July 25, 2013

Via Email

Daniel Sullivan
Commissioner
Department of Natural Resources
550 W. 7th Avenue, Suite 1400
Anchorage, Alaska 99501
dnr.appeals@alaska.gov

Re: Final Finding and Decision to Hold Competitive Coal Lease Sale
Canyon Creek Area near Skwentna, Alaska
ADL 553937

Dear Commissioner Sullivan:

On behalf of Alaska Center for the Environment, Alaska Community Action on Toxics, Alaska Survival, Center for Biological Diversity, Chickaloon Village Traditional Council, Chuitna Citizens Coalition, Cook Inletkeeper, Envision Mat-Su, and Sierra Club, Earthjustice files this administrative appeal, pursuant to 11 AAC 02.030, of the Final Best Interest Finding and Decision to Hold a Competitive Lease Sale for Coal in the Canyon Creek Area near Skwentna, Alaska, dated July 5, 2013 (Final Finding). As the following explains, we file this appeal of the Final Finding because it omits serious analysis of several important considerations including the crucial issue of climate change, makes unsupportable assumptions about the ability to mitigate future harm to human health and the environment, and overstates the benefits supposedly accruing from the coal lease sale. Additionally, the statutes and regulations governing coal exploration conflict with the Alaska Constitution, and therefore no coal lease should be issued until the corresponding statutory and regulatory language is revised to comport with the constitution's requirement that exclusive rights of exploration be granted only for "specific" periods. For these reasons, the Final Finding fails to conform to the mandates of the Alaska Constitution and AS 38.05.035, and the competitive coal lease sale in the Canyon Creek area is not in the best interest of the state.

Any notice or decision concerning this appeal should be sent to Madeline Gallo, Earthjustice, 441 West 5th Ave, Suite 301, Anchorage, AK 99501, daytime telephone number 792-7104, electronic mail address mgallo@earthjustice.org. Please copy any email correspondence to Thomas S. Waldo, twaldo@earthjustice.org, and Iris Korhonen-Penn, ikorhonen@earthjustice.org.

FACTUAL BACKGROUND AND STANDING

On October 16, 2012, the Alaska Department of Natural Resources, Division of Mining, Land and Water (DMLW) issued its Preliminary Decision to offer for competitive coal lease approximately 13,175 acres of land in the Canyon Creek area near Skwentna, Alaska. A public comment period followed, ending on December 21, 2012. On that date, Earthjustice submitted comments on behalf of Alaska Center for the Environment, Alaska Community Action on Toxics, Alaska Survival, Center for Biological Diversity, Chickaloon Village Traditional Council, Chuitna Citizens Coalition, Cook Inletkeeper, Friends of Mat-Su, Natural Resources Defense Council, and Sierra Club (Comment Letter). Alaska Survival also sent a separate comment letter on November 20, 2012, and Alaska Community Action on Toxics provided a separate letter on December 21, 2012. In addition, DMLW held public hearings in Anchorage and Shell Lake, although no oral testimony was accepted at the Shell Lake hearing.

On July 5, 2013, DMLW issued its Final Finding for the Canyon Creek competitive coal lease sale. Earthjustice now timely files this administrative appeal on behalf of Alaska Center for the Environment, Alaska Community Action on Toxics, Alaska Survival, Center for Biological Diversity, Chickaloon Village Traditional Council, Chuitna Citizens Coalition, Cook Inletkeeper, Envision Mat-Su (formerly known as Friends of Mat-Su), and Sierra Club (collectively, Appellants). These groups represent the interests of their members and tribal citizens, who use and enjoy the Canyon Creek area and surrounding region for hunting and fishing, and for recreational, aesthetic, cultural, scientific, spiritual, and other purposes. They will also be affected by climate change. Those interests would be harmed by the presence of a large strip mine and the effects of coal mining, transport, and combustion, and thus Appellants are affected and aggrieved by DMLW's decision to hold a competitive coal lease sale for the Canyon Creek area. *See* AS 38.05.035(i).

FACTUAL AND LEGAL BASIS FOR APPEAL

The Final Finding reflects DMLW's plan to offer a lease of indeterminate duration on the basis of almost no site-specific information. There are no plans for exploration or development, no basic information about the resources present in the area, such as fish and wetlands, and no studies on the environmental values of the area. The decision to offer a coal lease of indeterminate duration on the basis of so little information renders meaningless the Alaska Department of Natural Resources' (DNR's) statutory and constitutional duties to allow for the development of state resources consistent with the public interest, for the maximum benefit of the state's people, and in the best interests of the state.

This administrative appeal presents a number of ways in which DMLW's Final Finding fails to satisfy the agency's duties under law, and Appellants request that the Commissioner correct these errors. First, DNR lacks constitutional and statutory authority to issue a lease granting exclusive rights of exploration for an indeterminate period. Second, the Final Finding improperly postpones analysis of reasonably foreseeable effects and incorrectly assumes that

future permitting processes will adequately mitigate harm to people, salmon, and other resources. These flaws are evidenced by its dismissal of harms that have occurred elsewhere despite regulatory systems in place, such as acid mine drainage and inadequate reclamation, as well as DMLW's attempt to delay analysis of foreseeable modes of transportation. Third, the Final Finding completely avoids analysis of the coal lease's effect on climate change, risk of earthquakes, human health, and governmental budgets, and lacks relevant and necessary information to support its conclusions not to consider these reasonably foreseeable effects. Fourth, the Final Finding understates the importance and value of the natural resources that will be affected at the site. Finally, the Final Finding exaggerates the economic benefits expected to accrue while neglecting significant economic costs, thereby drawing a different line between foreseeable and speculative effects depending on whether the expected effect is beneficial or detrimental. In short, the decision reached in the Final Finding is unconstitutional and lacks a rational basis in the factual evidence known and made available to DMLW during its administrative review. For these reasons, Appellants ask the Commissioner to reverse DMLW's Final Finding and declare that a coal lease sale at Canyon Creek is not in the state's best interests.

I. THE ALASKA STATUTES AND REGULATIONS GOVERNING EXPLORATION RIGHTS IN COAL LEASES VIOLATE THE ALASKA CONSTITUTION, AND DNR HAS THE RIGHT AND DUTY TO DECLINE TO ISSUE LEASES UNDER THE UNCONSTITUTIONAL PROVISIONS.

The Alaska statutes and regulations governing exploration rights in coal leases directly conflict with Article VIII, Section 12 of the Alaska Constitution. This constitutional provision states that "[l]eases and permits giving the exclusive right of exploration for these minerals *for specific periods* and areas . . . may be authorized by law." Alaska Const. art. VIII, § 12 (emphasis added). This provision resulted from the framers' reluctance to commit valuable state resources to broad, exclusive exploration rights for long periods of time. Indeed, the framers intended that exploration rights be granted "for very limited times . . . for the short period of the permit." 4 Proceedings of the Alaska Constitutional Convention 2556 (Jan. 18, 1956) (statement of Delegate Boswell). In contrast, the statute authorizing the coal leases states that "[e]ach lease shall be for an indeterminate period . . . ." AS 38.05.150(e). DNR's regulations clarify that such indeterminate coal leases include the right of exploration. 11 AAC 85.215. DNR's form lease explicitly implements this right, granting "the exclusive right to explore for coal in the leased area" that remains in effect "for an indeterminate period . . . ." Ex. 16 (DNR Coal Lease Form ¶¶ 1(a)(2), 2).[1]

[1] This administrative appeal refers to two sets of exhibits. Numbered exhibits (Ex. 1, Ex. 2, etc.) were submitted with Appellants' Comment Letter, both in hard copy on paper and in digital format on DVD. Lettered exhibits (Ex. A, Ex. B, etc.) are provided via electronic mail with this administrative appeal.

This regulatory scheme clearly conflicts with the constitutional provision at issue, as it replaces the constitutionally mandated "specific period" with an "indeterminate period." This scheme subverts the framer's intent to grant exclusive exploration rights for only "short period[s]" of time, and has the effect of allowing leases with exclusive rights of exploration to burden the state for excessive periods of time, as demonstrated by current coal leases at Chuitna, Wishbone Hill, and Jonesville, which have languished for decades as commitments of state resources despite the lack of development. *See* Exs. 17 - 20 (1972 Chuitna leases); Ex. 95 (OSM letter re Wishbone Hill); Exs. Y, Z, AA, BB, CC (Wishbone leases); Ex. DD (Jonesville lease). For these reasons, Appellants asserted in their initial comment letter that the legislature and DNR must correct these statutes, regulations, and lease forms to bring them into compliance with the Alaska Constitution before any coal lease for Canyon Creek may be issued. Comment Letter at 4-5.

However, DMLW chose to ignore the constitutional conflict in its response to Appellants' comments, arguing that it lacks authority to determine the constitutionality of a statute. That ability, DMLW argued, is reserved for the Alaska Supreme Court. App. B at B-77.

To the contrary, DNR has previously declined to enforce a statute it concluded was unconstitutional without specific guidance from the Alaska Supreme Court. In 1985, DNR suspended the application of a program that granted Alaska residents a discount on state land acquired in lottery disposals. Alaska Att'y Gen. Op. No. 366-019-86, 1985 WL 70156, at *2 (Sept. 30, 1985) [hereinafter 1985 Opinion] (citing AS 38.05.058(a)). The suspension was based on a ruling by the Alaska Supreme Court that a similar statute violated equal protection under the Alaska and United States constitutions, although the court expressly stated that it did not take a position on the constitutionality of the statute that DNR later suspended. *Gilman v. Martin*, 662 P.2d 120, 121-22, 129 n.11 (Alaska 1983). DNR declined to apply the statutory discount to the next lottery, a decision that the Attorney General ("AG") later affirmed. 1985 Opinion at *2 (describing Alaska Att'y Gen. Op. No. 366-545-83 (Jan. 1, 1984)). Buyers from that lottery asked DNR to apply the discount retroactively, arguing that executive agencies do not have the authority to decline application of statutes unless the legislative or judicial branches compel them to do so. *Id.*

The AG issued an opinion advising that the executive branch "does have this right or duty" to "refuse to implement the statute *before* it is repealed or a court declares it to be unconstitutional." 1985 Opinion at *3 (also noting that enforcement of an unconstitutional statute in bad faith could lead to liability for individual executive officers, *id.* at 4). The AG concluded that to force executive officers to carry out statutes that are clearly unconstitutional would be to require them to "violate the constitution until another branch of government can

solve the problem."[2] 1985 Opinion at *7 (reasoning that "[e]ach employee of the State of Alaska swears an oath to uphold the state's constitution."); *see also* Alaska Const. art. XII, § 5. Alaska Supreme Court precedent supports this conclusion. *O'Callaghan v. State, Dir. of Elections*, 6 P.3d 728, 730 (Alaska 2000) (holding that where a statute "is clearly unconstitutional under a United States Supreme Court decision dealing with a similar law," executive agencies may decline enforcement "without having to wait for another court decision specifically declaring [it] unconstitutional") (quoting *O'Callaghan v. Coghill*, 888 P.2d 1302, 1304 (Alaska 1995).

