAH homologs. The availability of these standards is essential for instrument calibration and accurate sample quantification. The response factors for the parent compounds versus the alkylated PAH homologs vary drastically and are usually higher than response factors for the parent PAH compound. The resulting quantitative data, using a parent PAH to calculate alkylated PAH homologs, would be biased high. EPA continues to support this finding during the current 2012 Permit reissuance.

Method 8270D, which can be used to analyze many kinds of semi-volatile compounds, is a standard approach for PAHs in support of various programs such as Superfund, RCRA and even criminal projects but not necessarily tracking of petroleum products. (Personal Communication with Gerald Dodo, Supervisory Chemist, U.S. EPA, Office of Research and Development. 9/26/2012).

To the extent that the commenter is concerned about the potential toxic effects of parameters not specifically limited or identified for monitoring within the Permit, EPA has included a WET monitoring program. Although EPA has only established aquatic life criteria for a relatively small number (126) of chemical-specific pollutants, WET tests can measure toxicity caused by other compounds for which EPA and ADEC do not have chemical-specific numeric criteria for the protection of aquatic life. In the event that the Permittee exceeds the toxicity triggers in Part I.H.5 and I.H.8.b of the Permit, follow-up TIE/TRE requirements will apply. Please also see RTC#9 and #10.

COMMENT #48**Benthic Monitoring and Alkylated PAH Correlation**

The requirement for Benthic Biological Monitoring has been removed from the Alyeska Environmental Monitoring Program in spite of the fact that at the shallow stations, abundance, biomass, and the number of taxa were overall lower at stations near the diffuser compared to reference stations. Dropping infauna monitoring was justified by the absence of direct correlation with measured hydrocarbon components in the sediments; mostly non-quantified environmental factors were postulated. We suggest that better correlations could have been made with sediment hydrocarbon chemistry had a more representative suite of alkylated PAH been examined. Further, at TDI, the contract laboratory, alkylated PAH data are being acquired using the analytic methods but are not being reported. It would serve the credibility of the EMPs benthic monitoring component to acquire the historic alkylated PAH data (available at TDI) and reevaluate the conclusions. As the PAH components in the BWTF effluent are anticipated to continue declining, it will be even more important to utilize the more sensitive and comprehensive analytical methods presenting the full suite of alkylated PAH to document the changes in sediment PAH composition and concentrations over time.

RESPONSE #48 – *A recent paper titled "Comprehensive Profiling of Coal Tar and Crude Oil to Obtain Mass Spectra and Retention Indices for Alkylated PAH Shows Why Current Methods Err" (Zeigler et. al, 2012) finds that "single ion monitoring (SIM) or extraction (SIE) of full scan data produces inaccurate and imprecise concentration estimates due to incorrect homologue peak assignments." That is the method used by TDI Brooks for measuring the alkylated homologs and is not reliable for quantitative use.*

In another recent paper titled "Associations Between Macrofauna and Sediment Hydrocarbons From Treated Ballast Water Effluent at a Marine Oil Terminal in Port Valdez, Alaska", Blanchard et. al (2011) looked at the correlation between the suite of PAH that is reported by the Permittee and those that Dr. James Payne uses for Long Term Environmental Monitoring Program (LTEMP) and found "A comparison of temporal concentrations trends between the suite of PAH monitored in this study and a larger suite including alkyl substituted PAH was made using data from Port Valdez sediments (Payne et al. 2008). Log(X)-transformed values gave a strong correlation ($r = 0.91$) indicating that the dataset used reflects the trends seen in the more extensive dataset." That is, there is a strong correlation between the suite of PAH that the Permittee has been reporting and the larger set that includes alkylated homologs. It is very unlikely that including the homologs will change the findings under the Subtidal Benthic Organism Study.

EPA has inquired about the historical alkylated PAH data, which does not appear to be available. The Permittee is not in possession of the alkylated PAH data from TDI Brooks (a contract laboratory) nor is the Permittee aware of the existence of the data or the data retention policies of TDI Brooks.

EPA does not believe that archived samples could be reanalyzed to produce the data, as maximum holding time for the alkylated PAHs should be the same as the other PAHs, i.e.,

7 days from time of collection until extraction and 40 days for the extracts with storage at <6 degrees C. Given the summary of research above, EPA does not believe that a reanalysis of the data would change the conclusions of the Subtidal Benthic Organism study and correlations to sediment hydrocarbon concentrations.

COMMENT #49

Mixing Zone Modeling and Assumptions

We also have concerns about the modeling and assessing potential impacts to nearby sediments and surface waters because all the modeling efforts are based on a single day's data of stratified conditions. Certainly during the winter months the receiving waters are well mixed from surface to bottom, and there is evidence from PWSRCAC studies that oil has accumulated in nearby sediments and intertidal mussels.

