

U.S. Environmental Protection Agency
Region 10

Response to Comments

Coeur, Alaska, Inc.
NPDES Permit No.: AK-005057-1

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Introduction

The public comment period for the draft permit for Coeur Alaska, Inc.-Kensington Gold Project (AK-005057-1) began on February 24, 1997, and expired on April 10, 1997. Public hearings were conducted on March 25-26, 1997. Information considered by EPA in establishing Final Permit conditions includes public comment letters as well as information from actions by federal agencies, the State of Alaska, and Coeur Alaska, Inc. that are pertinent to this NPDES permit.

Actions and New Information After the Public Comment Period

Finalization of the Supplemental Environmental Impact Statement (SEIS)

On August 15, 1997, the U.S. Forest Service (with EPA and the Army Corps of Engineers as cooperating agencies) released the final SEIS for the Kensington Project. On this date, the Forest Service also issued a Record of Decision identifying Alternative D as the selected alternative for development of the Kensington mine. As a companion document to the final NPDES permit, EPA has issued its Record of Decision for the project, in which EPA also selects Alternative D from the SEIS. The final NPDES permit is consistent with the components of Alternative D and the associated mitigation measures identified in the SEIS.

National Toxics Rule Removal for Arsenic

NPDES permit limits are established to achieve state water quality criteria in effect at the time of permit issuance. On February 23, 1998, EPA removed the human health criterion for arsenic previously promulgated for Alaska in the 1992 National Toxics Rule (NTR)(63 FR 10140). This action replaced the NTR criterion for arsenic (.18 ug/l) with the state drinking water standard (50 ug/l).

Using the limits development procedures described in the fact sheet for the draft permit, EPA has compared the projected effluent concentrations for arsenic to the new criterion value. The maximum projected effluent concentrations of 2.5 ug/l at outfall 002 and 5.6 ug/l at outfall 001 (see NPDES Fact Sheet) are well below the 50 ug/l criterion, and EPA has determined that there is no "reasonable potential" to exceed the criterion. As a result, the arsenic limits have been removed from the final permit. Arsenic monitoring is still required, but at a lower frequency (monthly).

State 401 Certification and CZM Consistency

The state of Alaska issued a 401 certification of the NPDES permit on January 27, 1998, and a Coastal Zone Management consistency finding on April 14, 1998. The stipulations of the certification and consistency determination are incorporated into the final NPDES permit and response to comments. The 401 certification includes a detailed anti-degradation determination pursuant to the Alaska water quality standards.

State Promulgation and EPA Approval of Site-Specific Criteria for TDS and Sulfate

The Alaska Department of Environmental Conservation (DEC) finalized site-specific criteria for Total Dissolved Solids (TDS) and Sulfate in Sherman and Camp Creeks. The new criteria became effective on December 12, 1997. EPA approved the criteria on April 3, 1998. The final NPDES permit limits are based on these criteria.

Information/Correspondence from the Applicant

In a letter dated May 19, 1997, Coeur provided minor clarification of the proposed project. Specifically, Coeur disclosed that the treatment system for Outfall 001 will be expanded in phases over the life of the project, likely in 400 gallon-per-minute increments of capacity. The letter also clarified the planned usage of chlorine (to treat drinking water only, at the camp) and lead nitrate (used in laboratory assays only).

Between the draft and final permit releases, Coeur also submitted a management plan for explosives management (dated January 30, 1997), photos and descriptions of the creeks in the vicinity of the planned Dry Tailings Facility (May 12, 1997), an effluent toxicity test report for the existing adit drainage (June 1997), and a plan for underground exploration (July 1997).

While providing clarification of the permit application, none of the above information has resulted in changes to permit conditions.

Endangered Species Consultation

In accordance with Endangered Species Act, EPA has conducted formal consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) regarding effects of the final NPDES permit and approval of the site-

specific criterion for TDS on threatened and endangered species. USFWS concurred with EPA that these actions would have no effect on threatened or endangered species in a letter dated February 10, 1998. NMFS similarly concurred in a letter dated February 23, 1998.

Correction of Zinc Limitations

Prior to permit issuance, EPA discovered an error in the zinc limits in Table 1. Under the Alaska water quality standards, the zinc criterion for protection against chronic effects to aquatic life, adopted in 1980 (45 FR 79318), does not vary with hardness as is indicated by Table 1. To correct the error, the single value (47 ug/l) criterion has been translated into monthly average and daily maximum limitations in the same manner used to develop limits for the other parameters that are not dependent on hardness (e.g. silver). The change to the limit values is minor.

Comments Received on the Draft Permit

Effluent Limitations

Comment 1: The U.S. Department of the Interior commented as follows: The TDS monthly average appears to be the same as the maximum limitation. The average should not be 1,000 mg/l. Instead, the TDS monthly average should reflect the proposed operational range of 700-800 mg/l. The average and maximum values are also stated at 1,000 mg/l in table VI-4 in the attached fact sheet.

Response: Unlike the metals criteria, the state TDS criteria do not include a frequency and duration of exposure element. As a result, the statistical approach used to calculate metals limits is not employed for the TDS parameter. The 700-800 mg/l long term average referenced in the comment was developed from samples collected once per month and does not reflect variations within a given month. While the TDS is expected to range from 700-800 mg/l over the long term, it is possible that average TDS levels could approach 1,000 mg/l during extended periods of mine development. Provided the TDS levels in the discharge remain below 1000 mg/l, the water quality criterion will be met. Therefore, the Final Permit retains 1000 mg/l as both the daily maximum and

monthly average limits. The state of Alaska supports these limits in its 401 certification.

Comment 2: Coeur Alaska, Inc. (Coeur) suggests that the Kensington Gold Project permit consider the present status of EPA's decision to withdraw the National Toxics Rule (NTR), and pending action with regard to the arsenic standard. The draft permit references the present standard, which EPA is aware is being revised, and does not make any provision to recognize this on-going effort of EPA and the State of Alaska. EPA, in a letter to commissioner Michelle Brown of the Alaska Department of Conservation, has initiated a request to change the standard from 0.18 µg/l established under the NTR to an interim standard of 50 µg/l. Coeur supports this revision.

