

# Amendment to Fact Sheet for NPDES Permit WA-0000892

## Kaiser Aluminum Washington, LLC

### Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in modifying the National Pollutant Discharge Elimination System (NPDES) permit for Kaiser Aluminum Washington, LLC (Kaiser Aluminum).

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a fact sheet for every draft permit determination.

Ecology proposes to modify this permit based on Pollution Control Hearing Board (PCHB), Stipulation and Agreed Order (PCHB 11-102). Section 173-220-190 of the WAC allows Ecology to modify an NPDES permit when directed by the PCHB. The changes do not constitute a minor modification under 40 CFR Part 122.63. As such, Ecology will make the draft amended permit and fact sheet addendum available for public review and comment at least thirty (30) days before modifying the final permit to the facility operator (WAC 173-220-050 and -190).

Copies of the original fact sheet, addendum to the fact sheet, and draft amended permit for Kaiser Aluminum Washington, LLC, NPDES permit WA-0000892, are available for public review and comment from January 22, 2013 until the close of business February 21, 2013. For more details on preparing and filing comments about these documents please see **Appendix A - Public Involvement**. The Department will only consider comments on the proposed modified portions of this permit, as outlined in 40 CFR Part 122.62.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as **Appendix C - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

### Summary

Kaiser Aluminum owns and operates an aluminum rolling mill and metal finishing plant at Trentwood, Spokane County, Washington. The facility discharges treated stormwater, industrial wastewater, contact and noncontact cooling waters, domestic wastewater, and excess groundwater to the Spokane River. The treatment facilities include:

- An industrial treatment system (IWT, Outfall 002) treating oil and metal contaminated wastewaters.
- A sanitary treatment system (SWT, Outfall 003) treating the site's domestic wastewater.
- A 4-million gallon settling lagoon (equipped with oil skimming and collection equipment) that receives contact and noncontact cooling waters and the treated IWT and SWT effluents.
- A black walnut shell (BWS, Outfall 006) filtration system treating effluent from the settling lagoon.

The final discharge consists of the BWS effluent and excess groundwater from onsite remediation activities (Outfall 001).

On June 23, 2011, Ecology re-issued the NPDES permit to Kaiser Aluminum. The permit included numeric effluent limits on the final discharge to the Spokane River (Outfall 001), the BWS (Outfall 006), IWT (Outfall 002), and SWT (Outfall 003) effluents.

Kaiser Aluminum filed an appeal of the NPDES permit to the PCHB on July 20, 2011. In its appeal, Kaiser contested certain effluent limits, monitoring requirements, and other conditions contained in renewed permit.

Kaiser Aluminum and Ecology explored options to informally settle the appeal, which ultimately resulted in the PCHB Stipulation and Agreed Order. Per this Agreed Order, Ecology proposes to modify the NPDES permit as follows:

1. Remove and replace effluent limits and monitoring requirements at Outfall 002 with more stringent, performance based effluent limits at Outfall 006.
2. Replace the existing interim total phosphorus limit at Outfall 001 based on the sum of internal Outfalls 002 and 003 with a total phosphorus interim limit based on effluent data from the final discharge. This has resulted in a higher interim limit, but more accurately represents the amount of phosphorus discharged from the facility from all wastewater and groundwater sources.
3. Add requirements for PCB source identification and reduction, previously referenced in the permit as an attachment Administrative Order, into a permit special condition.
4. Clarify other permit language regarding monitoring requirements and design loading criteria for the BWS treatment system.
5. Modify other wastewater/intake water monitoring schedules.
6. Change the discharge monitoring reporting date requirement.

### **Outfall 001 phosphorus limit**

In the existing permit, Ecology set a performance based phosphorus interim limit based on total phosphorus data from internal Outfalls 002 and 003 from January, 2004 to June, 2005. The permit set a daily maximum limit at the highest observed value (2.9 lbs/day) and a monthly average value at the mean loading plus two standard deviations (1.3 lbs/day).

Based on data collected by the Permittee in early 2007, high volumes of contact and noncontact cooling water from the facility contributed a considerable phosphorus load to the final effluent. In 2009, Kaiser Aluminum began to monitor total phosphorus in the final effluent on a twice per week basis. This data confirmed that phosphorus levels in the final effluent exceeded those discharged from the internal Outfalls 002 and 003.

