

TRUSTEES FOR ALASKA

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January 14, 2010

Larry Hartig
Commissioner
Department of Environmental Conservation
Office of the Commissioner
410 Willoughby Ave., Suite 303
Juneau, AK 99811-1800

Re: Request for Adjudicatory Appeal under 18 AAC § 15.200 for the State's §
401 Certification of NPDES Permit AK-003865-2 for Teck Alaska, Inc.'s
Red Dog Mine

Dear Mr. Hartig:

Trustees for Alaska (Trustees) and the Center on Race, Poverty & the Environment (Center) submit this request for adjudicatory appeal of the State's § 401 Certification of National Pollutant Discharge Elimination System (NPDES) Permit AK-003865-2 for Teck Alaska, Inc.'s (Teck) Red Dog Mine. Trustees submits this request on behalf of the Native Village of Point Hope IRA Council, the Northern Alaska Environmental Center and the Alaska Community Action on Toxics. The Center submits this request on behalf of the Native Village of Kivalina IRA Council and Kivalina Residents Enoch Adams, Jr., Leroy Adams, Andrew Koenig, Jerry Norton, and Joseph Swan, Sr. (all parties together will be referred to as "Requestors").

All Requestors commented to the Alaska Department of Environmental Conservation (ADEC) and the U.S. Environmental Protection Agency (EPA) on the draft 401 Certification and identified numerous deficiencies and inconsistencies with the Clean Water Act and federal and state regulations. However, their comments were not adequately addressed in the issuance of the final 401 Certification, which necessitates this appeal.

The following information is submitted in accordance with the requirements of 18 AAC 15.200 *et seq.*

**I. 18 AAC 15.200 (a)(1) – REQUESTORS' NAMES, ADDRESSES,
TELEPHONE NUMBERS:**

Native Village of Kivalina IRA Council
Enoch Adams, Jr.
Leroy Adams
Andrew Koenig
Jerry Norton
Joseph Swan, Sr.
c/o Brent Newell
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47 Kearny Street, Suite 804
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Native Village of Point Hope IRA Council
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Alaska Community Action on Toxics
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Trustees for Alaska
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**II. 18 AAC 15.200(a)(2) – NAMES OF PERSONS ADVERSELY AFFECTED
BY THE DECISION**

Residents of Northwest Arctic Borough
Native Village of Point Hope IRA Council
Residents of the Native Village of Point Hope
Northern Alaska Environmental Center
Alaska Community Action on Toxics
Native Village of Kivalina IRA Council
Residents of the Native Village of Kivalina
Enoch Adams, Jr.
Leroy Adams
Andrew Koenig
Jerry Norton
Joseph Swan, Sr.

Enoch Adams, Jr., Leroy Adams, Andrew Koenig, Jerry Norton and Joseph Swan, Sr.,¹ are residents of Kivalina, Alaska, downstream of the Red Dog Mine, operated by

¹ These Requestors are participating only conditionally in this appeal based on a settlement agreement to which they are parties with Teck. They will fully participate in

Teck, to the east of the village. The Native Village of Kivalina IRA Council and Native Village of Point Hope IRA Council are tribal governments that have a vested interest in protecting the traditional lands, waters and cultural activities of their tribal members. The Northern Alaska Environmental Center and Alaska Community Action on Toxics are non-profit organizations have educational, recreational and environmental interests in the affected region and have been active for years as watchdogs of the activities at the Red Dog Mine.

III. 18 AAC 15.200(a)(3) – MEMORANDUM SUPPORTING REQUEST

The following summarizes facts in dispute and questions of law more fully described in the narrative portion. The relevance of the permit decision to these issues is set forth in greater detail below.

Facts in dispute

- (1) Whether the mixing zones for TDS, ammonia, pH, and WAD cyanide are protective of fish, spawning, and/or could create a barrier to fish passage in the North Fork of Red Dog Creek.
- (2) Whether the mixing zones' lengths and dilution factors are justified.
- (3) Whether the water quality criteria for all designated and existing uses, including protection of aquatic life, are met at the edge of the mixing zone.
- (4) Whether the dilution factors for the mixing zones were improperly based on the average flow for the waterbody, rather than low flow data.
- (5) Whether 20 years of biological and water quality monitoring data establish that discharges have not impaired existing uses.
- (6) Whether it is technologically and economically feasible for Teck to achieve the TDS limits set forth in the 1998 NPDES permit.
- (7) Whether the proposed WAD cyanide limits for the § 401 Certification exceed acute and chronic limits.
- (8) Whether it is possible for Teck to meet all water quality standards at Outfall 001.
- (9) Whether it is possible for Teck to meet all water quality standards before reaching the confluence of the Middle Fork and North Fork of Red Dog Creek.
- (10) Whether the best technology is being applied to avoid or reduce mixing zone sizes.

Questions of Law

- (1) Can ADEC legally conduct an anti-degradation analysis without promulgating the implementation procedures required by the Clean Water Act?

this appeal only if Teck appeals any portion of the NPDES permit and related § 401 Certification. Notwithstanding a decision by Teck to not appeal, these Requestors may, in any event, appeal from limits set for TDS discharge into Red Dog Creek from when Arctic grayling begin spawning in the Main Stem of Red Dog Creek until the conclusion of that spawning period as determined by the Alaska Department of Fish & Game.

