FINAL - Meeting Summary Notes
Lewis River License Implementation
Engineering Subgroup
September 29, 2009
Fish Passage Meeting Notes

Subgroup Participants Present: (13)

Arnold Adams, PacifiCorp
Will Shallenberger, PacifiCorp
Frank Shrier, PacifiCorp
Bryan Nordlund, NOAA Fisheries (NMFS)
Eric Kinne, WDFW
Curt Leigh, WDFW (via phone and web conference)
Monty Nigus, Black & Veatch
Brian Friesz, Black & Veatch
Dennis Anderson, Black & Veatch
Dana Postlewait, R2 Resource Consultants
Peter Christensen, R2 Resource Consultants
George Lee, Yakama Nation
Ken Bates

ADMINISTRATIVE

Welcomed attendees and reviewed agenda.

General Meeting Handouts:

Distributed via email on 09/21/09 by Kim McCune:

- Electro-anesthetic setting comparison table as prepared by Frank Shrier

Distributed via email on 09/22/09 by Kim McCune:

- Meeting agenda for 09/29/2009 subgroup meeting
- Copies of the draft 07/01/2009 subgroup meeting notes
- Copies of the draft 08/18/2009 subgroup meeting notes

Distributed at meeting 09/29/2009 (paper copies):

- Meeting agenda for 09/29/2009 subgroup meeting
- Copies of the draft 07/01/2009 subgroup meeting notes
- Copies of the draft 08/18/2009 subgroup meeting notes

FUTURE MEETING DATES

Future meeting dates were presented to the group for review, as follows:

- November 5, 2009
- December 17, 2009 (last meeting before 100% Submittal Deadline)

It was questioned whether the December 17th meeting would be necessary since the final design is due to FERC on December 26th. By December 17th, the design will be essentially done and there should not be any outstanding decisions to be made. It was agreed that the subgroup members should keep the date available, and a decision will be made later on whether it can be conducted as a conference call or in person.

OTHER ADMINISTRATIVE ITEMS

- The July 1, 2009 meeting minutes were approved by the subgroup and can be made final for both Merwin and Swift.
- The August 18, 2009 meeting minutes will remain open pending completion of subgroup members' review.

o MERWIN TRAP PROJECT

Handouts

None

Presentations

- Fish counter type and location in fish ladder
- Fish Ladder Slot Gate Arrangement
- Fishway Lighting
- Presort Pond Crowder Layout
- Sorting Building Update
- Hatchery and Sorting Facility Water Return Lines

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

	SUMMARY OF PENDING MERWIN ACTION ITEMS (remaining from previous Meetings)	**STATUS**
M130	PacifiCorp (Adams/Shrier) Research status of the Settlement Agreement Merwin Trap Upgrades and identify which of the listed trap upgrades are still relevant in view of the current design.	Done, (see additional discussion Note 1)
No.	**SUMMARY OF NEW MERWIN ACTION ITEMS (from August 18, 2009 Meeting)**	**STATUS**
M134	NMFS (Nordlund) Verify quoted injury numbers for electro-anesthesia and MS-222.	Pending – Bryan will get information
M135	B&V/R2 (Nigus/Postlewait) Identify ways to the extent feasible to add flexibility to the sorting and anesthesia systems in the event that electro-anesthesia proves to be detrimental to fish survivability and fecundity.	Done – (See additional information Note 2)
M136	B&V/R2 (Nigus/Postlewait) Add mechanical louvers to the false weir design and widen the space between the two baskets. Adjust the crowder as per meeting discussion.	Done – On today's agenda
M137	B&V/R2 (Nigus/Postlewait) Share the energy dissipation calculation package for the fish ladder with Bryan Nordlund for review.	Done
M138	R2 (Postlewait) Contact Riverwatcher to research the possibility of stacking multiple counters on top of one another vertically, or preferably fabricate a custom counter with full height sensor plates.	Done – On today's agenda

