

Appendix 1

Technical Management Team Emergency Protocols

FEDERAL COLUMBIA RIVER POWER SYSTEM

FOR ATTACHMENT TO THE
WATER MANAGEMENT PLAN
AND OTHER APPROPRIATE ACTION PLANS

Updated July 16, 2008

1. Introduction

This document establishes a protocol that will be used by the Action Agencies for notification, consultation, and documentation in the event of an emergency concerning the operation of the Federal Columbia River Power System (FCRPS) that impacts fish protection measures contained in the respective Biological Opinions (BiOps). The BiOps call for an annual Water Management Plan (WMP), which provides the detailed description of operations, based on the current year conditions, to ensure fish protection measures are consistent with Endangered Species Act responsibilities. This Protocol is meant to be general enough to encompass most kinds of emergencies. This Protocol pertains to short duration (approximately 1-7 days) interruptions or adjustments to protection measures for listed species that occur during the operation of the FCRPS.

The primary emergency types these protocols apply to are:

- **Generation Emergency:** the potential for or actual insufficiency of electrical generation to satisfy electrical demand or load.
- **Transmission Emergency:** the potential or actual loss or limitation in the ability to move electricity from the site of generation to the actual consumer or end-user.
- **Fish Emergency:** Unexpected equipment failures or other conditions that result in an interruption of fish protections measures.
- **Other Emergency:** the existence or result of extenuating circumstances which fall outside the range of normal operations, is unanticipated, and may significantly impair the ability to provide for other project uses, such as flood control or navigation, significant human health and safety concerns, or result in catastrophic impact, physical damage or failure to a dam, or other part of the physical power system. Examples include earthquakes, flood control operations, fires, navigation, dam safety, and failure of fish facilities infrastructure.

Specific Action Plans will be developed for Generation (*Completed-See Attachment 1*), Transmission and Fish Emergencies that identify pre-emptive actions and emergency actions that will be taken consistent with this Protocol. Examples of thresholds for these types of emergencies are shown in the respective Action Plans contained in Attachments 1 and 2 of this Protocol. Action Plans are coordinated in the TMT process.

The degree and/or nature of any emergency ranges from those that require immediate action to those that are amenable to coordination among affected parties prior to action. In some instances it is possible to plan for and develop procedures to respond to an emergency, while in other instances this is not possible. In addition, while many types of emergencies can be described for purposes of this Protocol, not all emergencies can be identified prior to the actual occurrence. Discussion of emergencies with effects of exceptional magnitude or duration will include involvement of regional executives.

Emergency actions will not be taken in place of long-term investments necessary to allow full uninterrupted implementation of the planned reservoir and dam operations while maintaining other project purposes.

Interruptions to protection measures for non-listed species are inclusive in these Protocols; however, priority will be given to protection measures for listed species.

2. Goals

The primary goal of this Protocol is to have written procedures that describe how the Action Agencies will manage the FCRPS to avoid or minimize emergencies impacting fish protection measures in accordance with ESA biological opinions and other operative documents such as the WMP, and provide timely communication and coordination with the TMT when they occur. When emergencies occur, the Action Agencies will work with TMT to restore the protection measures and provide the planned life cycle survival rates with priority given to in-time and in-place actions to the extent practicable. *(This does not create legal rights or obligations on the part of any party.)*

3. Definitions:

Emergency – A sudden, urgent, usually unforeseen occurrence or occasion requiring immediate action. As applied to this Protocol: when necessary interruptions or adjustments occur to fish protection measures identified in the applicable biological opinions, the Annual Water Management Plan, and other operative documents.

Emergency Actions- Actions taken by the Action Agencies in response to an emergency that affects fish protection measures.

Action Agencies - Bonneville Power Administration (BPA), Corps of Engineers (COE or Corps), and the Bureau of Reclamation (BOR or Reclamation)

TMT - Technical Management Team is one of the Regional Forum technical teams. Adaptive management of the FCRPS is coordinated in the Technical Management Team public meeting process.

