

AK0038652
Response to Comments
Teck Alaska, Incorporated
Red Dog Mine

EPA, Region 10
DEC, Division of Water
February 2013

Prepared by:
Cindi Godsey, EPA
William McGee, DEC

Table of Contents

General Information..... 2
Lead, Selenium and Zinc..... 2
Total Dissolved Solids (TDS) 3
Wastewater Pipeline..... 7
Cyanide 8
Cadmium..... 10
Miscellaneous Comments 10
CWA § 401 Certification 11
Fact Sheet..... 12

General Information

The comment period for this permit action, addressing the withdrawn conditions, occurred from April 25 through May 25, 2011. EPA received 5 comment letters. Comments were received from the Center on Race, Poverty, & the Environment for the Kivalina Residents named in the comments; the Resource Development Council; Trustees for Alaska on behalf of the Northern Alaska Environmental Center, Alaska Community Action on Toxics, and the Point Hope Tribal Council; Stoel Rives, LLP on behalf of NANA Regional Corporation, Inc.; and Teck Alaska, Inc.

EPA reopened the public comment period on July 25, 2011, to include a public hearing on August 26, 2011. At the hearing, Colleen Swan, Enoch Adams, Jr., Galen Harold Swan, Lucy S. Adams, and Austin Swan, Sr. testified. Written comments were provided by Millie Hawley, Leroy T. Adams, and Alice A. Adams. EPA transferred this permit to DEC on December 4, 2012. These responses to comments represent a collaborative effort between Cindi Godsey of EPA and William McGee of DEC.

Lead, Selenium and Zinc

1. **Comment:** Several commenters are supportive of maintaining the more stringent 1998 limitations for lead monthly average, selenium daily maximum, and zinc monthly average and daily maximum.

One commenter stated that decreasing the amount of lead and selenium in the wastewater discharge will ensure protection of subsistence resources.

Response (EPA): Comments noted.

2. **Comment:** One commenter questioned the hardness used to calculate the limitations for the hardness based metals. The commenter states that the agency should have used the higher effluent hardness.

Response (EPA): EPA proposed the more stringent limitations of the 1998 Permit as requested by Teck. Since these numeric limitations were carried over from the previous permit as absolute values, not calculated values, the hardness that would have been used in a calculation was not an issue that was open for comment for lead and zinc (selenium is not hardness based). The limitations for the other hardness based metals were not open for comment during this permit action.

Total Dissolved Solids (TDS)

3. **Comment:** One commenter contends that EPA has broad authority to require Teck to build a pipeline to the ocean as Best Available Technology (BAT). CWA § 402(a)(1)(B) states that EPA may impose “such conditions as the Administrator determines are necessary to carry out the provisions of this Act.” In applying this authority, 40 CFR 125.3(c)(2) requires EPA to consider the “appropriate technology for the category or class of point sources of which the applicant is a member, based upon all available information” and any “unique factors relating to the applicant.” The commenter states that the regulations implementing best professional judgment specifically allow EPA to employ non-treatment techniques for achieving water quality standards.

The commenter claims that EPA’s statement that BAT is meant to reduce pollutants entering waters of the US and that the pipeline would just move the discharge from one water body to another is unsupported and flawed. The pipeline does not transfer the mine’s discharge from one water body to another. Red Dog Creek is the Wulik River tributary that receives the Red Dog Mine’s treated effluent, but the Wulik River empties into the Chukchi Sea just over 40 miles west of the mine. The Wulik River transports the effluent to the sea, just as the pipeline would carry the effluent to the same ultimate receiving water body. The pipeline would bypass the Wulik and discharge directly to the sea, the ultimate destination of the mine’s effluent under the proposed permit. The pipeline would reduce the levels of TDS entering the Wulik River watershed, and thus advance the underlying purpose of the Act at the same time as respecting the wishes of the Native Village of Kivalina, the community which must endure pollution of the Wulik and whose subsistence rights are violated by EPA’s conduct and water pollution from the Red Dog Mine.

EPA failed to consider “all available information” and the “unique factors” at issue here, such as the pipeline being included in the environmental preferred alternative in the SEIS, Teck’s chronic history of polluting the Wulik River tributaries, and the warranty that construction of a wastewater pipeline is feasible.

