

FPP Change Form

Change Request Number: 11LMN003_Spill Change for Navigation Safety

Date: October 28, 2010

Proposed by: Doug Baus, Corps, NWD

Location of Change:

Delete the following section 1.4 Navigation found in Appendix A - Lower Monumental – Page SPO-LMN-1:

1.4 Navigation. Tailrace Transit – Fish Transportation Barge. Transit across the Lower Monumental tailrace, docking at and disembarking from the fish collection facility requires some degree of flow control depending on tug/barge size and power, wind, pilot experience, current and other factors. Spill needs to be reduced to the level needed for safe passage. Towboat captain may request zero spill during this transit. During juvenile fish loading operations, spill is typically reduced to 15 kcfs, but can be reduced further if needed for safety reasons. Loading periods can take up to 3.5 hours. Because of the time needed to complete loading, the Little Goose Project Biologist notifies the Little Goose Operator when the fish barge departs. BPA scheduling is then provided advance notice for spill control at Lower Monumental Dam. Reducing spill may cause Lower Monumental project to briefly operate outside of MOP conditions.

Revise it and add it to new section 2.4 Navigation Spill Operations on page LMN-14.

2.4 Navigation Spill Operations. Short-term adjustments in spill are required for navigation safety. This may include changes in spill patterns, reduction in spill discharges rates, or short-term spill stoppages. These operations take approximately 1 hour but under some situations may take up to 3.5 hours. Listed below are two examples of the types of navigation situations that may occur that require short-term spill adjustments. Actual operations will vary due to conditions such as spill patterns, turbine unit operations, wind, experience of boat captains, etc. The Corps will make short-term adjustment in spill as appropriate in real-time to provide safe navigation conditions.

2.4.1. Fish Barge Transit Across the Tailrace

Spill may create hydraulic conditions that are unsafe for fish barges crossing the tailrace and/or while moored at fish loading facilities. If a tug boat operator determines hydraulic conditions are unsafe they will contact the Lower Monumental Dam (LMN) control room and the project operator will reduce or stop spill temporarily when fish transport barges approach or leave the barge dock or are moored at loading facilities. Spill reductions will utilize the existing spill pattern.

If conditions warrant a spill adjustment, the MOP elevation range at Lower Monumental may be exceeded temporarily to enable the barge to exit the tailrace safely. The LGS

operator will attempt to minimize MOP exceedances at LMN by contacting BPA real time when a fish barge leaves LGS. Contacting BPA real time when a fish barge leaves LGS will provide BPA will sufficient time to stage the LMN forebay elevation at an adequate elevation in the event a short term spill curtailment is needed at LMN.

2.4.2. All Navigation (fish barges, commercial, non-commercial, etc.) Entering and Exiting the Tailrace Navigation Lock

When flows are less than 32 kcfs spill at LMN can create hydraulic conditions (eddies) that cause navigation safety concerns. Eddies cause boat and/or barge collisions with the guide wall as boats enter and or exit the tailrace navigation lock. Non-fish barge navigation does not involve traversing the tailrace, but eddies still cause collisions with the guide wall. If a boat captain has a navigation safety concern they will contact the LMN operator and request a short-term adjustment in spill. This will occur when boats are traveling upstream to, or departing from, the tailrace navigation lock. The operator will shut off spill at the RSW and redistribute all scheduled spill evenly through the remaining bays. The operator will implement this operation for the shortest period of time necessary to allow safe navigation. After boats have safely passed the project the project will revert back to normal spill operation.

Reason for Change:

The navigation discussion in the FPP does not address non-fish barge navigation and the FPP needs a discussion on both fish barge and non-fish barge navigation. The navigation discussion needs to be moved from Appendix A to the main narrative section of the FPP because adjusting spill is a frequent and reoccurring operation throughout the transportation season. It would be easier for FPP readers to locate the navigation discussion if it was found in the narrative portion of the FPP rather than Appendix A. In 2010 there were numerous navigation safety concerns involving non fish barge collisions (Attachment 3) with the LMN tailrace navigation guide wall. In response to the collisions that occurred in 2010, FPOM made navigation spill recommendations to provide safe navigation conditions in the LMN tailrace. The Corps would like to adopt these recommendations in the 2011 FPP to improve navigation safety.

