



RED DEVIL MINE

2014 Community Involvement Activities

In 2013 the BLM continued work on the Feasibility Study and developed an early action proposal to address eroding mine tailings at the Red Devil Mine site. The BLM did not hold community meetings in 2013, but instead maintained communications with communities through project newsletters and the project website. The BLM also held tribal consultations with two tribes that requested to meet.

Then in January 2014, the BLM again sent letters of invitation to middle and lower Kuskokwim River communities to offer tribal consultations and community meetings. Eight communities accepted the BLM's invitation to meet. In February and March, the BLM met with the following communities:

Date	Community
February 25, 2014	Akiak
February 26, 2014	Bethel
March 4, 2014	Red Devil
March 5, 2014	Sleetmute
March 6, 2014	Chuathbaluk
March 12, 2014	Kalskag
March 13, 2014	Lower Kalskag
March 18, 2014	Crooked Creek

Representatives from the Alaska Department of Environmental Conservation and the Alaska Department of Health and Social Services Division of Public Health accompanied the BLM to most meetings. The U.S. Environmental Protection Agency was invited as well, and sent a representative to three meetings in the middle Kuskokwim communities nearest the Red Devil Mine site. A representative from The Kuskokwim Corporation attended the community meeting in Red Devil.

The purpose of the meetings was to consult with interested communities about the proposed early action at the site in the summer of 2014, and to hear comments, questions and concerns residents may have. Attached are summaries from each community meeting in chronological order.

The BLM also hosted a workshop on Feb. 3 at the 2014 Alaska Forum on the Environment in Anchorage regarding the proposed early action for the Red Devil Mine site.



Meeting Notes

Red Devil Mine Community Meeting

Akiak, Alaska

Date/Time: February 25, 2014, 2 p.m.

Location: Akiak Community Center

BLM Reps: Alan Bittner, Mike McCrum, Larry Beck and Teresa McPherson

Agency Reps: Anne Marie Palmieri (ADEC) and Angela Matz (USFWS)

Community Participants: Ivan M. Ivan, Sr., Chief, Akiak Native Community
Moses Owen, 2nd Chief
Sam Jackson, Chairman, Kokarmuit Corp
Alvin Phillip, General Mgr, Kokarmuit Corp
Ida M. Jasper, Mayor, City of Akiak
Approximately 30 Akiak participants, including Tribal Council, City Council and Village Corp members

First Chief Ivan M. Ivan, Sr. called the meeting to order. Mr. Ivan requested that BLM share meeting notes with the Council, as in the past.

BLM Anchorage Field Manager Alan Bittner introduced the Red Devil Mine project team members and agency representatives.

Bittner explained the objectives of the meeting were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

BLM Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Angela Matz**, USFWS biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Mr. Ivan:** Was the Early Action developed by agencies? **McCrum:** Yes, BLM and the Corps of Engineers contracted preparation of the document, in coordination with EPA and ADEC. **Ivan:** Please provide this document to the Kuskokwim River Watershed Council (KRWC) for review and comment. **McCrum:** Yes, we have included KRWC in our community outreach.

- **Comment:** Concerned that flooding may cause metals from Red Devil Creek to migrate into the river at an increased rate. Has BLM determine how much metals migration has occurred? **McCrum:** There's no way to know that, no way to estimate, but sampling indicates materials have moved, and likely have been moving into the creek for a very long time.
- **Question:** What time of year did sampling occur? **McCrum:** Sampling was conducted during spring and summer; it's difficult to sample in winter.
- **Comment:** Concerned that arsenic from the Red Devil Mine site may still leak into river, even after the tailings are removed. **McCrum:** From the sampling results, we know the greatest amount of metals are in the tailings themselves and the amount dissolved in water is less.
- **Comment:** So the planned action this season is mostly designed to control erosion? **McCrum:** Yes, we view that as the most pressing issue.
- General questions about the design of the various alternatives, including the need for a settling pond. **McCrum:** This is part of the preferred alternative, which combines features of other alternatives considered, and has the most features built in to meet the objectives of the Early Action.
- **Question:** Could weather impact the effectiveness of the design? **McCrum:** Possibly, so long-term monitoring will be important.
- **Question:** Would using cement as described in alternative 2, in conjunction with the features of alternative 4, be more effective? **McCrum:** We think this design (alternative 4) will meet the objective without needing to use the cement.
- General comments that this action won't really provide a long-term solution. **McCrum:** We realize this isn't a site-wide remedy, but it addresses the most pressing issue: erosion of the tailings and resulting metals migration into the river. The long-term solution will be the site-wide remediation that is scheduled for a later date.
- **Comment:** Concerned that the current planned action is driven by the need to save money. It's possible that doing only part of the work now could cost more in the long run.
- **Question:** How will rock for the gabions be sourced? **McCrum:** We'd need to bring rock in to be sure it's the correct type for the design.
- **Comment:** Several participants were concerned about lush with odd growths and diseased livers. Could this be connected to mining contaminants? How far downriver did sampling occur? **McCrum:** Angela Matz of FWS will talk about fish sampling in her portion of the presentation.

- **Mr. Ivan:** We understand this is a temporary fix, not the final solution, but we're glad BLM is taking this action to prevent erosion while finishing the Feasibility Study. Let us know if BLM takes a different direction.

Angela Matz presented an overview of the BLM's Kuskokwim region fish tissue study. Matz explained she assisted BLM fisheries biologist Matt Varner by interpreting the fish data collected. Mercury is a problem around the world. It's naturally occurring, but especially a problem when you combine it with disturbed areas from mining or industrial activity. Combined with climate change, this puts mercury into the atmosphere and water. Matz noted numerous sources of mercury in the atmosphere: wildfires, volcanoes, permafrost melting, and mercury from industrial countries.

