Subgroup Participants Present: (13)

Arnold Adams, PacifiCorp
Will Shallenberger, PacifiCorp
Frank Shrier, PacifiCorp
Bryan Nordlund, NOAA Fisheries (NMFS)
Eric Kinne, WDFW
Neil Turner, 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
Suzanne Picard, R2 Resource Consultants

ADMINISTRATIVE

Welcomed attendees and reviewed agenda.

General Meeting Handouts:

Distributed via email on 06/29/09 by Kim McCune:
  o Meeting agenda for 7/01/2009 subgroup meeting
  o Copies of the draft 5/21/2009 subgroup meeting notes

Distributed at meeting 7/01/2009 (paper copies):
  o Meeting agenda for 7/01/2009 subgroup meeting
  o Copies of the draft 5/21/2009 subgroup meeting notes

FUTURE MEETING DATES

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

  o August 18, 2009 (to be held at Merwin Facility)
- September 29th, 2009
- November 5th, 2009
- December 17th, 2009 (last meeting before 100% Submittal Deadline)

**OTHER ADMINISTRATIVE ITEMS**

- No other general administrative items.
MERWIN TRAP PROJECT

Handouts
- Merwin Upstream Passage 90% Design Report
- Merwin Upstream Passage 90% Design Drawing Package

Presentations
- No PowerPoint presentations.

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

<table>
<thead>
<tr>
<th>No.</th>
<th>SUMMARY OF PENDING MERWIN ACTION ITEMS (remaining from previous Meetings)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>M116</td>
<td>All – Review entrance pool diffuser concepts (diffuser location and using an orifice to replace the first vertical slot to help propagate a clear jet into the entrance pool, past the diffusers)</td>
<td>Done today, included in 90% Report</td>
</tr>
<tr>
<td>M117</td>
<td>R2/Kozmo (Postlewait/Bates) Optimize diffusers as high as possible in the entrance pool and work through different ladder hydraulic scenarios for presentation at next meeting.</td>
<td>Done today, included in 90% Report</td>
</tr>
<tr>
<td>M118</td>
<td>PacifiCorp (Adams) Complete Failure Analysis to identify which emergency situations are most worth formulating contingency plans for.</td>
<td>In progress, ongoing</td>
</tr>
<tr>
<td>M122</td>
<td>PacifiCorp (Adams/Shrier) Revise Phased Approach Decision Flow Diagram to reflect feedback received at the May 21st Subgroup Meeting.</td>
<td>Done today, included in 90% Report</td>
</tr>
<tr>
<td>M123</td>
<td>PacifiCorp (Shrier) Consolidate available data on Electro-Anesthesia and its impact on fish health and follow up with Michelle Day on how to best address her concern about these impacts at the Merwin Trap facility. Determine if a site visit to Cowlitz Salmon Hatchery in order to view the new EA system in operation.</td>
<td>Done today, see note 1, below.</td>
</tr>
<tr>
<td>M124</td>
<td>NMFS (Nordlund) Review and discuss 60% Design Report Comment Responses with Michelle Day, and respond to comments if necessary.</td>
<td>Done, NMFS has no further comments.</td>
</tr>
<tr>
<td>M125</td>
<td>NMFS/WDFW/PacifiCorp (Nordlund/Day/Kinne/Turner/Shrier) – Provide feedback on the 0.75 cfs life support flow proposed for use during fishway shut-down scenarios.</td>
<td>Done today, 0.75 cfs is adequate.</td>
</tr>
<tr>
<td>M126</td>
<td>PacifiCorp/NMFS WDFW/NMFS (Shrier/Nordlund/Kinne/Day) Identify a realistic design fish number to use for sizing the pre-sort pond. This decision is critical path.</td>
<td>Done per memo dated 6/10/09 (Appendix H in 90% report). 3,700 peak/day will be used in lieu of 1,629.</td>
</tr>
<tr>
<td>--------</td>
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<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>M127</td>
<td>All – review latest 250 gallon fish truck drawings that were handed out at the end of the meeting.</td>
<td>Done today, included in 90% Report, see note 2, below.</td>
</tr>
</tbody>
</table>