Due to navigation (non fish barge) safety concerns (see Attachment 1), on August 13, the Corps modified the spill patterns at Lower Monumental. This was continued through the end of spill season (August 31). Consistent with the 2010 Summer FOP, the Corps presented the navigation safety concerns to TMT on August 11 and informed TMT that spill patterns may temporarily be adjusted in order to provide safe conditions for navigation. TMT members recommended that the Corps coordinate this operation with FPOM at the August 12 meeting. FPOM recommended temporarily closing the SW at Lower Monumental and redistributing the spill pattern across the remaining open spillbays. Following FPOM's recommendation, the Corps implemented this operation. The Corps further coordinated this operation with TMT on August 13 and TMT members either supported or did not object to this operation.

Comments from others:

12 August 2010 FPOM Meeting

3.6. FPOM agreed that the tow boaters can make the call to request spill be shut off if needed while entering or exiting the navlock at LWG or LMN. This is a short-term

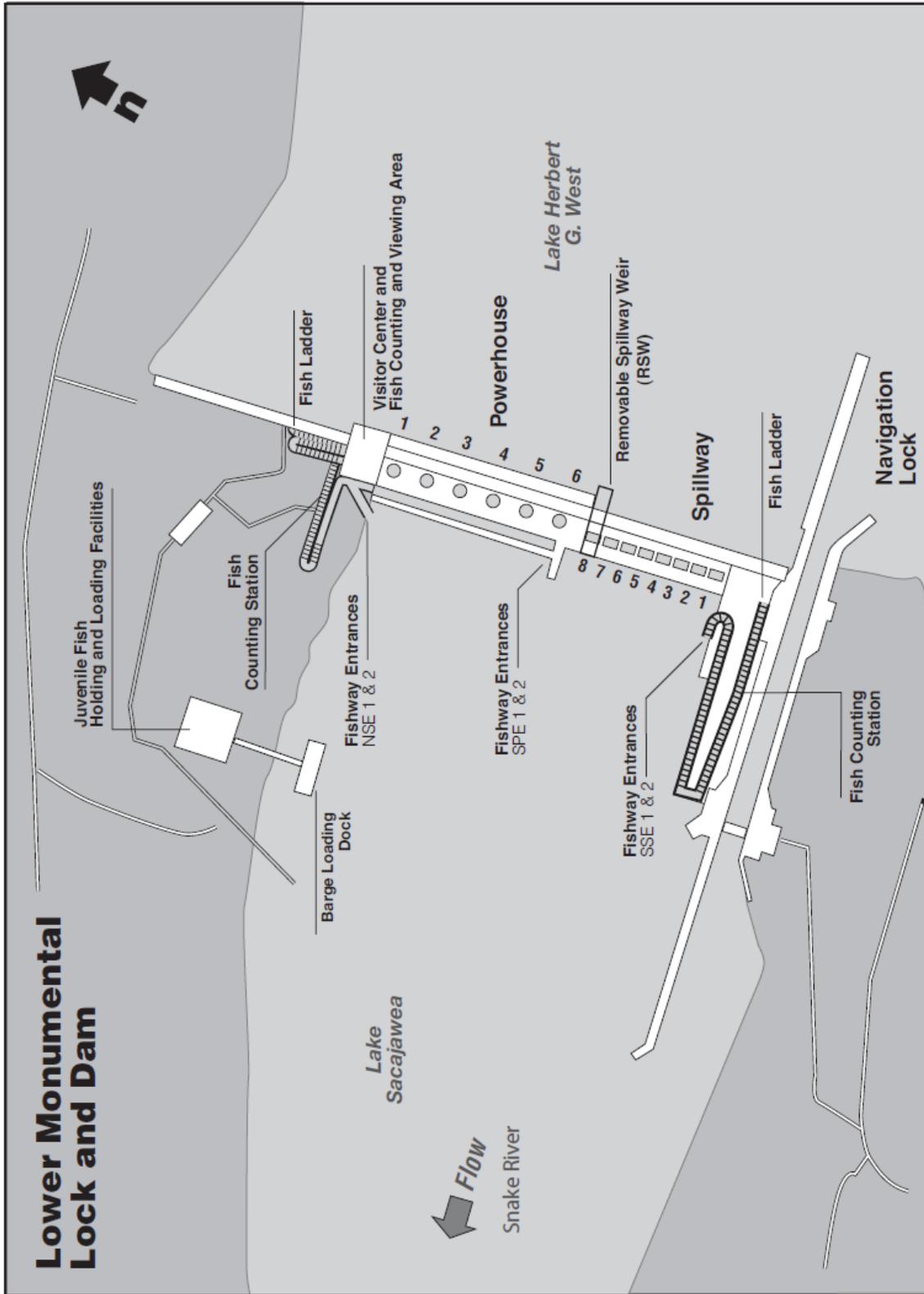
solution. Kruger asked how long it takes the hydraulic conditions to settle out. Fletcher said the captains typically call when they are about 20 minutes out so by the time they get there, the flows should be settled.

