

**BAKER R. FISH PASSAGE FACILITIES DESIGN
FISH PASSAGE TECHNICAL COMMITTEE**

9:00 a.m. - 3:00 p.m.
May 19, 2003

AGENDA

Objective: Finalize downstream alternative selection, create passage development schedule and discuss performance standards and other issues supporting the settlement agreement.

9:00 - 9:10	Review agenda and handouts (Wiltse)
9:10 - 9:15	Review minutes & action items – N/A (Wiltse)
Downstream Passage	
9:15 - 9:35	Alternatives status TM description (Welch, Eldridge)
9:35 - 10:15	Pelton Round Butte design discussion (Eldridge) Lewis R. vs. Baker R. cost comparison (Eldridge)
10:15 - 10:25	Break
10:25 - 11:45	SCB development schedule and design memorandum (Eldridge) (components, UB/LB sequencing, timeframe for installation, schedule development, technical committees formation & communication options)
11:45 - 12:15	Lunch (provided)
12:15 - 1:00	Review of other surface collectors (Eldridge)
1:00 - 1:20	Develop agenda for 2-day SCB expert workshop (Eldridge)
1:20 - 2:25	Performance standards memo and settlement agreement article development - break included (Verretto)
2:25 - 2:40	2003 surface collection barge studies update (Verretto)
2:40 - 2:50	Other Issues (Verretto)
2:50 - 2:55	Evaluate meeting & review assignments (Verretto)
2:55 - 3:00	Long-term schedule, agenda, facilitation (Verretto)

DRAFT MEETING MINUTES
Upstream and Downstream Fish Passage Technical Working Group

Mission Statement: To develop an efficient fish passage design for the Baker River Project.

Project: Baker River Project
FERC No. 2150

Written By: Kate Welch, MWH

Meeting Date: May 19, 2003

Location: Red Lion SeaTac Hotel

Attendees:	Arnie Aspelund, PSE	Gary Sprague, WDFW
	Doug Bruland, PSE	Jim Stow, USFWS
	Ray Eldridge, MWH	Nick Verretto, PSE
	Steve Fransen, NMFS	Stan Walsh, SSC
	Ed Meyer, NMFS	Kate Welch, MWH
	Wayne Porter, PSE	Lyn Wiltse, PDSA

Purpose: Finalize downstream alternative selection, create passage development schedule and discuss performance standards and other issues supporting the settlement agreement.

Future Meeting Dates:

June 17, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel.

July 24, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel.

Sept. 09, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel.

See handout for additional meeting dates, through license submittal date.

New action items

Eldridge & Welch – Finalize upstream passage cost estimate

Welch & Verretto – Place updated document tracking memo on LiveLink and send link to group for comments.

Welch & Verretto – Update DS Alternatives Summary to reflect group comments and load into LiveLink for further comments by group.

Welch & Eldridge – Advance the SCB facility and technology study.

Verretto & Welch – Check records for information about a tower alternative that may have been considered during the relicensing process.

Eldridge – Coordinate FSC workshop agenda and attendees.

Eldridge – Request information from PG&E regarding tower alternative at Pelton Round Butte.

Eldridge – Add adult trap to overall schedule.

Verretto & Eldridge – Set up design teams and develop design team meeting schedule.

Verretto & Eldridge – Identify marine architects for consultation.

Eldridge – Schedule technical criteria committee meeting.

Group – Submit comments via LiveLink on updated document tracking memo.

Technical Memos/Reports Distributed

The items distributed and reviewed at the meeting were: 05/19/03 agenda (PSE), 04/28/03 draft meeting minutes (PSE), updated long-term schedule (PSE), performance standards memo from BAG (NMFS), Baker Project



datum standardization memo (PSE), 2003 FSC studies update information (PSE), downstream alternatives status TM (MWH), FSC design development schedule (MWH), FSC design development schedule TM (MWH), summary of other surface collector designs memo (MWH), Lewis R. vs. Baker R. cost estimates comparison (MWH).