- (2) What uses must be attained under the antidegradation policy?
- (3) Can the relaxed effluent limits, which constitute backsliding in violation of the federal Clean Water Act, be justified by the 401 Certification?
- (4) Have conditions changed sufficiently to permit relaxed effluent limits, under 40 C.F.R. §122.62 and Section 402 of the Clean Water Act, when compared to the 1998 NPDES permit?
- (5) Will the proposed WAD cyanide limits for the § 401 Certification exceed acute and chronic levels for cyanide as set forth in Alaska and federal regulations?
- (6) May ADEC permissibly allow Teck to operate under the least protective water quality criteria applicable?
- (7) Does the § 401 Certification require Teck to treat discharges to achieve the highest statutory and regulatory requirements?
- (8) Does the Clean Water Act permit ADEC to relax effluent limitations based on statistical variability?
- (9) Is it legally permissible for the § 401 Certification to implement new limits and mixing zones that were not discussed, and thus not subject to public comment, in the Draft § 401 Certification?
- (10) Should Commissioner Larry Hartig, who previously worked as counsel for Teck, recuse himself from adjudication of this appeal due to a conflict of interest?

A. The Requestors Have a Direct Interest that is Adversely Affected by the State's Final Certificate of Reasonable Assurance.

The Requestors, as residents of Kivalina and Point Hope, Native villages near the Red Dog Mine, regularly experience the impacts of operations at the Red Dog Mine, supporting facilities and transportation corridors. They have experienced reduced quality in basic life functions such as subsistence hunting and fishing, and in the quality of water they consume. The Native Village of Kivalina is an Inupiat village on the Chukchi Sea, at the mouth of the Wulik River, downstream of the Mine's Outfall 001 on Red Dog Creek. The community obtains drinking water from the Wulik River, and hunts and fishes in the marine and terrestrial environment adjacent to the port and mine sites. As a result of Teck's repeated and documented violations of the Clean Water Act, residents of Kivalina sustained adverse impacts to their health and subsistence and filed suit to stop the illegal discharges. Despite that successful litigation and subsequent consent decree, the proposed NPDES permit does nothing more than relax existing effluent limits to legalize the Red Dog Mine's chronic inability to comply with water pollution controls. The drinking water quality of the Kivalina residents has and will continue to decline because of the violations.

The Native Village of Point Hope is a village on the Chukchi Sea to the north of where the Wulik River empties into the Chukchi Sea. Members of the Point Hope community hunt the bowhead whale and other marine mammals, which migrate through the area where the Wulik River discharges into the Chukchi Sea. They also hunt other migratory terrestrial animals, such as caribou, that migrate through the mine area and related transportation corridor. The illegal discharges into Red Dog Creek by Teck have

affected and threaten to affect the marine and terrestrial mammals upon which Point Hope residents rely for subsistence hunting and fishing.

Because of the Mine's discharges, the location and quantity of terrestrial mammals, marine mammals and fish that constitute the basic food sources for these communities have been adversely affected. Teck's known and documented violations of the Clean Water Act deprive the Requestors of the opportunity to exercise their way of life in a manner they have enjoyed for thousands of years and without fear of illness, exposure to contamination and negative impacts to their subsistence lifestyle. The State's final § 401 Certification proposes to sanction, and make fully legal, Teck's Clean Water Act violations that have persisted for over a decade. Namely, the § 401 Certification shows that the State will fully authorize Teck's repeated violations of the 1998 permit standards by lowering the standards, and thus impermissibly allowing backsliding in violation of the Clean Water Act, in order to bring Teck "into compliance." This is not protective of human health or the environment, the underlying goals of the Clean Water Act, and violates the anti-backsliding and anti-degradation requirements of the Act that the State is obliged to implement.

The Kivalina residents use the area downstream of the Mine for subsistence hunting and fishing as well as drinking water, and those uses are impacted by Teck's discharges into Red Dog Creek. Kivalina residents fish for and consume grayling, Dolly Varden, chum salmon, and other fish species that rely on the Wulik River, Ikalukrok Creek, and Red Dog Creek for their habitat. Kivalina and Point Hope residents hunt terrestrial and marine mammals that pass through areas downstream of the discharges at issue in this appeal. Because the Kivalina and Point Hope residents are directly harmed by any weakening of effluent limitations and mining operation controls, and because they "disagree with this decision," they have a direct interest that will be adversely affected by this ADEC action and are entitled to request an adjudicatory hearing.

The Northern Alaska Environmental Center ("Northern Center") is a non-profit organization that was founded in 1971 to protect and conserve habitat in the Interior and Arctic of Alaska for wildlife, culture, and environmental health. One of its primary focus areas is on Clean Water & Mining, which has led the Northern Center to be actively involved in public processes and monitoring of the Red Dog Mine. The Alaska Community Action on Toxics ("ACAT") is a statewide non-profit organization established in 1997 and dedicated to achieving environmental health and justice. ACAT's stated mission is "to assure justice by advocating for environmental and community health. We believe that everyone has the right to clean air, clean water, and toxic-free food." One of ACAT's primary mission areas is Water Quality Protection. ACAT has been particularly involved and concerned with toxic releases as a result of Red Dog Mine discharges and fugitive dust issues, even publishing a scientific study in May 2004 regarding elevated levels of heavy metals in plants used for subsistence purposes. As both organizations and their members have educational, recreational and environmental interests in the affected region and have been actively involved in the public process and "disagree with this decision," they are directly and adversely affected by ADEC's Certification of the NPDES permit.

The Kivalina and Point Hope residents, as well as Northern Center and ACAT, therefore request a ten-day hearing to resolve the legal and factual issues in this appeal. Requestors incorporate by reference the comments and supporting documentation submitted during the comment period for the draft § 401 Certification to be considered a part of the record of this hearing request. Pursuant to 18 AAC 15.220, we expect a decision on this request within 30 days after the time has expired for us to reply to any responses to this request.

