Department of Environmental Conservation
Response to Comments

For

Hecla Greens Creek Mining Company, Greens Creek Mine

APDES Permit No. AK0043206

Public Noticed May 2, 2014 – June 2, 2014

August 7, 2015

Alaska Department of Environmental Conservation
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

1 Introduction

1.1 Summary of Facility / Permit

The Greens Creek Mine is a lead, zinc, silver, and gold mine and mill located on the northwest portion of Admiralty Island approximately 18 miles southwest of Juneau, Alaska. The mine and mill are owned and operated by the Hecla Greens Creek Mining Company (HGCMC). The facility has been in operation since 1989 with a period of temporary shutdown between April 1993 and 1996. At an average production rate of 2,200 to 2,400 tons of ore per day, HGCMC predicts an additional 10 year mine life.

The Alaska Pollutant Discharge Elimination System (APDES) permit proposes to authorize the discharge of treated wastewater into Hawk Inlet. The APDES permit proposes to authorize a mixing zone in Hawk Inlet for pH, copper, cyanide, lead, mercury, and zinc. The APDES permit also proposes to authorize the discharge of storm water from ten outlets into Greens Creek, Hawk Inlet, wetlands, and Zinc Creek.

1.2 Opportunities for Public Participation

The Alaska Department of Environmental Conservation (DEC or the Department) proposes to issue an APDES wastewater discharge permit to HGCMC. To ensure public, agency, and tribal notification and opportunities for participation during the permit development process, the Department completed the following:

- identified the permit on the annual Permit Issuance Plan posted online at: http://www.dec.state.ak.us/water/wwdp/index.htm
- notified potentially affected tribes that the Department would be working on this permit via letter, fax and/or email
- formally published public notice of the draft permit on May 2, 2014 in the Juneau Empire and posted the public notice on the Department's public notice web page
- sent email notifications via the APDES Program List Serve when the preliminary draft, draft, and proposed final permits were available for review

The Department also requested comment from the Alaska Department of Natural Resources (ADNR), Alaska Department of Fish and Game (ADF&G), the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Environmental Protection Agency (EPA).

The Department received comments from six interested parties on the draft permit and supporting documents: 1) ADF&G, 2) Center for Science in Public Participation (CSP2), 3) EPA, 4) Friends of Admiralty Island (Friends), 5) HGCMC, and 6) Southeast Alaska Conservation Council (SEAAC).

This document summarizes the comments submitted and the justification for any action taken or not taken by DEC in response to the comments.

1.3 Final Permit

The final permit was issued by the Department on PENDING. There were no changes to the public noticed permit. Significant changes are identified in the response to comments and reflected in the final fact sheet for the permit.

2 Minor Comments

The Department received several comments that were minor typographical/formatting comments or were the same or very similar to comments that were submitted by other entities. The Department did not include these minor or duplicative comments in this Response to Comments Document, but as appropriate, did make necessary updates to the permit and fact sheet in response to the identified typographical/formatting errors, and addressed duplicative comments through one Department response below.

3 Comments on Effluent Limits and Monitoring Requirements

3.1 Comment Summary

CSP2 commented that the effluent discharge limits at outfall 002 (particularly the limits for metals) should be derived from water quality-based effluent limits (WQBELs).

Response:

As explained in the fact sheet, for each contaminant of concern, the WQBELs and applicable technology based effluent limits (TBELs) were evaluated and the most stringent limits were selected. The effluent limits for copper, cyanide, lead, and mercury are derived from the most stringent WQBELs for the designated use classes for Hawk Inlet. The effluent limits for cadmium, zinc, and TSS are based on TBELs, which were determined to be more stringent than the WQBELs. The Department has determined that no change to the permit is necessary based on this comment.

3.2 Comment Summary

EPA requested the basis for establishing permit limits for cyanide if the reasonable potential analysis (RPA) indicated no reasonable potential to exceed Alaska Water Quality Standards (WQS).

Response:

This comment refers to Table B-4 (*Reasonable Potential Determination for Outfall 002*) of the fact sheet. Table B-4 correctly states that there is no reasonable potential to exceed cyanide WQS at the boundary of the mixing zone. However, there was found to be reasonable potential that cyanide WQS will be exceeded at the end-of-pipe. In addition, permit limits are derived for the driving parameter consistent with Department Reasonable Potential Analysis/Effluent Limit Guidance. Consequently, permit effluent limits for cyanide were developed and a mixing zone was authorized that provides enough dilution to meet all WQS, including cyanide, at the boundary of the mixing zone. The Department has determined that no change to the permit is necessary based on this comment.