Review agenda, minutes & action items

Minutes from the April 28 meeting were distributed and action items reviewed:

Verretto & Eldridge - Develop work plan summary and schedule, bring to May 9 Aquatics meeting.

Welch & Verretto - Update document tracking memo for May 9 Aquatics meeting.

Welch & Verretto - Place updated document tracking memo on LiveLink and send link to group.

Verretto - Update Aquatics group on alternatives selection status at May 9 meeting.

Group - Submit comments via LiveLink on updated document tracking memo.

Agencies - Convene May 6 to develop performance standards for the future facility, then report to the Aquatics group at the May 9 meeting.

Eldridge - Inquire into design and stage of Pelton Round Butte tower design.

Nick asked the group to review their comments from the 04/28/03 meeting (as indicated in the 04/28/03 meeting minutes) and submit changes to ensure that the record accurately reflects statements made at the meeting. The 04/28/03 meeting minutes will be updated to reflect edits and will be posted in LiveLink for further comment by the group.

New Business

Gary Sprague explained the change in vertical datum for the Project, as indicated in a handout, which was presented at the May 14 Cross-Resource workshop. He explained that, to-date, all elevations reported for Upper Baker were based on the National Geodetic Vertical Datum of 1929, but going forward, elevations will be reported with respect to the North American Vertical Datum of 1988. Based on this new datum, there is a difference of 3.77 feet at the USGS gage used to measure reservoir levels in Baker Lake. Therefore, when the reservoir is at full pool in Baker Lake, it corresponds with an elevation of 727.77 feet (formerly 724 feet). The difference at Lake Shannon is 3.75 feet, corresponding to a full pool elevation at Lake Shannon of 442.35 feet.

Alternatives status TM description

Kate Welch reviewed the Downstream Alternatives Summary TM. The group agreed to call the new surface collection systems “Floating Surface Collectors”, or FSC. Henceforth, this will be the naming convention. Nick expressed concern that this memo will be used as a “single point of reference” in the future if someone wants to review the group’s decision-making process. Therefore, it is important that it accurately reflect the actions and opinions of the group as a whole. To that end, there were some changes made to the phrasing in the text of the document. “Prescription” will be removed, and on the document tracking tables, the reason for not advancing the Conventional alternatives will be changed to: “Cost prohibitive, technical and biological uncertainty”. The memo will be updated with inclusion of the tower alternative and based on individual’s comments, then placed in LiveLink for comment by the group.

Pelton Round Butte design discussion

At the April 28 meeting, Jim Stow suggested consideration of a tower and floating screen structure similar to that being considered at Pelton Round Butte, because it would provide another alternative at lower cost than the conventional screening alternatives. MWH presented information regarding the tower collector. It is understood that PG&E is approximately as far along in the relicensing process for the Pelton Round Butte Project as is PSE for the Baker Project. They are presently developing cost estimates, and the \$60 million estimate mentioned at the April 28 meeting is approximately two years old. The technical concern both at Pelton Round Butte and at Baker is the foundation and depth of the structure. It would be particularly challenging to build a foundation 285 feet deep in the deep channel upstream of Baker dam.



The tower is required at Pelton Round Butte due to requirements to install water temperature control function into the intake. Screening of the tower is a small step in logic and design once the tower has been prescribed. According to Jim, they are considering two options at Pelton Round Butte – an upright tower or leaning the tower backward. At the top of the tower is a floating screen, or “cheese wheel” with “wedges” that alternate from functioning screens to exclusionary screens.

Ray will request drawings and detailed information from PG&E so that the group can fully evaluate the tower concept’s applicability for the Baker Project. Jim would like to see the tower option brought up to the level of the other alternatives to determine if it has a fatal flaw.

It is believed that a similar option was considered early in this process. Nick and MWH will review the old records for information.

