FINAL - Meeting Summary Notes for Engineering Subgroup
Lewis River License Implementation
August 8, 2006

Subgroup Participants Present: (13)
Sean Flak, PacifiCorp (Merwin Trap portion of meeting only)
Frank Shrier, PacifiCorp
Arnold Adams, PacifiCorp
Will Shallenberger, PacifiCorp
Eric Kinne, WDFW (Merwin Trap portion of meeting only)
Curt Leigh, WDFW (via phone/web conference, Merwin Trap portion of meeting only)
Bryan Nordlund, NOAA Fisheries (NMFS)
Monty Nigus, Black & Veatch
Brian Friesz, Black & Veatch
Ken Bates, Kozmo
Dana Postlewait, R2 Resource Consultants
Peter Christensen, R2 Resource Consultants
Suzanne Picard, R2 Resource Consultants

ADMINISTRATIVE

Welcome of attendees and review agenda.

Introductions: Suzanne Picard is introduced as R2's engineering note taker.

FERC License Schedule Update: November 1st is still the best estimate at this time for an Issuance of License date. Updates to this estimated schedule will be provided at future meetings as necessary.

Review of Previous Meetings' Administrative Action Items: See status summary table below.

SUMMARY OF PENDING ADMINISTRATIVE ACTION ITEMS (remaining from May 17th meeting)	**STATUS**
All subgroup members: Review and provide comments to Kimberly McCune for the May 17th and March 7th meeting notes. If no comments are received by July 12th, the notes will be considered final and with be posted to the 2006 ACC Final Meeting Notes web site by Kim.	Complete. March 7th and May 17th notes to be posted this month.
PacifiCorp (Flak, Shallenberger, McCune): Schedule future subgroup meetings through May, 2007. Six week intervals between meetings, split agenda items by project to increase efficiency.	Complete – 8/15/06

NEXT MEETING

- The next meeting is scheduled for 9:00 am - 4:00 pm, Sept 25th, at the Merwin Hydro Facility.

FUTURE MEETING DATES

As a reminder, future meeting dates were set for:

- Tuesday, October 31 - Merwin Hydro Facility
- Tuesday, December 12 - Merwin Hydro Facility

Future meeting dates for 2007 will be scheduled by PacifiCorp.

MERWIN TRAP PROJECT

Merwin Handouts

Distributed via email on 8/02/2006:

- Final Agenda for 8/08/2006 meeting
- Draft June 26, 2006 Meeting Summary Notes

Distributed via email on 8/7/2006:

- Merwin Fish Sorting Facility Scope Definition (Draft with comments from 6/26/2006 Engineering Subgroup Meeting)

Distributed at meeting 8/08/2006 (paper copies):

- Engineering Subgroup Merwin Meeting Schedule and Goals (8/08/2006)

Review of Previous Meetings' Merwin Project Action Items: See status summary table below.

SUMMARY OF PENDING MERWIN ACTION ITEMS (remaining from May 17th meeting)	**STATUS**
PacifiCorp/B&V/WDFW: Upper Release and Constructed Channel Design Input and Details. See information in review of the April 12th meeting's action items. Waiting for final flow distribution and clarification of goals for the constructed channel.	Pending until design effort begins again following WDOE guidance, which should be available with 401 submittal, estimated by September 1, 2006. See comment 1 below.
PacifiCorp (Shrier/Flak): Investigate the need for a minor amendment to the SA to address interim safety improvements to the fish trap. Frank spoke with Holly Harwood this period. PacifiCorp will address in the future, in coordination with the ACC.	Pending – future item. May be best to wait and compile any other SA amendments if applicable.
R2 (Postlewait): Prepare draft calc showing size needed for recovery pond, for discussion at next meeting.	Pending – to be completed for Sept. 25th meeting.
SUMMARY OF PENDING ACTION ITEMS (Remaining from June 26th Meeting):	**STATUS:**
All subgroup members: Review and provide comments to Kimberly McCune for the May 17th and March 7th meeting notes. If no comments are received by July 12th, the notes will be considered final and with be posted to the 2006 ACC Final Meeting Notes web site by Kim.	Complete. March 7th and May 17th notes to be posted this month.
PacifiCorp (Shrier): Coordinate to address Bryan's comments regarding needing both biology and engineering support for development of the ATE Standards. Bryan wants input from Michelle Day and ACC biologists with this task, in addition to the engineers.	Pending – Frank Shrier to coordinate agenda item for Sept 14th ACC meeting and Sept 25th Engineering Subgroup Meeting. See comment 2, below.
PacifiCorp (Shrier): Draft recommendation to the ACC to present the tank configuration recommended by the Engineering Subgroup (four 3,000 gallon tanks, four 250 gallon tanks, and one 400 gallon fish trailer for the sorting facility). Note that design is OK to move ahead while Frank updates the ACC, and that the Subgroup expects a response from the ACC on this item to discuss at the Sept 25th meeting.	Pending, plan agenda item for Sept 14th ACC meeting.
PacifiCorp (Flak): Notify Curt Leigh of any hatchery upgrade planning meetings related to criteria and SA terms.	Pending.

