ALASKA STATE LEGISLATURE
SENATE JUDICIARY STANDING COMMITTEE
March 2, 2012
1:35 p.m.

MEMBERS PRESENT

Senator Hollis French, Chair
Senator Bill Wielechowski, Vice Chair
Senator John Coghill

MEMBERS ABSENT

Senator Joe Paskvan
Senator Lesil McGuire

COMMITTEE CALENDAR

OVERVIEW: BONDING REQUIREMENTS FOR MAJOR MINE PROJECTS

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

MARGARET PALMER, Ph.D.
Professor of Entomology and Biology
University of Maryland and
Director, National Science Foundation
National Socio-Environmental Synthesis Center
POSITION STATEMENT: Provided scientific evidence that the impacts of the proposed Chuitna mining project will be irreversible and that reclamation to support future salmon populations is not technologically feasible.

LANCE TRASKY, Owner
Lance Trasky and Associates
Anchorage, AK
POSITION STATEMENT: Testified that he found no scientific evidence to support the contention that restoration of a strip mined salmon producing drainage such as the Chuitna is feasible.

DAVID CHAMBERS, Ph.D., P. Geophysics, President
Center for Science in Public Participation (CSP2)

Bozeman, MT
POSITION STATEMENT: Testified on the proposed Chuitna project and described why restoration of the original hydrologic regime at a mine site is not typically attempted.

TOM CRAFFORD, Director
Office of Project Management and Permitting
Department of Natural Resources (DNR)
Anchorage, AK
POSITION STATEMENT: Provided an overview of the bonding requirements for major mine projects along with more specific information related to the proposed Chuitna mining project.

RUSS KIRKHAM, Geologist
Division of Mining, Land and Water
Department of Natural Resources (DNR)
Anchorage, AK
POSITION STATEMENT: Provided information related to bonding requirements for major mine projects and specifically the proposed Chuitna mining project.

ACTION NARRATIVE

1:35:07 PM
CHAIR HOLLIS FRENCH called the Senate Judiciary Standing Committee meeting to order at 1:35 p.m. Present at the call to order were Senators Coghill, Wielechowski and Chair French.

OVERVIEW: BONDING REQUIREMENTS FOR MAJOR MINE PROJECTS

1:35:20 PM
CHAIR FRENCH announced the business before the committee would be to explore the legal question of how to bond a mining project that goes through a salmon stream. He explained that he wrote to Commissioner Dan Sullivan, on January 20, 2011, to ask this question after the proposed Chuitna coal strip mine came to his attention and he found that the Alaska Surface Coal Mining Control and Reclamation Act had a bonding requirement. He paraphrased the following letter:

> PacRim Coal has applied to the Department of Natural Resources for a permit to mine coal in the Chuitna watershed. I am writing to you out of concern regarding one aspect of the permitting process and that is the setting of a reclamation bond under AS

27.21.160 of the Alaska Surface Coal Mining Control and Reclamation Act (ASCMCRA).

PacRim's plan for the mine's development would remove 11 miles of Middle Creek, a major tributary of the Chuitna River and a stream identified by the Department of Fish and Game as "significant to salmon." By 'remove' I mean just that: the plan calls for diverting all of the water out of the streambed, the removal of more than 300 feet of overburden and then mining the exposed coal seams.

While there is currently no law on the books that prohibits mining through a stream - in contrast to the logging rules which require buffers around salmon streams - the reclamation bond statute stands as a significant hurdle for this project to clear. The bond is in place to make certain that PacRim fulfills its obligation to complete its reclamation plan. The difficult issue you face is setting the amount of the reclamation bond given the absence of any precedent in Alaska for permitting mining in active salmon streams.

There is some legal precedent, however, on this particular question. Trustees of Alaska v. Gorsuch, 835 P.2d 1239 (1992) involved several disputes surrounding a proposal to mine coal in the Chuitna area by the Diamond Shamrock-Chuitna Coal Joint Venture, a company related to PacRim. The Trustees case in part took up the question of whether DNR, in setting the amount of the reclamation bond, may assume compliance with the requirements of the reclamation plan. Drawing from earlier cases, the court concluded that ASCMCRA requires DNR to base the bond amount on the assumption that the applicant will violate its permit terms. 835 P.2d at 1248. This assumption takes on a greater significance given the difficulty of PacRim's restoration obligations.