Lewis R. vs. Baker R. cost comparison

At the May 9 Aquatics meeting, agency representatives expressed concern regarding the wide difference in the cost estimates for Baker River and Lewis River, both of which consist of FSCs, and both having been prepared by MWH. The estimate for the Lewis River Project – inaccurately reported as \$73 million at the Aquatics meeting – is \$43 million, and includes many other facilities that were not included in the Baker River estimate, such as a large concrete guide wall that was estimated to cost \$9 million. When facility costs are compared like-for-like, the 600-cfs surface collector at Lewis River and the 1,000-cfs floating surface collector at Baker River are nearly identical. The cost at Lewis River was estimated by scaling up a smaller facility, while the costs for Baker River were estimated by conducting take-offs from the conceptual design. Additional facilities and customizations at each site are the reason for cost differences.

FSC development schedule and design memorandum (components, UB/LB sequencing, timeframe for installation, schedule development, technical committees formation & communication options)

Nick provided background on how the schedule was developed. PSE has said all along that with agreement, they would pursue an aggressive design and construction schedule for the new surface collectors. PSE and MWH developed a preliminary schedule based on the requirements at both Lower and Upper Baker, the modules involved, and the sequencing of events to get new systems in place as quickly as possible. The preliminary schedule has undergone three revisions, the final incorporating a balance of resource protection, logistics, technical feasibility, cost, the need to guarantee that the quality and function of the installed facility are not compromised by a short-sighted compression of the schedule past that which is reasonable and prudent, and in consideration of the strong desire to avoid delayed implementation.

The schedule reflects a commitment to aggressively advance the design, with the caveat that items of considerable cost would be triggered only by satisfactory resolution of the settlement process, thereby limiting the unrecoverable exposure of the company. Also inherent in the schedule is PSE’s willingness to commit significant resources – including staffing and funds – immediately to allow advancement of the design concurrent with settlement discussions. This commitment further reflects PSE’s confidence that settlement discussions will successfully address everyone’s interests, including delivery of a cost-effective license.

The key dates on the schedule are August 1, 2003 which is the date of completion of the Tentative Baker Passage Agreement, and February 27, 2004, which is the date of completion of the final Baker Passage Agreement. The schedule indicated that phase one installation of the Upper Baker FSC will occur by March 1, 2007, followed by one year of biological testing and installation of phase two (if required) in 2008. Lower Baker phase one would be installed in 2009, and phase two in 2010, if required.



Considerable discussion followed. Gary expressed concern about delaying Lower Baker deployment until after installation of both Phases 1 and 2 at Upper Baker. Nick stated that PSE and MWH thought a lot about that, and because of the internal resources required to design and construct one facility, it was decided that a sequenced development would allow the team to focus on one system, learn from the design and construction, perform hydraulic and biological tests on the prototype, and construct the second facility using lessons learned from the first. PSE and MWH balanced all issues in development of the schedule, and the schedule reflects that. Several years of testing may be required to gain absolute confidence in design modifications, but that delays the implementation beyond what is acceptable. PSE considered the suitability of each site for testing (Upper Baker versus Lower Baker), the time required for testing and the consequences to implementation timing. Scenarios considered included simultaneous installation, Lower Baker first, Upper Baker first, prototype #1 installation and testing at Upper Baker followed by its dismantling and movement to Lower Baker with prototype #2 installation at Upper Baker.

The following lists were developed as the positives and negatives of installing at both Upper Baker and Lower Baker at the same time:

Positive – Install at Both Dams at Same Time	Negative – Do NOT install at Both Dams at Once
What will we know in 2007 that we don't know in 2003?	We can apply learning in new technology to the second barge
More action sooner is possibly better for the fish	Capital outlay – more at once
Most likely to get improved passage over the status quo 2 years sooner.	Requires huge commitment of resources (peak resources)
Limit the risk that LB barge might fail leaving no passage at LB	What is plan B if we don't have success at first FSC?
Try two different adaptive management options – accelerates collection of data	Lessons learned can be carried back and forth
Double data collection by trying the same at both dams at once	Logistical constraints may compromise quality.

The following table illustrates the discussion regarding building a new FSC at Upper Baker Dam first versus building a new FSC at Lower Baker Dam first.