A Municipal Clerk's authority to review ballot initiatives illuminates the principle of executive authority to review statutes. When reviewing ballot initiatives, the Municipal Clerk has the authority to reject those that would be "unenforceable as a matter of law," which includes initiatives that violate "explicit constitutional prohibitions" or are "clearly unconstitutional." *Carmony v. McKechnie*, 217 P.3d 818, 820 (Alaska 2009); *see also DesJarlais v. State, Office of Lieutenant Governor*, 300 P.3d 900, 903 (Alaska 2013). This authority is "analogous" to the authority of other executive officials to declare a statute unconstitutional. *Kodiak Island Borough v. Mahoney*, 71 P.3d 896, 900 (Alaska 2003). In both cases, the executive's ability to act on a clear constitutional defect, even prior to judicial interpretation of the initiative or statute, exists "to avoid a waste of resources and needless litigation." *Id*.

DNR should exercise its authority by declining to issue a coal lease under the statute and related regulation until the readily apparent constitutional conflict is addressed. Exercise of the authority to decline to enforce unconstitutional laws in the present case will promote judicial efficiency and avoid wasted time, public expense, and needless litigation.

Alternatively, it is possible to interpret AS 38.05.150 in a way that avoids the constitutional conflict, but that interpretation is contrary to how DNR has interpreted the statute for several decades, and it would require DNR to amend its regulations and practices significantly before issuing a coal lease at Canyon Creek. Neither AS 38.05.150 nor any other statute explicitly authorizes coal leases that include exploration rights. DNR has merely inferred that authority. The explicit text of AS 38.05.150 presumes that exploration will proceed by permit only, followed by leasing for development and operation after exploration has established sufficient information to develop a workable mine. Subsection (c) allows the commissioner to issue prospecting permits for a three-year term if "prospecting or exploration work is necessary to determine the existence or workability of coal deposits." AS 38.05.150(c). Those permits may be extended for two-year terms "if the permittee has conducted reasonably

[2] Although the second Attorney General's Opinion was issued before DNR decided not to enforce the statute, it specifically left open the question of whether an opinion is a necessary precedent to an enforcement decision. Indeed, it is questionable that there is a distinction between the Attorney General and other executive officials in this respect. *Cf. O'Callaghan v. State, Dir. of Elections*, 6 P.3d 728, 730 (Alaska 2000) (referring to the authority of the "Division of Elections, as an executive branch agency" to abrogate a statute).

diligent prospecting or exploration activities," and "[a]t any time during the period of the permit, the permittee is entitled to a lease *after* submitting a mining plan . . . ." *Id.* (emphasis added). Similarly, subsection (e) conditions the "indeterminate period" of the lease upon "diligent development and continued operation of the mine," notably omitting any reference to exploration. AS 38.05.150(e). Thus, the statute expects DNR to treat exploration and leasing as two separate stages. DMLW's Final Finding sets forth in detail the difference between exploration and development and makes clear that a great deal more exploration is required at Canyon Creek before it would be possible to prepare a mining plan for development and operation. *See* Final Finding at 155-56 (Fig. 10.1), 158-59 (Fig. 10.2).

If further exploration work is required prior to development and operation, then a constitution-conforming interpretation of the statute would preclude issuing a lease at this time. This approach would also ensure that more information is available before issuing a long-term lease, which would help DNR make a better informed decision. Given the seventeen times DMLW cited the lack of a mine plan as a reason for being unable to predict the effects of the lease,[3] it is clear that the existence of such a plan would make the best interest finding more meaningful, and DNR would be better able to ascertain whether the lease is in the state's best interests.

Accordingly, Appellants urge the Commissioner to refuse to issue any new coal leases until the legislature has amended AS 38.05.150 in conformance with the constitution and DNR has amended its regulations accordingly. This course of action would promote judicial efficiency and uphold the Commissioner's sworn duty under the Alaska Constitution. Alternatively, the Commissioner may re-interpret AS 38.05.150 to preclude issuance of coal leases granting exploration rights, avoiding the constitutional defect, and amend DNR's regulations accordingly. In either case, no lease may be issued under DNR's current regulations, which are plainly contrary to the constitution.

II. DMLW IMPROPERLY DELAYS ANALYSIS OF ITS DECISION'S REASONABLY FORESEEABLE EFFECTS.

A. Lack of information does not excuse DNR's constitutional and statutory duty to ensure that any lease is in the public interest.

The Final Finding notes that the relevant statute governing disposals of state lands requires DNR to address only reasonably foreseeable future effects and does not require speculation. Final Finding at 47 (citing AS 38.05.035(e)(1)(A), (h)). Relying on these provisions of the statute, the Final Finding repeatedly asserts that it is not possible to foresee future mining plans, transportation plans, or their effects on public health, subsistence uses, commercial fishing, cultural resources, water quality, air quality, fish habitat, wildlife, and state and local

[3] *See* Final Finding at 11, 110; *see also* App. B at B-2, B-3, B-7, B-12, B-22, B-32, B-45, B-54, B-55, B-58, B-61, B-64, B-65, B-66, B-81.

economies. *See id.* at 11, 19, 47, 109, 132-33, 135, 141-42, 151-52, 154, 176. While DNR need not speculate about unforeseeable effects, the statute allows disposals of state lands only if the agency can make a finding that the disposal is in the state's best interests. AS 38.05.035(e). In the absence of sufficient information, DNR may not be able to make the required finding. Nothing in the statute requires DNR, when lacking in sufficient information, to conclude that a disposal must be in the state's best interests.

DNR's obligation to ensure that the lease will advance the public interest derives not merely from the statute, but from the Alaska Constitution. The Constitution provides that development of the state's natural resources must be "consistent with the public interest," Alaska Const. art. VIII, § 1, and "for the maximum benefit of its people." *Id.* § 2. Leases of public lands must comply with "safeguards of the public interest." *Id.* § 10. The Alaska Supreme Court has consistently found that these provisions place a constitutional duty of care on DNR in making decisions about disposals of state resources. *See Kachemak Bay Conservation Soc'y v. State*, 6 P.3d 270, 276 (Alaska 2000); *Hammond v. N. Slope Borough*, 645 P.2d 750, 758 (Alaska 1982); *Moore v. State*, 553 P.2d 8, 30-31 (Alaska 1976) (Rabinowitz, J., concurring, and on this point writing for the majority of the court). "The framers of our state constitution were united in the view that the lands and other natural resources of this abundant state are among its most prized assets." *Moore*, 553 P.2d at 30.

The requirement that DMLW determine that a proposed land disposal is in the public interest precludes the agency from relying blindly on the results of future permitting processes. The Final Finding, however, contains just such blind reliance. "[P]ermit conditions may not serve as a substitute for an initial pre-permitting analysis that can be conducted with reasonably obtainable information." *Kachemak Bay Conservation Soc'y*, 6 P.3d at 277 (quoting *Thane Neighborhood Ass'n v. City and Borough of Juneau*, 922 P.2d 901, 906-08 (Alaska 1996)). The court in *Kachemak Bay Conservation Society* upheld a "phased" approach to oil and gas leasing, but the holding was based on statutes requiring, under the court's interpretation, "DNR . . . at each phase of development, to issue a best interests finding . . . relating to that phase before the proposed development may proceed." *Kachemak Bay Conservation Soc'y*, 6 P.3d at 294 (emphasis omitted). This interpretation of the statutory scheme ensured that a disposal of state lands would proceed to the next phase only if it was found to be in the state's best interests, consistent with Article VIII of the Constitution.

Subsequently, the legislature repealed that requirement, specifically stating its intent to overrule *Kachemak Bay* and enacting the statute's current language stating that only one best interest finding is required. SLA 2001, ch. 101, §§ 1(e)-(f), 2; *see* AS 38.05.035(e) ("the director need only prepare a single written finding"). However, the legislature also narrowed the types of projects eligible for multi-phased review, so that only disposals of oil and gas, or gas only, may be phased for purposes of the best interest finding. SLA 2001, ch. 101, § 2; SLA 2004, ch. 49, § 10; *see also* AS 38.05.035(e)(1)(C)(ii). Thus, disposals like the one at Canyon Creek, where the interest is a coal lease, are no longer eligible for a multi-phased review to determine whether the disposal is in the state's best interests, setting a particularly high bar for the initial decision to

enter into a lease. Issuing a coal lease may be done only with satisfactory assurance that the state's best interests will be served throughout development. If the legislature intended to allow disposals of state resources without reasonable assurance that they would be in the public interest, then the statute violates the Constitution. The Final Finding for the Canyon Creek coal lease, with its paucity of information about the resources of the area and potential economic and environmental effects, falls far short of that requirement.

Indeed, DMLW's Final Finding renders meaningless both the statutory requirement that the lease be in the state's best interests and the constitutional mandate to provide for development at Canyon Creek consistent with the public interest and for the maximum benefit of the people. The statute requires a finding regarding "a *specific* proposed disposal of available land, resources, or property, or of an interest in them," AS 38.05.035(e)(1) (emphasis added), including "facts pertaining to the land, resources, or property, or interest in them." *Id.* § (e)(1)(B)(ii). Thus, the finding must be specific to the interest being transferred. Similarly, it is difficult to imagine a way in which DMLW could determine the "maximum use consistent with the public interest" gained by developing certain natural resources without analyzing facts specific to the resources in question. Alaska Const. art. VIII, § 1.

Yet, in responding to Appellants' concerns regarding the lack of information necessary to make such determinations, DMLW made blanket assertions that apply to all mining activities undertaken in the state, not just those at Canyon Creek. *See* App. B at B-79-80 (citing the Alaska Surface Coal Mining Control and Reclamation Act (ASCMCRA), Alaska Pollution Discharge Elimination System permitting, and Section 404 permitting under the Clean Water Act as adequately protecting the environment, and asserting that "[s]urface mining techniques are well understood," "[t]he science of mine reclamation has advanced greatly," and that mining will provide jobs, business opportunities, and state and local government revenues). The only site-specific information DMLW sets forth in its response is the statement that "there are a number of private properties and some residents in the broader Canyon Creek-Shell Lake-Talachulitna River area, the lease area is uninhabited and lightly used by the public." *Id.* at B-79. Additionally, DMLW's response points to the estimated 258 million tons of coal at Canyon

Creek without any assertion as to its estimated value. *Id.* at B-80.[4] In other words, DMLW has found the coal lease at Canyon Creek to be in the state's best interests because the area is not heavily populated, no one lives on the land to be leased, and there is a large deposit of natural resources at the site. By that logic, nearly all of Alaska should be leased for development – and yet that cannot be what the framers had in mind when drafting the Alaska Constitution's requirement to ensure that development is for the maximum benefit, or else there would be no reason impose such a requirement. DMLW's lack of information necessary to make a site-specific determination thus violates its statutory and constitutional duties to ensure that development of coal resources at Canyon Creek is in the public interest.