- **Comment:** Concerns about acid rain connected with Chernobyl incident; are there any studies about this? **Matz:** Yes, there are ongoing studies, including Fukushima. Nuclear incidents produce fallout, which is highest closest to the site of accident. Winds carried much of Chernobyl radiation to northern Europe. Still studying Fukushima fallout. Eastern U.S. experiencing much more acid rain than Alaska; it's killing their forests.
- **Question:** Has BLM studied effects of mercury on salmon smolts? Could be related to low runs. **Matz:** The BLM study is focused on the Kusko region. National Marine Fisheries Service has done studies on what affects salmon runs and whether metals are connected to lower runs. Climate change is thought to be one reason, with warmer ocean temps.
- **Comment:** Fish use scent to avoid contaminated areas. If fish can't smell contamination, they may not avoid the area. Some of the fish we catch smell bad, have strange growths. Who can we notify when this happens? **Matz:** Contact her and she will put you in contact with appropriate agency to report this to.

Matz explained fish consumption guidance from the AK Division of Public Health about how much lusk and pike it is safe to eat. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Other people may eat as much as they want.

- **Question:** Is exposure to mercury harmful to people with neurological illness? **Matz:** This is unknown, but it makes sense to be attentive to diet if someone's immune system is compromised.

Matz explained that the AK Division of Public Health does free testing for women who want to know their mercury levels. Alaska is one of the few states with such a program.

- **Question:** Has our community well been tested for mercury? Has community well water in Red Devil village been tested? **Beck:** There is no one well in Red Devil that serves the whole community. The drinking well of the person in Red Devil who lives closest to Red Devil Creek was sampled and was very clean. Also, hair samples of residents in Red Devil were tested and found to have very low levels of mercury, well within the range considered safe.

- **Comment:** Agencies should publish a notice in the *The Delta Discovery* about where to send fish samples that are diseased. **Matz:** She will talk with public health agencies about this suggestion.
- **Question:** Are fish studies being conducted above Aniak? People have seen orange gravel bars upriver. **Matz:** The BLM study stopped at Aniak, but previous studies of the Aniak area have been done.

Bittner thanked participants for attending and said BLM will consider the community's comments and suggestions. BLM will keep communities informed of the progress of the planned Early Action this summer.

The meeting concluded at 4:30 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Bethel, Alaska

Date/Time: February 26, 2014, 6 p.m.

Location: Yupiit Piciryarait Cultural Center, Bethel, AK

BLM Reps: Doug Ballou, Mike McCrum, Larry Beck and Teresa McPherson

Agency Reps: Anne Marie Palmieri (ADEC) and Angela Matz (USFWS)

Community 21 participants, including Orutsararmiut Native Council (ONC),

Participants: Kwethluk, Inc., Bethel Public Health, and local media

BLM Assistant Anchorage Field Manager Doug Ballou introduced the Red Devil Mine project team members and agency representatives.

Ballou thanked participants for attending. He explained the objectives of the meeting were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

BLM Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Angela Matz**, USFWS biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Comment:** Rose Kalistook of ONC clarified that this meeting is not a government-to-government consultation with Orutsararmiut Native Council, but an open community meeting.
- **Question:** The river itself is being contaminated and these contaminants flow downriver? **McCrum:** Yes, tailings with high metals concentrations are migrating downriver and are highest at the point of entry at the mouth of Red Devil Creek, as sampling points on the map indicate.
- **Question:** Is the creek large enough to travel? Is the site fenced in? **McCrum:** No, the creek is too small to travel by boat; it's small enough to walk across. The entire Red Devil Mine site is not fenced. There is a gate at the entrance road and signage asking that people not enter the site.

- **Question:** Does BLM know how much material has migrated? **McCrum:** No, we've sampled the site since 2009, but it's not possible to know how much sediment has migrated since the mine was abandoned in the early 1970s.
- **Comment:** Concerned about heavy rain and snow runoff, and whether the sediment pond would hold during these events. **McCrum:** The design allows for discharge rates typical during spring breakup.
- **Question:** This year we've had very little snow. Could these kinds of winters affect the design? **McCrum:** Low flow in the creek like a dry year or low snow year wouldn't present a problem. The design allows for higher flows during wetter seasons, heavier snow seasons, that's what we wanted to prepare for.

McCrum: BLM would like to receive the community's feedback during the 30-day review period, so BLM can move forward with completing the EE/CA and getting things in place for work this field season.

Angela Matz presented an overview of the BLM's Kuskokwim region fish tissue study. Matz explained she assisted BLM fisheries biologist Matt Varner by interpreting the fish data collected. Mercury is a problem around the world. It's naturally occurring, but especially a problem when you combine it with disturbed areas from mining or industrial activity. Combined with climate change, this puts mercury into the atmosphere and water. Matz noted numerous sources of mercury in the atmosphere: wildfires, volcanoes, permafrost melting, and mercury from industrial countries.

- **Question:** Have you done this kind of sampling in the lower Kuskokwim area? **Matz:** Yes. The results are highly variable.
- **Question:** How do Yukon and Kuskokwim pike compare? **Matz:** Again, the results are highly variable. Where you sample on the river, which tributaries, seems to affect contaminant levels. Pike tend to stay put, so pike living in areas previously mined show higher concentrations.

Matz explained fish consumption guidance from the AK Division of Public Health advising how much lusk and pike it is safe to eat. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Other people may eat as much as they want.

- **Question:** Where are the women from who had high mercury levels? **Matz:** The women who had high mercury levels were those who ate marine mammal livers. They lived in coastal areas. Women living in the mid-Kuskokwim generally did not have high mercury concentrations in their hair.
- **Question:** Are upriver communities being made aware of mercury contamination? **Matz:** Yes, this has been part of the message during Red Devil Mine community meetings since 2009. BLM and other agencies will continue to talk with communities this year about mercury issues.

Matz noted that the AK Division of Public Health offers free testing for women who want to know their mercury levels. Alaska is one of the few states with such a program.

- **Question:** How does Pollock compare? **Matz:** Pollock are low on the food chain and are also open ocean fish. They have lower mercury levels than other ocean fish that are top predators, like tuna.
- **Dave Grantham:** “Let’s make this a lesson that future mine operators won’t walk away and leave a mess for our children and grandchildren. Let’s all learn from this mine, the positive and the negative. Let this be a lesson. That would be my wish, so people won’t have to suffer in the future. Our water has great value; keep it clean. We depend on the resources; subsistence is a way of life in this area. We need to protect that. Will you think about that, your team? Let’s turn this into a learning situation so it will never, never happen again. So it can never threaten our way of life. Thank you for listening.”
- **Rose Kalistook:** The Red Devil Mine project would be a good topic to put on the agenda of the next AVCP meeting.

