

Antidegradation Implementation Conference Stakeholder Perspectives Red Dog Mine, Teck Alaska Incorporated

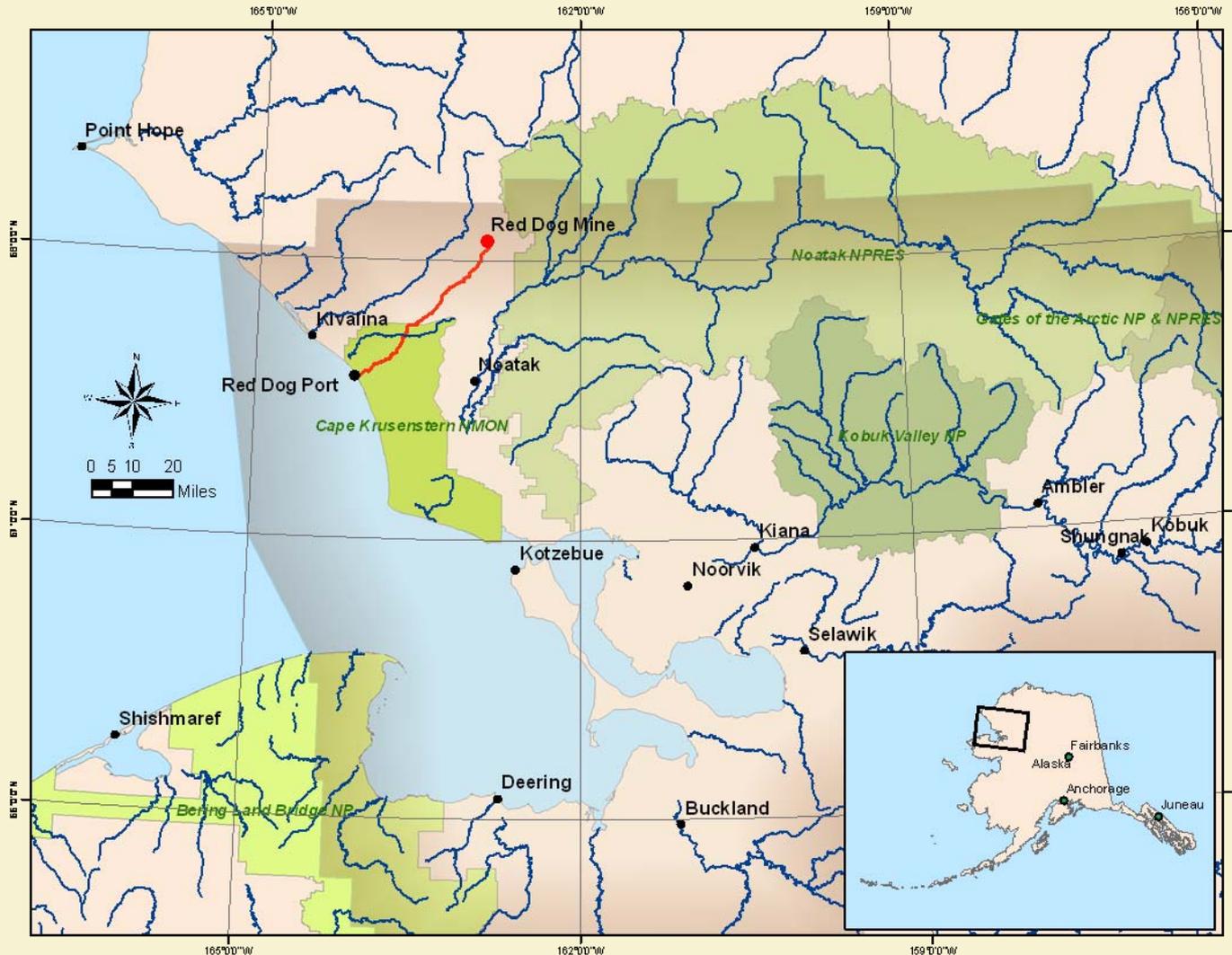
Robert Napier
Environmental Coordinator

Anchorage Marriott Downtown
Thursday, December 3rd, 2009