Furthermore, to the extent that DMLW puts off decisions of whether to proceed to later phases, it violates AS 38.05.035(e) because coal leases are not a disposal that the legislature has authorized DNR to consider in multiple phases. AS 38.05.035(e)(1)(C). Although careful to eliminate use of the term "phase" from the Final Finding, it is clear that DMLW is postponing its duty to assess whether this lease sale is in the best interests of the state prior to its disposal. *Compare, e.g.,* Final Finding at 142 ("The risk of adverse impact may be mitigated or eliminated through siting decisions and adoption of best management practices during exploration, development, and mining."), *with* Preliminary Decision at 145 ("The risk of adverse impact may be mitigated or eliminated through siting decisions and adoption of best management practices during the exploration, development, and production *phases* of a proposed project." (emphasis added)). Throughout its decision, DMLW focuses on the leasing phase alone, *see, e.g.,* App. B at B-3 ("Coal leasing in itself will have no impact on anadromous fish streams."), and postpones assessment of potential harm to later phases, *see, e.g.,* App. B at B-81 ("If adequate protections cannot be provided, then permits will not be issued."). This approach results in serious defects in the Final Finding. First, DMLW acts contrary to the legislature's intent by improperly phasing review when it puts off analysis of reasonably foreseeable effects to later stages of the permitting processes. AS 38.05.035(e)(1)(C). Second, DMLW lacks a reasonable basis for its decision because it fails to analyze effects that are currently reasonably foreseeable and ignores record evidence demonstrating those effects. See *Ellis v. State, Dep't of Natural Res.*, 944 P.2d 491,

[4] DMLW's argument that the Susitna Matanuska Area Plan's designation of the Canyon Creek area as open to coal development is grounds for allowing the coal lease sale to go forward is not persuasive. As noted in the plan, "all state-owned lands are open to mineral entry" absent mineral closures issued in 1985. Ex. B (SMAP at 1-9). This is hardly remarkable, since all state land classified after 1983 is required to be open to mineral entry unless closed by statute or by a mineral closing order, 11 AAC 55.040(e), and in order to close more than 640 contiguous acres of land to mining, an act of the legislature is necessary, AS 38.05.300(a), and the Commissioner must make "a finding that mining would be incompatible with significant surface uses." AS 38.05.185(a). The 1985 Susitna Area Plan states that "[o]ver 95% of the study area's high and moderate coal potential areas will remain available for coal leasing" and "50-60% of the low or unknown coal potential areas will remain available for coal prospecting and leasing." Ex. A (SuAP at 47).

493 (Alaska 1997). As demonstrated in the following section, this evidence shows that unavoidable harm will occur, and that harm must be accounted for in order to determine whether the coal lease sale is in the state's best interests. [5]

B. DMLW erroneously relies on later permitting processes to avoid harm.

DMLW continues to assert that it expects future permits to avoid, minimize, or mitigate potential adverse effects. Final Finding at 17, 19, 116-17, 132, 141-52, 176. As explained in Appellants' Comment Letter, that approach overlooks large bodies of existing research demonstrating the inadequacy of the law to prevent significant adverse impacts to public health, state and local government treasuries, water, air, and other resources. Comment Letter at 17-22. The damage that has resulted from coal mining despite the existence of protective environmental and mining laws includes: increased disease and mortality rates, discussed *infra* Part III.C; contaminated water supplies; permanent alterations in landscape and hydrology; adverse impacts to aquatic life, including fish habitat; acid mine drainage; and, in some cases, state liability for cleaning up these adverse impacts. Comment Letter at 17-22.

In response to Appellants' concerns, DMLW repeatedly asserts that Appellants' supporting evidence is not relevant because the studies pertain to communities outside of Alaska. *See, e.g.,* App. B at B-13, B-14, B-15, B-47, B-64. Appellants rely on studies analyzing data collected in Appalachia because it is the region of the country with the most coal mining over time, and thus a greater share of studies have been conducted there. Given Alaska's limited coal mining history, there has been very little study of its mines. However, the studies conducted outside of Alaska are still relevant to illustrate some of the types of problems that may be encountered, to demonstrate that problems persist despite federal regulation, and to present an opportunity to learn from other states' mistakes. To the extent that conditions may differ among regions and makeup of coal, it does not mean that Alaska will not experience any problems; rather, the problems Alaska may experience will simply differ. For example, factors that "make coal mining and reclamation in Alaska more difficult than in other states" include permafrost, the tundra vegetation, extremely cold winters and short summers, natural sedimentation in major streams, and high seismic risk. Manuel Lujan & Harry M. Snyder, Surface Coal Mining: 15 Years of Progress, 1977-1992 , Statistical Information 18 (1992), *available at* http://books.google.com/books?id=f9skUgCfSEkC&pg=PA18&lpg=PA18&dq=Alaska+coal+reclamation+statistics&source=bl&ots=FcKfWR9Y7K&sig=YmKskfXIfxogYojVP0y4zqef3Ns&hl=en&sa=X&ei=-l7oUYn9JsS7rgGxlYCoBw&ved=0CEIQ6AEwAg#v=onepage&q&f=false. In

[5] Additionally, from a practical standpoint, this strategy creates uncertainty for potential bidders, who may spend a great deal of time and money on the lease sale only to find, later, that the impacts from mining are too great to permit exploration or development. This uncertainty and risk may result in lower bids, thus bringing in less revenue for the state. While this risk always exists, it is greater here where so little is known about the lease area and how mining may affect it.

particular, "major streams fed by silt-laden glacial meltwater contain greater concentrations of natural sediment than the effluent discharge limits permitted by federal regulations," which may make it difficult to return water to its natural state after coming into contact with a coal mine. *Id.* Due to differences in geology within the state, such as the prevalence of permafrost, studies concerning other portions of Alaska may also lack a direct correlation to the potential effects of a coal mine at Canyon Creek. Those geography-specific factors contribute to risks that may be underestimated; a study on acid mine drainage found that many pre-mining environmental studies predicted far less acid mine drainage than eventually resulted from the mine, or none at all. Ex. I (Reclamation Research Group at 14). While the mines studied were not coal mines, App. B at B-23, the purpose of the review, commissioned by the Anchorage Fish and Wildlife Service, was to inform the potential formation of acid mine drainage for "several large mine projects . . . ranging from open-pit, hard rock mines to strip mines for extracting coal" in Alaska. Ex. I (Reclamation Research Group at 1). Canyon Creek may be at risk for developing acid mine drainage, since coal from the nearby proposed Chuitna project does contain pyrite. Ex. 69 (Mine Engineers at Table 2, page 6 of 7).

DMLW also criticizes the cited references for failing to study reclamation in the western United States. App. B at B-47. However, examination of western reclamation statistics demonstrates that, despite applicability of the federal laws upon which DMLW relies, the outcomes are less than perfect; of the 162,000 acres of land in Wyoming disturbed by coal mining, "only 4% of this land has gained final reclamation status. Montana mines have had even less success, reclaiming just 50 of the over 37,000 disturbed acres-0.1%-disturbed by coal mining sufficiently to attain final bond release." Ex. L (WORC at 13).

Due to these low rates of bond release, it is critical that bonds are calculated properly so that mine operators do not walk away, leaving the state with the problem. DMLW suggests that these problems will not occur in Alaska because "[u]nder the ASCMCRA all disturbance activities must be bonded sufficiently to cover all reclamation costs, even in the event of forfeiture." App. B at B-48. However, DMLW ignores the fact that other states are subject to the same bonding requirements, and still have problems with inadequate bonding and reclamation. *Compare* AS 27.21.160(a) *with* 30 U.S.C. § 1259(a) (language for reclamation bond requirements substantially the same in ASCMCRA and the federal Surface Mining Control and Reclamation Act (SMCRA)). Even Alaska is not immune to this problem; the Office of Surface Mining (OSM) recently reviewed DNR's bonding program at the Two Bull Ridge Mine and found a

> lack of detailed information provided in both the operation and reclamation plan and UCM's reclamation cost estimate document provided as part of the permit application. Specifically, OSM did not find adequate information to verify volumes to be moved or distances to be travelled needed to support the overall reclamation cost estimate or calculated bond amount.

Ex. H (OSMRE at 16). Thus, there is no guarantee that, simply because ASCMCRA requires sufficient bonding, a coal mine will be adequately bonded or reclaimed. As noted in the Comment Letter, inadequate bonding in other states has led to the state government itself becoming liable for the cleanup and reclamation, even after SMCRA was enacted. Comment Letter at 21-22.

Furthermore, DMLW has not adequately addressed the multiple studies that show that permitted coal mines can have devastating effects on downstream aquatic life.

> Several studies have demonstrated substantive differences in benthic macroinvertebrate communities between streams that flow from coal surface-mines and those that do not. For example, the extirpation of a taxonomic order of macroinvertebrates (i.e., mayflies [Ephemeroptera]) has been reported in mining-affected streams. Such biological changes have been attributed to changes in water quality, water quantity, and physical habitat in streams draining mining operations in Appalachia.

Ex. 55 (Hitt & Hendryx at 97-98) (citations omitted). DMLW argues that this quoted section displays "shortcomings in [the study's] methodology," which DMLW believes does not adequately distinguish among effects from coal mining and other possible causes. App. B at B-15. DMLW's criticism is misplaced. Each of the studies cited by Hitt & Hendryx in this quote does distinguish between streams and watersheds that are clearly affected by surface coal mining and those that are not. Palmer surveyed seventy-eight streams affected by mountaintop removal/valley fill mining. Ex. R (Palmer at 148). Pond 2010 compared streams classified by four land use categories: least disturbed, residential only, residential and mining, and mining only. Ex.U (Pond 2010 at 185). Pond 2008 compared mined and unmined sites, Ex. T (Pond 2008 – Abstract at 717), and excluded streams with urbanization or agriculture. *Id.* at 720. Phillips looked at flooding downstream of coal mine valley fills. Ex. S (Phillips – Abstract at 367). Hartman compared streams with similar habitat characteristics, geology, stream order, depth, flow, lack of other anthropogenic activities, and location – the difference between the streams within each pair studied was that one in each pair had a valley fill in its headwaters and one did not. Ex. O (Hartman – Abstract at 91-92). Negley compared two types watersheds located near each other – those covered in second-growth forest and those recently subjected to surface mining and reclamation. Ex. Q (Negley – Abstract). Thus, DMLW's argument that the quoted statements lack certainty with respect to causation by coal mining falls flat.

In sum, DMLW impermissibly relies on the potential protections that may be provided by the future application of statutes and permitting regimes to mitigate or avoid serious harm to human health, the environment, state coffers caused by coal mining operations on the lease. Rather than making vague concessions that some harm may occur under the statutes, *see* App. B at B-3, B-4, B-19, B-45, B-46 - B-47, B-78, DNR should take a realistic look at not only the actual harms that will be allowed assuming perfect execution of the law but also the probable and

demonstrated harms that will occur despite protective laws such as ASCMCRA, the Clean Water Act, and the Clean Air Act.