Ballou thanked participants for attending the meeting and sharing their comments and concerns. BLM will consider the community’s comments and suggestions, and will keep communities informed of the progress of the planned Early Action this summer.

Ballou thanked Rose Kalistook of ONC for helping get word out to the Bethel community about the meeting, and thanked those who came from Kwethluk to participate.

The meeting concluded at 8 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Red Devil, Alaska

- Date/Time:** March 4, 2014, 1:30 p.m.
- Location:** Red Devil Airstrip DOT Building (“Snow Barn”)
- BLM Reps:** Alan Bittner, Mike McCrum, Matt Varner, Larry Beck and Teresa McPherson
- Agency Reps:** Anne Marie Palmieri (ADEC), Ali Hamade (DHSS) and Matt Wilkening (EPA)
- Other:** Neil Rodriguez, The Kuskokwim Corporation
- Community Participants:** Eleven residents of Red Devil, including Village of Red Devil tribal members and Red Devil People & Community, Inc. (RDP&C) members

BLM Anchorage Field Manager Alan Bittner introduced the Red Devil Mine project team members. Bittner asked agency representatives and Red Devil residents to introduce themselves.

Bittner explained the objectives of the community meetings were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

BLM Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Matt Varner**, BLM fisheries biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Comment:** Local people are also “experts” on the area and the mine site.
- **Question:** Are you going to do any work on the river? Will you divert the creek?
McCrums: No work is planned in the river at this time, no. Regarding diverting the creek, yes. Will explain in next slides.
- **Comment:** Concerned that the proposed design wouldn’t hold, wouldn’t be permanent.
McCrums: This is a short-term action focused on stopping the migration of tailings caused by erosion. It’s not the side-wide action.

- **Question:** What about the rest of the creek (section not proposed for diverting).
McCrum: This is the part of the creek that's eroding. There are no large tailings piles adjacent to other sections of the creek. However, alternative 4 includes a sediment pool at the end of the creek to catch any materials that get by.
- **Matt Wilkening:** Suggested McCrum explain compatibility with what we hope to do in the future at the site. **McCrum:** Yes, alternative 4 is compatible with what we think may be the long-term remedy during site-wide remediation. This Early Action opens the site up, provides space for work we may do for the long-term remedy.
- **Theodore Gordon, RDP&C:** When BLM started the Red Devil Mine project, it was to deal with this [the tailings]. Voiced support for alternative 4. Would you deal with stockpiles during the site-wide action? **McCrum:** Yes, and we will cover them in the short-term so they don't blow around, and then address them in the long-term remedy. **Gordon:** Recommends that the community support alternative 4.
- **Question:** Will you be hiring locally? **McCrum:** BLM is working with the Corps of Engineers to hire a contractor. We can't control who they hire, but there will be language in the contract to encourage the use of local resources. McCrum indicated he'd let COE know this came up in Red Devil community meeting and encouraged people who want to work to talk with the contractor.
- **Gordon:** Noted that workers must have hazmat certification. **McCrum:** BLM and the Corps of Engineers will ensure the contractor has a health and safety plan in place that includes necessary training.
- **Gail Vanderpool:** She is a certified hazwoper instructor [provided this training for BLM Kolmakof project].
- **Anne Marie Palmieri:** Emphasized the value of local knowledge to BLM and agencies that are coordinating on the Early Action at the site.

Matt Varner presented an overview of the BLM's Kuskokwim region fish tissue study.

Ali Hamade of the AK Division of Public Health (DHSS) explained fish consumption guidance about how much lush and pike it is safe to eat. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Other people may eat as much as they want. Hamade passed out a handout that summarized the fish consumption guidance.

Hamade also explained that the AK Division of Public Health offers free hair testing for women who would like to know their mercury levels. He is available to collect hair samples after the meeting, and also has kits if anyone would like to take one for later use. The kit includes an envelope to submit the hair sample for testing.

Bittner thanked participants for attending and said BLM will consider the community's comments and suggestions. BLM will keep communities informed of the progress of the planned Early Action this summer.

The meeting concluded at 3 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Sleetmute, Alaska

- Date/Time:** March 5, 2014, 2 p.m.
- Location:** Sleetmute Community Center
- BLM Reps:** Dave Mushovic, Mike McCrum, Matt Varner, Larry Beck and Teresa McPherson
- Agency Reps:** Anne Marie Palmieri (ADEC), Bezaleel Gebru (DHSS) and Matt Wilkening (EPA)
- Community** Nine residents of Sleetmute, including Sleetmute Traditional Council officers and tribal members

BLM Anchorage Assistant Field Manager Dave Mushovic introduced the Red Devil Mine project team members. Mushovic asked agency representatives and Red Devil residents to introduce themselves.

Mushovic explained the objectives of the community meetings were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Matt Varner**, BLM fisheries biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Comment:** Are you going to install a pipe in the creek to keep the tailings from eroding into the creek? **McCrum:** Yes, that's part of the preferred alternative.
- **Matt Wilkening:** Suggested McCrum explain compatibility with what we hope to do in the future at the site. **McCrum:** Alternative 4 is compatible with what we think may be the long-term remedy during site-wide remediation. This Early Action opens the site up, provides space for work we may do for the long-term remedy.

- **Anne Marie Palmieri:** Emphasized the value of local knowledge to BLM and agencies that are coordinating on the Early Action at the site.

Matt Varner presented an overview of the BLM’s Kuskokwim region fish tissue study.

Bezaleel Gebru of the AK Division of Public Health (DHSS) explained fish consumption guidance about how much lush and pike it is safe to eat. Pike and lush from the middle Kuskokwim river area, however, can have higher levels of mercury compared to some other fish caught in Alaska. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Other people may eat as much as they want. Gebru passed out a handout that summarized the fish consumption guidance.

Gebru also explained that the AK Division of Public Health offers free hair testing for women who would like to know their mercury levels. She is available to collect hair samples after the meeting, and also has kits if anyone would like to take one for later use. The kit includes an envelope to submit a hair sample for testing.

