

State of Oregon  
 Department of Environmental Quality

Memorandum

---

**To:** Willamette Basin Permit Writers **Date:** 12/23/10  
**From:** Agnes Lut, Willamette Basin Phase 2 Hg TMDL Coordinator  
**Section:** Watershed Management, Water Quality Division, HQ  
**Subject:** Mercury Monitoring Requirements for Willamette Basin Permittees

Mercury (Hg) data is needed from permitted sources in the Willamette Basin in order to fill critical data gaps identified during Phase 1 and to complete Phase 2 of the Willamette Hg Total Maximum Daily Load (TMDL). In-river ambient Hg data is being collected by the Department to be used with the Hg data collected by the permitted sources to develop the Phase 2 Willamette Basin Hg TMDL. Any questions regarding this requirement are to be directed to Agnes Lut, 503-229-5247, Phase 2 Willamette Hg TMDL Coordinator.

This memo outlines the mercury monitoring requirements that are to be added to Willamette Basin permits as they are issued or renewed. The permit types in the Willamette Basin that will monitor for mercury and methyl mercury were selected based on their potential to be a source of mercury or methyl mercury. The specific permit types are:

- Major Industrial
- Major Municipal
- Specific Minors:
  - NPDES-IW-B08
  - NPDES-IW-B15
  - NPDES-IW-B16
  - NPDES-IW-B19
  - NPDES-IW-B20
  - NPDES-IW-B21
- MS4 Phase I Stormwater

Each point source permit type identified above is required to monitor for total and dissolved mercury and methyl mercury. Point sources are required to use the following methods for sample collection and analysis:

- EPA Method 1669 ultra clean sampling protocol to collect samples
- EPA Method 1631E for mercury analyses
- EPA Method 1630 for methyl mercury analyses

The following Level of Quantitation (LOQ) shall be achieved but may vary slightly depending on effluent quality and matrix interference. The reason for stating the acceptable LOQ is to assure that the analysis is conducted to environmentally relevant concentrations for non-detects.

- Mercury, total and dissolved: LOQ = 0.5 ng/l;
- Methyl mercury, total and dissolved: LOQ = 0.05 ng/l.

The point sources will be required to collect samples during a time that would be representative of typical effluent flow and mercury removal efficiency. Sample collection will occur during day light hours, typically between the hours of 2pm and 7pm. Samples will be collected from the effluent.

The effluent discharge flow rate will be recorded at the time the mercury sample is collected. Flow or rainfall will be collected, estimated or modeled for each stormwater monitoring event.

This data will be used by DEQ to develop the Phase 2 Willamette Mercury TMDL, calculate the mercury loading capacity and set load allocations. During the Phase 1 TMDL DEQ did not have sufficient Willamette specific mercury data to conduct a thorough source identification. Additionally, the data is needed to verify or revise the modeling that was used to develop the interim water-column guidance value of 0.92 ng/L total mercury that was set for protecting beneficial uses in the Phase 1 mercury TMDL.

Determining how the mercury and methylmercury monitoring will be implemented by permittees is up to the discretion of the permit writer with consultation with the TMDL coordinator, Agnes Lut.

**Major Industrial and Municipal:**

The following mercury and methyl mercury requirements are to be specified in each **major industrial and municipal permit** issued or renewed in the Willamette Basin, using the EPA methods and limits of quantitation identified above :

<b>Sample Parameters</b>	<b>Sampling Frequency</b>	<b>Sampling Type</b>
Total mercury Dissolved mercury	2 times / year, for 2 years September and February, (See Note 1)	Grab, during the daylight hours
Total methyl mercury Dissolved methyl mercury	2 times / year, for 2 years September and February, (See Note 1)	Grab, during the daylight hours

Below is the language referencing Note 1 to include in the permit. After two years of monitoring is fulfilled, creating a minimum of 4 samples, the permit writer shall review the data and contact the TMDL Coordinator, Agnes Lut, to determine whether additional monitoring is warranted. If additional monitoring is not warranted, the Department may eliminate the mercury monitoring from the permit.

*Note 1:* After 2 years of monitoring (minimum of 4 samples), the permittee may request in writing to the Department that the mercury and methyl mercury monitoring be eliminated. The monitoring may be eliminated only after written approval by the Department. Monitoring for total and dissolved mercury must be performed according to US EPA method 1631E with a quantitation limit of 0.5 ng/L. Monitoring for total and dissolved methyl mercury must be performed according to US EPA method 1630 with a quantitation limit of 0.05 ng/L. The effluent

discharge flow rate will be recorded at the time the mercury sample is collected.

