

From: Susan M Karl [skarl@usgs.gov]
Sent: Friday, February 06, 2009 6:33 PM
To: Dean Orbison
Cc: Marty Miller
Subject: Re: FW: FERC 2230 Blue Lake Expansion Mineral Potential Report Study Plan

Dean,

Thank you for contacting the USGS.

I have only minor suggestions and comments with respect to the Blue Lake Expansion Project evaluation plan. The geologic community has a high regard for the principle investigators, Mr. Streveler and Dr. Mann, of the proposed plan to evaluate the impact of raising the Blue Lake dam. I do as well and am confident they will provide a high quality report.

It appears that the USFS request of July 2008 is honored in the plan that is attached to this email:

"Identify any existing mining claims under US Mining laws in project area. We suggest the CBS prepare a Mineral Potential Report for the area of inundation. The format and content vary but are generally prepared by Certified Geologist, Mineral Examiner, Professional Mining Engineers, or Mining Geologists. This report should put emphasis on identifying any locatable mining claimants, historical prospects, and minerals potential."

I strongly support this request and have the following specific additional comments regarding the attached plan:

Study Area. The study area should include the area that extends as far as Medvejie Lake -- it may, but this is not explicitly stated. The attached map does not include the Beaver Lake-Herring Cove area, which could be impacted by a lake level rise, particularly in a year of high runoff. I suggest that the project map should include the Beaver Lake area for the 'potential inundation area' map. The area upstream from Blue Lake should also be considered with respect to geomorphology and hydrologic contribution in a year of high precipitation. I suspect this is certainly part of the plan, but it is not stated that the study area extends east of Glacier Lake, and there is large potential hydrologic contribution to the lake from the Blue River valley east of Glacier Lake and Mount Bassie.

Objectives. The objectives stated are good, but should also include a hazard assessment. Perhaps this is covered in a separate engineering plan? Hazards include flooding and landslides. A landslide into the lake is possible because the rocks that surround the lake itself are incompetent slaty argillites and phyllites with steep walls and shear planes that could easily fail due to annual freezing and thawing, or due to seismic activity related to the active Fairweather fault system. The Fairweather fault system includes the fault zone that runs up Silver Bay. Seismic activity on the Fairweather fault proper, west of Sitka, could certainly affect the Blue Lake area. A landslide into Blue Lake could produce a small 'tsunami' that could put pressure on the dam, or flow over it.

Past and present mineral activities should include a map showing both past and present mineral claims in the area. Have possible archaeological sites around Blue Lake, Beaver Lake, and along Sawmill Creek been addressed? Also, I assume Dr. Mann will investigate potential sites for Quaternary raised marine deposits that should be recorded and sampled before they are flooded by a lake level rise. He is an expert on this subject, and this is important regional data for tectonic uplift as well as climate history studies.

Methods. Methods should include assessment of modern seismic activity in the Sitka area. The Fairweather fault is active and capable of significant seismicity that could affect landslide potential around the lake, and the integrity of the dam itself. I suspect there is an engineering plan that covers this subject? Just checking. I know that a seismic monitoring station is maintained at Sitka by the USGS, and I believe a GPS station that measures tectonic uplift is located at the airport and maintained by the Geophysical Institute at the University of Alaska. (I am not certain whether this GPS station is still actively maintained.) There are several significant faults that cross Blue Lake and Sawmill Creek. I suspect an engineering plan addresses the potential activity of these faults.

The mining claims in the study area should include historical claims through to claims recorded in 2009. This is essentially stated in the plan. USGS Open-File Report 91-10 identifies a chromite occurrence in serpentinite along Sawmill Creek at the west end of Blue Lake. There are several additional occurrences of serpentinite in the general area of Sawmill Cove and Herring Cove. The estimation of undiscovered minerals should also consult references more recent than USGS Open-File Report 91-10. This report is comprehensive but is 17 years old and there have been significant recent studies on the gold potential of quartz veins in a belt that includes southern Alaska and the study area on Baranof Island. There are common quartz veins in the Silver Bay- Indian River valley area, and many contain gold. I am not current on recent exploration activity in the area. A relatively recent study that

explains the general gold potential in the Sitka-Silver Bay area is:

Bradley, D.C., Kusky, T.M., Haeussler, P.J., Goldfarb, R.J., Miller, M.L., Dumoulin, Julie, Nelson, S.W., and Karl, S.M., 2003, Geologic signature of early Tertiary ridge subduction in Alaska: Geological Society of America Special Paper 371, p. 19-49.

I hope these comments are helpful.

Best regards,
Sue

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From: "Dean Orbison" <deano@cityofsitka.com>
To: "Sue Karl" <skarl@usgs.gov>
Cc: "Marty Miller" <mmiller@usgs.gov>
Date: 02/06/2009 11:50 AM
Subject: FW: FERC 2230 Blue Lake Expansion Mineral Potential Report Study Plan

Sue,

I am forwarding this e-mail to you as requested by Marty Miller.

I have added your e-mail address to the general mailing list for the Blue Lake Expansion Project

Dean Orbison

From: Dean Orbison [<mailto:deano@cityofsitka.com>]
Sent: Friday, February 06, 2009 11:10 AM
To: Carole Goularte (cgoularte@fs.fed.us); Judy Bittner (judy.bittner@alaska.gov); Katharine Miller (katharine.miller@noaa.gov); Melissa Dinsmore (mdinsmore@fs.fed.us); Susan Walker (susan.walker@noaa.gov); Troy Tydingco (troy.tydingco@alaska.gov); Richard Enriquez (Richard_Enriquez@fws.gov); Andrew Thoms (andrew@sitkawild.org); ghanna@sitkatribes.org; Linda Books (linda.books@alaska.gov); Bruce Gamble (bgamble@usgs.gov)
Cc: grigori@gustavus.ak.us; Mike Prewitt (cmikeprewitt@aol.com); Anji Russell (anjulie@cityofsitka.com)
Subject: FERC 2230 Blue Lake Expansion Mineral Potential Report Study Plan

To: USFS, ADNR, USGS, STA, SCS, SHPO, ADF&G, FWS, NMFS

Subject: Draft Minerals Potential Report study plan, Blue Lake hydro Project (FERC No. 2230) Expansion

Attached please find the Subject draft study plan. The plan was prepared in response to a request from US Forest Service (USFS), Sitka Ranger District, in their comment letter of July, 2008 on the Project Initial Consultation Document (ICD). In that letter, USFS stated:

"Identify any existing mining claims under US Mining laws in project area. We suggest the CBS prepare a Mineral Potential Report for the area of inundation. The format and content vary but are generally prepared by Certified Geologist, Mineral Examiner, Professional Mining Engineers, or Mining Geologists. This report should put emphasis on identifying any locatable mining claimants, historical prospects, and minerals potential."

If you believe any other agencies/entities might be interested in reviewing this draft plan, please advise us at your earliest convenience.

If you have questions, don't hesitate to contact me at 907-747-1827, or via email. Your timely review and comment on this plan is appreciated. We will issue the final plan including your comments in 45 days.

Dean. [attachment "BLUE LAKE MINERALS draft STUDY PLAN 2-3-09.doc" deleted by Susan M Karl/GD/USGS/DOI] [attachment "Fig 1 Inundation area 425.pdf" deleted by Susan M Karl/GD/USGS/DOI]