Response (EPA): The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. To

accomplish this objective, point sources are subject to permit requirements under CWA § 402. A permit provides two types of control: technology-based effluent limitations (TBELs) and water quality-based effluent limitations (WQBELs).

TBELs can be developed in two ways. The first method is through an Effluent Limitation Guideline (ELG) based on the technological and economic ability of dischargers in the same category to control the discharge of pollutants in wastewater. Where promulgated, ELGs only apply to certain aspects of the discharger's operation or to certain pollutants. The second method is utilized for other aspects or activities. These are subject to regulation allowing a permit writer to use his or her best professional judgment (BPJ) to establish case-by-case limitations. Using this approach, a single permit writer develops effluent limitations for a specific facility using knowledge of the industry and the specific discharge, rather than using a set of national standards and limitations developed by EPA for an entire industry.

Congress amended the CWA with the 1987 Water Quality Act that outlined a strategy to accomplish the goal of meeting state water quality standards to protect the quality of a specific waterbody receiving a discharge. By analyzing the effect of a discharge on the receiving water, a permit writer can find that TBELs alone will not achieve the applicable water quality standards. In such cases, the CWA and its implementing regulations require development of WQBELs.

Permit limitations were developed based on ELGs, BPJ, and currently approved WQS. The commenter is correct that EPA regulation at 40 CFR 125.3(f) allows the use of non-treatment technology to achieve water quality standards but the BPJ analysis to establish BAT was performed to determine a TBEL, not a WQBEL.

The above information was considered by EPA in evaluating the renewal package submitted by Teck prior to the expiration of the 1998 Permit. If EPA had determined that Teck could not meet the requirements of the draft permit, EPA would have proposed a denial of the renewal application. The following are causes for denying a permit renewal application under 40 CFR 122.64:

- a. Noncompliance by the Permittee with any condition of the permit;
- b. The Permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the Permittee's misrepresentation of any relevant facts at any time;
- c. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination; or
- d. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge controlled by the permit (for example, plant closure or termination of discharge by connection to a POTW).

While Teck has not been able to meet the limitations of the 1998 Permit for TDS, they have documented a 99.65% compliance rate (data reviewed 2004 – 2009) with the permit limits of the draft permit based on the SSC that is the currently approved WQS in effect for Red Dog Creek. EPA has no basis to believe Teck has not fully disclosed relevant facts or that it misrepresented them, nor has anyone accused Teck of such actions. The human health impacts potentially caused by the project as a whole, identified in the SEIS, were not water quality related so cannot be mitigated by modifying the permit to change the discharge location. As such, EPA has no basis to deny the renewal package submitted by Teck for reissuance of the permit to discharge to Red Dog Creek.

Red Dog Creek is a tributary of Ikalukrok Creek which is a tributary of the Wulik River which flows into the Chukchi Sea. The discharge from the Red Dog Mine ultimately reaches the sea; not as an intact slug of identifiable mine water but as a portion of the Wulik interspersed within the rest of the watershed's contributions to the river. EPA views the discharge to Red Dog Creek as distinctly different from a direct discharge to the Chukchi Sea. The designated uses of the each waterbody are different as well as the standards in place to protect those uses. The discharge to Red Dog Creek has a mixing zone for TDS, ammonia and cyanide while a discharge to the Chukchi Sea would likely need a mixing zone for copper, chlorine, cyanide, nickel, zinc and ammonia.

The SEIS did include a wastewater discharge pipeline in its environmentally preferred alternative but not as a standalone option. It was included as one of three pipelines, the others being a concentrate pipeline and a diesel pipeline. The main impacts of the project discussed in the SEIS were dust along the road corridor from traffic to and from the mine and the traffic's potential to interfere with caribou migration. The concentrate and diesel pipelines address these issues by eliminating the majority of road traffic. The wastewater pipeline was added to the bundle to address water quantity rather than water quality issues. The majority of the recent compliance issues have been violations of the 1998 TDS limitations. These limitations are based on a standard that is no longer contained in the WQS for the state of Alaska. As described above, an SSC has been developed to address the specific conditions in Red Dog Creek and if allowed to go into effect in this permit action, would alleviate the compliance issues that are cited in the comment. EPA is aware of the settlement agreement between the commenters and Teck regarding the construction of a wastewater pipeline.

