Bonneville Dam[1]

1. Special Project Operations.

RCC will coordinate needed changes with the projects and authorize operations in teletype regulations.

1.1. Spring Creek Hatchery Release. The first hatchery release is expected to occur in early March, followed by special operations for juvenile fish passage as coordinated with the fish agencies through TMT. Project operations for fish passage will be defined by RCC teletype prior to the release.

1.2. Spill. Spill for fish passage will be provided during the spring and summer outmigration seasons in accordance with spill specifications in Appendix E and as coordinated through TMT. Alternative spill patterns to control dissolved gas levels or change fish passage conditions will be coordinated through the FPOM.

1.3. **First Powerhouse Main Unit Rehabilitation**. Work continues on the rehabilitation of main units 7 and 8 at PH1 in 2008. Unit 8 is expected to return to service starting in mid March 2008. Unit 7 is expected to return to service in late 2008. Special operations will be requested for main unit testing once the units are ready to start the initial start up test. Tests will require but are not limited to short term runs above and below the 1% turbine efficiency range, and turbine load rejection testing. Durations of these tests are generally short (less than 6 hours). Tests requiring the units to be outside the 1% operating ranges for longer than this 6 hour period during the fish passage season will be coordinated with the regional fish representative prior to testing. Unit outages associated with line boring operations will need to be specially coordinated to minimize additional spill during the fish passage season. Efforts will be made to minimize outages that require taking units OOS during periods of high TDG levels below BON. The Corps rehabilitation fisheries representative (PM-E) along with Voith Hydro will create an advance schedule outlining line boring activities as to reduce the chances of TDG exceedences due to reduced powerhouse capacity. This schedule will be created prior to line boring activities for all remaining units.

[1] The purpose of this section is to notify regional interests of planned activities that will or may affect fish passage. Further coordination may occur as needed.

2. Studies.

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2.1. Spillway Survival Study. Acoustic telemetry will be used to estimate the survival of yearling and subyearling Chinook salmon and steelhead that pass through the spillway. The purpose of this study is to evaluate the effect of spilling 100 kcfs 24-hours per day during the spring migration and 85 kcfs daytime, TDG cap night spill during the summer. New spill patterns were developed in 2007 and will be again evaluated in 2008. Some fish for this work may be collected at the Bonneville Dam smolt monitoring facility but the bulk of the test fish will be from releases at John Day Dam. BRZ access to install acoustic telemetry receiving nodes will be required prior to the spill season. In-season battery changes will be necessary for hydrophones located in the BON forebay approximately every two weeks. This will require a BRZ permit for forebay access. Also, researchers may request special spill bay operations through RCC and PM-E during the FPP season to flush large woody debris from the forebay side of the spillway. These operations help safeguard the equipment mounted on the spillway pier noses that may be damaged if large debris is allowed to accumulate in these areas. The final details of this study are still under discussion in the Regional Forum (SRWG and SCT).

2.2 Bonneville Second Powerhouse Behavioral Guidance Structure (BGS) Installation and Biological Evaluation.

Installation and Construction- Starting in February of 2008 contractors will be installing individual sections of the new BGS. This will require the setting of large concrete bottom anchors, cabling, and the floating boom portion from a tug and barge. Several open-ended BRZ permits will be needed to accommodate this installation process. Special requirements may be needed to install new floating debris booms at the Washington Shore, CI and Bradford Island fishway Exit areas. Exit and auxiliary water flows at these areas may need to be reduced for short periods of time to facilitate installation. Special forebay operations will be requested after installation in late February to test the placement of the new BGS and to look at its travel when the forebay is raised and lowered. This forebay manipulation will be coordinated through RCC, FFDRWG, and FPOM and will take place approximately the week of 1 March, 2008 for 3 days.

Forebay BGS Salmonid Behavioral Response Study- Acoustic telemetry will be used to evaluate juvenile salmonid response to the BGS, Second Powerhouse and the B2CC. Acoustic equipment installation in the forebay (BGS) will require BRZ permits.

Acoustic equipment at the PH will be mounted on 80’ sections of 4″ steel pipe attached to every third powerhouse pier nose below the water surface and one section just to the north of the B2CC entrance. These pipe installations are scheduled for March and early April 2008 and will require the closure of the B2CC for short periods of time as well main unit outages for dive operations. During the study period (15 April through 15 July) several BRZ permits will be required to check or replace equipment.