Indeed, many scientists are skeptical of PacRim's plans. For example, Professor Palmer of the University of Maryland in her "Report on Chuitna Coal Project of PacRim Coal" points out that the company will be attempting to "create a stream after all the natural flow paths and landscape topography have been destroyed. This is not even in the realm of anything that has been scientifically tested and is certainly

not within the realm of what is considered ecological restoration." The report also notes that "Even with far less damage to a site, stream restoration projects that involve channel modification have an extremely high failure rate."

I hope it is clear from the foregoing that in my view the project as proposed should not be permitted. Should you come to a different conclusion, please keep these considerations in mind as you weigh the amount of the reclamation bond.

CHAIR FRENCH said he's had an enduring interest in the question and the committee has the opportunity to hear from scientists who can offer legislators and the administration some guidance on the matter.

1:38:22 PM
MARGARET PALMER, Ph.D., Professor of Entomology and Biology, University of Maryland, and Director, National Science Foundation, National Socio-Environmental Synthesis Center, said she was an expert on stream restoration and had experience dealing with the impacts of surface mining on streams. She reviewed the proposed mining project in the Chuitna River watershed and said she would describe irrefutable scientific evidence that impacts of the project will be irreversible and that reclamation to support future salmon runs was not technologically feasible.

DR. PALMER said she would focus on three areas. First, the examples of reclamation and restoration projects that have been cited do not demonstrate that restoration at Chuitna is possible. Second, the project proposes restoration and reclamation of the Chuitna site to support salmon, but it would actually require creation of streams and rivers, which is outside the realm of credible science. Third, the extensive scientific documentation of failed restoration projects in watersheds far less impacted than what is proposed for the Chuitna watershed demonstrate the near zero likelihood of success for the Chuitna reclamation and restoration.

1:43:20 PM
CHAIR FRENCH asked if she was aware of any project that removed a stream and created it again after a number of years.

DR. PALMER replied there were no successful examples. She relayed that she led the project looking at 38,000 river and

stream restorations in the U.S. and not one of those is similar in scope to what is proposed for the Chuitna watershed. The Chuitna proposal falls outside the realm of what is scientifically considered restoration.

SENATOR WIELECHOWSKI asked what PacRim planned to do with the water in the stream.

DR. PALMER said another scientist will talk about the hydrological flow paths, but that is part of the problem because digging through the stream to beneath bedrock will destroy the flow paths. To begin to answer the question of what will happen to the water, it will be necessary to determine the current structure of the groundwater flow paths. Even then it isn't clear what will happen afterward.

SENATOR WIELECHOWSKI asked for basic numbers as to the size of the stream.

DR. PALMER replied she didn't know the width, but it's large enough to support salmon. She said that Mr. Trasky will talk about the importance of upwelling groundwater to keep the water warm enough for the salmon eggs to survive through the winter. There is no guarantee those flow paths can be recreated once they are disrupted.

1:46:36 PM
DR. PALMER said the failure rate is very high on much simpler restoration projects, and "What this means is that large-scale failure at Chuitna is inevitable." Although the field of stream restoration has advanced significantly in the past 10 years, numerous studies reflect failures that typically include inability to restore even the insect community. The current status of technology for stream reclamation is only useful in intact water networks and is neither designed nor tested for situations in which the underlying soils, geology and associated groundwater flow paths are destroyed.

DR. PALMER offered her view is that there is no evidence that reclamation of the streams and wetlands in the Chuitna watershed is feasible. In fact, there is strong evidence that it is not feasible, based on rigorous science in which much smaller projects have not led to restoration, particularly of salmonids. Technology that has been successful in watersheds is for much more modest projects. She concluded, "You should recognize that if the watershed is mined as proposed, you will not regain the salmon populations that frequent the streams now."

1:48:30 PM
CHAIR FRENCH asked her to remind him of her position with the National Science Foundation (NSF).

DR. PALMER relayed that she was a professor at the University of Maryland, and recently received a $60 million grant to direct the new NSF center. It is an international center that hosts researchers from across the world to do state-of-the-art research on environmental issues to balance the needs of people and the environment.

SENATOR WIELECHOWSKI asked if she was saying that the 30 permits required for this project weren't sufficient to protect the reclamation of the salmon the stream.

DR. PALMER said that's correct; Alaska has many individual requirements, but it has no form of comprehensive evaluation and mitigation plan.

SENATOR WIELECHOWSKI asked if any of the 78 independent restoration projects went through the extensive National Environmental Policy Act (NEPA) permitting process.

DR. PALMER replied some of those were done in Europe and Australia, but the ones that were done in the U.S. did go through the NEPA process. She added that she had extensive experience looking at projects in the coal mining regions of West Virginia and Kentucky, and therefore was familiar with the kinds of projects that have been attempted.