4. **Comment:** One commenter states that the proposed TDS limitation constitutes illegal backsliding under the Clean Water Act. A permit applicant may not obtain a renewed, reissued, or modified permit that contains less stringent effluent limitations than the comparable effluent limitations from the previous permit, unless the relaxed permit does not violate the state's antidegradation policy. EPA justifies the less stringent effluent limitations for TDS based on DEC's antidegradation analysis. Alaska's antidegradation policy lacks valid implementation procedures and, therefore, is legally deficient and cannot be relied on to support DEC's analysis and the backsliding allowed as a result of that analysis.

Response (EPA): DEC has established implementation procedures for its antidegradation policy. 40 CFR 131.12(a) requires states to adopt an antidegradation policy and to “identify” methods for implementing that policy. DEC’s methods for implementing Alaska’s antidegradation policy found in 18 AAC 70.015 are identified in the department’s July 14, 2010, “Interim Antidegradation Implementation Methods” guidance. As explained in EPA’s acknowledgement letter to DEC (Michael A. Bussell, EPA to Lynn Kent, DEC, July 15, 2010), and in the preamble to EPA’s proposed antidegradation implementation methods for the State of Oregon (68 Federal Register 58775 October 10, 2003), EPA has interpreted the word “identify” to mean that states may develop antidegradation implementation methods in regulation or outside of regulation (e.g., in guidance). Because EPA does not interpret its antidegradation regulation to require states to develop antidegradation implementation methods in regulation, and because EPA believes that the interim methods developed by DEC are consistent with 40 CFR 131.12, EPA believes that Alaska has satisfied the requirement to identify methods to implement its antidegradation policy consistent with 40 CFR 131.12. (also see Michael A. Bussell, EPA to Brook Brisson, Trustees for Alaska, November 2, 2010).

CWA § 402(o)(1) allows for backsliding from water-quality based effluent limitations if the requirements of CWA § 303(d)(4) are met. Under CWA § 303(d)(4)(B), which applies to attainment waters, water-quality based effluent limitations may be relaxed provided doing so is consistent with the State’s antidegradation policy. The CWA § 401 Certification includes an antidegradation analysis for TDS based on the requirements of 18 AAC 70.015 and 40 CFR 131.12, which determined that changes to effluent limitations are consistent with the antidegradation policy and will not violate applicable state water quality standards.

The legality of DEC’s interim methods for conducting an antidegradation analysis was challenged in Alaska’s Superior Court, case no. 3AN-11-07159CI. On September 4, 2012, the court found the interim methods legal and denied the challenge.

5. **Comment:** One commenter claims that the site specific criterion (SSC) for TDS is legally suspect and EPA should not establish an effluent limit based on the SSC. EPA bases the proposed effluent limitation for TDS on a SSC that was approved by the EPA for the Main Stem of Red Dog Creek on April 21, 2006. The SSC is currently being challenged in federal district court [Native Village of Point Hope, et al. v. U.S. Environmental Protection Agency, Pl.’s Complaint, filed on April 19, 2011, in the United States District Court for the Western District of Washington]. Until the validity of the SSC is resolved, EPA should not approve an effluent limitation based on it.

Response (EPA): The validity of EPA’s approval of the SSC for TDS in the Main Stem of Red Dog Creek was resolved on September 13, 2012. The court upheld EPA’s approval of the SSC and denied the challenge.

6. **Comment:** Two commenters express support for the TDS limitations included in the draft permit and the antidegradation analysis conducted by the State.

Response (EPA): Comment noted.

7. **Comment:** Two commenters agree with EPA's determination that the WQ-based effluent limitation is more stringent than the technology-based effluent limitation determined in the BPJ analysis and therefore properly included in the permit.

Response (EPA): Comment noted.

Wastewater Pipeline

8. **Comment:** Many commenters declared that EPA should include the pipeline to the ocean in this permitting action.

One commenter stated that the discharge can be diverted and because EPA is charged with providing means unavailable to ordinary citizens to address environmental issues, it is EPA's responsibility to regulate on behalf of ordinary citizens to make sure that the resources that are available naturally be protected. The commenter thinks this is part of EPA's mandate and believes that EPA can require a pipeline be built citing EPA's Trust Responsibility to Tribes.

Response (EPA): The 2010 permit action from which this action developed was a reissuance in response to the reapplication package received under the 1998 Permit. Without adequate justification to deny the permit (See Response #3), EPA is acting on the application that has been submitted by Teck.

EPA evaluated the pipeline to the ocean during this permit action as an alternative in the analysis based on Best Professional Judgment (BPJ). The purpose of the BPJ analysis was to determine a technology-based effluent limitation for TDS. In accordance with the Clean Water Act's national goal of eliminating the discharge of pollutants, identification of Best Available Technology, economically achievable (BAT) and the resulting technology-based effluent limitations are meant to reduce the level of pollutants entering waters of the U.S. A wastewater discharge pipeline would not reduce the level of TDS entering waters of the U.S. so it could not be considered BAT.

EPA's mission is to protect human health and the environment. EPA's purpose is to ensure that all Americans are protected from significant risks to human health and the environment where they live, learn and work using federal laws that are enforced fairly and effectively. The issuance of NPDES permits is required by federal law to discharge wastewater legally and within these permits, EPA prescribes what is necessary to be in compliance with the laws and regulations of the United States. If a facility can meet the necessary requirements, it is not within EPA's purview to require spending multi-millions of dollars to change the project.

9. **Comment:** One commenter states that the proposed cyanide limitation constitutes illegal backsliding under the Clean Water Act. A permit applicant may not obtain a renewed, reissued, or modified permit that contains less stringent effluent limitations than the comparable effluent limitations from the previous permit, unless the relaxed permit does not violate the State's antidegradation policy. EPA justifies the less stringent effluent limitations for cyanide based on DEC's antidegradation analysis. Alaska's antidegradation policy lacks valid implementation procedures and, therefore, is legally deficient and cannot be relied on to support DEC's analysis and the backsliding allowed as a result of that analysis.

Response (EPA): DEC has established implementation procedures for its antidegradation policy. 40 CFR 131.12(a) requires states to adopt an antidegradation policy and to "identify" methods for implementing that policy. DEC's methods for implementing Alaska's antidegradation policy found in 18 AAC 70.015 are identified in the department's July 14, 2010, "Interim Antidegradation Implementation Methods" guidance. As explained in EPA's acknowledgement letter to DEC (Michael A. Bussell, EPA to Lynn Kent, DEC, July 15, 2010), and in the preamble to EPA's proposed antidegradation implementation methods for the State of Oregon (68 Federal Register 58775 October 10, 2003), EPA has interpreted the word "identify" to mean that states may develop antidegradation implementation methods in regulation or outside of regulation (e.g., in guidance). Because EPA does not interpret its antidegradation regulation to require states to develop antidegradation implementation methods in regulation, and because EPA believes that the interim methods developed by DEC are consistent with 40 CFR 131.12, EPA believes that Alaska has satisfied the requirement to identify methods to implement its antidegradation policy consistent with 40 CFR 131.12. (also see Michael A. Bussell, EPA to Brook Brisson, Trustees for Alaska, November 2, 2010).

CWA § 402(o)(1) allows for backsliding from water-quality based effluent limitations if the requirements of CWA § 303(d)(4) are met. Under CWA § 303(d)(4)(B), which applies to attainment waters, water-quality based effluent limitations may be relaxed provided doing so is consistent with the State's antidegradation policy. The CWA § 401 Certification includes an antidegradation analysis for WAD cyanide based on the requirements of 18 AAC 70.015 and 40 CFR 131.12, which determined that changes to effluent limitations are consistent with the antidegradation policy and will not violate applicable state water quality standards.

The legality of DEC's interim methods for conducting an antidegradation analysis was challenged in Alaska's Superior Court, case no. 3AN-11-07159CI. On September 4, 2012, the court found the interim methods legal and denied the challenge.