Because this action has been initiated during the permitting process, Coeur believes it is appropriate to write the permit to allow the use of the 50 µg/l standard when it becomes effective. It clearly is the intent of the State and EPA to make this modification. In addition, permit timing is such that the 50 µg/l standard would be in place prior to commencement of project operations. Coeur concurs with EPA and the State in implementing this standard and further believes that this standard is appropriate to protect Sherman Creek water quality during mine operations.

Response: See earlier discussion of the National Toxics Rule removal for arsenic under "Actions and New Information After the Public Comment Period".

Comment 3: Coeur commented in regard to the Fact Sheet Page 25, Tiered Hardness-based Limits - last paragraph: It appears that a hardness value of 0-75 mg/l should result in a criteria calculated on the basis of 50 mg/l. Hardness values of 76-100 should be calculated on the basis of 100 mg/l. Overall, this weighting is too conservative and should provide for more hardness criteria determination values as suggested above for the entire hardness-based limits.

Response: EPA believes the range of hardness based criteria in the draft permit represents a reasonable compromise between (1) limitations that would vary constantly as hardness varies, and (2) a single limit based on the lowest hardness that might be encountered. For each of the hardness ranges shown, the limitation is based on the lowest hardness in the range. Failure to use the lowest value in the range could result in a violation of water quality standards at any time when the hardness value was within the range but below the value used to calculate the limit.

Comment 4: Coeur commented in regard to the Fact Sheet Page 28, Table VI-4 Effluent Limitations: The Treated Mine Drainage outfall 001 value for TDS should be <1,000 mg/l.

Response: This statement relates directly to the response to Comment 1.

Comment 5: Mr. David Chambers of the Center for Science in Public Participation commented that any site-specific criterion for sulfate (500 mg/l) be included in the permit.

Response: EPA and the state of Alaska have evaluated the proposed discharges with respect to the site-specific criterion for sulfate. EPA agrees with the state of Alaska's assertion in the 401 certification that sulfate limits are not necessary.

The site specific criterion for sulfate is expressed in terms of magnesium and sodium sulfates (sulfates associated with magnesium and sodium not to exceed 200 mg/l). Sulfates are one of the class of compounds that are aggregated in the total dissolved solids measurement. The agencies agree that the TDS limit of 1000 mg/l is adequate to insure compliance with both the sulfate and TDS criteria, because the magnesium and sodium sulfates are well below the 200 mg/l sulfates limit when TDS levels are at or below 1000 mg/l. Since there is no reasonable potential to exceed the criterion (40 CFR 122.44(d)), a sulfate limit is not included in the final permit.

The 401 certification stipulates quarterly monitoring to detect any significant changes in

magnesium sulfate and sodium sulfate levels over time.

Comment 6: Mr. Chambers commented that the aquatic life criterion for iron of 1,000 ug/l should be included in the permit.

Response: EPA agrees with the commentor the 1,000 ug/l aquatic life criterion for iron applies to the facility. Available data indicates that iron levels in the discharges from outfalls 001 (with mine water treatment) and 002 will be well below this level. Because there is no reasonable potential to exceed standards (40 CFR 122.44(d)), an iron limit has not been included in the permit.

Comment 7: Mr. Chambers asked how the hardness-based monthly average limits would be determined.

Response: The permittee will average the ambient hardness samples over the month to determine the corresponding monthly average limits from Table 1.

The permittee will use the hardness on the day of sampling to determine the corresponding daily maximum limits from Table 1.

Comment 8: ADEC commented with regard to limitations for outfalls 001 and 002: The monthly average for TDS, at 1,000 mg/l, reflects extreme operating conditions (95th percentile) according to Coeur's water quality data. ADEC has discussed substituting the 90th percentile operating conditions for the monthly average, which is more in the expected operating range, 700-800 mg/l. ADEC will make a recommendation on this limit before the Final Permit. The maximum limit of 1,000 mg/l is in line with the applicant's request for up to 1,000 mg/l as the discharge criterion and need not be changed.

Response: See response to Comment 1. The Final Permit limits reflect the State's 401 certification related to TDS.

Comment 9: ADEC commented: The arsenic limit of 0.18 µg/l is based on the National Toxics Rule standards imposed on the state by EPA. Alaska's standard is currently under review by EPA headquarters. In the 401

certification, ADEC may recommend that a freshwater limit of 50 µg/l be used in the Final Permit pending a decision on this standard.

Response: See earlier discussion of the National Toxics Rule removal for arsenic under "Actions and New Information After the Public Comment Period".

Comment 10: At the Haines Public Hearing, Mr. Eric Hawley commented: The 0.18 µg/l standard for arsenic should be met. He commented that there is a lot of new information about health effects from arsenic and there are already high background levels of arsenic in the water.

Response: See earlier discussion of the National Toxics Rule removal for arsenic under "Actions and New Information After the Public Comment Period".

Comment 11: At the Haines Public Hearing, Mr. Gershen Cohen commented: As was mentioned in the question/answer period, the turbidity standard needs to be looked at in terms of water quality standards. Further, the total suspended solids standard has been figured in part on the success of revegetation in the area and EPA might want to take a harder look at that because revegetation might be more difficult than anticipated. In other places, reclamation aspects have been very difficult.

Response: Turbidity in water is caused by the presence of suspended matter, such as clay, silt, and finely divided organic matter. State water quality criteria for Sherman Creek and Camp Creek require that turbidity in the discharge not exceed 5 Nephelometric Turbidity Units (NTUs) above natural conditions when the natural condition is 50 NTUs or less and not cause more than a 10-percent increase in turbidity when natural conditions are greater than 50 NTUs, not to exceed a maximum increase of 25 NTUs.