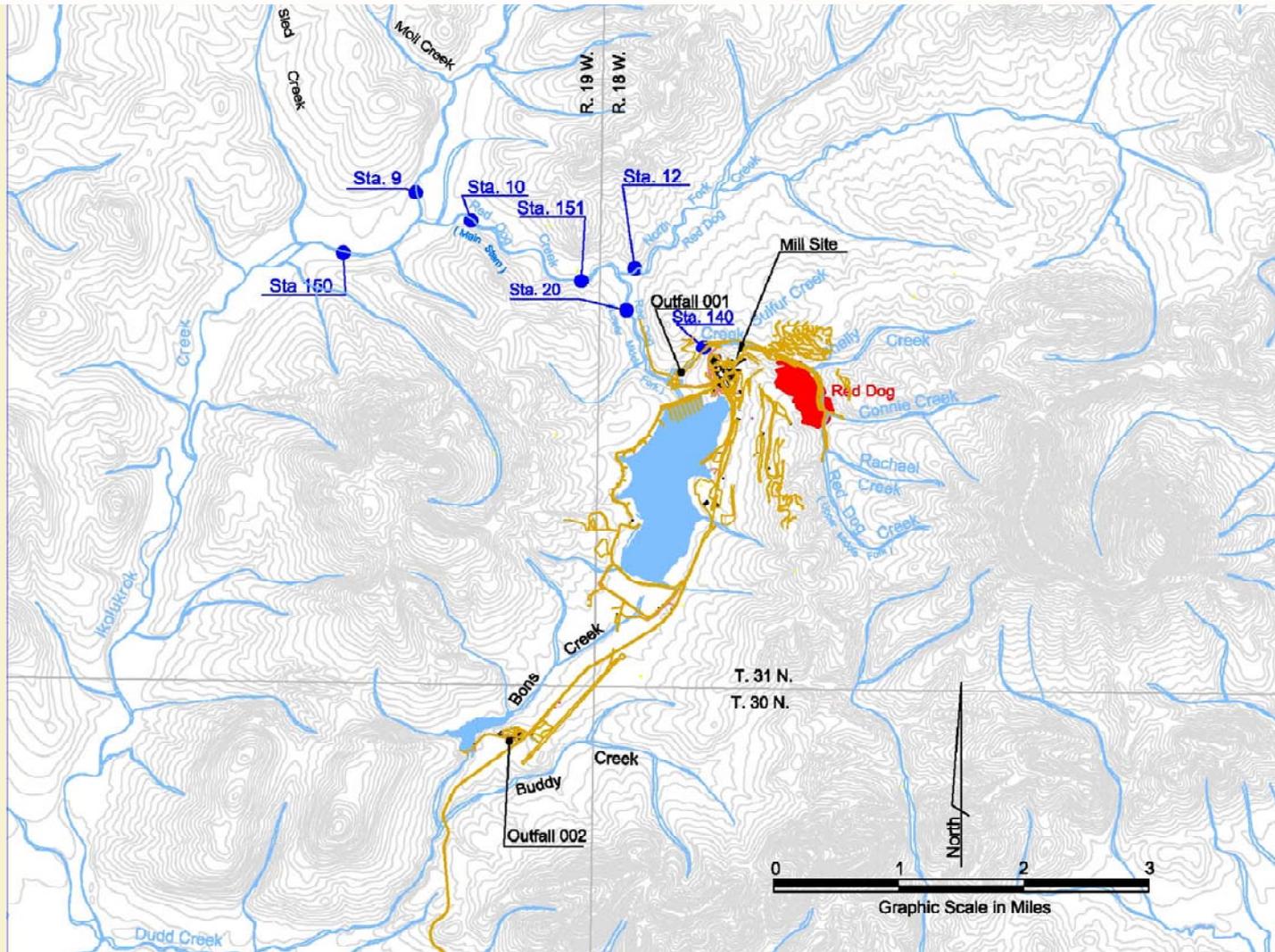


- From the Red Dog Mine Perspective
 - Background
 - Red Dog Creek Baseline Conditions
 - Red Dog Creek Active Mining Conditions
- Historic Antidegradation Implementation Issues
 - Cadmium (Cd) Natural Condition-Based Site Specific Criterion (NCBSSC)
 - 2007 Final NPDES Permit
 - 2008 Draft NPDES Permit
- Direction for Antidegradation Implementation Plan
 - Keep It Simple and Straightforward

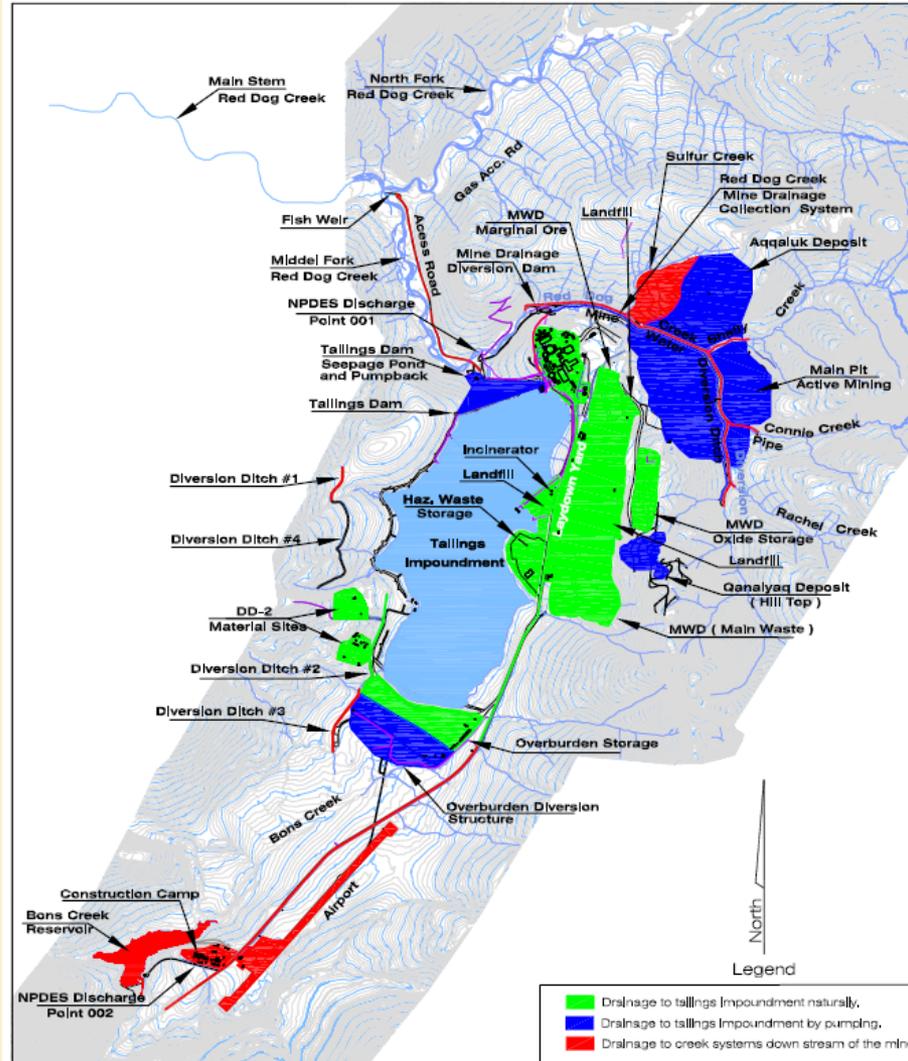
Red Dog Mine – Background Location Overview