- **Question:** Does cooking the fish affect the mercury levels? **Gebru:** Drying fish concentrates mercury, compared to fresh fish. **Varner:** We had the lab test both cooked and uncooked fish; cooking the fish didn’t affect mercury levels.
- **Question:** Can other parts of the human body accumulate mercury, other than hair? **Gebru:** Hair and nails are a good indication of how much mercury is in the body. Hair especially is useful for measuring exposures to methylmercury over a period of months.
- **Question:** Does the body completely eliminate mercury? **Gebru:** Only a small amount of mercury makes it into the blood stream from eating fish or other foods that are contaminated with mercury. The small amounts that enter the bloodstream can enter the brain and other organs and stay in the body for a long time. But slowly over time mercury is excreted from the body in urine, feces, hair and breast milk.
- **Comment:** When guys working at Red Devil inhaled mercury vapor [when the mine was in operation], they lost their hair and fingernails.
- **Question:** If residents have their hair tested and the results indicate high levels of mercury, how would they be treated? **Gebru:** If any results came back high, DHSS would contact the person tested to learn how the exposure occurred and work with the person to identify and reduce exposure.

Mushovic thanked participants for attending and said BLM will consider the community’s comments and suggestions. BLM will keep communities informed of the progress of the planned Early Action this summer.

The meeting concluded at 3:30 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Chuathbaluk, Alaska

- Date/Time:** March 6, 2014, 1:30 p.m.
- Location:** Chuathbaluk Tribal Office
- BLM Reps:** Doug Ballou, Mike McCrum, Matt Varner, Larry Beck and Teresa McPherson
- Agency Reps:** Anne Marie Palmieri (ADEC), Stacey Cooper (DHSS) and Matt Wilkening (EPA)
- Community Participants:** Tracy Simeon, Chair, Chuathbaluk Traditional Council
Lucy Simeon, Vice Chair, Chuathbaluk Traditional Council
Lisa Feyereisen, Tribal Administrator
Jerry Peterson, City of Chuathbaluk
14 other residents of Chuathbaluk and one resident of Aniak

Chuathbaluk Tribal Administrator Lisa Feyereisen announced she would not be able to attend the meeting because she had to travel to Bethel for a fisheries meeting. She encouraged the community to listen, ask questions, and take advantage of this opportunity to have a voice at the table as BLM takes steps to address contamination issues at Red Devil Mine.

Fr. Michael Fredericks led the community in an opening prayer.

BLM Anchorage Assistant Field Manager Doug Ballou introduced the Red Devil Mine project team members and agency representatives. Ballou thanked the community for making time to talk with BLM and the other agency representatives.

Ballou explained the objectives of the community meetings were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

BLM Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Matt Varner**, BLM fisheries biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Question:** How wide is Red Devil Creek? Are there fish in the creek? **McCrum:** The creek is approximately 15 feet across. Matt Varner will discuss the fisheries question during his portion of the presentation.
- **Question:** Why has it taken so long to clean up Red Devil Mine? **McCrum:** The Superfund (CERCLA) process is a careful, deliberate process that requires study of the site to determine what contaminants are present before developing an appropriate course of action. BLM has also coordinated closely with the agencies here today, and decisions involving multiple agencies take time.
- **Question:** How did they [mine operators] get the mercury out? **McCrum:** Mine workers dug tunnels called mine shafts and looked for ore by drilling vertically using a method called “stopping.” The ore material would fall and workers would haul it out of the shafts. **Question:** Are those holes [shafts] still at the mine? **McCrum:** No, we filled the shafts.
- **Question:** How was the mercury stored? **McCrum:** Workers would heat the cinnabar; when it cools, it becomes a liquid that is stored and shipped offsite in flasks.
- **Question:** [re alt 4] What will you do with the stockpiles? **McCrum:** We’ll cover the stockpiles and leave them for now. When we do the site-wide action, we’ll address what to do with them at that time.
- **Question:** Did you look at what Donlin proposes to do with mine tailings to decide what to do with the tailings at Red Devil? **McCrum:** No, we worked with the Corps of Engineers to develop the alternatives. **Question:** Are there other abandoned mines you looked at to determine what to do? **McCrum:** No, BLM worked with the Corps to develop an action based on the conditions specific to the Red Devil Mine site, and then consulted with EPA and ADEC.
- **Matt Wilkening:** The Corps looked at standard methods to achieve similar objectives at other sites. In its review, EPA considered what has worked at other mines. **Question:** So you’ve seen alternative 4 work at other mines? **Wilkening:** Yes, these are similar techniques.
- **Question:** What type of heavy equipment will be needed? **McCrum:** The contractor will determine its equipment needs. Likely would use loaders, dozers, excavators, end-dumps, that kind of equipment.
- **Question:** What did they mine for at Holloway’s mine [Kolmakof]? **Beck:** Kolmakof was a cinnabar mine also, where rock was crushed to extract cinnabar, which was then shipped to other sites for processing. BLM tore down the buildings last year and removed contaminated material which was shipped to a Lower 48 disposal facility. There’s a little more work to do this summer. Kolmakof was a much smaller site than Red Devil.

- **Question:** What color are the rocks at Kolmakof? **Beck:** Some are bright red, like the cinnabar samples in the slide presentation. What sheds off the cliff is mixed rock; red and orange rock mixed have a purple-like color.

Matt Varner presented an overview of the BLM's Kuskokwim region fish tissue study.

- **Question:** Heard there have been studies that use drones to learn where fish spawn. It's good to learn more about where the fish go and where they spawn.
- **Comment:** Pike use a quiet area to spawn. **Varner:** That's correct, pike like quiet waters for spawning.
- **Question:** Can people get sick from eating fish that have mercury? **Varner:** Mercury is a neurotoxin that can affect the developing fetus.
- **Question:** Regarding the fish tissue study, how does this relate to the cleanup of Red Devil Mine? **Varner:** The fish study gives us more information about how the geology of the region affects mercury levels in the fish. We found that fish in other tributaries had higher levels of mercury than the fish we tested at the Red Devil Mine site. Long-term monitoring of the fish will be critical after the Red Devil Mine project is completed.
- **Question:** If people get rid of mercury through the nails and hair, do fish scales also do this? **Varner:** It's unknown how or whether fish eliminate mercury through their scales.
- **Question:** Do plants absorb mercury? **McCrum:** We did sample some plants; plants do uptake mercury, but at different levels.