Turbidity and TSS are reduced by the same treatment technologies. In evaluating compliance with the turbidity standards at outfall 001, it is useful to separately consider the two components of the discharge: the treated mine drainage and the storm runoff. During dry weather, the only component of

the discharge from outfall 001 would be treated mine drainage. While the untreated mine drainage might be high in turbidity, treatment would include chemical precipitation and clarification, followed by filtration. Pilot testing studies conducted by Coeur indicate that this treatment would reduce turbidity to levels between 1 and 2 NTUs. Under dry weather conditions, therefore, the discharge should not increase turbidity, and the criteria should be met.

During minor rainfall events, the discharge from outfall 001 would be a mixture of storm runoff and treated mine drainage. The treatment system at outfall 001 would provide polymer addition and settling, which should reduce turbidity in the storm water. Minor rainfall events are not expected to significantly disturb materials in the process area, and detention time in the two settling ponds would remain long. In addition, the very low turbidity level of the treated mine drainage would act as a dilutant for the storm runoff. While minor rainfall events are not expected to increase turbidity levels in Sherman Creek above the typical 1 to 2 NTUs range, the treatment system, combined with the dilution effect from the treated mine drainage, should provide compliance with the water quality criteria for turbidity.

Under major rainfall events, storm water would dominate the discharge at 001. While the levels of turbidity in the process area runoff are expected to increase, the polymer dosage applied to the runoff in the treatment ponds would be increased as well. In addition, when turbidity is greater than 5 NTUs in Sherman Creek, a greater increase would be allowed by the turbidity criteria. Tests conducted on simulated high rainfall runoff indicate that turbidity can be reduced with polymer addition to 6 NTUs under laboratory bench test conditions. Based on these results, the turbidity criteria should be met at the outfall.

Because similar background conditions are expected in Camp Creek, and the DTF settling pond system is comparable to the process settling pond system, the state turbidity criteria should also be met at outfall 002.

In addition to the data and analysis above, the following factors have led EPA to a finding that there is no "reasonable potential" to exceed turbidity criteria: (1) monitoring of natural (or upstream) conditions is not feasible at outfall 002 once the DTF and associated diversions have been constructed; (2) the TSS limitation addresses the same water quality issue (suspended solids) and will be controlling during high flows, when turbidity might be a concern; and (3) in its 401 certification, the state of Alaska asserted that the TSS limits in the permit assure compliance with turbidity requirements (the certification also required confirmatory monitoring).

Regarding reclamation, the Final Plan of Operations for the Kensington Mine will include a Final Reclamation Plan approved by the Forest Service. This Plan will include specific criteria to determine the success of reclamation practices. The operator will be required to maintain the settling pond systems (outfalls 001 and 002) and continue to implement the BMP Plan (storm water outfalls) during final reclamation. Proper design and maintenance of these systems will ensure compliance with the TSS limits and State water quality standard for turbidity.

Monitoring Requirements

Comment 12: Coeur commented: Coeur is committed to operating the Kensington project in an environmentally responsible manner which is exhibited by our project modifications designed to eliminate water quality issues. For this reason, Coeur respectfully requests that the monitoring and sampling programs be reviewed to provide for cost effective analyses of environmental conditions at the site during operations. The monitoring program includes effluent testing, sediment testing, whole effluent toxicity testing (acute and chronic WET), receiving water quality, and bioassays in the receiving environment. These tests are somewhat redundant in assessing the environmental conditions. Recent NPDES permits issued by EPA Region 10 in the past 2 years do not contain this level of testing and redundancy. Because the project significantly reduced water quality impacts to Sherman Creek, the monitoring program should reflect this situation and be consistent with other NPDES permits. If such monitoring is required, a provision to reduce the sampling and testing should be incorporated into the permit which analyzes the data collected and the effectiveness of the testing, including cost and data collection. Coeur requests the following to be considered as part of the permit:

- Monthly monitoring of key indicators (using the database, 5 to 8 key indicators)
- Twice yearly monitoring of Acute WET
- Once yearly monitoring of Chronic WET
- Once yearly sediment monitoring

Response: EPA has established sampling and monitoring requirements that it believes are necessary to evaluate the aquatic environment in the project area. Because this is a new project, in an environmentally sensitive area, the monitoring requirements are extensive. After a monitoring record during production conditions has been established, the Permittee may request and EPA may consider a reduction in the sampling and monitoring requirements if warranted by the previously collected data. The NPDES regulations, cited in the

reopener clause of the final permit, allow for modification of permit requirements based on new information (40 CFR 122.62).

Comment 13: Coeur commented in regard to the Fact Sheet, Page 11 Surface Water Monitoring, 1st paragraph: Station 106 is referenced to be located in Upper Ophir Creek. Station 106 is located in Sweeny Creek. The correct reference should be station 102.

Response: EPA acknowledges Coeur's correction that Station 106 is located in Sweeny Creek.

Comment 14: Coeur commented in regard to the Fact Sheet, page 30, d. Whole Effluent Toxicity: We understand that EPA recently issued a permit for the Alyseka Valdez Water Treatment Plant (AK-00234-8), and this permit contained an EC₂₅ provision as opposed to the use of NOEC. We request this be used in the Kensington Permit.

Response: An Effects Concentration (EC) result cannot be provided by the proposed toxicity tests in the permit. These test protocols measure growth and reproduction endpoints, rather than a threshold (yes/no) endpoint needed to establish an Effects Concentration. The Alyeska permit referenced in the comment requires the use of different toxicity test protocols, which in some cases provide data to calculate an EC result.

The state 401 certification has stipulated the use of the Inhibition Concentration (IC₂₅) rather than the NOEC for quantifying the chronic toxicity of the discharge. The IC₂₅ is a point estimate of the toxicant concentration that causes a 25% reduction in a nonlethal biological measurement (e.g. growth, reproduction). This testing endpoint is acceptable based on EPA guidance for whole effluent toxicity controls (Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991, pg. 6). This state stipulation is reflected in the final permit.

