



# FISH PASSAGE CENTER

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## MEMORANDUM

TO: Agnes Lut, OR-DEQ  
*Margaret Filardo*  
FROM: Margaret Filardo  
DATE: May 23, 2007  
RE: Spill in 2007 and Forebay Monitors

Earlier this month I pointed out to you that the forebay monitor at Ice Harbor Dam was limiting spill at Lower Monumental Dam, and that similar problems existed at The Dalles and Camas/Washougal monitors. You asked that I elaborate on the issues and this memo is in response to your request.

The FPC has developed an interactive link on our web page

<http://www.fpc.org/WebForm2.0/MAINCHART.ASPX>

that shows the spill provided at each project relative to the Court Order, along with both the tailrace TDG at the project and the forebay TDG levels at the next downstream project relative to the 115/120% criteria. You will note from the graphs that often spill volume is limited by the forebay monitors, when tailrace monitors read levels of TDG that are much below the tailrace criteria.

For example, if you consider the spill provided at John Day Dam, the Court Order calls for 60% of instantaneous flow to be spilled. The provision of spill at John Day Dam has met the Court Order only a few times thus far this year. The restriction of spill is most often based on the forebay TDG readings at The Dalles Dam (the tailrace monitor exceeded the 120% TDG by 0.1% on 3 of the 54 days thus far this season). Using the TDG data the COE sets a spill cap that establishes a maximum amount of spill that can occur at the John Day project. Essentially this COE spill cap has limited the amount of spill at John Day Dam so that the Court's Order of 60% instantaneous spill during nighttime hours cannot be met.

The following table was extracted from the COE website. [http://www.nwd-wc.usace.army.mil/ftppub/water\\_quality/12hr/html/200705.html](http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/html/200705.html). The table is included here to

demonstrate that the daily average 12 hour high tailwater TDG variation at John Day Dam (JHAW) has been very small (usually varying less than 1% day to day) while the downstream forebay TDG has varied quite a lot (as much as 5% day to day). In fact, the tailrace monitor most often reads near 118% and could allow the implementation of the Court Order without exceeding the 120%.

Similarly, the Court Order calls for 100 Kcfs spill at Bonneville Dam. You will see from the graphs that often the Court Order is not being implemented most often due to TDG at Camas/Washougal, while the tailrace monitor is reading below the 120%.

Attached are graphs showing spill thus far this season at John Day and Bonneville dams. While these graphs show the seasonal trend in spill relative to the Court Order, the graphs on the Fish Passage Center web page show the same data in weekly blocks that are somewhat easier to read. There are also comments associated with each day describing the TDG levels and spill implementation.

We realize the generation of TDG is due to several processes and the impact of the biological and physical processes is difficult to predict on a real-time basis. However, we hope that this memo explains some of our concern with the present use of the forebay monitors to represent the total dissolved gas generated from spill at upstream projects. If we can provide any additional information please let us know.