1:50:44 PM
SENATOR COGHILL asked if her perspective was to protect the stream at the cost of any human activity.

DR. PALMER clarified that her role was to discuss the scientific evidence of whether or not salmon restoration was likely under the present plan. She talked about being pragmatic about making decisions and balancing the costs and benefits, and being scientifically honest about what is and is not possible.

SENATOR COGHILL said he was trying to put this in context because both sides have experts when economic interests clash.

DR. PALMER suggested he look at the evidence that is supported by peer-reviewed literature. It is evidence from the scientific

community and does not have a specific perspective one way or the other.

CHAIR FRENCH asked her to explain the meaning of peer-reviewed.

DR. PALMER explained that the concept is that when a scientific study is written up it is sent to scientific experts in that field to evaluate anonymously and judge whether or not the information presented is done in an objective way. To publish something in peer reviewed literature, it is necessary to make the original data available. The NSF now has a requirement that that data be publicly available and posted on a website. This is very different from a report that is produced for a particular company that doesn't show data.

1:54:13 PM
SENATOR WIELECHOWSKI noted that the reclamation performance standards under 11 AAC 97.200-240 require stream channels disturbed to be reestablished in a stable condition or location. He asked if she was saying it would be possible to meet the law, but the stream will essentially be dead, or that it will be impossible to meet the legal standard.

DR. PALMER said she wasn't an attorney, but she believes the key word is "stream," and a stable channel does not create a stream that will support a salmon population.

SENATOR COGHILL asked if she had experience with streams where spawning occurred when it didn't previously occur, and if this case might fall into that type of study group.

DR. PALMER replied there are success stories of restoration, but not when the entire watershed and the source of the water flow and ground flow patterns have been completely destroyed. This project proposes going through bedrock down more than 300 feet, whereas stream restoration deals with surface processes. The Chuitna project is outside the realm of what is considered stream restoration for reclamation.

SENATOR WIELECHOWSKI asked if it could be done with an enormous amount of money.

DR. PALMER said in her judgment it's impossible and she can't imagine how it will be possible to set a bond level.

CHAIR FRENCH thanked Dr. Palmer and recognized Lance Trasky.

1:57:22 PM
LANCE TRASKY, owner, Lance Trasky and Associates, relayed that he had 42 years of experience as a fisheries research biologist, a habitat biologist, and a regional supervisor for the Alaska Department of Fish and Game (ADF&G), which issues habitat permits for mining projects. He discussed the difficulty of establishing a restoration bond for the proposed Chuitna coal strip mine when neither the scientific literature nor the exemplar projects support the claim that recreating a wild Pacific salmon stream and associated drainage has ever been successful or is even feasible. He continued to say that it is also unlikely that the spawning channel and rearing ponds offered as interim mitigation would be successful in maintaining the salmon runs from the Chuitna River tributaries for 25-50 years.

MR. TRASKY spoke of the substantial runs of all five species of Pacific salmon that the Chuitna River supports, and described the first phase of mining that proposes to strip mine 8,000 acres of the three major salmon producing tributaries. In one tributary 11 miles of surface and subsurface material will be removed to a depth of 300 feet. Reconstruction will require the re-creation of both surface features such as wetlands and subsurface features such as shallow and deep aquifers that provide critical upwelling groundwater that is critically important to the winter survival of salmon eggs and larvae in cold climates. Re-creation of this magnitude has never been done and probably isn't feasible.

He disagreed with PacRim and DNR's contention that recreating a productive salmon stream after strip mining is feasible, and pointed out that the projects they cited were not comparable and did not support their claim. A number of fisheries biologists and hydrologists who were involved in these projects were asked if they were comparable, and they all said no. Only three of the projects involved salmon streams, and none were strip mined. Moreover, none of the projects mentioned restoring aquifers or groundwater, and all were small-scale by comparison. In a 2007 letter to the Environmental Protection Agency (EPA), the National Marine Fisheries Service (NMFS) said the agency was unaware of a successful salmon stream restoration of this magnitude.

He relayed that PacRim proposed to construct a spawning channel and rearing ponds to replace the lost salmon production for the 25-50 years before a new stream would be created. DNR also cited the appearance of juvenile salmon in gravel pits adjacent to

Granite Creek on the Kenai Peninsula and two Canadian spawning channels as confirmation that this method would successfully replace the lost production. However, the evidence shows that other Canadian spawning channels and all the spawning channels that have been constructed in Southcentral Alaska in the past 30 years have failed over time.