LMN Operator

Nearly all commercial tug boats passing after 12 August requested the modified spill operation. This amounted to approximately 133 (19 days with approximately 7 spill modifications per day on average) short term spill modifications (closure of the SW and spilling in a uniform pattern. Operators are concerned that the number modified spill operations for commercial barge traffic is excessive. LMN operators suggest additional communication between the Corps and the commercial barge companies is necessary to determine level of short term spill modifications that are necessary that will satisfy LMN Operators and the commercial tug operators.

Record of Final Action: approved 21 January 2011.

Attachment 1: Lower Monumental Lock and Dam



Attachment 2: Technical Management Team 2010 Coordination Regarding Lower Granite and Lower Monumental Spill Adjustment for Navigation

From: Barton, Steven B NWD

Sent: Friday, August 13, 2010 9:53 AM

To: Allgood, Tiffany; Barquin, Billy; Baus, Douglas M NWD; Brandt, Scott; Denny, Lytle; Hovenkotter, Joe; Kiefer, Russ; Kruger, Rick; LeFleur, Cindy; Litchfield, Jim; Lorz, Tom; Lovtang, Jens; Marotz, Brian; Norris, Tony; Ogan, John; Pavlik-Kunkel, Deanne; Roche, John; Rose, Bob; Sears, Sheri; Spurgin, Pat; Statler, Dave; Sue Ireland; Wagner, Paul; Wills, Dave; Bettin, Scott; Boyce, Ron; Dittmer, Kyle; Domingue, Rich; Haeseker, Steve; Haller, Greg; Hassemer, Pete; MacKay, Robyn; Mellema, Mary; Steve Smith

Cc: Lear, Gayle N NWD; Peters, Rock D NWD; Feil, Dan H NWD; Kanbergs, Karlis NWD; English, Scott E NWD; Dykstra, Timothy A NWW; Donna Silverberg; Erin Halton; Robin Gumpert

Subject: Official TMT Coordination: LWG & LMN Spill Pattern Adjustments for Navigation

TMT Members and Alternates:

The Corps stated their concern over recent navigation safety issues in the Lower Snake River during the August 11 TMT meeting. The Corps also stated that, consistent with the 2010 Summer Fish Operations Plan, spill may be adjusted for the time it takes to allow for safe passage. The FPOM recommended a preferred adjustment to spill if this becomes necessary. If needed for safe entrance to the navigation locks at Lower Monumental and Lower Granite Dams, FPOM members recommended spill be adjusted such that the RSW will be shut off and spill will be distributed flat across the spillway for the duration needed.