B&V/R2 (Nigus/Postlewait): Develop design schedule for sorting facility / trap work	Complete. Draft provided at today's meeting.
B&V/R2 (Nigus/Postlewait): Update Merwin Fish Sorting Facility Scope Definition Discussion Draft document, per meeting notes.	Complete.
R2 (Postlewait): Send Eric Kinne Harry Senn's Compendium criteria, referenced in the Lewis River Hatchery Design Criteria Document.	Complete.
R2 (Postlewait): Call Mark LaRiviere at Tacoma Power to request an updated brief on the Cowlitz Salmon Hatchery sorting facility redesign.	Pending.
WDFW (Kinne): Call Mark Johnson of WDFW to request an updated brief on the Cowlitz Salmon Hatchery sorting facility redesign.	Complete, yielded no info.

Additional Comments on Last Meeting's Merwin Action List:

1. The group discussed their understanding that the language of the final 401 Certification from Ecology will be the same as the draft version for the Upper Release and Constructed Channel. It was agreed to restart the design efforts for these tasks.

2. Bryan Nordlund plans to attend the Sept 14th ACC meeting.

MERWIN TRAP AGENDA TOPICS

Fish Trap Study Results and ATE Standards Development

At the time of this meeting, the fish trap study was nearly complete. The Chinook data is the only portion of the study that still must be analyzed. ATE standards development can not be finalized until the study has been completed. Frank Shrier will provide a more complete overview of the fish trap study results at the next meeting. Next meeting's discussion of the study will include the following:

- Draft report.
- Formal presentation
- Preview radio tag and video data.
- SP Cramer Population Model sensitivity runs
- ACC comments (as available)

The group raised the following points during the discussion after Frank's summary:

ATE Standards

- An ATE of 92% was shown by the population model to meet the supplementation goals.

- Frank Shrier and Bryan Nordlund discussed the possibility of evaluating ATE's higher than the 92% shown as necessary with Cramer's model. There are traps in the Columbia River with ATE's of 98%. Bryan Nordlund suggested that higher ATE's may provide some cushion for other potential passage problems. Curt Leigh echoed Bryan's interest in setting a higher standard. Frank agreed to look at the population model to see if using an ATE in excess of 92% would have a significant impact on the target populations. An alternative to using a higher ATE would be to capture larger numbers of fish by extending the duration of trapping activities. Frank and Bryan will communicate more on this issue before the next meeting.

- Since there is no way to count the actual number of fish in the tailrace at any given time, experimental "actual" ATE's are currently being extrapolated from the available radio tag data.

- Bryan stated that he is not convinced that 100 cfs attraction flow from the trap is enough to get all of the fish out of the tailrace to meet the ATE standards.

- The group agreed that it would be beneficial for Ken Bates to get involved with the discussions regarding the ATE standards for the Merwin Trap Project, and PacifiCorp will consider adding Ken to the team.

- Group agreed that flexibility in design is of utmost importance. Flexibility in water supply will allow the trap to be "fine tuned" through operational changes after construction.