B. The Requestors Appeal the State § 401 Certification Because it Violates the State's Antidegradation Policy and Constitutes Illegal Backsliding Under the Clean Water Act.

The Requestors raised several issues in their public comments on the State's § 401 Certification and EPA's NPDES permit. Those comments, and the State's failure to rectify the inadequacies and violations in the proposed 401 Certification, form the basis for this appeal. With the final 401 Certification, the State "certifies that there is reasonable assurance that the proposed activity, as well as any discharge that may result, is in compliance with the requirements of Section 401 of the Clean Air Act, which includes the Alaska Water Quality Standards (18 AAC 70)." This Certification does not comply with the Clean Water Act because it is based on the faulty premise that the State is capable of performing an antidegradation analysis despite the fact that the State has not adopted any means of implementing the Alaska Antidegradation Policy. In addition, the mixing zones are based on legally flawed calculations and violate Alaska's mixing zone regulations. Further, the effluent limits in the permit have been relaxed, without justification, for the average monthly effluent limitation (AMEL) for lead, and the effluent limitations for cyanide, zinc and TDS as compared to the 1998 permit limits. Finally, the § 401 Certification, in violation of Alaska law, fails to analyze the impacts of the discharge and the relaxed effluent limits on water quality downstream in the Wulik River.

1. The State's 401 Certification violates antidegradation requirements.

When the EPA revises permitting standards, the revision must be consistent with the state's antidegradation policy ("ADP"). See 33 U.S.C. § 1313(d)(4)(B); Water Quality Standards Handbook: Second Edition ("Handbook"), at 4-10. Antidegradation is not defined in statute or regulation, but is a procedure to be followed when evaluating activities that may have an impact on water quality. The implementation of that procedure is meant to protect water quality by maintaining or improving water quality, not by allowing it to be degraded further.

Federal regulations require that states include an ADP that is no less stringent than the federal ADP in every water quality standards package submitted to the EPA for review. See 40 C.F.R. § 131.6(d). The federal ADP delineates different levels of protection for three different "tiers" of waters for water quality standards.

A “Tier 1” designation is meant to protect all existing uses of a waterbody: water quality may be lowered only if “existing instream uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.” 40 C.F.R. § 131.12(a)(1). “Tier 2” provides the protection necessary “to support propagation of fish, shellfish, and wildlife and recreation in and on the water” to waters whose quality already exceeds the Tier 1 level and allows for reduction in water quality only if, after a full public process and intergovernmental coordination, it is “necessary to accommodate important economic and social development.” 40 C.F.R. § 131.12(a)(2). “In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully.” *Id.* “Tier 3” waters are those waters that have been designated as Outstanding National Resource Waters (“ONRW”). These waters include waters in state or national parks, wildlife refuges, and waters of “exceptional recreational or ecological significance.” 40 C.F.R. § 131.12(a)(3). For such waters, there are no exceptions: “water quality shall be maintained and protected.” *Id.* The lowering of water quality in Tier 3 waters is prohibited. *See Handbook at 4.7.*

EPA’s antidegradation regulation also requires the State to “identify the methods for implementing such policy ...” 40 C.F.R. § 131.12(a). For enforcement purposes, this is the most important part of the antidegradation requirement. The procedures developed to implement the ADP must be designed to: (1) prohibit any degradation in some waters; (2) minimize the impacts of degrading activities in others; and (3) assure that in every case, existing uses are protected.

Although EPA guidance indicates that some type of review process is required for all three tiers of antidegradation policy, the review process is especially important in the context of waters protected by Tier 2 standards. *See Handbook at 4-6 to 4-9.* Whenever any lowering of water quality occurs under Tier 2, the antidegradation regulation requires a state to: (1) determine whether the degradation is “necessary to accommodate important economic or social development in the area in which the waters are located”; (2) consider less degrading alternatives; (3) ensure that the best available pollution control measures are used to limit degradation; and (4) guarantee that, if water quality is lowered, existing uses will be fully protected. *See 40 C.F.R. § 131.12(a)(2); Handbook at 4-7.*

Alaska has adopted the federal ADP 3-Tier requirements. *See 18 AAC 70.015.* ADEC has not, however, established implementation procedures for its ADP as required by the EPA.² As a result, the ADEC is legally incapable of performing, and has failed to perform, the antidegradation analysis required in order to revise the water quality standards for the permit and to issue this § 401 Certification. *See Handbook at 4-10; Northwest Environmental Advocates v. EPA, 268 F.Supp. 2d 1255, 1265 (D. Or. 2003) (finding that an implementation plan is a required element of the ADP). This alone*

² *See* Division of Water, Water Quality Standards, Fact Sheet: Antidegradation Policy Implementation (March 24, 2008); APDES Implementation Workshop, October 6, 2009; Water Quality Antidegradation Implementation Conference, ADEC, Anchorage, AK December 2-3, 2009.

establishes as a matter of law that the § 401 Certification for the NPDES permit may not be issued.

Further, the draft § 401 Certification's antidegradation analysis suffers from significant procedural deficiencies. ADEC did not provide the public with an opportunity to comment on the antidegradation analysis contained in the final § 401 Certification. Nor did the final § 401 Certification follow any procedures – indeed ADEC never adopted an ADP implementation plan to create such procedures – to determine its legal adequacy. The State should get no deference for attempting to comply with Clean Water Act requirements that it has not properly implemented.

