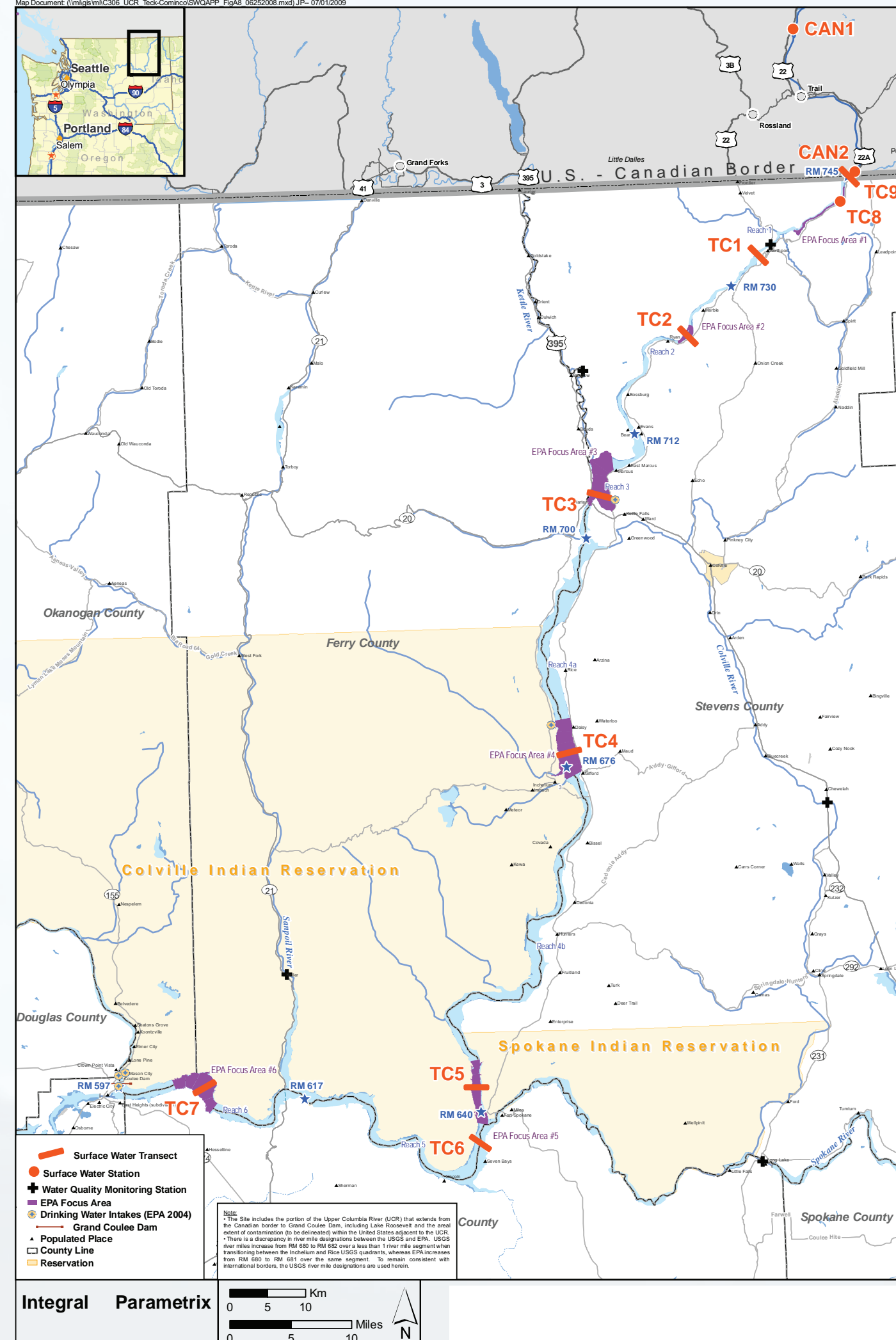


INTRODUCTION

- EPA is studying hazardous waste contamination in the Upper Columbia River (UCR) from the U.S./Canada border to the Grand Coulee Dam and surrounding upland areas. The study is called a Remedial Investigation and Feasibility Study (RI/FS).
- Screening level evaluations have been completed, a workplan developed, and studies are underway to inform a Human Health Risk Assessment (HHRA) and Baseline Ecological Risk Assessment (ERA).



