

AJ Mine Advisory Committee (AJMAC)

Thursday, February 23, 2011
5:30 PM
Assembly Chambers

Committee Members: Donna Pierce (Chair), Kurt Fredriksson (Vice Chair), Rorie Watt (Liaison), Sam Smith, Maria Gladziszewski, Laurie Ferguson Craig, Gregg Erickson, Frank Bergstrom
Presenters: Scott Willis

I. Call to Order

Pierce - This is the AJ Mine Advisory Committee of February 23, 2011. All members are present.

II. Agenda Review

Pierce – Tonight’s agenda is informational. We are working towards putting together a sequence of steps to allow the Committee to work towards its final report. On tonight’s agenda, we have information about the municipal drinking water system, the mine drainage system as well as a draft outline or study guide. We have been concerned with what that report is going to look like and have an outline of it, because if we don’t steer to it we won’t get there. This outline will be refined as we go along. We will try to include it in the packet for each meeting to keep it before the Committee, so hopefully we’ll arrive at our deadline.

Tonight, we will talk about each agenda item, and there will be 20 minutes of public testimony at the end of the meeting. At the break we will set out a sign-in sheet. The packet also includes information and public comments via the website. We encourage the public to use the website to funnel comments and questions to the Committee. We will look at those and they will be included in the packet. There will be work sessions and we won’t get to public testimony until the end of the meeting. The website will provide the Committee with your questions and comments prior to the meeting for Committee consideration.

III. Approval of Minutes

A. February 10, 2011 – Approved with corrections.

III. Items for Information

A. CBJ Drinking Water System

Watt – The two drawings of the mine and watershed handed out cover miles of area. For reference, from Sheep to the Ebner, portal to portal distance through the mine is five miles. There is a great depth of information on the drawings and we will continue to refer back to them. In the packet is another drawing labeled AJ Mining property. It shows the extent of the mining property of the AJ. It also shows the Juneau well field for the Last Chance Basin. We will talk about the Last Chance Basin and our drinking water system. You get the idea that the location where our well field is geographically very small compared to the size of the mine. Included in the packets are mining terms, which you will see on the drawings. Please ask questions as I go along.

The City has two drinking water supplies in the Borough. The Last Chance Basin or Gold Creek source is a well system that is just down stream of the Mining Museum, which is where four level exits the mine and just

down stream from where the Gold Creek drainage tunnel comes out. The Ebner adit is at the trail head for Perseverance trail. The City has a secondary water supply in Salmon Creek. They are both managed by the City Public Works Department. Borough wide we used about 3 ¾ millions gallons of water per day. The Last Chance Basin is a ground water system. It is a series of five wells that pump the water out of the well field. The well field is just up stream of the car bridge across Gold Creek. Chlorine is the only thing added to the water supply from Gold Creek, as a ground water source this is all that is required. It's a good year around water source, which supplies about 2/3 of our water supply. Salmon Creek is a surface water source. The water is collected behind the Salmon Creek dam, the water comes down, the power company generates hydro electric power and then some water is pumped back up to a reservoir. Salmon Creek water supply is not always on line because as a surface water source it is subject to seasonal turbidity, so we shut down this source when there are excessive amounts of sediment coming off the sides of the mountain and water becomes turbid or cloudy. According to the rules we live under we don't use it. If we wanted to use it we would have to filter it, along with other treatments. Both of our water supplies are regulated by DEC and EPA. There is a lot of information on the City webpage at Juneau.org about the water supplies under the Public Works Department. Salmon Creek water supply has chlorine and soda ash added to it, which balances the alkalinity and ph. The Salmon Creek source is off line during AEL&P maintenance as well. It is usually off line about a month a year.