Build at Upper Baker First	Build at Lower Baker First
Doing something for the most fish first	Would be able to apply learning to Upper Baker and end up with the best product where you have the most fish.
Draw from wild production for marked recapture	Have to use hatchery fish for studies
Recent fish behavior studies have been at Upper Baker	
Most of what we've learned about Lower Baker is by inference	

Sequentially implementing the systems also allows for a full year of testing the first system and making changes to the second before it is implemented. In order to gain any knowledge from testing, there needs to be 2 years between phases at each dam. This will only allow one season of field data, which will be analyzed before changes are made to the FSC. The group agreed that there is some concern around this because one year of data can be misleading. As a result, decisions could be based on inaccurate information. However, biological uncertainty can be used to delay any action. The schedule should be dictated by a pragmatic evaluation of the risks to the resource posed by inaction, imprudent action, uninformed decisions, decision-paralysis, and logistical constraints.

After discussion, the group agreed that the first FSC would be implemented at Upper Baker. The following sequencing was defined:

- March 1, 2007 FSC Phase 1 (500 cfs) operational at Upper Baker Dam
- March 1, 2008 FSC Phase 1 (500 cfs) operational at Lower Baker Dam
- March 1, 2009 FSC Phase 2 (1,000 cfs) operational at Upper Baker Dam (if necessary)
- March 1, 2010 FSC Phase 2 (1,000 cfs) operational at Lower Baker Dam (if necessary)

Note: This sequence is for scheduling purposes only. No decision has yet been made regarding the sizing of the initial installation.

This schedule will also facilitate collection of more information quicker by getting both facilities in quickly. The testing process must be rigorous. The group's expectation is that significant change in effectiveness of the FSC will be based on changes in flow. NMFS reiterated that the tests are important, and decisions should be made as information is developed. The schedule was rated as aggressive, but there is no need to delay the deployments further than that suggested above because it is difficult to accelerate a schedule once it is underway, although a schedule can always be delayed mid-route if required. The group accepted the schedule as prudent.

Review of other surface collectors

This discussion was deferred until the June 17 meeting. However, Ray summarized some of his findings: there is no formula for what works and what doesn't work for FSCs. MWH is researching FSC designs, problems they're trying to address, results of studies, approach velocities and other information which will support our process. MWH will gather information on the following FSCs: Wells, Wanapum, Rock Island, Ice Harbor, Cowlitz Falls, Rocky Reach, Lower Granite, Bonneville 1 & 2, Green Peter, North Fork Clackamas, Pelton Round Butte, Howard Hansen and Mayfield.

Ed Meyer mentioned that Chelan PUD is having a fish passage forum on June 3 and 4, and that it may be of interest to members of this group.

Develop agenda for 2-day FSC expert workshop

The 2-day FSC workshop will focus on fish passage at storage reservoirs – “What Fish Want” (suggested title by Steve Fransen). The group discussed possible experts to be invited, including Ken Bates, Dan Odenweller, Steve Rainey, Rock Peters, Blaine Ebberts, Kevin Crum, Chick Sweeney, Charles Coutant, Bob Pearce. During the first day, there will be a tour of the facilities and background information about what PSE intends to do at the Baker River Project. The goal of the sessions will be to gather information about attributes of the “silver bullet” and attributes of the “white elephant” – to learn what to do and what not to do.

Possible dates for the workshop are July 21-23, July 7-9, and July 28 & 29. It is understood that not all of the members of this group will be able to attend. PSE and MWH will develop an agenda and begin coordinating the meeting, notifying the group of the final workshop dates.

Performance standards memo and settlement agreement article development

The BAG met by conference call after the April 28 meeting to discuss development of passage system performance standards, submitting the resultant memo that summarizes draft performance standards at the May 9 Aquatics meeting. The group realizes the importance of the issue to the settlement discussions and design development, so agreed to commit three hours to the discussion at each of the next few passage design meetings. The following issues were listed for discussion at the next meeting, June 17:

- Clarify definitions
- What and how are we measuring? Methods and criteria
- Schedule for implementation



- How far do we keep tweaking the FSC until we jump to something else
- Compensation, and when is the decision made to opt for compensation versus improvements

2003 Surface collection barge studies update

This discussion was postponed until the June 17 meeting.