Ecology re-examined a performance based phosphorus interim limit based on effluent data (Table 1) from the Permittee's twice per week sampling data, from June 2009 through August 2011. In the amended permit, Ecology will propose a daily maximum limit of 6.8 pounds per day (99<sup>th</sup> percentile of daily values) and a monthly average limit of 3.8 pounds per day (highest of monthly average values). These limits will apply only during the critical time period (March through October).

## **Outfall 002 (Industrial Wastewater Treatment) effluent limitations**

Ecology proposes to remove the technology based effluent limits and associated monitoring requirements for the IWT system (Outfall 002); and replace these with more stringent, performance based limits at the BWS effluent (Outfall 006). This provides the Permittee some flexibility in the operation and monitoring for the IWT treatment system while maintaining the quality of the final effluent.

Ecology evaluated monitoring data at Outfall 006 for aluminum, chromium, TSS and oil & grease (Table 2). Outfall 002 includes limits for two other parameters, cyanide and zinc. Ecology did not include zinc in the performance based effluent limit analysis based on the existing water quality based limit for zinc at the final discharge (Outfall 001).

Ecology did not consider cyanide for a performance based limit due to the absence of cyanide in both Outfalls 002 and 006. The permit does not require the Permittee to routinely monitor for cyanide provided:

- The first wastewater sample taken each calendar year is analyzed and found to contain less than 0.07 mg/l cyanide
- The Permittee certifies in writing to Ecology that cyanide is not and will not be used in the aluminum forming and finishing operations.

The Table 2 data for aluminum, chromium, TSS and oil & grease data for Outfall 006 ran from July, 2011 through May, 2012. Ecology typically develops performance based limits from the 99<sup>th</sup> percentile (for daily maximum) and 95<sup>th</sup> percentile (for monthly average) of the effluent monitoring data. However, the Table 2 data did not fit a normal distribution (even after transformation) and spans a relatively short period of time (less than a year). Ecology instead used a factor of 1.2 times the highest daily and monthly average values measured to set the limits, except for the monthly average oil and grease limit, as described below.

For oil & grease, 1.2 times the highest monthly average value resulted in a value of 186 pounds per day. The BWS filters require the addition of castor oil to aid in suspended solids and PCB removal. The Permittee typically uses a dosage rate of 92 pounds of castor oil per day (1 mg/L in 11 mgd of BWS flow). This rate approaches the 186 pounds per day calculated from 1.2 times the highest monthly average value, and could restrict the facility from achieving good suspended solids and PCB removal rates. Based on this, Ecology proposes to decrease the current monthly average limit for oil & grease by 42.8% (the same reduction as the monthly average TSS limit). This resulted in the proposed monthly average oil & grease limit of 374.7 pounds per day.

The calculation of performance based limits for chromium resulted in values nearly identical to the current permit limits. Therefore, Ecology does not propose to modify these limits in the amended permit.

## **PCB source identification and reduction requirements**

The existing permit requires PCB source identification and reduction activities as specified in an Ecology issued Administrative, Amended Order (No. 2868). The proposed permit incorporates the Amended Order requirements into Special Condition S6.

Ecology also proposes to clarify that the PCB inlet design criteria applies on a monthly average basis, consistent with the approved engineering design report for the BWS treatment system.

### **Other proposed changes**

Ecology also proposes to:

- Change the name on the Permit to Kaiser Aluminum Washington, LLC due to a January 1, 2011 corporate restructuring.
- Clarify continuous flow monitoring requirements for the final effluent (Outfall 001) that allow exceptions for brief lengths of time for calibration, power failure, or for unanticipated equipment repair or maintenance.
- Modify the target detection limit of 5 ng/L from aroclor 1248 to 1242 for the BWS influent test using EPA method 8082, consistent with the aroclor typically detected in wastewater sampling.
- Delete monitoring requirements for zinc for the plant intake water (Ecology does not need this data to determine compliance with the effluent limits in the permit).
- Delete monitoring requirements total phosphorus for the plant intake water and sanitary treatment plant effluent (Ecology also does not need this data to determine compliance with the effluent limits in the permit).
- Ecology also proposes to change the discharge monitoring report (DMR) submittal due date from the 15<sup>th</sup> to the 25<sup>th</sup> of the month (not part of either the appeal or Stipulation and Agreed Order). This will allow additional time for the Permittee to receive and tabulate results for effluent samples sent to a contract laboratory.