The Corps endorses this recommendation and issued guidance stating at the request of a tow boat Captain or other large vessel captain traveling upbound to the Lower Granite or Lower Monumental lock, or downbound departing the Lower Granite Lock, the project operator is authorized to shut off spill at the RSW and to increase spill evenly through all remaining bays to approximately maintain scheduled spill. The operation is to be done for the shortest period of time necessary to allow safe passage. After safe passage, the project should revert back to normal spill patterns.

TMT Members are encouraged to respond with feedback, comments or concerns regarding this operation at their earliest convenience.

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**Attachment 3: Lower Snake Project – Navigation Issues Associated with
Late Season Spill Operations**

**U.S. Army Corps of Engineers
Steve Burrell, CENWD-PDW-RC**

18 August 2010

SUBJECT: Lower Snake Project - Navigation Issues Associated with Late Season Spill Operations

MEMORANDUM For Distribution: Tim Dykstra (NWW), Greg Moody (NWW)

This memorandum describes navigation issues encountered by tug boat operators during the first two week period in August, and was requested at the August 12, 2010 FPOM meeting by FPOM. The tables and figures below summarize incidents at Lower Monumental and Lower Granite dams during low spill conditions. The RCC recognizes and is grateful for the assistance of Mr. Brian Fletcher of Tidewater barging in preparation of this summary.

Data in Table 1 show the spill settings and incidence that have occurred at Lower Monumental Dam prior to implementing a more navigation friendly spill pattern. The table lists date and time of incident, the tug boat name, owner of the tug boat, a brief description of the barges in tow, total spill discharge, the spill bays in use for the discharge, the discharge for power generation, the generation unit in use at the reported incident time, and a reference number for notes following the table that provide incident details. The first section of the table is for the pre-navigation friendly spill, and the second table section is for the uniform, navigation friendly spill specified by RCC at approximately 1200 on 12 August, 2010.

Table 2 is the same as Table 1, but for Lower Granite. The incidence at Lower Granite will be further revised as detailed incident reports become available.

Table 1. Recent Lower Monumental Navigation Incidents during Low Spill

LOWER MONUMENTAL TUG/TOW INCIDENT SUMMARY PRIOR TO UNIFORM SPILL SPECIAL OPERATIONS													
DATE/TIME	TUG	OWNER ENTITY	TOW	TOTAL SPILL DISCH. (kcfs)	SPILL DISCHARGE (kcfs)						POWER DISHC. (kcfs)	GEN. UNIT NO.	INCIDENT REF. NOTE
					SPILL BAY NUMBER								
					1	6	8 (RSW)						
05AUG2010 19:10	Defiance	Tidewater	1 full (840,000 gal LSD), 4 empty	13.57	3.86	6.40	7.17				16	5	1
08AUG2010 unknown time	Capt Bob	Tidewater	1 full (wood products), 3 empty	11.03	3.86	0.00	7.17				14.4	5	2
10AUG2010 02:25	Defiance	Tidewater	1 empty	10.19	3.02	0.00	7.17				14.4	5	3
10AUG2010 05:30	Cascade	Shaver	2 empty	10.06	2.99	0.00	7.17				14.4	5	4
11AUG2010 19:30	Hurricane	Tidewater	4 empty	17.54	4.01	6.36	7.17				14.3	4*	5
LOWER MONUMENTAL TUG/TOW INCIDENT SUMMARY AFTER UNIFORM SPILL SPECIAL OPERATIONS													
					SPILL BAY NUMBER								
					1	2	3	4	5	6			
12AUG2010 12:00	Outlaw	Tidewater	4 empty	10.20	0.64	1.96	1.87	1.88	1.94	1.91	14.3	4*	6

*Revision made on October 28, 2010 to the original memo (August 18, 2010), based on updated information provided by Lower Monumental Dam