**Minor Industrial:**

The following 27 identified **minor industrial** facilities are to include mercury and methyl mercury monitoring (source: SIS download 1/24/11):

Common Name	Region	Permit Nbr	Permit Type	Permit Writer
EVRAZ OREGON STEEL	NWR	101007	NPDES-IW-B08	Burkhart
J.H. BAXTER & CO., INC.	WR	102432	NPDES-IW-B15	
KOPPERS	NWR	101642	NPDES-IW-B15	Burkhart
MCFARLAND CASCADE POLE & LUMBER CO	WR	102392	NPDES-IW-B15	
OREGON STATE UNIVERSITY	WR	102735	NPDES-IW-B15	Pfauth
SLLI	NWR	101180	NPDES-IW-B15	Burkhart
SUNSTONE CIRCUITS	NWR	101015	NPDES-IW-B15	Burkhart
ARCLIN	WR	101235	NPDES-IW-B16	
CASCADE STEEL	WR	101487	NPDES-IW-B16	Schnurbusch
COVANTA MARION, INC	WR	101240	NPDES-IW-B16	Graybill
GEORGIA-PACIFIC CHEMICALS LLC	WR	101474	NPDES-IW-B16	Schnurbusch
GP MILLERSBURG RESIN PLANT	WR	102603	NPDES-IW-B16	Graybill
OREGON-CANADIAN FOREST PRODUCTS - NORTH PLAINS	NWR	101634	NPDES-IW-B16	Wiren
COTTAGE GROVE LUMBER	WR	101449	NPDES-IW-B19	Schnurbusch
FRANK LUMBER CO. INC.	WR	101583	NPDES-IW-B19	Graybill
HULL-OAKES LUMBER CO.	WR	101466	NPDES-IW-B19	
RSG FOREST PRODUCTS - LIBERAL	NWR	100929	NPDES-IW-B19	Burkhart
SENECA SAWMILL COMPANY	WR	101893	NPDES-IW-B19	McFetridge
DURAFLAKE	WR	100668	NPDES-IW-B20	Schnurbusch
FOSTER ENGINEERED WOOD PRODUCTS (EWP)	WR	101777	NPDES-IW-B20	Graybill
KINGSFORD MANUFACTURING COMPANY -	WR	102153	NPDES-IW-B20	Wiltse
ROSBORO	WR	101467	NPDES-IW-B20	Ullrich
STIMSON LUMBER COMPANY - FOREST GROVE	NWR	101480	NPDES-IW-B20	Burkhart
JASPER WOOD PRODUCTS, LLC	WR	101427	NPDES-IW-B21	Graybill
PACIFIC WOOD PRESERVING OF OREGON, INC.	WR	101267	NPDES-IW-B21	Graybill
PERMAPOST	NWR	101489	NPDES-IW-B21	Burkhart
ROYAL PACIFIC INDUSTRIES INC	WR	101213	NPDES-IW-B21	Graybill

The following mercury and methyl mercury requirements are to be specified using the above identified EPA methods and limits of quantitation for minor industrials:

Sample Parameters	Sampling Frequency	Sampling Type
Total mercury Dissolved mercury	2 times / year, for <b>1</b> year, September and February (See Note 2)	Grab, during the daylight hours
Total methyl mercury Dissolved methyl mercury	2 times / year, for <b>1</b> year, September and February (See Note 2)	Grab, during the daylight hours

Below is the language referencing Note 2 to be included in the permit. After one year of monitoring is fulfilled, creating a minimum of 2 samples, the permit writer shall review the data and contact the TMDL Coordinator, Agnes Lut, to determine whether additional monitoring is warranted. If additional monitoring is not warranted, the Department may eliminate the mercury monitoring requirement from the permit.

*Note 2:* After 1 year of monitoring (minimum of 2 samples), the permittee may request in writing to the Department that the mercury and methyl mercury monitoring be eliminated. The monitoring may be eliminated only after written approval by the Department. Monitoring for total and dissolved mercury must be performed according to US EPA method 1631E with a quantitation limit of 0.5 ng/L. Monitoring for total and dissolved methyl mercury must be performed according to US EPA method 1630 with a quantitation limit of 0.05 ng/L. The effluent discharge flow rate will be recorded at the time the mercury sample is collected.

### **MS4 Phase 1 Stormwater:**

The following mercury and methyl mercury requirements are to be specified using the above identified EPA methods and limit of quantitation in each **MS4 Phase 1** Stormwater permit issued or renewed in the Willamette Basin:

Sample Parameters	Sampling Frequency	Sampling Type
Total mercury Dissolved mercury	2 times / year, for <b>2</b> years, Wet and Dry storm season (see Note 3)	Grab, during the storm event
Total methyl mercury Dissolved methyl mercury	2 times / year, for <b>2</b> years, Wet and Dry storm season (see Note 3)	Grab, during the storm event

The mercury and methyl mercury samples must be collected from a representative set of stormwater outfalls during significant runoff events.