3.3 Comment Summary

EPA suggests that the DEC consult EPA's *Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies* to ensure that the justification for reducing cyanide sampling is consistent with EPA guidance (as allowed under Section 1.2, Table 2 of the permit). EPA recommends that the permittee be required to notify DEC—and receive approval—prior to reducing cyanide monitoring frequency.

Response:

The necessary conditions for reducing the frequency of cyanide sampling are established in the permit. For consistency, the Department deferred to EPA's decision requiring the same reduction of monitoring frequency notification requirements as imposed by the previous permit. Changing the sampling frequency is valid in accordance with 18 AAC 83.135(b). The justification for reducing the sampling frequency is provided in the fact sheet and has been done in accordance with methods established in the previous NPDES permit. DEC agrees with EPA's recommendation to require notification and approval before reducing the monitoring frequency for cyanide and has updated the permit accordingly.

3.4 Comment Summary

EPA recommended that screening level (at a minimum) monitoring for Whole Effluent Toxicity (WET) be required.

Response:

The previous NPDES permit discontinued WET testing because the RPA indicated that there is no reasonable potential for WET. The current permit includes more stringent effluent limits for copper, lead, and mercury and a new limit for cyanide (previously no limit). The effluent limits for copper and lead have been significantly reduced. Since issuance of the previous permit in 2005, the permittee has made substantial upgrades to the site-wide storm water management and wastewater treatment systems. One of the consequences of these upgrades is that a greater proportion of storm water is being captured and, accordingly, the influent is more dilute. Given the finding of no reasonable potential in the previous permit, the more stringent effluent limits in the current permit, improvements to storm water management that improve the quality of influent, and consistently high quality effluent, the Department could only find reasons supporting EPA's earlier determination to discontinue WET testing. The Department determined that WET testing should not be required. The Department has determined that no change to the permit is necessary based on this comment.

3.5 Comment Summary

The permit requires sampling the effluent from HGCMC's two domestic wastewater treatment plants as required by 18 AAC 72.050. EPA stated that—if the secondary wastewater treatment standards in 40 CFR § 131 cannot be met—a compliance schedule may be incorporated into the permit.

Response:

DEC assumes that EPA meant to cite 40 CFR § 133—Secondary Treatment Regulation. HGCMC's domestic wastewater treatment plants do not discharge directly to waters of the U.S, nor are they publicly owned treatment works explicitly subject to 40 CFR § 133. The effluent discharged from the two plants undergoes further treatment prior to discharge (see Section 2.2 of the fact sheet for a description of the facility wastewater flow and treatment works). As such, the appropriate regulatory mechanism is

incorporation of 18 AAC 72.050. The Department has determined that no change to the permit is necessary based on this comment.

3.6 Comment Summary

HGCMC requested that more than five years of effluent data be used in establishing effluent limits.

Response:

The Department determined that the five years of effluent data is representative of the current conditions of the effluent discharged from the facility. The use of five years of effluent data in calculating permit limits is a guideline that the Department applies to all APDES permits unless determined to be unrepresentative of the facility's effluent. The Department has determined that no change to the permit is necessary based on this comment.

3.7 Comment Summary

HGCMC indicated that the due dates for discharge monitoring reports (DMRs) listed in Table 1 and Appendix A of the permit are inconsistent.

Response:

The Department revised the text in Table 1 to be consistent with Appendix A of the permit.

3.8 Comment Summary

HGCMC indicated that Table 6 of the fact sheet includes a footnote on BOD_5 sampling at outfall 002 that is not included in the permit.

Response:

The Department revised the permit to agree with the fact sheet.

3.9 Comment Summary

HGCMC indicated that the sample type for BOD_5 is listed as "24-hour composite" in Table 2 of the permit and "grab" in Table 4 of the fact sheet.

Response:

The Department corrected the permit to agree with the fact sheet.