Note 1 – Frank Shrier located the Carson Hatchery Report from the North American Journal of Fish Management (2008), and has distributed this via email dated July 6, 2009. This was the only relevant report he was able to find on the subject of Electro-Anesthesia (EA) and its effects on Salmonids. Bryan Nordlund noted that the report identified some areas of concern, but that the Carson EA system was used to euthanize fish so the comparison needs to take this into account, as the voltages used were higher than the Bonneville Hatchery or the new Cowlitz Salmon Hatchery systems. Cowlitz had to reduce their original voltages, but current experience is favorable after some start-up injuries were noted. The group feels that with care and experience, electro-anesthesia is still the best system to use at the Merwin Facility and concurred that the Design Team proceed with the current plan, which is based on utilizing electro-anesthesia. Flexibility will be included in the design to accommodate the potential to change to another form of anesthesia, if a better system is identified in the future. Chemical or CO₂ systems are currently envisioned as likely candidates if a change is desired. Eric Kinne plans to visit the new Cowlitz Facility on July 2nd, and will report to the group on the system’s performance.

Note 2 – No. M127 is considered done, subject to Agency review as part of the 90% submittal review process.

**Additional Comments on Last Meeting’s Merwin Notes:**

There were no comments on the Merwin portion of last meeting’s notes.
MERWIN TRAP AGENDA TOPICS

Discuss General Topics

- The design team distributed paper copies and CDs of the Merwin 90% Design Report and 90% Drawing Submittal Package to the group (the electronic version was also distributed on 6/26/09 via email/web posting by Kim McCune). Comments are due at the end of the 45-day review period, which falls on August 10th, 2009.

- Phased Timeline – An updated version of the phased timeline flowchart is included in Appendix E of the 90% Design Report. Arnold presented the updates, which incorporated the feedback provided at the last Subgroup Meeting.
  - In the updated version of the flowchart, if trap goals are very close to being met, operational adjustments feature more prominently than before and the dispute resolution box has been eliminated for Phase I. Arnold mentioned that changing the head drop across the entrance weir (by adjusting the weir crest height) would be an operational adjustment that could be made in Phase I. Frank Shrier noted that the M&E plan itself may identify some possible operational adjustments.
  - If, at the end of Phase IV, trap goals are still not being met, then project modifications would need to be considered.
  - In the timeline included with the flowchart, material procurement is the item on the critical path with the longest lead time.
  - No construction timeline for Phase I is included at this time, since December 26, 2012, is already established for completion of Phase I construction. The schedule for Phase I was last updated for the 30% report. It is a work in progress and is expected to be included in the final (100%) design submittal package to assist the bidders. Updates will be provided to the ES when available.

- Monty Nigus noted that the ladder water supply system now has two 30 cfs pumps in Phase I; with an additional 20 cfs pump added under Phase 3 (the 60% report indicated two 40 cfs pumps). To the extent feasible during construction, consideration is being given to operating the existing trap utilizing water from the new ladder water supply pumps that could be installed at an early stage of the construction schedule. Frank Shrier reminded the Design Team that provisions for lowering the water level to work the trap will also be necessary.

- The bed layout drawings for the 250 gallon fish truck have been included in the 90% report, and show the curved plate detail discussed at the last ES meeting to discharge fish from the tanks into the flumes.

- Eric Kinne noted that not all of the trap upgrade items listed in the Settlement Agreement have been completed, which need to be done prior to the start of construction. Items noted include:
  - The addition of power actuators for the two hatchery return bypass valves on the bridge. PacifiCorp will research past documentation by Sean Flak to verify if valve
actuators are needed, or a portable actuator is acceptable, and will coordinate with WDFW.

- The fish truck retrofits to allow use of the current trucks with square openings at Pond 15, with the round openings.