Comment 15: Coeur commented in regard to the Fact Sheet, Page 32, B. Stormwater: The Fact Sheet should refer to monitoring "representative" stormwater discharges as opposed to every culvert. This would be practically

impossible and economically unfeasible. Also, the provision that monitoring be initiated within 20 minutes of commencement of discharge is unrealistic. Rain events occur on a periodic basis at the project. Coeur suggests that a "trigger" event be established once operations have commenced and be driven by site response to rain events (duration and size).

Response: EPA does not believe that a requirement that each culvert be sampled once each quarter is unduly burdensome. The permittee should determine an appropriate "trigger" to select which storm event in the quarter will be monitored. If testing history supports the proposal that sampling a subset of the culverts will ensure the effectiveness of the BMPs provided, the permittee may formally request EPA modify the requirements for culvert monitoring.

Comment 16: Coeur commented in regard to the NPDES Permit Page 12, Part III, Monitoring, Recording, and Reporting Requirements, A.1 Effluent Monitoring Requirements: The monitoring requirements for outfalls 001 through 005 (Table 3 and 4) indicate very intensive sampling frequency. While this frequency may be appropriate for establishing a performance record during the initial operation of the mine, it may not be necessary to continue throughout the life of the permit.

Response: See response to Comment 12.

Comment 17: Coeur commented in regard to the NPDES Permit Page 14, Table 5: It is Coeur's understanding that only those parameters referenced in Table 1 require the listed detection and minimum levels in Table 5.

Response: Table 5 was included to insure that parameters with effluent limitations below the detection limit are monitored appropriately. The table included parameters that do not fall into this category. EPA has revised the table to include only those parameters (mercury, selenium, and silver) with limitations below the detection limit, referenced in Table 1.

Comment 18: Coeur commented in regard to the NPDES Permit Page 14, Part III Monitoring, Recording, and Reporting

Requirements, B.2 Effluent Toxicity Testing Requirements: If no significant problems are encountered during operations, toxicity monitoring could be reduced. Coeur believes that a reduction should be approved when the data indicate that no impacts are occurring.

Response: See response to Comment 12.

Comment 19: Coeur indicated that existing Station 109 may be impacted by the infiltration gallery to be constructed in Upper Sherman Creek. This could necessitate using an alternative background monitoring location. Coeur also requested the option of monitoring at an alternative location for Station 005.

Response: EPA has incorporated Coeur's suggestion into the Final Permit by including language requiring monitoring at Station 109 or an equivalent baseline location in Upper Sherman Creek. EPA has required that monitoring continue at Station 105 to provide a consistent location to evaluate pre- and post-operational effects on water quality in Lower Sherman Creek.

Comment 20: Coeur requested that they be able to use either GFAA or ICP for the metals in Table 6 other than mercury.

Response: In response to this comment, EPA has simplified the table (now Table 7) for sediment monitoring by eliminating the columns that list preparation and analysis methods. The detection limits are retained as the key requirement. This change provides the permittee flexibility to use a single analysis method (e.g. GFAA), provided the method achieves the listed detection limits. The permittee will be required to describe preparation and analytical methods in the Quality Assurance Project Plan (QAPP), which covers all monitoring under this permit.

Comment 21: Coeur requested the opportunity to request a reduction in benthic macroinvertebrate monitoring based on ongoing monitoring results.

Response: See response to Comment 12.

Comment 22: Mr. Chambers noted that the permit requires monitoring at existing Stations 109 and 105 and new stations downstream of outfalls 001 and 002. The Fact Sheet indicates that monitoring will be performed above and below outfall 001. The commentor suggests an inconsistency.

Response: EPA does not see inconsistency between the draft permit and Fact Sheet. Existing Station 109 is upstream from the proposed location of outfall 001 in Upper Sherman Creek, and the permit requires a new downstream station, between the discharge point and station 105 (located near the mouth).

Comment 23: Mr. Chambers commented that the frequency of monitoring spawning substrate is not specified in the permit. It is implied to be annual monitoring, but it should be explicitly noted in the permit as being required annually during July.

Response: EPA agrees. In the Final Permit, EPA has specified annual monitoring in July for spawning substrate monitoring.

Comment 24: ADEC commented: In general, the weekly sampling for metals and other parameters should be sufficient once the wastewater treatment system has been operating effectively. However, pilot-scale test data for the treatment system were used. In our experience, start-up of a wastewater system requires optimization time. ADEC recommends that the applicant be required to sample more frequently than once per week during the first six month compliance report. This should be shared in a public meeting. The report should also describe the efficacy of the treatment plant and any design changes that have been necessary.

Response: While EPA anticipates additional testing by the permittee to optimize treatment plant performance, EPA does not believe the permit should require more frequent monitoring. Note that Part III.H. of the Final Permit requires that the results of any more frequent monitoring performed by the permittee be reported on the facility's DMRs. All information submitted by the permittee would be available to the public.

Comment 25: ADEC commented: For effluent monitoring requirements, Table 3 should include weekly in-stream turbidity monitoring at a location to be specified after discussion with EPA and the applicant. ADEC may include additional turbidity monitoring and reporting requirements in the 401 certification.

Response: The Final Permit includes weekly in-stream turbidity monitoring above and below the discharges from outfalls 001 and 002. The Quality Assurance Project Plan (QAPP) submitted to EPA will specify monitoring locations.

Comment 26: ADEC commented: ADEC should be consulted for determining the location for downstream monitoring of hardness. Hardness will affect metals solubility. If hardness elevation is seen, the influent data could be examined to determine a source for hardness increase. Since no hardness monitoring is now listed for influent/effluent, it may be difficult to track sources.

Response: The Permittee will select the specific location for downstream hardness monitoring and report this location in the Quality Assurance Project Plan (QAPP). EPA has added a review and approval condition to the QAPP requirements in the Final Permit. This enables EPA, in consultation with ADEC, to review and require a modification to sampling locations if deemed necessary.