2.3 **Bonneville Second Powerhouse FGE Research.** Juvenile Chinook salmon will be released at three Bonneville Dam Second Powerhouse locations to compare post-passage descaling, injury, and mortality rates and gatewell retention times (as measured by passage timing), during turbine operation at the high and low ends of the 1% peak efficiency range. Releases will be made into turbine intakes just upstream and near the top of trashracks, into gatewells near the top of submersible traveling screens (STS), and into the bypass system collection channel adjacent to turbine unit(s) selected for testing. Each replicate will include releases at the three specified locations during each of the two operational modes; therefore a single replicate test will require six distinct marked groups. All fish used in tests will be tagged with PIT tags and recaptured via separation-by-code (SbyC) at the Second Powerhouse Juvenile Fish Monitoring Facility (JFMF). This test will require a main unit (to be determined) to be operated as needed during specific fish releases. It will also require the unit to be taken off-line for short periods of time to install equipment prior to testing and to dip the gatewell of fish before and after fish releases. Research will be undertaken after the first Spring Creek release in mid to late March 2008. 2 other test will be undertaken either prior or after the next 2 Spring Creek subyearling releases scheduled for April and May. Researchers will be using their own crane to dip the gatewells. Project support will be needed to mount the trashrack release pipe prior to the start of the tests in mid March. This will require a short outage of the slated unit.

2.4. **Bonneville Chum Salmon Study.** Starting prior to spill operations in mid-April 2007 Pacific Northwest National Laboratories (PNNL) personnel will be installing TDG monitoring stillwells (piezometers) in several gravel sights at both Ives Island and Multnomah Falls below BON Dam. Along with the piezometer installation PNNL researcher will be installing several egg baskets in early spring to replicate a spawned redd. Depending on river flows, special operations may be requested reducing BON outflows which will facilitate divers to safely install equipment and egg baskets. Any and all requests

for flow reductions will be coordinated on a case by case basis with RCC.

2.5. Lamprey Passage Evaluations. From early June to the end of August, 1000-2000 adult Lamprey will be captured and tagged with half-duplex PIT tags and released below the dam to evaluate overall passage, including use of the Lamprey Passage Systems (LPS). 600 of these fish will be radio-tagged for an evaluation of reduced fishway entrance flow at Powerhouse 2. On alternating nights from around June 1 to mid August the Washington shore ladder entrance head will be reduce to 0.5' starting at 1000 and ramped back up to normal operations (1.5') at 0400. A final day by day schedule will be supplied to the project to help guide the operators before the research begins. LPS will be operational no later than the middle of May and run until at least October 1.

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2.6. Adult Studies Evaluations. Hydroacoustics will be used to evaluate steelhead kelt passage at the B2CC, from 1 March 2007 to the juvenile passage season.

2.7. Sea Lion Predation. Beginning when the first California sea lions return to Bonneville Dam until the last sea lion leaves, usually mid-February until June 1, exclusion gates will be installed at all downstream slots of all entrances and barriers will be installed at B2 FOGs. In addition, NMFS-approved sea lion harassment activities will occur from land during sea lion season.

2.8. All dates shown are approximate and could be advanced or delayed by a week or so depending on various factors such as river flows, contractor schedules, equipment failures, etc. Some evaluations may not proceed. Therefore, a final description of studies and outages being conducted will be coordinated with the region through AFEP (FFDRWG and SRWG), prior to April 1. All special operation requests or schedule changes will be coordinated with the fisheries agencies and tribes through the AFEP and with RCC and BPA.

The Dalles Dam[2]

1. Special Project Operations

RCC will coordinate needed changes with the projects and authorize operations in teletype regulations.

1.1. Spill. Spill for fish passage will be provided during the spring and summer outmigration seasons in accordance with spill specifications in Appendix E and as coordinated through TMT. Alternative spill patterns to control dissolved gas levels or change fish passage conditions will be coordinated through the FPOM.

2. Studies.

2.1. Adult Lamprey Studies. Exit area half-duplex PIT antennas and receivers will be operational to monitor adult lamprey passage no later than mid-May.

2.2. All dates shown are approximate and could be advanced or delayed by a week or so depending on various factors such as river flows, contractor schedules, and equipment failures, etc. The seasonal timing (i.e., prior too, during the 1st week of spill, or during peak flow conditions) of the affects 16’ gate openings will be determined via the fisheries agencies through the regional forum. Some evaluations may not proceed. All special operation requests or schedule changes will be coordinated with the fisheries agencies and tribes through the AFEP and with RCC, TMT, and BPA.

[2] The purpose of this section is to notify regional interests of planned activities that will or may affect fish passage. Further coordination may occur as needed.