**Fishway Update**

**Hydraulic Analysis and Slot 1-2 Configuration**

- A description of the hydraulic analyses of the ladder is included in the 90% Design Report.

- The ladder is a non-conventional, four-step vertical slot ladder. One concern of the design team is the ability to accurately predict an orifice coefficient, or “C” value that reflects the design. The C is dependent on the weir shape, edge shapes, jet trajectory, etc.

- To address this uncertainty, research was done to define an applicable range of C values, and a sensitivity analysis was performed to see the impacts on calculated ladder depth by pool. Three conditions were investigated; high tailwater, low tailwater, and an intermediate tailwater condition. An appropriate C value was determined to range 0.6 to 0.8, with an estimate of 0.75 the most appropriate for a starting point. The sensitivity analysis indicated a +/- 0.2 ft difference in the calculated water surface by pool.

- In addition to the sensitivity analysis, Slot 1-2 was modeled as an orifice and range of concepts for all three tailwater conditions, with the intent of focusing more energy into the entrance pool at all tailwater conditions than would be achieved with just the open slot. A recommended sill approach, with a sill down to EL 51 at Slot 1-2, is proposed and described in the 90% report. This provides a full 1.0 foot of head drop across the slot at the low tailwater, and maintains a 0.5 foot head drop at the high tailwater condition, as opposed to a 0.25 foot drop with the open vertical slot. This arrangement would act as a slot at flows less than 60% of the high fishway design flow, and as an orifice at flows above 60% of the high fishway design flow (see Drawing Sheet 498). Other orifice models resulted in higher pool levels at the high tailwater, which would cause pressure flow in Pool 1-4, which is considered undesirable.

- The team believes that the ladder is short enough to prevent surging.

- The team has identified a number of features that will allow the ladder hydraulics to be adjustable after construction. For example; each slot will be equipped with false pier noses that can be removed and switched with noses of different shapes and consequently, different hydraulic characteristics by varying the edge shapes, or slot orientation to influence the jet trajectory (see Drawing Sheet 497).

- Artificial lighting will be provided at every pool, either flush with the ceiling or safely up out of the water. This will present the fish with a reasonably uniform lighting scheme as they ascend the ladder. A lighting plan is provided in the 90% design. Bryan Nordlund expressed an opinion that lighting considerations should be
primarily for fish working up through the ladder pools, but that providing good lighting for personnel working conditions should take precedence in the crowder pool.

- The two fishways will be able to operate independently, but an equal head over both entrance weirs will be required to maintain equal flow down each ladder when the ladders are being operated simultaneously.

0 Entrance Pool Energy Dissipation Hydraulic Evaluation – Excess energy in the incoming attraction water flow will be dissipated in three steps.

- Step 1 – The AWS pipe turns down and discharges into the energy dissipation chamber, as shown in the design drawings. The length and shape of the pipe are key to the energy dissipation design. The header pipe across the downstream face of the powerhouse will not be flowing full, and a small waterfall will occur within the pipe, which helps to dissipate energy. Air released in this turbulent area will travel back up the pipe (due to the downpipe length and expansion of diameter), and will be removed with the assistance of a vent located just upstream of the downward bend.

- Step 2 – The entry pool diffuser (Baffle C) will be designed to operate at 0.13 to 0.6 feet of head drop. This diffuser will be equipped with two 6-foot doors made of perforated plate material that will be rigged to break away in case too much head builds up behind the baffle plates due to clogging. The current structural design concept for the baffle consists of small, bolted, pressed plates that can be individually replaced and disassembled/removed from the confined space by hand.

