RESPONSE TO COMMENTS

KETCHIKAN PULP COMPANY NPDES PERMIT

(NPDES No. AK-000092-2)

U S Environmental Protection Agency
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I. Introduction

On June 30, 1998, the Environmental Protection Agency, Region 10 (EPA) proposed to revoke and reissue the National Pollutant Discharge Elimination System (NPDES) permit number AK-000092-2 for Ketchikan Pulp Company (KPC). The comment period on the proposed revocation and reissuance began on June 30, 1998, and ended on August 7, 1998. A public hearing was held in Ketchikan on August 3, 1998.

EPA received numerous comments during the comment period and at the hearing. This document provides a summary of the substantive comments received and the responses to those comments. Appendix 1 contains a summary of changes to the permit.

II. Outfalls 001 and SAN1

1. Comment: In a letter dated August 7, 1998, KPC commented that some parameters that were marked "believed absent" for outfalls 001 and SAN1 on the permit application should have been marked "believed present." They amended their application to include cadmium and oil and grease for outfall 001 an fecal coliform bacteria, nitrogen, and phosphorus for SAN1.

   KPC noted that it believes that the oil and grease measured in outfall 001 has been detected in its effluent as a result of analytical problems, including matrix interference and laboratory contamination. Since changing analytical labs in May 1998, oil and grease has not been found in any of their samples.

   Response: Quarterly monitoring for cadmium and monthly monitoring for oil and grease at outfall 001 have been added to Part III.A. of the final permit.

   Response: Part III.A.1 of the draft permit required monitoring for arsenic, copper, manganese, and color for stormwater. In addition, the following monitoring has been added to Part III.A. of the final permit: In addition, monthly monitoring of SAN1 for fecal coliform bacteria has been added.

   Monitoring for phosphorus and nitrogen was not added for SAN1 because there are no water quality criteria for these pollutants and EPA has seen no evidence of nutrient problems in Ward Cove.

2. Comment: Several commentors disputed EPA's assumption that the expected stormwater effluent and construction-related runoff are similar to Lake Connell in

chemistry. There is no reason to believe that maintenance and construction water (including that used during demolition of 45 year old pulp mill structures and washing of industrial equipment) would be as clean as that from a "pristine" Alaskan lake. Construction, maintenance, and demolition wastewater can be expected to contain the contaminants that are present in the process area, such as dioxins, furans, metals, base/neutral and acid extractable organic compounds (BNAs), and PCBs. Nor would rainwater collected from the contaminated former pulp mill site be expected to be clean. The results of the Expanded Site Investigation (ESI) report gives evidence of the "unclean" condition of the stormwater since the sediment samples taken from the areas where the stormwater outfalls discharge showed elevated levels of dioxins, furans, BNAs, metals, and PCBs. Another commentor requested that the permit process address the outfall sediment sample results from the ESI.

Response: In determining whether water quality-based limits were necessary for KPC's discharge, EPA assumed that the quality of the construction and maintenance-related wastewater and stormwater discharged through outfall 001 is similar to Lake Connell water. This assumption was based on stormwater monitoring data submitted by the permittee as part of its 1994 and 1998 NPDES applications. These data included monitoring for metals, polynuclear aromatic hydrocarbons (PAH), and benzene, toluene, ethylbenzene, and xylene (BTEX). This monitoring showed that the stormwater contained less than detectable quanitites of most pollutants.

EPA's assumption that construction, maintenance, and demolition wastewater chemistry is similar to Lake Connell chemistry is based on information reported by KPC and inspection of the facility to determine what is left on site that is likely to contribute pollutants to this wastestream. EPA does not believe that this wastestream is likely to be more contaminated than stormwater, except for possible addition of any solvents, degreasers, or other chemicals by KPC. EPA has addressed this concern by adding a condition to the final permit prohibiting use of such chemicals without prior authorization from EPA. (See paragraph I.D. of the final permit.)

3. Comment: One commentor disputed EPA's use of zero for background concentrations in calculating effluent limitations where data were unavailable or where data showed concentrations below the detection limit. This is a non-conservative assumption which is not protective of water quality. The commentor suggested that EPA review the draft Ward Cove Sediment Remediation project reports and the ESI for information regarding background pollutant concentrations. The commentor stated that this study shows that the proposed outfall and mixing zone area has highly toxic sediment as well as high levels of individual pollutants. Based on toxicity testing and direct observation,

sediment toxicity has been shown to result in toxicity to organisms in the water above the sediments.

Response: In calculating appropriate permit limits, EPA used zero for background concentrations. For this discharge, EPA believes that this approach is adequately protective.

EPA cannot use sediment data, as suggested by the commentor, to extrapolate water column concentrations. Sediment data cannot be related to water column pollutant concentrations without site-specific information regarding how the pollutants partition between the sediments and the water column. This information has not been collected for Ward Cove. That leaves no option for the Agency other than to use zero.

The commentor did not submit toxicity test data for the water column in Ward Cove, nor is EPA aware of any such data. The commentor may have been referring to specialized sediment toxicity tests, in which the sediments are centrifuged to extract the water from the pores between the sand grains. These tests are designed to measure sediment toxicity to organisms that live in the sediment, not toxicity to organisms in the water column above the sediment. Furthermore, these tests, along with chemical-specific tests, indicated that toxicity was primarily due to the presence of sulfides and possibly ammonia from decomposition of organic matter. KPC is no longer discharging significant quantities of sulfides, ammonia, or organic matter that could settle on the bottom. Therefore, EPA believes that these tests are not relevant to the current discharge.

4. Comment: Several commentors raised the issue of the effect of Ketchikan Public Utility's (KPU's) proposed hydroelectric project on the quality of the discharge from outfall 001. KPC and KPU have signed a memorandum of understanding for transfer of water rights for Connell Lake, which could potentially decrease the amount of Connell Lake water available to KPC. Effluent from outfall 001 currently includes approximately 2 million gallons per day (MGD) of essentially clean water from Connell Lake, used to maintain the wood-stave pipeline. According to KPU, KPC has asked for only 100,000 gallons per day (gpd) for use at their property, with the possibility of purchase of an additional 200,000 gpd. The decreased flow could result in more concentrated effluent as well as decreased dilution in Ward Cove. Both of these factors would result in exceedences of the criteria at the edge of the mixing zone used to calculate limits for the draft permit. EPA should specify both a maximum and minimum flow from each of the internal wastestreams that contribute to outfall 001.

In a related comment, Alaska Department of Natural Resources (ADNR) commented that KPC does not have water rights for the use of 2 MGD of Connell Lake water for the function of assuring the dilution necessary at the edge of the proposed mixing zone. According to ADNR, the function claimed by KPC (maintenance of the wood-stave pipeline) could be ". . . accomplished under other water allocation scenarios . . . " In that case, ADNR suggested that KPC would either have to apply to use the Connell Lake water for the beneficial use of "maintenance of water quality" under Alaska's Water Use Act, or apply for a larger mixing zone to achieve the same dilution.

Response: EPA agrees that changes in flow from Connell Lake can result in different dilutions and different concentrations of pollutants in the effluent. In its certification of the permit, the State of Alaska is requiring that the permit include a minimum flow of 2.0 MGD. In addition, the maximum flow modeled by KPC was 2.2 MGD. EPA has incorporated these values as monthly average minimum and maximum flows, respectively. These flows will ensure that the dilution is at least as high as that used to calculate the permit limits. EPA used a monthly average flow to allow for small fluctuations on a daily basis. Use of a daily minimum flow could result in KPC using water unnecessarily just to meet its daily flow limit. (See Part I.F. of the final permit.)

5. Comment: One commentor stated that limits should be placed in the permit on chromium VI and mercury because, without the contribution of clean water from Connell Lake, the maximum projected effluent concentration could exceed the criteria.

Response: As discussed in the response to comment number 4, this issue has been addressed by establishing a minimum flow in the permit. If the flow from Connell Lake decreases, the permit may be modified and EPA will evaluate at that time whether limits are appropriate for chromium VI, mercury, and other pollutants.

6. Comment: ADNR commented that KPC proposes to draw water from the upper levels of Connell Lake to reduce manganese concentrations in the discharge. However, if Connell Lake is managed as a hydroelectric reservoir in the future, water may be drawn from other depths in the reservoir, potentially resulting in higher manganese concentrations. ADEC should confirm that the manganese concentrations reported in KPC's application for the Connell Lake wastestream represent the worst case.

Response: With regard to the NPDES permit, the concentration of manganese in Connell Lake is moot. The projected concentrations in the final effluent were enough to trigger "reasonable potential" and result in water quality-based

effluent limitations. These limitations are established to protect Ward Cove and would not change based on the concentration of manganese in Lake Connell water.

III. Stormwater

7. Comment: In a letter dated August 7, 1998, KPC requested that SWL12, an additional stormwater outfall that collects runoff from the landfill and discharges to an unnamed stream, be added to its permit application. In addition, in its comments on the draft permit, KPC commented that several parameters that were marked "believed absent" on the permit application should have been marked "believed present." These parameters are listed in the table below.