M139	Team provide feedback on list of possible equipment failures handed out by Arnold Adams. Look for possible omissions in the list and consider solutions to each that would minimize trap outages.	Pending – Extended to next meeting on 11/5
M140	Team provide feedback on the trap closure memo.	Done – Memo to be incorporated into operations manual
M141	Team provide feedback on list of adjustments proposed for the project handed out by Arnold Adams. Feedback should consider if the listed adjustments are relative and any additional adjustments that should be considered.	Pending - Extended to next meeting on 11/5

Note 1 – Curt Leigh noted that at high river flows the current trap can not be accessed and this condition is not compliant with the Settlement Agreement, which requires that the trap be operated daily beginning the end of next June, 2010. PacifiCorp reminded the subgroup that the current trap arrangement is inaccessible at river flows above 5,500 cfs. PacifiCorp questioned this interpretation of the Settlement Agreement as they had been operating on the understanding that daily operation of the existing trap would, as a practical matter, be applicable when river flow can be maintained at or below 5,500 cfs, and had thought the Agencies were in concurrence with this interpretation. Curt requested PacifiCorp consider as a compromise that the construction plan for the new trap be modified so that the new trap facilities would be capable of delivering fish to the direct truck loading facility by License Year 3.5 (one year early), so the shutdowns of the trap under higher tailwater flows can be minimized. His request was for PacifiCorp and the design team to consider exploring if this action would even be technically feasible. It was concluded that this was not a decision that could be made at this meeting, and an agreement was made for PacifiCorp to research the Settlement Agreement commitments and review the feasibility of options for meeting them, including the WDFW request for staged construction of the new facility (see Action Item M142). It was also agreed that PacifiCorp and other members of the subgroup would hold a separate conference call with Curt Leigh in the next few days to discuss the matter further.

Note 2 – Dana Postlewait noted that there is room in the sorting building to expand the facility to allow for chemical or gas based anesthesia if necessary. He said that DC electro-anesthesia was looked at, but it was discarded because it would take too long and that this would be impractical from a large scale application such as the Merwin Sorting Facility. WDFW (Kinne) and PacifiCorp (Shrier) have looked at the DC system feasibility independently, and came to the same conclusions. Eric Kinne noted that the AC electro-anesthesia system at the Lewis River Hatchery was just getting started and they should have some information soon on how well it is performing. It was also noted that Frank had updated the electro-anesthetic setting comparison table, which was distributed to the subgroup via email on September 21st.

Additional Comments on August Meeting's Merwin Notes:

Curt Leigh noted that the last paragraph in Bullet 9, on Page 7 of the notes discusses information that was not actually presented at the meeting. He suggested that this be removed, or handled separately. It was decided that the paragraph would be moved to an attachment to the minutes.

Bryan Nordlund said that he had not yet had a chance to review the meeting notes adequately and said that he would provide any comments later. The meeting notes will be kept as draft until all comments are received, or until the next meeting.

MERWIN TRAP AGENDA TOPICS

General Discussion Topics

Fish Counters

- Dana Postlewait showed a plan view of the proposed Merwin trap ladder and stated that the most appropriate place to incorporate a fish counter is at Slot 1-4, just prior to the connection to the second entrance channel and the crowder into the hopper. Fish will not be counted downstream of this location. He added that fish will also be counted in the flume between the hopper discharge and the sorting facility, so it will be possible to tell if fish counted in the ladder did not make it into the crowder area.
- Dana said that Vaki has been contacted and they are interested in looking at how to eliminate the horizontal cross members that would be present if you simply stacked their standard Riverwatcher counters in the slot (i.e. Slot 1-4). He added that the design team has contacted Image Labs International (ILI) and they are also interested in developing a tall vertical fish counter that could fit within the slot, either in coordination with Vaki or independently. The design team is planning to contract with ILI to customize a fish counter for Slot 1-4, and to develop a customized video camera based counter on the end of the conveyance flume.
- Dana also noted that due to the fact that the vertical LED sensors on either side of the slot need to be parallel, the ability to rotate the slot to change the orientation of the jet will be lost. The subgroup agreed that given the size and dimensions of the pool below the slot the ability to modify the jet orientation would not be required.
- Dana noted that the design team identified the potential for LED based fish counters (similar to the units at Pond 15) on the pre-sorting pond false weirs, in addition to real time video camera with a display screen monitoring of the false weir. The concept at the time was to provide for redundancy for fish counting into the EA baskets. After considering this item, Dana noted that a dual counter system at the false weir seemed to be overly redundant, and not really necessary. The subgroup agreed that the real-time camera monitoring would be adequate, and the LED counters on the false weirs would not be required.
- A new action item (M143) was created to schedule a meeting with the design team and WDFW to discuss the procedure for counting fish passed through the tubes at the sorting facility, and agree on a protocol for data management (collection and transfer). Procedures may be based on information gathered when the new Lewis River Hatchery Pond 15 facility comes on line; therefore, this meeting should be conducted in a few weeks.

