Final Meeting Notes

March 8, 2011 **/ 9** a.m. – 12:30 p.m. / Burlington, Web-X, Call

PUGET SOUND ENERGY
The Energy To Do Great Things

Baker River Project License Implementation

Aquatic Resources Group

Team Leader: Arnie Aspelund (PSE), arnie.aspelund@pse.com

PRESENT
Arnie Aspelund, Doug Bruland, Cary Feldmann, Paul Wetherbee, Jacob Venard, Nathanael Overman, Nick Nickelson, Nick Verretto, and Mark Killgore (PSE); Brett Barkdull, Brock Applegate, Jed Varney, Steve Stout, Kevin Kurras and Annette Hoffmann (WDFW); Chuck Ebel, Doug Knapp, and Hannah Hadley (USACE); Lorna Ellestad and Dan Berentson (Skagit County), Greta Movassaghi and Jon Vanderheyden (USFS), Tom Van Gelder (Trout Unlimited); Craig Olson (NW Indian Fisheries); Bob Helton (Citizen); Stan Walsh (SRSC); Jon-Paul Shannahan (Upper Skagit Tribe); Ashley Rawhouser (NPS); Phil Hilgert (R2); Jay Smith (Tetra Tech); Malcolm Leythan (NW Hydrology); Chal Martin (City of Burlington); Charles Bennett (Dike District 12); John Shultz (Dike Districts 1 & 12); Daryl Hamburg (Dike District 17); Blaine Chesterfield by phone (City of Mt. Vernon); Lou Ellyn Jones by phone (USFWS); Lyn Wiltse and Jamie Riche (PDSA Consulting)

DECISIONS – none today**.**

2011 ARG MEETING DATES: Apr. 12 Mtg. (9-3 pm); May 10 Conf. Call (9-11 am); June 14 Mtg. (9-3 pm); July 12 Conf. Call (9-11 am); Aug. 9 Mtg. (9-3 pm); Sept. 13 Conf. Call (9-11 am); Oct. 11 Mtg. (9-3 pm); Nov. 8 Conf. Call (9-11 am); and Dec. 13 Mtg. (9-3 pm).
FPTWG: March 22 at the Coast Gateway Hotel in SeaTac, w/ WebEx and Conference Call capability

ACTION ITEMS
- Arnie — Attach Tetra Tech PowerPoint to distribution of these notes.
- All — Forward Tetra Tech PowerPoint to interested parties who attended this meeting.
- Arnie — Coordinate Tetra Tech presentation at May ARG, adjust to in-person meeting?
- Nick — Send Bob Helton the spreadsheet outlining the VE process for the Lower Baker FSC.
- Nick — Send Jed data on mortality due to handling at the FSC.
- Nick — Coordinate with Arnie to distribute the draft sub-sampling protocols to the co-managers.
- Kevin — Mark the numbers on the incubation worksheet as estimates.
- Cary — Coordinate a teamlet meeting to talk about outstanding hatchery construction issues, creel survey proposal, and release sites; invite Stan, Jon-Paul, Doug B., Brock, Kevin, and Brett.

PREVIOUS - STILL RELEVANT - ACTION ITEMS
- Chuck — Ask Linda Smith to give update on GI progress at upcoming ARG meeting.
- Mark — Add links to source data in future flood forecast advisories (links are being added to the Baker License website).
- Steve — Identify the Olympia contact to coordinate re. HGMP with WDFW (in process).
- Co-Mgrs — Send a draft Fish Production Plan to Arnie ASAP (as per FPFP).
- All — Review / update the ARG representation list for your organization (ongoing).
- Arnie — Add an IPP / 106 refresher to the July, 2011 ARG meeting agenda.

BRCC UPDATE
Cary reported that the BRCC has not met since our last meeting. He briefly reviewed the most recent summary of license implementation working groups that were sent out by email to the BRCC. The fourth Wednesdays will continue to be reserved throughout 2011 for BRCC conference calls as needed. They are anticipating in-person meetings semi-annually (spring and fall); the next get together is tentatively planned for April 27, 2011.

Cary also informed the group of PSE's recent reorganization. Ed Schild has been named Director of Electric System Operations. Paul Wetherbee, who many signatories know from the relicensing process, is PSE's new Director of Hydroelectric Resources.