The designated uses for the water bodies at issue in this appeal are as follows:³ Middle Fork Red Dog Creek – industrial water supply, contact recreation (wading only), and secondary recreation (except fishing); Main Stem Red Dog Creek – industrial water supply, contact recreation (wading only), secondary recreation, and growth and propagation of fish; and Ikalukrok Creek – industrial water supply, contact recreation (wading only), secondary recreation, and growth and propagation of fish. Alaska regulations require that water quality for the designated uses for the water bodies in question in this appeal have the same standards as drinking water. *See* 18 AAC 70.020(b). Under the antidegradation policy, existing instream uses must be protected, which are “those uses actually attained in the water body in or after November 28, 1975, whether or not they are included in the water quality standards.” 40 CFR § 131.3(e). Red Dog Creek and Ikalukrok Creek are actually attaining growth and propagation of fish, and that use must be protected.

2. *The reduced effluent limits for zinc violate antidegradation requirements.*

While the State certifies in the § 401 Certification that revised relaxed effluent limits for zinc are consistent with the State's antidegradation policy because they will “be adequate to fully protect existing uses”,⁴ among other reasons, any rationale provided by the State is overruled by the requirement that “all wastes and other substances will be treated and controlled to achieve ... for new and existing point sources, the highest statutory and regulatory requirements.” 18 AAC 70.015(a)(2)(E)(i).

The Certification notes: “the permit includes a less stringent AMEL [(average monthly effluent limitation)] and MDEL [(maximum daily effluent limitation)] based on the application of the statewide criteria instead of the natural condition-based site-specific criterion.” § 401 Certification, Attachment A, at 3. What is particularly worth noting is that Teck obtained the natural condition-based site-specific criterion for zinc because it could attain that level, not because the criterion was based on any scientific or legal determination. Now that the statewide level has been revised to be less stringent, Teck seeks to continue to reduce water quality with a lesser standard. This is not a proper

³ *See* 18 AAC 70.230(e).

⁴ Clean Water Act (CWA) § 401 Certification, Attachment A, at 6.

justification to allow backsliding. Under Section 402(o) of the Clean Water Act, “a permit may not be renewed, reissued, or modified on the basis of effluent guidelines ... subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.” 33 U.S.C. §1342(o); *see also* 40 C.F.R. §122.44(l). The § 401 Certification does not indicate that the “circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance” under 40 C.F.R. §122.62. *Id.* The justifications for modification include alteration of facilities, new regulations, or new information not available at the time the original permit was issued. *See* 40 C.F.R. § 122.62(a). The Certification contains no such justification. Teck’s race to the bottom does not comply with the goals and requirements of the Clean Water Act, let alone the State’s own water quality standard regulations.

If the natural condition-based site-specific criterion for zinc requires a more-strict effluent limit for AMEL and MDEL, it must be followed, instead of the less stringent statewide criteria. Despite this requirement, ADEC inexplicably claims that this reduced standard, which does not meet the strictest standard available, “meet[s] the highest applicable statutory and regulatory requirements.” § 401 Certification, Attachment A, at 9. Since Teck is technologically and economically capable of meeting the current zinc effluent standards, and a lower effluent limit is prohibited by law, there is no legal justification for the reduced effluent limit for zinc.

Finally, since the State has not developed an implementation plan for its ADP, it cannot legally make a determination that the reduced zinc effluent limits will not violate the ADP.

3. *The relaxed AMEL for lead violates antidegradation requirements.*

The § 401 Certification allows for the relaxation of the AMEL for lead from 8.1 µg/L in the 1998 permit to 8.5. This effluent limit was chosen based on “both State water quality standards and on actual, historic, facility, discharge data for the preceding five year period.” Noting that the “minor ... changes are the result of statistical variability in data sets used to determine effluent limits,” the ADEC has determined that the reduced effluent standard will be adequate to fully protect existing uses. § 401 Certification, Attachment A, at 2. There is no exemption in the Clean Water Act to relax effluent limitations for “statistical variability,” as ADEC has suggested. As such, ADEC provides no legally defensible justification for the relaxation of this limit.

It is worth noting first that the State indicates that the minimum daily total lead concentrations have not exceeded 5 µg/L for the last six discharge seasons. The new effluent limitation would allow Teck to nearly double its discharge of lead if it so desired. But, as noted in public comments provided for the Draft § 401 Certification, the Clean Water Act does not allow the ADEC to relax effluent limitations due to statistical variability. Thus, the ADEC is required to conduct a full, legal antidegradation analysis

to justify relaxing these limits, yet it is incapable of doing so because it has not developed an ADP implementation plan.

4. *The reduced effluent limits for cyanide violate antidegradation requirements.*

The § 401 Certification allows for a significant relaxation of the AMEL and MDEL weak acid dissociable (WAD) cyanide limits, authorizing an increase in AMEL from 4.0 µg/L to 10.3 and 9.0 µg/L to 22.0 for MDEL. The Certification states, “Cyanide was previously measured as total cyanide but the Alaska Water Quality Standard is now measured as weak acid dissociable (WAD) cyanide.” § 401 Certification, Attachment A, at 3. It later asserts “a new limit based on WAD cyanide is established in the permit.” *Id.* at 6.

The Certification is ambiguous as to whether the new levels, based on WAD cyanide instead of total cyanide, are consistent as to toxicity levels, whether acute or chronic, allowed under the previous permit. For example, it does not certify that an effluent limit of 4.0 µg/L for total cyanide (the limit under the 1998 permit) is essentially the same as 10.3 µg/L for WAD cyanide. Thus, there is no way to determine whether this change to a new measurement standard and a new effluent limit for that standard is consistent with previous levels or represents a relaxation of standards as compared to previous levels.

However, even if it is not a relaxation of standards, the new WAD cyanide limits would exceed the limits for chronic levels of cyanide. The Certification also states “the maximum projected concentration for cyanide at the point of discharge is below the acute water quality standard.” § 401 Certification, Attachment A, at 6. However, a review of the applicable regulations indicates this statement sidesteps acknowledgment of noncompliance with chronic levels in state regulations. According to the current⁵ *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (“Water Quality Manual”), the acute level of cyanide for aquatic life for fresh water is 22 µg/L, with the chronic level at 5.2 µg/L. This portion of the Water Quality Manual refers to 18 AAC 80.300(b) as the guiding state regulation as to drinking water quality. Thus, according to the Water Quality Manual, the new proposed MDEL level of 22.0 µg/L and AMEL level of 10.3 µg/L proposed for WAD cyanide would exceed the chronic level of 5.2 µg/L. If these are the levels that will be required for compliance at the end of Mixing Zone 2, then cyanide levels do not meet the chronic level at the edge of the mixing zone as required by state regulations. *See* 18 AAC 70.255(b) (“Water quality criteria must be met at the boundary of the mixing zone.”).

The § 401 Certification therefore fails to provide a legally defensible justification for relaxed cyanide effluent limitations because ADEC does not acknowledge the relaxed limits and it is incapable of performing any antidegradation analysis because it lacks an implementation plan for Alaska’s ADP.

⁵ December 12, 2008.

5. *The reduced effluent limits for TDS violate antidegradation requirements.*

In perhaps the most egregious Clean Water Act violation contained within the § 401 Certification, the State has determined that, since Teck is incapable of meeting effluent standards for TDS, and has been repeatedly in violation of them since the issuance of the 1998 permit, those standards will simply be relaxed to a level where Teck can be in compliance. Compounding this violation, ADEC authorizes significantly large mixing zones for TDS, which is discussed below.

The § 401 Certification certifies the relaxation of the TDS limits of 170 mg/L (AMEL) and 196 mg/L (MDEL) contained in the 1998 permit. The new permit will allow for three different TDS limits: (1) 1,500 mg/L measured at Station 151 in the Main Stem of Red Dog Creek; (2) 1,000 mg/L measured at Station 150 in Ikalukrok Creek; and (3) 500 mg/L at Station 160 “from July 25th through the end of the discharge season.”

There is no legal justification for relaxing the TDS limits because Teck is incapable of complying with the existing permit and governing law, the Clean Water Act. But that is the only explanation provided by the ADEC for its relaxation: “[T]he mine has never been able to comply with the TDS limits imposed by the 1998 permit. As a result, the mine has been subject to COBCs, which since 2006 established TDS limits identical to those proposed in this renewed permit.” So, rather than requiring Teck to operate in a manner that complies with the 1998 permit TDS limits, the ADEC has improperly certified the relaxation of those limits to a reduced water quality standard that is suitable to Teck.

It is also disturbing is that DEC’s approach ignores the fact that EPA found that technology to meet the 1998 permit’s end-of-the-pipe TDS effluent limitations exist and are feasible. In the Final SEIS that analyzed the proposed NPDES permit, EPA conceded that reverse osmosis with pretreatment for gypsum removal is a proven option to achieve an end-of-the-pipe 170 mg/l monthly average TDS effluent limitation and 198 mg/l daily maximum TDS effluent limitation in the 1998 mine site NPDES permit. *See* Final SEIS at 2-22 (which requestors incorporate by reference). EPA concedes that a system with barium hydroxide is technologically feasible, but would require time for full-scale optimization. *Id.* at 2-23; Response to Comment 10.013. Moreover, a reverse osmosis system with aluminum hydroxide would also achieve the same goal and EPA did not indicate that there would be any implementation issues for such a system. Because there are feasible control technologies to reduce TDS, the ADEC may not certify the proposed permit without them. *See* 18 AAC 70.240(a)(3) (requiring the ADEC to find that methods are “the most effective and technologically and economically feasible”); 18 AAC 70.015(a)(2)(D) (requiring the ADEC to find that the “methods of pollution prevention, control, and treatment” are “the most effective and reasonable” and “will be applied to all wastes and other substances to be discharged”).

The reduced effluent limits for TDS will adversely harm Arctic grayling, coho salmon, Dolly Varden, and chum salmon spawning. Evidence in the record demonstrates that TDS levels well below 1,500 mg/l are toxic to fertilization and egg development. Brix and Grosell (2005) demonstrates that the no observable effects level is as low as 132 mg/l and the lowest observable effect level is as low as 254 mg/l. ADEC ignores the Brix study and has certified a permit that will adversely affect the subsistence interests of the appellants who consume Arctic Grayling as an important food source.

The proposed TDS level of 1500 mg/L is demonstrably harmful to aquatic organisms. Rather than there being no adverse impact on aquatic life, just the opposite is true, as the State of Alaska has previously established. An Alaska Department of Fish & Game literature review documents harm to aquatic life when TDS levels are in the range contemplated by the proposed water quality standards revisions.⁶ The information presented in the Fish & Game TDS study shows quite clearly that some waters containing TDS concentrations less than 1500 mg/L can be toxic to fish and other aquatic organisms (many of which are fish food).