CHAIR FRENCH asked him to talk about spawning channels.

MR. TRASKY explained that spawning channels are built when the spawning habitat is lost, but the rearing habitat appears to be fine. Sometimes there is upwelling groundwater and it's possible to dig a channel near an existing spawning stream and pipe water into the bottom of the new channel where it will upwell and create natural channels where fish will spawn. This has been done in Canada after logging has damaged spawning streams and Cook Inlet Aquaculture Association (CIAA) has built a number of spawning channels in Cook Inlet over the years. He noted that the ones in Cook Inlet have all failed over time.

CHAIR FRENCH said he wasn't familiar with Cook Inlet Aquaculture Association.

MR. TRASKY explained that it uses money generated from fish taxes to build hatcheries, stock salmon for the sport fishery, and build habitat. CIAA is quite good at what it does, but it hasn't had success building spawning channels in Cook Inlet. He acknowledged that there were juvenile salmon in the gravel pits adjacent to Granite Creek, but the effort by ADF&G and DOTPF to convert the Quartz Creek gravel pit on the Sterling Highway to salmon spawning and rearing habitat has been a failure.

SENATOR WIELECHOWSKI commented that there were salmon in Quartz Creek near Cooper Landing.

MR. TRASKY agreed there were many salmon in Quartz Creek, but not in the gravel pit that DOTPF built. ADF&G tried to convert that into a salmon spawning area and rearing pond but it failed. It was just like what is proposed for the Chuitna.

SENATOR WIELECHOWSKI asked why they fail.

MR. TRASKY replied the primary reason is insufficient groundwater in all seasons. In the winter, the fish freeze and become anoxic. In the summer, the outlet stream dries up blocking ingress and egress.

SENATOR WIELECHOWSKI asked if he was aware of projects anywhere in the world where salmon streams were destroyed and successfully rehabilitated.

MR. TRASKY said not on this scale. He relayed that ADF&G in the Kenai River region brought fish habitat restoration into Alaska, but it was small scale to fix a bank. It didn't involve removal of the entire river drainage down 300 feet, putting the remaining dirt back in and rebuilding the river on top. That is the proposal for the Chuitna River.

SENATOR WIELECHOWSKI asked the size of the Chuitna River.

MR. TRASKY provided comparisons that were relevant to the committee members. The Chuitna River is about the size of the China River near Fairbanks, larger than Deep Creek on the Kenai Peninsula and one of its tributaries is similar in size to Ship Creek in Anchorage.

He continued to say that northern pike have invaded the Chuitna drainage so any attempt to sustain salmon production by spawning channels and rearing ponds in this area is unlikely to be successful. Pike thrive in low gradient environments like the proposed rearing ponds, and have already extirpated salmon and trout from other slow moving streams in Southcentral Alaska.

SENATOR WIELECHOWSKI asked about the prevalence of northern pike in the region.

MR. TRASKY responded that they've wiped out all salmon in Theodore Creek, which was a highly prolific stream. The best rearing streams are the low, swampy streams. Silver salmon in particular go there, but that's what pike like too.

SENATOR WIELECHOWSKI asked why the pike weren't already decimating the Chuitna.

MR. TRASKY explained that all but the lower part of that stream is high gradient, which means steep-sloped with fast water, rapids and pools.

SENATOR WIELECHOWSKI asked if he was saying that the Chuitna River could not be restored to be high gradient.

MR. TRASKY clarified he was saying that it wouldn't be possible to sustain the runs by building spawning channels and small gravel-pit type ponds because the pike will move in and eat

whatever is produced. Pike have not eaten the salmon that produce in high gradient tributaries.

MR. TRASKY summarized that he had found no independent restoration experts in Alaska or elsewhere or any scientific studies or projects to support the contention that reconstruction of a salmon stream and associated drainage, confined and unconfined aquifers, and wetlands on top of 300 feet of mine overburden is feasible. Restoration after strip mining would be far more difficult than a small-scale project to reroute a stream around a man-made barrier, re-vegetate a bank, or confine an unstable placer mined grayling stream to a single channel.

In considering bonding standards for mines like the Chuitna, he highlighted that all the projects cited were developed in the Pacific Northwest and British Columbia to halt or reverse the decline of anadromous salmon runs due to habitat loss. Billions of dollars were spent with little success. The problem from a salmon habitat perspective is that the permanent landscape changes as proposed by the Chuitna strip mine project cannot be reversed.