Water Management Plan. - The Water Management Plan (WMP) describes how the Action Agencies plan to operate the FCRPS projects in accordance with the NOAA Fisheries and the U.S. Fish and Wildlife Service FCRPS Biological Opinions addressing the effects of the operation of the 14 FCRPS projects¹(–this does not include the Willamette Projects or Upper Snake River Projects) during the current water year (October – September). The Fish Passage Plan (FPP) and Fish Operating Plan (FOP) for 2008 are appendices to the WMP.

4. Emergency Protocol

4.1. Advanced Planning – Pre-Emptive Actions

When the operation of the FCRPS is likely to require implementing emergency actions and the event can be anticipated approximately 24 hours in advance or earlier, the Action

¹ For purposes of this Protocol, the FCRPS comprises 14 Federal multipurpose hydropower projects. The 12 projects operated and maintained by the Corps are: Bonneville, The Dalles, John Day, McNary, Chief Joseph, Albeni Falls, Libby, Ice Harbor, Lower Monumental, Little Goose, Lower Granite, and Dworshak dams. Reclamation operates and maintains the following FCRPS projects: Hungry Horse Project and Columbia Basin Project, which includes Grand Coulee Dam.

Agencies will convene a meeting of the TMT to discuss actions to undertake with the objective of averting or minimizing impacts to fish protection measures. This Protocol contains an Action Plan (see Attachment 1) that describes pre-emptive actions that will be pursued to avoid interrupting fish protection measures.

When conditions are identified that could potentially require the use of Emergency Actions within approximately 24 hours, the responsible agency, i.e. the Action Agency which would declare the emergency, shall notify the chair and co-chairs(s) of the TMT as soon as the situation is observed. If there is time, a TMT call or meeting will be arranged by the TMT chair or co-chair(s). If time allows, a discussion will be arranged, however, in some situations, the call may provide notification to TMT members of pre-emptive actions the responsible agency has deemed necessary.

The Action Agencies will implement all available pre-emptive actions prior to implementing emergency actions, and when feasible, the Action Agencies will implement alternate operations recommended by TMT.

4.2. Emergency Response

Emergency actions may be required as an immediate response if the pre-emptive actions fail to resolve the situation or the situation deteriorates without warning. If emergency actions are implemented as an immediate response an emergency will be declared. The Agency declaring the emergency will consider the prioritized emergency action lists provided in appendices of this Protocol, direction from TMT or other groups, standard operating procedures for specific projects, and/or guidance from appropriate responsible agencies to resolve the condition.

The Action Plans provided in the appendices of this Protocol have been discussed in the TMT forum will be used as guidance when events unfold too quickly for pre-coordination to occur. For emergencies requiring immediate action by those operating the respective hydropower project(s) or other elements necessary to sustain the function of the hydrosystem, after stabilizing the situation they will contact the chairs of the TMT and IT. The TMT chair or co-chair(s) will disseminate a notification via phone calls and emails to a “first contact list,” which will include designated members from TMT and others that have requested inclusion on the first contact list as soon as practicable, but not later than the next working day. A meeting of the TMT will be convened at the earliest time available after notification of the first contacts.

5. Documentation and Follow Up Requirement

In all cases when emergency actions have been implemented, as soon as practicable, but not later than the next working day, the following information shall be provided by the agency declaring the emergency:

- Description of the emergency, how it occurred, and how long it is anticipated to last
- Description of how the emergency jeopardized system stability, public safety, or otherwise necessitated action that impacted fish protection measures.

- Identification of agencies that declared the emergency and agencies that responded to the emergency
- Identification of who was notified of the emergency
- Description of what actions were taken by each agency
- Identification of alternatives considered to reduce and offset impacts of the emergency.
- Further detailed information will be provided upon request of the TMT.

When requested by a TMT member, the TMT Chairperson will arrange for a follow-up TMT meeting or conference call to:

- Review status of the event,
- Insure that all requirements for the implementation of emergency actions by the Action Agencies have been met and that all alternatives for offsetting adverse fish survival impacts of the implemented emergency actions have been considered, and
- Review the use of emergency action lists and revise the lists based on any lessons learned.