107c IMMINENT FLOOD ANALYSIS PRESENTATION
Mark Killgore and Jay Smith (Tetra Tech) walked the group through the analysis results for post-Interim Protection Plan analytical periods. Mark reminded folks that this is the fourth presentation to the ARG on this subject. Earlier presentations outlined and sought feedback on the study's methodologies, assumptions, and preliminary results.

Jay described the objectives of the study: to evaluate the ability to drawdown the Baker Project in the days prior to forecasted flood events, to evaluate the flood benefits of evacuating additional flood control volume, and to use this information to support the development of protocols for imminent flood drawdown.

Jay framed the questions the study considered:

- Are there benefits to drawing down the reservoirs prior to forecasted events within the license constraints and are there additional benefits to further drawdown (based on releases from Lower Baker that exceed the license constraints)?
- Is there a threshold event for which imminent flood drawdown could moderate flood impacts?
- Is the threshold event seasonally dependent?
- Which NWS river forecast station(s) should be used to monitory for these potential drawdowns?

The analysis used the synthetic flood hydrographs that were developed for the USACE General Investigation Study. Synthetic hydrographs are available for ten inflow locations along the Skagit River. The analysis also used flow duration analysis results to define wet, average and dry hydrologic conditions coincident with drawdown. The study also compiled historical hydrographs for ten actual flood events.

The flood season was further subdivided into analytic periods for the Post-IPP: Oct 1-20, Oct 21-31, Nov 1-15, Nov 16-30, and Dec 1-31 in order to assess season-dependent variables and operating conditions:

- Upper Baker reservation at start of drawdown
- Lower Baker reservation at start of drawdown
- Coincident flow conditions during drawdown
- Constraints on Lower Baker releases during drawdowns
- Duration of drawdowns (in days)
- Magnitude of the imminent flood event
- IPP and post-IPP Operation plans

The drawdown model was an Excel-based model with hourly time steps; it considered information from three locations within the system: hydrological inflow to Upper Baker Dam, local inflow to Lower Baker Dam, and flow on the Skagit River upstream of Baker River. The drawdown model accounts for license constrained drawdown and unconstrained drawdown. The flood operation model reflects the different operations of the two dams: Upper Baker Dam is operated for flood control by USACE while the Lower Baker Dam typically is not operated for flood control.

Jay noted that in real events, there are many opportunities to make decisions that deviate from theoretical operations ; this would, of course, impact results. The study used a theoretical operation assuming consistent, standardized decisions based on the Seattle District USACE Water Control Manual.

Jay presented the study results for two of the five Post-IPP analytical periods: December when there is more flood volume available prior to drawdown and early October when there is less flood volume available prior to drawdown. These were demonstrated under two scenarios: within license constraints and a no-constraints model, both with a drawdown duration of four days. Regardless of the underlying conditions or the constraints, Upper Baker can reach the target within four days.

Jay then showed tables and graphs demonstrating the Skagit River regulated peak flows (cfs) for the range of modeled return period flood events, based on the results of the drawdown analysis. The drawdown analysis considered both license constrained drawdown scenario and an alternative drawdown scenario whereby there were no constraints imposed on the drawdown. For the December Post-IPP analytical period, the flood benefits between the constrained and unconstrained drawdown operations did not become significant until a flood with a return period of approximately 250-yr. For the early-October Post-IPP analytical period, the flood benefits between the constrained and unconstrained drawdown operations did not become significant until a flood with a return period of 10-yr.

Chal Martin (a guest of Lorna) expressed interest in a conversation about how to reduce Baker Project Outflow at Lower Baker during a flood event to zero, especially for smaller, up to 25-year events. Mark checked with the Corp's Hydrologist Doug Knapp and confirmed that the current Water Control Manual does not permit this type of operation. Stan (SRSC) and Cary (PSE) noted that that would be a topic for another day, given the focus of the TetraTech presentation and the time available on today's agenda.

Jay noted that the next step will be to conduct a similar analysis for IPP analytical periods. The results of this analysis will be available for discussions at the May ARG meeting. Attendees asked if that meeting could be shifted to be an in-person meeting; Arnie will coordinate.

FPTWG UPDATE

Nick updated the group on the construction of the LB FSC. Comments for the designs that went out to the ARG January 12 are due March 12. A contractor has been selected and given limited notice to proceed, is developing shop hull drawings and has begun ordering materials. Folks can expect to see mobilization in July and construction activity in August. Pier, access and the debris management systems are still being detailed. The boat launch will be usable throughout the construction period, so a temporary launch will not be needed. FSC launch in the fall of 2012 will be by motorized dollies from the construction pad. The Lower Baker FSC is scheduled to be operational March 1, 2013.

