BAKER R. FISH PASSAGE FACILITIES DESIGN
FISH PASSAGE TECHNICAL COMMITTEE
BAKER RIVER PROJECT, FERC NO. 2150

Red Lion SeaTac Hotel
18220 Pacific Hwy. S., Seattle, WA 98188

9:00 a.m. - 3:00 p.m.
April 28, 2003

AGENDA

Objective: Continue downstream alternatives selection, final instruction on LiveLink administrative tracking system.

9:00 - 9:10	Review agenda and handouts (Wiltse)
9:10 - 9:15	Review minutes & action items (Wiltse)
	Downstream Passage
9:15 - 10:15	Design & cost of remaining alternatives (Eldridge)
10:15 - 10:25	Break
10:25 - 11:25	NOAA Fisheries passage development proposal (Fransen)
11:25 - 11:45	Decision pathway, next steps (Feldmann)
11:45 - 12:15	Lunch (provided)
12:15 - 12:45	OpenText LiveLink questions/instruction (Welch)
12:45 - 1:00	Alternatives status TM description (Welch, Eldridge)
1:00 - 1:15	Review of other surface collectors (Eldridge)
1:15 - 1:25	Break
1:25 - 1:40	2003 Surface collection barge studies update (Verretto)
1:40 - 2:40	Second upstream passage sites visit review (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)

PSE PUGET SOUND ENERGY

Baker River Project Relicense

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: Nick Verretto

Meeting Date: April 28, 2003

Location: Red Lion SeaTac Hotel

Attendees:

Arnie Aspelund, PSE	Ed Meyer, NMFS
Ray Eldridge, MWH	Wayne Porter, PSE
Cary Feldmann, PSE	Gary Sprague, WDFW
Steve Fransen, NMFS	Nick Verretto, PSE
Kate Welch, MWH	Stan Walsh, SSC
Jim Stow, USFWS	Gene Stagner, USFWS
Lyn Wiltse, PDSA	

Purpose: Continue downstream alternatives selection, final instruction on LiveLink administrative tracking system.

Future Meeting Dates:
May 19, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel (note – changed from 05/21/03).
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.

New action items
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.

Technical Memos/Reports Distributed
The items distributed and reviewed at the meeting were: 04/28/03 agenda (PSE), updated long-term schedule (PSE), updated working group list (PSE), 2003 SCB studies summary and examples of preliminary data (PSE), downstream alternatives status summary TM (MWH), and downstream alternatives cost estimates (MWH), performance standards memo (agencies).

Review agenda, minutes & action items

Minutes from the March 18 meeting were incomplete and not distributed. Action items from the March 18 meeting were:
Eldridge - review surface collectors designs and effectiveness at other Projects.
Eldridge - develop detailed cost estimates of each of the remaining alternatives.
Group - review LiveLink program and bring comments/questions to April 28 meeting.

Downstream Passage
Design & cost of remaining alternatives
Ray distributed cost estimate documents and discussed development method and figures for remaining 5 alternatives:
1. conv. /0.4 fps/ ltd. res. range
2. conv. /0.8 fps/ ltd. res. range
3. conv. /0.4 fps/ full res. range
4. conv. /0.8 fps/ full res. range
5. SCB - gulper cost estimates are -30/+50% (industry-std. Range at conceptual level)

The SCB estimate was $9 million for largest module in 2003 dollars, which, with the 50% contingency would be ~$14 million at each plant.
The conventional options ranged from $64 - 102 million, and with contingencies and unfactored costs could go to over $150 million at each plant.
Stan's suggested option of a SCB and ltd res conv screen operated at lower pool elevation only would cost ~ $89 million

Original estimate from Mort of 2 yrs. ago were close, but lower. The latest estimates did not consider previous ones (which weren't looked at), so independent development maintained objectivity for comparison. Conventional screens were $110 million outside cost in previous estimate, compared with $150 million in the present analysis. The present conventional screens estimates do not factor in unknowns such as the 24' diameter penstock across the dam, intake modifications or generation loss, so cost will increase by tens of millions, likely to $150 million for each plant. The largest suspended pipe is at Rock Island, where it's partially full and 8' diameter on the downstream side (C?). These estimates are much more accurate than the last iteration, because the level of detail is much greater and they incorporate updated design and cost information.

