

GENERAL OBSERVATIONS

The U.S. Fish and Wildlife Service/National Contaminant Biomonitoring Program (USFWS/NCBP) was conducted during 1980-1981. The National Water-Quality Assessment Program (NAWQA; 1992-1994) re-assessed organochlorine contaminants which tend to sorb onto carbon and fine sediments; i.e., conditions that exist in some reaches of the Portneuf (Maret and Ott, 1997). Therefore, if we reduce fine sediments via TSS reductions, there should be a positive effect in relation to some other, sediment-related pollutant concentrations.

Lower Portneuf River Preliminary Assessment/Site Inspection. TDD: 04-05-0007. Conducted by Ecology and Environment, Inc. September 2005.

Surface Water Samples:

Background surface water samples taken at Clear Creek delta at American Falls Reservoir and Portneuf River upstream of phosphate plants. There were no detections of Target Analyte List metals (TAL), Volatile Organic Compounds (VOC), Semi-volatile organic compounds (SVOC), pesticides, or polychlorinated biphenyls (PCB).

Co-located 13 sediment and water samples taken along 11-mile length of Portneuf downstream of Eastern Michaud Flats (EMF). Took 2 samples upstream of EMF.

Surface Water samples had no elevated VOCs, SVOCs, pesticides, PCBs, except silver was elevated in vicinity of LP10 (near Simplot plume entering river) at 39.5 ug/L. Some elevated radionuclides Ra-226, I-131

Sediment samples: Cadmium (1.3 mg/kg), Hg elevated at 1 delta sample (0.38 mg/kg), Cadmium also in only 2 river sample ≥ 6.6 miles upstream (up to 1.5 mg/kg). Our Cadmium screening level for sediment = 14. Manganese elevated in 4 of 5 delta samples (to 311 mg/kg), but not in river samples

Nickel (up to 9.2 mg/kg) and vanadium (up to 14 mg/kg) elevated in 12 of 13 river samples, including upstream samples. Copper elevated in 1 river sample (LP08SD; 18.7 mg/kg).

some radionuclides in 4 of 5 delta samples, only Lead 210 at 1 river sample (LP09SD)

Background Sediment samples: 8 TAL metals detected at the Clear Creek delta, 7 TAL metals at the upstream of phosphate plants Portneuf River site. No VOCs, SVOCs, pesticides, or PCBs were found above detection limits.

The authors commented in the summary and conclusion section that excessive algal growth in river sites may be a result of excessive nutrients.

EPA recommended NO FURTHER ACTION based on their review of this report.

Union Pacific Railroad (UPRR) Site Investigation -2006

Surface Water samples:

Surface water samples were taken from Pocatello storm drain outfalls during a single storm event and Cheyenne Crossing and Gibson Jack as background samples. Some Total Petroleum Hydrocarbon (TPH - an overall measurement of many constituents found in gas and diesel), VOC, and polycyclic aromatic hydrocarbons (PAH) were detected in outfall samples. The report states that the background samples were

similar, but all background PAH detections are listed as less than a detection value, or are flagged with a “J”, meaning that they’re somewhere between the minimum reporting limit and minimum detection limit. Therefore, there are no background samples with clearly measured results. These types of results are fairly common when there are other constituents interfering with or complimenting the detection of the target constituent.

Manganese was the only metal that had consistent detections that were not flagged as suspect in some manner: SW-3 = 0.1 mg/L. At background sites Mn was detected at 0.035, 0.006 mg/L at SW-5 and SW-6, respectively.

Dissolved phosphorus ranged from 0.19 – 0.33 mg/L in the outfalls.

Sediment Samples:

Some Total Petroleum Hydrocarbon was found at all sites – highest at SED-2 (immediately upstream of the former Union Pacific Railroad waste water treatment plant [WWTP]outfall) and SED-3 (immediately downstream of the former Union Pacific Railroad WWTP outfall) at 21 and 9.2 mg/kg, respectively. Also at SED-4, SED-5 (Cheyenne Crossing and Gibson Jack Creek, respectively) at 1.9 and 1.1 mg/kg, respectively.