10. **Comment:** EPA's reasonable potential analysis (RPA) for cyanide is flawed because EPA failed to average replicate samples. Proper consideration of the available data demonstrates that cyanide limits are not warranted in the Permit.

EPA included an Effluent Limit and Monitoring requirement for Weak Acid Dissociable (WAD) Cyanide in the Draft Permit, Section I.A.1. In EPA's RPA analysis for cyanide (Fact Sheet, Appendix C), EPA did not consider available and appropriate cyanide data. Rather, the RPA is driven by a single high value of cyanide (12.4 µg/L) from a sample collected on 9/18/06. However, there was additional data from split samples (on that same date) that EPA should have used to calculate an average value. The average of the result of replicate samples is most representative of the effluent quality on that day compared to any single value.

The averaging of the results of split samples for the RPA analysis would be consistent with the split sample reporting requirements of Permit Part I.A.5.e. Averaging split or multiple samples is also consistent with EPA policy ("Determining Industrial User Compliance Using Split Samples," EPA memorandum from Richard G. Kozlowski, Enforcement Division, to Mary Jo M. Aiello, Bureau of Pretreatment and Residuals, January 21, 1992).

Teck provided EPA effluent analysis from 2003 – 2007, which included both total cyanide and weak acid dissociable cyanide (CN-WAD), as well as samples fixed and unfixed to prevent interference from sulfide in the analysis. EPA selected the unfixed CN-WAD data for the RPA. This data set contained 205 values, of which half were replicate analyses.

Because EPA failed to average these available split samples, EPA's RPA for cyanide resulted in a finding that there was reasonable potential to exceed the chronic cyanide standard, and the conclusion that the Permit should contain limits for cyanide. However, if EPA had used the average of all of the split sample analyses for 9/18/06 (versus a single high value of cyanide of 12.4 µg/L), in addition to averaging replicate sets for all other available dates, EPA's RPA would have shown a projected maximum effluent concentration of 3.7 µg/L (with a 2.5 mixing zone dilution) and no reasonable potential for the effluent to exceed WQS in the receiving water. Based on these calculations, no cyanide permit limit would be appropriate.

Response (EPA): The process of determining whether there is reasonable potential for a parameter to exceed the WQS is a more conservative process than EPA allows for determining compliance with a permit. A permit may allow averaging split samples and assigning a value of zero to non-detectable data but in evaluating the data collected to determine reasonable potential, the permit writer would treat each sample value individually and use a reasonable statistical methodology to assign values to non-detectable data.

EPA is not under any obligation to average replicate samples unless there is a specific reason or evidence to suggest that the higher value is inaccurate. Since no reason was provided by the Permittee, the higher values, as well as the replicate values, were used in the reasonable potential analysis to

determine the maximum estimated concentration – consistent with EPA’s Technical Support Document for Water Quality-based Toxics Control (TSD) procedures for conducting RPAs. There is no basis for the commenter’s assertion that the average is most representative of effluent quality on the sampling date.

11. **Comment:** One commenter stated that decreasing the amount of WAD cyanide in the wastewater discharge will ensure protection of subsistence resources.

Response (EPA): Comment noted.

Cadmium

12. **Comment:** One commenter stated that decreasing the amount of cadmium in the wastewater discharge will ensure protection of subsistence resources.

Response (EPA): The limitations for cadmium were not open for comment during this permit action.

Miscellaneous Comments

13. **Comment:** One commenter requested a public hearing in Kivalina.

Response (EPA): EPA reopened the public comment period on July 25, 2011, to include a hearing which was held in Kivalina on August 26, 2011. Twenty people signed into the hearing, 5 people testified and 3 people provided additional written comments. Any comments received on the permit action to address the withdrawn limitations of the 2010 Permit have been addressed in this Response to Comments.

14. **Comment:** One commenter supports EPA’s permitting action.

Response (EPA): Comment noted.

15. **Comment:** One commenter questioned the value utilized in the TDS allowable flow calculation.

Response (EPA): This issue was not open for comment.

16. **Comment:** One commenter expressed frustration in not having a copy of the permit available at the Hearing and not being able to get all her questions answered prior to giving testimony.