RESPONSE #49 - *Pursuant to the Clean Water Act Section 401, ADEC is required to issue a certification that the discharges authorized by the NPDES permit comply with State water quality standards. ADEC may include conditions as part of that state water quality certification, which would be incorporated as part of the permit. Here, ADEC issued a CWA 401 certification that establishes mixing zones derived from the mixing zone applications submitted to ADEC. These mixing zones were used by EPA to establish the effluent limitations in the permit. EPA has independently reviewed the mixing zones and permit conditions and does not believe that the discharges will exceed State water quality standards outside the permitted mixing zones. As such, pursuant to Clean Water Act Section 401(d), EPA is required to adopt the information certified by the State.*

COMMENT #50

Whole Effluent Toxicity

We support the inclusion of the WET monitoring with the new species and the quarterly frequency.

RESPONSE #50 – *EPA appreciates the comment.*

COMMENT #51

Based on past DMR reporting data, the treatment processes are capable of achieving the applicable Total Aromatic Hydrocarbons (TAH; effectively BETX) and Total Aqueous Hydrocarbon (TAqH) water quality criteria at the edge of the mixing zone. However, consistent operational practices for the BWTF have not been defined in the draft permit or in supporting documentation. Therefore, the permit should be modified to clarify that Alyeska shall provide an updated best management practices (BMP) plan with a description of operational conditions [e.g., clarify what parameters and measured values indicate that the biological treatment tanks (BTTs) are not operating efficiently and clarify the numeric criteria for when the tray air strippers are to be activated and at what flow rate].

RESPONSE #51 – *The Permit includes provisions that specifically address the issues raised. Section II.B. of the Permit requires that, “within 90 days of the effective date of this permit, the Permittee must submit a letter to EPA and ADEC certifying that the BMP Plan has been developed, or updated, and is being implemented.”*

Additionally, Section II.D.4. of the Permit requires the Permittee to “Establish specific best management practices for each component or system capable of generating or causing a release of significant amounts of pollutants, and identify specific preventative or remedial measures to be implemented.”

COMMENT #52 (GEN – 000)

Wastewater Treatment Processes and Representative Sampling

Related to changing operational conditions of the BWTF, the language of the proposed draft permit to ensure representative effluent sampling is insufficient. More specific language in the NPDES permit should be added to clarify that the required weekly and monthly sampling will be conducted to reflect differing operational conditions encountered during the month (e.g., with tray strippers both on and off, under differing salinity conditions during and after storm events, etc...). That clarification of effluent sampling during differing operational conditions should also be provided by Alyeska in their updated BMP plan. The permit should further stipulate that Alyeska maintain records of all operational conditions utilized during the month, and that the specific operating conditions in effect during all sampling events be documented for inspection by EPA and/or ADEC, if requested.

RESPONSE #52 – *As stated in RTC#46, the Permit limits have to be met regardless of the differing operational conditions of the treatment plant. Since few exceedances have been experienced in recent years, it is assumed that the Permittee is managing the treatment process effectively. Language has been included in the Permit to account for differing operational conditions (i.e. required TSS sampling before and after BTT effluent air stripper use, in addition to regular monitoring and reporting).*

COMMENT #53 (GEN – 000)

Wastewater Treatment Processes – TAH and TAqH

We again question the permit terms denying the need for TAqH limits and the need for additional monitoring during special events. We suggest increased monitoring and reporting for both TAH and TAqH during all significantly different treatment system operational conditions during the month (e.g., tray air strippers on and off, BTT operational and non-operational, wastewater flow rates exceeding the 3,850 gpm maximum capacity of the tray air strippers) including sampling following any one weather event during the month when the percentage of fresh water (rainfall and snowmelt) exceeds a significant percentage (e.g., 25%) of the daily flow volume.

Despite the facility’s seeming excellent performance, it seems antithetical to issue a discharge permit for an oil terminal without establishing TAqH limits. When EPA

determined that limits were not needed based on review of historical data, the TAqH values were based on the sum of BTEX and EPA Method 625 Priority Pollutant PAH analytes (which were mostly below MDL). We suggest that this evaluation be reconsidered during the next permit renewal process utilizing TAqH data that include the full suite of alkylated PAH recommended in this review.

RESPONSE #53 – *The Permittee has an online-TAH (BTEX) meter. They record this data at least three (3) times per week. EPA requested this data when evaluating the reasonable potential analysis, effluent limit development and monitoring requirements. Given the reasons discussed in RTC#47 and #48, EPA will not require monitoring of alkylated PAHs. The next permit issuance will re-evaluate the reasonable potential for the facility to cause or contribute to an exceedance of TAqH water quality standards, using data that is reflective of all upsets or changes in operational processes/conditions.*

Alaska Water Quality Standards specifies a total aqueous hydrocarbons (TAqH) criterion of 15 µg/l and the methodology to be used in analyses (18 AAC 70.020, Note 7). Alyeska must comply with this standard at the edge of their chronic mixing zone.

TAqH data collected since 2004 confirms the analysis and conclusions used to develop the 1997 and 2004 NPDES permits. The updated reasonable potential analysis continues to demonstrate that there is no reasonable potential for TAqH to exceed the criterion at the edge of the mixing zone and effluent limitations are not warranted. The Reopener Clause in the Permit (Section V.M) provides a mechanism for TAqH issues to be addressed if monitoring during the new permit cycle indicates that there are exceedances of the applicable water quality criterion at the edge of the approved mixing zone.