Table 1: Pollutants Reported as "Believed Present" by KPC

Outfall	Pollutants "believed present"
SW2	Arsenic, copper, manganese, zinc, color
SW4	Arsenic, copper, manganese, zinc, color
SW5	Arsenic, copper, manganese, zinc, color
SW6	Arsenic, copper, manganese, zinc, color
SW7	Arsenic, copper, manganese, zinc, color
SW8	Arsenic, copper, manganese, zinc, color
SWL4	Mercury, copper, manganese, zinc, color
SWL6B	Mercury, copper, manganese, zinc, color
SWL11	Mercury, copper, manganese, zinc, color
SWL12	Color

Response: Part III.A.1 of the draft permit required monitoring for arsenic, copper, manganese, and color for stormwater. In addition, the following monitoring has been added to Part III.A. of the final permit:

Table 2: Additional Monitoring Requirements

Parameter	Outfall(s)	Frequency
Cadmium	001	Quarterly

Table 2: Additional Monitoring Requirements		
Oil and grease	001	Monthly
Fecal coliform	SAN1	Monthly
Mercury	SWL4, SWL6B, SWL11, SWL12	3/year
Copper	SWL12	3/year
Manganese	SWL12	3/year
Zinc	SWL12	3/year

The permit has been changed to authorize discharge from outfall SWL12. Monitoring for color, flow, BOD_5, pH, chemical oxygen demand (COD), total aromatic hydrocarbons, total aqueous hydrocarbons, arsenic, silver, chromium III, selenium, mercury, copper, manganese, and zinc were added to this outfall because data were not submitted for this outfall and EPA expects it to have similar characteristics to SWL6B and SWL11.

8. Comment: Several commentors asked why outfall SWL4 was not included in the draft permit. KPC's application states that SWL4 discharges 0 - 605,000 gpd, with an average of 150,000 gallons per storm event. Dioxin has been found in the water column in this stream at a concentration of 15 picograms per liter (pg/l) and in the stream sediments at more than a hundred times background stream sediment concentrations. In addition, sediments in SWL4 contain elevated levels of phenanthrene, phenol, pyrene, aluminum, calcium, copper, iron, lead, magnesium, manganese, vanadium, and zinc.

Response: SWL4 was not included in the draft permit because in a letter dated June 23, 1998, KPC requested that SWL4 be withdrawn from its application because it "is unaffected by the landfill and does not constitute stormwater affected by industrial activity." However, KPC reevaluated this request and on August 7, 1998, sent another letter to EPA requesting that SWL4 be included as part of its application. Therefore, SWL4 has been added to the final permit. (See page 1 and Parts I.A, I.G, I.H, and III.A.1. of the final permit).

The final permit requires monitoring for copper, manganese, zinc, total aromatic hydrocarbons and total aqueous hydrocarbons (which includes both phenanthrene and pyrene) for the stormwater outfalls. Based on a review of monitoring submitted by KPC as part of its 1994 and 1998 applications, there was no reasonable potential for the discharge to cause or contribute to exceedences of the criteria for phenol, iron, or lead. The State has no criteria

for aluminum, calcium, or vanadium, so there is no basis on which to establish limits for these parameters for this permit.

9. Comment: One commentor asked whether the points of discharge for SWL 4, SWL6B, and SWL11 are the unnamed streams which receive the stormwater from the landfill or whether those streams were considered "outfalls," with the discharge points as Tongass Narrows, Refuge Cove, and Ward Cove, respectively. If the discharges are to the streams, the commentor contends that these discharges are in exceedence of state water quality standards.

Response: The receiving waters for SWL4, SWL6B, and SWL11 are all unnamed streams. The streams are waters of the United States, not outfalls.

EPA does not agree with the assertion that the discharges are in exceedence of the state standards. For outfalls SWL4 and SWL6B, the data were collected within the receiving streams and therefore represent both the stormwater contribution and natural stream flow. (See comment number 10.) Some constituents may be naturally present in the surface water. For example, arsenic and other metals are naturally present in the soil, and may be present in the streams naturally or due to the discharge. In addition, the water in the streams is influenced by muskeg and may naturally have a low pH. Therefore, for metals and pH it is not possible to determine from the data whether the stormwater itself exceeds the criteria, or whether exceedences are due to natural stream conditions.

The final permit addresses concerns regarding determining compliance with water quality standards by clarifying the monitoring locations. For SWL6B, SWL11, and SWL12, the monitoring location is specified as prior to mixing with the receiving water. For SWL4, it is not possible to monitor the stormwater contribution separately from the natural stream flow. Therefore, the permit specifies that monitoring be conducted as close as possible to the point at which the stormwater enters the stream. (See Part III.A.1. of the final permit).

In addition to the uncertainty regarding the origin of the metals in the water, there are not sufficient data to determine the appropriate criteria for metals with hardness-dependent criteria (cadmium, chromium III, copper, lead, nickel, silver, and zinc). The criteria for these metals are equations that are based on the hardness of the receiving water. As receiving water hardness increases, the criteria increase. There are no data for hardness for the streams to which SWL4, SWL6B, SWL11 and SWL12 discharge. However, using 25 mg/l calcium carbonate (which results in the most stringent criteria) SWL4 showed reasonable potential to contribute to an exceedence of criteria for silver and zinc, SWL6B showed reasonable potential for copper, chromium III, lead, and zinc, and

SWL11 showed reasonable potential for copper, silver, and zinc. To determine whether there is reasonable potential to contribute to an exceedence of criteria at the actual hardness of the receiving water, effluent monitoring for chromium III, silver, lead, and zinc at the appropriate outfalls and ambient hardness monitoring for the receiving streams has been added in Parts III.A and III.B of the final permit. Because the State has not authorized mixing zones for these discharges, EPA is also requiring monitoring for hardness of the discharges themselves to determine whether the criteria are met in the discharge. In addition, because there were no data submitted for SWL12, monitoring for these parameters is required in the final permit.

10. Comment: KPC commented that the pH limit of 6.5 to 8.5 for the stormwater outfalls SWL6B and SWL4 should be deleted from the permit. The "outfalls" designated by SWL6B and SWL4 are actually small freshwater streams. The flows in these streams are primarily comprised of natural runoff. The practical problem faced by KPC is ensuring that monitoring of stormwater from the facility is not unduly influenced by the characteristics of the natural water. Natural water in the Ketchikan area is often heavily influenced by muskeg. Muskeg water typically has a pH in the 5.8 to 6.2 range. Muskeg waters comprise a substantial component of the overall flows through SWL4 and SWL6B while landfill facility stormwater flows comprise a very marginal component of these streams. KPC has not yet been able to determine how to measure stormwater related flows at a point "upstream" of their convergence with the receiving water streams.

KPC believes that it should not be held accountable for fluctuations in water quality when the causes of the fluctuations are outside its control. The water quality standards themselves apply to "human activities that result in alterations to waters within the state's jurisdiction." 18 AAC 70.020.

Moreover, SWL4 and SWL6B are receiving waters. KPC is still exploring whether it is feasible to sample landfill related stormwater flows at a point "upstream" of their discharge into these receiving waters. If such a sampling program is not feasible, KPC objects to the pH limits for SWL4 and SWL6B on the basis that the Company is being required to monitor ambient waters and to be held accountable for violations of the pH standard applicable to those waters.

Response: As discussed in the response to comment number 9, EPA has clarified the monitoring locations for the SWL6B and SWL4. Based on further discussion with KPC, it is possible to monitor at outfall SWL6B in a manner that eliminates the influence of surface water. For outfall SWL4, however, it is not possible to completely separate the stormwater discharge from natural stream flow.

As KPC pointed out in its comment, the pH of muskeg water is typically in the range of 5.8 to 6.2. While this is outside the range specified in the state standards (6.5 to 8.5), it is not as far outside the range as the data reported by KPC for outfall SWL4 (3.5 to 9.0). In addition, data submitted by KPC to Alaska Department of Environmental Conservation (ADEC) as part of its mixing zone application on June 10, 1998, indicated that the range of pH in SWL9, SWL10, and SWL10A is 3.7 to 8.6. These streams represent "background" and could be considered as representative of the quality of the stream absent the discharge from SWL4. These data also show that on several occasions, the pH of SWL4 varied more than 0.5 pH units from the background pH. Based on this information, EPA still believes that the discharge from SWL4 could cause the unnamed stream to exceed the criteria. The final permit addresses this concern by limiting pH in outfall SWL4 to no more than 0.5 pH units from background, defined as the pH range measured at SWL9 and SWL10. (See Part I.H. and III.A.1 of the final permit.)

IV. Landfill

11. Comment: Several commentors stated that the new ash cell at KPC's landfill should be closed prior to issuance of this permit. One commentor noted that residents of Ketchikan will be affected negatively economically if the new landfill remains uncovered during the life of this NPDES permit. Another commentor requested that ADEC review and certify the treatment system design, contending that the leachate treatment system as designed is inadequate to treat the flow from the open ash cell.

    Response: EPA does not have the authority under the Clean Water Act to require closure of the ash cell or certify the treatment system design. As noted by the commentor, ADEC is the agency that typically certifies treatment system design.