Response (EPA): During the initial comment period, EPA received a request for a public hearing. EPA advertised a Hearing to take formal comment on the permit and did not plan to have a workshop beforehand to answer questions. But, while waiting to see if more people would come to the Hearing, EPA did offer to answer questions but was not as fully prepared as would have occurred had a workshop been planned. EPA regrets that the Hearings Officer did not

bring a copy of the draft permit to the Hearing and that the copy that was provided to the Native Village of Kivalina was not readily accessible. However, the draft permit was available on the EPA website or by request since the comment period opened on April 25, 2011. It also should be noted that comments were submitted on behalf of the commenter by the Center for Race Poverty and the Environment on May 25, 2011.

17. **Comment:** A commenter stated in his oral testimony that Teck has said they would never meet the standards that EPA has set for drinking water.

Response (EPA): While this topic is not specific to the issues that were open for comment in the draft permit, EPA believes that some clarification is necessary. The effluent limitations of an NPDES permit take into consideration several levels of water quality protection, from drinking water to aquatic life to human health. Even though the drinking water use has been removed from Red Dog and Ikalukrok creeks, all the effluent limitations of the Red Dog Mine permit except TDS meet or exceed the requirements of the statewide drinking water standards. The SSC for TDS replaced the applicable statewide standard in Red Dog Creek.

18. **Comment:** A commenter expressed concern about how often samples are taken and where they are taken saying that he has seen nothing in black and white describing this. He says that more samples should be taken.

Another commenter states that she would like Teck to test the fish often.

Response (EPA): The sampling regime and the bioassessment of the fish were not issues open to public comment during this permitting action.

19. **Comment:** One commenter suggested that a big meeting be held with Kivalina, NANA, the Borough, Point Hope and everyone involved so that concerns can be aired and other opinions can be given.

Response (EPA): Although the commenter did not specifically say that EPA should call such a meeting, it was implied by his making the comment. EPA would not discourage the parties from talking and in the past has encouraged Kivalina and Point Hope to talk together about their concerns. EPA is unable to take more comments without opening the comment period again and is unsure of what more it would hear during this type of meeting that would inform the permitting decision it needs to make over and above the comments received during the two comment periods and in the hearing.

CWA § 401 Certification

20. **Comment:** One commenter maintains that the draft CWA § 401 Certification is legally deficient and EPA cannot rely upon it to issue the draft permit with the proposed limitations because it is confusing and misleading, factually inaccurate, the State lacks legally adopted implementation procedures for the antidegradation policy so cannot make a legal antidegradation analysis, the

proposed effluent limitations are not based on the most effective pollution prevention, control and treatment methods, the proposed TDS limitations do not fully protect existing uses, the mixing zone for TDS, ammonia and cyanide violate Alaska's mixing zone regulations, and by employing two exceptions to the generally applicable water quality standards, DEC endangers designated and existing uses of Red Dog Creek.

Response (DEC): The legality of DEC's interim methods for conducting an antidegradation analysis was challenged in Alaska's Superior Court, case no. 3AN-11-07159CI. On September 4, 2012, the court found the interim methods legal and denied the challenge. The antidegradation analysis addressed concerns expressed by the commenter regarding effective treatment, protection of uses, mixing zones, limitations, and water quality standards.

Fact Sheet

21. **Comment:** Two commenters believe that the Best Professional Judgment (BPJ) analysis for TDS is a detailed and thorough review of the processes potentially available for the treatment of the mine's effluent for TDS.

Response (EPA): Comment noted.

22. **Comment:** Two commenters contend that information presented in the BPJ analysis is flawed in regards to the TDS value that would result from treating the full discharge with barium hydroxide. Tests done during 2010 indicate that the value would be approximately 3000 mg/L rather than the 1500 mg/L included in the BPJ analysis.

Response (EPA): Section 2.3.6.1 of the SEIS reported that pretreatment of the entire wastestream with barium hydroxide could result in TDS levels of 1500 mg/L. EPA acknowledges that the results of testing done in 2010 did not support the SEIS statement. EPA does not issue a revised Fact Sheet with the Final Permit.