COMMENT #54

Incorrect Mixing Zone Description

Outfall 001 Mixing zone is a 50-m radius circle centered at the discharge point from the sea floor to the surface, but it stops 14m below the receiving water surface. Likewise it does not include the bottom sediments, which remain subject to protection under AWQS. This is different from the mixing zone application, which specifies the upper limit of the mixing zone is 50m below the water surface. Please clarify. In a similar vein, how can you have a 50-m cylindrical mixing zone over a diffuser that is 63-m long?

RESPONSE #54 – *EPA has revised the Permit to reflect the updated mixing zones authorized by ADEC. Please refer to the final CWA Section 401 State Certification or Permit Part I.D. for the revised mixing zone descriptions.*

COMMENT #55**Page 25, Fact Sheet**

There may be a mistake. It says twice per year monitoring for TROG is retained from the previous permit, but elsewhere monthly monitoring is specified. Which is it?

RESPONSE #55 – *The “twice per year” monitoring requirement was an error in the Fact Sheet. The Permit correctly stated that TROG monitoring is required monthly.*

COMMENT #56**Table 5, Fact Sheet**

The footnotes for Table 5 are actually for Table 4 Outfall 001. Is there another set of footnotes that are specified for Outfall 002?

RESPONSE #56 – *Those footnotes were included in error and have been removed. Please note, all applicable footnotes for Outfall 002 were in the Permit and were correct.*

COMMENT #57

The positions of the BWTF Outfall 001 and the Sanitary Waste Outfall 002 in Figure A-2 of the Fact Sheet (and elsewhere throughout the supporting documentation) do not agree with the coordinates given in the permit when plotted on Google Earth. The 001 Outfall is shown about 55m too far west, and the 002 Outfall is shown immediately to the west of the peninsula around the boat harbor, where as it plots due N of the peninsula 87 m away (32 m offshore). Please state the confirmed coordinates and relevant datum.

RESPONSE #57 – *The Permit has been revised. Outfall 001 is located at Latitude 61°05’23”N and Longitude 146°23’12” W; and Outfall 002 is located at Latitude 61°05’10”N and Longitude 146°23’33”W (Outfall 002). Both locations are provided in NAD27 datum.*

COMMENT #58**Table B-1, Fact Sheet (pg 47)**

Table B-1 says TAH criteria for Outfall 001 is 10 ug/L (based on applicable Alaska Water Quality Standards). Elsewhere (Table 1, pg 11, it is listed as 0.21 mg/L (monthly average limit) or 0.73 mg/L (maximum daily limit). Please clarify. On page 52 of the Fact Sheet, reference is made to a Technical Support Document (which we didn’t have immediate access to), and in this context it would be preferable to simply state in the Fact Sheet how the values are derived and not make the public ferret out an obscure document and then rerun calculations. Likewise, the 002 Outfall pH range is 6.5-8.5 in Table B-1 and 6.0-9.0 in Table 2 (pg 13).

RESPONSE #58 – *As stated in the titles of each of the referenced tables, Table 1 lists the “Effluent Limitations (Outfall 001)”, while Table B-1 lists the “Applicable Alaska Water Quality Standards”. As described in Section B.3 of the Fact Sheet, the TAH water quality standard was used to develop the effluent limitations. The specific calculation steps were provided, and followed the steps described in the Technical Support Document for Water Quality-based Toxics Control (TSD; 199b).*

The TSD is available online at: <http://www.epa.gov/npdes/pubs/owm0264.pdf>. A general internet search provides a direct link to the document, via EPA's website, in the first search result.

COMMENT #59

The volumes of everything in the BMP Plan Table 2-1 appear to be too high. It estimates 5.5 to 5.8 MGD while the actual DMR data show closer to 2 MGD being discharged. Why the major discrepancy? Also, the percent ballast water in Table 2-1 ranges from 71-76%, while a value of 24-55% is estimated on pg. 18 of the mixing zone permit application.

RESPONSE #59– *This comment appears to be directed at the BMP Plan prepared by Alyeska in accordance with the administratively extended Permit. To the extent there are discrepancies in the data presented, the Permit requires the Permittee to update their BMP plan within 90 days of the effective date of the Permit. The updated BMP will reflect the current Permit conditions and requirements.*

COMMENT #60

Section IV.D.5, Fact Sheet (pg 18)

Section IV.D.5 appears to list incorrect maximum and average concentrations of TAqH. “The maximum daily measured value measured during the existing permit was 1.8 $\mu\text{g/L}$ and a mean value of 0.9 $\mu\text{g/L}$.” These values do not agree with the higher concentrations (and believed to be closer to the correct values) listed in Appendix B (pg 50). “The maximum concentration measured was 0.018 mg/L (18 $\mu\text{g/L}$) and, mean value was 0.006 mg/L (6 $\mu\text{g/L}$).” Please clarify.

RESPONSE #60 – *EPA acknowledges the errors in the text on page 18 of the Fact Sheet regarding the TAqH values. The maximum value of 0.018 mg/L (18 $\mu\text{g/L}$) and the mean value of 0.006 mg/L (6 $\mu\text{g/L}$) were used for the calculations (Appendix B) and are the correct values.*

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