12. Comment: Several commentors stated that EPA should require KPC to reevaluate the landfill leachate and other wastestreams for the presence of dioxins and other pollutants. Monitoring conducted as part of the ESI showed one BNA, 14 metals and one volatile organic compound (VOC). Another commentor expressed concern that there were no records kept regarding what was disposed of at the landfill prior to the landfill permit being issued, so there is no way of knowing what will leach out.

    Response: The final permit requires monitoring of the landfill leachate for 2,3,7,8-TCDD, copper, manganese, selenium, and zinc. EPA believes that this monitoring, in addition to that required by the State solid waste permit and

conducted under the Superfund program, provides an adequate characterization of the landfill leachate.

13. Comment: One commentor stated that the landfill leachate should be treated to meet water quality standards prior to commingling with other wastestreams. The current solid waste permit for the new landfill (permit 9713-BA001, September 18, 1997) clearly states in the first paragraph that "The leachate will be treated as necessary to allow legal discharge to Ward Cove." Allowing dilution with 2 MGD of Connell Lake water prior to discharge and an additional 20 to 1 dilution in Ward Cove violates this requirement.

Response: The interpretation of the solid waste landfill permit is the State's responsibility. However, EPA does not agree that "treated as necessary to allow legal discharge to Ward Cove" requires that the discharge meet standards prior to commingling with other wastestreams. The State standards allow mixing zones, so a discharge that has an associated mixing zone is still a legal discharge.

V. Mixing Zone

14. Comment: Several commentors questioned ADEC's and EPA's authority to include a mixing zone for the discharge from outfall 001 in KPC's permit. One commentor stated that information that was not included in KPC's application but which is now available will prevent the State of Alaska from authorizing the proposed mixing zone. In addition, several commentors noted that a mixing zone for whole effluent toxicity (WET) is not appropriate because Ward Cove is listed under section 303(d) of the Clean Water Act as impaired for toxicity. The combined effects of the toxicity to biota in the sediments plus the level of toxicity in the effluent (when combined with the zero current flow for long periods at the outfall location) will likely result in a large area of water which is toxic to sensitive life stages of aquatic life. ADEC or EPA should develop and implement a recovery plan for the Cove prior to authorization to discharge any additional toxicity.

One commentor noted that, because a mixing zone should not be authorized, the effluent limitations should be lowered to meet criteria at the point of discharge. In addition, a number of pollutants that do not show reasonable potential to contribute to an exceedence of water quality standards at the edge of the mixing zone will require limits to ensure meeting standards at the point of discharge. These pollutants include pH, copper, nickel, sulfide, zinc, dioxins/furans, and cadmium.

Response: On December 10, 1996, the Environmental Appeals Board agreed with EPA's interpretation that Alaska's water quality standards reserve the right to authorize mixing zones to the State, not EPA (NPDES Appeal No. 95-6). However, EPA has an independent duty to assure that state standard are met and can choose not to allow a mixing zone in a case where it is an obvious violation of state standards. EPA does not agree, however, that a mixing zone in this case violates State standards.

In 1992, Ward Cove was listed on the State's 303(d) list as impaired for toxicity because whole effluent toxicity data submitted by KPC showed that there was not enough dilution in the cove to meet water quality standards for toxicity. This source has since decreased significantly and there are no other sources. This means that the water column now has the ability to assimilate whole effluent toxicity without causing water quality standards violations. However, Ward Cove is still listed on the State's 303(d) list, however, because of sediment toxicity. As part of its certification, the State has required that KPC enter into a memorandum of understanding (MOU) with the State to develop a waterbody recovery plan for Ward Cove. This requirement has been incorporated into the final permit as Part VI. Other sections of the permit have been renumbered as appropriate.

As discussed in the response to comment number 3, sediment toxicity does not correlate with toxicity in the water column. Furthermore, KPC is no longer discharging solids in amounts that could settle and contribute to sediment toxicity. Therefore, there is no basis to say that the toxicity of the discharge will contribute to an exceedence of water quality standards, and a mixing zone can be authorized.

15. Comment: One commentor noted that there is no public benefit to allowing part of Ward Cove to be used as a mixing zone for toxic waste discharge. The authorization of a mixing zone for KPC's effluent financially hinders future development of the area (as well as impacting future fishing and recreation). Any new industrial user should apply for a new wastewater permit and provide evidence of public good sufficient to counterbalance the use of an area of Ward Cove to dilute toxic wastes.

Response: As discussed in the response to comment number 14, the State has the authority to grant mixing zones. ADEC, not EPA, is the appropriate agency to consider economic and other impacts in its mixing zone decisions.

16. Comment: Several commentors stated that the mixing zone should be phased out as changes in process decrease the amount of pollutants in the effluent. For example, as the landfill leachate treatment system is built, the need for a mixing

zone should be eliminated. In addition, closure of the ash cell at the landfill will result in a decrease in quantity and an increase in quality of the effluent.

Response: As discussed above, the State, not EPA, has the authority to make decisions regarding whether to authorize a mixing zone, as well as the size of the mixing zone. As part of its certification of the permit, the State has included language stating that the permit may be reopened based on the results of water quality studies, waterbody recovery plans, or wasteload allocations. If the state determines, based on this information, that a smaller mixing zone is appropriate, EPA can modify the permit to include appropriate effluent limitations.

17. Comment: One commentor stated that dilution cannot be counted on beyond the crucial initial mixing because there is no current available at times at the outfall location.

Response: In its decision to authorize a mixing zone, the State is responsible for review of an applicant's mixing zone analysis. As discussed in the response to comment number 14, the State has broad discretion in its decisions regarding mixing zones. EPA believes that the currents used by KPC in its mixing zone analysis (zero for initial mixing and 2.3 cm/s for far-field dilution) are reasonable.

18. Comment: Several commentors noted that all available technological alternatives must be considered prior to granting a mixing zone for chlorine.

Response: There is no federally-promulgated technology-based requirement for chlorine in discharges from domestic sewage treatment facilities. In other NPDES permits for domestic sewage treatment facilities, Region 10 has applied a technology-based standard for chlorination of 500 and 1,000 µg/l as a monthly average and daily maximum, respectively. This standard is based on Region 10's best professional judgement, derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 500 µg/l chlorine residual is maintained after 15 minutes of contact time. KPC's sanitary waste treatment facility is a package plant that has no contact time associated with the plant itself. Contact time is provided in the pipe from the sanitary plant to the outfall. Therefore, these limits would be applied as end-of-pipe limits. However, they are less stringent than the water quality-based limits in the draft permit (62 µg/l as a daily maximum and 43 µg/l as a daily maximum). Therefore, the final permit is unchanged from the draft.

VI. Whole Effluent Toxicity

19. Comment: KPC commented that the addition of the topsmelt protocol to the toxicity testing requirements specified in the proposed discharge permit is not warranted considering the nature of the discharge and the available scientific data on the performance of the topsmelt test. KPC cited the following information in support of this position:

The fish survival and growth test (as represented by the topsmelt test in the proposed permit) is relatively insensitive to organic compounds in pulp mill effluents compared to the bivalve larval and echinoderm fertilization tests already being conducted in the KPC biomonitoring program.

The test response for the growth endpoint was difficult to quantify because the fish larvae died at concentrations close to those that were high enough to cause a growth effect. Obtaining sufficient data to estimate the EC_{50} for the growth endpoint requires considerable effort in range-finding so that the total range of concentrations in the final test is narrow and the spacing between dilutions is small.

Topsmelt are not significantly more sensitive to organic compounds than other fish species such as inland silverside (*Menidia beryllina*) and rainbow trout (*Oncorhynchus mykiss*). The topsmelt test is considerably less sensitive to metals than the larval bivalve test and the echinoderm fertilization test.

EPA is planning to perform a series of multi-lab studies to quantify the variability in whole effluent toxicity (WET) tests, including fish survival and growth protocols and will conduct a rulemaking on those test methods. EPA also will issue guidance on how to take analytic variability into account when determining the need for WET limits and when deriving WET limits. Because the variability of the topsmelt test relative to other WET tests has not been sufficiently characterized, inclusion of the topsmelt test in permit requirements for KPC is unwarranted.

Topsmelt are a non-native species to Alaska, ranging from the Gulf of California to Vancouver Island, in temperate to tropical areas. Thus, topsmelt may not be a relevant test species for Alaskan marine waters. Standard test species for fish toxicity testing in Alaskan waters could include some salmonid species.

Topsmelt testing is only performed by a few West Coast laboratories and many laboratories are not familiar with the test. This situation could create an added burden of additional testing due to initial test failures, repeat testing, and time to complete the test until the laboratory became more familiar with the topsmelt

test. Difficulties performing the topsmelt test could create the potential for large variability within the test and the reporting of ecologically irrelevant data.

Currently, KPC has a historical database of bivalve and echinoderm test results, allowing regulatory agencies to observe changes in the effluent or laboratory performance over time. Adding the topsmelt and possibly shifting the program towards fish testing would potentially compromise the existing program, which includes highly sensitive and reliable toxicity testing protocols.

