

## **Meeting Minutes**

### **Blue Lake Hydroelectric Project (FERC No. 2230) Expansion**

**April 17, 2008, Sitka**

#### **City and Borough of Sitka Electric Department**

The meeting was held at the Centennial Building in Sitka and convened about 7:00 PM. Charlie Walls, Electric Department Director, opened meeting saying the City had been doing electrical planning and found that there will likely be a significant increase in Sitka's electrical load in the future. Based on this, he said the City has decided to pursue the Blue Lake Expansion. He said it would be an existing project, could be operated and maintained by existing City staff without new hires and was relatively environmentally benign. He said it was easier from an environmental standpoint than the previously-proposed Lake Diana project which is nearby but in a wilderness area.

Mike then described the purpose of the meeting. He said that the expansion was of a scale to require a "capacity related" amendment to the existing Federal Energy Regulatory Commission (FERC) license for the project. A new license for the Project had taken effect as of April 1, 2008. Mike said that the amendment process was driven by FERC regulations and that this meeting was part of the regulatory requirements.

He said the process started with sending out an Initial Consultation Document (ICD), which the City had done a month earlier.

Mike said that the meeting would address the existing project, the proposed changes, the FERC process and schedule and the environmental considerations. He said the project would proceed under the National Environmental Policy Act (NEPA) requirements which had to be completed prior to any work being done. He said that the meeting was at an early stage of the project and that much process had to ensue before anything was built.

Mike said that a similar meeting had been held in Juneau the day before, primarily with agencies with perhaps more technical discussion on study planning.

Mike said that the meeting was being professionally videotaped and that the proceedings would be available to anyone requesting them. He added that there would be a period at the end of the meeting for people to make comments into the record, and a 60-day comment period to prepare written comments.

Dean then explained, using a graph of hydroelectric generating capacity vs. load, how the City's load had grown since the 1960's and how generating capacity had been increased through construction of the Green Lake and small hydro Projects to meet the load. He

said the City needed to keep the hydroelectric capacity line above the load line to avoid generating with expensive diesel.

Dean said that recent loads had been growing by about 0.8 percent per year until 2006 when there was a 7 percent increase and 2007 with a 5 percent increase. He said that the City had used up 15 years of capacity in two years. The reason, in part, was because of a switch over to electricity for home heating as fuel costs rose from 71 cents a gallon in 2002 to \$3.42 at the beginning of 2008, and people started going to electric heat. Dean said that this growth caused the City to revise its load growth projections from 0.8 percent to 2 percent. With that load growth, the current generating capacity would run out in about 2013. He said that this meant that the City needed to start planning for more generating capacity, which was what they were doing with the Blue Lake Expansion.

Dean said that when the City used diesel the cost was much higher than for hydro. He said that when running diesel, the City had to pay for hydro even if it wasn't being used, because the cost included debt service on the Green Lake Project.

Dean said the City was proposing to raise the Blue Lake dam as much as possible, given the characteristics of the Sawmill Creek canyon. He said that each foot of dam raise was equivalent to an additional 415 megawatt hours (MWh) of electrical generation and equal to \$125,000 per year if the additional energy was generated using diesel.

Dean said that if they raised the dam to El 425, they would get a 54 percent increase in energy; at El 400 the increase would be 42 percent.

He showed a photo of Blue Lake with the various lake levels at El 425, 400 and 390, noting that the additional inundation would be minimal around most of the lake but would expand Blue Lake Creek significantly. He said there could be impacts to rainbow trout spawning in Blue Lake Creek and in the other lake tributaries, and that that would have to be studied.

Dean then showed a slide of the powerhouse area and noted that the third turbine would be in a new powerhouse downstream from the existing powerhouse. He said that the new turbine would be about 8 megawatts (MW) while the two turbines in the existing powerhouse were about 3 MW each. He said that the penstock leading to the new turbine would have to be constructed in a tunnel.

Dean then described the surge chamber and how it would provide hydraulic and generating advantages over the exiting penstock system. He said that the surge chamber would help protect the existing tunnels and components from higher pressure and would allow better responsiveness of the system.

He then described the new intake gate arrangement, which would be installed underground, replacing the current intake gate in the lake.

Dean then described the dam raise, showing a graphic elevation of the existing dam face and the raised dam. He said that the original dam was a cylinder section which would facilitate raising it. He said that the plunge pool would have to be armored to keep water from undermining the base of the dam due to it falling a greater distance.