Stan’s combination alternative (conv./ltd and gulper) estimate was $88.5 million. Savings were not as hoped because the concept is actually a combination of two alternatives -- estimate may be slightly larger than actual if reservoir range was 20' as opposed to Stan's recommended 10' (can’t recall the design consideration), but pipe and foregone power costs during construction would be great. Present full reservoir range is 50' (674'-724'), and the definition of limited used in all concepts was 20' range. Stan's limited definition is10'. The fish handling facility is not included in estimate, but is incidental in Ray's estimation.

Jim suggested looking at another option, which would be a tower in front of the intake, similar to Pelton Round Butte (Deschutes River), thereby removing the 24' penstock from the design. Pelton Round Butte has 12 cfs capacity, 2-6 kcfs screened at top, additional screening at depth around the 60' ID tower. For comparison, the Upper Baker baffle is 23' radius with a max theoretical velocity of 2 fps. Jim will get cost of tower design, but design would be tower at existing intake. Dimensions of the Pelton Road Butte design are: 270' D x 60' ID with top floating (collects fish), believes that present cost estimate is $55-65 million, flow design of 9 kcfs, fish bypassed to trap-and-haul, design is 0.4 fps, can be any shape such as half sphere. Design is to be installed in the wet due to inability to drain, although power disruption may occur. Ray will look into more details of the Pelton Round Butte design and stage.

NOAA Fisheries passage development proposal

Steve Fransen discussed the status of the remaining alternatives and future direction of the downstream passage design team. Thinking of the gulper option in the context of PSE's message that cost of conventional screens constitutes a “deal breaker” regarding the alternative license proceeding, the selected alternative needs to pass a test that it will be as good or better than that dictated by prescription criteria, the closest alternative being the conventional screen. The group has been thinking about options reduction, rather than solutions. One of the needs is to test a modular gulper in more aspects than flow alone. The past year’s behavioral studies demonstrated that while attraction to the SCB is good, collection is poor (see 2002 studies reports and bulleted summary).

Different configurations or modules were discussed, such as a barrier net and guide net or trap net designs (2 separate components), and a modular entrance which could be easily and quickly modified to test various configurations. Jim suggested a SCB and net design similar to Cary's idea, and discussed plumbing SCB discharge away from net and into the intakes. Mayfield has 2-3" louver spacing, but all flow goes through the screening system and they get 82% collection. The Project on/off condition and SCB discharge likely creates problem of eddy currents, and may even if plumbed into a new baffle. Ray suggested running unit at all times during the outmigration, but the feasibility is unknown without running it through Hydrops.

The new SCB maximum flow design is 1000 cfs, while unit 2 UB normal minimum operating flow is 1300 cfs and emergency minimum flow is 800 cfs (sacrifices unit). Steve objected to settlement proposal (i.e., modular SCB) due to in-built delay for licensee over 8 yrs., for cost difference of $3 million (PSE did not have cost estimates developed prior to today's meeting, and thought that each SCB module would be of equal cost during 1st draft PME development). Part of PSE’s rationale for suggesting the sequenced development was the data that would be acquired (science-based) in testing modules. Compensation for failure to achieve performance criteria is incorporated into the settlement agreement. The group has the ability to decide what levels to protect by performance criteria, and should consider the marginal value of additional collection effectiveness against forgone opportunities elsewhere (refers to the incentive for selecting compensation in lieu of passage system improvements of minimal marginal benefit). The removal spillway weir (Walla Walla) might be a good SCB entrance to test with the modular approach.

NOAA fisheries wants to make a big change in surface collector designs such as flow, rather then “the slow sequenced approach suggested in initial settlement agreement draft”. PSE's approach, which allows testing of both 250 cfs and 500 cfs with same system, does not accommodate change of entrance conditions. The 500 cfs pumps would push approach velocities to 0.8 fps, while the 250 cfs system would be at 0.4 fps, but entrance condition (higher velocities) needs to be equivalent if testing is to be under similar conditions.