The use of the topsmelt protocol would provide no added benefit to the biomonitoring program. A year of testing is not necessary to establish the sensitivity of a fish survival and growth test relative to the larval bivalve test and the echinoderm fertilization test because previous studies have shown the fish test is relatively insensitive.

Response: EPA agrees that topsmelt are relatively insensitive to the types of compounds likely to be in KPC's discharge. Therefore, the requirement to use topsmelt has been removed from Part III.D. of the final permit. Because the topsmelt test will not be required, EPA will not address KPC's other comments regarding this test at this time.

20. Comment: KPC commented that the permit should base whole effluent toxicity limitations on the effect concentration or inhibition concentration (EC_{25} or IC_{25}, respectively) instead of the no observed effect concentration (NOEC). Since the whole effluent toxicity provisions of the permit were developed based on the use of IC_{25} or EC_{25} values, the definition of chronic toxic unit should reflect the use of IC_{25} and EC_{25} values instead of the NOEC value.

The Alaska whole effluent toxicity standard, 18 AAC § 70.030, explicitly provides that chronic toxicity endpoints such as the IC_{25} may be used in place of NOEC values. Similarly, prescribing that chronic toxic units be expressed in terms of EC_{25} and IC_{25} values is consistent with the EPA *Technical Support Document for Water Quality-based Toxics Control*, which states that the preferred method for expressing toxicity data is using IC_{25} and EC_{25} values.

Furthermore, there are sound technical reasons for using IC_{25} and EC_{25} values as endpoints. Effect concentrations (ECs) and inhibition concentrations (ICs) are point estimates of the effluent concentrations that cause a given reduction in a measured biological endpoint such as fertilization. The calculation of EC and IC endpoints are based on the entire dose-response relationship curve established in a bioassay. As such, the EC or IC results will describe events that are associated with biologically significant responses. On the other hand, NOEC concentrations are derived by hypothesis testing where the reported

value is the highest evaluated concentration of effluent that yields a test result that is not statistically distinguishable from the control. The NOEC value is solely dependent on the concentrations of effluent tested and is prone to spurious results that do not reflect an actual toxic response attributable to the effluent.

In addition, test results based on EC or IC endpoints can be evaluated more precisely. The variability of a test method is often described by the coefficient of variation (CV) which is calculated by dividing the standard deviation by the mean value of a series of tests. It is impossible to measure the precision of hypothesis testing-derived values such as the NOEC because the value determinations are limited to the test concentrations and therefore statistically discontinuous. By its definition, the NOEC is on the edge of detectability. Measurements made at the edge of detectability are technically prone to lower precision and higher variability than those made using the discernable portion of a dose-response curve. The unreasonable and unnecessary variability associated with the NOEC conflicts with the principles of due process which require that conduct for which compliance is expected must be readily ascertainable. Given the technical and legal concerns associated with the use of NOEC values, the final NPDES permit should define chronic toxic units in terms of EC_{25} or IC_{25} values instead of a NOEC.

Response: The decision regarding which endpoint to use for toxicity testing is made by the State of Alaska. In its 401 certification, the State authorized the use of EC_{25} for toxicity testing. Therefore, the final permit has been changed to use the EC_{25} as the test endpoint. (See Part III.D. of the final permit.)

21. Comment: KPC commented that Part III.C.2 of the draft permit should be amended to allow testing to be discontinued if data from the first year of testing indicate that no reasonable potential-to-exceed exists using the analysis set forth in the *Technical Support Document for Water Quality-based Toxics Control.* ADEC has proposed to amend the whole effluent toxicity standard, 18 AAC §70.030, to not require WET testing when a year's results demonstrate that the discharges do not have a reasonable potential to exceed water quality standards.

Response: The standards revisions referenced in this comment have not yet been adopted by the State. Until the standards are adopted and approved by EPA, the current standards are used in developing permit conditions. The current standards do not provide for discontinuing monitoring after the first year.

Even if the standards were effective, EPA does not agree that discontinuing monitoring after the first year is appropriate for this permit. The nature of the

discharge will be changing over time, and EPA believes that continued testing is necessary to ensure that these changes do not result in exceedences of State standards. Therefore, the final permit retains the requirement in Part III.D.2 (Part III.C.2 in the draft permit) that monitoring be continued after the first year using the most sensitive species.

22. Comment: KPC requested that, if Part III.C.2. of the draft permit remains in the final permit, the provision provide for a mechanism by which the agency concurs or disapproves of KPC's determination of the most sensitive organism. There are many factors that affect the evaluation of test organism sensitivity and such determinations can easily be subject to reasonable differences of opinion. In addition, the provision should allow for substitution of another organism than the most sensitive when factors such as spawning condition preclude testing with the designated most sensitive species.

Response: EPA has addressed this concern by defining most sensitive species as the species that has the highest EC_{25} (measured in TUs), based on the mean of the EC_{25} for the quarterly tests. If the most sensitive species is not in spawning condition for an entire quarter, the permit allows KPC to substitute another organism in the same taxonomic class. However, to the extent practicable, testing must be timed so that it occurs during periods of availability of the most sensitive organism. (See Part III.D.1.b of the final permit.)

23. Comment: KPC requested clarification of the terms "in-house" and "receiving water" in Part III.C.9 of the draft NPDES. If the term "in-house" is intended to mean the laboratory in which the testing is conducted, then KPC requests that the Part III.C.9(a) be amended to read: "If organisms are not cultured by the laboratory conducting the tests . . ." If another meaning is intended, the provision should be changed to make the intent more clear.

Similarly, the term "receiving water" as used in Part III.C.9(c) is unclear in this context. If the agency intended "receiving water" to mean "natural seawater" then it should use that term. If "receiving water" is intended to mean Ward Cove or the Tongass Narrows, then the term should be defined in sufficient detail to provide guidance regarding the geographic area from which receiving water may be collected.

Response: EPA has clarified Parts III.D.3.b.(i) and (iii) of the final permit (Parts III.C.9(a) and (c) of the draft permit, respectively). The wording proposed by KPC has been substituted for “in-house” and the term “receiving water” has been defined in the final permit as “water collected in Ward Cove in an area outside of the influence of the mixing zone for the permittee’s discharge.”

24. Comment: KPC stated that the requirements in the draft permit to conduct a toxicity reduction evaluation (TRE) and a toxicity identification evaluation (TIE) are far too restrictive. KPC requests that the agency consider a requirement that if chronic toxicity exceeds the permit limit in any two of the four biweekly tests during accelerated testing, then accelerated testing should be extended for another four-week period and all of the data for the entire eight-week period should then be evaluated.

Moreover, KPC is concerned about the lack of agency discretion in Section III.C.10. These provisions are too prescriptive in that circumstances could occur where the agency agrees that conducting a TRE or TIE will serve no productive purpose. KPC requests that the agency modify Part III.C.10 to give the agency the discretion to require a TRE or TIE but not to mandate such studies as a matter of course. For example, Part III.C.10(c) could be modified to read "within 15 days of notice by EPA that a TRE is required" rather than the current text which reads: "within 15 days of the exceedance." Similarly, Part III.C.11(a) could be modified to read "shall initiate a TIE within 15 days of notification that such a study is required . . ." rather than the current text which reads: "shall initiate a TIE."

Response: EPA does not agree that the TIE/TRE requirements are too restrictive. KPC's proposal could result in a protracted period during which toxicity is unaddressed.

The permit currently requires eight weeks of accelerated testing. If toxicity is detected during accelerated testing, KPC must initiate a TRE within 15 days. This could result in initiation of a TRE within four weeks of the initial exceedence, if toxicity was detected in the first of the accelerated tests. Based on the KPC's proposal, the permittee would continue with the accelerated testing for the rest of the eight weeks plus an additional four weeks, even if all subsequent tests showed toxicity. This would result in 14 weeks between the first exceedence and the completion of toxicity testing. Furthermore, even if all the additional tests showed no toxicity, two out of a total of seven tests (the initial exceedence plus six accelerated tests), or 28 percent, would demonstrate toxicity. EPA believes that 28 percent exceedence clearly warrants initiation of a TRE.

EPA also disagrees with KPC's proposal to require two additional exceedences to trigger additional monitoring. As discussed above, two exceedences warrants initiation of a TRE.

EPA believes that there is sufficient flexibility in the permit to address circumstances under which a TIE or TRE would not be productive. Paragraph

III.D.1.g(ii) of the final permit (Paragraph III.C.10(b) in the draft permit) states that only one additional toxicity test is required if KPC is able to demonstrate that the cause of the exceedence is known and corrective action has been taken.

25. Comment: KPC noted that the draft NPDES permit clearly needs to be modified to specify test methods that apply to the species identified in the draft NPDES permit. *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, Second Edition, does not prescribe any tests involving *Atherinops affinis* or the echinoderm species listed in the draft NPDES permit. Similarly, although the draft NPDES permit specifies that bivalve testing is to be done as specified in U.S. EPA, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, the protocol set forth in this guidance document does not specify a test method incorporating *Mytilus edulis*.