Tailrace Fish Study Summary

- The fish study terminates this Friday and has collected additional information on Summer Steelhead with Unit 1 on and off to supplement last year's data.

- Frank noted that the video data shows Coho "falling back" at the fyke entrance. Bryan asked whether this might be due to the trap being too crowded (due to not emptying it frequently enough) as new fish try to enter. Frank agreed to look at the data to see if it could address this question. Steelhead appear to be less prone to fall back.

- Frank Shrier noted that they see more Coho at the powerhouse when Unit 1 is on than when it is off regardless of the other unit operations. When unit one is on, fish tend to mill about in a tight triangular pattern at the dam. The study report will include a table of total passage time for fish with varying operational conditions.

Design Schedule Update

Sean Flak passed out the draft Engineering Subgroup Meeting Schedule and Goals (dated 8/8/2006). Sean presented the schedule's highlights, and the group responded with comments.

- Curt Leigh commented that the schedule does not allow sufficient time for the ACC to turn-around comments, especially regarding the ATE standards development. The group agreed that the schedule is a working document and that each step requiring ACC input should allow 30 days for turn-around. Action Item: update the schedule allowing 30 days turn-around time.

- Frank Shrier will do his best to distribute the Tailrace Fish Study Report prior to the next meeting to allow review.

- The schedule requires that fish entrance hydraulic analysis and sorting facility design will need to be high priorities. The Hydraulic Analysis Tech Memo will discuss options for improvements given the existing trap entrance geometry at the face of the powerhouse.

- Frank Shrier will post the available trap entrance data on the PacifiCorp website. There are 3 years of data available.

- The schedule shows that the 30% Design will be completed in January and that the design will be presented to the ACC in March 2007. This schedule will be updated as necessary providing for sufficient ACC review.

Scoping Document Review

Sean Flak distributed the document titled Merwin Fish Sorting Facility Scope Definition to the Engineering Subgroup via email on August 7, 2006. This documented is meant to be a working document and the group is encouraged to comment.

- Access 1.0 (last bullet) Curt Leigh is concerned that the proposed fish trap site will not be able to accommodate the powerhouse operations needs.

    - PacifiCorp (Arnold Adams, Sean Flak) has given thought to the access issues and suggests that a possible solution is to back fish trucks out of the facility (instead of allowing them to pull through) during times when powerhouse operations/maintenance may limit access. This situation is expected to be rare and predictable (on order of every 5 years).

    - A contingency plan will need to be developed to deal with these procedures, and operational space needs will be continually addressed during the design.

- Dana Postlewait suggested adding a note to the document saying that the trap will be operable at all times and will meet SA requirements during plant maintenance periods.

- It was agreed that, once finalized, the scoping document should become part of the 30% submittal.

Other Updates

- Fish Trap Safety Improvements – The construction contractor, North American Energy Services, is under contract and ready to begin work this month.

- Work on the bridge actuator is not included under this contract. Work on the actuator is expected to take place within the next year (summer 2007).

- As mentioned in the Action Items list, the Upper Release and Constructed Channel Design work will re-start ASAP.

PENDING ACTION ITEMS

The following table provides a summary of all pending action items for the Merwin project.

Merwin: Meeting Action Item Summary

No.	SUMMARY OF PENDING MERWIN ACTION ITEMS (remaining from May 17th and June 17th Meetings	STATUS
M1	PacifiCorp/B&V/WDFW: Upper Release and Constructed Channel Design Input and Details. See information in review of the April 12th meeting's action items. Waiting for final flow distribution and clarification of goals for the constructed channel.	Activities to be restarted ASAP. Additional info to be available with 401 submittal, estimated by September 1, 2006.
M2	PacifiCorp (Shrier/Flak): Investigate the need for a minor amendment to the SA to address interim safety improvements to the fish trap. PacifiCorp will address in the future, in coordination with the ACC.	Pending – future item. May be best to wait and compile any other SA amendments if applicable.