He concluded that DNR has considerable discretion in setting bond amounts, and if the state allows strip mining through a wild salmon stream at Chuitna, it will set enduring state policy. He urged the legislature to take a hard look at pursuing such a precedent because it would require discussions about placing a value on the loss of a wild Alaska salmon resource in perpetuity.

2:13:23 PM
SENATOR COGHILL asked about the salmon-spawning range.

MR. TRASKY explained that some of the tributaries are low gradient; they aren't large salmon producers and pike are present. There are three streams that will be impacted by the strip mining initially and another tributary will be impacted in a later phase. That one produces most of the salmon in the Chuitna, but together they produce sockeye, silvers and kings. He reiterated that shallow aquifers are essential to produce salmon in Alaska, because the flow of warm groundwater keeps the streams from freezing in the winter. The deeper aquifers that will be destroyed probably feed parts of the Chuitna much farther downstream, and perhaps as far away as Beluga. The full impact of disrupting all that groundwater isn't known, but it is

clear that it is critical because the salmon, eggs, and fry are there all winter.

SENATOR COGHILL asked if any of the streams were enhanced.

MR. TRASKY said no.

CHAIR FRENCH thanked Mr. Trasky and recognized Dr. David Chambers.

2:17:01 PM
DAVID CHAMBERS, Ph.D., P. Geophysics, President, Center for Science in Public Participation (CSP2), said CSP2 is a nonprofit that provides technical analysis on the environmental impacts of mining primarily to public interest groups and tribal governments throughout North America. He said he's worked with mine reclamation and mine reclamation bonding for a number of years and it is not restoration. The goal of reclamation is generally to restore some functional use to land that's been mined, and he was only familiar with examples that restored functional surface use for things like wildlife habitat, grazing, or even industrial use. The land is not necessarily put back as it was.

He said he was not familiar with any reclamation project that restored the groundwater regime to pre-mining condition, as is proposed at Chuitna. A number of technological difficulties would be encountered in trying to restore up to 300 feet of water-bearing strata, not the least of which is that the geology is complicated by the Chuitna and South Pit faults and associated anticlinal structures. He displayed a visual of the strata that included zones of coal, groundwater conductors called aquifers, and strata that restricts the flow of water called aquitards. The visual did not show the faulting that could be either conduits or barriers for water.

DR. CHAMBERS said he was fairly certain that the pre-mining sampling was not sufficient to define the hydrology of the Chuitna area. That's not required of mining operations today because the goal is not to restore the hydrologic regime in the subsurface. The goal of mine reclamation is to put the surface back in a usable form.

He displayed visuals to illustrate what happens to the strata during and after strip mining. He explained that to recreate the original hydrologic regime the backfill material has to be selectively sorted, selectively replaced and put back the way it

was. That would require an entirely different level of engineering than what is done now. The current practice is to push the material back in the hole, pack it down and put some soil on top so things will eventually grow.

2:22:54 PM
CHAIR FRENCH asked if the backfill material has to be equivalent to the volume of coal that was removed.

DR. CHAMBERS explained that when rock is mined there is an expansion factor of 1.5 so there is generally too much material to put back. Mining also changes the physical characteristics of the material and it no longer behaves in the same hydrologic or geochemical way, and things like arsenic and selenium tend to be mobilized.

2:25:36 PM
DR. CHAMBERS reiterated that he was not aware of any mining operation where the reclamation goal was to restore the groundwater regime. It would be very expensive and unprecedented in terms of trying to bond or estimate the costs, and it was highly unlikely that it could be done.

CHAIR FRENCH asked him to address why restoring the groundwater regime matters.

DR. CHAMBERS explained that salmon have different reproductive requirements than other fish. They need the upwelling groundwater source to spawn and overwinter their eggs. If the groundwater regime isn't restored, the spawning habitat is lost.

CHAIR FRENCH asked how much surface area would be disturbed under this proposal.

DR. CHAMBERS said he didn't recall the exact surface areas of the lease.

SENATOR WIELECHOWSKI asked if he was saying that the groundwater regime could be restored if cost weren't an issue, or that it would be impossible to restore.

DR. CHAMBERS replied he could only offer an opinion since it had never been tried, but he didn't believe it could be done.

CHAIR FRENCH said his staff pointed out that Mr. Trasky's testimony was that 8,000 surface acres would be disturbed.

2:28:53 PM
SENATOR COGHILL asked Dr. Chambers if he generally advocates against mining for environmental reasons.

DR. CHAMBERS said no; the issue with the Chuitna is that it is not an appropriate place to do strip mining for coal. There are places in Alaska, like Healy, where this kind of activity can take place without the same impacts. There may be some salmon in the Healy area, but nothing like the Chuitna.