Table 1 – Total Phosphorus Effluent Data and Proposed Amended Permit Limits - Outfall 001

Total Phosphorus\* (lbs/day) Summary Statistics:

	Daily	Monthly Avg
Mean	1.40	1.41
Stnd Error	0.16	0.28
Median	0.96	0.92
Mode	1.01	#N/A
Stnd Dev	1.79	1.09
Variance	3.20	1.19
Kurtosis	23.13	0.21
Skewness	3.82	1.22
Range	14.54	3.56
Minimum	0.05	0.22
Maximum	14.60	3.77
Sum	179.64	21.08
Count	128	15

Total Phosphorus\* (lbs/day) Rankings and Percentiles:

Daily values (top 15)			
Point	Total P	Rank	Percent
23	14.60	1	100.00%
<b>8</b>	<b>6.75</b>	<b>2</b>	<b>99.20%</b>
17	5.97	3	98.40%
4	5.20	4	97.60%
31	4.73	5	96.80%
21	4.58	6	96.00%
13	4.42	7	95.20%
32	4.23	8	94.40%
22	3.99	9	93.70%
2	3.81	10	92.90%
6	3.71	11	92.10%
12	3.59	12	91.30%
14	3.41	13	90.50%
16	3.28	14	89.70%
34	3.03	15	88.90%

Monthly Average Values			
Point	Total P	Rank	Percent
<b>3</b>	<b>3.77</b>	<b>1</b>	<b>100.00%</b>
1	3.18	2	92.80%
2	2.98	3	85.70%
4	2.25	4	78.50%
6	1.29	5	71.40%
14	1.02	6	64.20%
15	1.02	7	57.10%
7	0.92	8	50.00%
11	0.92	9	42.80%
8	0.88	10	35.70%
5	0.79	11	28.50%
12	0.73	12	21.40%
13	0.63	13	14.20%
9	0.47	14	7.10%
10	0.22	15	0.00%

\*- data from June, 2009 through August, 2011, during critical season months (March through October)  
**Bold values indicate proposed daily maximum and monthly average permit limits**

Table 2 – Effluent Data and Proposed Amended Permit Limits – Outfall 006

**Outfall 006 Effluent Data:**

Monthly Averages\* (July, 2011 to May, 2012)

	Al (lbs/day)	Cr (lbs/day)	TSS** (lbs/day)	O&G (lbs/day)
Mean	3.59	0.48	156.98	80.69
Standard Error	0.33	0.11	22.85	10.39
Median	3.18	0.29	139.01	66.94
Mode	#N/A	#N/A	#N/A	#N/A
Standard Deviation	1.10	0.38	75.77	34.45
Sample Variance	1.20	0.14	5741.24	1186.96
Kurtosis	2.71	0.80	2.37	0.69
Skewness	1.53	1.31	1.47	1.24
Range	3.83	1.13	255.46	108.39
Minimum	2.42	0.17	82.95	46.58
Maximum	6.25	1.30	338.41	154.97
Sum	39.45	5.27	1726.78	887.54
Count	11	11	11	11
1.2 x Maximum	7.5	1.6	406.1	186.0

Daily Values\* (July, 2011 to May 2012)

	Al (lbs/day)	Cr (lbs/day)	TSS** (lbs/day)	O&G (lbs/day)
Mean	3.57	0.48	156.08	80.73
Standard Error	0.21	0.07	13.19	6.89
Median	2.93	0.19	118.20	60.75
Mode	#N/A	#N/A	#N/A	#N/A
Standard Deviation	2.07	0.72	127.86	67.55
Sample Variance	4.29	0.52	16348.71	4562.78
Kurtosis	5.72	11.45	8.07	13.36
Skewness	2.17	3.21	2.67	2.95
Range	11.38	4.34	725.36	457.36
Minimum	0.60	0.14	27.85	13.77
Maximum	11.98	4.48	753.21	471.12
Sum	342.98	46.26	14671.10	7749.87
Count	96	96	94	96
# Non-detects	0	66	3	16
1.2 x Maximum	14.4	5.4	903.9	565.3