Stacey Cooper of the AK Division of Public Health (DHSS) explained fish consumption guidance about how much lush and pike it is safe to eat. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Others may eat as much as they want. It's best to eat a variety of fish, and to choose younger, smaller fish whenever possible. Cooper passed out a handout that summarized the fish consumption guidance.

Cooper also explained that the AK Division of Public Health offers free hair testing for women who would like to know their mercury levels. Testing requires only a small amount of hair. The State Public Health lab will test hair samples and send the results to person providing the sample. She can take samples today, or leave kits and you can submit a sample for testing.

- **Question:** Does it matter what time of year you have the sample taken? **Cooper:** Generally, the results will reflect mercury levels in the food you have consumed over the last six months.

- **Question:** Would the hair samples show if you've been exposed to mercury from old buildings? **Cooper:** The tests will show mercury levels in the human body, but not the source of exposure.
- **Question:** Will eating fish with mercury make people sick? **Cooper:** Exposure at the levels we're seeing in Alaska doesn't really make people sick. Most people are well within the levels considered healthy.
- **Question:** How long will it take to get results from hair samples? **Cooper:** It takes about one month to get your results.

Ballou thanked participants for attending and said BLM will consider the community's comments and suggestions. Ballou noted there is plenty of time to provide comments and questions, if you think of something you didn't comment on today. BLM will keep communities informed of the progress of the planned Early Action this summer.

Council Chair Tracy Simeon thanked BLM and the other agencies for coming to talk with Chuathbaluk residents and council members.

The meeting concluded at 4 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Kalskag, Alaska

Date/Time: March 12, 2014, 1:30 p.m.

Location: Kalskag Multi-purpose Building

BLM Reps: Alan Bittner, Mike McCrum, Matt Varner, Larry Beck and Teresa McPherson

Agency Rep: Ali Hamade (DHSS)

Community Participants: Julia Dorris, President, Native Village of Kalskag
Billy Jean Stewart, IGAP
14 residents of Kalskag, including tribal and city council members

Elder Annie Lou Williams opened the meeting with a prayer of invocation.

BLM Anchorage Field Manager Alan Bittner introduced the Red Devil Mine project team members and asked Kalskag residents to introduce themselves.

Bittner explained the objectives of the community meetings were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

BLM Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Matt Varner**, BLM fisheries biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Question:** Are the mine tailings at Red Devil still putting mercury into the river?
McCrum: Yes, that's why we're taking this action this field season, and not waiting until we take action on the entire site.
- **Question:** Is there a road to the mine? **McCrum:** Yes, more of a four-wheel track.
Question: Is it blocked? **McCrum:** Yes, we put a gate in and signage asking people not enter for public safety.

- **Question:** How far downriver did you sample? **McCrum:** About one mile downstream of Red Devil Creek. The concentrations get smaller away from the mouth of the creek. We didn't sample further downstream because there are many other sources of mercury in the river, and downstream sampling would be influenced by the other sources. Matt Varner will touch on this in his portion of the presentation.
- **Question:** How soon will you get started? **McCrum:** Possibly June or July at the earliest.
- **Question:** Where does the funding come from? **McCrum:** BLM is funding the project as lead agency.
- **Question:** Have you looked at NYAC mine? Heard there are problems with tailings at NYAC. **McCrum:** The tailings at placer mines are river rock, and they don't typically have high concentrations of metals like the tailings at Red Devil Mine. **Beck:** Placer mines don't break up the rock the way ore is crushed for mercury mining. Placer mining creates very little pollution from heavy metals.
- **Question:** Alternative 4 would better protect our people and our waters, so that's the best alternative for our community. Concerned about cancer in our people of all ages, concerned there's a connection to mercury contamination. **McCrum:** Mercury and arsenic don't go away, they're always present in this area. But the form of the metals can be changed by human activities like mercury mining. That's why we're taking this action, to prevent the tailings from continuing to erode and wash into the creek.
- **Question:** Does mercury evaporate? **McCrum:** The process they used at Red Devil Mine involved heating the ore until the mercury vaporized. The hot gas with mercury vapor was directed up into curved cooling tubes. As the gas cooled, the mercury condensed on the inside of the tube just like water condenses on a cold window in the winter. The condensed quicksilver then ran down the inside of the tube and was collected in flasks. The waste rock left behind is what we mean when we talk about tailings at Red Devil, and they contain high concentrations of metals.
- **Question:** Did you test air quality at the Red Devil Mine site? **McCrum:** BLM did some air modeling at the beginning of the investigation to make sure mercury wasn't leaving the process building and spreading over the site. The modeling showed mercury did not spread over the site from process building smoke.
- **Question:** Is this the same process that Donlin would use? **Beck:** Donlin would use cyanide leaching to extract gold; that's a different process from crushing ore to extract cinnabar.

Matt Varner presented an overview of the BLM's Kuskokwim region fish tissue study. A study by the U.S. Fish and Wildlife Service in the early 2000's sampled pike from Aniak downriver and in the Yukon. They found higher levels of mercury in some tributaries, but didn't know why. BLM conducted this study to learn more about sources of mercury in Kuskokwim fish.

- **Question:** Did you sample at Whitefish Creek or Whitefish Lake? **Varner:** No, we had to limit where we sampled due to funding. **Question:** So how can we get whitefish sampled? **Varner:** The State Veterinarian Bob Gerlach will sample fish if people collect the samples correctly. Often the simplest way is to send the entire fish for sampling. **Comment:** If we could get training to sample correctly, we could take the samples. **Varner:** Let's talk after the meeting, we can provide contact information for how to collect samples.
- **Question:** Did you sample sheefish? **Varner:** Yes, sheefish had very low levels of metals.
- **Question:** Are sheefish predator fish, like pike? **Varner:** Yes, but they spend a lot of time in saltwater environments, which may be why they didn't test as high as other species.
- **Question:** What are sculpin? **Varner:** Very small fish found near the bottom of smaller streams. Slimy sculpin are the most common.
- **Question:** Knows someone who found a whitefish with a transmitter; is that part of this study? **Varner:** No. Biologist Randy Brown of the U.S. Fish and Wildlife Service tagged whitefish; it's likely one of his transmitters.
- **Comment:** We're glad you're doing the fish sampling; this will help us know the sources of mercury in our fish.