Hardness data are only used to determine the toxicity of specific metals parameters downstream of the discharge.

Comment 27: ADEC commented in regard to the required detection levels and minimum levels: This table should include a footnote referring to EPA's definitions of method detection limits and minimum levels as described in section VI, Definitions, notes 18 and 20.

Response: This comment is addressed in the Final Permit.

Comment 28: ADEC commented in regard to the Effluent Toxicity Testing Requirements, Under 2: chronic tests: The fact sheet (page 30) describes the selected test organisms (daphnia, fathead minnow, and algae

species) as EPA standards. ADEC's regulation on whole effluent toxicity limits (18 AAC 70.030) gives the department discretion to require that chronic WET tests use "sensitive and biologically important life stages of indigenous species." ADEC recognizes that lack of accepted test protocols for and year-round availability of indigenous species makes this requirement difficult to implement. Use of standard test organisms is acceptable, especially with the inclusion of an aquatic plant, since it may be more sensitive to some effluent constituents than the minnow and water flea. The schedule of rotation for use of these three test species over the year and rationale for the rotation should be reviewed by EPA and ADEC before testing starts. For instance, the use of the algal species may be preferred during low flow conditions.

Response: Comment noted. The state of Alaska did not stipulate any changes to the toxicity testing species or rotation schedule in its 401 certification.

Comment 29: ADEC commented in regard to the receiving water monitoring program: III.C.: Under water column monitoring, ADEC notes under 1. That the winter freeze up conditions at Station 109 may prevent sampling. In such a case, the applicant should sample downstream of Station 109 where a flow can be sampled and notes made as to actual sample location. This is preferred over not sampling at the site. Under annual sediment monitoring, note that ADEC does not have sediment standards. Under Section b, biological testing of sediments, chironimus tentans is listed as one of the test species. Although lab protocols are available for this test species, it generally occurs in lakes; another chironimid species may be more appropriate to reflect stream conditions. ADEC suggests that EPA toxicologists be consulted on its use.

Response: In order to provide consistent baseline data, it is important that data be collected from the same locations. If freezing prevents sampling at Station 109 or any other long-term monitoring location, this should be noted in the monitoring results. Comment noted related to the lack of sediment standards.

Chironomus tentans are standard organisms for toxicity testing and should provide useful data.

Comment 30: ADEC commented in regard to aquatic resources: The sections on benthic invertebrate sampling, resident fish studies, tissue analysis, and spawning and spawning substrate monitoring should be reviewed by the Alaska Department of Fish and Game (ADF&G), Habitat Division, before the final NPDES permit.

Response: ADEC and the Alaska Division of Governmental Coordination consulted with ADF&G prior to completing 401 certification of the permit and the Coastal Zone Management finding.

Reporting Requirements

Comment 31: The U.S. Department of the Interior commented as follows: It is unclear if the notification levels for toxic pollutants of contaminants that are included in, 1 a-c and 2 a-c, are levels that are acutely toxic to aquatic organisms. No pollutants are included in part 1a and 2a. Although this section appears as standard language in many NPDES permits, allowable concentrations, as stated in this section of the permit, should not be toxic to aquatic organisms. If discharges of pollutants occur that are toxic, than remedial actions must be immediate to reduce injury to resident aquatic organisms.

Response: The cited conditions are required by 40 CFR 122.42 to be included as "boilerplate" in all NPDES permits for existing manufacturing, commercial, mining, and silvicultural dischargers. They represent a safeguard in case of unanticipated discharges of pollutants not accounted for in the development of the permit. EPA believes that the individual constituent and toxicity testing limits included in the Final Permit provide for protection of human health and aquatic life at the Kensington Gold Project site.

Comment 32: ADEC commented: Because cadmium, copper, lead and zinc are hardness-dependent limits, ADEC requests

that the measured hardness at the time of sample collection be included on the Discharge Monitoring Report.

Response: The Draft Permit requires samples to be analyzed for hardness and hardness-dependant parameters on the same day. In addition to this requirement, the Final Permit specifies that monthly discharge reports include all individual sample results and sampling dates for hardness-dependant parameters as well as the corresponding hardness levels.

Comment 33: ADEC commented: ADEC requests that copies of the BMP plan and updates be submitted to the Department. It may be more relevant to request the BMP plan receipt date in terms of construction start date rather than permit issuance date.

Response: The Final Permit requires that a copy of the BMP Plan and any subsequent updates be submitted to ADEC by the permittee. The Final Permit continues to require that the BMP Plan be submitted within 6 months of permit issuance. EPA notes that the permit also requires that the plan be kept up-to-date.

Comment 34: ADEC commented: ADEC requests that EPA and the applicant identify who will serve on the BMP committee. ADEC requests that the Department and the U.S. Forest Service get copies of the BMP statements described in this section.

Response: EPA believes the the BMP Plan requirement to identify the structure and function of the BMP committee is adequate. The permit has been changed to provide for distribution of the BMP statements to ADEC and Forest Service by the Permittee.

Permit Application and Proposed Actions

Comment 35: Coeur commented: The permit should address the applicant's ability to increase the Water Treatment Plant (WTP) incrementally, based on actual mine water flows. For example, the current level of mine development accounts for flows in the range of 200-400 gpm. Flows may ultimately exceed 1,000 gpm in

the late stages of mining. The permit should be drafted to reflect this situation.

Response: The final NPDES permit does not require a specific installed capacity for the WTP. The Fact Sheet noted a requirement that, prior to the issuance of the Final Permit, Coeur demonstrate that the capacity of the mine drainage treatment facility will be increased (incrementally) to handle the maximum anticipated mine drainage flow. This was accomplished through correspondence from Coeur Alaska to EPA on May 19, 1997. It is the permittee's obligation to have sufficient treatment capacity installed to treat all mine drainage water being produced. If the permittee chooses to expand the WTP in incremental steps, completion of each increment must be accomplished prior to the need for the additional capacity.