In general, system operations will revert to normal conditions, or as agreed upon in the TMT, when the event has been resolved or emergency actions are no longer required. The agency that declared the emergency will submit a detailed report of the incident and response at the next TMT meeting following the event unless other arrangements are arranged through the TMT process.

The Action Agencies will provide an opportunity for representatives of the region's affected parties to review the course of events and the implemented emergency actions to suggest refinements to the actions. These issues will be discussed at the next TMT meeting following the event.

6. Offsetting Adverse Effects of Emergency Response Actions

When emergency actions are implemented that cause adverse affects to fish protection measures, the TMT will assess the magnitude of the adverse effect and provide information on measures available to offset these effects. Alternative operations to offset adverse effects in-place and in-kind in a timely manner shall receive the highest priority. The members of the Regional Forum agree to cooperate in the development of this information for consideration through the TMT process.

When emergency actions impact a fish protection measure(s) included in a Biological Opinion, the appropriate agency (National Marine Fisheries Service (NMFS) or Fish and Wildlife Service (USFWS)) will consider the available information to assess whether the alternative operation used in response to the emergency situation is inconsistent with the relevant Biological Opinion(s), in that, in its expert opinion, the effects were in excess of what was contemplated in the analyses used in the respective biological opinion. If the alternative operation is determined to provide a reduction in the life cycle survival rate than that recommended in the Biological Opinion(s) analyses, then NMFS or USFWS will

recommend to the federal operating agencies offsetting measures to ensure that the action satisfies Endangered Species Act requirements.

An Action Agency deciding not to provide offsets, or proposing offsetting actions that are different from those recommended through the TMT process, will provide a written explanation for the record stating the decision and the basis for the decision.

Emergency Protocols Attachment

Attachment 1 – Power System Emergency Action Plan

Attachment 1

Power System Emergency Action Plan June 6, 2018

If hydropower generation must be adjusted to support power system reliability, and this adjustment will alter planned fish operations specified in applicable biological opinions (and other guiding operative documents), Bonneville will attempt to implement the actions in the preemptive actions list below, where practicable. If these preemptive actions are unavailable, insufficient, or cannot be implemented in time, then Bonneville may implement additional actions as necessary to address the power system reliability need. The list of contingency actions below are examples of actions that can be taken to address the reliability conditions described in Section 4.4.2 of the FOP.

Where contingency action is necessary, notification to the region will be made as soon as practical, and will follow the protocols for notification, reporting, and documentation as specified in the *Technical Management Team Emergency Protocols, Appendix 1 – Emergency Protocols of the TMT Water Management Plan*.

Pre-emptive Actions (not in priority order)

- Purchase Energy and/or reserves at prices up to the applicable FERC WECC price cap.
- Request that Corps and Reclamation return all possible units to service by canceling or postponing scheduled generator or equipment outages (e.g., makes all units available).
- Request the transmission dispatcher consider adjusting transmission system maintenance or other possible actions that would allow increases or decreases in FCRPS generation as appropriate.
- Put into service (on line) all possible generators (e.g., Grand Coulee pump-generators) while preserving sufficient energy storage to maintain reserve capability in subsequent hours
- Reshape flows within objectives at specific projects to meet immediate generation needs e.g., spill upstream projects to position water downstream.
- Cut any interruptible power commitments (e.g., PNCA storage return).
- Request adjustment of pumping schedule at Banks Lake.
- Request variance from non-power operational objectives or limits at FCRPS hydro projects (e.g., forebay draft limits, tailwater rate of change, recreation, irrigation, Treaty fishing, etc.)
- Reduce the amount of balancing reserves provided by the FCRPS to the minimum amount necessary for power system stability and reliability.
- Acquire any resources made available through the issuance of a “Merchant Alert”.
- After exhausting all available reserve sharing opportunities ask the transmission dispatcher to request the Reliability Coordinator to declare an Energy Emergency ALERT 1 when there is concern about sustaining required operating reserves.