Ali Hamade of the AK Division of Public Health (DHSS) explained fish consumption guidance about how much lush and pike it is safe to eat. The guidance was developed specifically for women and children of the middle Kuskokwim region. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Other people may eat as much as they want. Hamade passed out a handout that summarized the fish consumption guidance.

Hamade also explained that the AK Division of Public Health offers free hair testing for women who would like to know their mercury levels. He has test kits with him if anyone would like to take one.

- **Question:** What kind of sickness does mercury cause? **Hamade:** Mercury can cause impaired neurological function and developmental delays.

Bittner thanked participants for attending and said BLM will consider the community's comments and suggestions. BLM will keep communities informed of the progress of the planned Early Action this summer.

The meeting concluded at 3 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Lower Kalskag, Alaska

Date/Time: March 13, 2014, 1:30 p.m.

Location: Lower Kalskag Town Hall

BLM Reps: Alan Bittner, Mike McCrum, Matt Varner, Larry Beck and Teresa McPherson

Agency Rep: Ali Hamade (DHSS)

Community Participants: Jackie Levi, President, Village of Lower Kalskag
26 residents of Lower Kalskag, including tribal and city council members

Council President Jackie Levi asked **Fr. Nick Isaac** to open the meeting with a prayer of invocation.

Jackie Levi reminded participants to sign in and asked Fr. Nick Isaac to provide Yupik language translation during the meeting.

BLM Anchorage Field Manager Alan Bittner introduced the Red Devil Mine project team members and asked Lower Kalskag residents to introduce themselves.

Bittner explained the objectives of the community meetings were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action.

BLM Red Devil Mine Project Manager **Mike McCrum** presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Matt Varner**, BLM fisheries biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Question:** Why are you doing this, why now? **McCrum:** BLM has been working at the Red Devil Mine site for a long time. We're here to explain the work we plan to do this summer, called an Early Action, to stop erosion of the mine tailings.
- **Question:** How wide is the creek? Can you divert water around the creek? **McCrum:** The creek is approximately 15 feet across. Yes, we propose to divert the creek as part of the preferred alternative.

- **Question:** Where is the mine located? **McCrum:** Near the community of Red Devil, halfway between Georgetown and Sleetmute.
- **Question:** What is height, what is sea level of the site? **McCrum:** The mine was located in a valley; the tailings are about 30-40 feet behind Red Devil Creek. **Question:** How near flood level is the mine site? **McCrum:** When the Kuskokwim River floods, it doesn't appear to reach as high as the mine site.
- **Comment:** In 1956 there was a large flood, people had to be evacuated. You should check how high the river rose that year. Mary Mellick (sister of Pete Mellick) from Red Devil would know, she was there at the time, and currently lives in Sleetmute.
- **Beck:** We put the bridge well above the historic flood line based on state data, about 30-40 feet above the historic flood line.
- **Question:** How far upstream did you sample the river? **McCrum:** To the point where we thought it was likely to be naturally occurring. **Question:** How can you know that what you call natural background isn't due to Donlin sampling? You can see evidence of early exploration at Donlin. How does BLM know that sampling results above the creek aren't due to earlier sampling for Donlin? **McCrum:** Due to the geology of the region, we think the sampling results above the creek are likely to be naturally occurring.
- **Question:** Are the mine shafts still open? **McCrum:** No, we closed the shafts about ten years ago.
- **Question:** Confused about the project timeline. If you do this action this year, will you have to do this all over again when you come up with the final plan? **McCrum:** The work we do for this action will be destroyed when we do the site-wide action. This action will open the site up and make it easier to access for future work.
- **Comment:** What you're spending seems like a lot for something that will only be in place for a few yrs. **McCrum:** Because we know erosion is putting contaminants in the creek and the river, we feel we can't wait until the long-term site remedy is completed. We also know the timeline is funding dependent, so it's possible this action may be in place longer than 3 years.
- **Jackie Levi:** If federally recognized tribes put their voices behind this cleanup effort, would that help ensure funding? **McCrum:** Concerns raised by tribes and communities are part of the reason we're doing this now. It's possible this action could last up to 10 years while BLM develops and gets funding in place for a long-term solution. So while the timeline shows planned site-wide action in 3 years, it could be longer. We designed this action to last up to 10 years if necessary.
- **Comment:** Breakup conditions vary a lot from year to year; something unexpected could occur. **McCrum:** BLM had the Corps design the early action because they've done

hydraulic work all over Alaska, including a number of ports and harbors. BLM also talked with long-time residents of Red Devil to learn about breakup conditions at the creek. However, if the structure washed out during an unexpected high flood event, BLM would repair it.

- **Question:** What happened to the mine, why did it quit operating? **McCrum:** The mine operator ceased operation in the early 70s when the demand for mercury declined. The area was mined under the 1872 mining laws, before today's environmental laws and standards were in place. Mining is quite different today, there is more regulation and oversight now. We've heard from people whose relatives who worked at the mine that it was a dangerous place to work. Today OSHA rules help ensure worker safety; those rules didn't exist when Red Devil was mined.
- **Comment:** Relatives used to work at Red Devil Mine when she was little. Had their drinking water tested. **McCrum:** It's unlikely that groundwater here is affected by metals from the Red Devil Mine site.
- **Fr. Isaac:** When does the 30-day comment period end? **McCrum:** The comment period ends March 21, but BLM will review and consider comments if they come in after that date. But we need to finalize the action plan soon to be ready to do the work this summer, so sooner is best.

Matt Varner presented an overview of the BLM's Kuskokwim region fish tissue study. A study by the U.S. Fish and Wildlife Service in the early 2000s sampled pike from Aniak downriver and in the Yukon. They found higher mercury, but didn't know why. BLM conducted this study to learn more about sources of mercury in Kuskokwim fish.