SENATOR COGHILL said he wanted it to be a matter of record, and the answer was well taken.

CHAIR FRENCH thanked Dr. Chambers and recognized the DNR representatives, Tom Crafford and Russ Kirkham.

2:30:11 PM
TOM CRAFFORD, Director, Office of Project Management and Permitting, Department of Natural Resources (DNR), introduced himself and Mr. Kirkham, the head of the coal regulatory program within DNR. He explained that the PowerPoint would provide background on mine permitting in general and segue to reclamation bonding requirements and coal-specific considerations.

He displayed a map showing the large mining projects in the state followed by a list of required state and federal permits and the various state and federal agencies that are involved. He explained that the state employs a large mine permitting team approach that brings to the table representatives from the departments of natural resources, environmental conservation, fish and game, health and social services, law, transportation and commerce. AS 27.05.010(b) authorizes DNR to serve as the lead state agency to coordinate the permitting process. The federal agencies listed were the [environmental protection, corps of engineers, fish and wildlife, and marine fisheries. Federal land managers also become involved if the mine is on federal land.

MR. CRAFFORD reviewed the duties of the state's large mine permitting team. This includes the review of the applications and analysis of the supporting documents. He relayed that the team has access to technical expertise in geology, hydrology, engineering, and biology within the state agencies, but it can also hire outside expertise when necessary. The group of individuals that is involved in the permitting process does the

inspections and is involved in monitoring the mine projects that transition into operation.

SENATOR WIELECHOWSKI asked if federal agencies would be involved in the Chuitna mining project.

MR. CRAFFORD said yes; the Chuitna project is currently in the Supplemental Environmental Impact Statement (SEIS) process, and the U.S. Army Corps of Engineer's is leading that process with participation from a number of other federal agencies.

He explained that the mine permitting process is largely driven by the National Environmental Policy Act (NEPA), which establishes procedural requirements for preparing an Environmental Impact Statement (EIS). The EIS is not a permit; it's a mechanism for considering the potential impacts from projects and evaluating alternatives. The EIS or SEIS process is triggered by the application for a major federal permit. An application for a wetlands dredge and fill permit from the Army Corps of Engineers was the trigger for the Chuitna project. He directed attention to the list of things [slide 7] that have to be included in the EIS or SEIS. A lead federal agency is designated and a third-party contractor is selected to manage the EIS process. Multiple public notice and comment requirements are embodied within NEPA and the EIS process. The state coordinates its permitting process with NEPA for efficiency and ease of understanding for the public.

2:37:16 PM
MR. CRAFFORD directed attention to slide 8 that lists baseline studies that are required. He said the state and federal agencies consult with a project applicant in advance to ensure that the right methodologies are employed and the right information is collected to inform the permitting process.

CHAIR FRENCH asked if the baseline studies on the quantity and quality of the groundwater at Chuitna were underway or pending.

MR. CRAFFORD replied much of that baseline work has been done and the agencies are evaluating the hydrologic model that PacRim was required to submit. He emphasized the importance of that information. He deferred to Mr. Kirkham for further information about the status of that review.

2:39:26 PM
RUSS KIRKHAM, Geologist, Division of Mining, Land and Water, Department of Natural Resources (DNR), explained that PacRim was

directed to return to the field to collect additional groundwater data because the agencies weren't satisfied with the initial collection. This is not an unusual circumstance.

SENATOR COGHILL asked if it's within the scope of the groundwater baseline study to determine whether or not restoration is possible.

MR. CRAFFORD explained that the studies that have been done thus far looked at the groundwater hydrology of both the bedrock where the coal occurs and the overburden of glacial material, sediment and soil. The proposal to date has been to handle those materials selectively with the goal of reestablishing the hydrology that is primarily within the overburden glacial materials to the condition pre-mining.

2:41:57 PM
SENATOR WIELECHOWSKI asked if the mining company would be required to restore to land to its pre-mining condition or just rebuild channels for streams.

MR. CRAFFORD replied he couldn't say what the ultimate permitting decisions might be, but "the goal is to reestablish a hydrologic regime that would restore productivity to the system." He added that he didn't believe that the visual that Dr. Chambers displayed was illustrative of what's been proposed because they are talking about selective handling and restoration of a near-surface hydrologic regime that would feed into the streams.