- Step 3 – Diffuser panels of different porosities located on the walls of the entrance pool. Unique porosities for each of the four panel segments are defined to address the varying headloss within the entrance pool. Hydraulic characteristics of this design are provided in the 90% report, with a detailed head and porosity summary table. This system will operate at either the Phase 1 - 400 cfs, the Phase 2 - 600 cfs, and at lesser flows with the same set of porosity panels (i.e., no adjustments are necessary). The structural design concept for these plates also provides for small panels replaceable by hand, though access to this area is difficult, so the goal is to get the porosities right through careful hydraulic analyses before construction. The four diffuser panel segments are equipped with plastic top-down gates on floats that will act to prevent plunging flow into the entrance pool when the water surface in the pool is lower than the top of the baffle plates. The entrance pool is also equipped with blowout doors in the floor to alleviate excess pressure due to clogging of the diffuser panels, if any debris should get through the AWS pump station intake rack and into the fishway entrance pool energy dissipation pool system.

- The ES discussed the need for post-construction hydraulic evaluation in this difficult to access area. Consensus was that a visual observation via remote camera would be adequate to look for unexpected surging, bubbles, or change in water surface within the entrance pool, that could indicate an imbalance. This is a confined area with limited access and complex flow patterns, so measuring the flows is not believed to be feasible.
AWS Pump Station and Pipeline Design Update

- Dissolved Oxygen Concerns – There is some concern that the siphon system shown in the 60% design could remove some of the dissolved oxygen (DO) out of the incoming water supply, potentially making the ladder less attractive to fish or potentially have fish health concerns. The team has looked at the problem and highlights of the discussion include:

- The DO problem is most likely to occur in the fall when water temperatures are still relatively warm and flows are low. The vacuum within the siphon is greatest at this time because tailwater elevations are low. It is unclear how much of an impact this siphon would have on actual DO values because it is hard to predict how long it takes the oxygen to leave the water. Under worst case fall conditions, DO values in the auxiliary water could theoretically drop to as low as approximately 4 mg/l (+/-).

- To address this concern, two changes have been made to the design that will instead provide for a highly flexible system that can run either in partial siphon mode or as a pressure system. First, the AWS pipe has been lowered by 4 feet. Second, the pump operating head has been increased to provide a positive head pump system. Details of the dissolved oxygen issue and current design are outlined in the 90% Design Report in Section 5.3.1.

Sorting Facility Update

- Since the last design update, the size and through-flow requirements of the pre-sort pond have significantly increased to accommodate the 3,700 fish per day peak design number, which has been agreed to by the ES representatives, as compared to the previous basis of design value of 1,629 peak fish per day. Details on flow and dimensions can be found in the report and the drawings.

- Concern was raised by Eric Kinne at the last Subgroup meeting about flume velocities where fish are discharged into the small sorting tanks. In response to these concerns, Dan Turner (R2) prepared a memo summarizing anticipated fish speeds and flume design characteristics. In general, it is expected that the fish will speed up slightly in the flumes, but the general order of magnitude will be determined by how much velocity the staff member imparts to the fish when they place it in the flume. The flume design slope and velocity characteristics are similar to other known installations, as described in the June 17, 2009 memo, distributed via email with Action Item #132.

- Future Direct Fish Transfer to Merwin Reservoir Considerations. Three concepts have been identified for future direct fish transfer.

  - Option 1: Keep trucking fish. No change in facilities but release the fish directly to Merwin reservoir rather than to Swift.

  - Option 2: Use a rail based cart system to transport fish to the base of the dam, and lift via a rail style lift near the left bank of the dam. This option will require a pond, very similar to but likely smaller than the pre-sort pond, to provide a loading buffer to accommodate different rates of fish sorting.

  - Option 3: Use a tram based system to lift fish over the dam near the right bank. This option will also require a buffer loading pond.
- All of these options would meet the Yakama Nations’ goal of letting the fish decide where to go for themselves once they are above the dam.

- Dennis Anderson provided a virtual tour through the 3-D model of the sorting facility. The architecture of the sorting facility building will emulate the architecture of the powerhouse, to make for a cohesive appearance.