Comment 36: Coeur commented: The Water Management - Mill Area Combined Discharge (outfall 001) section of the Fact Sheet describes the areas and potential stormwater sources that will be directed to the sediment ponds. The area associated with contact water and mill area is difficult to discern. The till borrow area is actually outfall 004 and should not be included in this section. Also, the sand and gravel area will effectively operate in the same manner as the borrow area. Only extreme storm events will be directed to the sediment pond. Certain portions of the haul road in the vicinity of the borrow sites will be handled as incidental stormwater and will utilize Best Management Practices (BMPs) to minimize sediment loading.

Response: EPA acknowledges that the discharge from the till borrow area will be through outfall 004. This is a storm water outfall. Based on additional discussions with the permittee reflected in the Final SEIS, EPA understands that any runoff from the south sand and gravel borrow area will also be discharged separately as storm water. This is represented by new outfall 006 in the Final Permit. Runoff from portions of haul road that is not collected in the process area pond would be discharged through outfall 005, which represents all of the storm water discharges from the haul road collectively.

Comment 37: Coeur commented in regard to the Fact Sheet Page 3, Water Management, Mine Discharge 3rd paragraph: It is very difficult technically and extremely costly to backfill waste solids (sludge) from the floc tank. The DTF design consultant has indicated that these solids can be easily mixed with tailings in the DTF. The volume is, comparatively, a small fraction of the "mix" when considering the relative volume. Therefore, Coeur suggests waste solids from the water treatment plant will be sent to the milling circuit and incorporated as part of the mill water and solids balance program.

Response: EPA believes that the discharge of water treatment plant solids (sludge) to the milling circuit would be a violation of Section IV.F. of the draft permit. This section requires any solids, sludges, or pollutants... be disposed of in a manner such as to prevent...such materials from entering navigable waters. Because leachate from the DTF will be discharged through Outfall 002, disposal of treatment solids (containing previously removed pollutants) to either the milling circuit or directly to the DTF is prohibited. EPA has determined that it is reasonable to require dewatered solids from the treatment facility to be disposed with the backfilled tailings, as they will comprise only a tiny fraction of the backfill "mix".

Comment 38: Coeur commented in regard to the Fact Sheet Page 6, Water Management, Domestic Wastewater Discharge (outfall 003): The beach domestic waste facility will be used to house construction personnel. The information should be corrected to reflect this proposal.

Response: EPA acknowledges Coeur's clarification that only the construction workforce will be housed at the beach.

Comment 39: Coeur commented: Laboratory wastes will be comprised of assay wastes and liquids. The assay wastes include cupel crucibles and other similar items, which will be disposed of in an approved manner off-site. However, typically wastewater associated with assay and metallurgical laboratories only exhibit an acidic or basic characteristic. Therefore, these liquid wastes will be neutralized prior to

discharging wastewater into the milling circuit for reuse.

Response: EPA is concerned that wastewaters from the assay lab may contain metals at higher concentrations than are permitted for discharge at outfall 002. In the final permit, EPA requires that wastewater from the assay lab be disposed of as hazardous waste, or routed to the wastewater treatment plant. EPA has added the following as a condition of the permit:

"Wastewaters containing metals from laboratory activities will be directed to the wastewater treatment plant, or disposed of as hazardous waste. Any waste waters from other sources discharged to the milling circuit for reuse must meet the pollutant limits established for outfall 002 prior to discharge to the milling circuit."

Comment 40: Coeur commented in regard to the Fact Sheet Page 22, b. BCT Domestic Wastewater (Outfall 003): The domestic wastewater plant will handle beach camp effluent.

Response: EPA acknowledges that the wastewater treatment plant will handle beach camp effluent.

Comment 41: Coeur commented in regard to the Fact Sheet, Page 4, Foundation Drains 2nd paragraph: This section describes the requirement to construct the drain system 18 months before initial tailings placement. This will not be possible as DTF construction will be an ongoing activity in each cell as it is advanced. Certain drain construction QA/QC will dictate when drains must be constructed to meet design specifications.

Response: EPA intended that the Fact Sheet describe (rather than require) the plan for construction of the underdrain system 18 months before tailings placement. The Draft and Final Permit contain no requirement related to the underdrain construction schedule.

Miscellaneous Issues

Comment 42: Mr. Charlie Ott commented that "the mine should not be permitted at all" because "waters are being polluted at an alarming rate" and "gold is not a very necessary material."

Response: The proposed Final Permit is consistent with all aspects of the Clean Water Act. EPA does not have the authority to deny a permit to a mine based on whether the mine is "necessary."

Comment 43: Mr. Ott commented that EPA should consider the effects of all pollutants from mining operations in the area; suggesting 50-mile radius from the project.

Response: There are no other point source discharges of pollutants in the immediate vicinity of the Kensington Gold Project that would effect water quality. Further, the process water discharges from the Kensington Gold Project will be required to achieve water quality standards, which protect against harmful effects, at the discharge points through the limitations in the Final Permit.

Comment 44: Coeur commented in regard to the Fact Sheet, Page 3, Water Management, Mine Discharge 1st paragraph: Mine water associated with the operations will be routed through the water treatment plant. It is important to note that development activities are those activities associated with initial construction and routine expansion of the underground workings to access the ore body. Development activities associated with construction (18 month period) will not be part of the mine discharge requirements, but will use BMPs as dictated by the EPA's Construction General Permit.

Response: EPA's Construction General Permit applies to storm water only discharges. The existing mine drainage discharge (outfall 001) is not a storm water only outfall, therefore the Construction General Permit does not apply to this discharge. All limits included in Part 1 of the Final Permit will apply on the effective date of the permit.

Based on recent monitoring data, EPA recognizes that Coeur may be able to comply with all permit limits

for the existing mine drainage (i.e. pre-milling operations) without treatment. Therefore, EPA is not requiring construction of the mine drainage treatment system prior to initiation of full-scale milling operations for gold recovery. If compliance is not achieved during the exploration/construction period, EPA will issue an administrative order establishing a schedule for construction of the treatment facility.

