BAKER RIVER PROJECT RELICENSE

Fish Passage Technical Working Group

October 19, 2000

9:00 a.m. – 3:00 p.m.

West Coast Sea-Tac Hotel
18220 Pacific Hwy. S.
Seattle, WA 98188

AGENDA

Review notes/agenda
Action items/parking lot review
Continue brainstorming matrix development
Studies identification discussion
Meeting evaluation
Set agenda for next meeting

BAKER RIVER PROJECT RELICENSE

Technical Working Group – Downstream Fish Passage

October 19, 2000

9:00 a.m. – 3:00 p.m.

West Coast Sea-Tac Hotel
18220 Pacific Hwy S.
Seattle, WA 98188

MEETING NOTES

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

Attendees:

Arnie Aspelund, PSE
Kevin Brink, PSE
Doug Bruland, PSE
Cary Feldmann, PSE
Stan Walsh, SSC
Ken Bates, WDFW
Mort McMillen, M-W
Ed Meyer, NMFS
Wayne Porter, PSE
Jim Stow, USFWS
Nick Verretto, PSE
Gary Sprague, WDFW

Purpose: The purpose of the meeting was to continue identifying conceptual design concepts for replacement of juvenile fish passage facilities at the Baker River Hydroelectric Project.

Note: Future meeting dates are: December 12, 2000 and January 30, 2001, 9:00 to 3:00 at the West Coast Sea-Tac Hotel.

Agenda:

1. Review notes/agenda
2. Action items/parking lot review
3. Continue conceptual passage design development using brainstorming matrix
4. Meeting evaluation

5. Set agenda for next meeting

Review notes/agenda:
The minutes were accepted as written. Gary had one point of clarification regarding the addition of a key to the brainstorming matrix.

New Action Items:
- Mort will begin refining options based on the options matrix with the filename 'Options matrix 10_19_00.xls; Options classification' (bottom tab; see attachment) for review at the December 12th meeting.

"Old" Action Items:
- Fred will bring Skagit Chinook length-frequency data.
- Fred will look at statistical variation from year to year in the gulper mark and recovery data (by September).
- Kevin Brink will analyze how fluctuation limits affect spill (# events, amounts, seasons, duration, flow-days by month), to facilitate discussions regarding limits to drawdown range and effects on screening designs. Kevin will report a future meeting.

Report on Completed Action Items:
- Nick distributed additional bar charts of the gulper pump cycle (every 24 hours) test data. The x-axis errors present in some of the last charts were corrected. The numbers appear to be too small to be statistically significant. He distributed copies of the data (on disk) for those not in attendance at the last meeting. The need for both the Upper Baker intake flow study (baffle breaching) and development of physical models for both Upper and Lower Baker plants was discussed. No final decision was reached. These studies will be considered in the study screening process.

Parking Lot:
- Hydroacoustic data - Arnie
- Fish species run timing, emergence timing, length-frequency data – Doug, Nick
- Design strategy process
- Conceptual designs as they relate to costs
- Sediment studies

Continue Brainstorming Downstream Passage Solutions:
Discussions began by reviewing the scores of various alternatives as rated in the options matrix with the filename 'Options matrix 10_19_00.xls; Options rated by category' (bottom tab; see attachment). The highest-ranking alternatives within each of the five were the first ones addressed. Lengthy discussions ensued regarding a Lower Baker reservoir bypass, modular inclined screen (MIS) in a gulper [three variations were 1) in tower, 2) in notched baffle, and 3) with large pumps] and a full-flow floating vee-screen.

With progress seemingly very slow, team members decided to change the process to focus first on alternatives in category three (fish exclusion), then to discuss options within each of the supporting categories (reservoir passage, attraction/guidance, transport, and general). The highest-ranking alternatives

were discussed, including a conventional full-flow screen (floating at Upper Baker and land-based at Lower Baker), a MIS/gulper combination, a conventional and a vertically-adjustable MIS, and a gulper.

A different method was proposed when progress again seemed to falter. It was decided that each concept would be limited to Upper Baker and be fully developed prior to discussing the alternative's application at Lower Baker. A full-flow conventional screen with 60' of pool elevation range or a pass-through baffle was discussed. Approximately 12,500 square feet of screen would be required under this option. Ed suggested that a conventional screen design would probably have a maximum flow capacity of 4,000 to 5,000 cfs. A pool elevation range of 60' would present too many design problems, so would have to be somewhat limited if the conventional screen option were to be pursued. It was suggested, that three to four vee-screens 300' long by 40' deep, ramping up to 5' deep at the downstream end, might be achievable in the forebay.

