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### **For Discussion at SRT Meeting January 22, 2013**

### **Suggested Questions: SRT Member Follow-Up on Flood Risk and Canadian Entitlement For January 22-23 SRT Meeting**

#### **Overview**

At its December 13 meeting, the Sovereign Review Team initiated policy discussions related to the Flood Risk Management and Canadian Entitlement components of the Columbia River Treaty. Presentations on both of these topics were provided at the meeting and a bullet point list of the topics raised was developed. After the meeting, facilitator Margaret Norton-Arnold spoke with 15 members of the Sovereign Review Team to further discuss and define their perspectives on these two topics. Flood Risk Management was the focus of more discussion than the Canadian Entitlement.

#### **Flood Risk**

On the flood risk side, all of the members indicated that they do not mean to imply or suggest that any areas along the Columbia River should be subjected to undue risks of flooding; all are cognizant of the need to protect those who live and work in close proximity to the Columbia and its tributaries. Some of these members felt that the approach outlined in the USACE presentation was the approach that should continue to be in place for the Columbia River Treaty. Several in this group are confident that a variety of operational measures can be taken to improve ecosystem function while maintaining existing levels of flood risk. One feels that structural improvements, such as those suggested for levees, will be too expensive. Others feel that there will not be enough time over the next year to fully develop alternative approaches to FRM, with the added suggestion that the details of how water is managed on the U.S. side of the border should be determined through a follow-up process initiated in 2014. A couple of members say that flow levels should not be increased unless there is a demonstrated environmental benefit for doing so.

Other members interviewed, however, have numerous questions about the USACE approach, noting that it was their understanding that Treaty Review would encompass a broader look at possibilities for FRM in the Basin. And, these members believe that earlier commitments in the Treaty Review process have indicated that these possibilities would be fully considered and comprehensively evaluated. They are concerned that ecosystem benefits cannot be achieved unless higher flows are considered. This group is most interested in a thorough and robust analysis of the risks, trade-offs and benefits of the 600 alternatives; in non-structural approaches to FRM; in structural improvements to levees and other facilities; and in the possibility of increased flexibility, or more of a "real time" approach to the management of river levels.

These members have indicated that more discussion is needed on these issues before they will be able to further develop policy direction within the Sovereign Review Team. The following questions will serve as the basis for continued discussion at the January SRT meeting. It is anticipated that members will use these as a starting point, but will contribute additional ideas, questions, and suggestions throughout the course of the meeting.

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### **USACE General Responses Concerning Flood Risk**

The Corps appreciates that SRT and STT members reflecting on the December discussion and is heartened that “all are cognizant of the need to protect those who live and work in close proximity to the Columbia and its tributaries.” The following are overarching points for consideration:

- ❖ As the Federal agency with the professional and scientific expertise and accountable for flood risk management, the Corps' perspective on a post-2024 operation is that the U.S. should provide for similar levels of flood risk management, as compared to current operations, for those living in the U.S. and affected by trans-boundary water management decisions.
- ❖ Given existing Corps authorities, a fundamental need for the CRTR process is to develop operating procedures for post-2024 that provide for similar levels of flood risk.
- ❖ This does not mean, however, that alternatives or components that do not provide for similar levels of flood risk should not or will not be analyzed in the CRTR process. There are several alternatives or components in iteration 2 that increase flood risk (e.g. alternative 2B-TT), or do not provide for system flood risk management (e.g. alternative E-1) that are being evaluated. The Corps supports completing those studies. Information about alternatives or components that increase or decrease flood risks developed during the Treaty Review will be available for those parties who are interested in pursuing the public process for changing levels of flood risk.
- ❖ The Corps has explained that there is an open and transparent public process the region may choose to pursue to study increasing or decreasing the current level of flood risk, which requires congressional support through authorization and appropriations. Once funded, conducting this evaluation would be subject to governing laws and regulations and take several years to complete.

### **Flood Risk**

- 1) There is considerable concern from a number of members about the 600 alternatives. It seemed that USACE was dismissing any possibility of running the river at these higher levels. Does that mean that the analysis of the 600 alternatives has been completed in Iterations 1 and 2, and, are you basing your conclusions off of those results? Or, does that mean you have decided not to model the 600 alternatives? If the 600 alternatives are not going to be modeled, could some hybrid of a level between 450 and 600 be modeled instead?