The 2001 Aquatic Biomonitoring study⁷ states that the Invertebrate Density was much greater at upstream station 9 (11.7 # / m³) than at station 10 (3.21 # / m³), as an average during 2001.⁸ The 2001 Aquatic Biomonitoring study concludes that the waters at station 10 rapidly return to background concentrations for TDS, about 150 mg/L, during periods of no mine discharge. This reinforces the notion that the proposed TDS standard of 1500 mg/L is roughly *ten times background* – the concentrations under which the local aquatic organisms evolved. Baseline data from 1982-83, before the mine began discharge, reveal that the median TDS concentrations in 11 samples was 198 mg/L (the maximum, 876 mg/L is about half of the new proposed standard; the minimum was 9 mg/L).⁹

A variety of fish use Ikalukrok Creek and Red Dog Creek as spawning and habitat. According to the 1999 Fish and Game study,

Arctic grayling, slimy sculpin, and juvenile Dolly Varden migrate upstream in Ikalukrok Creek, through the mainstem of Red Dog Creek, and into the North Fork of Red Dog Creek in early summer to rear and return to the Wulik River in fall to winter. Chum salmon spawn in the lower reaches of Ikalukrok Creek in late July and in August. Dolly

⁶ Scannell and Jacobs, Alaska Department of Fish & Game, Effects of Total Dissolved Solids on Aquatic Organisms, Technical Report No. 01-06, June 2001 at 6-16 (hereafter “Fish & Game TDS study”).

⁷ Phyllis Weber Scannell and Alvin G. Ott, Aquatic Biomonitoring at Red Dog Mine, 2001, National Pollution Discharge Elimination System Permit No. AK-003865-2, Alaska Department of Fish & Game Technical Report No. 02-04, May 2002.

⁸ See *id.* at Summary Tables, Executive Summary.

⁹ Phyllis Weber Scannell and Sally Andersen, Aquatic Taxa Monitoring Study at the Red Dog Mine, Alaska Department of Fish & Game, February 1999, at 32.

Varden spawn in Ikalukrok Creek during late August through September.¹⁰

All of the spawning by these fish is threatened by Teck Cominco's ongoing discharges, and will continue to be threatened if the TDS standard is raised. Further, the young fish – including juvenile Dolly Varden and young-of-the-year Arctic grayling – use Red Dog Creek in the summer months.¹¹ Fish & Game reports that the presence of 4-day-old fish suggest that Arctic grayling spawned in the Mainstem of Red Dog Creek just below the entrance of the North Fork of Red Dog Creek.¹²

ADEC's failure to ensure a TDS level that protect the existing uses of Red Dog Creek and Ikalukrok creek as fish habitat and spawning habitat violates 18 AAC 70.015(a)(2)(C). Further water quality issues and concerns will be raised regarding TDS in the following discussions on mixing zones. As noted previously, however, the State is incapable of making any determination regarding whether the new TDS limits will comply with Alaska's ADP because it has failed to promulgate an implementation plan.

C. The Mixing Zone Calculations Are Legally Flawed and Violate The State's Mixing Zone Regulations.

A "mixing zone" is an "area in a waterbody surrounding, or downstream of, a discharge where the effluent plume is diluted by the receiving water within which specified water quality criteria may be exceeded." 18 AAC 70.990(38). A mixing zone may not "cause or reasonably be expected to cause ... a toxic effect in the water column, sediments, or biota outside the boundaries of the mixing zone." 18 AAC 70.255(b)(2). "Water quality criteria must be met at the boundary of a mixing zone." 18 AAC 70.255(b). Teck and ADEC have proposed three mixing zones to manage wastewater discharges from the Red Dog Mine:

- Mixing Zone 1 extends from Outfall 001 (the wastewater discharge point in Lower Middle Fork) downstream to the confluence of the Middle Fork and North Fork of Red Dog Creek, measures approximately 7,000 feet and will be for pH;
- Mixing Zone 2 in the Main Stem of Red Dog Creek extends from the confluence of the North and Middle Forks to Station 151, approximately 1,930 feet and will be for TDS, ammonia, and WAD cyanide;
- Mixing Zone 3 extends downstream from the confluence of Ikalukrok Creek and Red Dog Creek, measuring approximately 3,420 feet, and will be for TDS.

These designations of the lengths for the mixing zones are misleading and inaccurate. If Mixing Zones 2 and 3 are set aside for TDS, then the total mixing zone for

¹⁰ *Id.* at 3.

¹¹ *Id.* at 31.

¹² *Id.* at 94.

TDS is not the distance specified in those two mixing zones, but the total distance between the beginning of Mixing Zone 2 and the end of Mixing Zone 3.¹³ That distance is approximately 12,740 feet, or 2.4 miles.¹⁴ Thus, the total distance of mixing zones is therefore 19,740 feet, or 3.74 miles.

1. *Mixing Zone 2 & 3*

Mixing zones are usually authorized based on a stream flow analysis of the 7Q10 low flow hydrologic event. *See Handbook*, § 5.2. “Water quality standards should protect water quality for designated uses in critical low-flow situations.” *Id.* According to the State’s responses to public comments, the mixing zone distances and ratios are based on average daily flow volume. *See Response to Comment Document* at 2. The response goes on to state that “the department has determined that the mixing zones will be protective of the aquatic life in the Main Stem as well as ensuring fish passage to the North Fork. In large part, this is based on the finding that the mixing zones will not change the composition of the discharge and no adverse effects have been observed from pre-mining conditions in the Main Stem or the North Fork.” *Id.* This statement still provides no justification for the dilution calculation using an incorrect flow rate. The flow data is not presented, so it is not clear that an adequate number of readings were analyzed. It also assumes that the average daily water volume is a constant, and that there are little, if any, low flow or water periods. However, examination of satellite photos taken of Red Dog Creek from twenty years ago compared to today suggests that the water flow of the creek has diminished greatly over time. Further, conclusions about the current state of water quality compared to pre-mining conditions is no support for whether an adequate scientific analysis and calculation was undertaken to reach the conclusion. ADEC has failed to support its statement that “no adverse effects have been observed” and this statement is directly contradicted by evidence of adverse health and subsistence impacts from the decline in water quality downstream.