An interesting fact about the AJ is that the mineral ore body is back in the Silverbow basin area at the end of Gold Creek, but the mill was down by the rock dump. When the AJ was running they brought the ore out of the mine on the 4 level haulage adit, then came out into the open, then along the side of the hill above Gold Creek, then through a tunnel in Mt Roberts to the mill. This last tunnel, referred to as the Mill Tunnel is now a water reservoir for the drinking water system. We pump water from the well field directly up to the tunnel, which holds 3 or 4 million gallons water. The only way we get water into that tunnel is from the Last Chance Basin well field. The way the system is configured now is when Salmon Creek is online Salmon Creek north to the valley gets Salmon Creek water and every where else gets Last Chance Basin water. When Salmon Creek is off line everyone gets Gold Creek water.

Committee questions about functionality of the two systems, what would happen if Last Chance Basin was not available.

Watt - Salmon Creek has less volume available and sometimes less quality at some times of the year. If Gold Creek was not available, there would probably be some temporary work around solutions, but if there were a fire we would have issues or during the summer when we have our highest water consumption time, we would have some problems. It would be fair to say that as the primary source and only year round source, the Gold Creek water supply is critical to the municipal drinking water system.

There are management programs and City code that protect the City watershed of both Salmon Creek and Gold Creek. Gold Creek gets the benefit of natural filtration, it is taken from a well system and it is pumped from the bottom of the wells, which are 70 feet below the surface. Surface water comes into the aquifer from Gold Creek as well as from the drain tunnel and filters through gravels into screened wells and then is pumped out. We have not had turbidity issues in the water that comes from the Gold Creek wellfield. A typical seasonal event that would take Salmon Creek offline would be a big rain storm with lots of sediment. This type of event does not affect Gold Creek, the creek could be the color of a chocolate milkshake, but the well field water is not affected.

There is another small tunnel from just below the well field down to Cope Park called the Jualpa tunnel. It's an old mining tunnel, some water system pipes go through this tunnel to Cope Park. The early designers of the City's water system took full advantage of the mining infrastructure that was there for them, which is unusual for a lot of places.

In 2006 it was estimated that our water infrastructure was valued at around 65 million dollars, that seems low to me. We have 10's of millions of dollars invested in the Last Chance Basin water supply, just in the wells, the

treatment building, power generation, piping networks and the value of the reservoir. It would not be easy to replace Gold Creek. Whenever we talk about the mine one of the major issues is the City's water system and how it works, where the water comes from, where it goes.

B. Existing AJ Mine Drainage

Watt – In looking at how the mine drainage works, refer to the section and overview drawings. You can see Gold Creek as it heads back into the back of Perseverance Trail. You can see the large glory hole. The AJ workings are next to, under and above the creek, the creek and mine are closely connected. When they first started looking for gold, miners first pursued placer deposits, gold that was in the gravels, and they washed the gravels in Silver Bow Basin to get the gold. They later moved into the mountain to pursue the hard rock gold and built the underground mine. In the early days of the mine it was dry underground, and they didn't have water issues. As the mine developed and grew and had more surface penetrations, like the glory holes, and other openings to the atmosphere, rain and snow melt could get in the mine. To deal with the water in the mine they drove a drainage tunnel. So that there is no confusion the tunnel out from four level is called the Gold Creek tunnel and the drain tunnel below it is the Gold Creek drainage tunnel. With the Gold Creek drainage tunnel they corralled all the water that was coming in from glory holes and other openings and routed the water through the mine to this tunnel. This is an excellent system that works great; it was well engineered and executed.

A question that was brought up at the last meeting was what happens if we do nothing, what concerns would we have with the mine. We have two areas of the mine the north ore body and the south ore body. The south ore body is above four level and above the drain tunnel, this area is all draining down into the drain tunnel. The north ore body is both above and below the drain tunnel. The areas above drain into the drain tunnel and the areas below, also referred to as the deep north, does not get much water. Some water trickles into the deep north and the deep north is slowly filling up. Some day the deep north will fill up all on its own. When it does it will not overflow into the Gold Creek drain tunnel, it will fill up and over flow into the Ebner workings. Most people are familiar with the portal at the trailhead of the Perseverance Trail, that is the Ebner Adit. The Ebner Adit is below the upper AJ workings, and is slightly lower than the drain tunnel. When the deep north fills up it will actually come out the portal, the Ebner Adit, at the trail head. Since the deep north is filling up slowly, the amount of water that will come out of that portal will not be great.