Map of surface water sample areas in 2009/2010.

WHEN WILL THE RI/FS BE DONE?

- Finishing the RI/FS will take several more years.
- Even after the key field studies are complete, EPA and Teck American Inc. (Teck) have a lot of work to do, including:
 - Human Health Risk Assessment
 - Ecological Risk Assessment
 - Remedial Investigation and Feasibility Study Reports
- Current schedule: working toward 2016.

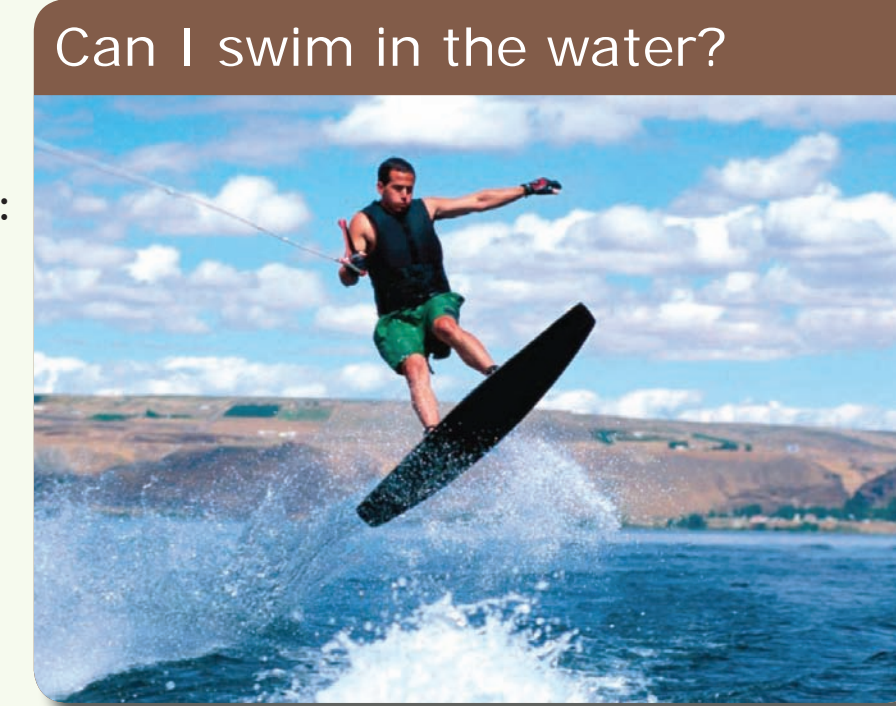
WHERE CAN I LEARN MORE?

- EPA's web site
<http://yosemite.epa.gov/RI0/CLEANUP.NSF/sites/Upperc>
- The Lake Roosevelt Forum's RI/FS Guide
<http://www.lrf.org/Env/Env-Sediment.html>
- Teck's project web site
<http://www.ucr-rifs.com/>
- Join the Citizens for a Clean Columbia. They are closely following the RI/FS process and have regular meetings where you can learn more and get involved.
<http://cleancolumbia.org/ccf/default.asp>

DONE

Surface Water

Three rounds of sampling showed that the water is safe to swim in, but please keep in mind: Some samples of very muddy water from the site failed drinking water standards in some places. EPA will examine this risk more closely in the Human Health Risk Assessment.



Can I swim in the water?