Comment 45: Coeur commented: There is a discrepancy between the permit number as it appears on the Fact Sheet and the Permit. It appears that the Fact Sheet has the correct number.

Response: The Final Permit reflects that the Permit Application Number and Permit Number for this facility are AK-005057-1.

Comment 46: Coeur commented in regard to the Fact Sheet Page 14, Mine Drainage 1st paragraph: There is a reference to 2 mg/l or less of ammonia. The number should be 10 mg/l or less.

Response: The cited fact sheet discussion summarizes the available studies of the effectiveness of BMPs to reduce ammonia levels in mine drainage. Results of BMPs varied depending on the explosive type and other factors. Several studies indicated that 2 mg/l or less could be achieved. However, this may require a substitution in explosive type (e.g. from ANFO to water resistant emulsion or gel) used in the mine.

The applicable water quality criteria for ammonia will require that the outfall 001 discharge meet a monthly average limitation of 1.7 mg/l. EPA believes that implementation of BMPs for explosives use will allow the permittee to meet this limit. In the event this limit is exceeded, additional treatment for ammonia reduction will be required.

Comment 47: Coeur commented in regard to the Fact Sheet Page 22, C.2. Wasteload Allocation and mixing zone Boundary: No mixing zone application has been submitted for outfalls 001 and 002. However, outfall 003 does have an existing mixing zone which Coeur is required to

apply for at this time to meet applicable water quality criteria for domestic wastewater.

Response: After issuance of the Draft Permit, Coeur applied for a mixing zone for outfall 003 - the discharge from the proposed upgraded sanitary treatment plant at the beach. The existing marine discharge of domestic wastewater had a mixing zone granted by the state and incorporated into a state wastewater discharge permit. In its 401 certification for this NPDES permit, the state has granted a new mixing zone for fecal coliform bacteria at outfall 003. Coeur is required to meet end-of-pipe limits designed to achieve fecal coliform criteria at the edge of the mixing zone.

Comment 48: Coeur commented in regard to the NPDES Permit Page 4, Part I.B.: This requirement assumes that outfall 001 is related to the mill activities. Outfall 001 is the treated mine effluent and stormwater (mill area) discharge point. Therefore, startup of the water treatment plant should not be tied to the mill circuit, and Coeur requests that this provision be removed or revised to reflect effluent sources which contribute to outfall 001.

Response: EPA has decided to use the startup of the mill circuit as the determining factor as to when exploration/construction ends and production begins. This is a more flexible approach than using a fixed 18 month construction period, and more straightforward than a trigger based on specific mine development activities. Coeur has not provided an alternative trigger for treatment plant startup. See also response to Comment 44.

It should also be noted that EPA has added a requirement that the Permittee notify EPA and ADEC at least 30 days prior to commencement of milling.

Comment 49: Coeur commented in regard to the NPDES Permit Page 4, Part I.C.: Contact water zones have been identified in the Fact Sheet. This section should specifically reference those areas which impact outfalls 001 and 002.

Response: EPA believes that the language in Part I.C. adequately defines the affected areas.

Comment 50: Coeur asked for clarification of the duration of the permit.

Response: The duration of the Final Permit is 5 years. EPA notes, however, that a permit can be continued beyond the expiration date under the NPDES regulations (40 CFR 122.6).

Comment 51: John Swans commented that he opposes the project because it will destroy many resources, including the marine and wetland resources.

Response: EPA acknowledges this comment, but EPA does not agree. The Final Permit conditions will ensure compliance with all applicable water quality standards and thereby protect marine, fresh water, and wetland resources around the project area. Filling of wetland areas in support of mining construction activity is subject to the 404 permit program, administered by the Corps of Engineers, and not this NPDES permit.

Comment 52: The City and Borough of Juneau (CBJ) made several comments on the draft SEIS related to acid generation potential.

Response: See responses to CBJ's comments in Volume II of the Final SEIS (Pg. A-128).

Comment 53: The State of Alaska Department of Environmental Conservation (ADEC) commented: Some of the comments (by ADEC) will be developed as stipulations that will be carried through to the Department's 401 certification. Other stipulations from the Alaska Coastal Management Program (ACMP) review may appear in the certification as well. Concurrent with this permitting actions, ADEC also has separate actions on site specific water quality criteria for Sherman and Camp Creeks for total dissolved solids (TDS). The TDS limit may be revised from the limits shown in the Draft Permit pending ADEC decision on these criteria.

Response: Comment noted.

Comment 54: ADEC commented: ADEC notes that some stipulations on construction Best Management Practices (BMPs) will also be included in the Department's 401 certification of the Army Corps of Engineers 404 permit. The U.S. Forest Service may also specify such BMPs.

Response: Comment noted.

Comment 55: ADEC commented: A 100-foot radius mixing zone to dilute fecal coliform is included in the existing state wastewater permit for the domestic outfall discharge. ADEC and the applicant are finalizing a mixing zone for a discharge averaging 30,000 gpd. Due to fisheries resources in the area, ADEC is not recommending chlorination of this discharge. We will include the size of the mixing zone in our 401 certification. ADEC will need to discuss inspection authority and monitoring requirements for the package plant with EPA since we will no longer have a wastewater permit for the facility.

Response: The Final Permit reflects the mixing zone for fecal coliform bacteria granted by the State for outfall 003.

Comment 56: ADEC commented: ADEC will be requiring an engineering plan review of the wastewater treatment facilities.

Response: Comment noted.

Comment 57: ADEC commented in regard to the Specific Best Management Practices: Under (a), there could be a reference to the explosives management plan that Coeur has already completed. Under (b), please note that the ADEC Solid Waste program under 18 AAC 60 does not regulate RCRA wastes. Under (c), note the ADEC C-Plan is more comprehensive than EPA's SPCC plans. EPA may consider either waiving the requirement for a separate SPCC plan since the same information will be in the C-Plan or substituting the state plan in this section.