C. DMLW delays discussion of probable transportation impacts by injecting unnecessary ambiguity into its findings.

Appellants raised numerous concerns with DMLW's discussion of possible modes of transportation. Comment Letter at 24-27. DMLW sets forth every remotely possible way in which coal may be transported away from Canyon Creek, but sidesteps the issue of which modes are actually feasible. It is apparent from DMLW's responses and Final Finding that the only probable form of feasible transportation would be a railroad extension. A conveyor system longer than 3.5 km has never been built, and no coal log pipeline has ever been used commercially. Comment Letter at 24; *see also* Final Finding at 111, 114. No coal slurry pipeline is currently being used anywhere in the world, Final Finding at 113, and previous coal slurry pipelines experienced numerous failures. Comment Letter at 24-25. Although DMLW initially believed a truck road might be used, its Final Finding states that "trucking is probably an unlikely transportation choice for a large mine in the Canyon Creek area. Using 45-ton coal trucks to haul 1 million tons of coal per year would require 22,222 truckloads each year, or about one truck every 24 minutes, 24 hours a day." Final Finding at 117. Additionally, trucking is less efficient over long distances due to drivers' wages and energy costs. *Id.*

Thus, the only transportation possibility that actually appears to be feasible is transport by railroad, and yet DMLW argues that "[i]t is beyond the scope of this decision and the statutory requirements of AS 38.05.035 to speculate on unforeseeable details of any possible future transportation routes or methods." App. B at B-66. If there is only one feasible mode of transportation, it is not unforeseeable. Further, due to the geography of the area, there are only so many paths a railroad extension could take, and environmental effects caused by coal transportation via railway are well known. As indicated by the Alaska Department of Fish and Game, "[n]o matter what the route, various waterbodies would likely be impacted." Ex. 29 (Bethe, ADF&G at 2). It is probable that the route would also have to cross at least two trails of historical significance: the Iditarod National Historic Trail, which is also economically and culturally significant for the state, and the Beluga Indian Trail, for which DMLW concedes no archeological review has been completed. App. B at B-73; *see also* Comment Letter at 13-14. Railroad transport of coal is well known to cause serious effects due to the large amounts of coal dust that escape from the rail cars. Ex. 43 (de Place, Sightline Institute at 3-4). One study indicated that as much as one ton of coal per railcar may escape, while others found that up to three percent of each car's load may blow away. *Id.* at 4. Coal dust is a nuisance, contains particulate matter, and presents safety hazards because it accumulates in ballast, potentially causing derailments or fires. *Id.* at 3; Ex. 38 (Cope at 25-26).

Coal transport by rail also risks coal spills into lakes and streams along the transportation corridor. Unburned coal can contain various toxins, including hydrophobic organic compounds (HOCs), such as polycyclic aromatic hydrocarbons (PAHs), as well as

"trace metals/metalloids." Ex. 70 (Ahrens & Morrisey at 69); Ex. 1 (Achten, et al.). PAHs have been found to reduce hatch and survival rates of salmon and herring. Ex. 48 (French at 5). Metals found in coal include iron and copper, which "are well known to enhance the formation of highly reactive oxygen species" harmful to tissue, such as ozone, hydrogen peroxide, and superoxide. *Id.* at 4. Hard coal particles can also "act as a sink for [HOCs] in the environment." Ex. 1 (Achten, et al.). These contaminants can have adverse effects on aquatic organisms and sediments. Ex. 1 (Achten, et al.); Ex. 48 (French at 4-5).

Coal continues to cause problems once it reaches port facilities. Coal spillage at loading and unloading facilities can result in contamination of marine and estuarine systems. Ex. 70 (Ahrens & Morrisey at 69). "When present in marine environments in sufficient quantities, coal will have physical effects on organisms similar to those of other suspended or deposited sediments. These include abrasion, smothering, alteration of sediment texture and stability, reduced availability of light, and clogging of respiratory and feeding organs." *Id.* Wind and water can also cause coal stockpiles at port facilities to erode and release coal particles into the environment. Ex. 1 (Achten, et al.); Ex. 70 (Ahrens & Morrisey at 69). In 2010, the Alaska Department of Environmental Conservation fined the Alaska Railroad Corporation and Aurora Energy Services, LLC and required installation of new mitigation systems to control coal dust that was violating air quality standards in Seward. Ex. 116 (Zemach, Seward City News). Because all of these methods of transportation carry the risk that coal will be discharged into the surrounding environment, DNR must address potential impacts of that pollution, as well as substantial effects caused by construction and operation of these modes of transportation.

Once leaving the port, there are additional risks associated with transporting Canyon Creek coal. The coal would invariably feed Asian Pacific markets, which are expected to experience increasing coal demand over the coming decades. Ex. 40 (Cusick, Scientific American). From Cook Inlet, coal destined for Asia would likely be shipped along the North Pacific Great Circle Route, which borders the Aleutian Islands chain. Ex. 76 (NRC, Transportation Research Board at vii). The chain, which overlaps with the Alaska Maritime National Wildlife Refuge, is considered one of the most important marine ecosystems in the world. *Id.* at 21. The Refuge provides essential habitat for over 40 million seabirds, representing more than 30 different species. Ex. 117 (Alaska Maritime National Wildlife Refuge). The region is also critical feeding, breeding, and/or rearing habitat for a large number of marine mammals, including endangered Steller sea lions and northern sea otters, declining northern fur seals, and several species of whales. Ex. 76 (NRC, Transportation Research Board at 60-61). Many transpacific ships cross the Aleutian chain at Unimak Pass, which provides a critical migratory corridor between the North Pacific Ocean and the Bering Sea and "is a veritable marine mammal superhighway, used by humpback whales, sea lions, fur seals, and many other wildlife species moving between the two water bodies." *Id.* at 61. The region is also home to the largest and most valuable commercial fishing grounds in the United States. *Id.* at 21.

There are also potential adverse effects of marine transport of Canyon Creek coal on the Cook Inlet and Aleutian Island region's sensitive marine and coastal ecosystems. A coal spill from a bulk carrier could discharge large amounts of coal into the marine environment with potential adverse effects on marine sediment and organisms. Ex. 70 (Ahrens & Morrisey at 69). In addition to cargo, bulk coal carriers also carry large volumes of heavy fuels (e.g., No. 6 Fuel Oil (aka Bunker C)), which, if spilled, can have serious adverse effects on the region's birds and other marine life. *See* Ex. 74 (NOAA, Fact Sheet). The region has seen comparable accidents. For example, M/V *Selendang Ayu* grounded on Unalaska Island, split in half, and spilled 60,000 tons of soybeans and more than 335,000 gallons of fuel, mostly persistent heavy fuel oil, into the marine environment. Ex. 73 (NOAA, M/V Selendang Ayu Alaska Oil Spill at 1). The 2008 Aleutian Islands Risk Assessment identified a range of risk factors which make spills and other casualties in the remote reaches of the Aleutians highly problematic, *see* Ex. 76 (NRC, Transportation Board at 2, 4-5, 20-21), and the risk assessment process plainly recognized the pervasive lack of spill prevention and response capacity in the region. *See generally* Ex. 25 (Aleutian Islands Risk Assessment); Ex. 76 (NRC, Transportation Research Board at 4-5, 20-21). Furthermore, bulk carriers burning No. 6 fuel oil emit considerable air pollution. *See* Ex. 103 (U.S. EPA, Ocean Vessels) (documenting serious air pollution problems from bulk carriers and other vessels). Any bulk carriers servicing Upper Cook Inlet and Canyon Creek would increase pollution in airsheds in or near the Lake Clark and Katmai National Parks and the Kodiak, Izembek, Bacharof, and Alaska Maritime National Wildlife Refuges, where heightened Clean Air Act protections apply. DMLW attempts to evade review of these potential effects by arguing that its regulatory jurisdiction under ASCMCRA extends only to "the point where coal is sold or placed on a public mode of transportation." App. B at B-63. The point of the review mandated by the Alaska Constitution and AS 38.05.035(e), however, is not to ascertain whether a mine could be permitted under ASCMCRA, but whether the decision to issue a coal lease in the Canyon Creek area, with *all* of its foreseeable impacts, is in the best interests of the state.

III. THE FINAL FINDING IGNORES CRITICAL ISSUES DESPITE AVAILABLE INFORMATION AND LACKS EVIDENCE SUPPORTING ITS CONCLUSIONS.

DNR must have a "reasonable basis," "supported by the evidence in the record as a whole," for its decision to hold a competitive coal lease sale at Canyon Creek. *Ellis*, 944 P.2d at 493. DNR's record evidence must include "facts . . . that are known to the director or knowledge of which is made available to the director during the administrative review" regarding "reasonably foreseeable, significant effects of the uses proposed to be authorized by the disposal." AS 38.05.035(e)(1)(A), (B)(ii). Under these standards, DMLW's refusal to consider critical issues, for which Appellants provided evidence in support, and failure to provide evidence supporting its conclusion to refuse consideration are not reasonable. In particular, DMLW's unwillingness to consider seriously its decision's effect on climate change, earthquakes, and health impacts on mine workers and people in surrounding areas is unreasonable. In contrast to the preceding section, DMLW does not even suggest that it is postponing its review of these effects, but argues that they are irrelevant to its determination because they are beyond the scope of its review or unproven by the evidence supplied by

Appellants. These effects, however, are relevant to the determination of whether a coal lease sale at Canyon Creek is in the best interests of the state because, as proven by Appellants' substantial evidence, the effects are significant for the people of Alaska and reasonably foreseeable.

A. Leasing Canyon Creek for coal exploration and extraction will contribute to climate change, a serious threat facing the state.

There is no question that the development, production, transportation, and use of the coal mined from the Canyon Creek area will release millions of tons of greenhouse gases and other climate-forcing agents into the atmosphere, a reasonably foreseeable and significant effect of the use—coal mining—authorized by this disposal. While DMLW's Preliminary Decision completely ignored these effects, its Final Finding concedes that climate change is affecting Alaska and its communities "through impacts such as rising temperatures, coastal erosion, increased storm effects, sea ice retreat, permafrost melt, shifting vegetation zones, increased fires, and insect outbreaks." Final Finding at 122. Despite the breadth and severity of these effects, DMLW determined that considering climate change is "beyond the scope" of the decision because Alaska's Climate Change Sub-Cabinet, which apparently has not met in nearly four years, never made recommendations dealing with greenhouse gas emissions due to coal exports. *Id*. at 122-23. Further, DMLW argues that "[i]t is probable that Canyon Creek coal would replace other coal in the markets, and not cause the burning of additional coal." *Id*. at 123. This refusal to consider seriously climate change contravenes the agency's duty to address "reasonably foreseeable, significant effects of the uses proposed to be authorized by the disposal." AS 38.05.035(e)(1)(A).

Appellants' Comment Letter set forth evidence of climate change's extensive impacts on Alaska and the anthropogenic causes of climate change with respect to coal exploration, development, transportation, and combustion. Comment Letter at 7-12. Because DMLW did not find fault with that evidence nor provide any evidence to the contrary, Appellants incorporate that section of the Comment Letter and its associated exhibits by reference rather than repeating it here. Instead of disputing the fact that coal development and use contributes to climate change, DMLW's response is that export of Canyon Creek will not cause the burning of additional coal. Final Finding at 123. This argument fails for several reasons: first, DMLW offers no support for that statement; second, it is contradicted by evidence regarding global coal markets; and third, even if Canyon Creek coal did not increase consumption, it certainly would not mitigate emissions of greenhouse gases.

DMLW argues that Canyon Creek will produce a small fraction of the coal consumed annually in the world, is unlikely to alter coal markets significantly, and will likely replace other sources of coal. Final Finding at 123. The only support DMLW provides for these statements is a link to a graph showing world coal consumption by year. *Id.* (citing http://www.indexmundi.com/energy.aspx?product=coal). The graph supports DMLW's statement that approximately 8 billion short tons of coal were consumed in 2010, but little else.

DMLW provides no factual basis for its conjecture that Canyon Creek might produce 8 million tons of coal per year. DMLW likewise provides no quantitative market analysis lending support to its conclusion that this estimated "level of coal production is unlikely to alter global coal markets significantly." Final Finding at 123. DMLW states that "[t]he argument could be made that emissions from exported coal may not increase global emissions because they might replace coal that would have been mined elsewhere," *id.*, but it does not cite to any studies or information actually making or supporting such an argument. In short, DMLW has no evidence to back any of its claims.