Below is the language referencing Note 3 to include in the permit. A summer event is considered to be equivalent to a dry season storm event (May 1-September 30), and a winter

event is equivalent to a wet season storm event (October 1-April 30). After two years of monitoring is fulfilled, creating a minimum of 4 samples, the permit writer shall review the data and contact the TMDL Coordinator, Agnes Lut, to determine whether additional monitoring is warranted. If additional monitoring is not warranted, the Department may eliminate mercury monitoring requirements from the permit.

*Note 3:* After 2 years of monitoring (minimum of 4 samples), the permittee may request in writing to the Department that the mercury and methyl mercury monitoring be eliminated. The monitoring may be eliminated only after written approval by the Department. Monitoring for total and dissolved mercury must be performed according to US EPA method 1631E with a quantitation limit of 0.5 ng/L. Monitoring for total and dissolved methyl mercury must be performed according to US EPA method 1630 with a quantitation limit of 0.05 ng/L.

**Sample Shipment and Analysis:**

Mercury sampling requirements in the permits must specify that samples be shipped within 24 hours of collection and processed at the analytical laboratory within 48 hours of collection. The analytical lab must be NELAC certified for mercury and methyl mercury analysis. If the analytical lab can perform the mercury analysis as specified in this memo, utilizing the specific EPA Methods and also able to achieve the stated LOQs, then the lab does not have to be NELAC certified. Samples will be chilled to 4°C in the field and for transport to the analytical laboratory. Preservation acid is to be added at the analytical laboratory in order to avoid contamination during field sampling. Filtering for dissolved mercury and methyl mercury is to occur at the analytical lab when processing the samples.

A partial list of analytical labs that are able to achieve the LOQ's is below, however, this is not an endorsement of these labs:

<b>Mercury and Methyl Mercury Analytical Labs</b>	<b>Phone</b>
Battelle Marine Science Laboratory 1529 West Sequim Bay Road Sequim, WA 98382	360-681-3650
Frontier GeoSciences 414 Pontius Ave N Seattle WA 98109 <a href="http://www.frontiergeosciences.com">http://www.frontiergeosciences.com</a>	206-622-6960
Brooks-Rand 3958 6 <sup>th</sup> Ave N.W. Seattle WA 98107 <a href="http://www.brooksrand.com">http://www.brooksrand.com</a>	206-632-6206

If you have questions regarding this monitoring requirement please contact Agnes Lut, 503-229-5247.

## Distribution and Updates:

Memo sent via Email, 12/23/10: [WQ] Permit Writers;  
[WQ] Willamette Basin;  
[WQ] Permit Managers;  
FOSTER Eugene P;  
LUT Agnes

Memo sent via Email, 01/26/11: [WQ] Permit Writers;  
[WQ] Willamette Basin;  
[WQ] Permit Managers;  
FOSTER Eugene P;  
LUT Agnes

Memo was emailed to update the specific minor permit types that shall monitor for mercury. Originally the following permit types were identified:

- Specific Minors:
  - NPDES-IW-G
  - NPDES-IW-N
  - NPDES-IW-O

This list was updated to reflect the permit type designation change that occurred in 2006 to the following permit types:

- Specific Minors:
  - NPDES-IW-B08
  - NPDES-IW-B15
  - NPDES-IW-B16
  - NPDES-IW-B19
  - NPDES-IW-B20
  - NPDES-IW-B21

A table of the 27 affected minor industrial permits was added, source SIS download 1/24/11.

Memo sent via Email, 02/23/11: [WQ] Permit Writers;  
[WQ] Willamette Basin;  
[WQ] Permit Managers;  
FOSTER Eugene P;  
LUT Agnes

Seperate email sent to: Frank Wildensee, Krista Reininga, Torrey Lindbo, Roy Iwai, Jon Nottage, Rajeev Kapur, Thomas Mendes, Andrew Swanson, Dave Gilbey, Dennis Ades, Annette Liebe, Benjamin Benninghoff, Agnes Lut, Gene Foster

Memo was emailed to update the following:

- Page 2: Text Added = “Determining how the mercury and methylmercury monitoring will be implemented by permittees is up to the discretion of the permit writer with consultation with the TMDL coordinator, Agnes Lut.”
- Page 2: Text Added = “Flow or rainfall will be collected, estimated or modeled for each stormwater monitoring event.”
- Page 4: Text Change = Change sampling frequency from “Summer and Winter” to “Wet and Dry”, as defined in the permit. Wet Oct. 1 – April 30.
- Page 4: Text Change = Change “daylight” to “storm event”.
- Page 4: Text Added = “A summer event is considered to be equivalent to a dry season storm event (May 1-September 30), and a winter event is equivalent to a wet season storm event (October 1-April 30).”
- Page 5: Text Added = “If the analytical lab can perform the mercury analysis as specified in this memo, utilizing the specific EPA Methods and also able to achieve the stated LOQs, then the lab does not have to be NELAC certified.”