RIFS 101: The Upper Columbia River Site

August 15, 2018

Tribal Lands and Environmental Forum 2018
Celgar Pulp Mill on the Columbia used untreated chlorine bleach process for 35 years

A source of Dioxin and Furan compounds found in fish tissue in the US
Area of Concern

Background

Teck Smelter

Former Colville Indian Reservation
Background
Background
Teck Smelter, Trail BC
“...finely divided, insoluble, lead blast-furnace slag carried far downstream into the United States (is) gross industrial river pollution ... constituting a question of water pollution of considerable importance.”

Tests Related to Pollution of the Waters of the Columbia River by Effluent from the Trail Smelter, Stewart W. Griffin, 1932.
Weathered Slag, USGS-CCT, 2004
## Expert Reports

Dr. Queneau provided the mass of these metals discharged by Teck from 1923 to 2005 (These are “minimum discharges and not include spills, storm water, etc...”)

<table>
<thead>
<tr>
<th></th>
<th>Slag</th>
<th>Liquid Effluent</th>
<th>Air</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>500,279</td>
<td>166,025</td>
<td>38,465</td>
<td>704,769</td>
</tr>
<tr>
<td>Lead</td>
<td>22,008</td>
<td>22,163</td>
<td>22,688</td>
<td>66,859</td>
</tr>
<tr>
<td>Arsenic</td>
<td>2,851</td>
<td>361</td>
<td>1,225</td>
<td>4,437</td>
</tr>
<tr>
<td>Cadmium</td>
<td>182</td>
<td>2,402</td>
<td>1,103</td>
<td>3,687</td>
</tr>
<tr>
<td>Mercury</td>
<td>n/a</td>
<td>198</td>
<td>97</td>
<td>295</td>
</tr>
</tbody>
</table>
Tribal Involvement

- Early 90’s federal, state, tribal entities & Lake Roosevelt Water Quality Council conduct baseline studies
- 1997-98 Tribes meet with State and Federal Agencies and Trustees to coordinate a comprehensive approach
- In 1999 Tribes petition EPA under CERCLA/Superfund to address sediment contamination
Upper Columbia River Site Processes

RI/FS
Remedial Investigation/Feasibility Study
“Clean Up”

NRDAR
Natural Resource Damage Assessment & Restoration
“Restore”

Litigation
Pakootas Vs. Teck
“Litigation”
<table>
<thead>
<tr>
<th>Remedial Investigation (RI/FS)</th>
<th>Litigation</th>
<th>Natural Resource Damage Assessment (NRDA)</th>
</tr>
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<tbody>
<tr>
<td>• In 1999 CCT petitions EPA to assess UCR, EPA concludes this is a Superfund caliber site and begins government lead RI/FS</td>
<td>• CCT initiates litigation to enforce EPA UAO in 2004</td>
<td>• CCT pushes Trustees to form and begin NRDA work early on</td>
</tr>
<tr>
<td>• EPA issues UAO to Teck after Teck walks away from negotiations to fund assessment under US law but DOJ won’t prosecute</td>
<td>• Key pre-trial findings:</td>
<td>• 2007 Trustee Council formed, conduct Preliminary Assessment Screen (PAS)</td>
</tr>
<tr>
<td>• Litigation prompts a Teck-Bush Administration agreement, with no provisions for cleanup.</td>
<td>~US has jurisdiction</td>
<td>• Teck presents Settlement Proposal for NRDA which lacks critical elements including important tribal-cultural resources related injuries</td>
</tr>
<tr>
<td>• Teck leads Ecological Risk Assessment, implements their own litigation, liability strategies, conducts Surface water and Beach studies to reinforce their own litigation stance</td>
<td>~Teck will be held to “joint and strict liability if they are found liable</td>
<td>• Currently waiting a Ninth Circuit decision on Cost Recovery and Phase I and II decisions.</td>
</tr>
</tbody>
</table>
Remedial Investigation/Feasibility Study (RI/FS)

Under the Teck-US Settlement Agreement
Teck is lead for Ecological Risk Assessment
EPA is lead for Human Health Risk Assessment

Goals of an RI/FS:
• Determine Nature and Extent of contamination
• Conduct Human Health and Ecological Risk Assessments
• Establish cleanup levels based on risk and applicable or relevant and appropriate standards (ARARS)
• Consider/analysis of remedial action alternatives
• Then implement remedial action – clean it up
RI/FS Sampling/Studies Conducted and Ongoing