As noted in Appellants' Comment Letter, there *is* support for the notion that producing more coal for export from the United States will increase global consumption of coal. *See* Ex. 81 (Power at 3-5). Thomas Power, Ph.D., who was the chair and a professor of the Department of Economics at the University of Montana for nearly thirty years and has published numerous articles concerning economic considerations of natural resources, prepared a paper specifically addressing the argument made by coal export proponents that coal from the U.S. "will only change the source of coal burned in Asia—not the total amount." *Id.* at 1. Dr. Power explained that, instead of replacing the source of coal, the increase in coal exports will lower coal prices and thereby "encourage burning coal and discourage the investments in energy efficiency that China has already undertaken." *Id.* Rather than relying merely on the fundamental economic concepts of supply and demand, he also cited other studies that have analyzed the historically strong correlation between coal prices and coal consumption in China. *Id.* at 8; *see also id.* at 7-8 (finding similar correlations in the U.S., Canada, Europe, and Japan). Significantly, the increase in coal consumption in response to lower coal prices is not temporary; "planners take into account [long-term price and supply risks] when making long-term energy infrastructure investment decisions," meaning that "[c]oal export will encourage the continued, rapid expansion of coal-fired electric generation capacity." *Id.* at 5. Because coal-fired power plants are operated for "as long as 50 or more years," these infrastructure investment decisions have long-lasting consequences. *Id.* at 19.

Additional recent studies confirm and support the projection that adding new coal to the market will increase the amount of coal consumed. The International Energy Agency released a report this spring showing that the "increase in coal exports from the [United States] . . . created an excess of coal on the market, with coal prices plummeting . . . . Consequently, generation from coal in Europe showed a marked increase . . . ." Ex. D (IEA at 48). The report also stated that "[g]lobal coal demand is set to increase from an estimated 155 EJ in 2011, to 180 EJ in 2017," "driven predominantly by emerging economies, in particular China and India . . . ." *Id.* at 49. One major problem is that "[f]ar too many inefficient, subcritical units are still being constructed," *id*. at 50, a phenomenon that Power's analysis ties to the low price of coal. *See* Ex. 81 (Power at 14) (high coal costs increase incentive to reduce coal consumption, leading to improvements in efficiency). Similarly, the World Resources Institute estimated that 1,199 new coal-fired plants are currently being proposed globally. Ex. M (Yang, WRI at 1). Although China's 12th Five-Year-Plan calls for a cap of annual domestic coal consumption by 2015, "[m]any observers are skeptical that this target will be reached given that China's 2012 coal

consumption is already likely to exceed it." *Id.* at 6. "[I]n 2009, China moved from being a long-term net exporter to net importer of coal," and the following year it imported 176.96 million tonnes, or approximately 195 million short tons, of coal. *Id.* at 12.

These studies demonstrate that demand for coal is increasing, and that it is tied to a reduction in coal prices caused in part by the U.S. export of coal. This evidence leads to a conclusion that Canyon Creek coal will likely increase the amount of coal burned, instead of merely replacing other sources, because demand is not constant, but increasing. If supply and demand both increase, then total consumption will also rise.

If 258 million tons of coal are extracted from Canyon Creek, the combustion of that coal will emit approximately 738 million tons of carbon dioxide. *See* Ex. 56 (Hong & Slatick at 1). Even if, as DMLW posits, only 8 million tons of coal are mined each year, it would result in annual emissions of roughly 22,880,000 tons of carbon dioxide, not including emissions from extracting and transporting the coal. This amount is well above EPA's threshold of 100,000 tons for considering a factory or power plant to be a major source subject to regulation under the Clean Air Act. Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514, 31,516 (June 3, 2010). Federal agencies use the Social Cost of Carbon to estimate the economic damages, such as "changes in net agricultural productivity, human health, and property damages from increased flood risk," associated with an increase in carbon dioxide emissions. Ex. W (EPA, Social Cost of Carbon). That calculation provides stunning results here. For DMLW's estimate of 8 million short tons of coal extracted in just one year, the Social Cost of Carbon would be around $955 million for the year 2020. *Id.* (22.88 million short tons of carbon dioxide is approximately 20.76 million metric tons; the 3% discount rate for the Social Cost of Carbon in the year 2020 is $46 per metric ton). The U.S. Supreme Court has rejected an argument, similar to DMLW's, that a relatively small decrease in greenhouse gas emissions "will not by itself *reverse* global warming," because the Court found that a "reduction in domestic emissions would slow the pace of global emissions increases, no matter what happens elsewhere." *Massachusetts v. EPA*, 549 U.S. 497, 525, 526 (2007) (emphasis in original).

Additionally, there is no question that the mining of Canyon Creek coal will not mitigate carbon emissions. The International Energy Agency warned that the "current trajectory for coal is fundamentally inconsistent with a low-carbon future." Ex. D (IEA at 49); *see also id.* at 116 ("[T]he global energy mix is not getting cleaner at the rate necessary to achieve climate goals. It is necessary to address energy supply on a comprehensive basis."). By granting a lease that will allow more coal to be mined and exported from the state, DMLW is contributing to the significant problems experienced by the state due to climate change.

Finally, it is disingenuous of DMLW to state that climate change "is beyond the scope" of the decision to hold a coal lease sale at Canyon Creek. Final Finding at 122. The purpose of a coal lease sale is to grant specific rights for exploration, development, and production of coal. "[C]oal-fired power generation contributed over 70% of total power-sector CO_2 emissions in 2010," Ex. D (IEA at 49), and the "burning of coal, natural gas, and oil for electricity and heat is

the largest single source of global greenhouse gas emissions." Ex. K (EPA Global GHG Emissions Data). There is no plausible scenario under which coal mined from the lease will not be combusted. This is not a situation where some greenhouse gas emissions might be incidentally emitted by the project; rather, the whole goal of the project will result in the emission of vast quantities of greenhouse gases far exceeding Alaska's state-wide emissions. *See* Comment Letter at 11 (comparing equivalencies between Canyon Creek's potential for carbon dioxide emissions and Alaska's cars, homes, and power plants). The effects of climate change are not speculative, uncertain, or remote; they are already occurring and show no signs of abating. *See* Comment Letter at 7-8. Because the greenhouse gas emissions and their contribution to climate change are reasonably foreseeable and significant, they are within the scope of DNR's decision to hold a competitive coal lease sale at Canyon Creek.

DMLW erred in deciding that climate change is beyond the scope of a decision to issue a coal lease for an area containing 258 million tons of coal. To the extent that DMLW has considered climate change effects, its conclusion that Canyon Creek coal will displace other sources of coal lacks a reasonable basis because DMLW fails to provide any supporting evidence to counter record evidence that leads to the opposite conclusion. The state's attempt to reap benefits from leasing coal while ignoring its contribution to climate change is precisely the type of behavior described as the

> "Tragedy of the Commons" in which everyone ignores the relatively small impacts they have individually as they seek to get as much of the benefits as they individually can from exploiting an open access common property resource, in this case, the earth's atmosphere. As a result, that open access resource may be overused and damaged with the result that almost everyone is worse off.

Ex. 81 (Power at 18). Selling a lease with the goal of developing coal resources is not in the best interests of the State of Alaska, due to the resulting emission of vast quantities of carbon dioxide, black carbon, and methane that contribute significantly to climate change, which is already severely affecting Alaska. Alaska occupies a place on Earth that receives disproportionate warming and correspondingly worse impacts, so it must take responsibility and show leadership by contributing no further to the problem.

B. <u>The Final Finding ignores any increased risk of earthquakes caused by coal mining at Canyon Creek.</u>

The Final Finding discusses pre-existing earthquake risks near the area to be leased due to a fault line about 30-35 miles from the site. Final Finding at 22. The Final Finding does not, however, address the risk that mining at Canyon Creek will change the pressure exerted on that fault, thereby increasing the likelihood of an earthquake. There is evidence that coal mining activities may trigger earthquakes by changing the pressure exerted on fault lines through the

removal of rock, coal, and water or the storage of water removed during mining. *See* Ex. 106 (U.S. Geological Survey) (listing significant sources of seismic events, including seismic events caused by surface coal mines in Alaska, Arizona, Colorado, Kentucky, Montana, New Mexico, Ohio, Washington, and Wyoming); Ex. 30 (Bischoff, et al. at 65) (mining-induced seismicity from both underground and surface mines occurs around the world; unloading mined materials may increase stress along preexisting zones of weakness); Ex. 66 (Lovett, National Geographic). A coal mine at Canyon Creek would most likely require "stripping and storage of topsoil and overburden," Final Finding at 135, will remove hundreds of millions of tons of coal, *id.* at 38, and there are wetlands, "streams, creeks, and several small lakes" in the proposed lease area that may indicate a need to pump water out of the mine as coal is extracted, *id.* at 121. *See also* Ex. 46 (Flores, et al. at 84) (attempts to develop coalbed methane near Wasilla encountered "[l]arge amounts of ground water"). Therefore, it is possible that coal mining at Canyon Creek will alter the pressure exerted on the earth in the vicinity of the Castle Mountain fault and increase the risk of earthquakes.

In response, DMLW dismisses the increased risk because "mine activities will not precipitate an earthquake from that distance." App. B at B-31. Again, DMLW fails to cite any evidence in support of that assertion, and it is contradicted by record evidence. There are "two types of mine tremors [that] are now generally accepted. . . . The second type, usually with larger events, is associated with the movement on major geologic faults at some distance from the mine faces." Ex. 30 at 65. A recent study has found a "statistically significant relationship between man-made mass shifts in the Earth's crust and earthquakes observed in close vicinity (fewer than 50 kilometres) of the geoengineering activities." Ex. E (Klose, Earthquakes and mining). Because DMLW does not explain its reasoning or support its conclusion with respect to the increased risk of earthquakes, it lacks a reasonable basis for failing to consider the reasonably foreseeable effects of its decision.

C. <u>The decision to lease will cause health impacts to coal miners and community members.</u>

One of the purported benefits of the coal lease sale at Canyon Creek is reduced unemployment through the creation of new jobs. Final Finding at 133, 135-36, 141, 148, 151, 176, 178. The Final Finding does not examine whether these are the types of jobs the State of Alaska should have a hand in creating, nor does it examine any health risks of coal mining. The health risks to coal mine workers are severe due to the hazardous conditions of coal mine work. Coal mine hazards have resulted in "[c]oal mining lead[ing] U.S. industries in fatal injuries," with a 2006 fatality rate of "49.5 per 100,000 workers, more than 11 times greater than that in all private industry[.]" Ex. 78 (Physicians for Social Responsibility at 6). "Reductions in lung function have been found in relation to coal mining with remarkable consistency." Ex. 36 (Coggon at 405). Mine workers' exposure to coal dust has been linked to coal workers' pneumoconiosis (black lung disease), bronchitis, emphysema, mortality due to chronic obstructive pulmonary disease, and decreases in lung capacity. *Id.* at 405, 398. Exposure to silica dust at surface coal mines is also of concern because of its association with pneumoconiosis and silicosis. Ex. 34

(Centers for Disease Control and Prevention at 431). Increased exposure to crystalline silica is likely due to "mining thinner coal seams and those with more rock intrusions[.]" Ex. 42 (NIOSH at iv-v). Pneumoconiosis causes permanent scarring of the lung tissue, and black lung disease caused 10,000 deaths between 1999 and 2009, while chronic obstructive pulmonary disease is "the fourth leading cause of mortality in the U.S." Ex. 78 (Physicians for Social Responsibility at vi, vii, 7). Coal dust has also been shown to be "a tumorigenic agent in experimental animals." Ex. 48 (French at 3).