Additionally, KPC questioned whether EPA intended to require that all reporting, quality assurance criteria, and statistical analyses be in accordance with the first edition of U.S. EPA, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, EPA/600/4-87/028 as specified in paragraph III.C.6. of the draft NPDES permit. Absent a good reason for preferring the requirements of this document, the permit should specify that reports be submitted in a format consistent with the protocol used for the species tested.

Response: EPA inadvertently used the manual describing the East Coast toxicity test protocols. Parts III.D.1.d and f of the final permit reference the West Coast manual, *Short-Term Methods for Estimating the Chronic Toxicity of Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95-136, August 1995). The West Coast manual includes the appropriate analyses, quality assurance, and reporting requirements.

26. Comment: One commentor stated that whole effluent toxicity should be monitored more frequently than quarterly, due to the predicted variability of the wastestreams over time and the many unknowns about leachate treatment effectiveness, leaching of pollutants over time from the landfills, and weather variability.

Response: EPA does not agree that more frequent monitoring for whole effluent toxicity is necessary. For a discharge of this size and this composition, quarterly monitoring is adequate to characterize the effluent. The bulk of the discharge at this point is Connell Lake water, which does not appear to exhibit great variability in toxicity.

As discussed above, if the flow from Connell Lake is reduced significantly, EPA will reevaluate the monitoring to determine whether the frequency should be increased.

27. Comment: Several commentors noted that the permit should require acute whole effluent toxicity testing. KPC's effluent has demonstrated acute toxicity in past toxicity tests. The State of Alaska water quality standards do not allow mixing zones for acute toxicity. Therefore, even though there may be a mixing zone for chronic toxicity, the acute criteria must be met at the point of discharge. This requirement may be more stringent than the toxicity requirement in the draft permit.

Response: EPA does not agree that it is necessary at this time to include a limit for acute toxicity in the final permit. There are not sufficient data to determine whether a limit is appropriate. Since closure of the mill, KPC has performed one acute whole effluent toxicity test, which showed no measurable toxicity. However, EPA agrees that more data should be collected to determine whether such a limit is appropriate. Therefore, Parts III.A. and D. of the final permit require KPC to conduct acute toxicity testing twice per year for the term of the permit.

EPA does not agree with the commentor's generalization that Alaska's water quality standards do not allow mixing zones for acute toxicity. Section 18 AAC 70.225(d) of the State water quality standards states that "acute aquatic life criteria apply at and beyond the boundaries of a smaller initial mixing zone surrounding the outfall." However, as discussed in the response to comment number 14, the decision whether to authorize a mixing zone in an NPDES permit for a specific parameter rests with the State. For this permit, the State did not authorize an acute mixing zone at this time. Therefore, the commentor is correct in stating that the effluent must demonstrate no acute toxicity at the point of discharge.

VII. Effluent Monitoring

28. Comment: One commentor stated that additional monitoring of outfall 001 should be required, including monitoring for pH, copper, nickel, sulfide, zinc, dioxins/furans, cadmium, chromium VI, and mercury.

Response: EPA believes that the monitoring requirements for outfall 001 are adequate for pH. Analysis of data submitted by KPC showed that there is no reasonable potential for pH to cause or contribute to an exceedence of State water quality standards. Monitoring for pH is included in the final permit

because it is an inexpensive test that can give some indication of whether there have been changes in the effluent.

For the sulfide and metals, analysis of data previously submitted by KPC indicated that there is no reasonable potential to exceed water quality standards. Therefore, there is no basis to require monitoring for these parameters.

EPA does not believe that monitoring for 2,3,7,8-TCDD in the discharge from outfall 001 will result in any detectable levels of dioxin, due to dilution with other wastestreams. Therefore, the final permit requires KPC to monitor the ash cell leachate and combined leachate wastestreams (LL01 and LL02, respectively) for 2,3,7,8-TCDD, where pollutants are expected to be more concentrated than in the final effluent. (See Part III.A.4 of the final permit.)

29. Comment: Several commentors stated that stormwater sampling should be expanded to include additional pollutants found to be present on site in the ESI report, especially dioxins and furans in outfalls SWL4, SWL6B (both of which have been found to have detectable levels of dioxin), SWL10, SWL11 and the landfill leachate. The ESI detected dioxin/furan toxicity equivalents (TEQ) in the landfill leachate of 2.9 picograms per liter (pg/l). In addition, one commentor stated that monitoring for congeners other than 2,3,7,8-TCDD should be required because the monitoring that has been done so far may underestimate the human health effects of dioxin. Finally, commentors requested that monitoring be required for PCBs and other substances where they have been shown to be in the process area.

Response: The final permit has been modified to include quarterly monitoring for 2,3,7,8-TCDD for the landfill leachate and outfall SWL4. (See Part III.A.1 of the final permit.) Monitoring for the landfill leachate is discussed in the response to comment number 28. Monitoring for SWL4 is included in the final permit because there was one data point showing detectable levels of dioxin in effluent from this outfall.

The final permit does not require monitoring for SWL6B, SWL10, or SWL11 because EPA does not believe that these outfalls have dioxin present at levels of concern. The one data point showing detectable levels of 2,3,7,8-TCDD for SWL6B was collected in 1996, before the landfill was capped. The current discharges to SWL6B, SWL10, and SWL11 consist of stormwater from a vegetated cap. EPA does not expect these discharges to contain dioxin.

Monitoring for other congeners of dioxin and furans is not required in the final permit because there are no water quality standards for these compounds, and therefore no basis on which to establish limitations.

Based on review of additional data generated as part of the ESI and discussion with ADEC and EPA Superfund staff, EPA believes that the potential pollutants of concern for the process area are oil and grease, arsenic, manganese, copper, zinc, and selenium throughout the process area and PCBs and lead from the paint shop area. Part III.A.1. of the draft permit required stormwater monitoring for oil and grease, arsenic, manganese, copper and zinc. Selenium monitoring has been added to the final permit. Monitoring for PCBs and lead from the paint shop area is not required in the final permit because remediation of that area will be completed before the final permit becomes effective and KPC has agreed to cover the area to prevent stormwater runoff until the remediation is complete.

30. Comment: One commentor stated that the permit should require a lower detection limit for dioxin than that reported by KPC (9 to 10 pg/l).

Response: Part III.A.4 of the final permit requires that KPC achieve the lowest method detection limit (MDL) achievable using EPA approved methods. However, it is important to note the distinction between the MDL and the minimum level (ML). The MDL is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero as determined by a specific laboratory method. The ML is the level at which it is possible to accurately quantify the concentration that is being measured. The ML is higher than the MDL.

For 2,3,7,8-TCDD, the minimum level established by EPA is 10 pg/l. While KPC must achieve a lower MDL, the lowest concentration that can be accurately measured is 10 pg/l. Concerns regarding the high ML have been addressed by requiring that KPC extract and analyze the solid fraction separately from the aqueous fraction. This procedure increases the ability to detect any dioxin that is adsorbed to solids in the sample.

31. Comment: One commentor stated that continuous effluent flow monitoring should be required, not only at the discharge point for 001 but also for each internal wastestream. This is key information because tremendous variability is expected in the wastestreams during the life of the permit, and the balance between the streams is absolutely crucial to the assumptions which have been made in this permit regarding reasonable potential to exceed criteria.

Response: Flow monitoring for internal wastestreams is impractical because of the number and locations of inputs (especially stormwater) to the main sewer. EPA believes that monitoring of the final effluent will be adequate to determine compliance with water quality standards.

32. Comment: One commentor asked how the "continuous recording" of the effluent flow will be summarized for reporting to EPA. Because all of the dilution in the mixing zone is dependent on a high volume flow, this is an extremely important parameter to examine each month. It would seem reasonable that, in addition to an average effluent flow figure, there needs to be reported each month the minimum and maximum flows over some chosen time period.

Response: The effluent flow monitoring provision in Part III.A.1 of the final permit has been clarified to require reporting of the maximum daily, minimum daily, and average monthly flows.

33. Comment: KPC objected to the provision in Part III.E of the draft permit (Part III.F in the final permit). KPC objected to a similar provision in its current 1994 NPDES permit, and the provision was stayed pending an evidentiary hearing. EPA and KPC were able to agree on text that resolved the targeted monitoring issue and a stipulated proposed resolution was presented to the administrative law judge presiding over the hearing matter.

KPC is concerned that the provision in the draft NPDES permit does not provide sufficient guidance as to when a discharge could reasonably be expected to cause or contribute to a violation. Furthermore, it is generally impossible to ascertain when any particular element of effluent has reached an outfall. KPC suggested that the following language be substituted for “as soon as the spill, discharge, or bypassed effluent reaches the outfall”:

> The permittee shall collect such additional samples during and after the period of the best reasonable estimate of when the atypical discharge may be expected to pass through the outfall. The results of all the samples collected during the 24-hour period representing the calendar day for sampling purposes shall be averaged in proportion to the estimated flow before, during, and after the period in which the atypical discharge is believed to have occurred.

Moreover, KPC believes that the provision should be limited to atypical discharges. Otherwise, it could be construed to require testing that is unreasonable under the circumstances. A rational way to address this issue is to not prescribe additional monitoring, but rather to have EPA exercise its right to obtain information pursuant to section 308 of the Clean Water Act and Part V.C of the permit. Therefore, the targeted monitoring provision should apply only to atypical discharges. KPC proposed that the draft permit be changed to require additional sampling of any “atypical discharge or discharge that is not part of the normal operation of the facility.”