Average percent TDG for 12 highest hours - May 2007

Date	Monitoring Stations (full list)																	
	LWG	LGNW	LGSA	LGSW	LMNA	LMNW	IHRA	IDSW	MCNA	MCPW	JDY	JHAW	TDA	TDDO	BON	CCIW	WRNO	CWMW
Gas Cap %	115	120	115	120	115	120	115	120	115	120	115	120	115	120	115	120	120	115
05/01/2007	103.6	110.7	113.9	117.9	<b>116.2</b>	114.1	<b>115.6</b>	117.9	114.5	116.0	112.8	119.1	114.7	117.6	113.5	118.7	114.8	115.0
05/02/2007	103.3	110.3	112.4	118.3	<b>118.1</b>	116.4	<b>115.6</b>	116.8	114.0	115.7	113.3	119.2	113.6	116.4	114.7	118.8	115.0	113.3
05/03/2007	102.3	109.2	109.1	116.8	<b>115.5</b>	116.4	112.7	115.7	111.2	115.7	111.8	118.7	113.3	116.1	113.7	118.7	114.6	114.0
05/04/2007	101.6	109.4	106.5	116.3	114.0	117.7	112.2	115.8	109.1	115.8	110.8	118.5	112.4	115.4	112.5	118.8	113.7	113.4
05/05/2007	101.5	109.3	104.5	115.6	112.0	116.9	111.8	115.7	108.9	115.6	108.4	117.9	111.8	114.6	111.3	118.6	112.7	113.0
05/06/2007	102.0	110.0	104.8	116.1	111.8	117.3	112.4	114.8	110.0	115.5	107.2	118.0	111.6	114.2	111.2	118.3	113.3	112.7
05/07/2007	102.8	110.7	105.7	116.9	113.1	<b>120.1</b>	113.7	114.5	113.0	115.9	108.3	117.6	113.4	114.1	112.5	118.3	114.3	<b>115.2</b>
05/08/2007	105.0	110.9	108.5	117.9	<b>115.8</b>	<b>120.9</b>	<b>116.1</b>	116.2	113.7	116.6	110.6	118.2	<b>115.4</b>	115.7	114.2	118.3	116.3	<b>115.4</b>
05/09/2007	104.8	110.8	109.5	117.8	<b>115.8</b>	117.5	<b>116.5</b>	115.7	113.9	116.3	111.8	118.7	113.4	117.6	112.7	118.6	114.0	114.3
05/10/2007	105.2	110.7	110.4	117.2	<b>116.5</b>	115.4	<b>117.0</b>	116.8	<b>115.7</b>	115.9	113.8	118.9	114.6	117.7	112.6	118.8	113.9	113.8
05/11/2007	<b>104.1</b>	110.4	111.4	117.3	<b>117.0</b>	116.2	<b>116.8</b>	117.2	<b>117.6</b>	115.6	114.0	118.7	<b>116.0</b>	118.6	113.3	118.6	114.3	114.3
05/12/2007	<b>0.0</b>	110.1	112.3	117.2	<b>117.5</b>	115.7	<b>116.7</b>	117.0	<b>115.5</b>	115.9	113.7	118.4	113.7	117.2	113.8	118.7	114.7	113.2
05/13/2007	<b>0.0</b>	109.3	108.5	113.8	<b>115.7</b>	113.7	114.4	116.2	111.3	115.8	110.4	118.1	110.7	115.8	109.7	117.8	113.2	112.5
05/14/2007	<b>102.5</b>	109.1	105.9	115.4	113.2	115.9	113.0	116.6	110.6	115.0	110.6	118.8	113.9	118.1	112.2	119.3	113.3	112.5
05/15/2007	103.5	110.0	106.9	115.9	112.8	117.4	114.2	116.8	113.3	114.9	111.1	118.6	<b>115.9</b>	119.1	<b>115.9</b>	118.7	115.5	114.1
05/16/2007	105.3	110.2	108.4	116.3	114.5	117.6	114.9	116.2	113.2	115.0	109.7	117.9	111.9	116.1	113.5	118.3	115.0	<b>115.1</b>
05/17/2007	105.2	110.5	108.5	115.6	114.5	115.1	114.8	115.6	112.6	114.6	110.0	118.2	112.4	116.3	111.3	118.2	113.5	114.1
05/18/2007	104.6	110.4	108.4	116.3	114.0	116.8	114.3	117.7	111.5	116.4	110.8	117.9	113.6	117.3	112.3	118.2	114.0	113.6
05/19/2007	103.8	109.8	108.1	116.1	113.8	115.0	113.9	116.7	110.7	115.7	109.7	117.6	112.6	116.5	112.7	118.3	114.3	112.9
05/20/2007	103.5	109.8	107.9	116.0	113.8	<b>121.2</b>	113.3	116.9	111.2	115.5	108.8	117.8	113.9	117.3	113.2	118.3	114.3	113.5
05/21/2007	102.8	109.3	106.8	115.8	113.5	<b>120.1</b>	112.7	116.3	109.1	115.2	107.8	117.8	109.2	114.0	111.9	118.2	115.0	112.1
05/22/2007	<b>101.7</b>	<b>109.4</b>	<b>105.4</b>	<b>114.3</b>	<b>112.8</b>	<b>114.4</b>	<b>111.8</b>	<b>115.0</b>	<b>107.7</b>	<b>114.2</b>	<b>106.2</b>	<b>113.9</b>	<b>104.6</b>	<b>111.3</b>	<b>109.2</b>	<b>118.0</b>	<b>112.2</b>	<b>110.1</b>
05/23/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/24/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/25/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/26/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/27/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/28/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/29/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/30/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
05/31/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Generated: Tue May 22 11:25:00 2007