- Completed
  - Tribal and recreational use surveys
  - Fish tissue study
  - Sturgeon
  - Surface water study
  - Beach studies
  - Bossburg study

- Ongoing
  - Sediment study
  - Soil sampling (residential and upland soils)
  - Plant Study
  - Fish Tissue Studies (Pike and Sturgeon)

- Upcoming
  - Benthic studies
  - Additional studies as needed based on results
  - Human health risk assessment
  - Ecological risk assessment
Upper Columbia River Tribal Consumption and Resource Use Survey

- Remedial Investigation/Feasibility Study (RI/FS)
- Potential Exposure Pathways from Resource Use
- Site specific data-How do we use these resources (food/non-food)
Survey Information

- The UCR Resources Survey is one of the largest ever done with a Tribal population
- Total of 5,469 surveys administered
- All surveys administered by Tribal Employees (24 Enrolled members and 2 descendents)
Results

2/3 of the people who were picked for the survey reported that they consume and/or use local resources three or more times per week.
Avoidance of Resource Use

- 1,421 people responded affirmatively that they refrained from using or avoided any resources from the Upper Columbia River or Lake Roosevelt.
- The 993 people who avoid any resources or activities because of contamination or pollution specified that they avoid the following:
  - Fish: 97.55%
  - Activities: 26.85%
  - Animals other than fish: 19.31%
  - Plants: 12.90%
### Pacific Northwest Fish Dietary Information, g/day

<table>
<thead>
<tr>
<th>Group</th>
<th>Median</th>
<th>90th Percentile</th>
<th>95th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tulalip</td>
<td>45</td>
<td>186</td>
<td>244</td>
</tr>
<tr>
<td>Suquamish</td>
<td>132</td>
<td>489</td>
<td>796</td>
</tr>
<tr>
<td>Squaxin Island</td>
<td>42</td>
<td>193</td>
<td>247</td>
</tr>
<tr>
<td>CRITFC Tribes</td>
<td>40</td>
<td>113</td>
<td>176</td>
</tr>
<tr>
<td>Asian / Pacific Islanders</td>
<td>78</td>
<td>236</td>
<td>306</td>
</tr>
<tr>
<td>UCRRS Adults, using 90% portion size:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Fish Eaters (All / CCT only)</td>
<td>20 / 21</td>
<td>93 / 136</td>
<td>129 / 185</td>
</tr>
<tr>
<td>UCRRS Adults, using 90% portion size:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Fish Eaters (All / CCT only)</td>
<td>80 / 105</td>
<td>395 / 384</td>
<td>405 / 436</td>
</tr>
</tbody>
</table>

Ecology’s “Fish Consumption Rates Technical Support Document” supports an FCR for the State of Washington between 157 to 267 grams per day.
Raw Fish Grams
Cooked Portions
Plant Study
Sturgeon Fishery Open 2017
Sturgeon at all life stages are being exposed to slag (see pictures)

- Sturgeon embryo covered in slag
- Larval sturgeon with ingested slag
- Slag from juvenile sturgeon stomach
2014 Residential Soil Sampling Clean Up
2014 Residential Soil Sampling Clean Up
Natural Resource Damage Assessment (NRDA)

- **Pre-assessment Phase** – determine appropriateness of proceeding
- **Assessment Phase**
  ~ notify responsible parties
  ~ develop assessment plan
  ~ injury determination
  ~ injury quantification
- **Post Assessment Phase**
  ~ report of assessment
  ~ demand to responsible parties
  ~ restoration plan development
  ~ implement plan – restore injured natural resources
UCR Trustee Council

- Department of Interior
- Department of Ecology, Lead Administrative Trustee
- Spokane Tribe of Indians
- Confederated Tribes of the Colville Reservation
  - Trustee Representative: Gary Passmore
  - Trustee Alternate: Cindy Marchand
  - Authorized Official: Cody Desautel
UCR Trustee Council

- Tribal Service Loss Study
Northport residents renew calls for air monitoring after state modeling says a Canadian smelter is polluting their town

UPDATED: Sat., March 17, 2018, 6:45 p.m.

http://www.spokesman.com/stories/2018/mar/16/northport-residents-renew-calls-for-air-monitoring/#/0
Questions?