3.10 Comment Summary

HGCMC indicated that the footnote concerning the sampling interval for cyanide in Table 2 of the permit and the footnote in Table 4 of the fact sheet are inconsistent.

Response:

The Department corrected the fact sheet to agree with the permit. In both the permit and the fact sheet the number of months of consecutive non-detects required to trigger a reduction in cyanide sampling frequency was changed from three months to four months (16 weeks).

3.11 Comment Summary

HGCMC indicated that the requirements for reporting pH excursions in Section 1.2.4.2 of the permit is inconsistent with the text in Section 1.2.4.3.

Response:

The Department revised the text in Section 1.2.4.3 to be consistent with Section 1.2.4.2.

3.12 Comment Summary

HGCMC indicated that Note b in Table 3 of the permit and Note b in Table 5 of the fact sheet are inconsistent.

Response:

The Department revised the Note b in Table 5 of the fact sheet to be consistent with Note b in Table 3 of the permit.

4 Comments on Mixing Zone

4.1 Comment Summary

CSP2 commented that the mixing zone (especially the acute portion) is too large. CSP2 suggests that the size of the acute mixing zone can be reduced by keeping cyanide contaminated water inside the mill and by capturing cyanide contaminated drainage from the tailings pile and sending it back to the mill. CSP2 suggests that the size of the chronic mixing zone be reduced by requiring lower effluent standards for lead.

Response:

The commenter recommends that cyanide contaminated water be kept inside the mill. HGCMC treats and recycles process water at the mill. However, that does not eliminate the need to add fresh water on occasion. When fresh water is added to the mill, process water is treated to remove cyanide and then sent to the Wastewater Treatment Plant (WWTP) for further treatment. Mixing zones were authorized according to applicable regulations and written Departmental guidance. The following excerpt from that guidance offers more detail. “The discharge should be modeled using an appropriate water quality mixing zone model and any related guidance developed by DEC. Once the modeling is completed, the permit writer should determine the acute and chronic mixing zone sizes and applicable dilution factors for each modeled pollutant. The driving parameter (i.e., parameter requiring the most dilution) should be determined as well as the associated driving parameter dilution factor. The driving parameter dilution factor will apply to all chronic and human health pollutants where a mixing zone has been requested. The driving acute parameter will likewise apply to all acute pollutants.” Cyanide was the parameter that required the most dilution and thus drove the mixing zone size.

The effluent limit for lead has been significantly reduced from the effluent limit prescribed in the previous NPDES permit. An effluent limit for cyanide, which did not previously have a limit, has been developed. The size of the mixing zone has been reduced by 56% from the previous permit. Size requirements for mixing zones can be found in 18 AAC 70.240, 18 AAC 70.245, 18 AAC 70.250, and 18 AAC 70.255, as amended June 26, 2003. The mixing zone authorized in this permit complies with all mixing zone size requirements under 18 AAC 70. The Department determined that no change to the permit is necessary based on this comment.

4.2 Comment Summary

CSP2 questioned DEC’s decision to use technology-based effluent limits instead of WQBELs.

Response:

This statement is in error. For each permit limit, the Department considered the applicable technology-based and derived WQBELs, and selected the most stringent limit. The Department determined that no change to the permit is necessary based on this comment.

4.3 Comment Summary

HGCMC requested that the reference to pH be removed from Section 1.5.2, which discusses the mixing zone.

Response:

The permit imposes TBELs for pH ranging from 6.0 to 9.0 standard units (s.u.). Since the pH WQS allow a range from 6.5 to 8.5 s.u. and effluent data indicates that the effluent cannot always meet that WQS, dilution offered by the mixing zone is necessary to accommodate the pH effluent limit range of 6.0 to 9.0 s.u. The Department has determined that no change to the permit is necessary based on this comment.

4.4 Comment Summary

HGCMC, SEAAC, and Friends commented noting Section 5.5 of the fact sheet states that Station 108 is located near the mixing zone and, consequently, cannot be used as an indicator of background water quality.

Response:

The comment is accurate. Confusing language in Section 5.5 of the fact sheet has been clarified. It now states that Station 108 monitors water quality near the mixing zone where it previously stated that 108 provides background water quality outside the mixing zone.

4.5 Comment Summary

SEAAC and Friends commented that the dimensions of the mixing zone provided in the permit do not adequately account for the inherent uncertainty in the CORMIX modeling and in the baseline data from the Hawk Inlet Monitoring Program.