- The pre-sort pond crowder is currently being shown with a vertical crowder and a side lateral panel similar to Pond 15. Fish are guided into one electro-anesthesia basket or the other by turning the false weirs corresponding with the two baskets on and off. The crowder is there to encourage recalcitrant fish. The design team will coordinate with WDFW on remaining details of the crowder.
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<tr>
<td>M118</td>
<td>PacifiCorp (Adams) Complete Failure Analysis to identify which emergency situations are most worth formulating contingency plans for.</td>
<td>In progress, ongoing</td>
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<tr>
<td>M128</td>
<td>WDFW (Kinne) Visit Cowlitz Salmon Hatchery to observe the EA system, note current settings, and provide information to Frank Shrier for summary table. Also take photos of system, and provide any other notes on performance or recommended design details to the ES.</td>
<td>Pending</td>
</tr>
<tr>
<td>M129</td>
<td>PacifiCorp (Shrier) Prepare summary table with history of EA system settings for the Bonneville Hatchery, Cowlitz Salmon Hatchery, Smith-Root recommendations, and any other available data.</td>
<td>Done, 7/6/09 email.</td>
</tr>
<tr>
<td>M130</td>
<td>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.</td>
<td>Pending</td>
</tr>
<tr>
<td>M131</td>
<td>R2 (Postlewait) Send a copy of the hydraulic ladder analysis to Bryan Nordlund for review.</td>
<td>Done, provided summary table at meeting.</td>
</tr>
<tr>
<td>M132</td>
<td>R2 (Postlewait) Forward Dan Turner’s memo on fish flume velocities to Eric Kinne and Bryan Nordlund.</td>
<td>Done, 7/8/09 email.</td>
</tr>
<tr>
<td>M133</td>
<td>WDFW (Turner/Kinne) Review the crowding and Electro-Anesthesia loading system shown in the drawings and provide feedback at the next subgroup meeting.</td>
<td>Pending</td>
</tr>
</tbody>
</table>
o SWIFT DOWNSTREAM PASSAGE PROJECT

Handouts

- Swift Downstream Project – 90% Design Report
- Swift Downstream Project – 90% Drawing Submittal Package
- Swift Downstream Project – 90% Specifications Package

Presentations

- PowerPoint presentation by Peter Christensen highlighting Swift Project design updates
- PowerPoint presentation by Frank Shrier outlining the MS-222 disposal issue.
- PowerPoint presentation by Brian Friesz concerning truck filling water supply and adult release concept at Eagle Cliff.

See discussion summaries below.

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

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<thead>
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<tbody>
<tr>
<td>S62</td>
<td>PacifiCorp (Shallenberger) Send out FSC access updates and other presentations to Bryan Nordlund and Michelle Day.</td>
<td>Done</td>
</tr>
<tr>
<td>S66</td>
<td>R2 (Christensen) Refine Control Weir Design to reflect discussions about short circuiting and flow control.</td>
<td>Done</td>
</tr>
<tr>
<td>S67</td>
<td>PacifiCorp (Shrier) Discuss adult release concepts with ACC. More ideas and feedback are needed.</td>
<td>Done</td>
</tr>
</tbody>
</table>

Additional Comments on Last Meeting’s Swift Notes:

Bryan Nordlund would like the underlined words below added to the paragraph in the minutes:

Note 1- On page 10 of 13, the last bullet under the heading “Discuss Comments from Agency Representatives” includes the sentence “In the NMFS comments they recommended that consideration be given to making the impermeable barrier deeper”. Bryan Nordlund stated that although the NMFS comments discussed potentially deepening the impermeable barrier, his statement at the last meeting was that consideration should be given to a design that does not just allow deepening the impermeable barrier, but either deepening or shortening (in depth) the impermeable barrier portion of the guide nets.

SWIFT DOWNSTREAM AGENDA TOPICS

General Discussion Topics

- PacifiCorp distributed the Swift 90% Design Report, 90% Drawing Package, and 90% Specifications Package. Comments on the design are due on August 10th, at the end of the 45-day review period. Peter Christensen presented a few of the highlights from the report
and drawings that he would like the agencies to pay particular attention to including the following.