MR. CRAFFORD addressed monitoring plans and environmental audits. In order for the mining project to move into operation the air, water, and fish and wildlife monitoring plans would have to be approved in advance. Environmental audits, conducted by third-party experts, are typically required every five years for reissuance of permits. They evaluate the performance of the operators and the agencies. Financial assurances are revisited and recalculated based on the audit results.

The coal regulatory program departs somewhat from the aforementioned audit provisions and timing, but the level of oversight and the essential components are the same, he said.

He briefly summarized the permitting process.

- Many permits are required and many state and federal agencies are involved.

- Experienced agency professionals are involved in permitting and regulation.
- Third-party experts are utilized if agencies don't have the expertise.
- There are comprehensive analyses of potential environmental, socioeconomic, and health impacts for each project.
- Continued air water, and fish and wildlife monitoring is required.
- Financial assurances are required and regularly updated.

2:45:41 PM
MR. CRAFFORD discussed the underlying philosophy of the financial assurances, or bonding, for large mine projects. He said the idea is that the financial assurance will never be less than the amount required to accomplish the approved reclamation plan. The bond amount can be increased anytime the mine is shown to have inadequate financial assurance. The reclamation bonding requirements for general mining projects are found in AS 27.19. State reclamation standards apply to state, federal, municipal, and private land and water that is subject to mining. The bond is based on a reclamation plan that has to be approved by DNR prior to mining.

SENATOR COGHILL commented on the profound difference between reclamation and restoration and asked if the underlying philosophy of the financial assurance was based on reclamation and not restoration of the salmon habitat.

MR. CRAFFORD replied the regulations contemplate impacts to the environment as a consequence of mining. The agencies collectively have to decide on the reclamation goals and the acceptable reclamation plan. The Chuitna project calls for restoration of "basic functionality" to the hydrologic system.

CHAIR FRENCH said he opened the hearing talking about Trustees of Alaska v. Gorsuch, 835 P.2d 1239 (1992) that dealt with the proposal to mine coal in the Chuitna area. DNR's position at the time was that "basing the bonding amount on the assumption that the applicant will violate the permit terms is unfair and unnecessary." The court said that DNR's reasoning and assumptions were fundamentally flawed. The court said, "We conclude that our coal mining laws requires DNR to base the bond amount on the assumption that the applicant will violate permit terms." He asked if the court's finding is absorbed in the underlying philosophy or if it comes into play somewhere else.

MR. CRAFFORD said he wasn't well versed in that thinking, but the fundamental idea is that if the applicant is unable to perform the reclamation, that would violate the terms of their permits and the agencies would have to take over the reclamation. Furthermore, the bond amount should be adequate to allow the agencies to conduct the reclamation.

CHAIR FRENCH said it's probably a topic for future debate.

2:49:55 PM
SENATOR WIELECHOWSKI asked if he had a general comment on the opinions of the three experts. He understood them to say it would be impossible to restore the area and that they were unaware of any salmon habitat on the scale of the Chuitna that has ever been restored.

MR. CRAFFORD replied he was not qualified to opine on that. He added that DNR was in a somewhat awkward position because the commissioner granted reconsideration of a lands and suitable petition that addresses many of the topics that have been discussed.

CHAIR FRENCH said he reviewed the commissioner's lengthy decision and considered making it part of the packet until he learned that it was under reconsideration.

2:51:38 PM
MR. CRAFFORD read the reclamation standard under AS [27.19.020] as follows:

> A mining operation shall be conducted in a manner that prevents unnecessary and undue degradation of land and water resources, and the mining operation shall be reclaimed as contemporaneously as practicable with the mining operation to leave the site in a stable condition.

He said there are also a number of reclamation performance standards in regulation (11 AAC 97.200-240). He displayed the following list:

- Return waterborne soil erosion to pre-mining levels within one year.
- Achieve revegetation, where feasible, within five years after the reclamation is completed, without the need for fertilization.

- Topsoil is to be salvaged, stockpiled and protected for later use in reclamation.
- Surface contours are to be made conducive to natural revegetation.
- Site shall be reclaimed such that it retains sufficient moisture for natural revegetation ["or for an alternate post-mining land use approved under AS 27.19.030(b) on state, federal, or municipal land, or for the post-mining land use intended by the landowner on private land."] (11 AAC 97.200(b))
- A miner shall stabilize the reclaimed site to a condition that will retain sufficient moisture for natural revegetation
- Pit and quarry walls and subsidence features need to be made stable.
- Buildings and structures are to be removed unless authorized to stay.
- Scrap iron, equipment, tools, piping, hardware, chemicals, fuels, waste, and general construction debris are to be removed or properly disposed.
- Facilities associated with heap leach facilities are to be reclaimed.
- Underground openings are to be sealed after closure.
- "A miner shall reclaim a mined area that has potential to generate acid rock drainage (acid mine drainage) in a manner that prevents the generation of acid rock drainage or prevents the offsite discharge of acid rock drainage." (11 AAC 97.240)

SENATOR WIELECHOWSKI asked if the law requires the miner to just rechannel and put in a new stream or to rehabilitate the entire area to near original condition.