A recent study reports that "workers in coal mining had significantly higher rates of respiratory illness claims (by 2.1% to 3.3% points) compared with other mining, agriculture, construction, and manufacturing. For coal mining workers with respiratory illness, annual medical care costs for these claims were also significantly higher (by $111 to $289)." Ex. 110 (Van Houtven, et al. at 1). *See also* Van Houtven, George, et al., *Rates and Costs of Respiratory Illness in Coal Mining: A Cross-Industry Comparative Analysis*, Journal of Occupational & Environmental Medicine 52(6):611-617, 611 (June 2010). A survey by Landen et al. recently attributed higher rates of ischemic heart disease (IHD) among coal miners to chronic coal dust inhalation, and noted that "[t]he association of increased risk of IHD with cumulative particulate exposure is consistent with air pollution studies, which have shown that long-term cumulative exposures to particulate are strongly related to IHD mortality." Ex. EE (Landen at 6). Workers in similar occupations who are exposed to diesel exhaust in the workplace, such as truck drivers, dockworkers, and railroad workers, likewise have significantly higher rates of lung cancer, COPD, and heart disease. Ex. X (State of the Air Report at 29). These diseases have persisted at high rates despite decades of regulations protecting workplace health. *See* Ex. 42 (NIOSH at 11) (setting forth possible reasons for serious health problems despite regulation).

Health impacts are not limited to those who work at coal mines, but also affect the people who live in the surrounding area. Despite decades of regulation, surface coal mining continues to take a heavy toll on public health. The Epstein study cites a suite of studies indicating that "all-cause mortality rates, lung cancer mortality rates, and mortality from heart, respiratory, and kidney disease were highest in heavy coal mining areas of Appalachia," and lower in communities that have less mining or are farther from it. Ex. 45 (Epstein, et al. at 82). It notes, among other things, high hospitalization costs, health impacts from water contamination, mental health impacts, and even dental health impacts. *Id.* at 78-80, Table 1. A study of coal-mining areas found that, "[a]s coal production increased, health status worsened, and rates of cardiopulmonary disease, lung disease, cardiovascular disease, diabetes, and kidney disease increased." Ex. 54 (Hendryx & Ahern 2008 at 670) (internal reference omitted). One of the studies in the suite notes, "These illnesses are consistent with a hypothesis of exposure to water and air pollution from mining activities. . . . In the current study, the adjusted [value of statistical life] costs indicate that the potential environmental impacts of mining exceed the economic benefits of mining." Ex. 53 (Hendryx & Ahern 2009 at 547).

These impacts result from not only the mining, but also from the transport of coal. "People in mining communities report that road hazards and dust levels are intense. In many

cases dust is so thick that it coats the skin, and the walls and furniture in homes. This dust presents an additional burden in terms of respiratory and cardiovascular disease . . . ." Ex. 45 (Epstein, et al. at 84); s*ee also* Ex. 114 (WhatCom Docs data reviews).

In response to these concerns, DMLW claims that "[t]he protections for air and water quality . . . provided under the ASCMCRA, as well as regulatory actions by other agencies, should avoid or minimize health problems due to coal development." App. B at B-35. However, the NIOSH report clearly shows that these protections are not enough, as indicated by the recently increasing prevalence of Coal Workers' Pneumoconiosis (CWP) among miners and resulting recommendations by NIOSH to lower the allowable threshold of respirable coal dust. Ex. 42 (NIOSH at 11, 15-16). This increase occurred in miners who have worked their whole lives under the protections of the 1969 Coal Mine Health and Safety Act, so these health problems are associated with working conditions under the regulatory structure that DMLW claims is sufficient. *Id.* at 11. The data presented in the NIOSH report and other cited references show evidence of significant health problems due to coal development in both coal miners and in people who live near coal mines but have never worked in one.

DMLW repeatedly emphasizes that "these data do not distinguish surface coal miners from underground miners," implying that the NIOSH report should be disregarded because it does not specify the risks to surface miners, who are typically exposed to less mine dust and suffer fewer job-related injuries. App. B at B-35, B-36. The NIOSH and CDC studies both clearly state that the health concern is respirable coal mine dust and that both surface and underground miners are exposed to dust at levels that threaten their health. For example, "[t]he NIOSH recommendations for coal mine dust and crystalline silica dust were explicitly intended for both underground and surface coal operations. In addition, NIOSH recommended enhancing worker medical monitoring, and extending it to surface coal mine workers." Ex. 42 (NIOSH at 9). There is much less respiratory health data for surface miners, because they were not monitored until recently. *See* Ex. 34 (CDC at 431) (the Coal Mine Health and Safety Act of 1969 established a surveillance system but it does not extend to surface coal miners; "surface coal miners have not been studied since 2002"). The NIOSH report's brief section on surface mining does cite "a relationship between tenure in surface coal mining jobs and prevalence of CWP" despite the fact that "dust exposures were generally <1 mg/m^3." Ex. 42 (NIOSH at 29). Both the NIOSH and the CDC reports conclude that the health risks of surface mining are significant and should be subject to increased monitoring. Ex. 42 (NIOSH at iii); Ex. 34 (CDC at 433).

DMLW also cites smoking as a confounding risk factor and implies that the respiratory problems attributed to coal mine dust are actually a result of smoking. App. B at B-38. This claim ignores the data showing that nonsmoking miners develop emphysema, chronic obstructive pulmonary disease (COPD) and CWP. Ex. 42 (NIOSH at 6, 8, 23); Ex. F (Kuempel at 257). The NIOSH report cites a study by Kuempel et al. that found that respirable mine dust contributes to emphysema in both smokers and nonsmokers, and that in smokers, the risks posed by smoking and mine dust are additive. Ex. 42 (NIOSH at 23-24); Ex. F (Kuempel at 263).

Similarly, DMLW dismisses the "suite of studies by Hendryx and others" based on "methodological limitations." App. B at B-39, B-37 - B-38. Nearly all of these studies do control for various confounding factors (obesity, smoking, education, etc.) and still find significant associations between health problems and coal mining. *See, e.g.,* Ex. 54 (Hendryx & Ahern 2008 at 670); Ex. 53 (Hendryx & Ahern 2009 at 545); Ex. 55 (Hitt & Hendryx at 92); Ex. 42 (NIOSH at 23-24); Ex. 78 (Physicians for Social Responsibility at viii, 13, 26, 33); Hendryx, Ahern & Nurkiewicz at 2064. These studies have been published in peer-reviewed academic journals, indicating that the studies satisfy any applicable methodological standards. Taken as a whole, they form a significant body of evidence that coal mining is strongly associated with elevated incidence of health problems.

Inhalation of coal dust has also been linked to higher rates of cardiopulmonary disease, high blood pressure, lung disease, diabetes, and kidney disease. Ex. 78 (Physicians for Social Responsibility at x-xi, 7, 33); Ex. 54 (Hendryx & Ahern 2008 at 669). Recent studies have shown higher rates of all of these health problems in people living near coal mines, including many who have never worked in a mine. Ex. 78 (Physicians for Social Responsibility at vi); Ex. 54 (Hendryx & Ahern 2008 at 669); Hendryx, Ahern & Nurkiewicz at 2064. Trains and trucks hauling coal also release hazardous air pollutants from both the loose coal dust blowing off the loads and the diesel exhaust from the vehicles. Ex. 114 (WhatCom at 1). These pollutants have been linked to a similar list of serious respiratory and cardiovascular health problems in all populations living or working near the transportation corridors and work sites. *Id.* Numerous studies link traffic-related air pollution (specifically PM2.5, particulate matter smaller than 2.5 μm in diameter) with diabetes, asthma, pulmonary disease, cancer, stroke, and heart disease. Ex. X (State of the Air Report at 28-29). Controlled trials (on animals and in vitro) have elucidated some of the complex mechanisms by which PM2.5 provokes oxidative stress and inflammatory responses throughout the body. Ex. 78 (Physicians for Social Responsibility at vii, viii); Ex. FF (Lockwood at 89-92; 137-39); Ex. X (State of the Air Report at 26-32); Ex. C (Brook at 2332). Particulate matter is sometimes described as a zero-threshold pollutant, because researchers have not yet concluded "whether any 'safe' PM threshold concentration exists that eliminates both acute and chronic cardiovascular effects in healthy and susceptible individuals and at a population level." Ex. C (Brook at 2366). This evidence, along with epidemiological data, strongly supports links between particulate matter exposure and a host of pulmonary, cardiovascular, metabolic and neurodegenerative diseases.

DMLW repeatedly dismisses studies of Appalachian coal mining as not relevant to Alaska because Appalachia has different topography and geology than other areas of the United States, including Alaska. The health studies on coal mining are predominantly from Appalachia because that is where there are large enough populations that have been exposed to coal mining for a long enough period of time to enable significant data sets. Alaska has only one operating coal mine with a single small town nearby. No health studies have been done even on this mine, so there is simply not enough information to claim that Alaska coal mines will be healthier and safer than those in Appalachian communities.

Even after coal is removed from the area, adverse health impacts will likely affect Alaska. When coal is burned in Asia, mercury is released into the air, allowing air and ocean currents to transport that mercury back to Alaska. Ex. 115 (Zamzow at 3). China alone "emits almost 700 tons of mercury into the world's atmosphere each year, accounting for nearly a quarter of the world's industrial emissions." Ex. 77 (NRDC at 16). Asian sources of mercury contribute 20% of the mercury found in Alaska. Ex. 115 (Zamzow at 6). Once absorbed into the food chain, mercury bioaccumulates in many species consumed by subsistence and recreational hunters in Alaska, including walrus, ringed seals, polar bears, halibut, northern pike, and salmon. *Id.* at 19-26. This bioaccumulation has particular implications for Alaska Natives, who eat fish and shellfish several times per week, with a mean daily intake of 109 grams. Ex. 27 (Arnold & Middaugh at 11). Traditional practices such as drying fish for preservation increase the concentration of mercury. Ex. 115 (Zamzow at 30). Alaskans' mercury concentrations, as measured by hair samples, are already much higher than other Americans' mercury levels in the lower 48 states. Ex. 27 (Arnold & Middaugh at 14-16). In 2007, the State of Alaska issued fish consumption advisories recommending that consumption of certain species of fish be limited due to mercury levels. Ex. 111 (Verbrugge at 2). Mercury's impacts on human health include mental deficiency, damage to neurochemical systems, heart and lung damage, and serious effects on children exposed to mercury in the womb, such as neurological and blood pressure problems. Ex. 115 (Zamzow at 32). Because of these serious health risks, mercury contamination—or even the impression of contamination—in Alaska's fisheries may significantly disrupt the market for commercially-caught Alaskan fish. *Id.* at 34-36.

DNR is responsible for making a decision based on information known by or made available to the director. The available information overwhelmingly indicates that coal mining in the United States under our current regulatory structure is associated with negative public health outcomes, diminished worker health, and higher public health care costs. The costs of these increased rates of respiratory disease, mortality, and higher costs associated with medical care that coal mine workers face must be accounted for when jobs and income from coal mining are assessed. To include only benefits and ignore costs is an incomplete determination of the best interests of the State of Alaska.