When Echo Bay was here doing some of their exploratory work, they diverted some water into the deep north. I think the idea was the deep north is essentially a very huge area underground of hundreds of feet wide with a series of tunnels and stokes, that function as a settling pond. The arrangement was made prior to them diverting water into the deep north that they would pump water out and restore the water level to where it had been before they inverted water into it. They worked towards that, they dropped pumps and pipes down and water was pumped up and out and through a pipe along the side of Basin Road. There was a manifold under the car bridge across Gold Creek, where it was discharged, just above the intake to the wooden flume. They did this until it became too dangerous for the workers. Without having a fully functioning mine, complete with safety contingencies, it was not worth the risk, so that operation ceased. The deep north has continued to slowly fill up and occasionally one of Engineering's staff and a volunteer miner who assists us on occasion when we have AJ Mine issues, go in to measure the depth of the water level. It is continuing to fill up slowly as we expect. If we do nothing, the water will rise and one day will come out the Ebner, and at that time we will then put in a small ditch.

There is always sediment coming into the mine through surface openings, mostly the Glory Holes. The drain tunnel also goes through some areas of weaker rock and could collapse and plug. This would be a very exciting event, the drain tunnel would probably dam up and then blast the plug out. It is possible that this could cause different kinds of water activity in the mine, that would divert and fill up the deep north more quickly, we could get a larger flow of water out the Ebner.

Fredriksson – The roof is caving in the drainage tunnel now and it is filling up with sediment?

Watt – The tunnel is driven through the mountain, and it goes through more and less competent rock. In areas that are referred to as bad ground, it is crumbly rock, and over time, build up gravel in the tunnel and it starts to dam it up. When the Echo Bay mine left the discussion was made that there was not much you could do about it if nobody was working in the mine. If someone was actively in the mine they could manage the system. It would be more orderly, and you would not have these kinds of events. If something were to happen now there would not be anything we could do about it. We would take the spectator status and live with what happened.

Ferguson Craig – Presented an old Juneau Empire article with a picture of the drainage tunnel. There is more that we need to talk about in the mine at the time it was being investigated. One of the acquisitions the FBI was investigating was the mining company was dumping products at night in order to avoid detection.

Pierce – At this time we are reviewing information to try to understand the workings of water system and the drain tunnel. As far as mine acquisitions we can bring these items up at a later time as deemed relevant.

Watt – When the early miners were here and they were placer mining in Sliver Bow Basin, they washed gravel with a big power hose into a tunnel. The tunnel had riffle boxes and whatever else they used to settle out the gold. The tunnel is still there, it's called the Nowell Tunnel, and it is not connected to the AJ. To this day, a portion of Gold Creek still runs through the tunnel. Every year I go up and evaluate this tunnel because it could plug up and we could have a lake, then the plug could blow out, and continue to do this and possibly back up into the Glory Hole. This is just another issue that we could have.

C. Access to the AJ Mine

Watt – The plan view drawing shows the general location of the ore body, shows the haulage levels in red. In order to access the ore body, you have a limited number of choices to bring in equipment and labor and bring out rock. The original access was out at the mining museum along side of the hill and through the mountain to the mill. This was how they got in and out of the mine. As we talked about earlier, the mill tunnel is now used as a reservoir for the drinking water system. Echo Bay had two concepts for accessing the mine. One was to drive an adit from Sheep Creek near the beach about two miles or more to the orebody, and the other was to go drive an adit from near the rock dump. Essentially in order to access the mine you need to somehow get there in a new development tunnel. The Sheep Creek adit comes out in Sheep Creek valley and then there is the road that comes down to Thane Road. This road is not adequate for a mining operation.