Response:

The Department generally uses the CORMIX mixing zone software to model mixing zones. The CORMIX software is also approved by EPA. CORMIX has been shown by practical laboratory and ambient demonstrations, monitoring results, and dye studies at other outfalls to provide reasonable estimates of mixing zone sizes. In addition to relying on a predictive model, the permit requires water quality monitoring, biological monitoring, and reporting to verify that designated and existing uses of the receiving water are protected. The Department has determined that no change to the permit is necessary based on this comment.

4.6 Comment Summary

SEAAC and Friends objected to the use of cyanide to size the mixing zone. SEAAC and Friends believe that the cyanide sample used to size the acute area of the mixing zone is an outlier and had concerns about method detection limits.

Response:

The Department can only reject data based on objective information acquired during sampling. The Department lacks information that would serve as a basis for discarding the data point in question. Regardless, using cyanide to size the mixing zone provides a conservative estimate of the mixing zone's size since the acute plume for all of the other contaminants (e.g., cadmium, copper, lead, mercury, and zinc) lie within the boundary of the acute mixing zone for cyanide. Further, the test method used to measure weak acid dissociable cyanide, SM4500-CN-I, is the most sensitive method available, and science has yet to develop a more sensitive test method. The Department determined that no change to the permit is necessary based on this comment.

4.7 Comment Summary

SEAAC and Friends inquired about why tidal effects were not modeled in the CORMIX analysis.

Response:

Tidal currents were used in modeling the mixing zone. Consistent with the Department's approach for modeling marine mixing zones, the 10th and 90th percentile current velocities used in the CORMIX modeling are based on the ambient tidal conditions in Hawk Inlet. The Department has determined that no change to the permit is necessary based on this comment.

5 Comments on Permit Conditions

5.1 Comment Summary

EPA recommended that the Part 136 Method (1631E) be required for the testing of mercury.

Response:

The method detection limit (MDL) for Method 1631E is 0.0002 µg/L when no interferences are present. To better assess the level of mercury in the receiving water samples, the Department has changed the MDL for mercury in Table 5 of the permit and Table 7 of the fact sheet to 0.002 µg/L. This limit is sufficient to accommodate the lowest applicable WQS for mercury.

5.2 Comment Summary

HGCMC commented that there is ambiguity surrounding the use of the word "exceedance" in Section 1.3.3 of the permit and requests that the text be modified.

Response:

The Department clarified the reporting requirements in Section 1.3.3 of the permit.

5.3 Comment Summary

HGCMC requested different wording for Section 2.2.4.6.3 of the permit, which concerns BMPs for sediment runoff from bridges.

Response:

For this condition, the Department carried forward the wording from the previous permit, and the Department maintains that the wording suggested by the permittee is less protective than that contained in the draft permit. The Department determined that no change to the permit is necessary based on this comment.

5.4 Comment Summary

There are two references in the fact sheet that indicate that process water from the mill can only be sent to the Tailings Storage Facility (TSF) WWTP. HGCMC requested that the text be changed to indicate that water from the mill can be sent to either the TSF WWTP or to outfall 002.

Response:

All waste streams must be treated at the TSF WWTP prior to discharge. Appendix A, Section 2.6 of the permit provides provisions for bypass of treatment facilities. The Department has determined that no change to the permit is necessary based on this comment.

5.5 Comment Summary

SEAAC and Friends requested that the "flow augmentation approach" to water treatment, as approved in the APDES permit for the Pogo Mine, be considered for HGCMC.

Response:

The Department considered the flow augmentation approach for this facility. DEC considered the costs and benefits of installing massive tanks, pumps, mixers, and pipes onshore and the continuous expenditure of a considerable amount of electrical energy for diluting treated effluent before discharge. The permittee uses ferric co-precipitation producing a high quality effluent, which consistently exceeds the highest statutory and regulatory requirements by a large margin, and it was determined to be the most effective and reasonable treatment technology. It should be noted that, as a policy, EPA generally discourages the use of flow augmentation as an alternative to treatment for meeting water quality standards (*Use of Low Flow Augmentation by Point Sources to Meet Water Quality Standards,* EPA Memo, November 1976). The Department has determined that no change to the permit is necessary based on this comment.