John Day Dam[3]

1. Special Project Operations.

1.1. Spill. Spill for fish passage will be provided during the spring and summer outmigration seasons in accordance with spill specifications in Appendix E and as coordinated through TMT. Alternative spill patterns to control dissolved gas levels or change fish passage conditions will be coordinated through the FPOM. Planning dates for spill are from April 10 through August 31 for spring and summer migrants as required in the UPA. Prototype top spillway weirs (TSW) will be evaluated in 2008 to provide information for design of a permanent surface flow outlet system at John Day Dam. The evaluation will compare the performance of two TSWs operating with two different training spill levels. Special spill patterns and treatments for this test are currently under development and are expected to be completed by the first week of February. These spill patterns and the TSW test schedule will be coordinated through FPOM, FFDRWG, and RCC upon their completion. The TSW test will occur between 20 April and 20 July. During testing, spill and operation of the TSWs will occur 24-hours per day. Before this test, from April 10 to approximately April 20 (planning dates), spill discharges will be 60% of instantaneous project flow at project flows up to 300,000 cfs from 1800 to 0600 hours as per the 2007 FOP. Above 300,000 cfs project flow, spill discharges will be 180,000 cfs (up to the hydraulic limit of the powerhouse). Following the TSW test, from approximately July 21 through August 31, spill will be 30% of instantaneous project flow 24-hours per day. Spill will be provided in a manner consistent with TDG management to avoid excessive gas supersaturation conditions.

2. Studies.

2.1. Adult Lamprey Studies. Exit area half-duplex PIT antennas and receivers will be operational no later than mid-May to monitor adult lamprey passage. JDA ladders will be evaluated this winter and spring for potential installation of LPS.

2.2. Evaluation of Top Spillway Weirs (TSW)

2.2.1. General. Two prototype spillway weirs that pass ~10 Kcfs each will be installed in Bays 18 and 19. Training spill patterns to support the TSW jets and provide good downstream

[3] The purpose of this section is to notify regional interests of planned activities that will or may affect fish passage. Further coordination may occur as needed.

egress for juvenile salmonids are currently being developed. It is anticipated that two spill levels will be tested to provide spill / TSW efficiency curves. These data will be used for designing surface flow outlet and tailrace improvements at John Day Dam. In addition to passage distribution / efficiency metrics, forebay retention, tailrace egress, and survival will be estimated for yearling Chinook, steelhead, and subyearling Chinook salmon. Also, prior to the smolt migration a direct survival and injury test using balloon-tagged fish will be conducted.

2.2.2. Installation of TSWs. Two TSWs will be delivered to the Forebay of John Day Dam immediately following the navigation lock maintenance outage – approximately 24 March. The TSWs will be installed into bays 18 and 19. Installation, by barge crane, is expected to take 1-2 days. BRZ access will be required to accomplish this.

2.2.3. TSW Evaluations. There will be two parts to the TSW evaluation: 1) a test of the direct effects of TSW passage on juvenile salmonid survival and injury, and 2) an in-season evaluation of the effects of operating the John Day project with two TSWs and two spill levels on juvenile Chinook and steelhead passage distribution, forebay residence time, tailrace egress conditions, and total survival.

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The direct test will occur over a 3-day period immediately following TSW installation, and is intended to provide assurance that the TSWs do not directly injure or kill fish. Balloon-tag methods will be used for this study component. It is anticipated to take most of a work day to open and close both TSWs, therefore during the 3 day direct test, both TSWs will need to operate 24-hours per day In addition to TSW discharge, approximately 5 Kcfs training spill at Bay 17 will be required during release of test fish.

Provided the TSWs are deemed safe to operate during the juvenile salmon passage season, Acoustic telemetry and hydroacoustics will be used to assess passage behavior and survival at the dam. Passage metrics will be collected under two training spill conditions, 30% spill vs. approximately 40% spill. A randomized block design will be used to accomplish this, with each spill treatment lasting 2 or 3 days. The specific design, as well as the upper spill level to be tested is still under development in the Regional Forum. In addition to acoustic telemetry and hydroacoustic evaluations, GPS drogues will be released at the spillway, powerhouse, and juvenile bypass outfall to assess tailrace egress conditions. The period for all of these study components will run from approximately 20 April – 20 July and will depend on fish

availability and river conditions. Installation of hydrophones and hydroacoustic transducers will occur in March, prior to the start of spill. Main unit rolling outages will be required for divers to install hydrophone mounts and transducers at the powerhouse. Emergency outages may be requested for replacement or repair of damaged equipment during the study. These will be coordinated through FFDRWG/FPOM and RCC. Approximately every two weeks from May through July, battery changes will be necessary for hydrophones located in the JDA forebay. This will require a BRZ permit for forebay access.

2.3. All dates shown are approximate and could be advanced or delayed by a week or so depending on various factors such as river flows, contractor schedules, and equipment failures, etc. Some evaluations may not proceed. Therefore, a final description of studies and outages being conducted will be coordinated with the region through AFEP (FFDRWG and SRWG), prior to April 1. All special operation requests or schedule changes will be coordinated with the fisheries agencies and tribes through the AFEP and with RCC and BPA.