Ladder Slot Gate Arrangement

- Dana presented drawings depicting arrangements for hinged gates in Slots 1-2 and 1-4, which would allow for dewatering Ladder 1 while continuing operation of the second entrance and Ladder 2. The drawings depicted gates with three pneumatic cylinders, but Dana noted that two have been confirmed to be adequate.

- Eric asked how maintenance would be performed if a cylinder went bad. It was noted that pneumatic cylinders tend to be quite reliable, but if repair did become necessary, you could drop a bulkhead into the entrance and dewater the entire ladder to provide access for repair. The subgroup agreed that this would be acceptable.
- There was concern that fish behind the hinged gate in Slot 1-4 when it is closed might become trapped between the gate and the wall when the gate is opened. The design team agreed to look at alternative gate arrangements to mitigate this concern, and noted that this gate is only anticipated to be used once or twice a year.
- There was general concurrence on the design concepts shown for the gates, and the design team will continue with their detailed development.

Fishway Lighting

- Monty Nigus brought a sample of the lighting fixtures being proposed for the ladder. It is a fully submersible, low-profile, 9 to 32 volt LED light that can function in or out of the water. The light fixture was turned on for demonstration by plugging it into a computer power source. The light was on full power and appeared very bright. Monty noted that the proposed design is to have the lights on a dimmer so that the desired light level can be achieved. The lights also have a strobe capability, if desired; however, the subgroup did not see a need for this feature.
- Monty presented a plan view of the ladder depicting the proposed lighting arrangement. The lights would be mounted on the ceiling and/or walls of the ladder so they are pointing down. He said that the objective of this arrangement is to create an even distribution of light throughout the ladder pools per the guidance received from NMFS at the last meeting.
- Dana showed how the low-profile lights can fit in the ceiling of the crowder section without interfering with the operation of the crowder.
- Ken Bates questioned whether an even distribution of light was really the optimal goal. He proposed that it might be better to have brighter light coming through from just upstream each of the ladder slots to encourage fish to move up through the next slot. He suggested that there be two zones for dimming, with one zone being all the lights immediately upstream of ladder slots, and the other zone being the general ladder pool lighting. He cited a study performed at Bonneville that showed that fish were significantly more attracted to a lighted orifice. The design team will proceed to modify the lighting plan and re-define the zones as discussed.

Pump Station

- Monty noted that there are no significant changes to the design of the new pump station since the last meeting, but added that the design team is currently designing an air-burst cleaning system for the pump intake screens and is checking to see if it can be incorporated into the existing powerhouse pneumatic system.

Geotechnical Investigations

- Monty noted that B&V is currently completing geotechnical investigations for the facility. The investigations include mapping of the rock slope above the sorting facility building, borings along the bench where the sorting facility is located, and borings in the control room basement and existing fish pump room areas where the new fishway will be constructed. Based on the evaluation of the rock slope mapping results, specific areas of the slope will be rock bolted, while the entire rock face will be covered with netting held in place with anchors. These measures will prevent rock falls that might impact the new facility. The borings in the sorting facility, control room basement, and fish pump room will assist in finalizing foundation and excavation designs.