- Small Smolt Recovery Tanks for Tagging Studies– The sorting and sampling flow diagram in the report identifies these tanks, but the design currently does not include them. Peter asked if they are still required. The group agreed that the small smolt recovery tanks will likely be needed to observe tagged fish and study fish mortality. The size and number of these tanks is still undecided. Frank Shrier will discuss the issue with Kevin Malone to pin down the program needs. One possible location for these tanks is in the sorting area, next to the smolt sample holding tanks.

- The 100% design will need to include conceptual drawings of the Attraction Water Supply Expansion Module to be added to the mouth of the FSC in the event that increasing the system inflow becomes necessary. Currently the 90% design report does include descriptive text for the expansion module in Section 14.

Control Ramp Weir

- The Control Ramp Weir has been updated since the previous design iteration. Highlights of the changes include:
  - The upstream and downstream ends of the control ramp weir have been lowered to improve hydraulic control flexibility through the channel.
  - The screens in the area of the control weir have been changed to prevent flow from short-circuiting back through the screens and out through the weir when the weir is raised to shut off the flow.
  - As a consequence of these changes, the hydraulic model shows that water velocities at the weir drop to 2.74 ft/s (down from the previous value of 4.0 ft/s). Peter asked if the group has any concern with this.

Adult Fish Crowding

- Peter presented the most recent updates to the adult crowding mechanism. The lift mechanism has been simplified. As currently shown, all adults are handled and manually loaded into either 250-gallon tanks or into the main hopper. While this configuration is simpler than the previous iteration, the crowder no longer has the ability to crowd adults directly into the main hopper. The group agreed that this is the best way to deal with adults and the benefits of the simpler, more compact, design outweigh the loss of the ability to crowd directly into the hopper. It was agreed, all around, that the ability to mechanically crowd adults into the main hopper is unnecessary.

Shorter Smolt Separator

- The Smolt Separator has been shortened to 5 feet since the last subgroup meeting. This was done after a revised more efficient design of the flow supply made the final 4 feet unnecessary from a flow supply perspective. Peter noted that it would appear that the shorter length makes it easier for adults to pass over the separator and into the adult tank.
- Eric Kinne raised concerns that 5 feet may be too short because some smolts may enter the separator sideways and not have enough time to turn lengthwise to pass through the bars before the beginning of the adult ramp.

- Dana noted that the Prosser Separator (which was the design basis for Cowlitz Falls Facility) is approximately 15 feet long. The Cowlitz Falls Separator (which is the design basis for the Swift FSC) is 12 feet long. John Serl, of Cowlitz Falls Facility, felt that their separator was too long because adults were struggling to make it to the end. Consequently, the Swift separator was initially shown with a length of 9 feet. Before committing to a length of 5 feet, the design team will make contact with John Serl to get his feedback on the idea.

- Peter noted that the shortened length helps minimize the effects of FSC movement in response to wind and waves potentially causing the water in the separator to slosh over the low end at the adult ramp.

- Fry Transfer into the 250-Gallon Transport Tanks – Peter described how fry would be transferred from the fry hoppers into the 250-gal tanks on the deck of the FSC. Basically, the hopper and the water-filled receiving tank will be connected with a 3-inch diameter hose while the hopper is gently lifted to create a hydraulic gradient that moves the fish into the receiving tank. A criteria fish screen on the drain of the receiving tank will ensure that fish remain safely in the transport tank without getting caught in the outflow. The subgroup will provide feedback on the design at the next subgroup meeting.

Fish Truck Loading Facility Update

- Brian showed renderings of the tram/pusher system that will be used to load adults onto trucks at the dam. A pump attached to the stern of the FSC will provide water supply to fill fish trucks and temper the receiving water when there is a concern about temperature gradients. The intake to the pump will be 20 feet below the surface of the reservoir where water temperatures are expected to be similar to those at the release site.

- Eric Kinne voiced concerns about drain rates on the fish trucks. Anticipated drain times will be provided at next subgroup meeting.

Adult Fish Release Concepts

- The Eagle Cliff Release site has become the preferred release site for adults in the event that they cannot be safely/easily released at the dam or Swift Camp.