5.6 Comment Summary

SEAAC and Friends commented that the Hawk Inlet Monitoring Program is inadequate to assess the impact of pollutant loading on the Hawk Inlet ecosystem. SEAAC and Friends believe that a more comprehensive program—to include studying the population, diversity, and metal loading of higher trophic level animals—should be required.

Response:

The Department reviews and considers the purpose, design, administration, monitoring and effectiveness of the permit and limitations to protect the water body for all designated uses. To date, the monitoring data, including multiple years of water column and biomonitoring sample results, indicate that the permitted discharge is not affecting the biological integrity of Hawk Inlet.

Species tested for metals concentration, mussels and marine worms, came from the lowest trophic levels because when metals do not concentrate in tissue at the lowest level, then excessive metals are not bioavailable for higher trophic levels. Design of the Hawk Inlet Monitoring Program is based on this principle of mass transfer, and data indicate that throughout several stations concentrations of metals (cadmium, copper, mercury, lead, and zinc) in tissue are not increasing when compared to pre-mining baseline metal concentration data.

By design, the Hawk Inlet Monitoring Program chose mussels and marine worms not only because they are from the lowest trophic level, but also because their limited mobility allows focus on the restricted area of Hawk Inlet that is potentially impacted by the discharges from Greens Creek Mine. This maximizes potential impacts on the chosen species. By comparison to mussels and marine worms, predators of seafloor dwelling organisms are extremely mobile. Since the mussels and marine worms are confined to the mine-associated areas and show no increases in metals, it is unlikely that their relatively mobile predators would show a significant effect.

The results of the bio-monitoring program indicate no concern over bio-concentrating metals in higher trophic levels, and it was effectively designed to provide those data. Since the sensitive species are unaffected, it is reasonable to conclude that less vulnerable animals are also unaffected. The Department determined that no change to the permit is necessary based on this comment.

5.7 Comment Summary

SEAAC and Friends commented that the permit does not comply with the Clean Water Act or applicable permit regulations. A contemporary assessment of Hawk Inlet should be conducted in conjunction with an assessment of Young Bay serving as a control area.

Response:

An assessment of the Hawk Inlet Monitoring Program was conducted by ADF&G in 2014, and the monitoring program has been updated based upon ADF&G's recommendations. Under the Hawk Inlet Monitoring Program, which has continued in its present form since 1999, 12 years of quarterly water quality data have been collected from three locations in Hawk Inlet for constituents of concern in the wastewater discharged by Greens Creek Mine. Water quality data for cadmium, copper, lead, mercury, zinc, pH, and weak acid dissociable cyanide indicate that the Hawk Inlet water sampled has been consistently high quality year round for the past twelve years. Since 1984, five years before mine production started, metal concentration data from Hawk Inlet sediments and marine organisms (mussels and marine worms) have been collected semiannually. Those data corroborate that water quality has been protective of existing uses. The Department determined that the existing monitoring program is adequate to assess the effects of the mining operation on Hawk Inlet. Further, there is no compelling reason to conclude that Young Bay in an appropriate "control area," nor does the Clean Water Act require such water body comparisons. The Department has determined that no change to the permit is necessary based on this comment.

6 Comments on the Permit and Fact Sheet Template

6.1 Comment Summary

ADF&G requested additional discussion on the sample collection, handling, and processing methods for sediment monitoring and in-situ bio-assays to be included in the annual report.

Response:

Section 1.6.1.5 of the permit requires that the Hawk Inlet Monitoring Report "include relevant QA/QC information." Additionally, Section 1.6.1.4 requires that quality assurance/quality control for all

monitoring in Hawk Inlet be covered in the required Quality Assurance Project Plan (QAPP). The Department has determined that no change to the permit is necessary based on this comment.

6.2 Comment Summary

EPA requested that Section 8.0 of the fact sheet be revised to clarify whether relaxing the permit limits are exempt anti-backsliding prohibitions, which allows backsliding.

Response:

The Department has revised and clarified Section 8.0 of the fact sheet.

