Topics

- Trentwood Background
- Source Control Actions
- Treatment System
- “High Level” Residual Source Investigation
- “Focused” Residual Source Investigation
- Path Forward
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Trentwood Background

- Originally built by the Defense Plant Corporation (Plancor 524)
  - Site selection approved on February 1, 1942
  - First soil borings made February 2, 1942
  - First metal produced December 7, 1942
- Kaiser leased Trentwood in 1946
- Kaiser purchased Trentwood in 1949
- 512 acre site with ~65 acres under roof
- ~850 employees
Topics

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Source Control Actions

- PCB Phase Out
  - Kaiser corporate program to phase out PCB usage initiated in 1978
  - Trentwood completed phase out in early 1990s
    - Electrical systems
    - Hydraulic systems
Source Control Actions

- PCB Phase Out
  - Electrical systems
    - PCB containing and PCB contaminated oils removed from transformers
    - PCB containing capacitors replaced
  - Hydraulic systems
    - Phosphate ester based hydraulic oils were substituted
    - Current hydraulic package is soy bean oil based
Topics

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Treatment System

- Black Walnut Shell Filters
  - Installed in 2003
  - Capacity of 11 million gallons per day
  - Filter media is ground up black walnut shells
  - Castor seed oil and polymer pretreatment
  - Removal efficiency ~75% to 80%
Treatment System
Treatment System
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“High Level” Investigation
“High Level” Investigation

Investigation Methods

- Internal Sampling
  - Grab sampling and analysis by EPA Methods 8082 and 1668

- Manhole Surveys
  - Sediment presence and analysis

- Video Surveys
  - Camera “runs” through sewer line sections
“High Level” Investigation

Investigation Results

- Settling Lagoon
  - Data indicated potential mobilization/pass through of solids

- Sewage Sludge Digestor
  - Low ppm levels found in sludge

- Sewer Sections
  - Manhole sampling identified contaminated solids
“High Level” Investigation

Removal Results

- **Settling Lagoon**
  - 1,000 tons of sediment containing ~ 6 lbs PCB

- **Sewage Digestor**
  - 60,000 gallons of sludge containing ~ 1 lb PCB

- **Sewer Sections**
  - 70 tons of sediment containing ~ 5 lbs PCB
“High Level” Investigation

- Investigation Observations
  - Settling lagoon provides beneficial sediment removal
  - Internal sewer system contains relatively few locations where sediment has been deposited
  - Many internal wastewater sampling locations below the limit of detection for EPA Method 8082
  - Measured flow is critical to understanding source contribution
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“Focused” Investigation
“Focused” Investigation

- Investigation Methods
  - Intermittent Sampling
    - Three composite sampling events (8 grabs per event) at six locations in south outfall with analysis by EPA Method 1668
  - SPMD Deployment
    - 32 day sampling period deployment at composite sampling locations with analysis by EPA Method 1668
  - Flow Measurement by Dye Tracing
    - Conducted during composite sampling events
“Focused” Investigation

### Average Composite Sampling Results

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Flow (MGD)</th>
<th>Concentration (pg/L)</th>
<th>Mass Rate (mg/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH-16</td>
<td>0.22</td>
<td>6,833</td>
<td>5.6</td>
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<tr>
<td>MH-21</td>
<td>0.79</td>
<td>7,510</td>
<td>22.5</td>
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<tr>
<td>MH-24</td>
<td>1.34</td>
<td>3,757</td>
<td>19.1</td>
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<tr>
<td>MH-35</td>
<td>1.99</td>
<td>2,083</td>
<td>15.7</td>
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<tr>
<td>MH-41</td>
<td>2.03</td>
<td>3,983</td>
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<tr>
<td>Outfall 004</td>
<td>1.98</td>
<td>2,680</td>
<td>20.1</td>
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## “Focused” Investigation

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Flow (MGD)</th>
<th>Concentration (pg/L)</th>
<th>Mass Rate (mg/d)</th>
</tr>
</thead>
<tbody>
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<tr>
<td>MH-21</td>
<td>0.79</td>
<td>50,154</td>
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<td>MH-24</td>
<td>1.34</td>
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<tr>
<td>MH-35</td>
<td>1.99</td>
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<td>MH-41</td>
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<tr>
<td>Outfall 004</td>
<td>1.98</td>
<td>9,205</td>
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</tbody>
</table>
### Sampling Results Comparison

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Composites (mg/d)</th>
<th>SPMDs (mg/d)</th>
<th>Mass Ratio (SPMD/Composite)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH-16</td>
<td>5.6</td>
<td>26.2</td>
<td>4.7</td>
</tr>
<tr>
<td>MH-21</td>
<td>22.5</td>
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<td>570.4</td>
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<td>Outfall 004</td>
<td>20.1</td>
<td>69.0</td>
<td>3.4</td>
</tr>
</tbody>
</table>
“Focused” Investigation

Investigation Observations

- Both methods identified a “jump” between MH-16 and MH-21
- Concentration estimates from SPMDs were consistently higher than composite sample results
- SPMD results appear to be less stable on a location to location basis than the composite sample results
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Path Forward

- Video Confirmed Sediment Present
  - Work plan submitted to Ecology for review
  - Plan implementation target is July – August
- Side by Side SPMD and Composite Sampling
  - 10, 20, and 30 day comparison periods
- Additional Investigation Work Plans
  - North outfall conveyance system sampling plan development
Kaiser Aluminum Trentwood

Questions?