He also updated the group on the fourth-year performance study of the UB FSC. Over the last two years, they found that sockeye prefer 1,000 cfs, so this year's study is focused on determining the system's collection performance of Coho and Sockeye under optimal conditions, i.e., 1000-cfs, and the incidence of fry impingement / injury at double the normal screen approach velocity criterion.

The next FPTWG meeting is March 22 at the Coast Gateway Hotel in SeaTac. The agenda will be focused on performance-related issues and sub-sampling plans.

OPERATIONS UPDATES

Fish Inventory: Doug walked the group through the Baker Hatchery Fish Inventory (in the handouts). Coho in Raceway 1 will be released into the stress relief pond before going into the river this year. The goal will be to do this release as close as possible to the normal outmigration peak.

There are 20,000 Rainbow in Raceway 4; some will be reserved for the Tribe and the annual charity event, and most will go into Depression Lake. The pit-tagged Sockeye and Coho will be held until weather allows

and will be moved into the pens for the bio-study. There are three freeze-branded Coho groups that will be released into Baker Lake and Lake Shannon as in prior years. The "C brand" Sockeye will be released into Baker Lake mid-April. 625,000 Sockeye fry from the artificial incubation (AI program) are going out tomorrow (March 9), bringing the season total to almost a million out! Almost 52,000 Coho swim-up fry were ponded on February 28, 2011.

Doug and Jed agreed that the new hatchery operations are going "very well." Jed commented that the team approach to the design paid off. He noted that design requests were accommodated and are making a real difference for the people "on the ground," and he thanked PSE for sponsoring such an inclusive process.

Incubation: Kevin walked the group through the incubation worksheet (handout). He noted that the hatchery folks will run 1,000 fry through as a final test to be sure all the connections work before going through the process for the bulk of the fry. Jon-Paul observed that the numbers on the sheet don't add up. Kevin explained that this is because the numbers are estimates based on weight counts; he will mark the sheet accordingly to clarify.

Fry Ponding and Planting: Kevin then walked the group through the 2011 fry ponding and planting plan (handout). This year, 4 million fry will go to Baker, the rest to Shannon. The group talked about the capacity and release strategy of hatchery and reservoir. The co-managers will discuss. Kevin noted that the ponding dates are firm and start in about a week and a half, so he needs direction from the co-managers asap.

Kevin pointed out that the 2011 fry ponding and planting plan describes the rationale and approach the team is taking; he urged ARG members to review this document.

Hatchery "Pick-Up" Items: Jed briefly highlighted a list of outstanding construction items related to the new hatchery. It was agreed that this could be best addressed in an off-line meeting.

Creel survey proposal: Brett explained that WDFW would like to have the Sockeye production survey at the Baker project every year (as was done last year). There are three "pots of fish:" hatchery, fry release sites, and the fish that remain in the lake after the fishing season and spawn naturally. A study last year indicated that more lake fish are spawning than previously thought. Cary asked for clarity in terms of PSE's role and the request being made of PSE. Brett clarified that WDFW is asking for people (technicians) and / or funds for a study; a proposal has been submitted to Arnie. Cary will review and coordinate a meeting between the co-managers and PSE to discuss the proposal.

Release sites: Jed walked the group through a powerpoint showing maps of the proposed Sockeye fry release sites, which are: Old Scott Paper Road, Blue Tarp, Channel Creek, Small Channel & Big Pond. Jed noted the importance of getting these other sites ready so there is a way to plant fry in the "old lake" if or when Beach #3 goes away. He also reiterated the urgency of creating a release site on Shannon if the co-managers want to release fry into Shannon as another functional site is not currently available. Greta encouraged the group to move quickly as this is the right time to coordinate work for next year.

ARG Teamlet: The three items above (Hatchery construction pick-up items, Creel survey proposal, and Fry release sites) all interest the same group of folks, so Cary will convene one ARG teamlet to address all three topics. Stan, Jon-Paul, Doug B., Brock, Kevin, and Brett expressed interest in attending.

JOINT ARG-CRAG WORKSHOP

The meeting adjourned for lunch and reconvened as a joint ARG/CRAG meeting to discuss the decommissioning of the spawning beaches.