Erickson – Question about whether the Sheep Creek road isn't a viable mine access.

Watt - The Sheep Creek road is narrow and steep with tough switch backs. It could be improved, but in its current configuration it is not sufficient as a year round access for a mine.

Bergstrom – It could be rebuilt, but there would be an economic reason not to do so.

Watt – It is important to note that an adit driven from sea level is below the Gold Creek drain tunnel, so anything that occurs in it physically can't affect the well field. The areas that can affect the well field are those that can drain into the drain tunnel.

Smith – Most of the proposals would have the mill underground at a lower elevation, which would be very nice to have it closer to the sea level, with the amount of hoisting and so on from the deeper workings would be

considerably less, a lot of it would be gravity fed which is a lot cheaper, also drainage issues would have major advantages of having a sea level access.

D. Electrical Power Implications

Scott Willis of Alaska Electric Light and Power presents information about power supply issues and how they would relate to a new mining venture.

Willis - We currently get our electricity from Snettisham. It is the farthest power plant away from town, but it's also our largest with 78 mega watts. The transmission line comes along the coast to Taku Inlet and goes into submarine cables and comes over head and delivers power to the Thane area. We also have the Lake Dorothy project, which comes down the Thane transmission line, which is about 14 mega watts. We also have a little 3 mega watt project on Annex Creek. Its power comes down the coast up Carlson Creek over the top of the mountain down into Thane. We have a small 1 megawatt hydro plant on Gold Creek and about a 5 megawatt plant at Salmon Creek. This is our hydro system, which allows us to be 100 percent renewable here in town almost all of the time.

Mr. Willis presented an energy graph indicating Juneau's electricity consumption since the 1970's and that shows how it has grown, including the amount of energy we can get from our various hydro plants in an average water year. Demand for electricity has grown, so we project 20 years out to plan for future water projects. This graph included the Greens Creek load of energy demanded; they only get surplus energy. They use up to about 8 to 9 megawatts of power. At this time we have surplus hydro energy, which means we have additional energy that can be supplied to meet additional loads for economic growth.

Starting a mine would represent a large load. The loads associated with the Echo Bay development were about equal to the town's load.

Smith – The smaller mine previously proposed would require approximately 4 to 5 megawatts of power.

Willis – Right now all of our surplus energy is committed to Greens Creek by contract. With our existing hydro system in the early years there is maybe a little bit of surplus energy in an average year, a lot in wet year and pretty soon there wouldn't be any in a dryer or average year. So right now with Greens Creek using the surplus energy, there is no additional surplus energy to serve an additional large load. Would a new mine load justify building phase 2 of Lake Dorothy or some other hydro power? Maybe. There are always going to be issues with a mining company and the power company adding additional hydro power for a project that needs to be funded. The power company would try to work through these issues. This graph will be posted on the web. It would cost about 35 cents per kilowatt hour to operate a diesel type power. Lake Dorothy phase two would cost about the same as phase one. The timeframe would be about 5 years for permitting and 3 years for construction. If we were eventually to enter into an agreement to supply the AJ mine with power, this energy would be provided with a possibility of unscheduled interruptions. So the mine would need to have a full power back-up system in place.

E. Rough Possible Sequence

Watt – There is much uncertainty in this type of process. For the Committee's purposes in answering the question you need to understand when and how the City could affect a mining proposal. The arrows show where there is a shift from City process to mining company process. With the Committee's job of under what conditions, if any, should the City pursue the development of the AJ, those types of issues would have to come up with the unitization agreement, lease, the local mining ordinance and at some point once a lease is signed, then a mining company would be on their own to work out the details and apply for permitting, including a City permit. So the City would shift from a direct owner to a regulatory owner. Any of the timelines are subject to

debate. What we tried to do was look at the history of the Echo Bay lease. The handout on what a Junior mining company is and how it works and the NI 43-101 is something the Committee should understand.

Pierce – Lance Miller also has a presentation that goes into much more detail about the process, it is from the view of an investor. We could put these on a future agenda.