6.3 Comment Summary

The permit increases the effluent limitations for flow by over 50% from 2.4 to 3.7 million gallons per day (mgd) on a monthly average basis; however, some concentration effluent limits are reduced from the previous permit. DEC should provide a comparison of pollutant mass-loading under the current permit as compared to the draft permit to determine if antidegradation resulting from increased pollutant loading is a concern. The antidegradation analysis (Page 30) does not sufficiently address degradation resulting from increased pollutant loading. The fact sheet does not adequately demonstrate the social or economic cost in terms of increased economic activity and that lowering of water quality is necessary. If degradation is allowed, EPA recommends that a more robust tier II analysis be completed to justify mass-loading that may result from the increased flow limits.

Response:

Limits in the draft permit compared to the 2005 permit have resulted in both increases and decreases in outfall 002 mass-loading rate limits. Specifically, mass-loading rate limits for cadmium, mercury, and zinc increased, while mass-loading rate limits for copper and lead decreased. Additionally, this permit limits cyanide mass-loading where it was previously unlimited. For a comparison of mass-loading rate limits between the draft and 2005 permits, please see the table below.

Mass-Loading Rate Limits							
Parameter	Units	Daily Maximum			Monthly Average		
		2005 Permit	This Permit	Difference	2005 Permit	This Permit	Difference
Cadmium	lb/day	3.0	3.8	0.83	1.0	1.5	0.54
Copper	lb/day	9.0	3.8	-5.2	3.0	1.2	-1.8
Cyanide	lb/day	NA	0.73	NA	NA	0.28	NA
Lead	lb/day	18	13	-5.5	6.0	3.8	-2.2
Mercury	lb/day	0.060	0.073	0.013	0.020	0.031	0.011
Zinc	lb/day	30	38	8.3	10	15	5.4
Cumulative Total				-1.5			2.0

Upgrades to the storm water collection and treatment systems resulted in a 700 gpm increase in discharge capacity from 2,500 to 3,200 gpm. Among other improvements, a new wastewater treatment plant was completed in 2008. These changes bolster the mine's ability to capture, treat, and discharge precipitation that, previously, may have been discharged without treatment. The design and impact of these changes

reduces the discharge of metals from untreated net precipitation and benefits the local aquatic environment.

Regardless of the numeric limits in the permit, potential increases to mass-loading rates are independent of the mine's production rates, which remain unchanged, and are entirely dependent on the weather, i.e., net precipitation. Increased flow limits do not represent a net social or economic cost but rather a net social or economic benefit that results from the capture and treatment of precipitation water that could have gone untreated. This permit action will not result in an economic benefit to the mine operator. To the contrary, the social or economic benefits that are realized through the increased capture and treatment of precipitation comes at the mine operator's expense (i.e., increased capital and operating costs).

The Department conducted a tier II antidegradation analysis satisfying the State's Antidegradation Policy, 18 AAC 70.015. The antidegradation analysis was performed through adherence to applicable policy and procedure. See *Interim Antidegradation Implementation Methods*, July 14, 2010.

The Department provided additional information in Section 8.0 and Section 9.3 of the fact sheet to address the issues raised in this comment.

6.4 Comment Summary

EPA commented that the fact sheet inadequately demonstrates the socioeconomic benefits in the antidegradation analysis.

Response:

The Department updated the social or economic factors portion of the antidegradation analysis. However, the Department recognizes that a more exhaustive economic and social analysis may be warranted when a permit is initially issued to a new facility. This permit proposes the third reissuance of a permit that was initially issued in 1987. As discussed in Comment Response 6.3, the increases in flow limits reflect upgrades to the facility's ability to capture and treat storm water that would otherwise enter Hawk Inlet untreated through runoff during an extreme storm event. As discussed elsewhere in the fact sheet, the Department determined that increases to effluent flow limits are necessary to control storm water during extreme storms and otherwise protect and improve water quality. In the context of this permit reissuance, the scope of the Department's social and economic analysis has been tailored to the circumstances of a mine that has been operating for over twenty years.

6.5 Comment Summary

HGCMC commented that Section 2.2.4.4.3 of the permit would benefit by eliminating the use of the word "drain."

Response:

The Department modified the text in Section 2.2.4.4.3 of the permit.

6.6 Comment Summary

HGCMC requested that a review of the permit reissuance history be included in the text of the fact sheet.