Metals – Silver was found at 1.4 - 4.7 mg/kg, with the highest values at background sites. All other metals were measured at less than preliminary remediation goals (PRGs – concentrations set by EPA as initial, conservative screening values).

There were no detections of VOCs at concentrations greater than PRGs.

SVOCs – benzo(a)pyrene was detected at SED-2 and SED-5 (immediately upstream of the former UPRR WWTP outfall and Gibson Jack Creek, respectively) at 5.4 and 4.3 ug/kg, respectively. These concentrations are greater than PRGs.

Total phosphorus ranged from 270 – 810 mg/kg in sediment samples.

National Water Information System data from United States Geological Survey 1970-1996 – includes National Water-Quality Assessment Program (1992-1994)

General observations – Some detection limits are greater than current IDEQ criteria. For example – the minimum detection limit (MDL) for cadmium = 1 microgram/L in most of these data; however, the IDEQ chronic criteria (CCC) for cadmium is 0.6 microgram/L.

TOPAZ

Few water samples have been analyzed for toxics, mostly biota and sediment.

Of those constituents for which Idaho has standards or guidance, all sample concentrations were less than the criteria.

Selenium water concentrations were less than the criteria of 0.005 mg/L. Selenium biota tissue was less than the 7.9 mg/kg possible target under consideration.

Other metal concentrations were less than action levels (action levels were used in the SE ID phosphate mining studies to determine where more work was needed for characterization and/or clean up)

No DDE in biota (DDE is a contaminant of commercial DDT preparations and break down product of DDT – no application or use). PCB was found in one biota sample

POCATELLO

Selenium water concentrations were less than 0.005 mg/L. Selenium biota tissue samples were less than 7.9 mg/kg, which is a possible target under consideration at this time. Other metals occurred at less than action levels (action levels were used in the SE ID phosphate mining studies to determine where more work was needed for characterization and/or clean up).

PAHs (associated with petroleum) were present in some sediments and in biota. PCB was in greater concentrations in biota than at Topaz. There was elevated PCB in one sediment sample at Pocatello, versus a non-detect in a similar sample taken at Topaz

Some DDE in biota (DDE is a contaminant of commercial DDT preparations and break down product of DDT – no application or use).

There were many metals analyses conducted along with analyses for other constituents. Focusing on metals, there were very few exceedences of standards (where standards exist). There were exceedences for mercury at Topaz (1.3 mg/kg wet weight), zinc at Marsh Creek (140 micrograms/L), and cadmium at Pocatello (1 micrograms/L). Concentrations in numerous other samples for the same constituents were less than existing standards.

TYHEE

There were some lead detections at greater than 2.5 micrograms/L, but not since 1991. Data is mainly for water samples at this site.

MARSH

1990 and 1991 zinc samples were near or greater than the criteria for water. Data is mainly for water samples at this site.

PEBBLE

There was no sampling for toxic chemicals under NWIS.

REFERENCES

- Hardy M. A., D.J. Parlman, and I. O'Dell. 2005. Status of and changes in water quality monitored for the Idaho statewide surface-water-quality network, 1989-2002: U.S. Geological Survey Scientific Investigations Report 2005-5033.
- Maret, T.R., and Ott, D.S., 1997, Organochlorine compounds in fish tissue and bed sediment in the upper Snake River Basin, Idaho and western Wyoming, 1992-94: U.S. Geological Survey Water-Resources Investigations Report 97-4080, 23 p.
- U.S. EPA. 2005. Lower Portneuf River preliminary assessment/site inspection. Pocatello, Idaho. TDD: 04-05-0007. Region 10 U.S. EPA Superfund Technical Assessment and Response Team. 1200 Sixth Avenue, Seattle, WA 98101