Steve discarded the 250-cfs flow option and considers 10% of Project generation the minimum passage system size to be effective. His observations have been that fish facilities are undersized and fail because of it, so he wants to see a large change quickly implemented. Part of an operational plan he would like to see would be to operate at a minimum level at all times during the fish passage season. Removal of eddy currents or their potential would be necessary, and accomplished by plumbing the SCB directly into the intake. Ray stated that the induced head loss through the screens drives the design to be pumped into the intake rather than to accomplish it through gravity flow alone.

A CFD model will be necessary to calculate flows in forebay due to low velocities and inability to detect the forebay velocities in a physical model. Jim resurrected the previous idea of plumbing multiple SCBs into a baffle or tower structure. Steve mentioned the recurring problem with the barrier nets, both in terms of deployment and maintenance. He mentioned that the nets are key to justification of the SCB alternative, and will remain one of the key issues to overcome. He stated that past experience with inattention to the net has undermined PSE’s credibility, especially when it has been the agencies’ observation that sections of the surface of the net are always submerged when inspected by the agencies. Ray suggested a compliance penalty for things like net sinking. Stan

stated that the tribes have discussed the need for such a license article, and that the penalty needs to be of greater cost than maintenance or remedial action. The tribes have likened such a scenario to selling off treaty rights.

Lyn asked what individuals' opinions were regarding advancement of conventional screens or the PSE proposed sequenced SCB option, based on NOAA Fisheries' suggestion/proposal.

- Steve Fransen - Although conventional screens are not fatally flawed, they should not be advanced due to their extreme cost and the fact that they constitute a deal breaker in terms of Project economics and the settlement agreement. Although he stated agreement with moving ahead with the SCB design as the sole alternative, NMFS reserves prescription authority (full conventional screens could be prescribed) in the event of a failure to reach settlement in the licensing process. He stated that a design which did not conform to criteria could be accepted if there was clear and cogent evidence that the alternative was of equal or better performance than the option consistent with NMFS criteria. He is uncertain of what constitutes persuasive evidence or full justification for such a decision.

- Ed Meyer - Stated that a SCB might start @ 500 cfs at the low end, and increase in size. He will require certainty of collection effectiveness criteria, sequence of development and schedule. He likes modules for entrance conditions which could be tested in the same season, minimize acceleration though facility to the capture area. Three components are envisioned: screening (SCB), nose/entrance module, and nets (which may be two separate components). Ray suggested a 3-day workshop on SCB development upon initiation of detailed designs.

- Stan Walsh - Was comfortable with not advancing the conventional screening alternative, but not with removing it from future consideration. He does not remember why we removed from further consideration the full tower approach and plumbed gulpers, but would like to look at them more. He is not comfortable committing to SCB as the sole alternative (he does not have personal authority to do so), and understands advancement would just increase design level from 10% to 30% design. Cary said that the higher design level would refine costs, not provide additional information which would lead to an alternative's removal from further consideration, and that the refined costs would not shift any of the estimates dramatically, thereby moving them from the expensive to the affordable category. Stan's impression is that the group's option is for a "system that costs too much and one that does not work very well", and would like to see other options that compliment a SCB.

- Jim Stow - Stated that he was comfortable with shelving conventional screens as long as a modular SCB development up to full flow is considered. He suggested the need to look at gravity and pumping in combination. He asked whether the SCB could be enclosed to accomplish full flow gravity flow (?).

- Gene - USFWS reserves prescription authority, and agrees with a large commitment in a substantial facility in modular / sequential development. Although USFWS may sign up for the settlement agreement, his attorneys have told him that they would have to reserve the right to come back to the table if system does not function properly. Bull trout response to any passage system is unknown, but thinks that research will be forthcoming to assist with design needs. Steelhead are in the same position as bull trout (unknown) regarding USFWS consideration.

- Gary - Agrees with not advancing conventional screens, but needs to see better nets, performance criteria and measuring means. In short, the resource needs to be made whole. For example, 95% passage with compensation for the remaining 5% may be the stipulated performance criteria.