Incident Descriptions (number referenced in last column of Table 1)

1. Upon approach to the lower basin (lock entrance), eddy currents forced the bow of the tow towards the outer (north) guide wall. The tug had to burn to get the tow around the corner of the guide wall and safely into the lower basin. Figure 1 shown on page 4 shows the angle of the barges on the approach.
2. Tug Capt. Bob also had a full tow but with a loaded chip barge (wood product). Capt. Bob had basically the same approach as Defiance incident in 1.), above. The operator had to steer towards the south bank to keep the bow of the tow on the good side of the lower basin. This action forces the stern section of the tow to swing to the north which produces the angle you see in the diagram (Figure 1).
3. Similar set by eddy towards guide wall 2 and 3 above, but no difficulty in entering lower basin.
4. On approach, the tow was pulled into the guide wall by eddy current. The port bow of the barge sustained a seven-inch long puncture, but proceeded through lockage for repairs at destination. No damage reported to guide wall. Angle of approach similar to Figure 1, but with tow bow impacting guide wall before entering.
5. No difficulties reported.
6. No difficulties reported – “mill pond conditions”.

Table 2. Recent Lower Monumental Navigation Incidents during Low Spill

LOWER GRANITE TUG/TOW INCIDENT SUMMARY PRIOR TO UNIFORM SPILL SPECIAL OPERATIONS													
DATE/TIME	TUG	OWNER ENTITY	TOW	TOTAL SPILL DISCH. (kcfs)	SPILL DISCHARGE (kcfs)						POWER DISCH. (kcfs)	GEN. UNIT NO.	INCIDENT REF. NOTE
					SPILL BAY NUMBER								
					1 (RSW)		6						
08AUG2010 06:30	Umatilla	USACE	1 empty (fish)	12.15	6.75		5.40				12.1	1	1
10AUG2010 03:30	-	-	n/a – cruise vessel	11.03	6.73		6.04				12.4	1	2
LOWER GRANITE TUG/TOW INCIDENT SUMMARY AFTER UNIFORM SPILL SPECIAL OPERATIONS													
					SPILL BAY NUMBER								
					1	2	3	6	7	8			
12AUG2010 18:00	Outlaw	Tidewater	4 empty	18.55	6.73	0.00	6.88	1.64	1.64	1.68	14.3	5	3

Incident Descriptions (number referenced in last column of Table 2)

1. Umatilla 8106 fish barge backing out of storage area at Lower Granite collided with guide wall when rounding corner tip of wall (See Figure 2 on page 5). Note that incident details were compiled from dam operator, awaiting official incident report.
2. Cruise vessel possibly entering upper navigation lock and struck guide wall. Details will be finalized after official incident report is completed.
3. No known difficulties.

Figure 1. Lower Monumental Incident Diagram.