- EPA's sampling looked only at contaminants, not at bacteria. It is not safe to drink water from the Columbia River without treating it first, because it may contain Giardia (which causes beaver fever).
- The National Park Service provides safe drinking water from pumps at campgrounds and boat ramps.
- If you do use water from the river for drinking, collect clear (not muddy) water and be sure to filter or boil it.

Fish Sampling



Can I eat the fish?

- It depends on the species.
- Kokanee and rainbow trout are safe to eat.
- Limit consumption of burbot, suckers, mountain whitefish, bass and walleye.
- Northern pikeminnow (squawfish) have a statewide advisory due to high contaminant levels and are not safe to eat.

Advice on eating fish from the UCR is available from the Department of Health Fish Advisory.
<http://www.doh.wa.gov/ehp/oeahs/fish/fishadvisories.htm>

Beaches



Can I play on the beaches?

- Yes. Except for one beach, all of the beaches we sampled are safe for recreational use.
- The Bossburg Flat Beach is contaminated with lead and is not safe. The Park Service has closed the Bossburg Flat Beach.
http://l.usa.gov/NPS_Bossburg

For further information, see EPA's Upper Columbia River Beach Sampling.
http://www.epa.gov/region10/pdf/sites/ucr/UCR_fish_water_sampling_fs_4-23-2011.pdf

EPA's evaluation looked only at recreational use of the beaches. Other scenarios, such as workers or people living on the beach year-round will be evaluated as part of the Human Health Risk Assessment.

UNDERWAY

Sturgeon Studies

- Two tests were performed in 2010 with newly hatched white sturgeon fry.
- The survival and growth of fish exposed to sediments collected from the UCR were studied by the University of Saskatchewan.
- Effects of metals (cadmium, copper, lead, and zinc) in water on fish survival and growth were studied by the United States Geological Survey.
- Reports should be available by December 2012.
- EPA and Teck will consider the findings from both studies in the Ecological Risk Assessment.

Are sediments or water harmful to sturgeon?



Recreational Use Survey

- The National Parks Service conducted interviews at camp grounds, beaches, and boat ramps.
- Survey asked about how long visitors stay and what they do while at the site (camp, fish, swim).
- The survey included a diary program for fishermen who report eating fish regularly from the UCR.
- A report should be available by December 2012.
- Results will inform the Human Health Risk Assessment by determining how recreational visitors are exposed to contaminants.

How are people exposed through recreational activities?



Colville Tribes Exposure Survey

- Conducted by the Confederated Tribes of the Colville Reservation and EPA.
- Survey teams interviewed people who live on the Colville Reservation.
- Teams collected information about what people eat, where they get their food, how much food is collected locally and other practices that could expose people to contaminants.
- A report should be available by December 2012.
- Results will inform the Human Health Risk Assessment by determining how people on the Colville Reservation are exposed to contaminants.



STILL TO DO

Sediment Toxicity

- Study will collect sediment from the bottom of the river.
- Sediment will be tested for chemicals.
- In addition, sediment toxicity will be tested by placing sediment-dwelling animals (like worms) in chambers with the sediment to see whether the sediment kills the animals, reduces their growth, or makes them unable to reproduce.
- Currently planned for September 2012/2013.
- More than one round of sampling may be required.

Are sediment-dwelling animals at risk?



Photo credit: Doug Hardesty/USGS

Sediment-dwelling-animal Study

Are there contaminants in food from the UCR?



- Study will collect worms, larval insects, and mussels from Upper Columbia River sediments.
- Animal tissues will be measured for contaminants.
- Results will inform the Ecological Risk Assessment – for example, probing birds feed on mud-dwelling animals and this data will help us assess risk to birds.
- Results will also inform the Human Health Risk Assessment – people might eat mussels from the site.
- Study planned for 2013.

Upland Soil Chemistry

- Study will look at contamination from smelter stack emissions in soils.
- Results will be compared to background concentrations and soil risk thresholds for invertebrates and wildlife.
- Planned for 2013.

Are soils harmful to bugs and wildlife?