Partial-flow vee-screens were discussed, but presented problems similar to those of the full-flow screens concerning pool elevation fluctuation. This led to consideration of a floating monolithic structure, which is very similar in concept to the existing gulper.

As the discussion again seemed to lag, Cary recommended creating another matrix to simplify the evaluation of alternatives. Cary developed this matrix as the team broke for lunch. The matrix (see attachment: 'Options matrix 10_19_00.xls; Options classification') was then refined with the team's input, and given to Mort for use in developing conceptual design alternatives (drawings, descriptions and rough costs estimates) for review at the next meeting. The meeting previously scheduled for 16 November, 2000 was canceled to allow Montgomery-Watson sufficient time to complete the work assigned.

Meeting Evaluation
Well-Dones:
- Finished ahead of time
- Lunch provided increased efficiency
- Cary's matrix worked well

Opportunities to Improve:
- None mentioned

Tentative Agenda for next meeting – 12 December, 2000,
9 a.m. - 3 p.m., West Coast Sea-Tac Hotel
1. Review notes/agenda
2. Action items/parking lot review
3. Review conceptual designs from Montgomery-Watson
4. Studies identification discussion
5. Meeting evaluation
6. Set agenda for next meeting

A subsequent meeting was scheduled for 30 January, 2001, 9 a.m. - 3 p.m., West Coast Sea-Tac Hotel.

Attachment:

Baker River Downstream Fish Passage Design Concepts																	
	System Elevation			**Flow**			**Limited Reservoir**		**Screen**		**Guidnets ?**	**Truck?**	**Pipe**	**Upper Baker**	**Lower Baker**	**Information Needs**
Line #		Full	60%	20%	10%	5%		0.4-.8	>.4	High Velocity	Y or N	Y or N	Y or N			
1	**Fixed**															
2	Conventional (full/fixed)	**x**						**x**				**y**	**y**			
3	Conventional (full/fixed)	**x**							**x**			**y**	**y**			How fast for screen?
4	Conventional (full/fixed)	**x**					**x**	**x**				**y**	**y**			Reservoir /flooding/spill fluctuation analysis (Upper and Lower Baker) & how fast for screen?
5	Conventional (full/fixed)	**x**					**x**		**x**			**y**	**y**			Reservoir /flooding/spill fluctuation analysis (Upper and Lower Baker) and how fast for screen?
6	Conventional (partial/fixed)		**x**					**x**				**y**	**y**			
7	Conventional (partial/fixed)			**x**				**x**				**y**	**y**			
8	Conventional (partial/fixed)		**x**				**x**	**x**				**y**	**y**			Reservoir /flooding/spill fluctuation analysis (Upper and Lower Baker
9	Conventional (partial/fixed)			**x**			**x**	**x**				**y**	**y**			Reservoir /flooding/spill fluctuation analysis (Upper and Lower Baker
10																
11	MIS (full/fixed)	**x**								**x**		**y**	**y**			
12	MIS (partial/fixed)		**x**							**x**	**y**	**y**	**y**			
13	MIS (partial/fixed)			**x**						**x**	**y**	**y**	**y**			
14																
15	**Adjustable**															
16	Conventional	**x**						**x**				**y**	**y**			
17	MIS(full/adjustable)	**x**								**x**		**y**	**y**			
18	MIS (partial/ ajustable)		**x**							**x**	**y**	**y**	**y**			
19	MIS (partial/ ajustable)			**x**						**x**	**y**	**y**	**y**			
20																
21	**Floating**															
22	Conventional (full/floating)	**x**						**x**				**y**	**y**			
23	"Gulper" (Partial/floatiing)		**x**					**x**			**y**	**y**	**y**			
24	"Gulper" (partial/floatiing)			**x**				**x**			**y**	**y**	**y**			
25	"Gulper" (partial/floatiing)				**x**			**x**			**y**	**y**	**y**			
26	"Gulper" (partial/floatiing)					**x**		**x**			**y**	**y**	**y**			
27	MIS(full/floating)	**x**								**x**		**y**	**y**			
28	MIS (partial/floating)		**x**							**x**	**y**	**y**	**y**			
29	MIS (partial/ floating)			**x**						**x**	**y**	**y**	**y**			
30	MIS (partial/ floating)				**x**					**x**	**y**	**y**	**y**			
31	MIS (partial/ floating)					**x**				**x**	**y**	**y**	**y**			
32																
33	**Other Adjunct Systems**															
34	River screen and trap (upstream)															
35	Multiple fixed base traps with guide nets															
36	Traveling screens (Columbia River) self-cleaning; a submerged traveling intake screen, in gate well slot															
37	**Other factors to consider**															
38	Assumptions necessary for functionality															