Kaiser Aluminum
Proposed NPDES Discharge Permit
Pat Hallinan
Kaiser Aluminum

- Aluminum Rolling Mill and Metal Finishing Plant
  - Produces aluminum sheet, plate, and coil
- Wastewater Discharge to the Spokane River (average 6.2 MGD)
  - Treated process wastewater
  - Non-contact and contact cooling water
  - Stormwater
  - Plant sanitary wastewater
- Historic Releases/Cleanup Activities
  - Cleanup of polychlorinated biphenyl (PCB) contamination in groundwater is ongoing under the Model Toxics Control Act (MTCA)
Site Location
Site Overview
Kaiser Groundwater Cleanup Status

• Testing ultra-violet light technology to destroy PCBs is ongoing
  • Initial results are showing high levels of destruction
  • Improvements to the system continue
  • Final decision for full-scale treatment technology will occur in 2022

• Project Website:
Treatment Overview

Outfall 002
Industrial

Outfall 003
Sanitary

Outfall 004
Finishing Related

Outfall 005
Casting Related

Settling Lagoon

Walnut Shell Filtration

Outfall 001
Spokane River

Flow Direction
Treatment Overview

Monitoring Points

002 – Industrial
003 – Sanitary
004 – Finishing Operations
005 – Casting Operations
006 – Walnut Shell Filtration
001 – Final Discharge
Discharge Outfall
Underground Injection Control (UIC) Program

Flow Reduction Efforts

Spokane River

Once through, non-contact cooling

Underground Injection wells
North/South (2 wells each)

GROUNDWATER
Effluent Limitations (Limits)

• Technology Based
  • Federal Effluent Guidelines
  • Case-by-case determinations

• Water Quality Based
  • Evaluate Critical Effluent and Receiving Water Conditions (Reasonable Potential Determination)
  • Water Body Impairments
  • Total Maximum Daily Load (TMDL) Requirements
## Water Quality Assessment - Category 5

<table>
<thead>
<tr>
<th>PARAMETER_NAME</th>
<th>CATEGORY</th>
<th>Status</th>
<th>WATERBODY_NAME</th>
<th>MEDIUM_NAME</th>
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<tbody>
<tr>
<td>Polychlorinated Biphenyls (PCBs)</td>
<td>5</td>
<td>Current</td>
<td>SPOKANE RIVER</td>
<td>Tissue</td>
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<tr>
<td>Temperature</td>
<td>5</td>
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<td>Water</td>
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<tr>
<td>2,3,7,8-TCDD (Dioxin)</td>
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<td>Current</td>
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<tr>
<td>Polychlorinated Biphenyls (PCBs)</td>
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<td>Temperature</td>
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# Water Quality Assessment - Category 4a

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<td>Lead</td>
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<td>Lead</td>
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<td>Water</td>
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</tbody>
</table>
Proposed Effluent Limits

Outfall 002
Industrial

Outfall 003
Sanitary

Outfall 004
Finishing Related

Outfall 005
Casting Related

Secondary Treatment Standards:
BOD, TSS, Fecal Coliform

Settling Lagoon

Walnut Shell Filtration

Technology-Based Effluent Limits:
Chromium, Cyanide, Aluminum, TSS, and Oil and Grease

Outfall 001
Spokane River

FLOW
Proposed Effluent Limits

- Outfall 002 Industrial
- Outfall 003 Sanitary
- Outfall 004 Finishing Related
- Outfall 005 Casting Related
- Settling Lagoon
- Walnut Shell Filtration
- Outfall 001 Spokane River

Design Influent Loading:
- Total PCBs

Water Quality-Based Effluent Limits:
- Zinc, Lead, Cadmium, PCBs, Ammonia, CBOD, Total Phosphorus, Acute WET

Technology-Based Effluent Limit: pH
Water Quality Based Effluent Limits
Key Changes

Proposed Limits
- Cadmium, Lead, and Zinc
- Total PCBs
- Whole Effluent Toxicity (WET) Limit
- Ammonia
- Total Phosphorus (Bubble Limit)
- Carbonaceous Biochemical Oxygen Demand (CBOD$_5$ - Bubble Limit)

Proposed Additional Data Collection
- Temperature
What is a Bubble Limit?

An individual discharger would not be considered in violation of their water quality based effluent limit (WQBEL), as long as the collective bubble limit is met during the same reporting period.
What is a Bubble Limit?

CBOD$_5$ Seasonal Average

IEP

WQBEL = 123.2 lbs/day

Kaiser

WQBEL = 462.7 lbs/day

IEP < 123.2, then Kaiser limit = 462.7 + [(123.2 - IEP load) x 14.9]

IEP ≥ 123.2, then Kaiser limit = 462.7
Other Permit Conditions

Agreed Order

- Negotiated following delayed re-issuance of previous permit (expired in 2016)
- PCB pollutant minimization plan (PMP)
  - Includes implementation of flow reduction projects
  - Continued participation in SRRTTF
  - Characterization testing using EPA method 1668
- Cooling water intake structure (CWIS) report
- Spokane River temperature monitoring
- Schedule for installation of ‘next level of treatment’ for PCBs
Compliance Schedule

Implement ‘Next Level of Treatment’ for PCBs

Jan 2025
- Bench Scale Results
- Proposed Schedule for Pilot Testing

Jan 2029
- Pilot Scale Results
- Proposed Schedule for Engineering Report

Jan 2030
- Engineering Report and Plans & Specifications

Jan 2031
- Completion of Construction
PCB PMP – Flow Reduction Actions

Flow reduction projects and target completion dates

2023 Q4
CC, HT Systems, South Production Area

2025 Q1
CC, South Area Facility Modernization

2025 Q2
UIC Phase 3, NCC, Casting

2026 Q2
UIC Phase 4, Misc. Cooling Systems

2029 Q1
CC Casting

= ~1.0 mgd

Phase 3 + Phase 4 = ~1.0 mgd

CC – Contact Cooling; HT – Heat Treatment; NCC – Non-Contact Cooling
Thank You!

Pat Hallinan
patrick.hallinan@ecy.wa.gov

Spokane River Watershed Webpage: