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January 21, 2010

Via U.S. Mail

Mr. Thomas E. Irwin, Commissioner  
Alaska Department of Natural Resources  
550 W. 7th Ave., Ste. 1400  
Anchorage, AK 99501

DEPARTMENT OF  
NATURAL RESOURCES

JAN 21 2010

COMMISSIONER'S OFFICE  
ANCHORAGE

**RE: Petition to Designate the Streambeds of Anadromous Water Bodies and Riparian Areas within the Chuit River Watershed, Alaska, as Unsuitable for Surface Coal Mining Pursuant to AS 27.21.260**

Dear Commissioner Irwin:

Please accept the enclosed petition to designate certain lands within the Chuit River watershed as unsuitable for surface coal mining pursuant to AS 27.21.260. This petition is filed on behalf of the Chuitna Citizens Coalition, an association of individuals living on the west side of Cook Inlet near the community of Beluga, Alaska, and Cook Inletkeeper, a community-based organization with the mission to protect Alaska's Cook Inlet watershed.

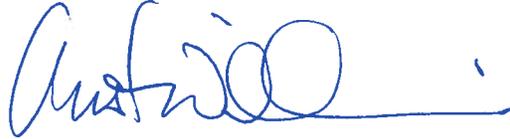
As you undoubtedly are aware, the Chuitna Coal Project is a proposed coal mine that would unearth miles of important salmon spawning, rearing and migration habitat in the Chuit River drainage. Under the most recent draft mining and reclamation plans, PacRim Coal, the primary mine proponent, proposes strip mining directly through significant portions of Stream 2003, which is listed in the Alaska Department of Fish and Game's Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes, *see* Alaska Department of Fish and Game, *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (2009).

The anadromous water bodies and riparian areas within the Chuit River watershed support rich fish and wildlife habitat that is part of the area's complex hydrologic and ecological system. If surface coal mining operations occurred on these lands, the area's hydrologic balance, productive fish and wildlife, and the natural, cultural and aesthetic values of the watershed would be irreplaceably lost. Because post-mining reclamation would be incapable of restoring the important pre-mining uses of the land and could not satisfy the required performance standards, reclamation in accordance with the applicable laws and regulations is not technologically feasible. As such, the anadromous water bodies and riparian areas within the Chuit River

watershed must be designated as unsuitable for surface coal mining under the authority of AS 27.21.260(c)(1).

Please direct correspondence on this matter to the address on the letterhead of this appeal. Communications should be directed to Austin Williams at the above address or by telephone at (907) 276-4244, ext. 114.

Sincerely,



Austin Williams  
Staff Attorney

cc: Judy Heilman, Chuitna Citizens Coalition  
Bob Shavelson, Cook Inletkeeper

**Petition to the Commissioner of the Alaska Department  
of Natural Resources to Designate the Streambeds of  
Anadromous Water Bodies and Riparian Areas within  
the Chuit River Watershed, Alaska, As Unsuitable For  
Surface Coal Mining Pursuant to AS 27.21.260**

**Submitted on Behalf of:**

**Chuitna Citizens Coalition  
Cook Inletkeeper**

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**TABLE OF CONTENTS**

INTRODUCTION ..... 4

**I. Legal Background: Lands Unsuitable for Coal Mining ..... 4**

**II. Factual Background: The Chuit River Watershed ..... 5**

PETITIONERS' CONTACT INFORMATION ..... 11

IDENTIFICATION OF THE PETITIONED LANDS ..... 11

IDENTIFICATION OF PETITIONERS' INTERESTS AND DESCRIPTION OF HOW SURFACE COAL MINING OF THE IDENTIFIED LANDS MAY ADVERSELY AFFECT THOSE INTERESTS ..... 12

ALLEGATIONS OF FACT AND SUPPORTING EVIDENCE ..... 14

**I. Under AS 27.21.260(c)(1), the Commissioner Must Designate the Identified Lands as Unsuitable For Surface Coal Mining Operations Because Reclamation In Accordance With ASCMCRA Is Not Technologically Feasible..... 14**

*A. Construction and Operation of a Surface Coal Mine on the Identified Lands Would Irreparably Harm the Area's Hydrologic Balance..... 16*

*1. Description of the Area's Hydrologic Balance..... 16*

*2. Surface Coal Mining Would Irreparably Destroy Streams, Riparian areas and Wetlands in the Chuit River Watershed, Dramatically Affecting the Local Hydrology. .... 18*

*3. The EIS's Acknowledgement That Streams, Riparian Areas and Wetlands Cannot Be Restored Is Supported by More Recent Scientific Research. .... 20*

**B. Reclamation Would Not Restore Groundwater Recharge Capacity in the Area. .... 24**

**C. Reclamation Would Not Restore Aquatic Productivity to Pre-Mining Levels..... 25**

**D. Surface Coal Mining in the Identified Lands Cannot be Designed and Operated to Minimize Changes in Water Quality and Quantity and Hydrology Enough to Ensure No Adverse Effects to Fish & Wildlife Habitat. .... 29**

**II. Under AS 27.21.260(c)(2)(B), the Commissioner Must Designate the Identified Lands as Unsuitable for all Types of Surface Coal Mining Because Such Operations will Affect Fragile Land and Could Result in Significant Damage to Important Cultural, Scientific, and Aesthetic Values and Natural Systems..... 33**

*A. The Identified Lands Contain Fragile Land Within the Meaning of the ASCMCRA Regulations. .... 33*

*B. Surface Coal Mining Within the Identified Lands Would Result in Significant Damage to Important Cultural, Scientific, and Aesthetic Values and Natural Systems. .... 35*

1. <i>Surface Coal Mining Would Result in Significant Damage to Important Cultural Values Inherent in Subsistence, the Local Way of Life, Commercial Fishing, and Sport Fishing</i> .....	35
2. <i>Surface Coal Mining Would Result in Significant Damage to Important Scientific Values</i> .....	40
3. <i>Surface Coal Mining Operations Would Result in Significant Damage to Important Aesthetic Values</i> .....	42
4. <i>Surface Coal Mining Operations Would Result in Significant Damage to Important Natural Systems</i> .....	43
<b>III. Under AS 27.21.260(c)(2)(C), the Commissioner Must Designate the Identified Lands as Unsuitable for all Types of Surface Coal Mining Because Such Operations will Affect Renewable Resource Land in Which the Operations Could Result in a Substantial Loss or Reduction of Long-Range Productivity of Water Supply or Food or Fiber Products</b> .....	45
<b>IV. Under AS 27.21.260(c)(2)(D), the Commissioner must Designate the Identified Lands as Unsuitable for all Types of Surface Coal Mining Because Such Operations will Affect Areas of Unstable Geology and Other Natural Hazards in Which the Operations Could Substantially Endanger Life and Property</b> .....	46
<b>V. The Identified Lands are not Exempt from Designation as Unsuitable for Surface Coal Mining Under AS 27.21.260(g)</b> .....	48
<i>A. No Surface Coal Mining has been Conducted on These Lands</i> .....	49
<i>B. No Valid Permit has been Issued under ASCMCRA for These Lands</i> .....	49
<i>C. No Person had made Substantial Legal or Financial Commitments for an Operation or Proposed Operation on These Lands Before January 4, 1977</i> .....	49
CONCLUSION.....	50
PETITIONERS.....	52
TABLE OF EXHIBITS.....	54
BIBLIOGRAPHY OF LITERATURE CITED.....	57

## INTRODUCTION

On behalf of the Chuitna Citizens Coalition, an association of individuals living on the west side of Cook Inlet near the community of Beluga, and Cook Inletkeeper, a community-based nonprofit organization with the mission to protect Alaska's Cook Inlet watershed, Trustees for Alaska respectfully petitions the Commissioner of the Alaska Department of Natural Resources (DNR) to designate the lands described below within the Chuit River watershed as unsuitable for all types of surface coal mining operations pursuant to AS 27.21.260. As you undoubtedly are aware, the Chuitna Coal Project is a proposed coal mine that would unearth miles of important salmon spawning, rearing and migration habitat in the Chuit River drainage. This petition is being filed because significant portions of the proposed mine site are not suitable under Alaska or federal law for such a project.

### I. Legal Background: Lands Unsuitable for Coal Mining

When Congress adopted the Surface Mining Control & Reclamation Act (SMCRA) in 1977, it recognized the toll that coal mining has taken on lands, waters and communities in the United States:

[M]any surface mining operations result in disturbances of surface areas that burden and adversely affect commerce and the public welfare by destroying or diminishing the utility of land for commercial, industrial, residential, recreational, agricultural, and forestry purposes, by causing erosion and landslides, by contributing to floods, by polluting the water, by destroying fish and wildlife habitat, by impairing natural beauty, by damaging the property of citizens, by creating hazards dangerous to life and property, by degrading the quality of life in local communities, and by counteracting governmental programs and efforts to conserve soil, water, and other natural resources.

30 U.S.C. § 1201(c). The Act established a regulatory structure governing coal mining in order to “protect society and the environment from the adverse effects of surface coal mining operations.” *Id.* § 1202(a). Two key elements of this regulatory structure are the requirements (1) that surface coal mining operations be conducted so as to protect the environment, and (2) that surface areas damaged by coal mining operations be reclaimed as contemporaneously as possible with the mining operations. *Id.* § 1202(d)-(e). Where reclamation following surface mining operations is not feasible, Congress sought to ensure that operations would not be conducted by providing for the designation of areas as unsuitable for surface coal mining. *See id.* §§ 1202(c), 1272(a).

States have primary responsibility for regulating coal mining operations within their boundaries under SMCRA so long as the state can demonstrate that its regulatory program would carry out the provisions and accomplish the purposes of SMCRA. *See id.* §§ 1201(f), 1202(g), 1253. Among the requirements of valid a state regulatory program

is the “establishment of a process for the designation of areas as unsuitable for surface coal mining in accordance with section 1272 . . . .” *Id.* § 1253(a)(5).

The Alaska Legislature adopted the Alaska Surface Coal Mining Control & Reclamation Act (ASCMCRA) and received federal approval for its regulatory program in 1983. Mirroring federal law, the purposes of the state law include ensuring that coal mining operations are conducted so as to protect land and water resources, AS 27.21.010(b)(3), that reclamation of land on which surface coal mining takes place is conducted as contemporaneously as possible with coal mining operations, AS 27.21.010(b)(5), and “that surface coal mining operations are not conducted where reclamation required by this chapter and the regulations adopted under it is not feasible.” AS 27.21.010(b)(4).

To implement the latter purpose, ASCMCRA provides that any interested person may petition the DNR Commissioner to designate an area as unsuitable for surface coal mining. AS 27.21.260(b). Upon receipt of such a petition, the Commissioner:

shall designate an area as unsuitable for all or certain types of surface coal mining operations if the commissioner determines that reclamation in accordance with this chapter and regulations adopted under it is not technologically feasible in the area.

AS 27.21.260(c)(1). Reclamation in accordance with ASCMCRA requires (1) restoring mined land to a condition that can support either pre-mining land uses or “higher and better” uses approved by the commissioner, 11 AAC 90.481(a), and (2) complying with the performance standards of the statute and regulations. 11 AAC 90.083(a). In addition, upon receipt of such a petition, the Commissioner:

may designate an area as unsuitable for all or certain types of surface coal mining operations if the commissioner determines that the operations in the area will

- (A) be incompatible with existing state or local land use programs;
- (B) affect fragile or historic land in which the operations could result in significant damage to important historic, cultural, scientific, and aesthetic values and natural systems;
- (C) affect aquifer recharge areas or other renewable resource land in which the operations could result in a substantial loss or reduction of long-range productivity of water supply or food or fiber products; or
- (D) affect areas subject to frequent flooding and areas of unstable geology, or other natural hazard land in which the operations could substantially endanger life and property.

AS 27.21.260(c)(2).

## **II. Factual Background: The Chuit River Watershed**

The Chuit River is a 17-mile long, non-glacial river on the western side of Cook Inlet, Alaska, approximately 45 miles West of Anchorage, that supports a world-class fishery. See U.S. Environmental Protection Agency, *Diamond Chuitna Coal Project Final Environmental Impact Statement* 4-28 (1990) [hereinafter EPA 1990], available at [http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/Chuitna+Coal/\\$FILE/OFEIS\\_DC\\_CPrj\\_Vol1.pdf](http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/Chuitna+Coal/$FILE/OFEIS_DC_CPrj_Vol1.pdf); The Nature Conservancy, *Cook Inlet Basin Ecoregional Assessment* 63 (2003) [hereinafter TNC 2003], available at [http://conserveonline.org/docs/2004/09/Cook\\_Inlet\\_Ecoregional\\_Assessment.pdf](http://conserveonline.org/docs/2004/09/Cook_Inlet_Ecoregional_Assessment.pdf). The Chuit River has over a dozen tributaries, EPA 1990 at 4-29, which drain a watershed of about 130 square miles. Brabets, Timothy P., et al., *Water Quality Assessment of the Cook Inlet Basin, Alaska—Environmental Setting*, U.S. Geological Survey, Water-Resources Investigations Report 99-4025, 33 (1999), available at [http://ak.water.usgs.gov/Publications/Abstracts/1999.Abstracts/cook\\_setting\\_abs.htm](http://ak.water.usgs.gov/Publications/Abstracts/1999.Abstracts/cook_setting_abs.htm). The river flows from a pristine plateau at the base of the Alaska Range, through intact forests and wetlands, into the western shore of Cook Inlet. A moderately-sized river by Alaska standards, the Chuit River flows in its natural state, largely unmarred by human development. There is only one, unpaved road crossing. Access to most of the watershed is only possible via floatplane, helicopter, ATV, or snowmobile.

The Chuit River and its tributaries are vitally important to local communities and local fish and wildlife populations, and fishes originating in the Chuit River watershed play an important role in local subsistence, commercial and sport fishing. See Oasis Environmental, *Chuitna Coal Project – 2007 Freshwater Aquatic Biology Study Program* (2008); LGL Alaska Research Associates, *Movement and abundance of freshwater fish in the Chuit River drainage, Alaska, May through September 2008* (2009). The most important and beneficial use of the Chuit River is for its anadromous fish habitat and for the production of salmon and other fishes including Chinook salmon, coho salmon, sockeye salmon, pink salmon, rainbow trout, and Dolly Varden. See *id.*; Ivey Sam S., and Sweet, Dana, *Recreational Fisheries of Northern Cook Inlet, 2003-2004: Report to the Alaska Board of Fisheries, January 2005*, Alaska Department of Fish & Game, Fishery Management Report No. 04-18, 11 (2004), available at <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr04-18.pdf>. In fact, the Chuit River and all but the smallest of its tributaries are listed pursuant to AS 41.14.871 in the Alaska Department of Fish and Game's (ADFG) Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes, see Alaska Department of Fish and Game, *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (2009) [hereinafter ADFG Catalog] (attached as Exhibit 1), and afforded protection under Alaska's Anadromous Fish Act. See AS 16.05.871.

Based on the river's listing in the Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fishes, the ADFG applied in 1996 for an instream flow reservation<sup>1</sup> in the lower reach of the river, noting that:

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<sup>1</sup> An instream flow reservation is an appropriation of water to keep a specific instream flow or water level in a stream or water body for a specific purpose, such as fish habitat. See 11 AAC 93.970(20).

The primary purpose of the proposed reservation is to sustain fish production in this reach of the Chuitna River and its watershed. The Chuitna River produces of [sic] a variety of important fish species in this region. It also serves as a fish passage corridor between the marine environment and other portions of its watershed utilized for fish production. Dolly varden, Chinook salmon, chum salmon, coho salmon, pink salmon, sockeye salmon, rainbow trout, round whitefish, threespine stickleback, brook lamprey, and Pacific lamprey utilize this portion of the Chuitna River system for a portion of, or all of their spawning, incubation, rearing, and passage life phases. These species contribute to sport, commercial, and subsistence fishing in the area.

Alaska Department of Fish and Game, *Chuitna River Instream Flow Reservation Application*, App. A, 1 (1996) [hereinafter ADFG 1996] (internal citations and Latin names omitted) (attached as Exhibit 2). The ADFG goes on to observe that:

This instream flow reservation is required to protect and maintain fish production within the Chuitna River and its drainage. The analyses that follow indicate that a reduction in flow will reduce the quality and availability of habitat in this stream system.

*Id.* at App. A, p. 2. The application contains two charts that compare the “long-term monthly flow” with the “instream flow requirement” for each month, and it indicates that during the relatively low-flow months of July-August and December-March, the numbers are virtually identical. *Id.* at App. A, pp. 12-13. In other words, virtually the entire flow in these months must be kept in the river to meet the purpose of the instream flow reservation of protecting and maintaining fish production within the Chuit River and its drainage.

The watershed and its resources are important for Native subsistence, personal use, commercial and recreational fishing, hunting, trapping, and as fish and wildlife habitat. The State of Alaska also recognizes the Chuit River as a “river of statewide significance” due to its extensive and diverse fish population. Alaska Department of Natural Resources, Alaska Department of Fish and Game, and Matanuska Susitna Borough, *Susitna Area Plan 292* (1985), available at [http://www.dnr.state.ak.us/mlw/planning/areaplans/susitna/pdf/susitna\\_area\\_plan.pdf](http://www.dnr.state.ak.us/mlw/planning/areaplans/susitna/pdf/susitna_area_plan.pdf). The Kenai Peninsula Borough has identified the Chuitna area as a potential “area meriting special attention” under its local coastal management program, , and the Alaska Regional Response Team has identified the Chuitna area as a sensitive area warranting special attention in its Cook Inlet Subarea Contingency Plan. See Kenai Peninsula Borough, *Coastal Management Program, Final Plan Amendment, 271-73* (2006) [hereinafter KPB 2006], available at [http://www.dnr.state.ak.us/acmp/District/FinalFinalPlans/Kenai/kpb\\_vol1\\_sep.pdf](http://www.dnr.state.ak.us/acmp/District/FinalFinalPlans/Kenai/kpb_vol1_sep.pdf); Alaska Regional Response Team, Cook Inlet Subarea Contingency Plan, D-105 (2004), available at <http://www.akrrt.org/CIplan/CookInletSCP.shtml>. In 2003, The Nature Conservancy identified the Chuit River watershed as an “Area of Biological

Significance” due to its biodiversity and intact character as well as the importance of its salmon and other aquatic resources. TNC 2003. At the mouth of the watershed are two small communities, Tyonek and Beluga, both with no road access to the rest of Alaska. Moose and salmon are important subsistence resources for the people of Tyonek. EPA 1990 at 4-83. Commercial set-net fishing and sport fishing also are important here. KPB 2006 at 272.

The Chuit River watershed is dominated by bog- and fen-type wetlands that are characterized by a complex hydrology, including abundant wetlands and freshwater lakes, some spring-fed. HDR Alaska, Inc, *Chuitna Coal Project: Summary of Previous Baseline Studies for Wetlands 3* (2006), available at <http://www.chuitnaseis.com/files/Baseline/Wetlands.pdf>. The wetlands play an important role in storing water and recharging shallow groundwater aquifers. EPA 1990 at 4-13. The shallow aquifers, in turn, discharge to local streams, providing about 89% of the estimated baseflow. *Id.* at 4-25. As the EPA acknowledged in the 1990 EIS, any long-term impact on the watershed’s wetlands will alter this complex hydrology in unpredictable ways, but will certainly reduce the water flow in local streams and thereby impair their viability as prime fish habitat. *Id.* at 5-8 to 5-11.

These streams, along with numerous ponds and small lakes within the watershed, support high-quality fish habitat and a diverse array of plants and invertebrates. EPA 1990 at 4-40 to 4-41, 4-49 to 4-50. The Chuit River and its surrounding watershed provide important habitat for moose, bald eagles, and grizzly and black bears, and coastal wetlands provide important habitat for ducks, geese, and migrating shorebirds. Alaska Department of Natural Resources, *Kenai Area Plan*, 3-297 (2001) [hereinafter DNR 2001], available at [http://dnr.alaska.gov/mlw/planning/areaplans/kenai/pdfs/master\\_KAP.pdf](http://dnr.alaska.gov/mlw/planning/areaplans/kenai/pdfs/master_KAP.pdf).

The Chuit River watershed also is part of a constellation of sensitive areas in western Cook Inlet, which includes other watersheds that support rich anadromous fishes and coastal mudflat areas that teem with migratory shorebirds during spring and fall migrations. The west side of Cook Inlet ranks second only to the Copper River Delta in terms of the diversity and total number of shorebirds supported during spring migration throughout southeastern and southcentral Alaska.” *Id.* at 3-298. In its ecoregional assessment, The Nature Conservancy identified the Chuit River watershed and four other areas in western Cook Inlet—the Trading and Redoubt Bays south of the Chuit watershed, and Susitna River Flats and upper Susitna River north of the Chuit River—as areas of biological significance because of their species richness and importance to migrating waterfowl and shorebirds. TNC 2003 at 85-91. Redoubt Bay, Trading Bay, and Susitna Flats all qualify as “hemispheric sites” in the Western Hemisphere Shorebird Reserve Network. *Id.* at 86, 89. Susitna Flats and Trading Bay are also State Game Refuges, established for the purpose of protecting and preserving the natural habitat and game populations. AS 16.20.020, 16.20.036, 16.20.038. River mouths along the western shore of Cook Inlet provide important stopover habitat for many species of birds, and mudflat habitats provide breeding grounds and/or spring and fall migration staging areas

for sandhill cranes, trumpeter swans, and tens of thousands of dabbling ducks and geese. *Walden* 2003 at 13, 89.

This part of Cook Inlet is also important for the declining Cook Inlet beluga whale. According to the 1990 EIS, beluga whales are common in the upper Cook Inlet primarily in the spring and summer when they feed on anadromous fish near the mouths of rivers. EPA 1990 at 4-57. The area between Trading Bay and Susitna River is especially important, with a concentration of sightings near the mouth of the Beluga River (the next major river north of the Chuit River). *Id.* Almost every summer, a large concentration of whales (up to 300) has been found in the Susitna Delta, primarily near the mouth of the Susitna River. Rugh, J. F., Shelden, K. E. W., and Mahoney, B. A., *Distribution of Beluga Whales, Delphinapterus leucas, in Cook Inlet, Alaska, During June and July, 1993-2000*, 62 Marine Fisheries Review 3, 8-9 (2000), available at <http://spo.nwr.noaa.gov/mfr623/mfr6232.pdf>. Traditional Alaska Native ecological knowledge maintains that belugas calve from April through August and that calving occurs in the areas off the mouths of the Beluga and Susitna Rivers in May. Huntington, H. P., *Traditional Knowledge of the Ecology of Belugas, Deliphinapterus luecas in Cook Inlet, Alaska*, 62 Marine Fisheries Review 3, 137 (2000), available at <http://spo.nwr.noaa.gov/mfr623/mfr62312.pdf>. The area between the Beluga and Susitna Rivers may be a significant calving and/or nursery area for belugas. EPA 1990 at 4-57. The precipitous decline in the population—from an estimated historical high of 1,293 to its current low of 321—prompted the National Marine Fisheries Service to list the species as “endangered” under the Endangered Species Act in 2008 and to propose critical habitat encompassing much of the upper Cook Inlet near the end of last year. *See* National Oceanic and Atmospheric Administration Fisheries, *NOAA Reports Latest Cook Inlet Beluga Population Estimate*, available at <http://www.fakr.noaa.gov/newsreleases/2009/cibeluga100609.htm>; 73 Fed. Reg. 62919 (Oct. 22, 2008), 74 Fed. Reg. 63080 (Dec. 2, 2009).

Another nearby sensitive area, the Tuxedni Bay Wilderness Area, located southwest of the Chuit River on the western shore of Cook Inlet, is one of only four “Class I” airsheds in Alaska. Alaska Department of Environmental Conservation, *Regional Haze in Alaska: Summary of Scientific Knowledge and its Implications for Alaska’s State Implementation Plan*, 4 (2002), available at <http://www.dec.state.ak.us/air/anpms/as/doc/FDhazesum.pdf>. The Clean Air Act Regional Haze Rule requires that states develop plans for improving visibility in Class I areas. *Id.* at 24. The goal of Alaska’s regional haze program is “to improve visibility and prevent future visibility impairment in all of the mandatory Class I areas.” *Id.* Coal dust from coal mining operations and transport within the Chuit River watershed could impede achievement of this goal by degrading air quality and visibility in the Cook Inlet region.

In short, not only is the Chuit River watershed itself a critical resource and sensitive area, but it is part of a mosaic of important and sensitive lands and waters that are significant habitat for fish and wildlife. In addition to providing important fish and wildlife resources dependent upon the Chuit River, the watershed overlies significant coal reserves. A proposal to begin developing these reserves, called the Diamond Chuitna

Coal Project, was defeated by local residents and environmental groups in 1992. However, a new proposal to develop a massive surface coal mine, called the Chuitna Coal Project, is currently being prepared by PacRim Coal, LP, a Delaware company. In addition to the coal leases held by PacRim Coal, LP, Barrick Gold also holds coal leases within the immediate area.

As is reflected in the congressional statement of purpose quoted above, it is well known that coal mining has caused, and continues to cause, serious damage to land, water, air and local communities. *See, e.g.*, H.R. Rep. 95-218, 1977 U.S.C.C.A.N. 593, 630 (1977) (stating that “[t]he environmental and social stresses engendered by surface mining . . . are well documented.”); Goodell, Jeff, *Big Coal’s Dirty Move*, Rolling Stone (Jan. 12, 2007), available at [http://www.rollingstone.com/politics/story/13159559/national\\_affairs\\_big\\_coals\\_dirty\\_move](http://www.rollingstone.com/politics/story/13159559/national_affairs_big_coals_dirty_move) (providing that coal’s pollution-related impacts include “blasted mountains, increases in asthma and heart attacks, neurological damage from toxic mercury, environmental chaos caused by global warming”); World Coal Institute, *Coal & the Environment*, <http://www.worldcoal.org/coal-the-environment/> (providing that “[c]oal mining raises a number of environmental challenges, including soil erosion, dust, noise and water pollution, and impacts on local biodiversity.”).

Environmental studies and technical reviews prepared for the Diamond Chuitna Coal Project indicated that surface coal mining operations within the Chuit River watershed would permanently damage the river system’s capacity to support anadromous fish spawning, migration and rearing habitat—the area’s primary and highly valued pre-mining land use. DNR nonetheless issued a permit for the Diamond Chuitna Coal Project that later was vacated by the Alaska Supreme Court. Today, new scientific studies strengthen the conclusion that the streambed and riparian areas within the Chuit River watershed cannot be restored, and that surface coal mining of the streambeds and riparian areas will lead to irreparable damage to the capacity of the Chuit River system to provide high-quality anadromous fish and wildlife habitat. These studies conclusively demonstrate that, following surface coal mining, reclamation of the streambeds and riparian areas within the Chuit River watershed is not technologically feasible. Petitioners therefore respectfully request that the Commissioner designate the streambeds and riparian areas within the Chuit River watershed as unsuitable for all types of surface coal mining, as he is required to do under AS 27.21.260(c)(1).

In addition, Petitioners request that the Commissioner exercise his discretion to designate the streambeds and riparian areas within the Chuit River watershed as unsuitable for all types of surface coal mining, as he has the authority to do under AS 27.21.260(c)(2) for the following reasons. First, coal mining operations would adversely affect fragile lands such as wetlands, riparian areas, anadromous fish spawning and rearing habitat, wildlife habitat, subsistence and commercial fisheries, migratory habitat for anadromous fishes, beluga whales and shorebirds, and will result in significant damage to important cultural, scientific and aesthetic values and natural systems. Second, surface coal mining operations would adversely affect aquifer recharge areas and could result in a substantial reduction in long-range productivity of subsistence food

products by destroying wetlands and riparian areas critical to groundwater recharge and by pumping substantial amounts of groundwater away from the mine pit. Third, coal mining operations would adversely affect lands that are subject to natural hazards including earthquakes, strong winds, severe ice and volcanic eruptions, and the operations could substantially endanger life and property if disrupted by such hazards.

Petitioners recognize that additional information about resources within the Chuit River watershed and the consequences of surface coal mining operations may become available if PacRim Coal moves forward with permit applications for its proposed Chuitna Coal Project. Petitioners reserve the right to supplement this petition with new information as it becomes available.

### **PETITIONERS' CONTACT INFORMATION**

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### **IDENTIFICATION OF THE PETITIONED LANDS**

This petition seeks to have the following lands within the Chuit River watershed designated as unsuitable for all surface coal mining:

1. Lands that comprise the streambeds of anadromous water bodies, as defined by AS 41.17.950(1); and
2. Lands that comprise riparian areas, as defined by AS 41.17.950(23).

The anadromous water bodies are identified on the map attached as Exhibit 1.

An "anadromous water body" is defined to include "the portion of a fresh water body or estuarine area that is cataloged under AS 16.05.871 as important for anadromous fish." AS 41.17.950(1). The ADFG has cataloged much the Chuit River and all but the smallest of its tributaries under AS 16.05.871 as important to anadromous fish. *See* ADFG Catalog. All of the lands within the Chuit River drainage that comprise the streambeds of waters identified by the ADFG as important to anadromous fish are included within the petition area.

A "riparian area" is defined to include "the area 150 feet from the shore or bank of a Type II-A . . . water body, and 100 feet from the shore or bank of a Type II-C . . . water body in Region II." AS 41.17.950(23)(B). The Chuit River watershed is in Region II, which is defined to include the land "south of the Alaska Range, and east of the Aleutian Range." AS 41.17.950(21). The Chuit River itself is a Type II-C water body, which is defined as "a nonglacial stream greater than 50 feet wide that has anadromous or high value resident fish and that has an unconfined and dynamic channel" in Region II

and “that typically has point bars, islands, scour planes, active or recent side channels, and areas of obvious bank erosion.” AS 41.17.950(35). Each significant tributary of the Chuit River—including Streams 2002, 2003 and 2004 that flow through the Chuitna Coal Project site—are Type II-C water bodies, which are defined to include “a nonglacial water body greater than three feet wide and less than or equal to 50 feet wide at ordinary high water mark that has an unconfined and dynamic channel” or “a nonglacial water body greater than three feet wide at ordinary high water mark that has a confined channel.” AS 41.17.950(37). Thus, in addition to the lands discussed in the prior paragraph, the petition area includes all the lands that are within 150 feet of the shore or bank of those portions of the Chuit River that are listed in the ADFG’s anadromous waters catalog, and all the lands that are within 100 feet of the shore or bank of those portions of tributaries of the Chuit River that are listed in the ADFG’s anadromous waters catalog.

Surface coal mining within the Chuit River watershed would have a permanent and irremediable impact on the area’s wetlands and groundwater, and therefore on the local hydrology and the long-term health of important salmon spawning, migration and rearing habitat in the Chuit River and its tributaries. Tampering with the anadromous water bodies and riparian areas within this watershed would also have additional cumulative effects—through air pollution, destruction of aquatic resources, and impacts on migrating fishes and whales—on surrounding fragile lands like the Susitna Flats, severely impeding the potential for conservation of these significant ecological areas. As detailed below, surface coal mining would destroy fragile wetlands that cannot be restored, greatly reduce the recharge to shallow aquifers, lead to reduced streamflows, and jeopardize prime salmon spawning, migration and rearing habitat. These unavoidable impacts are patently inconsistent with the goals of the federal and state surface coal mining laws to avoid coal mining in areas where restoration cannot be achieved, as well as with a number of the specific performance standards promulgated under the Act. As a result, the lands that comprise the streambeds of anadromous water bodies, as defined by AS 41.17.950(1), and the lands that comprise riparian areas, as defined by AS 41.17.950(23), are unsuitable for surface coal mining and must be designated as such under AS 27.21.260(c)(1).

#### **IDENTIFICATION OF PETITIONERS’ INTERESTS AND DESCRIPTION OF HOW SURFACE COAL MINING OF THE IDENTIFIED LANDS MAY ADVERSELY AFFECT THOSE INTERESTS**

Chuitna Citizens Coalition is an organization of full-time and part-time residents of Beluga who are opposed to the development of surface coal mining operations in the Chuitna area. Judy and Larry Heilman, who are founding members of Chuitna Citizens Coalition and full-time residents of Beluga since 1991 and the mid-1970s, respectively, are representatives of the Chuitna Citizens Coalition. The Heilmans rely on the fish and game resources of the local area, fishing for salmon and trout in local streams and hunting for moose during moose season. The Heilmans enjoy Beluga for its natural quiet, remoteness, and small community quality, as well as for the pristine quality of the local air and water. The Heilmans frequently host visitors, including grandchildren and

other children who enjoy the noise- and pollution-free environment and the relative safety of this remote community.

The Heilmans have a strong interest in keeping Beluga and the surrounding region as they are—quiet and remote, with few people, little traffic, and pristine air, water, and fish and wildlife habitat that supports a subsistence lifestyle. That interest would be adversely affected by surface coal mining operations in the Chuitna watershed, which would create elevated noise, additional traffic, coal dust, water pollution, and fish and game impacts that would irrevocably alter the Beluga area as it exists today.

Terry Jorgensen is a member of the Chuitna Citizens Coalition and a commercial set-net fisherman. He has been fishing a set-net site on Three-Mile Beach at Ladd Landing just north of the mouth of the Chuit River for 28 years. Mr. Jorgensen lived in Alaska full-time until 2005 and now spends each summer in Beluga commercial fishing.

In addition to the environmental, aesthetic, and quality of life interests that he shares with the Heilmans, Mr. Jorgensen has a strong interest in being able to continue commercial fishing his set-net site at Three-Mile Beach. Mr. Jorgensen has worked hard to develop markets in both Alaska and other parts of the United States, based on the image of “Wild Alaskan Salmon” as a renewable resource from the pure cold waters of Alaska. This is in keeping with the efforts of the State of Alaska to develop its marketing of salmon, a renewable resource, to the world. Surface coal mining in the Chuitna watershed would require construction and operation of a port facility, most likely at Ladd Landing, which would drastically reduce and possibly eliminate Mr. Jorgensen’s ability to commercially fish his site, as well as affecting other commercial fishing to the north of the site. In addition, the areas currently leased for coal mining within the watershed have extensive, fragile wetlands that will be impossible to replace. These wetlands all drain directly into the Chuit River system, which possesses vital spawning and rearing streams for key species of salmon, Chinook and coho. If the delicate balance of this river system is altered by pollution and dewatering from surface coal mining operations, there is a great risk that the numbers of salmon that are caught by commercial, sport, and subsistence fishers in the area would be significantly reduced. These impacts would adversely affect Mr. Jorgensen’s interest in continuing to commercial fish his set-net site.

Cook Inletkeeper is a community-based nonprofit organization that combines advocacy, education and science toward its mission to protect Alaska’s Cook Inlet watershed and the life it sustains. Among Cook Inletkeeper’s goals are building support and positive action for clean water, abundant fish and wildlife, and renewable energy, and pursuing policies that protect public property rights, wetlands, salmon streams, and estuaries that are necessary to sustain healthy communities and strong local economies. Cook Inletkeeper members live, undertake subsistence activities, and work throughout the communities of Cook Inlet, and rely on the clean water and healthy fish and wildlife resources of the watershed to sustain their Alaskan way of life. Cook Inletkeeper has members in the area that would be adversely affected by surface coal mining operations in the Chuit River watershed, and these members would be directly affected by such operations.

Cook Inletkeeper and its members have a strong interest in protecting the water quality and abundant fish and wildlife of the Chuit River watershed, which is within the larger Cook Inlet watershed. That interest would be adversely affected by surface coal mining operations in the Chuit River watershed, which would cause water pollution in the form of elevated sediments and coal dust deposition, irrevocably destroy and alter the local hydrology, severely impact the rich salmon spawning, migration and rearing habitat of the Chuit River system, and harm wildlife habitat throughout the watershed.

## ALLEGATIONS OF FACT AND SUPPORTING EVIDENCE

As explained above, the Chuit River watershed supports rich fisheries and extensive wetlands that are part of a complex hydrologic and ecological system. Because post-mining reclamation is incapable of restoring the pre-mining land use or the required performance standards, reclamation is not technically feasible and lands within the Chuit River watershed that comprise the streambeds of anadromous water bodies and adjacent riparian areas must be designated as unsuitable for surface coal mining under the authority of AS 27.21.260(c)(1). As recent independent scientific analysis of the current Chuitna Coal Project demonstrates:

[T]he approach proposed for replacing the lost streams . . . is outside the realm of stream restoration or rehabilitation practices. [The project proponent's] approach basically amounts to channel 'creation' in an area in which the earth has been disturbed . . . , the natural flow paths destroyed, and landscape topography reshaped. Indeed there is ample evidence in the peer-reviewed literature that the approach they propose . . . typically fail ecologically . . . [I]mpacts to the watershed and the headwater streams from the mining activities will fundamentally alter the chemical, hydrologic and sediment regimes which are master variables controlling the water quality and productivity downstream.

In sum, based on the most current and rigorous science, the impacts [of surface coal mining] are very significant and there is no evidence that the restoration and mitigation plans that are proposed will compensate for the natural resource losses.

Palmer, Margaret A., *Report on Chuitna Coal Project of PacRim Coal, Executive Summary*, 2 (2009) [hereinafter Palmer Summary] (attached as Exhibit 13).

### **I. Under AS 27.21.260(c)(1), the Commissioner Must Designate the Identified Lands as Unsuitable For Surface Coal Mining Operations Because Reclamation In Accordance With ASCMCRA Is Not Technologically Feasible.**

One of the State of Alaska's purposes in adopting ASCMCRA was "to assure that surface coal mining operations are not conducted where reclamation required by this chapter and the regulations adopted under it is not feasible." AS 27.21.010(b)(4). To

promote this purpose, the unsuitable lands provision mandates an “unsuitable” designation in areas where reclamation in accordance with the statute and regulations is not technologically feasible:

[The commissioner] shall designate a petitioned area as unsuitable for all or certain types of surface coal mining operations if the commissioner determines that reclamation in accordance with [the statute] and regulations adopted under it is not technologically feasible in the area.

AS 27.21.260(c)(1). DNR regulations define “reclamation” to mean “those actions taken to restore mined land as required by this chapter to a postmining land use approved by the commissioner.” 11 AAC 90.911(86). The regulation related to postmining land use requires that:

All disturbed areas must be restored in a timely manner to conditions that are capable of supporting (1) the uses which they were capable of supporting before any mining; or (2) higher or better uses achievable under the provisions of this section.

11 AAC 90.481(a).<sup>2</sup> There is no higher or better use of these remote anadromous water bodies and riparian areas than its pre-mining use as high-quality fish and wildlife habitat; thus, the goal of reclamation following surface coal mining of these lands would be to ensure that the land and waters are capable of supporting the uses they supported before mining, namely high-quality fish and wildlife habitat. *See* DNR 2001 at 3-308 (providing that “[t]he post-mining intent for this unit is to provide high-value habitat for moose overwintering and water quality for downstream fisheries”); EPA 1990 at 2-31 (providing that the long-term goals of the reclamation plan for the proposed Diamond Chuitna Coal Mine includes to “establish wildlife habitat that will be at least as useful and productive as the premining environment”). Because surface coal mining operations on lands comprising the streambed of anadromous water bodies and adjacent riparian areas would cause irreversible damage to fish and wildlife habitat, reclamation would not be capable of restoring the area to its pre-mining condition of high-quality fish and wildlife habitat and, as a result, reclamation is not technologically feasible.

Reclamation activities must comply with the environmental performance standards articulated at 11 AAC 90.301-90.501:

All permits issued under this chapter shall require that surface coal mining and reclamation operations and coal exploration activities must comply with those environmental performance standards [that DNR commissioner is required to adopt consistent with federal statute and regulations].

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<sup>2</sup> The federal regulations further provide that “[t]he premining uses of land to which the postmining land use is compared shall be those uses which the land previously supported if the land had not been previously mined and had been properly managed.” 30 C.F.R. § 715.13(b). If an alternative postmining use of land is to be approved, a number of restrictive criteria must be met. *Id.* § 715.13(d).

AS 27.21.210.<sup>3</sup> Thus, in order for reclamation in accordance with SMCRA and ASCMCRA to be considered feasible, it must meet the performance standards that the DNR has established to ensure the protection of environmental resources in the mine area. Surface coal mining and reclamation on lands within the Chuit River watershed that comprise the streambeds of anadromous water bodies and adjacent riparian areas would be incapable of meeting a number of these performance standards, and as a result is not technologically feasible in the area. First, surface coal mining operations could not avoid long-term adverse changes to the area's hydrologic balance. *See* 11 AAC 90.321(a). Second, post-mining reclamation would not be capable of restoring groundwater recharge capacity in the area. *See* 11 AAC 90.343. Third, post-mining reclamation of streams diverted for coal mining would not be capable of restoring aquatic productivity to pre-mining levels. *See* 11 AAC 90.327. Fourth, coal mining operations would not be capable of minimizing changes in water quality and quantity and hydrology so as to avoid adverse effects to the post-mining land use of high-quality fish and wildlife habitat. *See* 11 AAC 90.321(b). Because reclamation could not achieve these particular performance standards, it also would fail to restore the area in a timely manner to a condition capable of supporting the pre-mining land use of high-quality fish and wildlife habitat, as required by 11 AAC 90.481(a).

***A. Construction and Operation of a Surface Coal Mine on the Identified Lands Would Irreparably Harm the Area's Hydrologic Balance.***

The Alaska surface coal mining law performance standard for hydrology requires that surface coal mining operations be capable of being conducted and reclaimed in a manner that protects the hydrology of the mine and surrounding area: "Operations must be planned and conducted to prevent long-term adverse changes in the hydrologic balance in both the permit area and adjacent areas." 11 AAC 90.321(a). Because of the prevalence of wetlands in the Chuitna River watershed and the complexity of the hydrologic system, a large surface coal mine in the watershed would irreparably harm the area's hydrologic balance and would not be capable of meeting this performance standard.

***1. Description of the Area's Hydrologic Balance.***

Groundwater within the Chuitna watershed occurs in seven units, beginning with the unconfined aquifer in the recent alluvium (sands and gravels within present stream channels) and the unconfined aquifer within the overburden closest to the land surface, and continuing through the deeper coal seams. Riverside Technology, Inc., *Chuitna Coal Project: Hydrology Component Baseline Report, Historical Data Summary*, 5-1 to 5-4 (2006), available at <http://www.chuitnaseis.com/files/Baseline/Hydrology.pdf>; EPA 1990 at 4-24. According to the 1990 EIS, the overburden is recharged by direct precipitation

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<sup>3</sup> *See also* 11 AAC 90.083(a) (providing that "[e]ach [permit] application must contain a plan for reclamation of the proposed permit area showing how the applicant will comply with 11 AAC 90.301-501 [performance standards]").

and stores a great deal of groundwater. EPA 1990 at 4-25. The groundwater in the overburden aquifer discharges to streams, providing about 89% of the estimated baseflow in those streams. *Id.* The lower levels of groundwater within the coal seams are recharged by direct precipitation, by contact with saturated overburden aquifers, and by leakage from higher levels of groundwater. *Id.* The coal seam aquifers provide about 11% of estimated baseflow to streams. *Id.*

Groundwater contributes 34%, 32%, and 30% respectively to the annual flows of Lone Creek, Stream 2003, and Stream 2004—all fish-bearing tributaries of the Chuit River that would have been directly impacted by the old coal mining proposal. *Id.* at 4-27. At least 90% of this groundwater comes from the shallow aquifers in the overburden. *Id.* Stream flows within the Chuit River and the tributaries that likely would be affected by coal mining under the proposed Chuitna Coal Project—primarily Lone Creek, Stream 2003, and Stream 2004—are very low from November through March due to low temperatures, with most stream flow during these months a result of groundwater recharge. *Id.* at 4-31. In the entire basin, surface soils are consistently saturated and poorly drained, with “slow to very slow infiltration rates.” *Id.*; Riverside Technology at 3-24.

Wetlands dominate the Chuit River watershed, including that part of it that would be adversely affected by coal mining. Within the area of the old proposed Diamond Chuitna Coal Mine, wetlands comprise about 20-30% of the land surface. EPA 1990 at 4-11. Studies have identified nine wetland types in that project area. North of the Chuit River—where mining has been proposed—the dominant wetland types are “open mixed forest wetland” and “open low shrub scrub/sweetgale fen.” *Id.* The area is dominated by peat soils to a depth of about 23 feet.<sup>4</sup> Riverside Technology at 4-5. Since the time of the original EIS, wetlands assessment and mapping techniques have improved considerably. As a result, petitioners anticipate that more detailed wetlands information implicating additional complexities will be submitted with any new permit applications for surface coal mining in the area.

These wetlands play a number of important ecological roles, one of which is to store water and facilitate recharge into shallow groundwater aquifers. EPA 1990 at 4-11.

The overburden is recharged primarily by direct precipitation and stores significant quantities of water due to its thickness and porosity. Groundwater in the overburden aquifer discharges to streams, providing approximately 89 percent of the estimated baseflow, and to stratigraphically lower aquifers, including the coal seams.

*Id.* at 4-25. This storage function of overlying wetlands helps to buffer the effects of surface runoff and moderate stream flows, preventing boom and bust flow conditions in local streams. *Id.* at 4-13. The shallow groundwater systems, in

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<sup>4</sup> The bog and fen wetlands that predominate in the area are types of peatlands. See Alaska Peatland Experiment, *What are Peatlands?* <http://www.apex.msu.edu/introduction/> (Last visited Jan. 19, 2010).

turn, contribute substantially to streamflow in local streams. *Id.* This groundwater contribution to local streams, especially during winter low-flow periods, and the moderation of peak flows by surface wetlands are important factors in making the Chuit River and its tributaries highly productive for fish. *Id.*

Besides playing an integral role in the local hydrology, the region's wetlands also "contribute substantially to the net production of organic matter that supports other ecosystem components." *Id.* Marsh and muskeg wetlands contribute to the flow of nutrients within freshwater and marine environments. *Id.* Wetlands also provide openings and habitat diversity within the largely forested terrain and therefore support key species like moose and black bear. *Id.*

2. Surface Coal Mining Would Irreparably Destroy Streams, Riparian areas and Wetlands in the Chuit River Watershed, Dramatically Affecting the Local Hydrology.

The old Diamond Chuitna Coal Project would have involved clearing and grubbing 5,066 acres for the mine pit and mine facilities, of which 1,361 acres (27%) were wetlands. EPA 1990 at 5-4, 5-8. The proposed Chuitna Coal Project would mine a nearly identical area of 5,050 acres. U.S. Environmental Protection Agency, *Draft Scoping Document for the Chuitna Coal Project Supplemental Environmental Impact Statement*, 10 (2006) [hereinafter EPA 2006], available at [http://www.chuitnaseis.com/files/Chuitna\\_Scoping\\_Document\\_060607\\_FINAL.pdf](http://www.chuitnaseis.com/files/Chuitna_Scoping_Document_060607_FINAL.pdf).

According to initial plans for the proposed Chuitna Coal Project, coal mining would be preceded by dewatering of the "major water bearing zone" throughout most of the mine area. *Id.* The land surface would then be cleared and grubbed of all vegetation, and the topsoil would be removed. *Id.* at 11. The overburden would then be excavated and placed in a temporary stockpile,<sup>5</sup> after which the coal would be mined. *Id.* According to the 1990 EIS:

The overburden materials and coal units that would be removed during mining operations contain large volumes of ground water and can be considered important aquifers in the local hydrological regime. The mining operations would disrupt the natural ground-water flow regime within each of the units as they are mined.

EPA 1990 at 5-16. Moreover:

Because of the long period required for soil formation, soils in the Diamond Chuitna mine area are highly susceptible to irreversible, disruptive impacts from surface mining. A major long-term disturbance

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<sup>5</sup> According to draft plans for the proposed Chuitna Coal Project, more than 1 billion bank cubic meters of overburden would be removed over the life of the project. PacRim Coal, *Development Status: Chuitna Coal Project* 15 (2005), available at <http://www.akrhc.org/membership/events/breakfast/0506/stiles.pdf>.

would result from the removal of soils and overburden to reach the coal seams.

*Id.* at 5-4. Thus, the coal mining process involves the complete destruction of the land surface, including wetlands and lands that comprise the streambeds of anadromous water bodies and adjacent riparian areas.

The 1990 EIS acknowledged the devastating impacts that such a large-scale destruction of wetlands would have on the local ecology and hydrology. The EIS recognized hydrologic impacts by stating that, “[i]n addition to direct adverse impacts, wetland structure and function would be altered adjacent to project facilities by blockage of natural drainage patterns and disturbance of wetland inhabitants.” *Id.* at 5-8. The document also emphasized the loss of wetland-related productivity by stating that “[m]ost wetland-related plant and animal productivity would be lost during operations, for a substantial period thereafter, and possibly indefinitely depending on the success of wetland reclamation.” *Id.* at 5-10.

Most significantly, the EIS acknowledged that destroying wetlands to make way for the mine would have long-term, irreversible impacts on the area’s hydrology. “Significant impacts to local hydrological regimes would occur as a result of eliminating, reducing, and altering wetlands in the mine area.” *Id.* The analysis recognized that wetlands in the mine area store large quantities of water and play an important role in regulating surface water-ground water interactions. *Id.* Portions of the wetlands form “a shallow groundwater system that contributes the majority of base flow to the streams in and adjacent to the mine area.” *Id.* “Removal of the vegetation and organic soils would destroy this shallow system and potentially prevent restoration of streams to premining conditions.” *Id.* at 5-11 (emphasis added). Because of the buffering role that the wetlands and riparian areas serve, destruction of wetlands may increase recharge rates in the deeper groundwater system, “resulting in lower minimum flows and higher peak flows.” *Id.*

One of most significant impacts of mining would be alteration of the hydrology of several Chuit River tributaries. *Id.* at 5-23. Mining through anadromous water bodies—including Stream 2003, Stream 2004 and Lone Creek—and the adjacent riparian areas and wetlands would substantially alter flow regimes and minimum flows. *Id.* The EIS estimated that mining would cause a decrease in the baseflow for Lone Creek of 25%. *Id.* at 5-27. For Stream 2003, which the old mining plan sought to mine through, the entire streamflow would be lost for some distance downstream of the mine site, while the minimum flow at the stream mouth could be reduced by 80% during low flow periods. *Id.* at 5-28. For Stream 2004, mining under the old plan would reduce baseflow by 21% when mining is in full swing. *Id.* at 5-29.

The EIS bluntly recognized that the wetlands destruction required for coal mining in the Chuit River watershed would be permanent. The analysis acknowledged that the extent of wetlands would be much smaller post-mining, and that the mitigation measures aimed at restoring wetlands were experimental and would result in a much smaller post-

mining wetland area compared to existing wetlands. *Id.* at 5-10. The predominant wetland type in the mine area—low shrub/sweetgale grass fen—would be replaced by other types of plant communities:

Three shrub types would be developed to replace the low shrub/sweetgale grass fen type. These include one natural type, closed tall shrub scrub alder, and two artificial types, open-tall shrub scrub/willow and open shrub scrub/mixed shrub.

*Id.* at A-33 (Terrestrial Habitat Evaluation). According to the EIS, the 291 acres of fen that would be destroyed by mining would be replaced by zero acres of fen. *Id.* at A-34 (Table 11).

The analysis also recognized that wetland destruction and alteration would significantly and permanently impact the local hydrology. *Id.* at 5-10. Removal of vegetation and organic soils would destroy the shallow groundwater system and “potentially prevent restoration of streams to premining conditions.” *Id.* at 5-11. The EIS acknowledged that while precise predictions were not possible, mining operations certainly would reduce streamflows during the life of the mine and cause lower post-reclamation minimum streamflows. *Id.* at 5-29. For several smaller tributaries that are important fish spawning, migration and rearing habitat—tributaries 200304, 200305, and 200306—there was no way to predict whether new, reconstructed channels would have sufficient baseflow through their upper reaches to provide year-round flow similar to what now exists. *Id.* As a result, the local hydrology—including the groundwater, surface water, and wetlands—would inevitably suffer significantly and irreparably harmed from surface coal mining. Fish and aquatic organisms present in the existing river systems would be destroyed and, even if restoration efforts were made, there is no scientific evidence that those species could ever re-establish themselves in such an altered environment.

### 3. The EIS's Acknowledgement That Streams, Riparian Areas and Wetlands Cannot Be Restored Is Supported by More Recent Scientific Research.

The EIS acknowledged that surface coal mining would greatly reduce the extent of post-mining wetlands, and that plans to restore the wetlands were purely experimental. According to the EIS, the wetlands may recover in the “very long term (hundreds of years).” *Id.* at 5-8. Although some areas may eventually be reestablished, due to the nature of these peat wetlands “it is likely that the extent of wetlands would be much smaller following reclamation than prior to mining. Most wetlands within the reclaimed mine area would lack the peat and organic material which characterize the existing wetlands.” *Id.*

Recent independent scientific reviews of the proposed Chuitna Coal Project's draft mining and reclamation plans support the conclusions within the 1990 EIS that surface coal mining in streambeds and riparian areas will permanently damage the area's hydrologic balance:

The development of the Chuitna Coal Mine will lead to unavoidable impacts to the Chuitna system. . . .

[R]ecreating the structural complexity and interconnectivity of the below-ground sediment layers in the back-filled mine pit will be impossible, permanently and negatively affecting the natural flowpaths and hyporheic function (including natural upwelling and downwelling) upon which existing biological productivity and biocomplexity depend . . . .

By all accounts it appears it will be impossible to recreate the complex 3D network and interconnected underground channels of variously sorted sediments typically found below and lateral to streams, including streams like 2003. Flowpaths that influence aquatic productivity, and salmon spawning and egg development, which depend upon these hyporheic and groundwater networks, will be severed during the mining process. Recreating these highly complex and sorted networks and flowpaths in a fashion that reconnects them to the natural flowpaths of the intact, surrounding sediment veins will not be possible.

Wipfli, Mark S., *Chuitna Coal Mine Baseline Monitoring and Restoration Plan Review Executive Summary*, 1 (2009) [hereinafter Wipfli Summary] (attached as Exhibit 20); see Wipfli, Mark S., *Chuitna Coal Mine Baseline Monitoring and Restoration Plan Review*, 7, 11 (2009) [hereinafter Wipfli Report] (attached as Exhibit 19). Thus, by disrupting the naturally complex subsurface sediment layers beneath the streambeds and riparian areas within the Chuitna watershed, surface coal mining will permanently destroy the local hydrology and hydrologic function of the watershed. Separate analysis of the Chuitna Coal Project resulted in similar conclusions, stating that “[a]n extensive search of the scientific literature returned many examples of how strip-mining has altered groundwater flow during and after mining but no examples of where groundwater has been restored to premining conditions.” Trasky, Lance, *Report on Chuitna Coal Project Aquatic Studies and Fish and Wildlife Protection Plan*, 55 (2009) [hereinafter Trasky Report] (attached as Exhibit 17).

Surface coal mining in streambeds and riparian areas causes permanent damage, and all prior large-scale restoration and reclamation efforts following surface coal mining have failed. In evaluating the impacts of surface coal mining in Appalachia, a 2010 study observed:

Burial of headwater streams by valley fills causes permanent loss of ecosystems that play critical roles in ecological processes such as nutrient cycling and production of organic matter for downstream food webs . . . .  
[W]hen more than 5 to 10% of a watershed’s area is affected by anthropogenic activities, stream biodiversity and water quality suffer.

Recovery of biodiversity in mining waste-impacted streams has not been documented.

Palmer, Margaret A., et al., *Mountaintop Mining Consequences*, 327 *Science* 148, 148 (2010) [hereinafter Palmer 2010] (attached as Exhibit 11); see Allan, J.D., *Landscapes and Riverscapes; The Influence of Land Use on Stream Ecosystems*, 35 *Annual Review of Ecology, Evolution and Systematics* 257 (2004) (attached as Exhibit 3) available at <http://www-personal.umich.edu/~dallan/pdfs/Annurev.pdf>; Sams III, James I. and Kevin M. Beer, *Effects of Coal-Mining Drainage on Stream Water Quality in the Allegheny and Monongahela River Basins—Sulfate Transport and Trends*, U.S. Geological Survey, Water-Resources Investigations Report 99-4208 (2000) (attached as Exhibit 14) available at [http://pa.water.usgs.gov/reports/wrir\\_99-4208.pdf](http://pa.water.usgs.gov/reports/wrir_99-4208.pdf). However, surface coal mining impacts are not limited to the destruction of headwaters and valley fill. Restoration of premining vegetation can be impossible or take decades, mitigation efforts uniformly fail to counteract the destructive surface impacts of coal mining, and stream recreation following surface coal mining in streambeds and riparian areas has proven impossible.

Many reclaimed areas show little or no regrowth of woody vegetation and minimal carbon (C) storage even after 15 years . . . .

Mitigation plans generally propose creation of intermittently flowing streams on mining sites and enhancement of streams off-site. Stream creation typically involves building channels with morphologies similar to unaffected streams; however . . . the surrounding topography, vegetation, soils, hydrology, and water chemistry are fundamentally altered from premining state.

Palmer 2010 at 149; see Simmons, Jeffrey A., et al., *Forest to Reclaimed Mine Land Use Change Leads to Altered Ecosystem Structure and Function*, 18 *Ecological Applications* 104 (2008) (attached as Exhibit 16) available at <http://www-personal.umich.edu/~wcurrie/Publications/Simmons%20etal%202008%20EcolApplic%20-%20MineReclamation.pdf>.

Nearly two decades of scientific research on stream and wetlands restoration that has occurred since the 1990 EIS was written strongly reinforces the EIS's conclusions that wetland and riparian areas cannot be restored to pre-mining productivity levels following surface coal mining operations. In a recent study evaluating a simple restoration effort in Rocky Mountain fen-type habitat where a single ditch had been dug across the fen in the early 1900s, and the restoration effort consisted of blocking the ditch with pieces of sheet metal, a primary conclusion of the study was that fens in the Rocky Mountain region "are extremely sensitive to the hydrologic changes that even small ditches or other water diversions can create." Cooper, David J., et al., *Hydrologic Restoration of a Fen in Rocky Mountain National Park, Colorado, USA*, 18 *Wetlands* 3, 336-37 and 344 (1998) (attached as Exhibit 6). Further, the study stated that:

Fens in this region do not appear to be sustainable under the drought conditions produced by ditches, water diversions, or ground-water pumping, all of which would lower water tables. We expect that many

fens may also be extremely sensitive to even small changes in the amount or timing of summer precipitation.

*Id.* In short, riparian areas in fen-type habitats are very sensitive to the same kinds of hydrological changes that surface coal mining in the Chuitna watershed would require—such as groundwater pumping and the removal of wetlands, streams and riparian areas that facilitate groundwater recharge.

A recent study of restoration efforts at a small, 11.5-hectare (28.4-acre) peatland site in Quebec identified some techniques that may be useful in other restoration projects. Shantz, M. A., J. S. Price, *Hydrological changes following restoration of the Bois-des-Bel Peatland, Quebec, 1999-2002*, 331 *Journal of Hydrology* 543, 551-52 (2006) (attached as Exhibit 15) available at [http://www.gret-perg.ulaval.ca/uploads/tx\\_centrerecherche/Shantz\\_Price\\_J\\_hydro\\_2006.pdf](http://www.gret-perg.ulaval.ca/uploads/tx_centrerecherche/Shantz_Price_J_hydro_2006.pdf). The study acknowledged, however, that “[s]uccessful large-scale restoration of mined North American peatlands has not been achieved.” *Id.* at 543.

A more recent study noted that there are very few examples of successful fen restoration. Middleton, Beth, et al., *Fen Management and Research Perspectives: An Overview*, in *Wetlands: Functioning, Biodiversity Conservation, and Restoration* 191, 261 (2006) (attached as Exhibit 9). This study analyzed one relatively “successful” fen restoration project in Hungary, but found that although natural wetland communities have been reestablished at the site, the hydrology and plant communities were substantially different than the original and “fen vegetation is not expected to re-develop.” *Id.* at 262-63. The study emphasized that the ability to reestablish the existing hydrology is a prerequisite to adequate fen-type habitat restoration. *Id.* at 263. Other recent studies emphasize the lack of knowledge about the complex functioning of bog and fen ecosystems and the resulting difficulty in predicting the effectiveness of restoration efforts. See, e.g., Bleuten, Wladimir, et al., *Hydrological Processes, Nutrient Flows and Patterns of Fens and Bogs*, in *Wetlands and Natural Resource Management* 190, 201 (2006) (attached as Exhibit 5).

The National Research Council, the principle operating agency of the National Academy of Sciences, evaluated dozens of wetlands restoration projects implemented during recent decades and published a definitive report in 2001. This report concluded that “[w]etland ecosystems that require a specific combination of plant types, soil characteristics, and water supply are difficult to impossible to create from scratch.” National Research Council, *Compensating for Wetland Losses Under the Clean Water Act*, 24 (2001) (attached as Exhibit 10). Concluding that some types of wetland habitats simply cannot be recreated through restoration and reclamation, the National Research Council stated that “[e]xamples include vernal pools, fens, and bogs.” *Id.* The National Research Council specifically examined restoration projects in fen-type habitats similar to those prevalent in the Chuitna watershed and concluded that “[v]egetation was judged nonrestorable . . .” *Id.* at 26. For bogs, vegetation cover could generally be restored, but “restoration of original plant communities is extremely difficult.” *Id.* The study also looked at projects aiming to reclaim wetlands mined for peat and concluded that

reclamation where peat soils are involved is very difficult in part because surface mining causes major changes in local hydrology and peat accumulates at a very slow rate. *Id.* at 26-27. Moreover, the difficulty of restoring wetland hydrology increases as the degree of wetland degradation increases. *Id.* at 28. Because surface coal mining in lands comprising the streambeds of anadromous water bodies and riparian areas would involve the complete destruction of all surface materials, vegetation and the local hydrology, restoration of these lands to pre-mining levels would be impossible.

The National Research Council's conclusions were stated in the strongest possible language:

The committee concludes that some types of wetlands can be restored and/or created . . . but that others cannot (e.g., fens and bogs). . . . Avoidance is strongly recommended for wetlands that are difficult or impossible to restore, such as fens or bogs.

*Id.* at 27, 45 (emphasis added). Given the extreme climate, complex hydrology and short growing season prevalent in the Chuitna watershed, restoration of the lands comprising streambeds of anadromous water bodies and riparian areas to pre-mining conditions would be impossible. Given the relative lack of research on restoration techniques in Alaskan habitats and the total lack of examples of past successful restoration efforts of streambeds and riparian areas similar to those found in the Chuitna watershed, restoration following surface coal mining cannot be expected to succeed.

Thus, while the old Diamond Chuitna Coal Mine's wetlands restoration plans were described as experimental, the reality is that restoration experiments have already been conducted elsewhere and the results are in: fens and bogs similar to those found in the riparian areas of the Chuitna watershed cannot be restored. And, if the riparian areas and streambeds cannot be restored, neither can the hydrologic system that the wetlands support. As a result, surface coal mining in the lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed would irreparably harm the area's hydrologic balance in contravention of the applicable performance standard. *See* 11 AAC 90.321(a). Because this performance standard, which requires protection of the area's hydrologic balance cannot be achieved, reclamation in accordance with ASCMCRA is not technologically feasible, and the lands comprising the streambeds and riparian areas within the Chuit River watershed should be designated as unsuitable for surface coal mining.

***B. Reclamation Would Not Restore Groundwater Recharge Capacity in the Area.***

Surface coal mining must be conducted so as to restore the capability of an area to convey water to the groundwater system. 11 AAC 90.343. Recharge capacity must be restored to a condition that (1) supports post-mining land use; (2) minimizes any disturbance of prevailing hydrologic balance in the mining area; and (3) provides a recharge rate approximating the pre-mining recharge rate. *Id.*

Analysis within the 1990 EIS concluded that restoration of the groundwater recharge capacity to pre-mining levels cannot be achieved following surface coal mining within the lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed. According to the analysis within the 1990 EIS, “[i]mpacts to the ground-water regime as a result of mining operations would be substantial and would affect recharge and discharge relationships; quantity, quality, and direction of ground-water flows; and quantity and quality of surface water.” EPA 1990 at 5-16. The analysis anticipated that mining operations would affect the groundwater regime throughout the proposed permit area through dewatering and lowering of the water table, resulting in a reduction of flow in springs and streams. *Id.* at 5-19. In assessing the disruption of the natural recharge from mining operations, the study predicted:

Natural recharge to the aquifers is predominantly the result of surface-water infiltration from both incident precipitation and snowmelt. Surface disturbance during mining and construction of support facilities and access roads would affect the potential for natural recharge. Surface-water diversion which channel flow to nearby streams would limit the opportunity for, and quantity of, water available for recharge in the mine area.

*Id.* The EIS concluded that reestablishment of the groundwater regime and surface streams would “likely require decades.” *Id.* at 5-19 to 5-20. As a result, restoration of the groundwater recharge capacity cannot be achieved within a reasonable timeframe, and surface coal mining of the identified lands will violate of the performance standard requiring such restoration. *See* 11 AAC 90.343.

Similar studies of the impacts to groundwater from coal mining in other parts of the country come to similar conclusions. “Even after mine-site reclamation (attempts to return a site to premined conditions), groundwater samples from domestic supply wells have higher levels of mine-derived chemical constituents than well water from unmined areas.” Palmer 2010 at 148; *see* McAuley, Steven D. and Mark D. Kozar, *Ground-Water Quality in Unmined Areas and Near Reclaimed Surface Coal Mines in the Northern and Central Appalachian Coal Regions, Pennsylvania and West Virginia*, U.S. Geologic Survey, Scientific Investigations Report 2006-5059 (2006) (attached as Exhibit 8) available at <http://pubs.usgs.gov/sir/2006/5059/pdf/sir2006-5059.pdf>.

Because this performance standard cannot be achieved, reclamation in accordance with ASCMCRA is not technologically feasible, and the lands that comprise the streambeds of anadromous water bodies and riparian areas of the Chuit River watershed must be designated as unsuitable for surface coal mining.

***C. Reclamation Would Not Restore Aquatic Productivity to Pre-Mining Levels.***

A coal mine operator may divert streams “if approved by the commissioner in accordance with 11 AAC 90.353 and the diversions comply with local, state, and federal laws and regulations.” 11 AAC 90.327(a). The design and construction of each stream channel diversion must meet certain requirements, as certified by a registered professional engineer. 11 AAC 90.327(b). Temporary diversions must be removed and “the affected land regraded and revegetated in accordance with the requirements of this chapter.” 11 AAC 90.327(c). Whether the diversion is permanent or temporary, the operator must: restore, enhance, or maintain natural riparian vegetation on the banks of the stream; establish or restore the stream to its natural meandering ratio; and “establish or restore the stream to a longitudinal profile and cross section, including aquatic habitats that approximate refining stream channel characteristics and which may, using the best technology currently available, be expected to restore aquatic productivity to premining levels.” 11 AAC 90.327(d)(3) (emphasis added). In short, in order to comply with the reclamation requirements of ASCMCRA, the operator must reestablish diverted streams in such a way as to restore pre-mining aquatic productivity and function.

As described earlier, the aquatic productivity of the Chuit River, its tributaries and the adjacent riparian areas is very high. Any mining operations within the streambeds or riparian areas would almost certainly require diversion of important waters and would therefore have to comply with the performance standard in 11 AAC 90.327(d). The old Diamond Chuitna Coal Project would have displaced portions of Streams 200304 and 200305 and Stream 2003, and would have placed a sediment pond in Stream 200305. EPA 1990 at 2-9. In addition, the proposed Chuitna Coal Project would unearth many miles of Stream 2003 and portions of some of its tributaries. All of these streams are highly productive anadromous fish spawning, migratory and rearing habitat. *Id.* at 5-44.

The analysis in the 1990 EIS suggests that the performance standard in 11 AAC 90.327 cannot be achieved for surface coal mining in streambeds and riparian areas within the Chuitna watershed. According to that study:

One of the most significant physical impacts that would result from development of the Diamond Chuitna project would be alteration of the hydrology of the Chuitna River tributaries in the immediate mine vicinity (streams 2003, 2004, and Lone Creek). . . . The mining will with time progress through a substantial portion of Stream 2003 and into several minor left bank tributaries of Stream 2004.

EPA 1990 at 5-23. In addition, Streams 200304 and 200305, tributaries of Stream 2003, would be mined through or used to form sedimentation ponds. *Id.* at 5-29. Although Diamond Chuitna had proposed to reconstruct stream channels with physical characteristics similar to the existing stream channels, the EIS conceded that “there is no way to predict whether the new channels would have sufficient base flow through the upper reaches to provide year-round flow similar to that which now exists.” *Id.*

Full development of the mine as proposed by Diamond Chuitna would have resulted in direct destruction of 9.1 miles of stream habitat, mostly in system 2003.

Despite efforts to meet water quality standards, “extended periods of above-ambient levels of suspended sediments and turbidity would inevitably result from instream and in-drainage work in the mine area and from sediment retention pond discharges, especially during the winter.” *Id.* The predicted impacts of siltation would have been severe, smothering aquatic invertebrates that provide the primary food source of juvenile trout and salmon, filling in gravel spaces that provide necessary refuge for fry, blocking emergence pathways and delaying the emergence of alevins. *Id.* All of these impacts, in turn, would have reduced fish production. *Id.* The EPA study found discharges of water with high levels of suspended particles in winter under the ice are especially harmful. *Id.* at 5-45. In addition, changes in the smell of a tributary by alteration of its chemistry or destruction of a reach could eliminate the entire tributary as spawning habitat. *Id.* at 5-46.

As the 1990 EIS acknowledged, all of these impacts render restoration of aquatic productivity a highly speculative proposition:

The degree of success with which streams can be rehabilitated is unknown and would depend on the level of effort expended, the degree to which the existing physical habitat can be reconstructed, and perhaps most importantly, the rate of ground-water recharge. Certainly there would be a long term (e.g., several decades or more) loss of habitat due to the difficulty of reconstructing habitat as good as naturally exists and due to loss of habitat area where highly sinuous stream reaches are replaced by straighter reaches.

*Id.* at 5-49. Perhaps most succinctly:

Reduction in fish productivity, especially salmon, in the Chuitna River system due to direct habitat loss during mining would be unavoidable during the mine life, for a period thereafter (greater than 10 years), and possibly indefinitely. Complete restoration of streams would not be guaranteed.

*Id.* at 5-139. The EIS concluded that “fish habitat could be irretrievably lost” and “it would appear unlikely that fish productivity in streams directly disturbed by mining could be restored to premining productivity levels.” *Id.* at 5-140 (emphasis added).

Impacts on aquatic productivity would be even greater if all the leases in the Chuit River watershed were eventually developed. If all of the leases are developed, nearly all habitat in productive northern tributaries of the Chuit River would be lost, with Streams 2003, 2004, and Chuit Creek likely being altered substantially.

In total, these potential stream alterations would probably have a significant adverse impact on regional fish populations. Rearing habitat for coho and Chinook salmon in the Chuitna River drainage could be

reduced by 40 to 80 percent depending on mining plans and the success of stream reclamation.

*Id.* at 5-137.

Independent review of the draft plans for the Chuitna Coal Project, conclusively establish that surface coal mining in streambeds and riparian areas within the Chuitna watershed will greatly reduce aquatic productivity such that it cannot be restored or reclaimed to pre-mining levels.

Wetlands water seeps up to become headwater streams, disproportionately rich in biodiversity for their small size, and the source of much of the food that arrives downstream. Headwaters provide breeding and nursery grounds for insects that spend the rest of their lives in larger streams and rivers, and are an important food source for fish. Headwaters provide spawning grounds and help to regulate stream temperature.

Wetlands and headwaters cannot be restored to ecological function if the very material that they rely on – deep sediment structure and long-entrained flow paths – are mined through, ground up, and replaced in the mining pit as a relatively homogenous pile of rubble and dirt.

One stream, "Stream 2003" also called Middle Creek, will be completely destroyed. It will not be "impacted", but rather mining will go down hundreds of feet beneath it, completely removing the stream bed and any remnant of the stream for 11 miles. While stream reconstruction has been done successfully by re-grading and re-vegetating banks, or adding or removing debris to create habitat, no one has simply created a new stream where none exists. A new ditch can be dug where the old stream used to be, and can have the same curves and shape. But it will not have the exchange of surface and groundwater at the streambed, upwelling areas for fish to lay their eggs in, biodiversity of insects that headwater streams provide as food for fish, the purity of water and nutrients wetlands provided.

Palmer Summary at 1-2; *see* Palmer, Margaret A., *Report on Chuitna Coal Project of PacRim Coal*, 3-5, 8-12 (2009) [hereinafter Palmer Report] (attached as Exhibit 12). Thus, while it may be possible to create a post-mining landscape that appears similar to the pre-mining stream and riparian area, the ecological function and aquatic productivity of the area will be forever lost.

If these streams . . . are destroyed by strip-mining as proposed, it is unlikely that these local salmon stocks could be restored to their former level of productivity even if a new stream channel could be successfully constructed.

It may not be possible to reconstruct a new stream with the same level of productivity as the current stream 2003. PacRim has not provided any examples of where a strip-mined salmon spawning and rearing drainage the size of stream 2003 (17.4 km) has been restored to premining productivity. An extensive search of the scientific literature and contacts with stream restoration experts in Alaska and elsewhere have not produced any examples either . . . .

Even if Stream 2003 could be successfully restored to full physical and ecological function, it may not be possible to restore it to its former level of biological productivity because of the loss of marine derived nutrients (MDN) from salmon carcasses and the permanent removal of all the wetlands in the mine area. Wetlands and MDN are the primary sources of stream nutrients and productivity in salmon streams.

Trasky, Lance, *Report on Chuitna Coal Project Aquatic Studies and Fish and Wildlife Protection Plan, Summary of Conclusions*, 1-2 (2009) [hereinafter Trasky Summary] (attached as Exhibit 18); Trasky Report at 55-56.

In short, attempts to restore streams diverted for surface coal mining would not return those streams to their pre-mining levels of aquatic productivity. As a result, the performance standard requiring such restoration cannot be achieved. See 11 AAC 90.327. Moreover, restoration would not be able to return the area to its pre-mining land use as high-quality fish and wildlife habitat. Reclamation in accordance with ASCMCRA is not technologically feasible, therefore, and the lands that comprise the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed must be designated as unsuitable for surface coal mining.

***D. Surface Coal Mining in the Identified Lands Cannot be Designed and Operated to Minimize Changes in Water Quality and Quantity and Hydrology Enough to Ensure No Adverse Effects to Fish & Wildlife Habitat.***

According to the ASCMCRA performance standards:

Changes in water quality and quantity, in the depth and flow patterns of ground water and in the location of surface and subsurface water drainage channels must be minimized so that the approved postmining land use of the permit area is not adversely affected.

11 AAC 90.321(b). As described above, the postmining land use for any surface coal mining in streambeds and riparian areas within the Chuitna watershed would be fish and wildlife habitat, and this habitat would be adversely affected by changes in water quality and quantity and hydrology caused by mining operations.

As discussed in the previous sections, riparian area destruction and stream diversions would irrevocably alter the hydrology and aquatic productivity of the watershed, in direct contravention of key ASCMCRA performance standards. However, in addition, the alteration of the hydrology, along with changes in water quality and quantity, would have adverse effects on fish and wildlife habitat.

As recently as the August 2006 scoping comment period for the supplemental EIS, DNR personnel have warned about the potential impacts of the proposed Chuitna Coal Mine on fish and wildlife. In a letter to former EPA project manager Hanh Shaw, DNR official Tom Crafford wrote that dewatering the overburden and interburden material to facilitate coal extraction could cause decreased groundwater recharge to area streams, lakes, and wetlands, which could impact fish and aquatic invertebrate populations in the entire region. Letter from Tom Crafford, DNR, to Hanh Shaw, EPA at 3 (August 7, 2006) (attached as Exhibit 26).

As described in the previous section, the 1990 EIS recognized that the impact to groundwater from mining would be “substantial,” affecting “recharge and discharge relationships; quantity, quality, and direction of ground-water flow; and quantity and quality of surface water.” EPA 1990 at 5-16. More specifically, the 1990 EIS predicted the following impacts:

- A reduction of flow in springs and streams;
- Disruption of the natural recharge due to mining operations;
- Diversion of pit inflow and surface water in the mine area to nearby sediment treatment ponds;
- High risk of groundwater degradation from fuel or chemical spills within the mine area; and
- Potential change in stream temperatures and icing conditions.

*Id.* at 5-19 to 5-20.

Significant drawdown from dewatering would reduce flow in springs and streams, affect groundwater in the project area, disrupt natural recharge, increase surface flows, and change stream temperatures and icing conditions. *Id.* at 5-19 to 5-20. The EIS recognized that reclamation of the mine area could only partly reverse the groundwater impacts from mining. *Id.* at 5-20.

It is anticipated that the water quality might be somewhat poorer than the premining quality due to the nature of the spoil material, i.e., intermixed clay, sand, and gravel. . . . The reestablishment of the ground-water regime and, in turn, reestablishment of the surface streams would likely require decades. . . . The elevation of the shallow aquifer water table relative to postreclamation ground surface elevations cannot be predicted with sufficient accuracy to assure base flow contribution to restored stream channels.

*Id.* Specific reductions of streamflow for the proposed Diamond Chuitna mine were estimated in the 1990 EIS, and they ranged from 17% for the Chuit River immediately below the mouth of Lone Creek during low flow periods, to 21% for Stream 2004 and 25% for Lone Creek during low flow periods, to 80% for Stream 2003 during low flow periods. *Id.* at 5-27 to 5-30. The ADFG's instream flow reservation application indicates that virtually any reduction in streamflow in the lower Chuit River during low-flow months (November through March) would be harmful to fish. ADFG 1996 at App. A, pp. 12-13. Despite the ADFG's conclusion, the 1990 EIS indicated that during low flow periods, streamflow in the lower Chuit River could be reduced by as much as 17%. EPA 1990 at 5-27. Further, the 1990 EIS conceded that future conditions cannot be predicted well enough to assure base flow contribution to restored stream channels. *Id.* at 5-29, 5-139.

As described above, mining operations would also affect water quality by discharging polluted runoff into downstream reaches of the very same streams mining operation would occur within. Despite sediment ponds and other treatment methods, the 1990 EIS conceded that full compliance with water quality standards—especially for turbidity—could not be guaranteed. *Id.* at 5-33. Increased turbidity creates poor conditions for fish. *See above*, part I.C. Water quality would be poorer post-mining, and reestablishment of the groundwater regime and in turn reestablishment of surface streams would likely take decades. EPA 1990 at 5-33.

Reduced streamflows from surface coal mining in streambeds and riparian areas would have adverse impacts on a watershed that is highly productive fish and wildlife habitat. Reductions in streamflows from dewatering and wetlands destruction would result in loss of high-quality spawning, migratory and rearing habitat in important tributaries of the Chuit River. The 1990 EIS attempted to estimate the amount of spawning habitat loss from surface coal mining, and concluded that after 10 years of mining operations, habitat for as many as 23,751 Chinook rearing salmonids, 57,208 coho, and 14,615 Dolly Varden could be lost. After 30 years of mine operations, habitat for as many as 91,086 Chinook rearing salmonids, 179,348 coho, and 52,308 Dolly Varden could be lost. *Id.* at 5-42 to 5-43 (Tables 5-10 and 5-11). In short, reduced streamflows caused by surface coal mining operations would substantially diminish the productivity of anadromous water bodies within the Chuitna watershed. Additionally, the 1990 EIS acknowledged that this habitat loss would be long-term. *Id.* at 5-49; *see above*, part I.C.

The loss of spawning habitat for salmon in tributaries of the Chuit River would have a domino effect within the watershed, which is highly productive for moose, brown bear, and black bear in addition to anadromous and resident fishes. EPA 1990 at A-37 (Terrestrial Habitat Evaluation). Three major tributaries of the Chuit River—Lone Creek and Streams 2003 and 2004—are heavily used by brown bear feeding upon salmon. *Id.* at 4-19. The availability of salmon and other key food sources significantly influences brown bear distribution in the watershed. *Id.* Major factors affecting summer and fall black bear distribution are the abundance and distribution of berries and salmon. *Id.* at 4-

20. Thus, a reduction in salmon production would reduce the quality of the habitat for brown and black bear, likely resulting in reduced populations of those species as well.

The 1990 EIS recognized that impacts to this rich wildlife habitat are unavoidable if surface coal mining is undertaken. For example, “[p]ostreclamation summer/fall/spring habitat value for moose would be lower than existing value because some of the kinds of selected edible broad-leafed herbaceous plants (such as aquatic emergent species) would be absent.” *Id.* at 5-16. Wetlands destruction from surface mining in riparian areas and streambeds would reduce habitat diversity, making the value of postreclamation habitat for moose and black bear less than that of premining habitat. *Id.* at 5-10.

Under the old plan, mining would have destroyed half of a rutting concentration area for moose, affecting habitat on a local and maybe regional basis. *Id.* at 5-12. Brown bears and marten would likely experience significant local indirect habitat loss because of strong aversion to human activity. *Id.* Brown bear numbers could be substantially reduced south and east of the mine because of barriers to movement, which could be a local and regional impact. *Id.* at 5-13. Mining would disturb significant areas of high quality black and brown bear habitat and high and medium quality moose spring/summer/fall habitat. Postreclamation habitat value would be significantly less for black bear and moose. *Id.*

Under the previous coal mine proposal, “[t]he vegetation type sustaining the greatest loss would be mixed woodland/spruce-birch followed by closed tall shrub scrub/alder and low shrub/sweetgale-grass fen, respectively.” *Id.* at A-10. These habitat types are highly important to a number of key wildlife species found in the Chuitna area. Low shrub/sweetgale-grass fen, a wetland vegetation type, *Id.*, is rated high habitat suitability for sandhill crane, trumpeter swan, and black bear, three of the key wildlife species evaluated in the Terrestrial Habitat Evaluation in the 1990 EIS. *Id.* at A-13. Closed tall shrub scrub/alder is rated “high” habitat suitability for black bear and brown bear, and mixed woodland/spruce-birch is rated “high” habitat suitability for brown bear and moose. *Id.*

Wildlife habitat would also be adversely impacted by road construction required to support mine operations. Roads allow increased human access and cause habitat fragmentation and disturbance as well as increasing wildlife mortality from vehicle collisions. TNC 2003 at App. 15, p. 2. Studies of road construction into brown bear habitat have consistently shown harm to bear populations from habitat fragmentation, increased human access, and increased mortality from legal and illegal hunting. *Id.*

Most surface coal mining plans incorporate elaborate mitigation plans, relying on both on-site and off-site mitigation. However, these mitigation strategies have proven inadequate for minimizing changes to water quality and quantity and hydrology enough to ensure there are no adverse effects to fish and wildlife.

Current mitigation strategies are meant to compensate for lost stream habitat and functions but do not; water-quality degradation caused by

mining activities is neither prevented nor corrected during reclamation or mitigation.

Mining permits are being issued despite the preponderance of scientific evidence that impacts are pervasive and irreversible and that mitigation cannot compensate for losses.

Palmer 2010 at 149.

It is clear from the 1990 EIS and from more recent scientific reports analyzing draft mining plans for the Chuitna Coal Project that changes in water quality, water quantity, and hydrology caused by a coal mining operation in streambeds and riparian areas within the Chuit River watershed would—even when minimized to the maximum degree possible—have long-term adverse effects on fish and wildlife habitat. These adverse effects are particularly unacceptable in a watershed like the Chuitna that is recognized by the state and other authorities as highly important for anadromous fishes and in a region that is rich in fish and wildlife resources. As a result, the performance standard requiring avoidance of adverse effects to pre-existing land uses cannot be achieved. *See* 11 AAC 90.321(b). Moreover, the identified lands cannot be restored following surface coal mining to conditions capable of supporting the pre-mining land use of high-quality fish and wildlife habitat, as required by 11 AAC 90.481(a). Reclamation in accordance with ASCMCRA is not technologically feasible, therefore, and the lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed should be designated as unsuitable for surface coal mining.

**II. Under AS 27.21.260(c)(2)(B), the Commissioner Must Designate the Identified Lands as Unsuitable for all Types of Surface Coal Mining Because Such Operations will Affect Fragile Land and Could Result in Significant Damage to Important Cultural, Scientific, and Aesthetic Values and Natural Systems.**

The DNR commissioner may designate an area as unsuitable for all or certain types of surface coal mining operations if he determines that operations in the area will “affect fragile or historic land in which the operations could result in significant damage to important historic, cultural, scientific, and aesthetic values and natural systems.” AS 27.21.260(c)(2)(B). Because surface coal mining on lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed would affect fragile land and would result in significant damage to important cultural, scientific, and aesthetic values and natural systems, the commissioner should designate the identified lands as unsuitable for surface coal mining.

***A. The Identified Lands Contain Fragile Land Within the Meaning of the ASCMCRA Regulations.***

The ASCMCRA regulations define “fragile land” as:

geographic areas containing natural, ecologic, scientific, or aesthetic resources that could be damaged or destroyed by surface coal mining and reclamation operations. Examples of fragile land includes, but is not limited to, uncommon geologic features, National Natural Landmark sites, groundwater recharge areas, valuable habitats for fish and wildlife, critical habitats for endangered species of animals and plants, critical wetlands, environmental corridors containing concentrations of ecologic and aesthetic features, areas of recreational value due to high environmental quality, buffer zones around areas where surface coal mining is prohibited, and important, unique, or highly productive soils or mineral resources.

11 AAC 90.911(40). The streambeds and riparian areas within the Chuit River watershed are fragile lands within the regulatory definition.

As described above, the streambeds and riparian areas within the Chuit River watershed include wetlands, a natural resource that would be destroyed by surface coal mining and could not be restored. Those lands, in turn, support a complex hydrology that are highly productive habitat for salmon and other fish species. Thus, the riparian areas and streambeds are critical wetlands, constitute an important groundwater recharge area, and support valuable habitat for fish and wildlife. This fragile resource would be destroyed by surface coal mining, which would in turn damage and alter the hydrologic system of which they are an integral part, resulting in altered streamflows and severely degraded quality of fish habitat.

Again as described above, the Chuit River flows into upper Cook Inlet, the shoreline of which is also fragile land because of its habitat for migrating waterfowl and shorebirds and its important migration corridor for anadromous fishes and beluga whales. The Cook Inlet beluga whale is listed as endangered under the federal Endangered Species Act. Surface coal mining in riparian areas and streambeds within the Chuit River watershed would damage these sensitive resources. As discussed, surface coal mining would degrade the water quality and quantity of the Chuit River and its tributaries. Surface coal mining would destroy wetlands and other waters on which these species rely. Mining would result in significant deposition of coal dust blown by local winds from coal stockpiles and conveyor systems. Finally, mining would require the construction of transport facilities into the migratory corridors of Cook Inlet. In addition, a fuel or coal spill in Cook Inlet at the proposed Ladd Landing site would place at risk vulnerable resources in the Chuit Flats intertidal zone and the Susitna Flats. EPA 1990 at 5-111.

The streambeds and riparian areas are rich in wildlife habitat that is also fragile land. As described above, the area contains a great deal of high-quality habitat for moose, brown and black bear, and other species. This habitat would be damaged for decades by surface coal mining.

The significance of the resources in and near the Chuit River watershed is well described in The Nature Conservancy's Cook Inlet Basin Ecoregional Assessment. The

assessment identified 10 terrestrial and 4 aquatic areas of biological significance within the Cook Inlet Basin—including the Chuit River watershed and three other areas nearby—and advocated conservation of these areas in order to “conserve the fish and wildlife of the basin over the long term.” TNC 2003 at 9.

***B. Surface Coal Mining Within the Identified Lands Would Result in Significant Damage to Important Cultural, Scientific, and Aesthetic Values and Natural Systems.***

Surface coal mining on lands comprising the streambeds and riparian areas of the Chuitna watershed would cause harm to a number of important cultural, scientific, and aesthetic values or natural systems.

**1. Surface Coal Mining Would Result in Significant Damage to Important Cultural Values Inherent in Subsistence, the Local Way of Life, Commercial Fishing, and Sport Fishing.**

Two small communities, the Native Village of Tyonek and the community of Beluga, are located near the Chuitna watershed. The people in these communities rely on local fish and game resources for subsistence purposes and for an economic way of life. Local fish resources that rely on the Chuit River watershed also support thriving commercial and sport fisheries. These activities are cultural values that would suffer significant damage if surface coal mining were allowed on lands comprising the streambeds of anadromous fish waters and riparian areas within the watershed.

**a. Surface coal mining operations would harm subsistence.**

As described above, the Chuit River and its tributaries are important habitat for spawning, migration and rearing of salmonids and other fishes. Factors contributing to the productivity of these streams include the baseflow provided by local groundwater contributions and the recharge and flow moderating functions of local wetlands and riparian areas. Surface coal mining would destroy hundreds of acres of wetlands, irrevocably alter the local hydrology, and result in a loss of salmon spawning, migration and rearing habitat. EPA 1990 at 5-76. Coal mining would also increase siltation and reduce water quality in these streams, further damaging their value as fish habitat. *Id.* at 5-44 to 5-45. Indeed, under the old plan, “Chinook salmon escapement (the primary subsistence species) could be reduced by up to 30 percent per year (Table 5-11).” *Id.* at 5-76.

The Chuit River watershed also contains high-quality moose habitat, including an important moose rutting area that would likely be damaged by surface coal mining in the streambeds and riparian areas within the Chuitna watershed. Moose habitat would be destroyed during mining operations, resulting in a reduction of moose abundance. *Id.* at 5-75.

Salmon and moose are the two most important subsistence resources for the people of Tyonek, a Native village located near the Chuit River. *Id.* at 4-83. “Subsistence use of the area is considered high and is part of the economic, cultural, and social well being of the inhabitants in the area.” Oasis Environmental, Inc., *Land Use Baseline Summary Report for the Chuitna Coal Project 6* (2006) [hereinafter Oasis Environmental 2006], available at <http://www.chuitnaseis.com/files/Baseline/Land%20Use%20Baseline%20Summary%20Report.pdf>. As the 1990 EIS acknowledges, “[t]he harvest and use of subsistence resources are important to Tyonek residents . . . .” EPA 1990 at 4-83. Subsistence resources are less expensive and more nutritious than store-bought food, can supplement or partially replace income from wage employment, and “the harvest, use, and distribution of these resources is integrally tied to Tyonek villagers’ social and cultural value system.” *Id.* Thus, the ability to harvest wild foods is not just a physical requirement but a cultural requirement as well. Adverse effects on the salmon and moose populations would reduce the availability of these resources for subsistence and add to the increasing insecurity of the subsistence culture.

Cooperative harvest, use, and distribution of subsistence resources are important cohesive elements in Tyonek culture (Fall et al. 1984). The opportunity to hunt and fish is an affirmation of cultural values in an age when the dominant social, economic, and political influences tend to dilute the Tanaina culture. Continuation of traditional harvest activities, then, provides the focus of Tyonek’s value system and kinship networks provide the social structure within which these traditional activities occur. Tyonek villagers want to retain these elements of their culture.

*Id.* at 4-88. Tyonek’s subsistence culture is an important cultural value that is under threat already, as it is in many Native communities in Alaska. The added pressure on salmon and moose populations would result in significant damage to an important cultural value. Loss of salmon spawning and rearing habitat could cause a “significant adverse impact” to Tyonek’s subsistence as well as to commercial fisheries (see below). *Id.* at 5-76. In addition, coal mining in the area would result in an influx of mine workers into the Tyonek area, eroding the local quality of life and further diluting the Native culture. *Id.* at 5-72 to 5-74. Increased competition for king and coho in the Chuit River from mine workers and their friends on days off would exacerbate the loss of productive fish habitat. *Id.* at 5-127.

Coal mining in the streambeds and riparian areas would cause adverse impacts on the aquatic productivity of the Chuit River, on its water quality, and on wildlife habitat in the surrounding area, which would significantly damage the subsistence culture of Tyonek residents.

The fish and wildlife resources that are important to the subsistence culture of Tyonek are also important to other local residents, particularly those in the small community of Beluga. According to Beluga resident Judy Heilman of the Chuitna Citizens Coalition, “We’re very concerned, not only having the [Chuit] river endangered

but our way of life, our subsistence living and also endangering our health.” Downey, Maria, *Chuitna River Concerns*, KTUU-TV (April 17, 2007) available at <http://www.ktuu.com/Global/story.asp?S=6385413>. As attested to by letters from residents to the EPA during the scoping period for the supplemental EIS for the proposed Chuitna Coal Mine, many residents of Beluga feel strongly about the way of life they have chosen and the destruction of that way of life by coal mining:

I grew up in Beluga from age 3 to 20. I visit now twice a year to help my dad commercial fish and to experience the most wonderful magic place in the world. I still consider Alaska to be my home and Beluga is the center of it. This coal mine, gigantic dock, and huge clearing of coastal land for coal storage right directly on, over, and around the fishing grounds used by me, my father and generations of people who have lived and fished here like Frank Grant who homesteaded the area in the 1920's is unbelievably horrible. The idea that I could return next summer to this monstrosity breaks my heart.

Letter from Eric Jorgensen to EPA (Received August 8, 2006) (attached as Exhibit 22). Coal mining in the watershed would cause adverse impacts on lands and waters in the Beluga area, which would significantly damage the way of life of local residents. Subsistence users of those resources would be precluded from their traditional and customary use, possibly for an entire generation, resulting in incalculable damage to the cultural traditions

**b. Surface coal mining operations would harm commercial fishing.**

Commercial salmon fishing is an iconic and essential part of the Alaskan culture and economy, particularly in rural areas like that around Tyonek and Beluga. The Chuit River watershed is highly productive and contributes substantially to the commercial fishery in upper Cook Inlet.

The most significant commercial fish harvest activity in the Upper Cook Inlet, is the salmon fishery. All five species of Pacific salmon are harvested, although the focus species is primarily sockeye (red) salmon. The 2005 annual commercial harvest counts in the Upper Cook Inlet was 5.6 million salmon (ADFG 2005). This is the combined harvest counts for all five species of Pacific salmon. The total harvest numbers for all salmon commercially harvested in the Northern District of the Upper Cook Inlet was 62,000 fish (ADFG 2005).

The Upper Cook Inlet holds a significant fishery, which encompasses the area including Chuit flats to Threemile Creek. All five species of Pacific salmon are fished intensively by set nets in this portion of Cook Inlet. Fixed gillnets are used, since drift net permits may not be used in the North District. Permits are held almost exclusively by Tyonek residents in

this area (EPA 1990). There is a second area along the west shores of the Northern District that is not as intensively harvested, which extends from Granite Point to Chuit flats.

The catch numbers in 2005 for commercially harvested salmon on the west side of the Upper Cook Inlet in the North District was 35,000 fish (ADFG 2005).

Commercial fishing provides income and food for the local residents.

Oasis Environmental 2006 at 2.

Many set-net fishermen in the Chuit River area have fished these waters for generations. Their view is that this activity is more than just a source of food or income; it is a fundamental way of life, part of a unique Alaskan culture, and essential to the well-being of their families. These views are attested to in these fishermen's scoping comments on the supplemental EIS:

During the summer months, I live at Beluga on a bluff overlooking Cook Inlet, often observing, rather ironically, a threatened local species swimming by in their hungry, playful pods during July, feasting on salmon and other marine nutrients. Our combined future may be at stake here – at least our hitherto lifestyle, working and recreating, ingesting clean air and water, and sharing the simple joys of a pristine natural environment. . . .

This little community, comprising year-round residents and lodge owners, fish and game guides, business owners and commercial set-netters, not to mention the seasonal tourists and Chugach Electric plant employees all enjoy a quality of life here, 40 miles west of Anchorage. At our 2 hour residents' meeting on Thursday, July 20 every single person emphasized his/her need for a continuation of the clean, pollutant-free environment so valued at Beluga. We were all very clear about one thing in particular: that the proposed Chuitna Coal Mine will poison the rivers and waterways, destroy the surrounding vegetation, introduce a distinctly nasty blackened character to the sandy beach, and will eventually compromise the health of its residents. Make no mistake: little good will come of this, as the cumulative effects of a coal mine will destroy the animals, fish and birdlife of the region; the beauty and natural wilderness of the area will be a thing of the past. . . .

We do not want our beautiful environment destroyed by the ugliness of a polluting strip coal mine and all that goes with it. We all want to continue enjoying Beluga's four seasons, free from air pollutants and the visual monstrosities that are planned along the beach. We want the salmon to continue their life cycle unhindered and unsullied. We want the waterways pristine the way Nature intended. We want to remain here,

living healthy, unthreatened lives. The looming specter of a coal mine in our vicinity will, with little doubt, threaten to destroy everything we have here.

How

Letter from Lyn Jorgensen (July 24, 2006) (attached as Exhibit 24).

Surface coal mining within the streambeds and riparian areas of the Chuit River watershed would damage irrevocably this unique culture and way of life. Coal deposition blown by local winds from coal stockpiles and conveyor systems would seriously harm set-net fishing. Coal storage and transport facilities at Ladd Landing would severely threaten the greatest local concentration of set-net sites. Facilities built at this site—the preferred site for PacRim Coal and its proposed Chuitna Coal Mine—would directly occupy and displace prime fishing territory for long-time set-net fishers. See Lyn Jorgensen; Letter from Terry Jorgensen (July 24, 2006) (attached as Exhibit 25). Thus, surface coal mining in the streambeds and riparian areas within the watershed and their associated transport and export facilities would significantly damage this iconic cultural value. Surface coal mining on the identified lands would also require the State to take existing set-net site leases by eminent domain, setting a negative precedent for family-run commercial fishing operations around the State.

Coal mining on the lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed would cause adverse impacts to the aquatic productivity of the watershed and on its water quality, which would significantly damage the river's and the surrounding region's utility for commercial fishing, an important Alaskan cultural value.

c. Surface coal mining operations would harm sport fishing.

In addition to local residents, many non-local anglers flock to the Chuit River in the summer to fish its productive waters. See Hollander, Zaz, *Cool to coal: Developer says safeguards will be put in place, but locals doubt plan*, Anchorage Daily News (April 8, 2007) available at <http://www.adn.com/money/industries/mining/story/8776567p-8677911c.html> (quoting a biologist with the ADFG). Surface coal mining in the streambeds and riparian areas would adversely affect these anglers:

I am not in favor of the Chuitna Coal Project. I have been a frequent visitor of the area between the village of Tyonek and the Beluga airport. Over the past twelve years I have enjoyed the fishing, hunting and peace and quiet of this area. The rivers and streams are clean and unpolluted. The salmon returns are healthy year after year . . . . Why should this place be degraded by an open pit coal mine.

Letter from Jim Chaplin, Port Alsworth, AK (Received July 2006). Adverse impacts on the productivity of the Chuit River for fish and on its water quality from surface coal mining would significantly damage the river's utility for sport fishing, a significant part of Alaska's culture and economy.

**2. Surface Coal Mining Would Result in Significant Damage to Important Scientific Values.**

The Chuit River watershed contains rich fish and wildlife habitat and many natural resources. The ASCMCRA regulations do not define “scientific values,” but many of the rich resources found in the riparian areas of the Chuit River watershed could be considered to have such values. These include the complex hydrologic system that supports such highly productive anadromous fish streams and the declining Cook Inlet beluga whale, which is listed as endangered under the federal Endangered Species Act. Surface coal mining in the streambeds and riparian areas within the Chuit River watershed would significantly damage these resources and their inherent scientific value.

**a. Surface coal mining would harm a complex and poorly understood hydrologic system.**

As described in Part I, above, surface coal mining in the streambeds and riparian areas would damage the interconnected surface and groundwater system, which is recharged and moderated by the spongy wetlands of the land surface. The loss of this complex and poorly understood system and the productive fisheries that it supports would mean the loss of an important scientific value.

One of the predominant wetland types in the part of the Chuit River watershed where coal leases are held is a type of fen—open low shrub scrub/sweetgale fen. A fen is a relatively uncommon wetland type in the U.S. because of the unique conditions in which it occurs. See Bedford, Barbara L. and Godwin, Kevin S., *Fens of the United States: Distribution, Characteristics, and Scientific Connection Versus Legal Isolation*, 23 Wetlands 608, 615 (2003) (attached as Exhibit 4). Fens are “ground-water-driven systems,” and their hydrology, function, and other characteristics “are determined in large part by the fact that they occur where ground water discharges to the plant rooting zone.” *Id.* at 612. Fen characteristics—which occur across a spectrum—are fundamentally determined by ground water, and they tend to be associated with the accumulation of peat. *Id.* This defining characteristic of fens—their strong association with ground-water—is itself determined by climate, specifically the balance between precipitation and evapotranspiration, and topographic and geologic landscape features that control the movement and chemistry of ground water. *Id.* at 616. Because of these restrictive conditions, fens are not widespread in the U.S. generally, but in Alaska and a few other northern areas, fens associated with large peatlands do exist. *Id.* at 615. The unique conditions required for fens to occur make them vulnerable to change. “Given such strong ties to the balance between ground-water inputs and losses from evapotranspiration, fens are likely to be susceptible to global climate warming and changes in ground-water flow due to irrigation or quarrying activities.” *Id.* at 616 (internal citations omitted). Wetlands scientists believe that the extent of fens in the U.S. has decreased substantially since the time of European settlement, and many that remain have been degraded by, among other things, changes in hydrology and water chemistry resulting from human activities like gravel mining. *Id.* at 617. The National Research

Council has concluded that fens and bogs are not capable of being restored once they are degraded or removed. *See supra*, part I.A.3.

The unique characteristics and fragility of fen wetlands, and their hydrologic system, give them a scientific value that is worth preserving, particularly given that they are not widespread around the country. Surface coal mining on the lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed, unfortunately, would cause significant permanent disruption of the local surface and groundwater hydrology, impacting a variety of important local habitats including fens and bogs that are impossible to restore post-mining. Thus, surface coal mining on identified lands would cause significant damage to these scientific values.

b. Surface coal mining would harm the beleaguered Cook Inlet beluga whale.

The beluga whale is a small, toothed whale that is highly social and often found in groups of 10 to several hundred. 72 Fed. Reg. 19854, 19855 (Apr. 20, 2007). The Cook Inlet population of the beluga whale occurs strictly in Cook Inlet and has declined from a historic high of about 1,293 individuals to an estimated 321 individuals. *See Id.* at 19855-56; National Oceanic and Atmospheric Administration Fisheries. Although belugas used to occupy the entire Inlet, they now concentrate in upper Cook Inlet. 72 Fed. Reg. at 19857. According to the 1990 EIS, beluga whales are common in the upper Cook Inlet primarily in the spring and summer when they feed on anadromous fish near the mouths of rivers. EPA 1990 at 4-57. The area between Trading Bay and Susitna River is especially important, with a concentration of sightings near the mouth of the Beluga River (the next major river north of the Chuitna River). *Id.* Almost every summer a large concentration of whales (up to 300) has been found in the Susitna Delta, primarily near the mouth of the Susitna River. Rugh at 8-10. Traditional Alaska Native ecological knowledge maintains that belugas calve from April through August and that calving areas include the areas off the mouths of the Beluga and Susitna Rivers in May. Huntington at 137. The area between the Beluga and Susitna rivers may be a significant calving and/or nursery area for belugas. EPA 1990 at 4-57.

Beluga whales likely congregate in upper Cook Inlet in summer for feeding on dense prey concentrations of eulachon and salmon in the upper drainages of the Inlet. From May through August, all five of Alaska's Pacific salmon species appear in the areas that beluga whales frequent. *See* National Marine Fisheries Service, *Status Report on Cook Inlet Belugas* (*Delphinapterus leucas*), Alaska Region National Marine Fisheries Service (1992). Salmon probably constitute the majority of the Cook Inlet beluga whale's summer diet, as evidenced by Native hunters finding large numbers of salmon in the stomach of belugas. Huntington at 137. Access to food may be the overriding element in beluga distribution in Cook Inlet in the summer. Belugas often concentrate at river mouths because they provide an efficient way for the whales to feed, and these coastal concentrations apparently last from mid-May to mid-June or later in concert with the migration of anadromous fishes, particularly eulachon and salmon. Calkins, D. G.,

The dramatic decline in the population of the Cook Inlet beluga whales prompted its designation as a “depleted” species under the Marine Mammal Protection Act in 2000, and its designation as an “endangered” species under the federal Endangered Species Act. 73 Fed. Reg. 62919 (Oct. 22, 2008). Critical habitat, including upper Cook Inlet near the Chuit River mouth, was proposed in December of last year. 74 Fed. Reg. 63080 (Dec. 2, 2009). The precise cause of the decline is unknown, but what is known is that the small number of remaining individuals in the population makes it vulnerable to even small additional impacts. 72 Fed. Reg. at 19857. Surface coal mining in the streambeds and riparian areas of the Chuit River watershed would very likely cause such impacts because of the harm such operations would cause to aquatic productivity of the Chuitna River—a prime salmon stream—and because of impacts of the potential port facility to salmon and beluga migrations up the western shore of the inlet.

The isolated and vulnerable nature of the Cook Inlet population of beluga whales require special management based on ongoing scientific research, giving this population a scientific value that warrants preservation. See National Marine Fisheries Service, *Cook Inlet Beluga Whale Research Plan, In Draft Conservation Plan for the Cook Inlet Beluga Whale (Delphinapterus leucas)*, App. D (2005), available at <http://www.fakr.noaa.gov/protectedresources/whales/beluga/mmpa/draft/conservationplan032005.pdf>; 73 Fed. Reg. 62919 (Oct. 22, 2008). Surface coal mining on the lands comprising the streambeds of anadromous water bodies and riparian areas in the Chuit River watershed, unfortunately, would cause significant damage to that value.

### **3. Surface Coal Mining Operations Would Result in Significant Damage to Important Aesthetic Values.**

Any of the cultural and scientific values identified above also should be considered aesthetic values—another term undefined by the state and federal coal mining regulations—because of their natural beauty and relatively pristine character. In addition, surface coal mining in the streambeds and riparian areas of the Chuitna watershed would also harm other aesthetic values—namely the watershed’s virtually untouched scenic quality, natural quiet, and pristine air quality.

#### **a. Surface coal mining would harm the region’s scenic values.**

The 1990 EIS rated this area class A (of classes A, B, and C) for scenic quality, suggesting that “some special management attention to maintaining the area’s scenic quality may be merited.” EPA 1990 at 4-90. The document also acknowledged that an important use of the area is for “wilderness expeditions such as fly-in fishing and subsistence use, for which lack of manmade visual intrusions is an important attribute.” *Id.* at 4-90 to 4-91. The addition of surface coal mining operations, which would destroy thousands of acres of landscape and bring dust, water pollution, roads, and traffic with it, would result in significant damage to the scenic quality of the area. A coal mine in streambeds and riparian areas within the watershed would also be under the flight path

for many planes taking off and landing at Anchorage International Airport, which would dramatically affect the first impression of many visitors to Alaska.

b. Surface coal mining would damage the region's natural quiet.

Local residents prize the area for its natural quiet. This resource was a focus of several comments submitted during the scoping period for the Chuitna Coal Mine SEIS. One commenter stated:

A matter of fact we just returned from there where we found 'no silence in our wilderness.' The constant buzz of helicopters commencing at 6:00 a.m. and continuing throughout the day and evening drowned out the chatter of our visiting grand kids who wondered where the 'silence had gone in our wilderness'.

Email from Brenda and Harold Rogers to Hahn Shaw (August 8, 2006) (attached as Exhibit 21). The addition of a massive coal mining operation would inevitably cause a substantial increase in noise levels, from operation of heavy equipment, to greatly increased traffic on an expanded road network, to increased air traffic transporting workers, equipment, and supplies to and from the site. This would result in significant damage to the natural quiet of the area.

c. Surface coal mining would damage the region's pristine air quality.

Air quality monitoring in the area has indicated that pollutant levels are well below national air quality standard for all major pollutants. EPA 1990 at 4-66. Not far from the Chuit River is the Tuxedni Bay Wilderness Area, one of two areas in Alaska designated Class I airsheds under the Clean Air Act. Coal mining would generate emissions of nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), hydrocarbons (HC), particulate matter (PM), and lead (Pb). EPA 1990 at 5-52. Because of the large amounts of coal dust generated by mining, transport, and storage of coal, increased particulate levels are especially concerning. *Id.* Even with control measures, particulate emissions for the old Diamond Chuitna Coal Project were projected to be 882.5 tons per year during intermediate production years and 824.9 tons per year during full production years. *Id.* at 5-54. This is a substantial amount of coal dust in an area of pristine air quality and would cause significant damage to the aesthetic value inherent in the currently pristine quality of the air.

**4. Surface Coal Mining Operations Would Result in Significant Damage to Important Natural Systems.**

As described above, surface coal mining in streambeds and riparian areas within the Chuit River watershed would cause significant damage to important natural systems, including fragile bog and fen wetlands, a complex and poorly understood hydrologic system, a rich and productive salmon stream system, high-quality wildlife habitat, and a

pristine airshed. The health of these natural systems depends on the stability and integrity of another natural system—the climate—that is undergoing dramatic changes as a result of human-induced warming. See Solomon, S., et al., *Summary for Policymakers, in Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2-3* (2007) available at [http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1\\_Pub\\_SPM-v2.pdf](http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Pub_SPM-v2.pdf). The construction and operation of a major surface coal mine in the Chuit River watershed would add to the climate change problem and contribute to the threats and damage from climate change on the natural systems of the region.

Human activities that release carbon dioxide into the atmosphere are the primary driver of the global warming trend. See, e.g., *id.* at 2. Warming is occurring in the Arctic at about twice the rate that is prevalent in more southern regions. See *id.* at 6. The disturbing consequences of this warming in Alaska include thinning and receding sea ice, retreating glaciers, increasing summer fires, changing patterns of vegetation and animal migrations, warming salmon streams, and thawing permafrost. See Adger, Neil, et al., *Summary for Policymakers, in Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 1-3* (2007), available at <http://www.ipcc.ch/SPM13apr07.pdf>.

The significant contribution of coal mining to global warming begins with the digging of the first mine pit. Peatlands like those that are extensive in the Chuit watershed are an important carbon sink, and when they are disturbed or become dry—such as would occur as a result of surface mining in streambeds and riparian areas of the watershed—they release their carbon into the atmosphere. See, e.g., Shukman, David, *Reading Peat's Carbon Contribution*, BBC News (March 28, 2007) available at <http://news.bbc.co.uk/2/hi/science/nature/6504145.stm>. For this reason, the National Trust of Great Britain has undertaken a campaign to persuade the British government to adopt measures that reward peat conservation. See Black, Richard, “*Preserve Peat Bogs*” for *Climate*, BBC News (2007) available at <http://news.bbc.co.uk/2/hi/science/nature/6502239.stm>. Peatlands also store large amounts of methane, another greenhouse gas that contributes to global warming. See MacDonald, Glen M., et al., *Rapid Early Development of Circumarctic Peatlands and Atmosphere CH<sub>4</sub> and CO<sub>2</sub> Variations*. 312 *Science* 285, 287 (2006) (attached as Exhibit 7) available at <http://www.ldeo.columbia.edu/res/fac/trl/public/ftp/pjk/BBCCArcticClimate/Holzkamper/MacDonald2006.pdf>; TerraNature, *Melting Permafrost Methane Emissions: The Other Threat to Climate Change* (Sep. 15 2006) available at <http://www.terranature.org/methaneSiberia.htm>. Disrupting peat soils and wetlands to make way for coal mining threatens to release substantial amounts of methane into the atmosphere.

Any coal mined in the Chuitna watershed would be used largely, if not entirely, to produce power locally and/or in Asia. See Hollander 2007. Coal has the highest carbon content of all fossil fuels, and combustion of the coal mined here—whether combustion

occurs in Asia, at the Agrium facility in Nikiski, Alaska, or elsewhere—would contribute more carbon dioxide to the atmosphere, exacerbating the warming trend that is occurring fastest in Alaska and other Arctic regions. This ongoing disruption of the climate is already having, and will continue to have, dramatic negative consequences for natural systems in the Chuitna region and across the globe. Thus, surface coal mining in streambeds and riparian areas of the Chuitna watershed likely would result in significant damage to important natural systems as a consequence of climate change.

Because surface coal mining operations in the lands comprising the streambeds of anadromous fish waters and riparian areas within the Chuit River watershed would affect fragile land and would result in significant damage to important cultural, scientific, and aesthetic values and natural systems, the identified lands should be designated as unsuitable for all types of surface coal mining operations.

**III. Under AS 27.21.260(c)(2)(C), the Commissioner Must Designate the Identified Lands as Unsuitable for all Types of Surface Coal Mining Because Such Operations will Affect Renewable Resource Land in Which the Operations Could Result in a Substantial Loss or Reduction of Long-Range Productivity of Water Supply or Food or Fiber Products.**

The DNR commissioner may designate an area as unsuitable for all or certain types of surface coal mining operations if he determines that operations in the area will “affect renewable resource land in which the operations could result in a substantial loss or reduction of long-range productivity of water supply or food or fiber products.” AS 27.21.260(c)(2)(C).

According to ASCMCRA regulations, “renewable resource land” means “aquifers and areas for the recharge of aquifers and other underground water, areas for agricultural or silvicultural production of food and fiber, and grazing land.” 11 AAC 90.911(90). The federal SMCRA regulations offer a slightly broader definition: “Renewable resource lands means geographic areas which contribute significantly to the long-range productivity of water supply or of food or fiber products, such lands to include aquifers and aquifer recharge areas.” 30 C.F.R. § 762.5. Given that ASCMCRA is interpreted to be consistent with the federal SMCRA, the broader and more protective federal definition should be applied.

The Chuit River watershed satisfies the federal definition of “renewable resource land” because of its high productivity of many food resources, in particular salmon and moose. Surface coal mining operations would result in a substantial loss or reduction in the long-range productivity of these resources.

Salmon is a key subsistence resource for the people of Tyonek, as well as for the people of Beluga. *See supra*, part II.B.1.a. Salmon is also the basis of a thriving, small-scale commercial fishing economy based on long-standing set-net sites along the beach both north and south of the mouth of the Chuit River. *See supra*, part II.B.1.b. Salmon is also a food resource for non-local people who visit the Chuit River during the fishing

season. *See supra*, part II.B.1.c. Coal mining operations in streambeds and riparian areas would require pumping of the groundwater that provides baseflow for the Chuit and its tributaries, as well as destruction of wetlands that facilitate recharge of the groundwater and help to moderate streamflows. *See supra*, part I.A.2. The result would be reduced streamflows, which in turn would lead to lower productivity for salmon. In addition, coal mining would increase sedimentation in the Chuitna and some tributaries, which would also harm salmon production. The end result would be a substantial reduction of long-range productivity of food products.

The other key subsistence resource for the people of Tyonek is moose. *See supra*, part II.B.1.a. Coal mining operations could result in loss of key moose rutting habitat, which would likely reduce local populations of moose. *See supra*, part I.D. This would result in a substantial reduction of long-range productivity of food products.

Because surface coal mining operations on lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed would adversely affect renewable resource land in which the operations could result in a substantial loss or reduction of long-range productivity of food products, the identified lands should be designated as unsuitable for all types of surface coal mining operations.

**IV. Under AS 27.21.260(c)(2)(D), the Commissioner must Designate the Identified Lands as Unsuitable for all Types of Surface Coal Mining Because Such Operations will Affect Areas of Unstable Geology and Other Natural Hazards in Which the Operations Could Substantially Endanger Life and Property.**

The DNR commissioner may designate lands as unsuitable for all types of surface coal mining operations if he determines that such operations “will affect areas of unstable geology and other natural hazards in which the operations could substantially endanger life and property.” AS 27.21.260(c)(2)(D). There is no state regulatory definition of “natural hazard lands,” but according to the federal regulations the term means:

geographic areas in which natural conditions exist which pose or, as a result of surface coal mining operations, may pose a threat to the health, safety or welfare of people, property or the environment, including areas subject to landslides, cave-ins, large or encroaching sand dunes, severe wind or soil erosion, frequent flooding, avalanches and areas of unstable geology.

30 C.F.R. § 762.5.

The Chuit River watershed and surrounding region contain a number of natural hazards that would make surface coal mining both dangerous to human safety and damaging to property and the environment. Chief among these are: local faults that experience frequent seismic activity; the possibility of volcanic eruptions; strong currents and severe winter ice conditions that would make coal transport dangerous and spills more likely; and strong winds that would contribute to serious coal deposition problems.

Two faults cross the region, creating potential for seismic events as intense as the 9.2 magnitude Good Friday earthquake of 1964. The 1964 quake caused a variety of ground failures, including near the proposed Chuitna Coal Project area, which was near the “line of zero land level change.” EPA 1990 at 4-5. The project area is in Seismic Risk Zone 4, meaning it could be affected by earthquakes having a magnitude of 7 producing a peak acceleration of 0.4 gravity. *Id.* Coastal lands in this area can rise or fall several feet during an earthquake. The 1964 earthquake, for example, permanently changed the elevations of many coastal areas. TNC 2003 at 14. This kind of dramatic change can also affect the character of associated surface waters. *Id.* Ground failures at the site of a coal mine would pose severe danger to workers and local residents as well as serious threats to water quality in local streams. According to one person familiar with the area: “We can see the devastation of this area that took place in the 1932 earth tremor. This is a major fault line where Ladd Landing is.” Letter from Helen Kurtz, Palmer, AK (Received August 2006).

Volcanic activity is also a known hazard in the Cook Inlet region. Along the western side of Cook Inlet rise Mt. Augustine, Mt. Iliamna, Mt. Spurr, and Mt. Redoubt—all active volcanoes. TNC 2003 at 14. Eruptions from these volcanoes can result in significant ash deposition and resulting disturbance. *Id.* Volcanic activity has occurred in the recent past, including several eruptions in the last century and significant eruptions of Redoubt and Spurr in the early 1990s and in March, 2009. *Id.* The active volcanoes near Cook Inlet could generate a tsunami wave, EPA 1990 at 4-52, which could turn an active surface coal mining operation into a significant hazard for workers and local residents.

Another known hazard in the region is the extreme winter ice conditions in Cook Inlet. Ice conditions are more extreme in the northern part of Cook Inlet—where the Chuitna River is located—than the southern part. *Id.* at 4-53. “Ice floes commonly reach up to one mile across and 3-4 feet thick in Cook Inlet . . . . Ice floes tend to concentrate along the western shoreline during ebb tides, passing through the site vicinity [of the proposed Diamond Chuitna Coal Mine].” *Id.* In addition, this part of Cook Inlet experiences strong currents driven by extreme tidal flows. *Id.* at 4-51. Strong currents combined with extreme ice conditions could pose hazards for any coal export facilities built into Cook Inlet, as well as for oceangoing vessels transporting coal from the mine. Damage to shorefast facilities or vessels could substantially endanger life or property either directly or as a result of spills of fuel or coal.

Finally, the watershed is located in a region of strong winds. Cook Inlet lies in a northwest-southeast storm track between the Canadian continental air mass and a maritime air mass. *Id.* at 4-52. “The location is susceptible to sudden intense storms. Prevailing winter winds are from the northeast and can reach intensities up to 66 knots.” *Id.* Strong winds could blow coal dust onto land and waters for significant distances downwind, posing a danger to human health, especially for people with respiratory problems, and a hazard to property and the environment. *See* Hollander 2007 (providing that local residents with respiratory problems expressed fear of coal dust).

Recent events in Seward, Alaska, demonstrate the dramatic coal dust problems that can arise when even mild winds encounter coal in transit. The Alaska Railroad operates a coal facility in Seward, where it unloads and stores coal that the railroad brings down from the Usibelli Coal Mine, until it can be loaded onto ocean-going vessels for export. See D'Oro, Rachel, *Alaska Railroad Cited for Seward Coal Dust*, Anchorage Daily News (April 20, 2007) available at <http://www.adn.com/news/alaska/kenai/story/8808747p-8709525c.html>. The coal stockpile at the Seward coal loading facility is about 30,000 to 40,000 tons, and the railroad brings in a new shipment of as much as 7,000 tons every few days. *Id.* During winter, strong winds and dry weather lead to a heavy deposition of coal dust on boats and parking lots and was visible in the air. See *id.* As a result, the Alaska Department of Environmental Conservation cited the railroad for failing to control fugitive emissions and for allowing pollution that is harmful to health and property. *Id.*

Surface coal mining operations currently proposed for the Chuitna area would be on a much larger scale, with far greater quantities of coal being transported and stockpiled. See EPA 2006 at 14 (stating a capacity to load oceangoing vessels at a rate of 75,000-80,000 metric tons per day, with a coal stockpile of 100,000-500,000 tons). With the strong winds that often occur in the area, and with coal operations mining, conveying, stockpiling, and loading for export on a daily basis, serious fugitive coal dust pollution would be a regular occurrence and pose a serious danger to the health of local residents and visitors—and perhaps to residents further away—and to local fishing operations and other property.

Because surface coal mining operations on lands comprising the streambeds of anadromous water bodies and riparian areas within the Chuit River watershed would adversely affect natural hazard areas such that the operations could substantially endanger life and property, the identified lands should be designated as unsuitable for all types of surface coal mining.

**V. The Identified Lands are not Exempt from Designation as Unsuitable for Surface Coal Mining Under AS 27.21.260(g).**

The surface coal mining statute provides several circumstances in which lands are exempt from designation as unsuitable for surface coal mining operations:

This section does not apply to land on which a surface coal mining operation was conducted on or before August 3, 1977, or under a permit issued under this chapter before a determination of unsuitability. This section does not apply to an area if a person had made substantial legal or financial commitments for an operation or proposed operation in that area before January 4, 1977.

AS 27.21.260(g). None of these circumstances exist with respect to lands within the Chuit River watershed.

**A. No Surface Coal Mining has been Conducted on These Lands.**

In the 1980s, the Diamond Chuitna company applied for permits to conduct surface coal mining in the Chuit River watershed. The permits were granted, but successful litigation against the project and changes in the coal market put the project on hold. As a result, the company never initiated operations.

PacRim Coal, LP, is developing a plan for surface coal mining within the Chuitna watershed; however, no surface coal mining operations have been approved or conducted on these lands.

**B. No Valid Permit has been Issued under ASCMCRA for These Lands.**

In the late 1980s and early 1990s, the EPA issued an environmental impact statement for the Diamond Chuitna coal mine and the various federal and state agencies with regulatory authority over the operation issued the required permits. Trustees for Alaska and other plaintiffs challenged the ASCMCRA permit in state court and won an Alaska Supreme Court decision vacating the permit. *See Trustees for Alaska v. Gorsuch*, 835 P.2d 1239 (Alaska 1992). Thus, the only ASCMCRA permit issued for these lands was found invalid by Alaska's highest court.

It is anticipated that PacRim Coal will apply for ASCMCRA permits for the proposed Chuitna Coal Project, but as of the date of the submission of this petition, a complete permit application has not yet been filed. Thus, no valid permit has been issued under ASCMCRA for the lands identified in this petition.

**C. No Person had made Substantial Legal or Financial Commitments for an Operation or Proposed Operation on These Lands Before January 4, 1977.**

According to the ASCMCRA regulations:

The determination of "substantial legal and financial commitments" under (a)(3) of this section will be based on a finding that significant investments have been made on the basis of a long term coal contract. The costs of acquiring the coal in place or the right to mine the coal will not alone constitute a substantial legal and financial commitment in the absence of an existing mine. In determining whether significant investments have been made, the commissioner will consider various factors including

- (1) the actual expenditure of a substantial amount of money or the execution of a valid and binding contract for the expenditure of a substantial amount of money on the improvement or modification of land within, for access to, or in support of surface coal mining operations in the petitioned area; and

- (2) the actual expenditure of a substantial amount of money or the execution of a valid and binding contract for a substantial amount of money on exploration, mapping, surveying, and geologic work, as well as engineering and legal fees, associated with the acquisition of the property or preparation necessary to conduct surface coal mining and reclamation operations.

11 AAC 90.715(b) (emphasis added).<sup>6</sup>

As of yet, no coal mining operation has been developed in the Chuit River watershed. PacRim Coal, the proponent of the proposed Chuitna Coal Project, has conducted exploration activities in the area since obtaining leases in the 1970s, *see* EPA 1990 at 1-5, but the company has not yet entered into any long-term coal contracts. *See, e.g.,* Hermanek, Phil, *PacRim shares plans: Mine developer tells AC how it would proceed with Chuitna*, Peninsula Clarion (April 26, 2007) (providing that “[a]t present, PacRim Coal has no contracts in hand, [PacRim representative Bob] Stiles said.”), *available at* [http://peninsulaclarion.com/stories/042607/news\\_0426new003.shtml](http://peninsulaclarion.com/stories/042607/news_0426new003.shtml). Thus, no “substantial financial or legal commitments” within the meaning of this exemption have been made, and the identified lands within the Chuit River watershed are eligible for designation as unsuitable for surface coal mining operations.

## CONCLUSION

The Chuit River watershed, including the valuable streambeds of anadromous water bodies, and riparian areas comprise a remote region that is rich in fish and wildlife habitat and in the natural, cultural, and aesthetic values that are so prized in Alaska. Natural resources in the area are fragile and easily damaged, and surface coal mining operations in streambeds and riparian areas of the watershed would result in the destruction of hundreds of acres of important wetlands and wildlife habitat, severe damage to the local surface and groundwater hydrology and highly productive salmon streams, deterioration of water and air quality, and substantial damage to the subsistence culture of Tyonek and the rural way of life of local residents. Because much of this damage to natural systems would be irreparable, the Commissioner must designate the lands comprising the streambeds of anadromous water bodies and riparian lands within the watershed as unsuitable for all types of surface coal mining. In addition, because of significant anticipated damage to fragile lands, renewable resource lands, and areas of natural hazards, the Commissioner should designate the identified lands within the watershed as unsuitable for all types of surface coal mining. Petitioners respectfully request that, as mandated by AS 27.21.180(c)(4), no permit be issued for surface coal mining in the petition area while this petition is pending.

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<sup>6</sup> *See also* 30 C.F.R. § 762.5 (providing that “[s]ubstantial legal and financial commitments in a surface coal mining operation means significant investments that have been made on the basis of a long-term coal contract in power plants, railroads, coal-handling, preparation, extraction or storage facilities, and other capital-intensive activities. Costs of acquiring the coal in place, or the right to mine it alone without other significant investments, as described above, are not sufficient to constitute substantial legal and financial commitments.”); H.R. 95-218, 1977 U.S.C.C.A.N. 593, 631 (same).

Respectfully submitted,



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**PETITIONERS**

Judy Heilman  
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On behalf of the  
CHUITNA CITIZENS COALITION

State of Alaska  
Borough of Khnai

The foregoing Petition to Designate Lands As Unsuitable for Surface Coal Mining was acknowledged before me this 20th day of January, 2010, by Judy Heilman on behalf of the Chuitna Citizens Coalition.

Notary Public Lindsay J. Busmark  
My commission expires postmaster



**PETITIONERS**



Bob Shavelson  
On behalf of  
COOK INLETKEEPER

State of Alaska  
Borough of Third Judicial District

The foregoing Petition to Designate Lands As Unsuitable for Surface Coal Mining was acknowledged before me this 20 day of January, 2010, by Bob Shavelson on behalf of Cook Inletkeeper.

Notary Public Cassandra McMahon  
My commission expires 10/13/2010



## TABLE OF EXHIBITS

<u>DESCRIPTION</u>	<u>EXH.</u>
Alaska Department of Fish and Game, <i>Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes</i> (2009) (showing the anadromous water bodies within the Chuitna watershed)	1
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Middleton, Beth, et al., <i>Fen Management and Research Perspectives: An Overview</i> , in Wetlands: Functioning, Biodiversity Conservation, and Restoration 191 (2006).	9
<i>Excerpt from National Research Council, Compensating for Wetland Losses Under the Clean Water Act</i> (2001).	10

<u>DESCRIPTION</u>	<u>EXH.</u>
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Palmer, Margaret A., <i>Report on Chuitna Coal Project of PacRim Coal</i> (2009).	12
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Trasky, Lance, <i>Report on Chuitna Coal Project Aquatic Studies and Fish and Wildlife Protection Plan</i> (2009).	17
Trasky, Lance, <i>Report on Chuitna Coal Project Aquatic Studies and Fish and Wildlife Protection Plan, Summary of Conclusions</i> (2009).	18
Wipfli, Mark S., <i>Chuitna Coal Mine Baseline Monitoring and Restoration Plan Review</i> (2009).	19
Wipfli, Mark S., <i>Chuitna Coal Mine Baseline Monitoring and Restoration Plan Review Executive Summary</i> (2009).	20
Email from Brenda and Harold Rogers to Hahn Shaw (August 8, 2006).	21
Letter from Eric Jorgensen to EPA (Received August 8, 2006).	22
Letter from Helen Kurtz, Palmer, AK (Received August 2006).	23
Letter from Lyn Jorgensen (July 24, 2006).	24

<u>DESCRIPTION</u>	<u>EXH.</u>
Letter from Terry Jorgensen (July 24, 2006).	25
Letter from Tom Crafford, DNR, to Hanh Shaw, EPA at 3 (August 7, 2006).	26

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