Dean then showed a schedule graphic and noted that the first two years of the project would be getting the amendment and other permits. Then the third turbine would be installed and work would be done to expand the water treatment facilities in anticipation of the need to filter the water coming from the reservoir during timber clearing, excavation, etc. He said that after two years of work on the third turbine, another two years would be required to raise the dam, and two more years would be required to fill the reservoir to the higher level.

Mike then described the license amendment process. He said that FERC required a three-stage process in which consultation and study planning preceded development of draft and final amendment applications. He said that we were in Stage I, initial consultation now. He said the City had sent out an Initial Consultation Document (ICD) about a month ago and had held a meeting yesterday in Juneau. He said that a site visit had been held earlier that day. He said that there was a 60-day comment period after today's meeting. Mike encouraged everyone to learn how to do e-filing and said that Dean or Melissa Dinsmore of the Forest Service could help show them how to e-file. He said the last part of Stage I was study planning, which had begun with the agency meeting in Juneau the previous day.

Mike then went to Stage II, in which he said was doing the studies, writing reports and preparing a draft amendment application. He said that Stage II also had a Scoping component as part of the NEPA process. He said Scoping was to help define impact issues and that a Scoping Document I would be distributed prior to a meeting, much like the current meeting, except based on a more advanced engineering design of the proposal.

He said that then there would be a Draft Amendment Application (DAA) which would go out for a 90-day review. He said that this review was the most important input point for the stakeholders. After comments come in, the City and stakeholders would negotiate conditions for, say, operation to minimize rainbow trout impacts or streamflow to protect salmon in Sawmill Creek. After the initial recommendations were ready, the City would prepare a Final Amendment Application (FAA) which would go to FERC. He said that the FAA would go out about 6 to 9 months after the DAA.

Mike said that after the FAA, the process was mostly in FERC's hands. He said they would review the FAA and if it was OK under federal regulations, they would ask for formal recommendations and interventions.

Mike then showed the schedule (note: there was a typographical error in his slide. It showed the FAA going out in spring, 2009 when it would be spring 2010. It also showed the amendment issued in spring 2010, when it would be spring 2011.)

Mike said that the City had started study planning for fisheries to be able to start the studies when rainbow trout came into Blue Lake to spawn (May-July).

He then went to the environmental studies which would be done, including fish, wildlife, water quality, cultural resources, geology and soils, recreation, aesthetics, and threatened and endangered species.

Mike said that the meeting was open for questions and comments, and there were none.

The meeting adjourned at about 9:00 PM.

# **FERC Project 2230**

## **Blue Lake Expansion Site Visit**

### **April 17, 2008**

A site visit was conducted at 2:00 pm, April 17 2008 at the Blue Lake Project. The following individuals were present:

Ken Coffin  
Vaughn Hazel  
Melissa Dinsmore  
Carol Goularte  
Troy Tydingco  
Karl Wolfe  
John Dunker Terry Schwarz  
Gary Prokosch  
Barth Hamberg  
Katharina Appdori  
Steve Reifenstuhl

The location and function of the following project features were identified and explained:

Existing powerhouse tunnel and penstock  
Third turbine powerhouse and tailrace  
Third Turbine Tunnel and the future bifurcation with the existing tunnel  
The surge tank and its benefits to the project  
The Blue Lake reservoir noting the future access to the lake  
Blue Lake reservoir proposed inundation and lake level  
The need to maintain Blue Lake as a drinking water source before during and after construction.  
The location of the intake structure, proposed raised bore and new intake gate  
The Blue Lake dam, dam abutments, and the proposed dam height.  
The access to the dam during construction including staging areas and crane locations.  
The modifications to the plunge pool  
The Fish Valve Unit to show access to the upper portal to remove rock from the raised bore intake gate.

FERC 2230, Blue Lake Expansion  
Initial Consultation Meeting Minutes  
Juneau, AK, April 16, 2008

In attendance were:

Gary Prokosch, ADNR  
John Dunker, ADNR  
Sue Walker, NMFS  
Roger Birk, USFS  
Mike Prewitt, Contractor CBS  
Dean Orbison, CBS  
David Gann, ADNR/DCOM  
Erin Allee, ACMP/ADNR  
Terry Schwarz, ADNR Water Resources

Mike introduced himself and Dean.

Mike explained how the City of Sitka needs to expand the Blue Lake Project to meet future energy needs. He said that the Project had recently been relicensed by FERC but that during that process, Sitka's energy needs grew to the point at which the City needed more hydroelectricity. He said that Dean would describe the proposals in more detail, but that generally, the City was proposing to 1) add a third generating unit and 2) raise the existing dam by as much as 83 feet.