D. <u>DMLW ignores economic costs borne by state and local government as a result of coal mining.</u>

In its finding that the lease sale serves the best interests of the state, DNR is required to consider "significant impacts on potentially affected communities, including public services," and the "economic effects of coal exploration and development, including revenue potential and administrative cost to the state[.]" 11 AAC §§ 85.200(b)(6), (7). The Final Finding fails to address these additional impacts and costs of coal mining to the state.

Substantial evidence drawn from other coal-mining regions in the country shows that coal mining has an overall negative impact on state and local economies. Studies conducted on

the impact of coal mining on the state budgets of Kentucky, Pennsylvania, West Virginia, and Tennessee found that the coal industry "actually costs more than it brings to the state." Ex. 63 (Konty, Impact of coal on KY at 2); *see also* Ex. 118 (McIlmoil, Impact of coal on PA at 2); Ex. 68 (McIlmoil, Impact of coal on WV state budget at x, 58-59); Ex. 67 (McIlmoil, Impact of coal on TN at viii). The study of Kentucky's state budget concluded that:

> While coal generates significant revenues, its costs are considerable. Major public expenditures go into maintaining the coal haul road system; operating the health, safety and environmental protection systems necessary for coal; supporting training and research and development for the industry; and providing various tax breaks and subsidies. Without including harder-to-quantify costs of negative externalities from the industry, the estimated net cost to the state is over $100 million annually.

Ex. 63 (Konty, Impact of coal on KY at 7). For one fiscal year, the net cost to the state was over $164 million in Pennsylvania, Ex. 118 (McIlmoil, Impact of coal on PA at 2), $97.5 million in West Virginia, Ex. 68 (McIlmoil, Impact of coal on WV at xiii, 58-59), and $3 million in Tennessee, Ex. 67 (McIlmoil, Impact of coal on TN at xi). As discussed above, the state will also be liable for reclamation and clean-up if the bond proves inadequate, as is often the case.

DMLW finds fault with these calculations on small points. First, DMLW complains that there is no direct link made between actual expenditures for coal workers and state expenditures, implying that the studies assume that coal mine workers are not well paid. App. B at B-57. To the contrary, using Kentucky as an example, Konty notes several times that the workers are well paid and receive wages higher than the county averages. Ex. 63 (Konty, Impact of coal on KY at 2, 17, 18). Additionally, the expenditures considered were for "schools, roads, and other services" including general infrastructure. *Id.* at 18. DMLW also cites a lack of comparison of the coal industry with other industries, App. B at B-57, but that was not the purpose of the study, which was to address the specific impact of the coal industry on the state budget. Ex. 63 (Konty, Impact of coal on KY at 1). DMLW takes issue with the figures considered significant by the study's authors because they only account for revenues and expenditures for the workers in supporting industries, without accounting for the revenues the supporting industries pay into the state coffers. App. B at B-57. Even if indirect employment revenues and expenditures are taken out of the equation, however, coal mining still costs the state more than $42 million per year. *See* Ex. 63 (Konty, Impact of coal on KY at 1). Finally, DMLW asks rhetorically, if the coal industry did not exist, "[h]ow many of those workers might be unemployed or employed in lower paying jobs, thus paying less in state and local taxes?" App. B. at B-58. It is not possible to speculate as to an answer without considering what Kentucky might be like if the coal industry had left its lands and environment intact, with clean water, clean air, and healthy habitat for people and wildlife alike.

In Appalachia, this imbalance has resulted in what one observer describes as a troubling paradox:

> The billions of dollars of coal reserves mined from the region have only marginally benefited local people. After a century of mining in the "billion dollar coalfields," local communities lack funds to upgrade aging schools; tens of thousands live below the federal "poverty line"; and public services such as fire, police, sewage treatment, and libraries struggle to survive on "bare-bones" budgets.

Patrick C. McGinley, *From Pick and Shovel to Mountaintop Removal: Environmental Injustice in the Appalachian Coalfields*, 34 Envtl. L. 21, 23-24 (2004). Instead of benefiting local communities, "the coal industry's power has enabled it to funnel much of the wealth generated by mining to out-of-state interests, leaving little for the people whose labors produced that wealth." *Id.* at 79.

The Final Finding fails to wrestle with any of these potential costs to the state or burdens on public services despite its regulatory obligation to do so. *See* 11 AAC §§ 85.200(b)(6), (b)(7). It is not a calculation that DNR may delay until more definite plans materialize, and there are certain administrative costs that are foreseeable and must be considered at this stage. For example, because the State of Alaska regulates coal mining under ASCMCRA, the burden of reviewing proposed plans and studies, processing permit applications, conducting extensive inspections, and otherwise ensuring compliance with all regulations under ASCMCRA falls on DNR. To illustrate the extent of those duties, the list of plans that must be reviewed and approved by DNR includes plans for operations, blasting, air pollution control, fish and wildlife protection, reclamation, port mining land use, protection of the hydrologic balance, protection of parks and historic places, relocation or use of public roads, and transportation facilities. Final Finding at 53-54. No mention is made in the Final Finding of the estimated staffing and resource needs required to carry out DNR's ASCMCRA duties with respect to this and other proposed coal mines. Additionally, inspections will likely require the use of costly transportation, such as chartered planes and helicopters, due to the remote location of the proposed lease area. Russell Kirkham, Remarks at the Public Hearing for the Canyon Creek Competitive Coal Lease Sale, Nov. 13, 2012. There are numerous references throughout the Final Finding to the need for inspections by state employees: monthly inspections of active mines, water quality inspections, regular inspections of bridges and culverts by qualified individuals, and inspections of sedimentation ponds and disposal area sites. Final Finding at 48, 50, 164-168. The state's obligations do not end at ASCMCRA; "other state agencies issue a variety of permits" to ensure compliance with laws regarding water use, historical preservation, access, fish habitat, sewage treatment, drinking water supply, and water pollution. Final Finding at 49. Because these regulatory obligations are dictated by law, these and other administrative expenses related to carrying out those duties are reasonably foreseeable and must be analyzed pursuant to 11 AAC §§ 85.200(b)(6) and (b)(7). Additionally, the Department of Transportation and Public Facilities is currently studying a possible road designed to access

natural resources, including the coal at Canyon Creek. *See* Ex. GG (Letter re Western Susitna Valley Road Study at 1). Because there is a high likelihood that the road will be used to access the Canyon Creek coal mine, DNR should consider state costs such as staff time and expenses for planning and design work, some construction costs, maintenance, and expansion of emergency support services such as the highway patrol. *Id.* at 2.

In its response to comments, DMLW argues that it need not consider such costs because it will not know what the benefits of the mine are until a mine plan is available. App. B at B-58. DMLW has no legal support for that assertion. The statute requires the director to consider all information known by DNR or made available during the administrative review, regardless of whether the agency has evidence to counter the negative aspects of its decision. *See* AS 38.05.035(e)(1)(A). Because DNR presumably has access to its own budget and accounting spreadsheets, information regarding the costs associated with mine review, permitting, and inspection is readily known by the director.

IV. THE CANYON CREEK LEASE AREA CONTAINS VALUABLE NATURAL RESOURCES THAT WOULD BE HARMED.

The unavoidable and substantial adverse impacts to watersheds caused by surface coal mining are of particular concern here in Alaska, due to the unique importance of salmon and other fish to our economy and culture. This is true in the Canyon Creek lease area, which contains valuable fish habitat for all five species of Pacific salmon, Final Finding at 72, as well as a creek that the Alaska Board of Fisheries has recognized as "waters worthy of special management designation for trout." *Id.* at 90.

In fact, the area's fish resources may be even more substantial than disclosed in the Final Finding. As the Department of Fish & Game has noted, the streams in the area have not been fully surveyed. App. A at A-1. Even on the basis of the incomplete information currently available, it appears that the anadromous streams are more extensive than disclosed in the Final Finding. *Compare id.* at 67 (Fig. 5.4), *with* Ex. 7 (ADFG Anadromous Waters Atlas, Tyonek D-5). While DMLW has agreed to "work with ADF&G to ensure that appropriate fish studies are conducted," DMLW has not indicated that it will take any action based on the results of those fish studies. App. B at B-3.

DNR recently recognized the value of the Canyon Creek lease area for recreational use in the Susitna Matanuska Area Plan adopted just over a year ago. Ex. 15 (DNR, Mat-Su Area Plan at 3-82). The proposed lease tract is nearly coextensive with Unit M-06 in the Area Plan, which is classified for dispersed public recreation. *Compare* Ex. 14 (DNR, Plate 1, Proposed Canyon Creek Leasing Area), *with* Ex. 15 (DNR, Mat-Su Area Plan, Map 3-7). *See also* Final Finding at 16 ("The largest portion of the lease sale area lies within Subunit M-06, which is classified as Public Recreation Land."). Development of a coal mine in this area would completely preclude recreational use for decades.

The nearby proposed Chuitna mine, which has been studied more extensively than Canyon Creek, provides an example of the types of impacts to be expected. In 1990, EPA prepared an environmental impact statement (EIS) for Chuitna, though the mine has not yet been developed. Like Canyon Creek, Chuitna would be a large strip mine in an area currently laced with salmon streams on the northwest side of Cook Inlet, located in the same coal field. Addressing "unavoidable adverse impacts," the federal agency wrote, "[r]eduction 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 (greaterthan [sic] 10 years), and possibly indefinitely." Ex. 104 (Chuitna FEIS at 5-139). The EIS adds that "it would appear unlikely that fish productivity in streams directly disturbed by mining could be restored to premining productivity levels," *id.* at 5-139 to 5-140, and "fish habitat could be irretrievably lost." *Id.* at 5-140.

Impacts to groundwater and surface water hydrology from strip mining are severe. "Impacts 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. These impacts are unavoidable . . . ." *Id.* at 5-16. Surface water hydrology would be even more significant: "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 . . . ." *Id.* at 5-23.

More recent studies of the proposed Chuitna project confirm and reinforce these predictions:

> Hydrologic flowpaths that currently exist, which are crucial to biological activity, food web productivity, hyporheic processes and exchange of materials with streams will be destroyed in the Chuitna system from the coal mining as proposed, and cannot be recreated. And riverine systems also cannot 'repair' such damage.

Ex. 113 (Wipfli at 7) (citations omitted). Further, it is not sufficient merely to protect the main stream channels:

> [I]t is essential that even the smallest tributaries remain hydrologically connected (surface and subsurface) to the larger channels during and after the mining activities. These tributaries are travel corridors and seasonal refugia for aquatic species, including invertebrates and fish, and are key components contributing to the overall health, function, and productivity of the Chuitna system.

Id. *See also* Ex. 119 (Palmer at 3-4) ("Headwater streams such as those that will be destroyed or impacted by watershed disturbance during mining may be small in size, but they provide habitats for a rich array of species, which enhances the biological diversity of the entire river system."); *id.* at 10 ("There is no scientific evidence supporting the assumption that restoration of [a stream] channel form will lead to full restoration of function").

Irreversible and lasting harm will not be limited to hydrology and fish habitat. Even assuming reclamation to be as successful as possible, the EIS noted that "reestablishment of woody communities, species diversity, and wildlife values similar to existing communities" could take up to 40 years *after* the mine's projected 30-year life. Ex. 104 (Chuitna FEIS at 5-7). "Restoration of wildlife productivity would likely occur over the very long-term; however, such restoration could require up to 40 years postmining." *Id.* at 5-140.