Presort Pond Crowder Layout

- Dana showed a drawing depicting a crowder arrangement for bringing fish in the presort pond to the false weirs. A horizontal crowder would be incorporated into the pond to crowd the fish to an area above a vertical basket crowder. With the fish crowded into this area near the false weirs, the basket crowder would slowly rise, encouraging the fish to jump at the weir, and eventually forcing the last remaining fish over the weir. The distance between the false weirs was increased per comments at the last meeting, and the subgroup agreed with the current layout.
- Eric said to make sure that the fish cannot move the horizontal crowder. Dana said that the design would have locking wheels (likely via a motor break) on the crowder.
- 7/8-inch clear spacing will be provided on the crowder picket panels and vertical basket section.
- Eric also suggested that the vertical basket crowder be sloped toward the weirs. It was agreed that a slope of 20 degrees would be desirable. Dana will make these changes and provide updated drawings to the subgroup at the next meeting.

Sorting Building Update

- Monty presented a plan view drawing and 3-D rendering of the revised sorting building layout showing the updated office, locker room, and storage areas on the ground floor. The subgroup agreed that the revised layout is acceptable.

Hatchery and Sorting Facility Return Lines

- The hatchery return water will be redirected into the head of the new fish ladder trap to provide added attraction to the ladder water. Current facilities for bypassing hatchery return flow directly to the river at the tailrace bridge will remain. The scent of the hatchery return water is considered a significant element for attracting fish to the entrance and motivating them up the ladder pools.
- Water discharged from the sorting facility has been considered for supplementing attraction flow by mixing it with the hatchery return to the ladder area or discharging

directly back to the river. The sorting facility return flow could be discharged back to the river either in the vicinity of the tailrace bridge or into the tailrace near the downstream end of the control building. The subgroup felt that the control building location was too near the vicinity of the ladder entrance, and could confuse fish. The team discussed the potential for the sorting facility water to attract or repel fish, which could also vary. Ken said that he did not believe the sorting facility water would be helpful for attracting fish, and suggested that the discharge near the bridge be the option of choice. There was general agreement among the subgroup participants, and the design will proceed with no provisions to re-use the sorting facility water in the ladder.

- In response to questions by Dennis Anderson regarding the arrangement of the discharge to the river, Bryan Nordland expressed that the return flow (of a magnitude such as the sorting facility return flow) should impact in the river. Bryan's rationale for discharging into the river in this manner is that it could be acceptable if the location is such that if fish jump at it they will land in water and not injure or become stranded on the river bank. It was suggested by the subgroup that this impact be a minimum distance from the shoreline of 10 feet at the low river level. The design team will examine both the bridge release site and a site downstream with water discharging away from the bank.

	SUMMARY OF PENDING MERWIN ACTION ITEMS (remaining from previous Meetings)	**STATUS**
M134	NMFS (Nordlund) Verify quoted injury numbers for electro-anesthesia and MS-222.	Pending. Note this is done via email on 9/30/09.
M139	Team provide feedback on list of possible equipment failures handed out by Arnold Adams. Look for possible omissions in the list and consider solutions to each that would minimize trap outages.	Pending – Extended to next meeting on 11/5
M141	Team provide feedback on list of adjustments proposed for the project handed out by Arnold Adams. Feedback should consider if the listed adjustments are relevant and if any additional adjustments should be considered.	Pending – Extended to next meeting on 11/5
No.	**SUMMARY OF NEW MERWIN ACTION ITEMS (from August 18, 2009 Meeting)**	**STATUS**
M142	PacifiCorp (Adams/Shrier) Research the Settlement Agreement commitments concerning the Merwin trap operation and review the feasibility of options for meeting them, including the WDFW request for staged construction of the new facility to provide for early construction of trap features to allow early operation. Schedule a follow-up meeting within a few days of this meeting.	Pending. Note phone conference took place on Oct. 1.

M143	R2/PacifiCorp (Postlewait/Adams/Shrier) Schedule a meeting for deciding the procedure for counting fish passed through the tubes at the sorting facility and data management/report options.	Pending. Wait until a few weeks of operating experience at Pond 15.

o SWIFT DOWNSTREAM PASSAGE PROJECT

Handouts

- None.

Presentations

- Fish Flume Components
- Adult Release Design at Eagle Cliffs

See discussion summaries below.

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

No.	SUMMARY OF PENDING SWIFT ACTION ITEMS (remaining from previous Meetings)	STATUS
S68	PacifiCorp (Shrier) Share ACC feedback on adult release concepts at the next subgroup meeting in written form.	Pending write-up (see Note 1)
No.	**SUMMARY OF NEW SWIFT ACTION ITEMS (from August, 18, 2009 Meeting)**	**STATUS**
S74	NMFS (Nordlund) Find the California study done on smolt rejection at different trash rack spacings and share it with the subgroup.	Pending (see Note 2)

Note 1 – Frank Shrier said the ACC agreed that the three release sites looked acceptable; however, the Forest Service does not like the pipe support posts suggested for Eagle Cliffs and the ACC expressed concern about what the backup would be if all three sites become unavailable due to low reservoir level combined with icy or snow covered roads. Frank said that he would provide notes from the ACC meeting as soon as they are available. Curt Leigh noted that the Settlement Agreement calls for PacifiCorp to provide access to any third party that chooses to install a deepwater boat ramp and he suggested that PacifiCorp consider the use of such a boat ramp as a release site. PacifiCorp said that they cannot count on a third party ever constructing a new ramp, and they do not feel it is necessary for them to propose building it simply as a backup for three otherwise acceptable sites. If a third party did construct a deepwater ramp then PacifiCorp would certainly consider the feasibility of using it as a release site. Curt Leigh said he did not intend to indicate that a deepwater boat ramp was a requirement for an adult release site.

Note 2 – Bryan said that he has found the study report but has not yet had a chance to copy it for distribution. A discussion on trashrack spacing occurred later in the meeting and is summarized below.

Additional Comments on August Meeting's Swift Notes:

Bryan Nordlund said that he had not yet had a chance to review the minutes adequately and said that he would provide any comments later. The meeting notes will be kept as draft until all comments are received, or until the next meeting.

Water Rights

Frank Shrier reported that PacifiCorp will be applying for non-consumptive water rights from DOE to operate the planned facilities. He requested that each of the representative agencies be prepared to review the applications and provide a letter of support. PacifiCorp believes letters of support will expedite the process with WDOE. Agency representatives said they would review the letter when it arrives.

SWIFT DOWNSTREAM AGENDA TOPICS

General Discussion Topics

Fine-Mesh Nets

- Peter Christensen said that after the last meeting he spoke with Bryan Nordlund about the options for providing a fine-mesh net between 15-foot and 30-foot depth. The only Spectra net material that he could find to date with a 3/32-inch mesh had extremely thin threads and did not appear very strong. In fact, the sample he was shown had been used and had torn areas with patches over them noting that the particular net he observed was used for trawling. A net manufacturer he spoke with suggested that the 3/32-inch opening be created by tying a 1/4-inch mesh so that it is stretched partially resulting in elongated diamonds with a reduced opening width. At the time, Bryan said that he would discuss the options with others at NMFS and suggested that it might be acceptable to simply extend the 1/4-inch mesh up to the impervious layer at 15-foot depth, and eliminate the fine-mesh net material.
- Peter asked if Bryan had considered this issue any further since the last meeting. Bryan said that he had spoken to others at NMFS and they decided that a fine-mesh net material over this section would be desirable to prevent fry passage. A true 3/32-inch opening net mesh is desirable. He said that they had suggested using the same material that PSE used on the Upper Baker nets in the top 30 feet. Peter noted that PSE uses nylon net, as PacifiCorp had originally proposed, and that PacifiCorp changed to Spectra net specifically in response to a 60% design comment from NMFS that they use Spectra to provide greater strength. Will Shallenberger said that since PacifiCorp has made the decision to switch to Spectra, based on a number of advantages including reduced maintenance resulting from the greater strength, and the concern that the debris load at Swift will be worse than at Baker, he is not sure they would be willing to backtrack and use nylon.
- Peter agreed to do further research on possible fine-mesh Spectra net materials available through other net vendors. He also agreed to see if information was available about the large Ludington exclusion net in Lake Michigan and what experiences led them to switch from nylon to Spectra net material.