Response: EPA does not agree that limiting additional monitoring to atypical discharges is appropriate in this case. The language that was proposed to settle the evidentiary hearing request was developed for KPC when the facility was monitoring frequently and much of the sampling was composite. The draft permit has a reduced monitoring frequency and grab instead of composite sampling. Given these changes, EPA believes that it is possible for KPC to have discharges that are part of the normal operation of the facility that could reasonably be expected to result in permit limit violation (for example, pipeline cleaning, as discussed in comment number 35). Furthermore, EPA does not agree that this language is any more difficult to interpret than the language proposed by KPC.

EPA agrees, however, that it may be difficult to determine when such a discharge may reach the outfall. In addition, EPA agrees that KPC could perform additional monitoring during the day of the discharge to better determine compliance with the maximum daily limit. Therefore, EPA has substituted the following language for "as soon as the spill, discharge, or bypassed effluent reaches the outfall" in Part III.F. of the final permit:

> during and after the period of the best reasonable estimate under the circumstances of when such discharge may be expected to pass through the outfall. The results of all samples collected during the 24-hour period representing the calendar day for sampling purposes shall be averaged in proportion to the estimated flow before, during, and after the period in which such discharge is believed to have occurred.

34. Comment: KPC requested clarification regarding what parameters must be analyzed for nonroutine discharges. The targeted monitoring provision speaks in terms of effluent limits that are not to be violated but requires sampling for parameters "limited" in Part III.A. of the draft NPDES permit. Part III.A does not limit parameters but rather describes the effluent monitoring requirements. However, effluent limits are specified for outfall 001 at Part I.D. If the intent of this provision is to require the collection of data for limited pollutants, the provision should be modified to specify pollutants limited by Part I.D.

Response: The intent of the draft permit was to require monitoring of parameters for which there are limitations. Part III.F. of the final permit has been changed to reference Part I.F.

35. Comment: One commentor noted that the draft permit does not address pipeline cleaning. In the past, chlorine solutions (strong enough to kill off all of the fish and plants in Ward Creek during a spill of the cleaner) have been used. Because chlorine sampling is only required once per month, any increased

chlorine due to this cleaning would not be sampled. The permit should require that additional samples be taken at additional times.

Response: Part III.F of the final permit requires that KPC conduct additional monitoring at times when discharges could reasonably be expected to result in violations of permit limits. This provision would require KPC to evaluate the concentration of chlorine solution expected to be present in its effluent and conduct additional monitoring if the calculated concentration would be expected to result in a permit limit violation.

VIII. Ambient Monitoring

36. Comment: One commentor stated that EPA and ADEC should require collection of baseline data on the toxicity of the ambient water at various depths and locations in the proposed mixing zone location, and in the areas around it prior to permit issuance. They requested that the agencies look at available toxicity information regarding the sediments in that area. Some recent tests show zero survival for some species placed in the sediments. Others show 25 percent (or higher) lethality to clams exposed to the sediments.

Response: EPA does not believe that collecting baseline toxicity data is necessary prior to issuing this permit. The final permit requires KPC to use ambient water for dilution for toxicity testing. Using ambient water will account for interactions between the effluent and the receiving water. As discussed in the response to comment number 3, sediment toxicity data are not relevant to water column toxicity.

37. Comment: One commentor requested that EPA require that KPC conduct a baseline biological survey that includes data on species number and abundance, health and growth, and contaminant levels in species currently in the area. There will be no way of determining whether the pollutants are actually dispersing and diluting as modeled unless there is a biological survey of the area now. This has been a glaringly missing piece of the Ward Cove Sediment Remediation Project. No mixing zone should be granted without biological data and there is little current biological data specific to the area proposed for the mixing zone.

Response: EPA does not agree that it is appropriate for the NPDES permit to require biological surveys, given the size and composition of KPC's current discharge. Biological surveys will not give any information regarding dispersion of the effluent.

Under the Ward Cove Sediment Remediation Project, the Remedial Action Objectives for sediment cleanup are to reduce sediment toxicity and enhance recolonization of sediments by benthic organisms. EPA intends to require benthic monitoring surveys after sediment cleanup to ensure that these objectives are met. Monitoring under the NPDES permit would be redundant.

38. Comment: One commentor stated that the permit should require ambient water column monitoring.

Response: As part of its 401 certification, the State required that KPC submit an ambient monitoring plan for temperature, salinity, dissolved oxygen, turbidity, and pH. This requirement has been added to Part III.B. of the final permit.

IX. Antidegradation/Coastal Zone Management Plan

39. Comment: One commentor stated that EPA erred in the fact sheet in stating that the draft permit will result in decreases in the authorized pollutant loadings to Ward Cove. The 1994 NPDES permit did not authorize a mixing zone at outfall 001 and therefore limited pollutant concentrations (e.g., for whole effluent toxicity) to levels much below this proposed permit. This permit definitely increases permitted pollutant concentrations in Ward Cove and will result in portions of the cove being permitted to become a permanent toxic waste mixing zone. Such permission has not been authorized before.

Response: The statement in the fact sheet that the draft permit will result in decreases in the authorized pollutant loadings to Ward Cove is correct. Loading is expressed in pounds per day, and is a function of both the concentration of pollutants in the effluent (in ug/l or mg/l) and the volume of effluent discharged (in gallons per day). Even though the permit authorizes higher pollutant concentrations, the volume, and therefore the loading, will significantly decrease.

40. Comment: One commentor stated that the discharge of pollutants to Ward Cove in excess of water quality criteria is not consistent with the Ketchikan Borough or State Coastal Zone Management Plan.

Response: The determination of whether a permit is consistent with the Coastal Zone Management Plan is a function of the State, not EPA. In a letter dated November 4, 1998, the State determined that the permit was consistent with the Coastal Zone Management Plan.

X. General Conditions

41. Comment: One commentor requested that EPA more accurately specify where the reports that KPC is required to submit will be available for public inspection. Specifically, these reports should be made available to the public at the ADEC office in Ketchikan. Currently, there is no way for residents to see Discharge Monitoring Reports (DMRs) in Ketchikan.

    Response: EPA has changed Part III.G. of the final permit to require that KPC submit monitoring data to the Ketchikan office of ADEC in addition to ADEC's Juneau office.

42. Comment: One commentor stated that the permit should not be transferrable if the permittee is out of compliance with terms, limits, or conditions of the permit.

    Response: The language in Part V.K. of the permit is based on federal regulations at 40 CFR 122.61. It cannot be challenged in the context of an individual permit action. However, this provision allows for the Director of EPA to notify the existing permittee if the Agency intends to modify, revoke, or reissue the permit. This mechanism could be used, if appropriate, to address issues of noncompliance at the time of permit transfer.

43. Comment: Several commentors stated that the permit should specify what constitutes "significant" changes. The permit should specify which reporting requirements and limits would trigger reopening of the permit.

    Response: The commentors did not refer to a specific part of the permit. EPA assumes that this comment refers to Part IV.J, "Planned Changes." EPA cannot specify in advance which requirements would necessarily trigger a permit modification. Changes to the application or new information provided under Part IV.J of the permit must be evaluated on a case-by-case basis to determine whether a permit modification is appropriate.

XI. Miscellaneous Comments

44. Comment: KPC commented that Section I.A. of the permit exempts from its authorization any wastestreams or other nonroutine discharges that are not part of the normal operation of the facility as disclosed in the permit application or pollutants that are not ordinarily present in such wastestreams. This provision seems to conflict with section IV.J of the permit which requires KPC to notify EPA and ADEC of planned physical alterations to the facility. Construed literally, Section I.A would prohibit the discharge of any new wastestream irrespective of the significance of the planned change. Section I.A has the effect of reworking Section IV.J. to prohibit alterations or additions to the facility which

would cause non significant changes in the nature or quantity of pollutants discharged.

Redevelopment of all or parts of the former pulp mill facility is under consideration and can reasonably be expected to occur during the term of the proposed NPDES permit. Section I.A as currently drafted could be construed to require KPC to obtain a modification to the permit before it could effect any changes to operations at the facility.

Section I.A should be revised to allow explicitly for facility changes that would not cause a significant increase in the nature or quantity of pollutants or otherwise justify a permit modification. Concerns about broadening the scope to authorize discharges that EPA believes would justify a permit modification can be addressed by excepting them from the scope of the permit in the event the agency decides to proceed with the modification process. This would give EPA the discretion to preclude modifications to the facility it believes should be subjected to additional permitting but would also give EPA the discretion to allow modifications to the facility that did not significantly affect discharges without the administrative burden of the permitting process.

KPC suggested including the following language in Part I.A. of the permit:

> However, the facility may discharge wastestreams and pollutants associated with operations which would not require notification under paragraph IV.J of this permit, or if notification is required by paragraph IV.J of this permit, unless EPA informs the permittee that a modification of the permit is required under 40 CFR Part 122 within 30 days of the notification.