- **Question:** Did you test the liver as well as muscle? **Varner:** Yes. Liver tells us about short-term exposure and muscle tissue tells us about long-term exposure. But there was not a lot of difference, no clear pattern. That's why we're collecting telemetry data, to find out where fish travel and what areas they move through, to help us understand where they were exposed to mercury.
- **Comment:** Wish the study included whitefish. Residents found a fish with rotten guts, had it sent in for testing. This is getting worse. Concerned about having healthy fish for future generations. **Varner:** Whitefish don't eat other fish, so they don't accumulate mercury like top predator fish such as pike. But, like people, fish can become sick from variety of things. Climate change has been connected with changes in fish; warm waters allow fungus to grow and cause health problems. When you have a fish that is diseased, it's best to contact Bob Gerlach, the State Veterinarian.
- **Comment:** They know of others who caught diseased fish, with sores, discolorations and infections. Sometimes when you cut open the fish stomach, it smells bad. Asked what to do with a transmitter she found inside a sheefish. **Varner:** Said he would accept the transmitter and notify the biologist who placed the device.

- **Comment:** In the last few years, since 2011, we have noticed a lot of fish with spots, some kind of infection. What causes this? Something is contaminating our fish. **Varner:** Fish toxicology is complex; there are many causes for sick fish, just like the causes of human sickness are complex. He will get information to Jackie Levi about how to report and submit for testing fish that are diseased.
- **Comment:** We have seen changes in other species too, like moose and beaver. We are concerned about that.
- **Jackie Levi:** Did you sample Crooked Creek? **Varner:** No, because Donlin sampled Crooked Creek and agreed to share the data.
- **Levi:** The Kuskokwim River is very important to us. We need sampling data from Crooked Creek to have a complete picture. We would like an agency, not Donlin, to do the sampling and provide the data. We need that information in the event future effects from Donlin are blamed on the Red Devil Mine site. **Varner:** He has requested Donlin's data, and will follow up. He has seen their presentation, which showed similar results to BLM's data. That baseline data will be important down the road, when the mine starts operation.
- **Levi:** So how long will you wait for that data? **Varner:** He will request Donlin's data and integrate when BLM updates the fish report next year.
- **Question:** Will you sample salmon? **Varner:** Generally salmon don't spend enough time in rivers to accumulate mercury, so we didn't test them.

Ali Hamade of the AK Division of Public Health (DHSS) explained fish consumption guidance about how much lush and pike it is safe to eat. The guidance was developed specifically for women and children of the middle Kuskokwim region. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Others may eat as much as they want. Hamade passed out a handout that summarized the fish consumption guidance.

Hamade also explained that the AK Division of Public Health offers free hair testing for women who would like to know their mercury levels. He has test kits with him if anyone would like to take one.

- **Question:** How often should people get their hair tested? **Hamade:** Once a year is good.
- **Levi:** The guidance suggests including a variety of fish in your diet. Sometimes this is hard to do; people eat what is available. **Hamade:** Understands this is true. He suggested communities and families that share food resources consider offering women of childbearing age and children more salmon, and keep pike for others.
- **Question:** Please explain mercury levels in dried compared to fresh pike. **Hamade:** The mercury content doesn't change when fish is cooked; cooking doesn't get rid of mercury.

However, people tend to eat more dried fish at a meal than fresh fish. So consider portion size when you think about dried versus fresh pike.

- **Comment:** Rivers don't care who has management jurisdiction of the waters. Resources like fish don't care who the agency is. **Bittner:** This is why BLM works with our agency partners, like the AK Department of Fish and Game and public health agencies. Agency coordination is important.
- **Comment:** Noted higher cancer rates in many communities along the Kuskokwim. What are the possible causes? **Hamade:** The possible causes of cancer are extremely complex. But we do know that mercury doesn't cause cancer.

Bittner thanked participants for attending and said BLM will consider the community's comments and suggestions. BLM will keep communities informed of the progress of the planned Early Action this summer.

The meeting concluded at 4 p.m.



Meeting Notes

Red Devil Mine Community Meeting

Crooked Creek, Alaska

- Date/Time:** March 18, 2014, 1:30 p.m.
- Location:** Crooked Creek Tribal Office
- BLM Reps:** Alan Bittner, Larry Beck, Matt Varner and Teresa McPherson
- Agency Reps:** Anne Marie Palmieri (ADEC) and Ali Hamade (DHSS)
- Community Participants:** Evelyn Thomas, President, Crooked Creek Traditional Council
21 residents of Crooked Creek, including Traditional Council members and youth from Johnnie John Sr. School

Crooked Creek Traditional Council President Evelyn Thomas thanked BLM for coming to talk with the community. Thomas explained she would miss a portion of the meeting due to the arrival of a medevac flight to transport a community member for treatment following a snowmachine accident the previous evening. She also said that youth from the local school would attend the meeting to learn about the Red Devil Mine project.

BLM Anchorage Field Manager Alan Bittner introduced Red Devil Mine project team members and invited agency representatives to introduce themselves. Bittner also asked Crooked Creek residents to introduce themselves. He thanked the community for making time to talk with BLM, and extended BLM's wishes for a safe recovery to the accident victim and her family.

Bittner explained the objectives of the community meetings were to: 1) inform communities of the planned Early Action this summer to prevent tailings from eroding into Red Devil Creek and migrating to the Kuskokwim River, and 2) invite questions and comments about the proposed alternatives for the Early Action. Bittner explained that BLM's Red Devil Mine project manager Mike McCrum was unable to attend, so BLM hazardous materials specialist Larry Beck, who has coordinated cleanup actions at the site for the previous decade, would lead the presentation.

Larry Beck presented an overview of the Engineering Evaluation/Cost Analysis (EE/CA) to address erosion of mine tailings at Red Devil Creek. **Matt Varner**, BLM fisheries biologist, gave a short presentation about the fish tissue and telemetry study BLM conducted on the middle Kuskokwim River.

BLM invited questions and comments from participants throughout the meeting.