Response: Comments (a) and (b) are noted. EPA must require the facility to develop and implement an SPCC Plan.

The Final Permit includes a requirement for compliance with both the SPCC Plan and the facility's C-Plan. EPA recognizes that there may be significant overlap between the two plans.

Comment 58: ADEC commented: Since nitrate and ammonia are being sampled because of the underground use of ammonium nitrate fuel oil (ANFO) explosives, the applicant will need to be able to track routine and non-routine use of these agents. High nitrates could potentially elevate ammonia, nitrate, and TDS levels from mine discharges and it is important to trace causes of exceedences. Also, the permit is not monitoring hydrocarbons and they are the second component of the explosives mix. Effective fuel/water separation underground will be a key BMP if a permit limit will not be included. The effectiveness of the BMP program to minimize underground ammonia, nitrate, and fuel spillage should be included in the six month compliance report suggested above.

Response: EPA believes the nitrate, ammonia, and toxicity limits in the Final Permit are sufficient to ensure that the permittee implements effective BMPs for explosives.

Comment 59: ADEC commented in regard to page 2, under *Mill Area Combined Discharge (Outfall 001)*: ADEC has some concern about operations during sediment removal from the ponds. Since the facility is a continuous flow operation, temporary shutdowns may be required. Also, pond cleaning may increase TSS. BMPs should be specific in describing plans for and timing of these operations.

Response: The Final Permit requires that the BMP Plan include specific measures to ensure proper operation and maintenance of treatment facilities, including during sediment removal practices.

Comment 60: ADEC commented: The U.S. Forest Service should be consulted for additional stormwater control options near the process area and concentrate transfer points. Flocculent additions should be only one of these options.

Response: The BMP Plan will be required to identify and implement storm water controls. Copies of this Plan will be sent to ADEC and Forest Service by the permittee.

Comment 61: ADEC commented in regard to page 4, under *DTF Discharge (Outfall 002)*, Foundation Drain: ADEC notes that the use of beach gravel for foundation drains is subject to a DNR material sales permit which Coeur applied for on April 4, 1997.

Response: Comment noted.

Comment 62: ADEC commented in regard to page 13, under V. Discharge Composition, *Mine Drainage*: ADEC notes that the maximum measured TDS in Table V.1 (1,269 mg/l) exceeds the proposed site specific criterion of 1,000 mg/l. This was attributed to explosives spillage. Again, ADEC requests that the BMPs for underground explosive management require the operator to track any events that could cause a TDS exceedence.

Response: EPA believes that the ammonia, nitrate, and toxicity limits and BMP plan requirements included in the Final Permit will be adequate to ensure proper explosives management, including any potential TDS releases.

Comment 63: ADEC commented in regard to page 14, under Process Area Stormwater: Concentrate handling BMPs need to be reviewed for corrective action plans for accidental spillage of concentrate in stormwater drainage areas.

Response: Concentrate transfer to ISO containers would occur in the process area with runoff directed to the process sediment pond. The BMP Plan specifically requires detailed information on materials handling and spill response practices. During transport to and at the beach area, all concentrate would be in ISO containers and not subject to potential releases/exposure to runoff.

Comment 64: ADEC commented in regard to page 27, under Effluent Limitations for outfalls 001, 002 and 003: ADEC notes that Coeur submitted a mixing zone application

and modeling data to the Department on April 4, 1997. ADEC and Coeur are working on a final mixing zone for dilution of fecal coliforms. A mixing zone for fecals is preferred by the Department over chlorination since total residual chlorine discharge is not desired in the vicinity where salmonid spawning and commercial and subsistence fishing occur.

Response: See response to Comment 47.

Comment 65: At the Haines Public Hearing, Mr. Tim June commented: The agencies and the state need to enforce water quality standards strictly. They exist to protect aquatic life and human health. Coeur's site-specific criteria do not meet the state's anti-degradation standards.

Response: EPA agrees that compliance with water quality standards must be ensured. The NPDES permit conditions are based on the approved water quality standards at the time of permit issuance. The site-specific criteria for TDS are approved Alaska water quality standards. The Kensington permit fully implements the Alaska water quality standards, including anti-degradation requirements.

The anti-degradation regulation does not apply to changes to state water quality standards; however, it does apply to permit actions. The state has developed a detailed anti-degradation finding, in the 401 certification, authorizing the introduction of lower quality discharges (up to the permit limit values) into the higher quality receiving waters. The state's analysis and finding addresses the anti-degradation regulation.

Comments not responded to and rationale:

William Corbus - cc: to Ben Cope of comments on the draft SEIS. Comments only apply to SEIS and site-specific criteria request.

Scott Spickler - cc: to Ben Cope of comments on the draft SEIS. General comments in support of the project.

Danny Pruhs - cc: to Ben Cope of comments on the draft SEIS. Comments only apply to SEIS site-specific criteria request, and

support of reclamation as proposed in the draft 404 permit public notice.

Kulwan, Inc. - cc: to Ben Cope of comments on the draft SEIS. Comments only apply to SEIS site-specific criteria request, and support of reclamation as proposed in the draft 404 permit public notice

Central Council Tlingit and Indian Tribes of Alaska - cc: to Ben Cope of comments on draft SEIS. General support of projects, including economic benefits on native Alaskans.

State of Alaska, Department of Fish and Game - cc: to Ben Cope of comments on draft SEIS. No comments related to water quality or NPDES permit.

Southeast Conference - cc: to EPA of comments on draft SEIS. No comments related to water quality or NPDES permit.

Sitka Tribe of Alaska - cc: to EPA of comments on draft SEIS. No comments related to water quality or NPDES permit.

U.S. Forest Service - cc: to EPA of comments to ADEC on site-specific criteria request.

Goldbelt - cc: to EPA of comments on draft SEIS. No comments related to water quality or NPDES permit.

Tim June - public hearing comment on the site-specific criteria request.