M3	R2 (Postlewait): Prepare draft calc showing size needed for recovery pond, for discussion at next meeting.	Pending – to be completed for September 25th meeting.
M4	PacifiCorp (Shrier): Coordinate to address Bryan's comments regarding needing both biology and engineering support for development of the ATE Standards. Bryan wants input from Michelle Day and ACC biologists with this task, in addition to the engineers. Still pending – Results from Chinook data are needed to develop ATE Standards.	Pending – Frank to present to ACC at Sept. 14th meeting and to Subgroup at Sept 25th Meeting.
M5	PacifiCorp (Shrier): Draft recommendation to the ACC to present the tank configuration recommended by the Engineering Subgroup (four 3,000 gallon tanks, four 250 gallon tanks, and one 400 gallon fish trailer for the sorting facility). Note that design is OK to move ahead while Frank updates the ACC.	Pending, plan agenda item for Sept 14th ACC Meeting and Sept. 25th Subgroup Meeting.
M6	PacifiCorp (Flak): Notify Curt Leigh of any hatchery planning meetings related to criteria and SA terms. Sean plans to set up repeating meetings.	Pending
M7	R2 (Postlewait): Call Mark LaRiviere at Tacoma Power to request an updated brief on the Cowlitz Salmon Hatchery sorting facility redesign.	Pending
	NEW ACTION ITEMS (From August 8th Meeting):	**STATUS:**
M8	PacifiCorp (Shrier) Frank will coordinate with Bryan Nordlund (NMFS) about evaluating Cramer's population model in an attempt to discern whether an ATE of 98% (vs. an ATE of 92%) would have a significant impact on projected fish population.	Pending
M9	PacifiCorp (Flak) Consider bringing Ken Bates into the conversation on ATE Standards at Merwin.	Pending
M10	PacifiCorp (Flak) Update Engineering Subgroup Meeting Schedule and Goals to reflect a 30-day turn-around for all steps involving the ACC.	Pending
M11	PacifiCorp (Shrier, McCune) Post available trap entrance data on the web to make available to Subgroup.	Pending
M12	Subgroup Members (All) Complete review of Merwin Fish Sorting Facility Scope Definition document and provide any edits to Sean Flak.	Pending
M13	PacifiCorp (Flak/Adams) Develop scheduling contingency plan to coordinate fish trap access and routing powerhouse maintenance.	Pending

SWIFT DOWNSTREAM PASSAGE PROJECT

Handouts

Distributed via email on 8/02/2006

- Final Agenda for 8/08/2006 meeting
- Draft June 26, 2006 Meeting Summary Notes

Distributed at meeting 8/08/2006 (paper copies):

- Swift Forebay Draft FSC Potential Locations Plan (2 sheets, 11x17, filenames: 4-Location Sheet 1 of 2.pdf, 5-Location Sheet 2 of 2.pdf)
- Table 1: Biological Criteria for Swift Sorting and Transport Design (Draft for Aug 8, 2006 Engineering Subgroup Meeting)
- Swift Downstream Fish Passage – Fish Handling Process Diagram (Draft for Aug 8, 2006 Meeting)
- Swift Reservoir and FSC Draft criteria tables and graphs (Draft not reviewed by ACC). Includes FCS and Reservoir operating water level table and graphs, FSC Entrance Criteria Table, Swift Screen Criteria Table, and FCS Fish Transport Channel Criteria Table (5 pages, 8 ½ x 11).

Presentations at Meeting:

- Location PowerPoint (filename: 1-FSC Location.ppt)
- CFD Status PowerPoint (filename: Swift ACC subgroup 080806_ws.ppt)
- Fish Track Summaries (filename: 2-Coho Fish Tracks.pdf, 3-Chinook Fish Tracks.pdf)
- Annual and monthly reservoir elevation-exceedance curves (filename: Elevation-Exceedance Curves.pdf)

SUMMARY OF PENDING SWIFT ACTION ITEMS (Remaining from June 26th Meeting):	**STATUS:**
No items this period	

Additional Comments on Last Meeting's Action List:
None requiring additional information this period.