Tug Defiance/Lower Monumental Dam
Near Miss on 8-5-10 at 1910

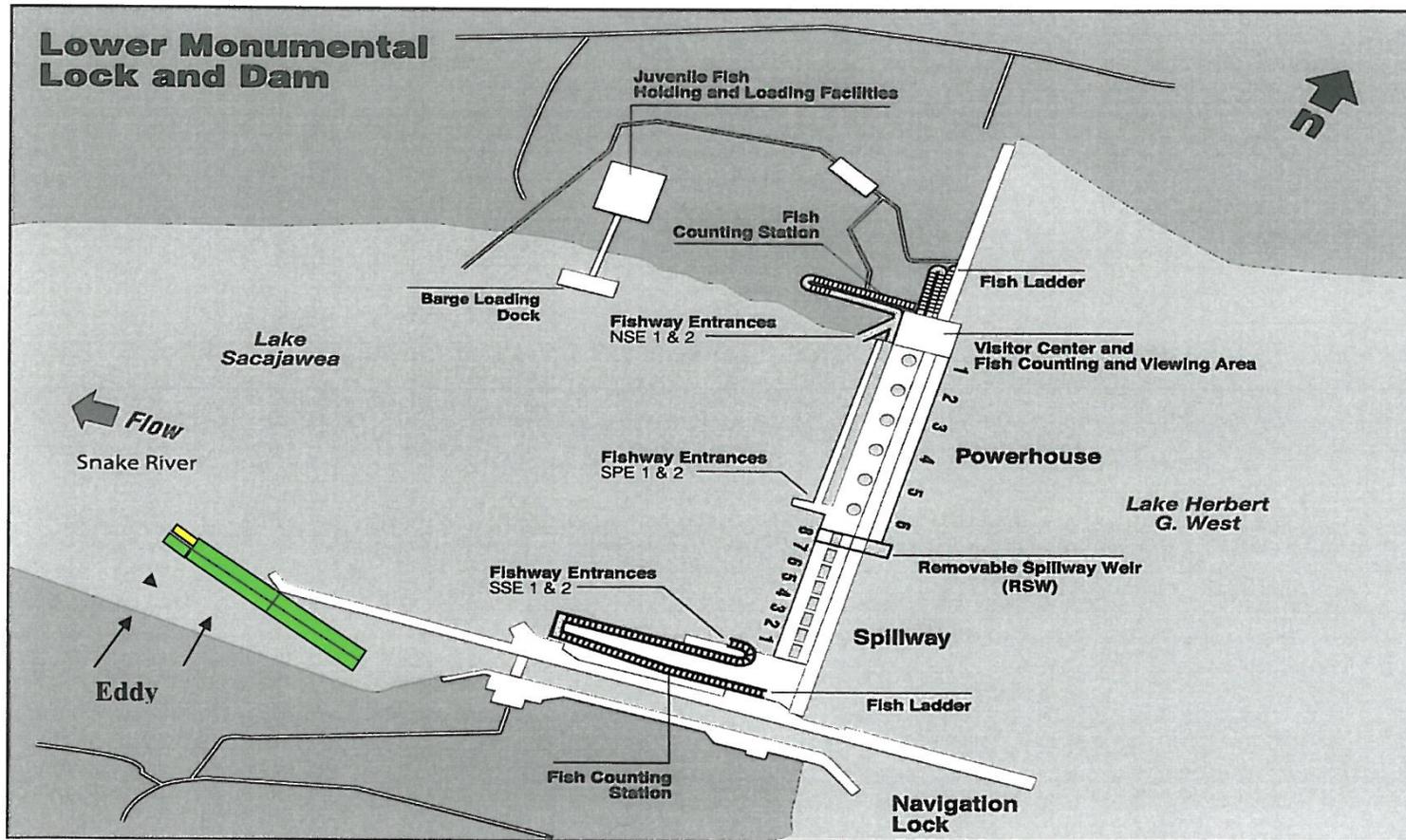
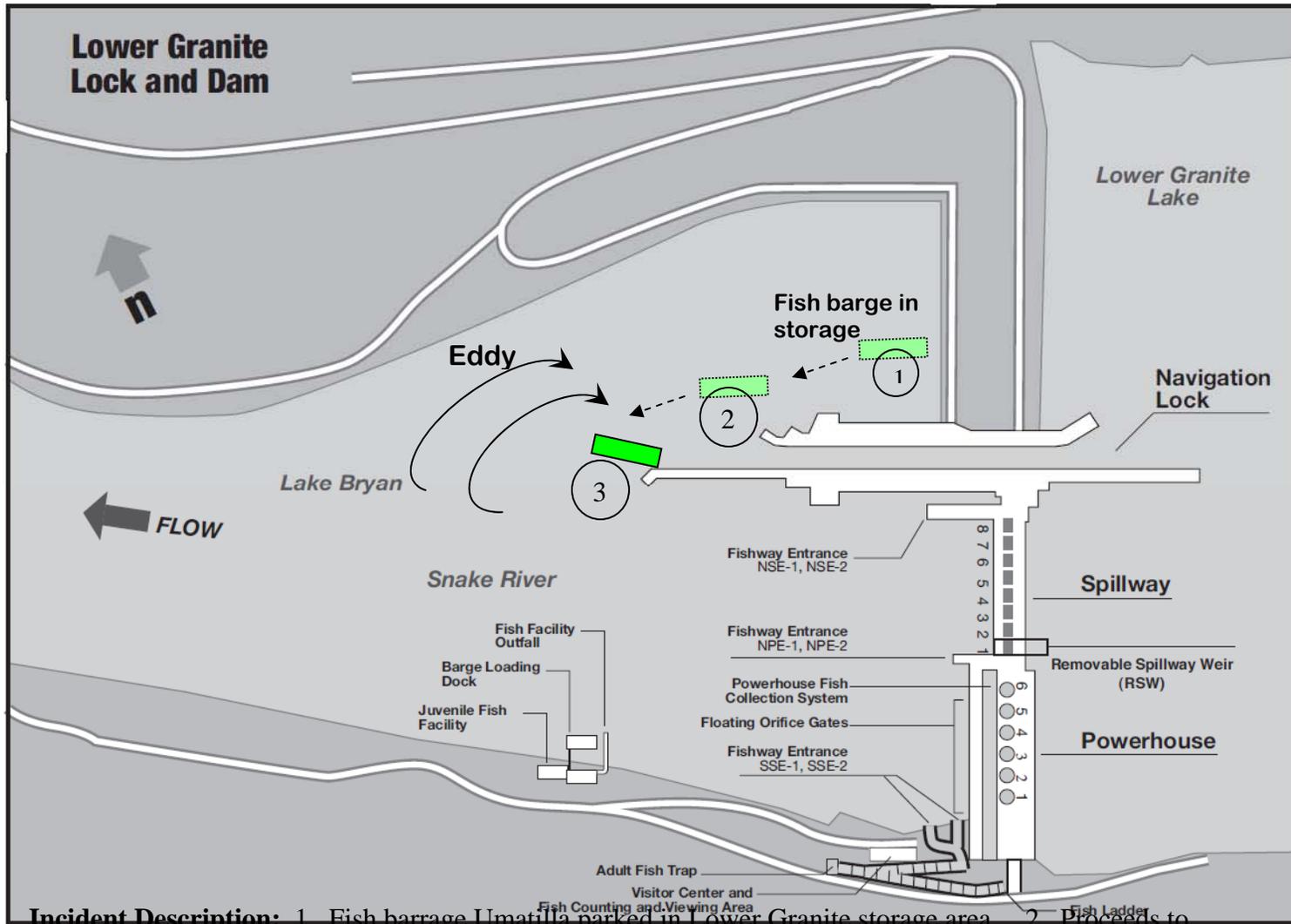


Figure LMN-1 Lower Monumental Lock and Dam General Site Plan

Incident Details: The tug Defiance was making an approach into the lower basin of Lower Monumental Dam. Total flow was 34 kcfs with 17.40 spill. The tow consisted of 5 barges, one being a loaded fuel barge. As the tow was lining up to enter the lower basin the eddy created by the low flow and spill gate configuration began pulling the bow of the tow towards the end of the guide wall. The tug (in yellow) had to bend the tow around the end of the guide wall to get into the lower basin. The barge directly in front of the tug was the loaded fuel barge. The operator had to make an evasive maneuver to keep the fuel barge from coming into contact with the wall and get safely into the lower basin.

Figure 2. Lower Granite Incident Diagram.



Incident Description: 1. Fish barge Umatilla parked in Lower Granite storage area. 2. Proceeds to back out of storage area and maneuver to juvenile fish facility on south shore. 3. Eddy current forces starboard side bow into guide wall

Figure LWG-1 Lower Granite Lock and Dam general site plan.