***Answer:***

There are several parts to this question, and there may be several interpretations and/or confusion about what is being asked, therefore the Corps provides the following to assist in SRT discussions of Question 1:

- An objective of the Corps' recent presentations on flood risk management has been to attain a common understanding of fundamental principles underpinning water management processes and decision-making. As an example, the Corps assesses the level of flood risk management in terms of available storage space rather than specified flows in the river (e.g. 450 kcfs and 600 kcfs).
- Question 1 asks whether the Corps has dismissed “any possibility of running the river at these higher levels.” The Corps has supported and continues to support analysis of

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alternatives that provide higher Columbia River flows for ecosystem function, but suggests the discussion would benefit from addressing what some SRT members mean by “running the river at these higher levels.” In the analysis of these alternatives, the Corps is obligated to be mindful “of the need to protect those who live and work in close proximity to the Columbia and its tributaries” and acknowledge potential tradeoffs. For instance in previous discussions, the Corps has indicated that providing flows of 600 kcfs at The Dalles for ecosystem function can be achieved without reducing the current flood storage space by assuming more risk for refill probability.

- Hydroregulation modeling and flood risk analysis has been completed for the 2B-TC (600 Treaty continues alternative), and the full impact assessment by STT is underway. Two features of 2B-TC, the modified SRD at Grand Coulee and the modified Called Upon equation, are the primary sources of increased flood risk under this alternative and will be folded into F3 to understand the potential benefit of improving levee performance with decreasing system storage requirements. This will be presented with the suite of iteration 2 components.
- Hydroregulation modeling for alternative 2B-TT (600 Treaty terminates alternative) has been completed. Given the lengthy process involved with running each alternative, the Corps believes it is imperative to first conduct and understand the impacts of other Treaty terminates scenarios in order to inform the Department of State about the residual risks to the communities along the river under existing Columbia River Treaty provisions.
- Iteration 2 results will be used to inform formulation of Iteration 3 alternatives. The Corps is open to modeling other “hybrid” alternatives that bring together elements of iteration 1 and 2 alternatives and components to achieve ecosystem and other benefits in ways that maintain similar levels of flood risk within the basin.

- 2) Does “no increases in flood risk” mean an “absolute no” or is there some flexibility possible? For example, if we find that even a small 1-2% increase in flood risk could result in significant ecosystem improvements, would the Corps be willing to make those adjustments? If so, how would those adjustments be considered and implemented?

***Answer:***

For purposes of the CRTR, the Corps believes an important element for the Department of State’s consideration is how the U.S. can provide for similar levels of flood risk post-2024 as currently provided. The question about flexibility in Question 2 is more applicable to implementation of flood risk management in real-time, which involves collating data and information from a variety of sources with professional judgment factoring into decision-making. There is a certain amount of flexibility inherent in risk analyses in this process. Some points to consider in SRT discussions about “small 1-2% increase in flood risk” and “significant ecosystem improvements” are:

- To date, the analysis of flood risk management methods for post-2024 operations show increases in flood risk. From the Corps perspective, one of the first questions to answer is can we identify flood risk management methods that will maintain similar levels of flood risk post-2024.

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- The Corps supports alternatives in Iteration 3 that would provide for significant ecosystem function while providing for a level of flood risk similar to what we currently provide by assured flood risk management operations.
- Changes of the magnitude posed in the question can be addressed on an ad hoc basis during real-time operations. A 1%-2% change may fall within the realm of forecast error and can be addressed via the Columbia River Forecast Group (CRFG).
- Systematic changes of this magnitude can also be addressed as outlined in the answer to Question 8.

3) Early on in the Treaty Review process there was a strong commitment to evaluating the potential for levee improvements that could accommodate higher flows in the river. We do have one component – F3 – to that effect. But now it seems that USACE is dismissing this possibility, apparently because of, timeline, process and political concerns. Is this evaluation being completed and is there still a commitment to analyzing this component?