Trashrack Spacing

- Bryan said that the California study he had previously referenced found that smolts started to reject a trashrack when the spacing was 3 inches or less. Therefore, he said that he would be comfortable with a minimum 4-inch spacing. Will said that his concern is that unlike many other hydro sites where survival goals can be met with a combination of bypass passage, turbine passage, and spillway passage; at Swift the FSC will be the only passage alternative and the entire risk to PacifiCorp is associated with FSC attraction efficiency. Although PacifiCorp agrees with the goal of reducing debris issues within the FSC by reducing the rack spacing, he is concerned about the potential for any rejection and noted the design team was thinking in the range of 6" or even 10" spacing to minimize this risk. Will also noted that PSE did not put any trashrack on their FSC to eliminate even the possibility of rejection, although PacifiCorp does not want to go that far because debris issues are greater at Swift than at Upper Baker.
- Bryan suggested that the 4-inch spacing might only occupy the upper part of the trashrack, where the larger floating debris would most likely be, adding that there may not be a need for any trashrack at depth. He also suggested that if possible, the trashrack should be designed to be interchangeable or with removable bars, so that the spacing could be changed in response to information learned during early operation. Brian Friesz said that the design team would investigate these options.

Sorting Area and Fish Flume Components

- Peter presented a series of drawings depicting the latest detail on the overall sorting area and the components of the fry and smolt flumes between the separators and the holding tanks.
- Peter noted that the smolt holding tanks have been renumbered to agree with the overall numbering system on the FSC. This system uses odd numbers on the starboard side of the FSC and even numbers on the port side. The numbers are sequential from the upstream end of the FSC to the downstream. Although this is minor, he wanted to point it out to prevent possible confusion when comparing newer drawings with the 90% design or earlier drawings.
- He said that as the detailed design has been progressing, it was found that the recovered fish from the sampling facilities could not be passed to the port side of the sorting area below because the presence of the fry flume on the port side interfered with any possible arrangement of a flume pipe passing down from above. Therefore, only a single return pipe is included on the starboard side. The routing of this pipe is changed from the 90% design, and now runs along the outer starboard wall of the sorting area and discharges into the downstream starboard holding tank (Tank 3). The subgroup agreed that this arrangement would work.
- Peter said that the components of the fish flumes (both fry and smolt) are based on existing components at the Cowlitz Falls Fish Facility and the facilities at Little Goose Dam on the Snake River. Between the individual components, the flume mostly consists of 6-inch-diameter PVC pipe.

- The fry and smolt separator panels were discussed, with the goal of making a final decision on bar spacings. As fish size may vary somewhat by season (as observed at the Cowlitz Falls Project), easily interchangeable separator panels will be provided with the final design that will provide 3/8" clear spacing, and ½" clear spacing panels for the fry, and 1-1/4" clear spacing panel for smolt. Both panel sections will be designed and fabricated for easy interchange.
- The first component the fish will encounter upon exiting the separator is the flume control gate. This is a 45-degree slide gate that is set to control the water level upstream of the gate to optimize the separator hydraulic conditions and to a high enough velocity to commit the fish to the flume. The major change from the Cowlitz Falls design is the addition of a screw stem operator with a hand wheel to facilitate easier and more fine-tuned adjustment of the gate.
- The next component is the flume dryer, which removes about 75% of the flow from the flume. This is similar to the Cowlitz Falls flume dryers except that the width of the flume within the dryer reduces as the flow is removed to help maintain depth at the reduced flow. Another significant change is that rather than a single flow control weir, the dryer is subdivided into seven one-foot sections with individual weirs on each side. This will provide for greater ability to tune the dewatering rate throughout the dryer length. Finally, the flume within the dryer is stainless steel perforated plate, rather than the wedge-wire screen used in the Cowlitz Falls dryer. This is due to the difficulty of fabricating a half-round reducing diameter flume from wedge-wire screen. However, Hendrix Screen Company has agreed to test whether they could fabricate a wedge-wire screen to these dimensions. Bryan and Eric both stated that the perforated plate would be fine and likely more appropriate in this design, and did not see a need for investigating the use of wedge-wire screen for the dryers.
- After passing through the flume dryer, the fish pass down a section of flume pipe and encounter the flume switch gate. This gate is based on the flexible-tube switch gate at Little Goose, except the diameter is 6 inches instead of the 10-inch-diameter flume pipe at Little Goose. At the downstream end of the switch gate is a flow splitter. The flow splitter includes two side-by-side perforated plate channels. Although discharge from the switch gate, including the fish, is only passed into one of the channels at a time the fact that the two channels are in a common pool ensures that some water will always be passing down the other channel. Excess flow, the difference between the inflow from the switch gate and the combined outflow from the two channels, is removed over four adjustable weirs on one side of the flow splitter box. In this way, the flow splitter also functions as a second small flume dryer.
- Finally, before passing into the holding tanks the fish pass through the AquaScan fish counters described at previous meetings.
- Fry recovery tanks are envisioned to be 5-gallon buckets. Peter explained how the hoist systems could be used to transfer the buckets between levels, so they would not have to be carried up and down stairs. The group agreed that the 5-gallon bucket concept was satisfactory given the expected number of fry.
- The group discussed the need for any formal communication between decks in the sorting area, to help coordinate use of crowders, etc., with light panels, intercoms, or other