Given the rural character of the area and the subsistence traditions of the nearby communities, the Chuitna project "could have a significant long-term impact upon existing regional social and cultural traditions and values." *Id.* at 5-140. "Some hunting, fishing, and other recreational and subsistence opportunities would be irretrievably lost for the life of the mine and probably for a substantial period thereafter." *Id.* at 5-141.

DMLW argues that the Chuitna EIS also includes mitigation measures and a reclamation plan, and puts stock in the fact that EPA selected a preferred alternative that included mining. App. B at B-19. Mitigation measures were necessary to compensate "for the unavoidable loss of two miles of anadromous fish habitat in tributaries 200305, 200304, and 20030502," and they were not certain to be successful, given that monitoring was also required in order to ascertain whether alternative methods of mitigation were necessary. Ex. V (Chuitna FEIS at 6-9). As to reclamation, a wetland restoration program was planned to "be conducted on a trial basis and . . . monitored to determine its success." *Id.* at 6-7. With respect to fish resources, the FEIS lacks any specific proposed reclamation plans, other than to say that "[s]everal types of mitigation will be accomplished to protect fish resources . . . ." Ex. V (Chuitna FEIS at 2-36). These statements are hardly ringing endorsements for the efficacy of mitigation and reclamation, and EPA also notes that, since the ASCMCRA permit only covers ten years, "no mitigation in the form of permit stipulations has yet been formulated for the remainder of the project." *Id.* 6-13. Additionally, unlike AS 38.05.035(e), the National Environmental Policy Act does not guarantee substantive results; rather, it is a procedural statute designed to ensure that decision makers are fully informed, but they need not select a particular alternative on the basis of that information. *See, e.g., Nat'l Parks & Conservation Ass'n v. U.S. Dep't of Transp.*, 222 F.3d 677, 682 (9th Cir. 2000). EPA's selection of a preferred alternative does *not*, as DMLW insists, "mean[] that the EPA found that mine development would be in the best public interest," because EPA's duty was to review permits for compliance with federal pollution standards under the Clean Water Act. App. B at B-19. EPA was not required to review whether the project was in the best interests of Alaska. In contrast, Alaska Statute 38.05.035(e) and the Alaska Constitution *do* require DNR to select the course of action that is in the best interests of the state.

Given the similarity and proximity of Chuitna and Canyon Creek, the same concerns EPA expressed in regards to the impacts of the Chuitna mine will undoubtedly apply to Canyon Creek. In fact, the impacts of a Canyon Creek mine are likely to be worse given the cumulative impacts of the two mines and other proposed and ongoing development in the area, including the natural gas pipeline proposed for the Donlin gold mine, the Port MacKenzie rail spur and port expansion, the Chakachamna hydro project, the Mount Spurr geothermal project, the Whistler gold mine, the West Susitna River Valley Access Project, the Knik Arm Bridge, and the Susitna Dam upstream of the area. *See* Comment Letter at 27; Final Finding at 118; Ex. P (Knik Arm Bridge); Ex. N (Susitna Hydro).

V. THE FINAL FINDING EXAGGERATES POTENTIAL JOB BENEFITS THAT MAY BE CREATED BY THE MINE.

While DMLW downplays the expected negative impacts caused by a coal mine as being too speculative to consider, it places great stock in the assertion that the mine will create jobs, training opportunities, and reduced unemployment. Despite statistics showing that remote mines are more likely to hire nonresident workers than the statewide average, Comment Letter at 27-28, the Final Finding states that the mine workers "and their families would likely live in the Matanuska Susitna Borough or Anchorage." Final Finding at 151. In support of that statement, the response to comments points to the Donlin gold project and the Pebble Limited Partnership, two mines that are proposed but have not yet received permits necessary to operate. App. B at B-56. Two other mines mentioned, Usibelli and Fort Knox, are close to major transportation routes and have permanent settlements nearby, unlike the Canyon Creek area, which is more likely to hire nonresidents due to its remote location and probable reliance on a mine camp to provide housing while miners work shifts at the mine. *See* Ex. 10 (Alaska Department of Labor and Workforce Development 2010 at 4, 21); Ex. 11 (Alaska Department of Labor and Workforce Development 2008 at 7). Since "DNR cannot require companies" to hire Alaskans, App. B at B-56, it cannot count on the winning bidder to provide jobs for residents and improve the local unemployment rate, which is already lower than the statewide rate. Final Finding at 140.

In response to concerns that coal companies do not have a history of bringing prosperity to coal-mining regions, *see* Comment Letter at 28; App. B at B-51 (Comment #99), DMLW asserts that the average wage in the Alaska mining industry is $97,900-100,000. App. B at B-51, B-58, B-59, B-60. The website it cites, however, shows that the average for coal mining in Alaska in 2012 was $80,000. Ex. G (National Mining Association, Annual Coal Mining Wages). The Bureau of Labor Statistics shows annual wages for mining-related activities in Alaska ranging in the $40,000s to $50,000s range for mining machine operators and helpers to $128,000 for mining engineers. Ex. J (U.S. Bureau of Labor Statistics, Division of Occupational Employment Statistics). Thus, if a mine at Canyon Creek suffers the same problem as the newer mines that "have comparatively higher non-resident participation because the lack of skilled in-state miners requires that they draw skilled workers from outside the state," it is probable that the higher-skilled jobs, such as mining engineer jobs, will be filled by nonresidents, while lower-

skilled jobs, such as operators and helpers, will earn much closer to the "48,202 median for the State as a whole." App. B at B-57, B-59. These wages may not be sufficient for those living in the area, since "Alaskans in areas not connected by road pay considerably more for all goods and services." Final Finding at 141.

Given these statistics and trends, DNR should not put so much faith in the employment benefits it suggests will materialize. While adding jobs is a laudable goal, the number of jobs in the mining sector is a small percentage of jobs in the region, *see* Ex. 9, and the state's efforts to create jobs would be better served by focusing on more stable, sustainable industries that do not impose the many costs and risks of coal mining.

CONCLUSION

For the foregoing reasons, Appellants Alaska Center for the Environment, Alaska Community Action on Toxics, Alaska Survival, Center for Biological Diversity, Chickaloon Village Traditional Council, Chuitna Citizens Coalition, Cook Inletkeeper, Envision Mat-Su, and Sierra Club request the Commissioner to take a close look at the Final Finding, because it is clear that the damage to the Earth's climate, human health, public finances, fish habitat, and other resources greatly outweigh the relatively meager gains in state revenue and largely nonresident jobs. Not surprisingly, a study quantifying the costs and benefits of the proposed nearby Chuitna mine concluded:

> Even under the most optimistic price scenarios, the social costs of the Chuitna Coal Project are likely to exceed social benefits by a wide margin as reflected by negative net present value figures and benefit-cost ratios below one. . . . Taking these costs into consideration suggests a net present value range of -$57.23 to -$75.27 billion over the life of the project and a benefit-cost ratio range of .3134 to .1713, meaning that costs exceed benefits by a factor of 3 to 6.

Ex. 90 (Talberth, Chuitna Net Public Benefits Assessment at 4-1). One would expect similar results for Canyon Creek. A project in which the costs so significantly outweigh the benefits clearly is not in Alaska's best interests. Indeed, the lease would effectively export the principal benefit of mining coal—cheap electricity—to Asia while incurring the high costs of climate change and other natural resource degradation here in Alaska. For these reasons, Appellants ask the Commissioner to find that the Canyon Creek coal lease is not in the state's best interests and abandon the project.

Thank you for your careful attention to the important issues raised in this appeal.

Sincerely,

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TABLE OF EXHIBITS

Exhibit No.	Description
J	U.S. Bureau of Labor Statistics, Division of Occupational Employment Statistics (OES), May 2012 State Occupational Employment and Wage Estimates Alaska (last visited July 22, 2013), *available at* http://www.bls.gov/oes/current/oes_ak.htm
K	U.S. Environmental Protection Agency (EPA), Climate Change, Global Greenhouse Gas Emissions Data (last visited July 21, 2012), *available at* http://www.epa.gov/climatechange/ghgemissions/global.html
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M	Yang, Ailun & Yiyun Cui, *Global Coal Risk Assessment: Data Analysis and Market Research*, WRI Working Paper, World Resources Institute, Washington, DC (Nov. 2012), *available at* http://www.wri.org/publication/global-coal-risk-assessment
N	Alaska Energy Authority, Project Overview, Susitna-Watana Hydroelectric Project (last visited July 24, 2013), *available at* http://www.susitna-watanahydro.org/project/project-description/
O	Hartman, Kyle J., et al., *How much do valley fills influence headwater streams?*, Hydrobiologia 532: 91–102 (2005), *available at* http://www.environmental-expert.com/Files/6063/articles/5124/G811907430614252.pdf
P	Knik Arm Bridge and Toll Authority, Frequently Asked Questions (last visited July 24, 2013), *available at* http://knikarmbridge.com/project/faq/
Q	Negley, Timothy L. & Keith N. Eshleman, *Comparison of stormflow responses of surface-mined and forested watersheds in the Appalachian Mountains, USA*, Hydrol. Process., 20:3467–3483 (2006), Abstract, *available at* http://onlinelibrary.wiley.com/doi/10.1002/hyp.6148/abstract
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T	Pond, Gregory J., et al., *Downstream effects of mountaintop coal mining: comparing biological conditions using family-and genus-level macroinvertebrate bioassessment tools*, J. N. Am. Benthol. Soc. 27(3):717–737 (2008), *available at* http://www.epa.gov/region03/mtntop/pdf/downstreameffects.pdf
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V	U.S. EPA, *Diamond Chuitna Coal Project, Final Environmental Impact Statement*, EPA-10-AK-Chuitna-NPDES-90 (Feb. 1990), *available at* http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/Chuitna+Coal/$FILE/0FEIS_DCCPrj_Vol1.pdf (excerpts)
W	U.S. EPA, Climate Change, The Social Cost of Carbon (Updated July 17, 2013) (last visited July 23, 2013), *available at* http://www.epa.gov/climatechange/EPAactivities/economics/scc.html
X	American Lung Association, *State of the Air 2011* (2011) (excerpts)
Y	Alaska Department of Natural Resources, Coal Lease ADL No. 32144 (Sept. 1, 1995) (Wishbone)
Z	Alaska Department of Natural Resources, Coal Lease ADL No. 501264 (Sept. 1, 1995) (Wishbone)
AA	Alaska Department of Natural Resources, Coal Lease ADL No. 501265 (Sept. 1, 1995) (Wishbone)
BB	Alaska Department of Natural Resources, Coal Lease ADL No. 501267 (Sept. 1, 1995) (Wishbone)
CC	Alaska Department of Natural Resources, Coal Lease ADL No. 511534 (Sept. 1, 1995) (Wishbone)

Exhibit No.	Description
DD	Alaska Department of Natural Resources, Coal Lease ADL No. 324600 (Jan. 4, 1996) (Jonesville)
EE	Landen, Deborah D., et al., Coal Dust Exposure and Mortality From Ischemic Heart Disease Among a Cohort of U.S. Coal Miners, Am. J. Ind. Med. (2011)
FF	Lockwood, Alan H., The Silent Epidemic: Coal and the Hidden Threat to Health, The MIT Press, Cambridge, Massachusetts, London, England (2012) (excerpts)
GG	Waldo, Thomas S. & Madeleine Gallo, Earthjustice, Letter to Bill Cole, Alaska Department of Natural Resources, Re: Canyon Creek Proposed Coal Lease Sale, ADL 553937 (March 21, 2013)