Watt – Mr. Miller could also present a talk on the geology on the AJ Mine at that time.

Pierce – What we were hoping to illustrate to everyone is the dual role that the City has here. The City as owner, negotiating a lease, looking after its asset, its interest as an owner, once the lease is signed the City becomes the regulator and it's a different role.

Committee questions about the term NI 43-101.

Watt – There are three tiers of mining companies. Prospectors find claims. Junior Mining companies develop mining claims; they look at it as a property then try to add value to it then sell it to Major Mining companies. Majors actually build and operate mines.

The NI 43-101 is a Canadian process of proving out and auditing the reserves in a mine, and it's a requirement of the Canadian Securities and Exchange Commission in order to protect investors. In order to go through the process, a Junior mining company would invest millions of dollars and essentially come up with an auditable document that will allow them to get investors. In going through that process, the Junior mining company risks their capital to inventory a mineral claim and produce the document, then they have a product that they can sell at some profit to them to a Major mining company who has an entirely different interest, which is extracting the ore and selling it.

F. Draft AJMAC Report Outline

Pierce – We think the most efficient way to do this would be in two parts. One - all the information we are learning now would be written in a neutral voice, it would be helpful to the Committee and Assembly to have a summary. Part two would be what the Committee does with the information and the Committee's recommendations, which would include both collective and individual comments.

Under the summary of factual information provided under this item, under access mine surface facilities, we talk about traffic noise, downtown congestion and other community impacts; it's not an inclusive list. This is here for a structure to work toward as we set our next agendas.

Watt – May 1st is coming quickly. This report will be on the agenda in some form at every meeting. It will keep evolving and growing. All the factual parts that we can agree on, the draft, the Committee recommendations are going to be what meets the process at the end, but there is no reason that we can't develop that body of information earlier.

Ferguson Craig – In the Thane Association letter there is an extensive list, we need to mention the list as things that need to be scrutinized in this process.

Bergstrom – For us to fill out each item with all the definitive information would be difficult. It would be very expensive and a long involved process.

Pierce – It will probably be a mix of information and recommendations to the Assembly.

Erickson – Does not see a description of the scenario that we are going to apply our analysis to or scenario's.

Pierce – There was a feasibility study done in 1997, done by the employees of Echo Bay. I am handing out a copy of a summary of that study. It will be included in the Committee’s next packet and will be posted online.

The study was for a smaller mine project, but it did not economically pencil out at the time. While Echo Bay was here they did produce a great deal of data - drilling core samples and so forth. This information is now the property of the City and AJT, which together is known as the mining unit that has existed for sometime. This information has monetary value, because any mining company might in the future, enter into some lease with the unit would greatly benefit from this information because it would give them a big head start in developing a new mining plan. Understanding some of the basic assumptions of this feasibility study will be very helpful and appropriate for our inquiry here. Study of this concept will allow us to consider a mine concept that has some basis in reality.

Sam Smith was a part of this study and for the next meeting Sam will describe the concept in detail and the Committee can come prepared with questions they have. We have also invited Mike Satre, who is the Vice Chair of the Planning Commission and he also is the former manager of technical services at Greens Creek and currently he the Executive Director of the Council of Alaska Producers. He knows a great deal about current mining technologies, tailings and so forth. This will be the March 10th agenda; this will be a work session. The Committee will be able to evaluate the concepts.

Gladyszewski – Asked if we could get potential companies that would be interested in opening the mine to come and speak to present how they would like to proceed in opening the mine.

Watt – Feels that a Junior Mining company would not be able to present useful information to the Committee. A Junior would be interested in signing a lease as favorable as possible to them. They would be unlikely to provide objective information which would be helpful to the Committee at this point.