Response:

The Permit Background section of the fact sheet provides a complete record of all previously effective NPDES permits. However, intermediate, deliberative steps in the NPDES and APDES permitting process, many of which are part of the public record, are beyond the scope of the fact sheet. The Department has determined that no change to the permit is necessary based on this comment.

6.7 Comment Summary

HGCMC requested that Section 6.3 of the fact sheet be revised if DEC allows more than five years of sample data to be used in calculating permit effluent limits.

Response:

The Department determined that five years of sample data is representative of effluent quality for calculating permit effluent limits. See response to Comment 3.6. The Department has determined that no change to the permit is necessary based on this comment.

6.8 Comment Summary

HGCMC requested that additional information concerning the social or economic benefits of the Greens Creek Mine be added to the antidegradation discussion in the fact sheet.

Response:

The Department added the additional information provided by HGCMC.

6.9 Comment Summary

HGCMC requested revision of the text in Section 9.3(b) of the fact sheet to indicate that HGCMC is required to establish best management practices (BMPs) at each outfall for storm water discharges.

Response:

The Department has modified the text in Section 9.3(b) of the fact sheet.

6.10 Comment Summary

HGCMC requested revision of the text in Section 9.3(c) of the fact sheet to clarify the discussion on the facility's last exceedance of permit effluent limits.

Response:

The Department has modified the text in Section 9.3(c) of the fact sheet.

6.11 Comment Summary

SEAAC and Friends requested that the effluent limits for outfall 002 be expressed in terms of mass so that the effects of pollutant loading can be evaluated.

Response:

Mass-loading rate is equal to flow rate multiplied by concentration. Flow limits and concentration limits are provided in the permit. Consequently, mass-loading rate limits are imposed through effluent limits and flow limits. Please see the discussion in Comment 6.3. The Department has determined that no change to the permit is necessary based on this comment.

6.12 Comment Summary

SEACC and Friends commented "…the draft permit fact sheet does not identify, describe, summarize, or address the significant factual, legal, and methodological issues raised by SEACC over the last three years regarding reissuance of the pollutant discharge permit for Hecla's Green Creek's Mine. Consequently, we resubmit for the record all the correspondence and accompanying information SEACC has provided DEC since December 2011 on a compact disc and request DEC's detailed response to each of the significant issues presented therein."

Response:

The fact sheet is an informational document which imposes no requirements and offers no allowances, as do permits. The Department has the duty to issue a fact sheet that concisely summarizes permit content in a manner that is accessible to the public. Under 18 AAC 83.115(c), the fact sheet must "briefly set[s] out the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit." DEC's fact sheet complies with these requirements. DEC's fact sheet is not required to address SEACC's comments, as SEACC apparently contends.

As for the 2014 draft permit, the draft fact sheet explicitly specified the threshold for significant comments as excluding previously submitted comments on older versions of the draft permit. As stated in the fact sheet:

> *DEC previously publicly noticed a draft permit in March 2013 (through April 2013) and solicited public comment. DEC used some of the information in the comments to re-draft the permit and fact sheet for this proposal. As such, DEC will only respond to comments received on this draft and will not formally respond to the comments received on the March 2013 draft. If an issue commented on previously has not been addressed, please resubmit the comment during the public comment period.*

Alaska regulation 18 AAC 83.120(o) provides, "When the department issues a final permit, the department will issue a response to comments, which must be available to the public." The response must "briefly describe and respond to all *significant* comments on the draft permit raised during the public comment period, or during any hearing." Emphasis added.

The Department evaluated the 31 documents submitted by SEACC for significant comments. From those 31 documents, five documents were duplicates. Of the remaining 26 documents, 13 documents were not among those that SEACC had submitted since December 2011, and SEACC did not include any significant comments relative to the submittal of these 13 documents, and failed to explain why the documents were relevant. Of the remaining 13 documents that SEACC has provided to DEC since 2011, nine of these documents were directed to other agencies or addressed issues that are outside of the regulatory authority of the Department. DEC found that among the 31 documents submitted, only three documents contained potentially significant comments, and those significant concerns have been addressed within this response to comments document.

The Department has determined that no change to the permit is necessary based on this comment.