Response: EPA disagrees that the language in Part I.A conflicts with Part IV.J. The intent of Part I.A is to prohibit discharges that EPA did not have an opportunity to consider during the permit development process. The language does not prohibit KPC from making changes to the facility. It does, however, prohibit changes that are not part of normal operations as disclosed in the application.

The language in Part I.A is consistent with EPA's "Policy Statement on Scope of Discharge Authorization and Shield Associated with NPDES Permits," signed by Robert Perciasepe, Steven A. Herman, and Jean C. Nelson on July 1, 1994. This policy states that permits authorize the discharge of pollutants that are constituents of wastestreams clearly identified during the permit application process. The policy further states:

> EPA recognizes that a discharger may make changes to its permitted facility (which contribute pollutants to the effluent at a permitted outfall) during the effective period of the NPDES permit. Pollutants associated with these changes (provided they are within the scope of the operations identified in the permit application) are also authorized provided the discharger has complied in a timely manner with all applicable notification requirements (see 40 CFR §§ 122.41(l) and 122.42(a) and (b)) and the permit does not otherwise limit or prohibit such discharges.

EPA does not agree that Part I.A as written would require KPC to obtain a permit modification prior to making any changes at the facility. Part I.A requires KPC to amend its application by providing information to EPA when it makes changes to the facility, such as was done regarding the discharge from outfall SWL4. Upon review of any update to the application, EPA can determine if a permit modification is needed to address the cited changes.

With regard to KPC's plans to redevelop the facility during the permit term, EPA believes that such a change would likely require permit modification. This permit is intended to cover the facility based on the application that was submitted. It was not intended to necessarily cover discharges from any or all activities that may occur in the future.

Finally, EPA does not agree with the language proposed by KPC that would authorize discharges unless EPA notifies the permittee within 30 days that a modification is required. Part IV.J of the permit does not authorize such discharges, and EPA will not modify Part I.A to provide such authorization.

45. Comment: Several commentors expressed confusion regarding the designation of the KPC facility as a sawmill. They noted that the sawmill and pulp mill properties are separate properties and have been dealt with as such by KPC in the past.

In a related comment, KPC noted that it has an NPDES permit for Ward Cove sawmill log transfer operations (permit # AK-004836-4). That permit authorizes discharges which would, at the same time, be prohibited by Section I.B of the draft permit. KPC proposes the following wording to address this issue:

> This permit does not authorize the discharge of any process waste water from the sawmill, associated log and bark handling systems, or chipping facilities.

Response: In its application, KPC stated that the operations at this facility consist of a sawmill, associated log and bark handling systems, and a chipping

and chip storage facility. In prohibiting discharge from the sawmill, EPA is implementing the technology-based guidelines applicable to a facility that was included in KPC's application.

EPA did not intend to change any authorization of KPC's log transfer facility. Therefore, EPA has changed Part I.C. of the final permit (Part I.B. in the draft permit) to read:

> The permittee shall not discharge any process waste water from the sawmill, or associated debarking facilities.

This language reflects the technology-based requirements for sawmills and barking facilities at 40 CFR §429.

46. Comment: KPC commented that as currently written, the timber products provisions of the Storm Water Multi-Sector General Permit for Industrial Activities ("multisector permit") authorize the discharge of stormwater, discharges from fire fighting activities, and the following sources of nonstormwater if they are identified in the stormwater pollution prevention plan:

- fire hydrant flushings,
- potable water sources (including waterline flushings),
- irrigation drainage,
- lawn watering,
- routine external building washdown without detergents,
- pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used,
- intermittent spray down of lumber and wood product for the purpose of fire control where no chemical additives have been used,
- air conditioning condensate,
- compressor condensate, and
- springs, uncontaminated ground water, and foundation or footing drains where flows are not contaminated with process materials such as solvents that are combined with storm water discharges associated with industrial activity.

In addition, EPA has proposed to allow the discharges from wet decking under the multisector permit. The draft NPDES permit should be revised to make clear that the flows described above may be discharged in the same manner as is authorized by the multisector permit.

Response: EPA agrees that, except for discharges from wet decking, the above wastestreams may be discharged by KPC without causing or contributing to an exceedence of water quality criteria. Although a stormwater pollution prevention plan has not been submitted, EPA believes that the best management practices (BMP) plan approved by EPA on September 27, 1995, includes the elements that would be included in a stormwater pollution prevention plan. Therefore, EPA has added paragraph I.B. to the final permit, authorizing the discharge of the above wastestreams, except for discharges from wet decking.

Wet decking is currently regulated by 40 CFR 429 Subpart I. The effluent guidelines for wet decking specify a pH range of 6.0 to 9.0. This range is outside of the range of the State water quality standards. KPC has provided no information regarding the discharge point of the wet decking wastestream. Therefore, EPA has no way of determining whether the technology-based pH requirements are adequate to ensure compliance with water quality standards. Without further information, EPA cannot authorize this discharge.

47. Comment: KPC requested that the draft NPDES permit be modified to allow for DMR submissions to be postmarked by the 20th day of the following month. Requiring submission of DMRs by the 10th of the month does not provide for an adequate amount of time to prepare a DMR, particularly when analyses are required for organic compounds (e.g., TAH and TAqH), metals, and other parameters. Such an approach is consistent with the deadline ultimately established under KPC's 1994 NPDES permit.

Response: After consideration of the comments made by KPC, EPA has changed the due date for DMRs to the 20th of the month. (See Part III.G. of the final permit.)

48. Comment: KPC commented that the effluent limits for biochemical oxygen demand (BOD) and total suspended solids (TSS) should be revised to reflect the state requirement of 60 mg/l instead of 45 mg/l. The limits in the draft NPDES permit are apparently based on a federal definition of "secondary treatment." However, the appropriate definition of "secondary treatment" for construing 18 AAC 72.040 is located at 18 AAC 72.990(65). Pursuant to this rule, "secondary treatment" is a method that produces an effluent with a value for BOD and TSS for effluent samples collected in a twenty-four hour period that does not exceed 60 milligrams per liter (mg/l).

Response: The 1994 permit contains weekly average limits for BOD and TSS of 45 mg/l. KPC has presented no information to demonstrate that backsliding from those limits is appropriate. Therefore, under 40 CFR 122.44(l), the limits in the

final permit must be as stringent as those in the previous permit and the limits in the final permit remain unchanged.

49. Comment: KPC requested that the permit specify that data below the detection limit be assumed to have a value of 0.00 for determining compliance with monthly average permit limits, based on EPA guidance. The draft NPDES permit defines the term "monthly average" as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. However, the permit provides no guidance as to how measurements that fall below detection limits should be incorporated into the calculation of the monthly average.

As discussed in the *Technical Support Document for Water Quality-based Toxics Control*, EPA considers the minimum level (ML) to be the most appropriate parameter for determining the detection limits for permitting purposes. However, formal MLs have not been determined for all analytical methods. To address when methods have no specified ML, the current NPDES permit specifies that the interim ML will be considered to be 3.18 times the method detection limit (MDL).

Response: EPA agrees that, for determining compliance with monthly average permit limits, permittees should use zero for data that is below the MDL. To ensure that KPC uses methods that have detection limits that are low enough so that compliance with permit limits can be determined, EPA included a requirement that the MDL be no higher than 0.1 times the permit limit or the lowest MDL achievable using a method approved under 40 CFR Part 136, whichever is greater. (See Part III.A.4. of the final permit.)

50. Comment: One commentor stated that EPA should require groundwater monitoring prior to issuing the permit. In addition, the seeps from the landfill should be monitored. Another commentor noted that the seepage from the shore fill area should be monitored for dioxins, PCBs, and metals.

Response: Under the Clean Water Act, the NPDES program asserts authority over the discharge of pollutants to surface water, not groundwater. The point where the groundwater “daylights” could be considered a point of discharge. However, the seeps are being addressed through the Superfund program and the State solid waste permit. Including monitoring of the seeps in the NPDES permit would be redundant.

51. Comment: One commentor stated that the permit should be subject to modification when the Remediation Plan is put into effect.

Response: Part V.M. of the permit contains a reopener clause that allows EPA to modify the permit for any of the causes specified in 40 CFR §§122.62, 122.64, or 124.5. These causes include new information or substantial changes, such as may be the case after the Remediation Plan is in effect. Permit modification can be requested by the permittee, by any interested person, or on EPA's initiative. When the Remediation Plan is complete, EPA will evaluate whether the plan results in changes that would justify a permit modification.

52. Comment: One commentor stated that EPA should evaluate possible technology-based requirements for treating the wastes at KPC. Another commentor asked if the permit could be modified to address improvements in technology.

Response: Based on information submitted by KPC on the landfill leachate treatment system, EPA believes that more stringent technology-based limits are not appropriate. In this case, water quality-based permit limits adequately control the discharge.

The permit cannot be modified during its term to require upgraded treatment based on improvements in technology. The Clean Water Act intended an NPDES permit to provide a 5-year period of certainty for permittees regarding what requirements they would be required to meet. This intent is reflected in the regulations that address permit modification (40 CFR §§122.62, 122.64, and 124.5). These regulations specifically state that new effluent guidelines (which would be based on improvements in technology) are not grounds for modification of a permit. Improvements in technology are considered during permit reissuance.

