

**MEMORANDUM FOR THE RECORD** Implementation of FPP change form 15 IHR 008  
 Low Flow Spill Patterns w/ No RSW

**SUBJECT:** Low flow spill without RSW. Table IHR-9. Spill Patterns w/ No RSW.

Current spill levels now are at an extremely low flow period, needing a change to existing spill pattern.

When spill is less than 8.4 kcfs at Ice Harbor dam, the RSW in Bay 2 must be closed and spill passed to the other bays. This was discussed at FPOM on July 8, 2015. FPOM supported the need for a lower spill patterns than that described in the FPP. The Table 15 IHR 008 first presented a bulk spill to FPOM without the RSW and was left pending. FPOM requested the FPP change form to a uniform spill without the RSW. Table IHR-9, Ice Harbor Dam Spill Patterns with No RSW has been modified with discussions from NOAA for a uniform spill as displayed below.

**Table IHR-9. [pg 1 of 2] Ice Harbor Dam Spill Patterns with No RSW (Revised 8/10/15).<sup>a</sup>**

IHR Spill Patterns with No RSW - Gate Stops (#) per Spillbay										Total Stops	Total Spill
Bay 1	Bay 2	Bay 3	Bay 4	Bay 5	Bay 6	Bay 7	Bay 8	Bay 9	Bay 10	(#)	(kcfs)
	CLOSE	1								1	1.7
	CLOSE	1							1	2	3.4
	CLOSE	1		1					1	3	5.1
	CLOSE	1		1		1			1	4	6.8
	CLOSE	2		1		1			1	5	8.5
	CLOSE	2		2		1			1	6	10.2
	CLOSE	2		2		1		1	1	7	11.9
	CLOSE	2		2		1		1.5	1.5	8	13.6
	CLOSE	2		2		1		2	2	9	15.4
	CLOSE	2		2		2		2	2	10	17.0

### Comments from others:

7/9/2015 FPOM: There were concerns about not having model data at these low spill rates to evaluate the proposed changes. Hevlin proposed a model trip in October. Wright asked for comments. FPOM was reasonably willing to test something this summer but wanted a commitment to a model trip in October. Van Dyke would like to see a flat pattern. He will send comments to Wright.

### 7/15/15 email to FPOM:

-----Original Message-----

From: Wright, Lisa NWD

Sent: Wednesday, July 15, 2015 8:26 AM

Subject: FPOM: FPP Change Forms - Update on LWG, LMN, IHR low flow spill patterns

Good morning FPOM -

At last week's FPOM meeting, we discussed three FPP change forms to add lower spill patterns at Ice Harbor (15IHR008), Lower Monumental (15LMN004), and Lower Granite (15LWG004). FPOM supported the need for these lower spill patterns given this year's low flow conditions, and were in general agreement with the uniform patterns proposed for Lower Granite. There were concerns that the patterns proposed for IHR and LMN may need to be more uniform, but there are no modeling data to evaluate patterns at these low spill rates (1.7-6.8 kcfs). FPOM requested more time to review and provide comments on the low flow spill patterns for IHR and LMN in the event they need to be implemented this year.

Currently, low flow conditions are requiring Lower Granite spill below 10.3 kcfs. As such, the low flow spill patterns defined in change form 15LWG004 are being implemented during those hours when Lower Granite total outflow is less than approximately 28.6 kcfs (assuming Unit 1 min gen is ~18.3 kcfs). These flow conditions were first met yesterday, July 14, at 10:00.

The lower spill patterns for IHR and LMN will be required if total project outflow drops below ~20 kcfs. The current STP indicates inflow in the range of 20-23 kcfs in late August, so there may be some hours when these lower spill patterns are required. Therefore, it is requested that FPOM representatives review the low flow spill patterns proposed in change forms 15IHR008 and 15LMN004, and provide comments for discussion and finalization at the August 13th FPOM meeting.

### 7/15/15 email from Bill Hevlin:

Hi Lisa, With regard to LoMo and Ice projects, the RSWs should be closed at these low flows, and spill spread evenly across the spillway, that is unless Trevor has a different opinion. And like at granite we could really benefit from looking at these models at ERDC with river flow at 25 kcfs, I don't think we ever have. Bill Hevlin

### 8/10/15 email from NOAA

From: Trevor Conder - NOAA Federal [mailto:trevor.conder@noaa.gov]

Sent: Monday, August 10, 2015 1:03 PM

To: Bill Hevlin - NOAA Federal

Cc: Moody, Gregory P NWW; Laughery, Ryan O NWW  
Subject: [EXTERNAL] Re: Low Flow spill pattern at Ice Harbor

Greg and Ryan,

Please modify IHR-9 spill pattern table at the current flows to reflect the uniform spill pattern suggestion that Bill has described. This will be a useful reference as flows decrease this year and for ERDC modeling. Will we need to do something similar in the near future at LMN?

-Trevor

On Mon, Aug 10, 2015 at 12:50 PM, Trevor Conder - NOAA Federal <trevor.conder@noaa.gov> wrote:

Sounds like a good suggestion to me. Thanks Bill.

On Mon, Aug 10, 2015 at 11:09 AM, Bill Hevlin - NOAA Federal <bill.hevlin@noaa.gov> wrote:

Hi Trevor,

I just gave Greg and Ryan input on a low flow spill pattern at Ice Harbor. I said that if they have 6 stops, open bays 3 and 5 two stops each and bays 7 and 10 one stop each. And at 5 stops spill, reduce bay 5 to one stop, and at 4 stops, reduce bay 3 to one stop. So that at 4 stops total, bays 3, 5, 7, and 10 are all one stop. We can model this and other alternatives in October at ERDC.

bill