In addition, the mixing zone violates the State’s mixing zone regulations because it could create a barrier to fish passage. ADEC regulations note that a mixing zone will

¹³ In reality, if TDS limits are relaxed and may be exceeded in Mixing Zone 2, then they must be exceeded from the point of discharge, which is Outfall 001, or the beginning of Mixing Zone 1. Similarly, the portion where it is expected that Teck will dilute the ammonia and WAD cyanide discharge also begins at Outfall 001, the point of discharge, yet Mixing Zone 1 has not been acknowledged as part of the mixing zone for any of those compounds. The Middle Fork of Red Dog Creek has a designated use of contact recreation which, according to 18 AAC 70.020(b), should have the same water quality standards as “water supply, drinking, culinary, and food processing.” Certainly, there must be water quality limits on TDS, ammonia and cyanide applicable either generally under the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* or under 18 AAC 70.020(b).

¹⁴ This is a rough estimate based on measuring the distance on the map provided with the § 401 Certification using a standard ruler. Based on that calculation, the distance from the end of Mixing Zone 2 to the beginning of Mixing Zone 3 is 7,390 feet.

not be authorized if evidence “reasonably demonstrates that” there could be “a barrier to migratory species” or have an “adverse impact on anadromous or resident fish or shellfish spawning or rearing.” 18 AAC 70.250(a)(2)(A)&(B).

In this case, Mixing Zone 2 is proposed to run from the confluence of the North and Middle Forks to Station 151, approximately 1,930 feet. The North Fork is a stream that provides known spawning habitat for Arctic grayling. Grayling migrate up the Main Stem and into the North Fork during early spring to spawn, and must pass through Mixing Zone 2. Post-mining studies also suggest that improvement of water quality in Red Dog Creek has led to Arctic grayling spawning and rearing in the Main Stem of Red Dog Creek, not exclusively in the North Fork. See Webber-Scannel, P., “Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions,” March 2005, p. 14.

Exposure to toxic substances during migration and spawning could cause avoidance of the area, thus creating a barrier to migrating grayling. Evidence in the record demonstrates that TDS levels well below 1,500 mg/l are toxic to fertilization and egg development. Brix and Grosell (2005) demonstrates that the no observable effects level is as low as 132 mg/l and the lowest observable effect level is as low as 254 mg/l. ADEC ignores the Brix study and has certified a permit that will adversely affect the subsistence interests of the Requestors who consume Arctic grayling as an important food source. ADEC’s failure to ensure a TDS level that protects the existing use violates 18 AAC 70.015(a)(2)(C). Teck’s discharges of ammonia and cyanide are highly toxic to fish and it is likely that the proposed mixing zone would constitute a barrier to grayling migrating up Red Dog Creek into the North Fork to spawn (a fish weir prevents fish migrating into the Middle Fork). Since Teck has provided no evidence, and ADEC has provided no explanation that these highly toxic chemicals do not constitute a barrier to fish migration beyond claiming it to be so, the proposed mixing zone violates 18 AAC 70.250(a)(2).

The mixing zones are also not “as small as practicable”, as required by regulation. 18 AAC 70.240(a)(2). As noted previously, the total distance of mixing zones for TDS constitutes approximately 3.7 miles of waterway, whether formally designated as a mixing zone for TDS or not. There is simply no scientific evidence, analysis or even acknowledgement by the ADEC supporting such an incredibly long mixing zone for TDS. By certifying the permit with such extensive mixing zones for TDS, ADEC is allowing Teck to use considerable amounts of fresh water to dilute its TDS discharge rather than requiring Teck to comply with water quality standards at Outfall 001, or as close as possible downstream to that point.

2. *Mixing Zone 1*

The § 401 Certification adds a mixing zone for pH from Outfall 001 to the confluence of the Middle Fork and North Fork of Red Dog Creek. There is no justification for this mixing zone, and it was not previously included in the Draft § 401 Certification. It is especially problematic because ammonia criteria are dependent on the pH and temperature of the receiving water. As noted previously, if Mixing Zone 2

contemplates that ammonia will exceed water quality standards, ammonia will obviously exceed water quality standards starting at Outfall 001. Since ammonia, WAD cyanide and TDS levels will be higher within Mixing Zone 1, aberrant pH readings will likely result in ammonia, WAD cyanide and TDS levels that are even more toxic than at the point of discharge and more acutely and chronically toxic in Mixing Zone 1.