53. Comment: Several people commented that the permit should address the possibility of bioaccumulation.

Response: The monitoring required in the permit for bioaccumulative compounds (for example, TCDD) will be evaluated to determine whether the discharge complies with water quality standards. These standards are developed to protect human health and include consideration of bioaccumulation. Therefore, EPA believes that compliance with water quality standards protects human health from the effects of bioaccumulation.

54. Comment: One commentor stated that Ward Cove should be restored to the quality that existed before the mill was built.

Response: EPA does not have the authority under the Clean Water Act to require restoration of a water body to pristine conditions. Permits require

compliance with water quality standards, which may or may not represent pristine conditions.

55. Comment: One commentor noted that the stream that SWL4 discharges to is within the protected zone around a documented eagle nest tree. They further stated that a dioxin landfill with open lagoons and ponds and a constructed wetland should not be allowed within an eagle nest protection area.

Response: EPA contacted USFWS to determine whether the presence of an eagle nest in the vicinity of SWL4, the leachate lagoons, and the constructed wetland requires additional permit conditions. According to USFWS, establishment of a buffer zone and any restrictions on activity in the area are voluntary. Therefore, EPA has determined that the presence of an eagle nest does not provide a basis for additional or more stringent permit conditions.

XII. Editorial Comments

56. Comment: One commentor noted that the outfall locations are listed differently in the draft permit than in the application - for example, the draft permit has SW8 at 55 24 10N and 131 44 10W whereas the application has it at 55 24 15N and 131 43 45W.

Response: These errors have been corrected in the final permit. (See the cover sheet of the final permit.)

57. Comment: KPC noted that Part III.E. of the draft permit incorrectly reference Parts III.H. and III.I.The correct references are III.G. and III.H., respectively.

Response: Although that was true for the draft permit, the final permit has been renumbered due to an added section. Therefore, the references to III.H. and I. are now correct.

Appendix A - Summary of Changes to KPC NPDES Permit

Cover Page: References to the sawmill deleted. Latitude and longitude for SW8 corrected. SWL4 and SWL12 added.

I.A. Outfalls SWL4 and SWL12 added. SWL6 changed to SWL6B for clarification.

I.B. Paragraph added authorizing discharge of wastestreams included in multi-sector stormwater permit. Subsequent paragraphs renumbered as appropriate.

I.C. (draft permit I.B.) "Log and bark handling systems, or chipping facilities" deleted. Debarking facilities added.

I.D. Prohibition on addition of solvents, detergents, or other chemicals to water used for demolition, maintenance, or construction without prior authorization from EPA added.

I.F. (draft permit I.D.) Minimum and maximum flows of 2.0 and 2.2 million gallons per day, respectively, added.

I.G. (draft permit I.E.) SWL6 changed to SWL6b for clarification. SWL12 added.

I.H. pH limit for SWL4 of 0.5 from background added.

I.J. (draft permit I.F.) Added daily maximum and monthly average fecal coliform bacteria limits of 400/100 ml and 200/100 ml, respectively for SAN1.

III.A.1. Added the following monitoring:

Table A1: Additional Monitoring			
Whole Effluent Toxicity, TU_a[4]	001	2/year	24-hour Composite
Silver, µg/l[5]	SWL4, SWL11, SWL12	3/year	Grab
Chromium III, µg/l	SWL6B, SWL12	3/year	Grab
Cadmium, µg/l[5]	001	Quarterly	Grab
Lead, µg/l[5]	SWL6B, SWL12	3/year	Grab
Selenium, µg/l[5]	Stormwater	3/year	Grab

Table A1: Additional Monitoring			
Mercury, µg/l[5]	SWL4, SWL6B, SWL11, SWL12	3/year	Grab
Oil & grease, mg/l	001	Monthly	Grab
2,3,7,8-TCDD, ppq	SWL4	Quarterly	Grab
Hardness, mg/l $CaCO_3$	SWL4, SWL6B, SWL11, SWL12	3/year	Grab

Clarified reporting requirement for flow to require minimum, maximum, and average flow. Added SWL4 and SWL12 as stormwater outfalls. Changed SWL6 to SWL6B for clarification. Clarified monitoring locations for SWL6B, SWL11, SWL12, and SWL4. Added a requirement for 2,3,7,8-TCDD monitoring that aqueous and particulate fractions shall be extracted and analyzed separately.

III.A.2. Added monthly monitoring for fecal coliform bacteria for SAN1. Added units of mg/l to BOD and TSS for clarification.

III.A.3. Added the following monitoring for landfill leachate outfalls LL01 and LL02 for the first year of the permit.

Table A2: Landfill Leachate Monitoring Requirements (Table 5 in the final Permit)		
Parameter	Monitoring Requirements	
	Sample Frequency	Sample Type
2,3,7,8-TCDD, ppq[1]	Quarterly	Grab
Copper, µg/l	Quarterly	Grab
Manganese, µg/l	Quarterly	Grab
Selenium, µg/l	Quarterly	Grab
Zinc, µg/l	Quarterly	Grab
Footnotes [1] Aqueous and particulate fractions shall be extracted and analyzed separately as described in Section 11.4 of EPA method 1613B.		

III.A.4. Added provision added requiring method detection limit (MDL) of 0.1 times the effluent limitation or the lowest achievable using a method approved under 40 CFR

Part 136, whichever is greater. Added provision allowing KPC to report “0" as a monthly average when data is below the MDL.

III.B. Added a requirement to conduct quarterly hardness monitoring of the unnamed streams to which SWL4, SWL6B, SWL11, and SWL12 discharge. Subsequent sections renumbered appropriately. Added a requirement to develop a study plan for ambient monitoring of temperature, salinity, dissolved oxygen, turbidity, and pH.

III.D. (draft permit III.C.) This part has been reformatted.

III.D.1.a. (draft permit III.C.1) Requirement to use topsmelt (*Atherinops affinis*) has been deleted.

III.D.1.a.ii (draft permit III.C.1[b]) Clarified sea urchin test as fertilization test.

III.D.1.b. (draft permit III.C.2.) “Most sensitive organism” defined as the organism with the highest mean EC_{25}.

III.D.1.d. (draft permit III.C.5.) Reference has been changed from *USEPA Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition*, EPA/600/4-91/003 to *Short-Term Methods for Estimating the Chronic Toxicity of Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95-136, August 1995).

III.D.1.e. (draft permit III.C.6.) Calculation of chronic toxic units has been changed from NOEC to EC_{25}.

III.D.1.f. (draft permit III.C.7.) Reference has been changed from *USEPA Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition*, EPA/600/4-91/003 to *Short-Term Methods for Estimating the Chronic Toxicity of Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95-136, August 1995).

III.D.2. Acute toxicity testing twice per year using inland silverside (*Menidia beryllina*) has been added.

III.D.3.b.(i) (draft permit III.C.9.a.) Changed “in-house” to “by the laboratory conducting the tests” for clarification.

III.D.3.b.(iii) (draft permit III.C.9.c.) Deleted option to use salinity adjusted lab water for dilution and control water. Clarified definition of “receiving water” to mean “water collected in Ward Cove in an area outside of the influence of the mixing zone for the permittee’s discharge”

III.F. (draft permit III.E.) Changed requirement to monitor for “parameters limited in Part III.A” to “parameters limited in Part III.F.” changed “as soon as the spill, discharge, or bypassed effluent reaches the outfall” to “during and after the period of the best reasonable estimate under the circumstances of when such discharge may be expected to pass through the outfall. The results of all samples collected during the 24-hour period representing the calendar day for sampling purposes shall be averaged in proportion to the estimated flow before, during, and after the period in which such discharge is believed to have occurred.”

III.G.(draft permit III.F) Changed due date of discharge monitoring reports from the 10th day of the month to the 20th day of the month. Added a requirement to submit DMRs to ADEC’s Ketchikan office. Changed EPA address from “OW-134" to “OW-133." Changed “Water Division” to “Office of Water.”

III.L (draft permit III.K) Changed “Water Compliance Section” to “NPDES Compliance Hotline.” Changed reporting phone number from (206) 553-1760 to (206) 553-1846.

V.M. Added language to the third sentence in this part. The sentence now reads: “This includes new information which was not available at the time of permit issuance and would have justified the application of different permit conditions at the time of issuance, including future monitoring results, water quality studies, waterbody recovery plans, or wasteload allocations “

VI. Added a section “Special Conditions” requiring that KPC negotiate a memorandum of agreement with ADEC to develop a waterbody recovery plan and TMDL for Ward Cove. Subsequent sections renumbered appropriately.

VII. (draft permit VI.) Added definition of “acute toxic unit.” Changed definition of “chronic toxic unit” from 100/NOEC to 100/EC_{25}. Deleted definition of ”EC_{50}.” Added definition of ”EC_{25}.” Added definition of “geometric mean.” Added definition of “LC_{50}.” Added definition of “method detection limit.” Clarified “monthly average” to define average for fecal coliform bacteria as a geometric mean. Deleted definition of NOEC.