**Answer:**

- Improving levee performance up to authorized levels under F3 will be modeled with reservoir operations under 1A-TC and 2B-TC. This is part of iteration 2 modeling.
- While hydroregulation modeling is complete, the flood risk analysis is still ongoing. We intend to present the results of the F3 alternatives to STT in March at a time in conjunction with the other iteration 2 flood risk components.

4) What is the Corps' approach to non-structural flood risk management, and where/how are those approaches being taken into account in the modeling and analysis? For example, component E4 examines the effects of levee removal for potential ecosystem function benefits. This component may yield cost comparisons of levee removal vs. levee rebuilding, particularly for floodplain areas with little capital investment, and could be important to consider when examining potential tradeoffs during Iteration 3.

**Answer:**

- The Corps is unclear what the question is asking when referring to “non-structural flood risk management” and “yield cost comparisons of levee removal vs. levee rebuilding...” Component E4 is on the January 22-23 SRT Agenda, and perhaps this discussion will provide an opportunity to clarify.
- It should be noted that floodplain restoration is a priority consideration in the Columbia River Basin. Both the Corps and BPA have existing ongoing programs (Section 536 and the Council Fish and Wildlife Program) in place to identify, plan, design and implement estuary restoration projects, including removal or modification of existing levees to reconnect floodplains for ecosystem improvement.

5) Could the Corps please explain the term “authorized levels” in more detail? Do these authorized levels consider and/or incorporate the current ecosystem function benefits and other needs in the

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Basin? Beyond the explanation of what we have heard before – needing to go to Congress for authorization – what is the actual process of changing these authorized levels on the river?

***Answer:***

- Generally, when the Corps uses the term “authorized,” we are referring to the project as described in the authorizing legislation. Congress can also amend the original authorization. In addition to operating consistent with authorized project purposes, the Corps must do so in compliance with other legislation such as the Endangered Species Act and the Clean Water Act that address ecosystem function.
- The Corps commits to providing a more information on authorized levels in a written response prior to the February 14-15 SRT meeting.
- The actual process of changing authorized levels of flood risk is described in the answer to Question 8.

6) What is the potential for making operational changes that continue to meet the current level of flood risk protection at the 450 level, and that also allow for ecosystem improvements? Could that level be exceeded at various times of the year, for example?

***Answer:***

In the Treaty Review process, the Corps supports looking at making operational changes that continue to meet the current level of flood risk protection and allows for ecosystem improvements. As SRT examines this objective, some points to consider:

- The level of flood risk management should be described in terms of available storage space rather than flows in the river.
- Ecosystem improvements need to be defined by SRT in order to answer this question. For instance, ecosystem improvements could be:
  - Higher spring flows for salmon,
  - Higher and more stable reservoir levels for resident fish and wildlife,
  - Maintaining total dissolved gas levels in the river to certain levels,
  - Operations that minimize exposure to cultural resources,
  - And/or other operations.

7) Are there opportunities to manage the river with greater flexibility and to a greater level of precision? It seems that we could move toward a “real time” system in which operators are responding to actual conditions on the ground rather than long-term forecasts.

***Answer:***

- In order for the Corps to better respond, we suggest the SRT discuss the concern raised by this question at the January SRT meeting. It seems to the Corps that some SRT members are asking about real-time implementation of flood risk management rather than analyses to inform the Department of State on the future of the Treaty.

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- Please see response to Question 2. Regarding “real-time” operations, the FCRPS regional sovereign Technical Management Team meets regularly and addresses actual water supply conditions in concert with anadromous and resident fish species needs as well as water quality and other ecosystem functions.
- 8) If some members of the SRT wanted to change the flood risk management and flow targets, what is the process for making those changes? Who has the authority to make those changes and what process would they need to follow?

***Answer:***

- Authorization studies are the normal process for obtaining approval by Congress. The study usually is initiated by request from a local sponsor to their congressional delegation for assistance in resolving water resource problems like flood risk management. Congress may pass a study resolution directing the Corps to address, and appropriate funds to conduct studies. The local sponsor typically shares the costs of conducting these studies. Upon completion of the studies, the Corps submits a report to Congress recommending action. Congress may then include that recommendation in a Water Resources Development Act (WRDA), potentially authorizing change in operating purposes or levels of protection and addressing the responsibilities of the local sponsor.