What makes the pH mixing zone particularly problematic is that there is no discussion within the Certification or the “antidegradation analysis” as to how the pH mixing zone will impact excessive levels of ammonia, WAD cyanide and TDS. Ultimately, the mixing zones cannot be authorized because the § 401 Certification fails to acknowledge their actual length, and fails to justify a nearly four mile mixing zone for TDS as an alternative to forcing Teck to comply with the TDS limits either at the point of discharge or in a considerably smaller mixing zone. None of the mixing zones discussed herein can be authorized because the State does not have an implementation plan for its ADP

D. ADEC Failed to Consider a Feasible Alternative to Discharging into Red Dog Creek.

Evidence in the record demonstrates that changing the discharge location for the mine’s effluent from Outfall 001 on Red Dog Creek to the Port Site via a wastewater pipeline is feasible. *See* Consent Decree at 2. Teck has repeatedly affirmed its intent to construct the pipeline. ADEC finds, however, that the methods in the proposed permit for treatment of TDS, ammonia, cyanide, selenium, lead, and zinc are the most effective and reasonable method for prevention and control, while certifying increased effluent limitations for all of these pollutants. § 401 Certification, Attachment A, at 8-9. ADEC ignores the pollution prevention and control option of diverting the effluent from Red Dog Creek and discharging directly to the ocean, thus ensuring a much higher level of protection for drinking water quality and subsistence use of Wulik River marine and terrestrial resources. Teck Alaska itself concedes that the wastewater pipeline is a feasible means of discharging the effluent directly to the ocean, rather than to the ocean via the Wulik River.

Teck should be required to indicate whether a pipeline will be proposed, the timing of such a pipeline, and, equally important, identify the discharge levels anticipated for a ocean discharge pipeline. ADEC should require that ocean pipeline discharges will meet the requirements of the Clean Water Act and ensure that any ocean discharges will not adversely affect marine life upon which the requestors depend for subsistence. DEC should also require Teck to explore additional technological innovations using best available technology such as reverse osmosis/ nano filtration, impermeable/lined evaporation ponds, bacteria treatment, water volume management, and source control.

ADEC’s certification of the permit given the feasibility of the wastewater pipeline, and other alternatives, thus violates 18 AAC 70.015(a)(2)(D) and 40 C.F.R. § 131.12(a)(2) as a matter of law and was arbitrary and capricious.

E. ADEC Failed to Certify the Removal of the Permit Condition Prohibiting Winter Discharges

DEC has failed to certify that the removal of the permit conditions prohibiting winter discharges (1998 permit condition I.C.11) meets water quality standards and protects existing uses. Evidence in the record demonstrates that fish species use the Wulik River, Ikalukrok Creek, and Red Dog creek during winter months. Requestors use the Wulik River drainage to hunt and fish during winter. Removing the prohibition against winter discharges allows Teck Alaska to discharge every day of each year, eliminating months of time during which fish species and the entire ecosystem were spared elevated levels of TDS, cyanide, ammonia, and other toxic compounds. The failure to certify this permit condition removal violates antidegradation requirements as a matter of law.

IV. COMMISSIONER HARTIG SHOULD RECUSE HIMSELF FOR CONFLICT OF INTEREST.

Requestors maintain that Larry Hartig, as Teck's (then "Teck Cominco") primary lawyer for more than a decade, has an inherent conflict of interest in adjudicating this request and conducting a hearing, and should recuse himself. Mr. Hartig was a staunch advocate for Teck during his many years of providing counsel, including during Teck's years of violations of the Clean Water Act. It is impossible for Mr. Hartig to now set aside that advocacy role for a role as an impartial adjudicator and commissioner. The appearance of impropriety through his participation would seriously taint the legitimacy of the proceedings and adversely impact the image of ADEC as an objective regulating agency. *See* Alaska Rules of Professional Conduct 1.9; Canons of Judicial Conduct 3.E.

V. CONCLUSION

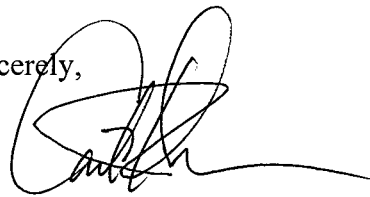
In September 2009, Teck paid a \$120,000 fine to the EPA for violating the Clean Water Act. According to the EPA, the violations included the failure to collect representative samples of the effluent discharged, exceeding the permit's effluent limits and discharges of unpermitted wastewater to the tundra. Teck also paid penalties for violations of the Clean Water Act as a result of a citizen suit brought by individuals in Kivalina. It is an abrogation of ADEC's duties under Clean Water Act to allow relaxation of permit effluent limitations, many of which Teck has repeatedly violated to the detriment of the health and subsistence needs of Kivalina and Point Hope.

The final § 401 Certification issued by ADEC is legally inadequate. The State has not timely promulgated an antidegradation policy implementation plan, as required by the EPA and Clean Water Act. The ADEC can therefore not perform an antidegradation analysis to support the relaxed effluent limits for lead, zinc, cyanide, and TDS. The State also cannot authorize the mixing zones specified because they are not as small as practicable; they create a barrier to fish passage; they are not allowed because the best available technology has not been implemented and the most stringent water quality standards have not been applied; and they are proposed in a possible Arctic

grayling spawning area in violation of 18 AAC 70.250. The § 401 Certification does not establish reasonable assurance that the proposed activity, as well as any discharge that may result, is in compliance with the requirements of Section 401 of the Clean Water Act, which includes the Alaska Water Quality Standards (18 AAC 70), and violates the anti-backsliding and antidegradation requirements of the Clean Water Act.

An adjudicatory hearing is necessary to ensure that the § 401 Certification meets all statutory and regulatory requirements. The Requestors have participated in the administrative process and their comments failed to result in ADEC's alteration of its decision to come into compliance with the law. Requestors are directly and adversely impacted by the operations at the Red Dog Mine, and are entitled to have their issues addressed and their interests in clean water protected through the State's § 401 Certification and the NPDES permit.

Sincerely,



Carl H. Johnson
Staff Attorney
Trustees for Alaska

cc: Native Village of Point Hope IRA Council
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