SWIFT DOWNSTREAM PASSAGE TOPICS

Approach to Determine FSC Location
Peter Christensen handed out the Swift Forebay Draft FSC Potential Locations Plan (2 sheets, 11x17). Peter used a PowerPoint presentation to outline the factors affecting the FSC design location. Key points in the discussion were as follows:

- A plot of average daily water levels in Swift Reservoir (since 1959) shows a 117-foot fluctuation in water levels (min = 883.55 ft, max = 1,000.67 ft). The minimum elevation that the project is physically capable of achieving is 878.0 (but records indicate they have never dropped to this level). Peter has performed a preliminary analysis of low reservoir water surface elevations, and will provide a more formal summary of low pool occurrences at the next meeting. The PowerPoint presentation included photos of the reservoir at varying water levels to illustrate the resulting changes in the shape of the water surface and how these changes affect possible FSC locations.

- Bathymetry. Elevations of 1000 ft, 915 ft, and 878 ft were highlighted to assist with the location assessment.

- Data from 2 radio tag studies was used to estimate fish locations and travel patterns in the reservoir. Frank Shrier presented preliminary figures showing individual fish movement in the reservoir. Coho appear to stay near the shore. Chinook were more scattered throughout the reservoir. Juvenile Coho appeared to be pacing the reservoir, traveling up and down its length. Chinook were slightly more direct in their downstream travels, but both studies showed that both Chinook and Coho found the downstream end of the reservoir, near the dam. Frank will produce neater drawings of the radio tag study results that identify the original river thalweg. At the time of the more recent radio tag study the reservoir water level was at approximately 970-975 ft and rising.

- Ken Bates pointed out that the fish may be congregating at the face of the dam for a variety of reasons, including the improved habitat conditions provided by the rip rap located in the dam face. Also, Ken pointed out that the radio tag data was not completely conclusive because it did not show a clear "clustering" of fish in any one location.

- Bryan Nordlund pointed out that it was important for the FSC location to be flexible so that it could be moved to optimize fish collection since fish migration patterns may change with season and reservoir water elevation.

- Frank Shrier noted that the radio tag data set was collected during the peak outmigration period at one time of year and at one reservoir elevation/powerhouse operating condition.

- Currently there are no FSC location alternatives which show the FSC located on the south shore of the reservoir because the radio tag data does not support locating the FSC there. Also, FSC access issues are more difficult on the south shore, and there are cultural and ESA issues that would need to be addressed.

CFD Modeling Approach

Curt Leigh left the meeting before the discussion of CFD modeling began. Will Shallenberger presented a brief PowerPoint presentation to update the Subgroup on the CFD modeling progress.

- The purpose of the CFD model is to predict flow patterns with existing reservoir conditions. The CFD is a model and therefore will not provide exact answers, only

predictions. The intent is that the CFD model will provide enough information on flow patterns to help focus the design efforts in the right direction.

- ADCP data is being used to calibrate the CFD model. Both the ADCP and the CFD are currently in the early grid-development development stages. ADCP data was collected in the last week of July (July 18-21). At that time, powerhouse flow was nearly constant at 6,000 cfs, with the flow held constant for 11 hours during the data collection effort.

Sean Flak and Erik Kinne left the meeting at this time.

Lunch Break

Initial Fish Numbers

Dana Postlewait handed out Table 1: Biological Criteria for Swift Sorting and Transport Design (Draft for Aug 8, 2006 Engineering Subgroup Meeting). Frank will present this information to the ACC on Aug. 10th, 2006. The ACC is expected to review and provide input to this table. Dana anticipates the initial draft is close enough for design efforts to begin. The table provides a summary of the following biological design criteria:

- Species (with expected life stage)
- Anticipated marks (for the Monitoring & Evaluation of the facility)
- Possible destination for each species
- Species design data to assist with facility design, including peak annual and daily design numbers and fish size/weight data.
- Total production estimates for the upper watershed
- Periodicity for each species and life stage

The following points were discussed:

- Frank Shrier is leading development of the Monitoring and Evaluation (M&E) Plan with the ACC, and has retained Kevin Malone (Jones & Stokes/Mobrand), and Al Giorgi (Bioanalysts) to assist with this effort. This plan will define specific marking and evaluation protocols that will need to be accommodated by the facility. The draft plan is expected to be completed ahead of schedule, but will still lag much of the design process. Coded Wire Tagging (CWT) appears to be the preferred marking method at this time, with use of fin clips to be determined.