Design Team Long-Term Schedule

The long-term design schedule for design of the FSC and related facilities dictates the creation of design teams to develop elements of the various systems. The group agreed to the creation of the following teams, and the listed parties will be called on to participate in meetings starting in September 2003, continuing throughout the design phase to initiation of construction. These teams will likely meet at SeaTac on the day prior to or following the FPTWG meetings.

Team	Participants
FSC	Ken Bates, Tom Bringloe (Gloston), Doug Bruland, Dennis Dorratcague, Ray Eldridge, Steve Fransen, Dick Levy, Al Lynch, Ed Meyer, Frank Postelwaite, Gary Sprague, Jim Stow, Nick Verretto, Stan Walsh, Kate Welch.
Entrance Module	Ken Bates, Tom Bringloe (Gloston), Doug Bruland, Dennis Dorratcague, Ray Eldridge, Steve Fransen, Al Lynch, Ed Meyer, Frank Postelwaite, Gary Sprague, Jim Stow, Dave Thompson, Ron Twiner, Nick Verretto, Kate Welch.
Guide Net	Ken Bates, Doug Bruland, Bob Coffell, Dennis Dorratcague, Ray Eldridge, Steve Fransen, Ed Meyer, Gary Sprague, Jim Stow, Dave Thompson, Ron Twiner, Nick Verretto, Kate Welch.
Net Transition	Ken Bates, Doug Bruland, Bob Coffell, Dennis Dorratcague, Ray Eldridge, Steve Fransen, Ed Meyer, Gary Sprague, Jim Stow, Dave Thompson, Ron Twiner, Nick Verretto, Kate Welch.
Upstream Trap	Ken Bates, Doug Bruland, Dennis Dorratcague, Ray Eldridge, Steve Fransen, Al Lynch, Ed Meyer, Matt Moughamian, Gary Sprague, Jim Stow, Nick Verretto, Kate Welch.
Intake Structure	Ken Bates, Doug Bruland, Dennis Dorratcague, Ray Eldridge, Steve Fransen, Ed Meyer, Jim Passage, Gary Sprague, Jim Stow, Dave Thompson, Nick Verretto, Kate Welch.

Other Issues

The group needs to discuss the issue of flow on Phase 1 of the FSCs – 500 cfs vs. 1,000 cfs.

The group discussed the concept of “prescriptive authority”. PSE’s position is that they are reluctant to committing significant funds on FSC development without unequivocal agreement that the FSC will be the future passage facility at the Project, and with the threat of prescription of full screens by agencies looming regardless of agreement. Jim said that agencies have not in the past given up “prescriptive authority” on any license agreements, and will reserve it here. Steve said there is likely no zero-risk settlement. The question really is “how does this group settle on its answer?”, because it will be this group that needs to develop the passage settlement. Therefore, the development of performance standards and penalties will be critical. This discussion will continue in subsequent meetings.

Meeting Evaluation & Assignments Review

The group elected to forego the opportunity to evaluate the meeting.

Long-Term Schedule, Agenda, Facilitation



June 17, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel.
July 29, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel.
Sept. 09, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel.
See handout for additional meeting dates, through license submittal date.

Tuesday, June 17, 2003, 9-3 passage design mtg at Red Lion SeaTac Hotel.

Objective: Develop performance standards and other issues supporting the settlement agreement, continue engineering design development, finalize downstream alternative selection administrative record, and continue development of FSC design schedule.

Review agenda and handouts (Wiltse)

Review minutes & action items – N/A (Wiltse)

Performance standards memo and settlement agreement article development (Verretto)

Review of other surface collectors (Eldridge)

Update/develop agenda for 2-day FSC expert workshop (Eldridge)

Alternatives status TM description (Welch)

FSC development schedule and design memorandum (Eldridge)

(components, schedule, technical committees & communication options)

2003 surface collection barge studies update (Verretto)

Pelton Round Butte design discussion (Eldridge)

Other Issues (Verretto)

Evaluate meeting & review assignments (Verretto)

Long-term schedule, agenda, facilitation (Verretto)

Facilitation: Will be provided for future meetings, unless otherwise noted.