- **Comment:** He saw the Red Devil Mine site decades earlier; it was a state-of-the-art operation for the time. **Beck:** Yes, it was a world class mercury mine during operation.
- **Comment:** The proposed Early Action sounds like a huge undertaking in terms of expense. **Beck:** Yes, but under Superfund law, cost alone does not determine the type or extent of cleanup action. A cost analysis is performed as part of the process, but the engineering evaluation determines the type of action needed to meet the project objectives; cost is not a deciding factor.
- **Question:** How deep did you drill to collect sediment samples in the river? Did you collect samples at the barge landing? **Palmieri:** The contractor drilled down 6-12 inches to collect sediment on the river bottom, and 6-8 feet at the barge landing.
- **Question:** How will you hire workers for this action? **Beck:** BLM and the Corps will choose a contractor from a pre-approved list of qualified firms. The contract will include language that encourages use of local resources. Communities with qualified workers may contact the contractor about use of these resources.
- **Comment:** Crooked Creek has qualified workers and equipment. Using local resources will save the contractor money since people who live nearby already have housing.
- **Question:** Through the years, do you know if the level of contaminants at Red Devil has increased or decreased? **Beck:** BLM has sampling results from 2010, not earlier, so that's not possible to know.
- **Comment:** Dennis Thomas said the USGS has annual water sampling data on the river which would indicate if the contaminant load was increasing.
- **Palmieri:** Sampling the Kuskokwim River wouldn't tell us much about Red Devil Creek, due to the volume of water moving through the river. What we do know from sampling the creek in 2011 and 2012 is that contaminant levels there exceed what is considered acceptable by the State.
- **Comment:** Dennis Thomas said the community was concerned about increasing the level of contaminants in the short term during the proposed work at the site, and wondered if the Early Action itself might be "a fix for a problem that doesn't exist." A council member noted that mercury levels in fish are a concern. Beck explained BLM would take steps to make sure the proposed work doesn't allow contaminated sediment to increase. The preferred alternative includes a settling pond above the historic flood level to trap sediment during breakup or high water events.
- **Question:** What if the pond overflowed? **Beck:** The pond will be designed to have an outlet to prevent overflow. BLM would monitor and perform any needed work to keep it functioning properly. The settling pond is part of the Early Action, not the long-term remedy, and is designed to last up to 10 years if necessary.

- **Question:** How large is the proposed settling pond, and how frequently would you monitor? **Beck:** The pond is designed to slow down the flow of water to allow settling to occur. Monitoring would occur annually or following a high water event.
- **Comment:** General discussion about what constitutes background mercury for the area. Evelyn Thomas noted another abandoned mine in the area (Decourcey Mtn). **Beck:** Yes, but these other mines were small scale compared to Red Devil Mine.
- **Question:** How many test wells are there? **Palmieri:** About 40 wells, up to about 50 feet deep, plus hundreds of soil samples.
- **Question:** How deep are the tailings? **Beck:** About 10-30 feet deep, with approximately ¼ million cubic yards of material.
- **Question:** Has vegetation regrown at the site? **Beck:** There are some willows, but most of the tailings area has no vegetative cover.
- **Comment:** The segment of Kuskokwim River near Crooked Creek looks red during heavy rains. Evelyn Thomas noted that the river was tested for this and the red color is from pollen, according to test results.
- **Question:** Who is paying for the Red Devil Mine project? **Beck:** BLM as lead agency is funding the project, with funds designated for abandoned mines.

Matt Varner presented an overview of the BLM's Kuskokwim region fish tissue study. A study by the U.S. Fish and Wildlife Service in the early 2000's sampled pike from Aniak downriver to Bethel and in the lower Yukon. They found higher levels of mercury in some tributaries, but didn't know why. BLM conducted this study to learn more about fish tissue concentrations in the middle section of the Kuskokwim. As initial results were analyzed, BLM decided to track fish movement to better understand where Kuskokwim fish may be exposed to mercury. Varner noted BLM will collect samples of small fish and algae in Red Devil Creek again this summer prior to the start of Early Action work at the site.

- **Question:** Did you sample salmon? **Varner:** Not for this study. Salmon are in freshwater only briefly and consistently test low for mercury.
- **Comment:** Donlin is studying salmon. **Varner:** Donlin hasn't started mining yet so they are gathering as much information as possible about baseline conditions in and around the mine. This information will be essential to monitoring any effects of future mining in the watershed.
- **Question:** Is there any acid rock drainage at Red Devil Mine? **Varner:** No, due to the geology of the site.

Ali Hamade of the AK Division of Public Health (DHSS) explained fish consumption guidance about how much lush and pike it is safe to eat. The guidance was developed specifically for women and children of the middle Kuskokwim region. Women of childbearing age and children younger than age 13 should limit the number of servings they eat of these two fish species. Other people may eat as much as they want. Hamade passed out a handout that summarized the fish consumption guidance.

Hamade reminded participants that the best diet is one that consists of a variety of foods, including a variety of fish. He also noted that it's good to be aware of portion size, since people tend to eat larger servings of dried fish than fresh fish.

Hamade explained that the AK Division of Public Health offers free hair testing for women who would like to know their mercury levels. He has test kits with him if anyone would like to take one.

- **Question:** Is mercury a concern in moose or caribou? **Hamade:** Land mammals don't spend as much time in water as fish or marine mammals, so their exposure to mercury is minimal in comparison. **Question:** How about birds, like loons and swans? **Palmeri:** Birds have a large home range, so it's not possible to know how much time birds spend at the mine site.
- **Question:** Did you test plants? **Palmieri:** The Remedial Investigation looked at blueberries, spruce bark, and leaves, and found elevated levels near the tailings (compared to background).
- **Comment:** During drilling activities at Chicken Creek, they could see the mercury. Does that happen at Red Devil Creek, can you see the mercury? **Beck:** There is some elemental mercury at the site, and this will be addressed during the final site-wide remedy.

Bittner thanked participants for attending and said BLM will consider the community's comments and suggestions. BLM will keep communities informed of the progress of the planned Early Action this summer.

Council President Evelyn Thomas thanked BLM for coming to talk with the community. She said the council has concerns about the site being further disturbed, but they understand BLM and other agencies think action is needed. Should BLM proceed with a cleanup action this field season, the community has trained workers and equipment available for hire. She requested that BLM convey this message to the contractor when selected, and that the contractor take advantage of local resources to fullest extent possible.

The meeting concluded at 3:30 p.m.