Red Dog Mine – Background Surface Water Bodies



Red Dog Mine – Background Water Management





- Red Dog Creek Baseline Conditions
 - Before development of the Red Dog Mine,
 - water quality was naturally degraded in Red Dog Creek;
 - fish use was limited to migration to North Fork of Red Dog Creek during high water events;
 - no fish spawning was documented in Red Dog Creek; and
 - natural fish kills commonly occurred in Red Dog Creek

(From Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions, DNR OHMP, 2005)



- Red Dog Creek Active Mining Conditions

- Development of the Red Dog Mine included a number of water management practices that resulted in improved water quality in Red Dog Creek. These practices included collection, treatment and discharge of mineralized water; discharge of high volumes of water with low metals concentrations; and improvements in water treatment;
- High volumes of treated water are discharged to Middle Fork Red Dog Creek. This water dilutes the naturally occurring metals in Red Dog Creek, moderates the pH, and lessens the toxicity of metals by increasing the hardness;
- As a result of improved water quality, Arctic grayling began using Mainstem Red Dog Creek for spawning and rearing and Dolly Varden for rearing;
- Improved water quality was followed by development of abundant and diverse aquatic invertebrate and periphyton communities; and
- Over the last six years (1998 through 2004) there is a viable aquatic community in Mainstem Red Dog Creek with the current water quality and mine discharge.

(From Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions, DNR OHMP, 2005)

Red Dog Mine – Perspective



Table 4. Summary of the characteristics of the aquatic communities and water quality between pre-mining and current conditions, Mainstem Red Dog Creek.

| | Pre-mining 1982 - 1983 | Current Conditions 1999 - 2003 |
|--------------------------|---|---|
| Water Quality | high metals, Most water samples (>90%) exceed 5 times the acute standard for Cd and Zn. | somewhat elevated metals. No samples exceeded 5 times acute standard for Cd and Zn. |
| Fish Populations | Few fish, migration only. | Arctic grayling spawning and rearing, Dolly Varden rearing |
| Invertebrate Communities | No or few invertebrates observed | Abundant community with high taxonomic richness. |
| Periphyton Communities | No periphyton observed | Abundant community, richness represented by all three major pigments. |

(From Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions, DNR OHMP, 2005)

<http://www.habitat.adfg.alaska.gov/techrepts.php>



- Pursuit of Natural Condition-Based Site Specific Criterion (NCBSSC) for Cd
 - NCBSSC was Appealed
 - The appeal was based largely on antibacksliding and antidegradation allegations (“backsliding” *may* be allowed if compliance with antidegradation policy is demonstrated)
 - Appeal alleged that backsliding was prohibited as compliance with antidegradation policy was not demonstrated
 - **Appeal essentially alleged that compliance with the antidegradation policy could not be successfully demonstrated in the absence of an *antidegradation implementation plan***



- Red Dog Mine 2007 Final NPDES Permit
 - 2007 Final NPDES Permit was Appealed
 - Portions of the appeal were based on antibacksliding and antidegradation allegations (“backsliding” *may* be allowed if compliance with antidegradation policy is demonstrated)
 - Appeal alleged that backsliding was prohibited as compliance with antidegradation policy was not demonstrated
 - **Appeal essentially alleged that compliance with the antidegradation policy could not be successfully demonstrated in the absence of an *antidegradation implementation plan***
 - 2007 Final NPDES Permit was Withdrawn (based on NEPA issues)



- Red Dog Mine 2008 Draft NPDES Permit
 - 2008 Draft NPDES Permit Comments
 - Portions of comments centered on antibacksliding and antidegradation allegations (“backsliding” *may* be allowed if compliance with antidegradation policy is demonstrated)
 - Comments allege that backsliding is prohibited as compliance with antidegradation policy cannot be demonstrated
 - **Comments essentially allege that compliance with the antidegradation policy cannot be successfully demonstrated in the absence of an *antidegradation implementation plan***

Direction for Alaska's Antidegradation Implementation Plan



- Red Dog Mine 2008 Draft NPDES Permit
 - Keep it Simple and Straightforward (KISS)



Thank You



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