- The destination columns in Table 1 should be re-organized from the most-upstream facility to the most down-stream facility. Change the title “Release Ponds” to “Release Ponds, Woodland”.

- Dana explained that the fish numbers will likely change a bit as this is a working document, and it is not up to the Engineering Subgroup to update these numbers as this is an ACC activity. The numbers shown are based on screw trap data, anticipated production from upstream migrants, and reference fish numbers in the Cowlitz basin which has similar goals and a larger watershed.

Initial Sorting Protocol

Dana Postlewait handed out the Swift Downstream Fish Passage – Fish Handling Process Diagram (Draft for Aug 8, 2006 Meeting). Frank Shrier will present this to the ACC on Aug. 10th.

- The group discussed the differences between active and passive fish sorting protocols for sorting life stages by size. Active fish sorting was defined as a flow through system similar to the successful separator at the Cowlitz Falls facility that requires labor to keep the system clear of debris. Passive sorting is defined as a set of horizontal bars in a holding tank that would rely on fish behavior to separate the species into size classes. The group agreed that it will be necessary to evaluate various different sorting techniques (passive vs. active) to determine whether physical tests will be helpful to perform biological tests to confirm performance of a passive separator with horizontal bars. The Baker Project is considering using vertical separators as part of the crowders.

- Fry are more delicate and will be transported and released directly into the river. Smolt will go to the release ponds at Woodland after transportation. The purpose of the release ponds is to assess downstream transport survival.

- The group agreed that it was most important to finalize the sorting and handling process with the ACC before any real discussion of the holding tank locations should begin. Dana agreed to work with Frank to update the process diagram with fish numbers per Table 1 and comments discussed so he can present a draft at the August 10th ACC meeting.

- It will be necessary to have an employee at the release ponds to remove and count mortalities on a daily basis.

- Frank Shrier will discuss the following issues with Lou Ellyn Jones (FWS) and Michelle Day (NMFS):
  - Are proposed design numbers of 1 adult and 1 sub-adult bull trout per day peak estimates sufficient to justify anesthetizing all fish?
  - Is it ok to sub-sample at the sorting facility or is the potential presence of bull trout prohibitive?
  - Is it acceptable to remove bull trout from the FSC holding ponds or sorting facility with a dip net?
  - Fish release timing and mechanism (volitional vs. active) at the stress release ponds.

Basic FSC Criteria

Peter Christensen handed out Swift Reservoir and FSC tables and graphs, including Reservoir operating water level table and graphs, FSC Entrance Criteria Table, Swift Screen Criteria Table, and FCS Fish Transport Channel Criteria Table (5 pages, 8 ½ x 11). Peter proposed using a reservoir water surface elevation of 915 ft as the design operating minimum water surface for the FSC design. 915 ft is the 95% exceedance water surface in April based on 46 years of available average daily water surface data at the reservoir. April is both the month with the lowest average monthly water surface and a peak fish migration month. Will Shallenberger agreed that the group will accept 915 ft as the design minimum for normal FSC operation to initiate design. However, a contingency plan for operation below 915 ft will need to be prepared.

FSC Entrance Criteria

Peter Christensen explained the need to choose an initial entrance flow for the FSC to facilitate the design process. The following summarizes key points of the discussion that followed:

- Peter suggested a phased approach using flows of 300 cfs, expandable to 600 cfs, then to 900 cfs, depending on biological performance.
- Bryan Nordlund suggested using the results from the CFD model to define the entrance flow necessary to create a hydraulic shadow in the reservoir to intercept the fish tracks. The model, however, will not be complete until October/November. Ken noted that given the anticipated flows (300-600-900 cfs) that the model won't likely show much difference to which the group agreed.
- Peter also suggested that an entrance structure similar to a net transition structure may be helpful in creating a hydraulic shadow to attract fish. Bryan liked the idea of using a structure similar to an NTS, but noted that the CFD model is not the only tool to predict fish attraction. Fish don't always go where the water goes.
- The Baker Project is using an initial entrance flow of 500-1,000 cfs with a powerhouse flow of 5,000 cfs.
- Entrance flowrate is not the only factor affecting fish attraction. Other major factors include FSC location and water discharge location.
- Hydraulic conditions change with reservoir level and a configuration which attracts fish at one reservoir water surface elevation may not work very well at other water surfaces.
- Definitions:
    - Collection Velocity – water velocity at the entrance plane of the first structure a fish encounters when entering the collection system. May be a NTS-like structure or the FSC.
    - FSC Entrance Velocity –velocity entering the FSC at the upstream edge of the FSC (this would be the collection velocity if no NTS-like structure is used, or would be at the downstream end of any NTS-like structure if one is used)
- One of the main differences between the Swift and Baker projects is that the Swift project does not have nets to help route fish to the collector. The Swift project will depend on

water velocities for attraction. (see Appendix A for additional comments received via email)

- Bryan Nordlund suggested designing conservatively and making provisions to scale down initial entrance flow in the future, but stressed the need for flexibility.
- Frank Shrier will begin working on an M & E Plan for the FSC and related facilities.
- Bryan Nordlund would be willing to accept test approach velocities in excess of 0.4 ft/s in the secondary dewatering screen area provided that biological testing showed fry were not present and the design/operation of the structure could be altered to reduce approach velocities to 0.4 ft/s if biological tests showed fish injury.
- Bryan Nordlund suggested considering holding ponds for final dewatering instead of high velocity secondary screens. Similarly, Peter suggested lowering the floor area of the secondary dewatering screens to provide extra screen area.
- Capture Velocity:
    - Baker Project is using 8.4 ft/s with a bypass flume (with screen sides and bottom, thus no boundary layer is formed with resulting velocity drop) entrance measuring 2.4 ft wide x 5' deep. The initial starting point for Baker was 3 ft x 3 ft at 8 ft/s.
    - Rocky Reach tested a capture velocity of 7 ft/s, but fish were able to escape. Rocky Reach capture section walls and floor are not screens. The capture velocity was changed to 9 ft/s. Bryan will track down the bypass entrance geometry and provide an overview to the group.
    - The group will consider a site visit to the Rocky Reach project. Bryan suggested contacting Bret Bickford if we chose to tour Rocky Reach.

More discussion on configuration and flows is expected as the design moves forward.

PENDING ACTION ITEMS FOR SWIFT

The following table provides a summary of all pending action items for the Swift Project.

No.	SUMMARY OF PENDING ACTION ITEMS FOR SWIFT (remaining from May 17th and June 17th Meetings	STATUS
	No items	
	NEW ACTION ITEMS FOR SWIFT (From August 8th Meeting):	**STATUS:**
S1	PacifiCorp (Shrier) Develop more formal presentation of fish study results (AQU 14A and AQU 14B) for presentation to the ACC (Sept 14th) and the Engineering Subgroup (Sept 25th). Frank will try to distribute the report prior to the next meeting.	Pending
S2	PacifiCorp (Shrier) Look into means to test passive separator concept.	Pending
S3	PacifiCorp (Shrier) Provide input for Release Pond protocol to define holding period and type of fish release (volitional vs. active). Frank will	Pending

	seek input from Michelle Day on this matter.	
S4	PacifiCorp (Shrier) Discuss desired fry separation goal with Michelle Day (i.e. what percentage of fry separation is acceptable).	Pending
S5	PacifiCorp (Shrier) Determine whether it's acceptable to dipnet bull trout from the sorter.	Pending
S6	R2 (Postlewait) Dana to update Fish Process diagram by Thursday (Aug 10)	Done
S7	R2 (Christensen) Need to develop operation plan for the FSC below minimum reservoir water level of 915'.	Pending
S8	R2/PacifiCorp (Shrier/Christensen) Use results from CFD model to evaluate FSC entrance geometry and entrance flow rate. Completion of model expected in early October. Verify that 300 cfs will create a "hydraulic footprint".	Pending
S9	PacifiCorp (Shrier) Begin work on FSC M&E Plan and begin discussion on how to evaluate the FSC capture efficiency.	Pending
S10	NMFS (Nordlund) Provide sketches and information from the Rocky Reach Bypass System geometry.	Pending
S11	PacifiCorp (Shallenberger/Christensen) Consider site visit to Rocky Reach dam	Pending

ADJOURN

Meeting was adjourned at ~4:00 pm.