Number of hours of data reported in a given day



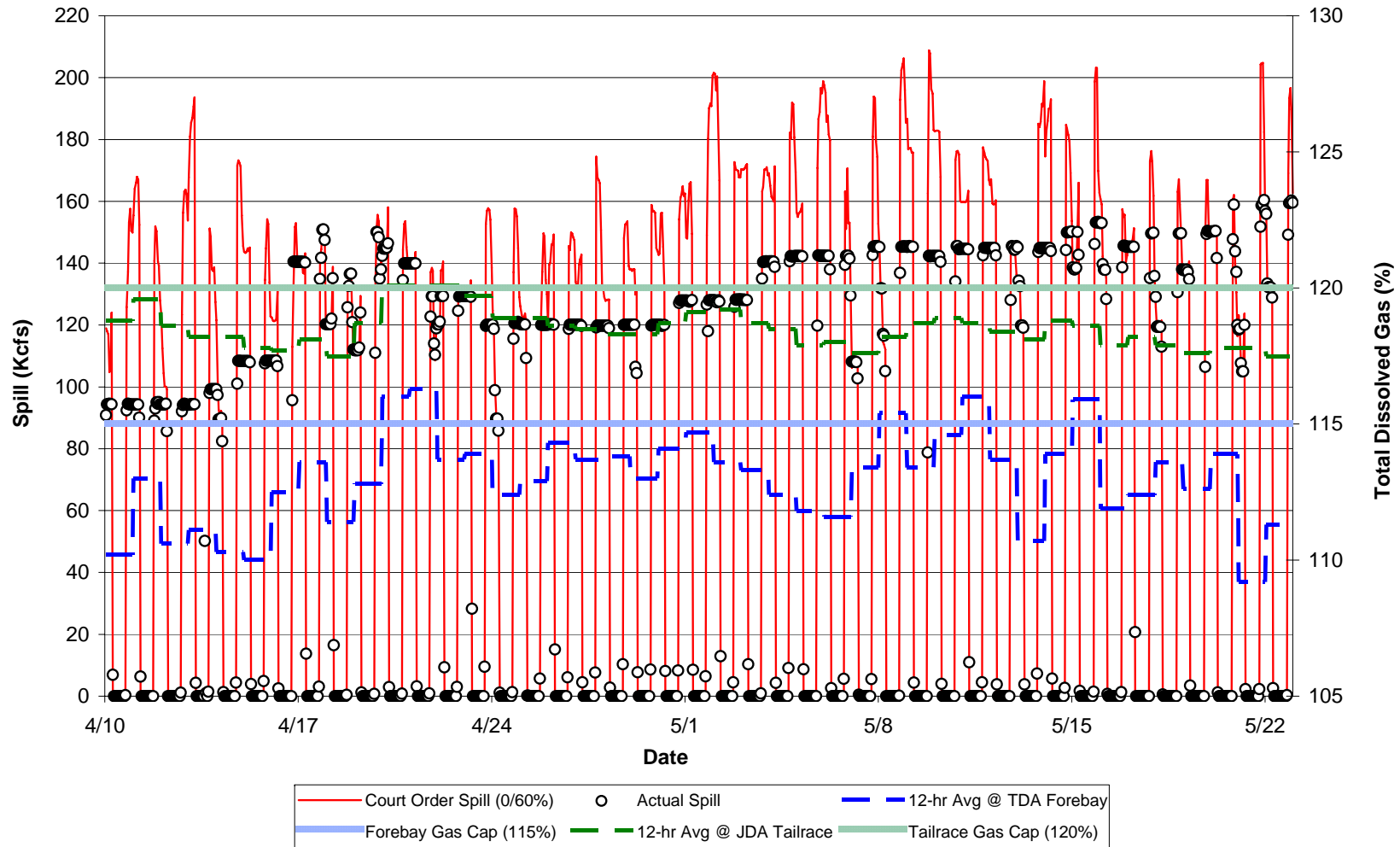
Big, bold, red text denotes exceedances.

--- indicates No Data

Dates run from hour 1 to 24 (not 0 to 23).

The gas caps shown only apply when spilling to facilitate juvenile fish passage ("voluntary spill") between April 3rd and August 31st. At all other times, the gas cap is 110%.

### John Day



### Bonneville