means. It was agreed that if communication systems are needed, radios can be utilized over any formally designed communication system.

- Peter said that he realized that the subgroup had seen earlier less detailed versions of these components, but with the level of increased detail now available he wanted to show them again to facilitate a better understanding of each components operation and to elicit any comments or suggestions from the subgroup. There was agreement among the subgroup members that the flume arrangement and components design and operation was acceptable.

Adult Release Design at Eagle Cliffs

- Brian Friesz presented the latest iteration of the design for releasing adults at Eagle Cliffs. In response to the Forest Service concerns with the permanent pipe support posts, and the general concerns with the potential for damage from high flow events, the design team is now looking at a permanent buried release pipe. However, the layout as shown currently crosses a side channel of the river and could block return flow within that channel. There was a suggestion that the layout be modified to pass closer to the road bridge and thus avoid the backwater leg entirely. Will Shallenberger noted that the portion of the river near the bridge is shallow and may not be the best place to release the fish. Concern was also expressed about the ability to permit any installation that obstructed the floodway. Brian agreed to continue looking at potential arrangements for the release pipe and will bring them to the next meeting.

FERC Submittal Process

- Will Shallenberger noted that the Settlement Agreement calls for the submittal of a finalized design to FERC with coordination of the ACC and approval of the agencies. He asked how the approval process would occur given the limited time left for completing the design. Bryan Nordlund said that enough information has been provided to date for a qualified approval of the design from NMFS to facilitate the submittal without another round of formal review. Bryan advised that a letter denoting NMFS's approval of the design can either be sent to PacifiCorp for inclusion with their final submittal to the FERC, or directly to the FERC by December 26th. NMFS letter would express the status of satisfaction with response to NMFS 90% design comments, and explain any unresolved outstanding items, if they exist.

No.	**SUMMARY OF PENDING SWIFT ACTION ITEMS (remaining from previous Meetings)**	**STATUS**
S68	PacifiCorp (Shrier) Share ACC feedback on adult release concepts at the next subgroup meeting in written form.	Pending distribution of ACC notes
S74	NMFS (Nordlund) Find the California study done on smolt rejection at different trash rack spacings and share it with the subgroup.	Pending
No.	**SUMMARY OF NEW SWIFT ACTION ITEMS (from August, 18, 2009 Meeting)**	**STATUS**

S75	R2 (Christensen) Investigate alternative fine-mesh Spectra net material and report back to the subgroup.	Pending
S76	B&V (Friesz) Develop a revised Eagle Cliffs adult release pipe layout for review at the next meeting.	Pending
S77	WDFW (Kinne/Leigh) Provide written comments on Swift 90% submittal.	Pending

Adjourn 3:15 PM.