Appendix A

Emails dated 8/18/06 & 8/28/06

McCune, Kimberly

From: Shrier, Frank
Sent: Monday, August 28, 2006 12:34 PM
To: Bryan Nordlund
Cc: Curt Leigh; FrieszBP@bv.com; nigusla@bv.com; burleccb@DFW.WA.GOV; johnsmjj@DFW.WA.GOV; HML LRN (Kinne, Eric); klavajpk@DFW.WA.GOV; Lesko, Erik; McCune, Kimberly; Flak, Sean; Shallenberger, Will; dpostlewait@r2usa.com; pchristensen@r2usa.com
Subject: RE: Engineering Subgroup 8/8/06 Draft Meeting Notes

Thanks Bryan

From: Bryan Nordlund [mailto:bryan.nordlund@noaa.gov]
Sent: Monday, August 28, 2006 11:31 AM
To: Shrier, Frank
Cc: Curt Leigh; FrieszBP@bv.com; nigusla@bv.com; burleccb@DFW.WA.GOV; johnsmjj@DFW.WA.GOV; HML LRN (Kinne, Eric); klavajpk@DFW.WA.GOV; Lesko, Erik; McCune, Kimberly; Flak, Sean; Shallenberger, Will; dpostlewait@r2usa.com; pchristensen@r2usa.com
Subject: Re: Engineering Subgroup 8/8/06 Draft Meeting Notes

Frank - you have my viewpoint basically correct. I've said that often, guide nets tend to be unreliable in the long term due to difficult and often inadequate maintenance and inspection issues, with results that you list below. If any site has potential to collect fish without a guide net, this would be my initial preference. I also support the concept of later considering the addition of a guidance structure (such as a hanging curtain from a debris boom, or guide nets), if collection standards are not met upon intial testing.
BN

Shrier, Frank wrote:

> Curt I read your second comment. I don't believe anyone is saying that we are limiting the collector design and, in fact, we are trying to maintain a flexible design to accommodate the needs and to meet the standards. Bryan has stated that a guide net at Swift may not make sense because of the complications it creates (gilling, holes in the net, fish getting trapped on the wrong side of the net, etc.) and that it makes sense to design without one in place in the beginning and to reserve a guide net as a sort of last resort. The final design will show the guide net as an option. Bryan, am I understanding you correctly?
>
> At any rate Curt and following our protocol, if you want to keep your comment in the notes we will append it as such since it was not stated at the meeting.
>
> ---
>
> **From:** Curt Leigh [mailto:LEIGHCSL@DFW.WA.GOV]
> **Sent:** Friday, August 18, 2006 5:34 PM
> **To:** FrieszBP@bv.com; nigusla@bv.com; burleccb@DFW.WA.GOV; johnsmjj@DFW.WA.GOV; HML LRN (Kinne, Eric); klavajpk@DFW.WA.GOV; LEIGHCSL@DFW.WA.GOV; bryan.nordlund@noaa.gov; Lesko, Erik; Shrier, Frank; McCune, Kimberly; Flak, Sean; Shallenberger, Will; dpostlewait@r2usa.com; pchristensen@r2usa.com
> **Subject:** Re: Engineering Subgroup 8/8/06 Draft Meeting Notes
>
> Greetings
> Attached is a redline version of the notes with a correction and a comment. Thank you for the review opportunity.
>
> >>> "McCune, Kimberly" <Kimberly.McCune@PacifiCorp.com> 08/15/06 4:46 PM >>>
> Attn: Engineering Subgroup

Please find attached the Draft 8/8/06 Engineering Subgroup Meeting Notes for your review and comment.

Thank you.

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