\* - Note: 1/2 detection level substituted for reported non-detectable values

\*\* - Note: TSS values of 1,501 lbs/day (11/1/2011) & 1,203 (2/7/2012) not used in analysis

**Outfall 006 - Proposed Effluent Limits:**

Monthly Average	Al (lbs/day)	Cr (lbs/day)	TSS (lbs/day)	O&G*** (lbs/day)
Proposed Limit	7.5	2.1	406.1	374.7
Current Limit	23.4	2.1	709.4	655.1
Daily Maximum				
Proposed Limit	14.4	5.1	903.9	565.3
Current Limit	46.8	5.1	1142.1	710.5

\*\*\* - Ecology calculated the proposed monthly average permit limit for oil & grease by decreasing the current limit by the same percentage (42.8%) as the monthly average TSS

## Appendix A - Public Involvement Information

Ecology proposes to amend a permit to Kaiser Aluminum Washington, LLC. The amended permit includes wastewater discharge limits and other conditions. This amendment to the fact sheet describes the facility and Ecology's reasons for amended the permit conditions.

Ecology will place a Public Notice of Draft on January 22, 2013 in the Spokesman Review to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet amendment. The Department will only consider comments on the modified portions of the permit, as per 40 CFR Part 122.62.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period
- Tells how to request a public hearing of comments about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at <https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html>.

You may obtain further information from Ecology by telephone at (509) 329-3400 or by writing to the address listed below.

Water Quality Permit Coordinator  
Department of Ecology  
Eastern Regional Office  
4601 North Monroe Street  
Spokane, WA 99205-1295

## Appendix B - Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

### ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
<p><b>Department of Ecology</b>                      Attn: Appeals Processing Desk                      300 Desmond Drive SE                      Lacey, WA 98503</p> <p><b>Pollution Control Hearings Board</b>                      1111 Israel RD SW                      STE 301                      Tumwater, WA 98501</p>	<p><b>Department of Ecology</b>                      Attn: Appeals Processing Desk                      PO Box 47608                      Olympia, WA 98504-7608</p> <p><b>Pollution Control Hearings Board</b>                      PO Box 40903                      Olympia, WA 98504-0903</p>

**Appendix C – Response to Comments**  
**Kaiser Aluminum Washington, LLC**  
**Draft Amended Permit WA-0000892 and Fact Sheet**

Ecology received comments on the draft documents during the 30-day public comment period as described in Appendix A, Public Involvement Information. Below are the comments and Ecology’s responses. The original comment documents (letters, emails, etc.) are included at the end of this document.

The following comments were received from the Washington State Department of Natural Resources by an email dated February 21, 2013:

	Comments	Ecology’s Responses
1	<p><i>After review of the Kaiser Aluminum Washington, LLC NPDES Permit #WA0000892, DNR is very concerned at the permitted allowance of harmful pollutants into the Spokane River. The allowable release of heavy metals and PCBs into the Spokane River at any quantity degrades the quality of both the water and sediment of the river.</i></p>	<p><i>The amended permit reduces the allowable discharge of aluminum, TSS and oil &amp; grease to the Spokane River. The technology based limits for aluminum and chromium do not have a reasonable potential to violate receiving water quality criteria.</i></p> <p><i>As described in the Fact Sheet, the Spokane River regularly violates water quality criteria for zinc. Criteria for lead and cadmium are also frequently exceeded, especially at higher flows. The permit contains limits for lead, cadmium and zinc based on the Spokane River Metals Total Maximum Daily Load (TMDL). These limits, which the Department did not propose to modify in the amended permit, will ensure the discharge does not worsen existing receiving water conditions.</i></p> <p><i>The permit addresses the allowable release of PCBs to the Spokane River. The permit requires Kaiser to participate in a Regional Toxics Task Force with a goal of developing a comprehensive plan to bring the Spokane River into compliance with applicable water quality standards for PCBs. The Department did not propose to modify this condition in the amended permit.</i></p> <p><i>The Permit also includes a PCB design limit at the influent to the Black Walnut Shell (BWS) treatment system (condition S6). This limit will ensure the discharge of PCBs remain at current levels.</i></p>