Pierce – Is appointing a subcommittee for economical issues which will be chaired by Kurt Fredriksson, and will include Gregg Erickson and Sam Smith. All AJMAC members are welcome to attend and participate at the subcommittee meetings. Pierce summarized and handed out a memo on the formation of the subcommittee. For example, the volume of gold envisioned in the small mine concept in 1997 estimated that approximately 780,000 ounces of gold could be mined from the AJ over a ten year period. With today’s gold prices that would be worth approximately \$100 million a year, which under the terms of the old Echo Bay lease and utilization agreement, again this is historic, the mining unit would gain 3 % of net smelter returns of \$2 to 3 million in annual royalty payments. This is just to give an indication of the scale we are talking about.

Fredriksson – He is hoping to take care of this in just a couple of meetings. He is the Chair of the Economic Development Council, and has access to the JEDC conference room. We will get a notice out so everyone is aware of the meeting. He will ask Brian Holst, the Executive Director to JEDC to provide assistance to the subcommittee.

Pierce – The subcommittee’s task is to develop an understanding of the framework economic issues and to bring it back to the Committee in a useful form for the Committee’s review on the March 30th agenda. Any of the Committee members are invited to sit in on the subcommittee.

Pierce – Frank Bergstrom handed out some items to be discussed at a later meeting and will be posted online.

Ferguson Craig - She has repeated her concern over the water supply, which is based upon the history. During the time she was Coordinator for Alaskans for Juneau she submitted numerous requests to the FBI under the Freedom of Information Act to discover what it was that they were learning through their investigation, which started March 4, 1994. It was parallel to the State’s investigation about the fish kill. She received three

packets from the FBI in May of 1997, when they were made public. They are relevant today because it tells us what the risk is to our water supply. They are to show the vulnerability to the drainage tunnel and to the activity inside the mine, so we can be fully aware of the potential that could happen. They are official Department of Justice documents, the three packets are dated April 13, 1998, March 16, 1997 and January 15, 1998, they are primarily interviews. Also submitted three newspaper articles that talk about the AJ Mine in regard to the investigation in simpler terms.

Watt - These will be scanned and will be available online at the AJMAC website.

VII Public Testimony

Skip Gray of 4464 Mountain Side Drive - I am the past President of Alaskans for Juneau which was the main organization scrutinizing the last attempt to open the AJ Mine. He has frustrations about the current process. He is concerned about water quality. The EPA/FBI report showed turbidity not being sampled during the night when most of it was discharged, this was done so turbidity would not be visible in Gold Creek. During the summer of 1994 at the time the State already knew from a confidential source that Echo Bay had made systematic use of a flocculent. The company was issuing categorical denials that it ever used flocculent. Echo Bay paid \$250,000 in fine because of various oil releases and spills within the mine. He was upset that the person who contacted the Mayor about this kinder gentler project was Greg Sparks who was the operations manager at the time this was all going on and Frank Bergstrom who sits on this Committee was the environmental compliance officer, while all of this was going on. He feels it is highly inappropriate that Frank sits on this Committee. He would request the he be removed, because of conflicts of interest. Echo Bay paid \$250,000 to the State's investigation. The Justice Department decided to end its investigation because Echo Bay had already been fined by the State, so they dropped the charges.

Fredriksson – I have worked with the Department of Justice representing the State's behalf. It is my experience that when the Department of Justice does not take criminal charges, it is because there isn't sufficient information to pursue the charges. If the accusations are founded, they pursue them.

Larri Spengler of 2525 Thane Road – Feels that the history of Echo Bay Mine ties into this discussion by supplying past performance information. The past performance of Echo Bay Mine has shown that the City should not rely on trust alone with environmental issues dealing with opening AJ mine. She feels the City should make it a condition in a new mining company's agreement that the City would be provided with monitoring verification from the appropriate environmental authorities and require security deposits, these would be essential components of any kind of proposal.

Deborah Craig of Nowell Avenue - Suggests formation of a subcommittee that would look at environmental considerations such as water, air quality, and noise issues. She would like to see experts brought before the Committee to talk about the environmental impacts of opening the AJ Mine.

ADJOURNEMENT at 8:05 p.m.