Contingency Actions List

(Updated by TMT June 6, 2018)

When routine reliability tools and preemptive actions are insufficient or unavailable to resolve the power system condition, the following is a list of contingency actions that may be taken to provide reserves, voltage, energy or inertia. The order and extent of the actual implementation of the actions in this list will be dictated by each specific condition but if possible the order at each individual dam will be followed. The actions on the list may be updated as necessary through coordination with TMT.

Contingency Actions are prioritized by tier and within each tier.

April – August

Tier 1- Generate above 1% up to full load in the following order if possible:

BON PH1

JDA

TDA

MCN (up to 14.4 kcfs/unit)

IHR

LMN

LGS

LWG

Allow MOP excursion up to: 2 feet at IHR, LMN, LGS, and LWG

Tier 2

LWG 20 kcfs

LGS 30% of flow

IHR 30% of flow

MCN 40% of flow

JDA 30% of flow

TDA 40% of flow

BON 100 kcfs

MCN generate outside 1% up to full load

BON2 operate outside 1% up to full load

Allow MOP excursion up to 3 feet at IHR, LMN, LGS, and LWG

Tier 3

LWG 18 kcfs of spill

LMN 30% of flow

MCN 30% of flow

TDA 30% of flow

BON 95 kcfs

Tier 4– Reduce Spill to Spillway weir(s) only

LWG 7 kcfs

LGS 7 kcfs

LMN 7 kcfs

IHR 7 kcfs

TDA 20% of flow

BON 75 kcfs

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Tier 5

50 kcfs at BON

Tier 6 - Reduce spill to zero

LWG

LGS

LMN

IHR

MCN

JDA

TDA

BON

Shut off sluiceways at TDA, BON PH1, then BON CC

September – March

JDA increase generation outside 1% up to full load JDA shutoff adult attraction flow

MCN increase generation outside 1% up to full load. TDA increase generation outside 1% up to full load

TDA shut off sluiceway

BON increase generation outside 1% up to full load BON shutoff adult attraction flow

BON shut off sluiceway

HGH & LIB modify ramping rates

HGH, LIB, DWR, ALF, GCL: increase project drafts which might impact

Definitions

Balancing Authority - The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.

Balancing Authority Area - The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load resource balance within this area.

BPA Power system – This term includes the Federal Columbia River hydropower projects and transmission system.

Energy Emergency Alerts – Procedures by which a Load Serving Entity can obtain capacity and energy when it has exhausted all other options and can no longer provide its customers' expected energy requirements. An Energy Emergency Alert may be initiated by Reliability Coordinator at

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the Reliability Coordinator's own request or upon the request of a Balancing Authority or a Load Serving Entity.

Energy Emergency Alert 1 - All available resources in use.

- Balance Authority, Reserve Sharing Group, or Load Serving Entity foresees or is experiencing conditions where all available resources are committed to meet firm load, firm transactions, and reserve commitments, and is concerned about sustaining its required Operating Reserves, and
- Non-firm wholesale energy sales (other than those that are recallable to meet reserve requirements) have been curtailed.

Energy Emergency Alert 2 – Load management procedures in effect.

- Balancing Authority, Reserve Sharing Group, or Load Serving Entity is no longer able to provide its customer's expected energy requirements, and is designated an Energy Deficient Entity.
- Energy Deficient Entity foresees or has implemented procedures up to, but excluding, interruption of firm load commitments.

Energy Emergency Alert 3 – Firm load interruption imminent or in progress.

- Balancing Authority or Load Serving Entity foresees or has implemented firm load obligation interruption. The available energy to the Energy Deficient Entity, as determined from Alert 2, is only accessible with actions taken to increase transmission transfer capabilities.

Energy Emergency Alert 0 - Termination

- When the Energy Deficient Entity believes it will be able to supply its customers' energy requirements, it shall request of its Reliability Coordinator that the Energy Emergency be terminated.

Merchant Alert – The WECC Merchant Alert is a communication tool that provides load serving entities a means to exchange information regarding issues that could impact the reliable operation of the power system when there is a concern that an entity may not have sufficient resources to meet its obligations.

Redispatch – The intentional incrementing of location-specific generation and the corresponding decrementing of different location-specific generation to mitigate loading on constrained transmission facilities.