He said that these actions constituted the need for a "capacity related amendment" from FERC to the existing license. He said that a capacity related amendment required certain regulatory steps, and that describing those steps was one of the goals of the meeting.

Mike said that study planning had already begun, so that fisheries researchers could get into the field before the fish in Blue Lake began spawning. He said that was a separate action from the FERC-required consultation of which the current meeting is a part.

He said the City was required to send out a descriptive document, in this case the ICD, and to conduct a meeting. He said that there would be another meeting in Sitka the next day and also a site visit in the afternoon.

Mike discussed the comment process, said that agencies should e-file with a cc to the City. Otherwise they would have to send an original and 8 paper copies to the Commission Secretary. Comment would be due 60 days after the second meeting (April 17), or on June 16, 2008.

He then turned the meeting over to Dean. Dean described the increasing need for power in Sitka using a graph which showed the City's hydroelectric installed generating capacity vs. the load since the 1960's. The graph showed the steady increase in load and

the capacity related to installation of the Blue Lake, Green Lake and small hydro projects. Dean said that the load had grown at a rate of about 0.8 percent until about 2006, when increasing costs of heating fuel in Sitka resulted in more use of baseboard electric heating. He also said that there were increases in fish processing capacity and that the fuel costs and fish processing had resulted in load increases of 5 and 7 percent in the past two years. He said that what had been a roughly 10 to 12 years surplus of power had been erased by the load increases, resulting in the need for more hydro generation to offset the expensive and polluting diesel backup generation used when the hydro system couldn't fill the need.

Dean described the history of electrical generation and cost in Sitka. There was some discussion about the cost of power over the years and questions about when and why costs rose.

Dean then said that the City had decided to expand the Blue Lake project through addition of a third turbine and raising the dam. He said that this would provide about 35,000 megawatt hours of annual additional electricity which, based on the load/capacity graph, would get the City out past 2020 without the need to generate with excessive diesel. He said that the 35,000 mwh would be equivalent to the Lake Diana project which the City had proposed last year.

Dean described the dam raise. He said that the City wished to raise the dam as high as possible and said that at a dam elevation of 425 (83 feet above the current El 342) the sidewalls of the canyon flattened out, so the El 425 was the highest the dam could go. He said that the original license allowed for a dam raise to El 365 and that the dam was designed to accommodate raising the crest height.

Dean showed an aerial photo of the inundation relative to several dam height increases up to El 425. He said that the increased surface area percentages from 390 to 425 ranged from 25 to 35 percent. He said that the major changes would be in the Blue Lake Creek valley where much of the Creek would be inundated. He said that access into Glacier Lake would be improved.

Dean said that the expansion would take place in two phases: first, installation of the third turbine and second, raising of the dam. He said that the third turbine would be at least twice as large as the original two turbines. He said that this larger turbine would afford better control of how the Blue Lake water was used. He said that Blue Lake, unlike the Green Lake project, had too much water for the existing turbines; if the City ran wide open all year, they could not use up the water in an average year.

Dean showed a graphic of the powerhouse area. He described the existing conduit and powerhouse layout and the proposed layout with the third turbine. He explained that there would be a surge chamber which would provide several hydraulic improvements over the existing system.

Dean showed graphics of the intake and said that a new intake would be constructed underground to replace the existing intake which is in the lake itself. He then showed a graphic of the dam elevation and noted that the City would simply remove the existing spillway and raise the dam height. He said that the existing dam was a cylinder without double curves facilitating construction of the dam to a higher elevation.

Dean showed a graphic of the schedule and noted that the first two years were taken up by the license amendment process and that construction on the third turbine would start in about 2011, then going to lake clearing and work on the water treatment plant. He said that raising the dam wouldn't start until 2012 or 2013.

Dean asked for questions. John asked if the City had elevations of the area. Dean said that the City had done a LIDAR survey of the entire Blue Lake drainage and had contours to 5 feet in most places and good to 0.5 feet in the dam area. John asked about elevations around Beaver Lake. Dean said that it was included in the LIDAR survey and that the City had considered diverting its water into Blue Lake but that it was a very small amount.

Sue asked if the City would stick with the instream flows and ramping rates in the current license. Dean said yes.

John asked about schedule for the water treatment plant. Dean showed the schedule graphic and said that there would be two years to complete that work prior to working in the reservoir, and added that it would probably take about two years to fill the reservoir after the dam raise was complete.

Sue asked about gas supersaturation. Dean said he hadn't looked at it, but that was one of the purposes of the meeting, to find out what to study. He added that the City had put thermographs in the lake to determine the outlet water temperature at a higher dam level.

John asked if they would have to draw down the lake to raise the dam. Dean said that it was preferable to lower the water level to allow the dam to "relax" and be in a non-stressed condition when the dam was raised.

Sue asked about the surge tank. Dean explained the concept again. Sue asked what it would look like. Dean said that it would be just a ten-foot hole in the ground with a fence around it.

Dean discussed the amount of energy per foot of dam raise (about 415 megawatt hours per year per foot) and said that that amount was based on an average water year.

Sue said that she had received some information from a branch of UAF offering climate change information. She said that they could predict temperature and precipitation on a 2 km scale into the future.

Dean then turned the meeting over to Mike.

Mike said that the amendment process was much like the licensing process. He said they would be using the three-stage consultation process and showed the stages on a PowerPoint slide (Initial consultation and study planning, study execution and amendment application preparation and amendment application submittal).

Mike discussed Stage 1, noting the required ICD, meetings, site visit and study planning. He encouraged the agencies to include issues and study requests in their comments, which were due 60 days after the following day.

He said that study planning for Blue Lake temperature and fisheries had begun earlier in the year and was in progress.

Mike said that stage II would be study execution and that the City had begun doing a lot of engineering studies regarding geotechnical and energy issues.

There was a question about who would be doing the fisheries and wildlife studies. Mike said that Karl Wolfe would do fisheries and wildlife would be done by Kent Bovee. He said that both had done creditable work on their respective resources during the relicensing studies.

Mike said that the City intended to do only one year of field study because so much had been done for relicensing, including 5 years of fisheries studies, detailed wildlife surveys and several other studies in various disciplines. He also said that the City and agencies completed an IFIM study for flow requirements and recommendations.

Mike said that this project would require NEPA Scoping. He added that this amendment process was supervised by DHAC in Washington DC. He said that Stage II was marked by the draft amendment application with a 90-day review period. He stressed that this would be the major work for the agencies. He said that after incorporating comments, Stage III would begin when the final amendment application was sent to FERC. He said FERC would review it for adequacy and send out a request for interventions and terms and conditions. He said that these stages were essentially the same as for a license or relicense application.

Mike then showed the proposed schedule and said that it was very ambitious. After initial consultation, he said that studies would be done in spring, summer and fall of 2008 and that Scoping would be done in late summer or early fall, 2008. He said that the draft amendment application would be submitted after the first of the year, 2009 and that the final amendment application would be submitted in April-July, 2009, depending on progress. He said that FERC usually took about a year to issue the amendment after the final application was submitted.

There was considerable discussion about settlement agreements. Mike said that the City was open to such a process if the agencies required it.

Mike then described the studies for other resources, including Geology, Cultural resources, recreation, water use and quality, aesthetics. He said that most of these plans would spring from the comments on the ICD and this meeting. He encouraged agencies to get comments and study recommendations in as soon as possible because of the need to start studies this summer. He stressed that this project was a major amount of work, proposed to be done over a fairly short period and that the agencies should put it on their calendar and gather resources to work on it.

That marked the end of the City presentation.

John asked how the operations planning would go. Dean said that the operations model, which was used in relicensing, will be reconfigured to reflect the higher dam and new generation configuration and that the model will be used to aid design of the various components.

Sue asked if the City would be replacing the existing turbines. Dean said that that might have to be done.

John asked about the small hydros. Dean said that the FVU would probably have to be replaced, but not the PMFU, because it wouldn't be used because it was more efficient to use the water through the Blue Lake powerhouse instead.

Gary asked if the public water supply would be cut off during the construction. Dean said that for the times when Blue Lake water was not available, the City would use Indian River as public water supply. He added that there were a lot of things that needed to be worked in terms of schedule.

Mike said that the things being discussed were examples of good comments to come in after the review period. He said that the Scoping Document, based on considering these comments would have a much more detailed and certain design and schedule than that available for the ICD.

Sue asked if the City was doing anything about system efficiency. Dean said that the new turbine would be designed to be as efficient as possible. Sue asked about transformers, etc. Dean said that system losses in Sitka were about 6 percent, which was about the industry standard.

There was a question about how to get water into Sawmill Creek when there was work on the tunnel. Dean said they could use the Howell-Bunger valve, but not when they were working on the plunge pool.

There was discussion about the site visit. Dean said that the City would send out a DVD of the meeting and prepare written minutes. Sue and Gary asked for copies of the PowerPoint presentation, which Dean said would be sent out.

The meeting ended at about 11:00.