7 Comments on Reasonable Potential Analysis and Water Quality-Based Effluent Limit Calculations

7.1 Comment Summary

CSP2 commented that background water quality values used in the RPA should be based on the 95th/5th percentiles rather than the 85th/15th percentiles used by the DEC. CSP2 states that the DEC's 2006 guidance document *Guidance for the Implementation of Natural Condition-Based Water Quality Standards* uses the 95th/5th percentiles. By using the 85th/15th percentiles DEC is "backsliding." Consequently, a backsliding analysis is required. HGCMC requested that the rationale for using the 85th percentile for selecting the background water quality values used in the RPA be discussed in Section 6.3 of the fact sheet.

Response

Hardness-based Water Quality Standards are promulgated by the State. It is the State's responsibility and discretion to determine how hardness data will be used when looking at hardness-based permit limits. The program's current reasonable potential analysis guidance prescribes use of the 85th/15th percentile approach, and the permit is not a place where programmatic decisions are made. EPA arbitrarily selected the 5th percentile of hardness data, which has since become the de facto standard through past precedence. By contrast and as a reference, page 129 of the *Technical Support Document For Water Quality-based Toxics Control* uses the 15th percentile of hardness data in an example.

The *Guidance for the Implementation of Natural Condition-Based Water Quality Standards* document provides guidance for establishing a site-specific water quality criterion as permitted under 18 AAC 70.235. Guidance for selecting background water quality values for a reasonable potential analysis is provided in DEC's *Alaska Pollutant Discharge Elimination System (APDES) Permits Reasonable Potential Analysis and Effluent Limits Development Guide* and EPA's *Technical Support Document For Water Quality-based Toxics Control*. The *Technical Support Document For Water Quality-based Toxics Control* does not institute a standard for selecting background water quality values, so the Department is given the responsibility and discretion to determine these values. Each of the effluent limits in the new permit is either unchanged or stricter than the effluent limits from the 2005 permit. Consequently, it is unreasonable to assert that the Department is backsliding in the current permit. The Department has determined that no change to the permit is necessary based on this comment.

7.2 Comment Summary

EPA requested that more details on the calculation of water quality-based effluent limits (WQBELs) be included in Appendix B of the fact sheet. EPA requests—at the very least—a table summarizing the data input used to derive each WQBEL.

Response

All of the data required to verify the calculation of the WQBELs is provided in Table B-4 of the fact sheet's Appendix B. To clarify the calculation procedure, an example calculation is presented in Appendix B. Long hand calculations can be duplicated by using the chronic (21.3) and acute (18.53) dilution factors provided therein, parameter-specific WQS provided in Table B-2, and adding parameter-specific information listed in Table B-4 to determine the WQBEL for a given constituent of concern. For

additional information, please consult EPA's *Technical Support Document For Water Quality-based Toxics Control*. The Department determined that no change to the permit is necessary based on this comment.

7.3 Comment Summary

SEAAC and Friends indicated that the maximum projected receiving water concentration (C_d) for lead is miscalculated in Table B-4 of the fact sheet.

Response

The maximum projected receiving water concentration (C_d) is calculated using the following mass balance equation:

$$C_d = C_u + ((C_e - C_u)/D)$$

where, C_d = maximum projected receiving water concentration at the edge of the mixing zone

C_e = maximum expected effluent concentration

C_u = background concentration of pollutant

D = dilution in mixing zone

Using the data for lead from Table B-4:

C_e = 176.75 µg/L lead

C_u = 0.159 µg/L lead

D = 21.3 (the allowable dilution factor for the mixing zone)

Therefore:

$$C_d = 0.159 + ((176.75 - 0.159)/21.3) \approx 8.45 \text{ µg/L lead}$$

This is the same value listed in Table B-4 of the fact sheet. Table B-4 of the fact sheet was checked for accuracy. The data in Table B-4 is accurate. The Department has determined that no change to the permit is necessary based on this comment.

7.4 Comment Summary

SEAAC and Friends believe that the use of 0 ppb as the background concentration of cyanide in the receiving water is unwarranted. Since the MDL for cyanide is 5 µg/L, a non-detect value could be anywhere between 0 to < 5 ppb.

Response

There is statistically useful information in the ambient water quality data set, which repeatedly shows non-detectable levels of cyanide. The preponderance of non-detects in the ambient water quality data suggests that the background concentration of cyanide in the Hawk Inlet marine water is zero. The Department has determined that no change to the permit is necessary based on this comment.