MR. CRAFFORD replied the statutes and regulations contemplate impacts from the mining process. He deferred to Mr. Kirkham for more detail.

MR. KIRKHAM confirmed that that there will be impacts from mining. He added that the reclamation plan is based on the approved post-mining land, which is based on what the landowner wishes. In Alaska, the reclamation is generally to promote wildlife. The idea is that the land will function in a way that is similar to what it was pre mining.

MR. CRAFFORD displayed the following list of requirements and reclamation plan general elements under 11 AAC 97.310:

- Property descriptions and maps.
- Description of mining plan and schedule.
- Reclamation measures for treatment of:
  - Topsoil and revegetation.
  - Tailings ponds, reservoirs, dumps, pits, etc.
  - Stream replacement.
  - Roads, airstrips, and access.
  - Buildings.

He said that AS 27.19.040, the reclamation financial assurance statute, says the bond amount is not to exceed an amount reasonably necessary to ensure reclamation that is specified in the reclamation plan. The DNR commissioner establishes the bond amount, but may enter into a cooperative management agreement with state and federal agencies as to who holds the bond in a collective bond amount.

CHAIR FRENCH asked Mr. Crafford to skip ahead to slide 21 that shows the bond amounts for eight large mines in Alaska. He noted that the largest bond amount was $304.5 million of the Red Dog Mine and the smallest was $3.5 million for the Nixon Fork Mine. He asked if the Red Dog Mine owners put $304.5 million in cash on deposit to cover the bond amount.

2:55:18 PM
MR. CRAFFORD replied the bond mechanisms are varied and can be cash, letters of credit, or even bullion. Red Dog bonded with a letter of credit and the amount is very high because of the high levels of metal in the system. The post-closure water treatment is contemplated into perpetuity. Nixon Fork Mine is a small underground gold mine near McGrath.

SENATOR WIELECHOWSKI asked if DNR had the option to do restoration work in locations other the mine site.

MR. CRAFFORD confirmed that offsite reclamation and mitigation efforts are allowed, and the Army Corps of Engineers generally makes that determination. A variety of mitigation mechanisms are allowed, including the use of mitigation banks. He noted that multipliers typically apply to offsite mitigation.

CHAIR FRENCH asked for confirmation that offsite mitigation was not currently an aspect of the Chuitna mine permit.

MR. CRAFFORD replied the permitting process has not proceeded to the point that those types of decisions are addressed.

CHAIR FRENCH thanked Mr. Crafford and Mr. Kirkham for the presentation.

CHAIR FRENCH asked one of the first three witnesses to comment on the previous testimony to set it in context.

2:58:45 PM
DR. CHAMBERS said a general comment about permitting is that when someone says a project requires 60 permits the implication is that it's a comprehensive process. However, the history of permits and regulations shows that it's a bottom-up process. A problem occurs and a regulation is written that requires a permit to make sure that problem doesn't happen again. But because it's bottom up instead of top down, it's not a comprehensive process. A project that has 40, 50, or 60 permits doesn't mean that the whole entity is covered. In addition, no one entity in the regulatory process has either the responsibility or the authority to step back and ask if something makes sense. Each regulatory agency has its own permits that have very narrow and well-defined limits.

With regard to the proposed Chuitna project, he said it's a legitimate public policy question to ask if it's worth giving up 11 miles of salmon stream for the coal development. The people with technical expertise that testified weren't trying to address that big public policy question. They were looking more specifically at whether or not restoration is feasible, if that's a goal of the project. "We're saying we don't see that that's possible and we don't see any examples anywhere of where that's done," Dr. Chambers concluded.

CHAIR FRENCH thanked all the participants for the balanced presentations, and said he didn't envy the commissioner, because he has an extremely difficult decision to make.

SENATOR COGHILL observed that the testimony was only partially balanced, because there was no testimony from the parties who are proposing to invest in the mine.

CHAIR FRENCH said it's a fair observation.

3:02:02 PM
There being no further business to come before the committee, Chair French adjourned the meeting at 3:02 p.m.