- Cary - Asked what constitutes a deal breaker for the agencies, given that PSE has made it clear what constitutes the same for the Project. Although recognizing the importance and significance of the discussion,

he is uncomfortable with having equivocal commitment, which does not categorically move on expedited concept development. PSE would move immediately to design and construction if we reach unequivocal agreement. He mentioned the risk of delay in reaching a categorical agreement.

The agencies will be conducting a conference call May 6 regarding performance standards development -- passage survival, (reservoir survival), collection efficiency -- and how to measure each and what assurances the agencies will need to satisfy their interest over time. Results of the meeting will be presented at the May 8 Aquatics meeting.

Summary: The group tabled the remaining alternatives of highest cost and uncertain benefits, and agreed to proceed with design of the surface collection barge. It was also agreed that the smallest PSE-proposed SCB sequence be removed from consideration, and that the smallest installation considered would be of 500 cfs capacity. The rationale for this decision was that the marginal cost of the size increase is low (see cost estimates), and the anticipated threshold of effectiveness requires that the passage system have a flow of at least 10% of Project flow. The USFWS resurrected the screened tower concept for consideration, but accepted the decision to proceed with design of the SCB as the single alternative. A review of all individuals' positions noted a unanimous decision to proceed with the SCB design. Stan and others stated agreement to move ahead with the SCB design as the sole alternative due to NMFS and USFWS assurance that, with prescription authority "reserved", and at the present level of design development, full conventional screens could be prescribed in the event of a failure to reach settlement in the licensing process. The agencies have scheduled a meeting for May 6 to develop performance standards for the future facility.

Decision pathway, next steps
Steve noted that although conventional screens are not fatally flowed, but as a deal breaker should not be forward due to economic side, will not be advanced but is always an option for future prescriptions if settlement not reached
Jim and Gary have some opinion
Cary asked what was deal killer for participants
Steve stated that if proposal was not to criteria, but that it can be accepted if thought to be of some performance -- doesn't know what constitutes, persuasive evidence / justification barrier nets problems is deployment and maintenance, and that is key to justification of alternative -- one of key issues to overcome undermines credibility of PSE to see barrier net sunk every time has up there.
Nick - next steps (for mtg.) - see gulper notes on agenda

OpenText LiveLink questions/instruction
Kate reviewed the system and answered question. The group agreed that access and use was easy and would support the group's efforts. More questions and uses will arise as the design progresses, or as we develop specific settlement articles.

Alternatives status TM description
Kate described the revised and updated TM, which will be modified based on today's discussions and posted to LiveLink.

Review of other surface collectors
The discussion was postponed until the May 19 meeting due to the extended alternative selection discussion.

2003 Surface collection barge studies update
Postponed until the May 19 meeting due to extended alternative selection discussion.

Other Issues

None noted.

Meeting Evaluation & Assignments Review
Positives: Steve came out of the box, consensus building, good progress, got out early, good facilitation.
Negatives: wisecracking facilitator, wisecracking participants, had to evaluate the meeting.

Long-Term Schedule, Agenda, Facilitation
May 19, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel (note – changed from 05/21/03).
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.

Monday, May 19, 2003 9-3 passage design mtg at Red Lion SeaTac Hotel (note – changed from 05/21/03).
Objective - Finalize downstream alternative selection, create passage development schedule and discuss performance standards and other issues supporting the settlement agreement.
Review agenda and handouts (Wiltse)
Review minutes & action items (Wiltse)
Alternatives status TM description (Welch, Eldridge)
Pelton Round Butte design discussion (Eldridge)
Lewis R. vs. Baker R. cost estimates comparison (Eldridge)
SCB development schedule and design memorandum (Eldridge)
Develop agenda for 2-day SCB expert workshop (Eldridge)
Performance standards memo and settlement agreement article development (Verretto)
OpenText LiveLink Meeting Zone demonstration (Welch)
2003 surface collection barge studies update (Verretto)
Other Issues (Verretto)
Evaluate meeting & review assignments (Wiltse)
Long-term schedule, agenda, facilitation (Wiltse)

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