	Comments	Ecology's Responses
		<p><i>Additionally, both the original and amended permits require continued source identification and reduction work to reduce PCBs in the effluent to the maximum extent practicable. The original permit referenced these requirements as an attachment to the permit (Administrative Amended Order No. 2868). The amended permit now incorporates the requirements of the Amended Order into the permit in condition S6.</i></p> <p><i>These requirements take definitive first steps to bring the Spokane River and Lake Spokane into compliance with the water quality standards for PCBs.</i></p>
2	<p><i>As stewards of State-owned aquatic land, the discharge of the allowable pollutants as indicated in the NPDES permit into an already fragile Spokane River Valley ecosystem system seems to defeat the purpose of the remediation and cleanup projects that have been performed to date.</i></p>	<p><i>Ecology respectfully disagrees. The permit requirements addressing PCBs, total phosphorus, CBOD, and ammonia take definitive steps to bring the Spokane River and Lake Spokane into compliance with applicable water quality standards. These requirements will ensure the discharge will improve, not worsen, existing conditions in the Spokane River.</i></p>
3	<p><i>DNR will be reviewing the implementation of the Best Management Plan (BMP) and the work of the Regional Toxics Task Force on the efforts to eliminate PCB and other harmful pollutant discharges into the Spokane River and determine the adequacy for protecting the state aquatic lands.</i></p>	<p><i>Comment noted. Ecology encourages the participation and input of the Department of Natural Resources on the Regional Toxics Task Force.</i></p>
4	<p><i>After implementation of the BMP plan and effort of the Toxics Task force, it is hopeful that Ecology will eliminate the allowable discharge of PCBs from Kaiser's NPDES permit. We will be in discussions with Ecology and Kaiser as we consider the requirements for the authorization and future management of the Kaiser outfall.</i></p>	<p><i>Comment noted. The goal of the Regional Toxics Task Force is to develop a comprehensive plan to bring the Spokane River into compliance with applicable water quality standards for PCBs.</i></p>

**Hallinan, Patrick J. (ECY)**

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**From:** Barnes, Abby (DNR)  
**Sent:** Thursday, February 21, 2013 1:59 PM  
**To:** Hallinan, Patrick J. (ECY)  
**Subject:** Kaiser Aluminum NPDES Permit #WA-0000892 Comments

Thank you for allowing us the opportunity to comment on the Kaiser Aluminum NPDES Permit #WA-000089. 3

As the manager and steward of 2.6 million acres of state-owned aquatic lands, the Department of Natural Resources (DNR) strives to provide for a balance of public benefits, including ensuring environmental protection, providing opportunities for using resources such as shellfish, fostering water dependent uses and facilitating public access.

1 | After review of the Kaiser Aluminum Washington, LLC NPDES Permit #WA0000892, DNR is very concerned at the permitted allowance of harmful pollutants into the Spokane River. The allowable release of heavy metals and PCBs into the Spokane River at any quantity degrades the quality of both the water and sediment of the river.

2 | As stewards of State-owned aquatic land, the discharge of the allowable pollutants as indicated in the NPDES permit into an already fragile Spokane River Valley ecosystem system seems to defeat the purpose of the remediation and cleanup projects that have been performed to date. DNR will be reviewing the  
3 | implementation of the Best Management Plan (BMP) and the work of the Regional Toxics Task Force on the efforts to eliminate PCB and other harmful pollutant discharges into the Spokane River and determine the adequacy for protecting the state aquatic lands. After implementation of the BMP plan and effort of the  
4 | Toxics Task force, it is hopeful that Ecology will eliminate the allowable discharge of PCBs from Kaiser's NPDES permit. We will be in discussions with Ecology and Kaiser as we consider the requirements for the authorization and future management of the Kaiser outfall.

Thank you,

Abby Barnes  
Department of Natural Resources  
Aquatic Resources Division  
1111 Washington St. SE  
Olympia, WA 98504-7027  
(360) 902-1713