  - The Eagle Cliff Site would be used from fall through spring when Swift Camp is difficult to access and/or when reservoir elevations are below 972 feet.

  - The 16-inch diameter, 175-ft long release pipe would have an average slope of about 10%, with 2.5 - 3% slope at the outlet. The pipe follows the natural contours of the riverbank. Anticipated water velocities inside the release flume are on order of 8 ft/s.

  - The release pipe would be stored in the summer, when not in use.

  - The team still needs to find a good way to provide make-up water to the release pipe to help move the last fish out of the pipe and into the river. Ideas suggested by the group included using a U-shaped flume with a net on top to let operators help fish
along if they get stuck, or finding a way to bring a water source on-site to flush fish out of the pipe.

- Frank pointed out that this site is also on the table as a possible site for a future acclimation pond, which would help solve the water-supply problem.

- Installing a boat ramp at Eagle Creek with the purpose of discharging fish directly into the river out of the back of the truck is out of the question because the ramp would get covered up or ripped out by the river.

**MS-222 Treatment Concerns**

- Frank Shrier presented a quick PowerPoint outlining the issue to the group. Highlights of the discussion follow:
  - He has been in contact with the Department of Ecology on this issue. Ecology has no regulations or recommended treatment protocol for the disposal of MS-222.
  - The state of Oregon has regulations regarding the disposal of MS-222. These regulations may provide a valuable go-by for the team.
  - Ecology approved of Frank’s dilution calculations and indicated that disposing the spent solution in the reservoir would not create a concern.
  - If discharging into the reservoir, the group agreed that it would be best to discharge the solution on the turbine intake side of the FSC, to improve dilution and mixing.

**Closing Thoughts**

- Will Shallenberger has reviewed the language in the Settlement Agreement in regards to 100% submittal requirements. He noted that the 90% submittal is the last round of review by the agencies required in the Settlement Agreement, and that the agreement calls for the final design to be submitted directly to FERC. He noted that there are still design issues to be resolved, and since there are no more formal submittals before the final, what is the best means of getting buy-off from the agencies prior to the FERC submittal? The group needs to devise a plan as to how to best go about documenting and presenting the approval.

- Bryan Nordlund indicated that it was his intention to provide substantive comments at the 90% point to facilitate Agency approval for the 100%.

- Future subgroup meetings will focus on design changes and details, much in the same way as they have been, in order to facilitate any additional comment/review/approval process.

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**SUMMARY OF PENDING SWIFT ACTION ITEMS**

(remaining from previous Meetings)

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**SUMMARY OF NEW SWIFT ACTION ITEMS**

(from July 1st, 2009 Meeting)

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<tr>
<td>S68</td>
<td>PacifiCorp (Shrier) Share ACC feedback on adult release concepts at the next subgroup meeting in written form.</td>
<td>Pending.</td>
</tr>
<tr>
<td>S69</td>
<td>PacifiCorp (Shrier) Identify the size and number of small smolt recovery tanks required with Kevin Malone and report back to the team as soon as possible.</td>
<td>Pending.</td>
</tr>
<tr>
<td>S70</td>
<td>R2 (Christensen) Contact John Serl to get his opinion on the truncated length of the smolt separator.</td>
<td>Pending.</td>
</tr>
<tr>
<td>S71</td>
<td>B&amp;V (Friesz) Provide anticipated fish truck drain rates to the team at the next meeting.</td>
<td>Pending.</td>
</tr>
<tr>
<td>S72</td>
<td>Black &amp; Veatch (Friesz) Write a design memo describing the anticipated flume velocities at Eagle Creek. Include design details.</td>
<td>Pending.</td>
</tr>
<tr>
<td>S73</td>
<td>Black &amp; Veatch (Friesz) Create a flowchart or decision matrix for adult release sites describing which sites would be used for adult release and under what conditions. Present this plan at the next subgroup meeting.</td>
<td>Pending.</td>
</tr>
</tbody>
</table>

Adjourn 3:05 PM.