2013 Flood Recovery Monitoring Program
Water Quality Report – Ambient and Treated Water
(July 12, 2013)

Synopsis

In response to the recent flood events, Environment and Sustainable Resource Development has developed enhanced water quality programs for both ambient (raw) water quality and treated drinking water quality as described below.

Treated drinking water is subject to normal operations and standards. ESRD continues to work with the water treatment plant operators to monitor drinking water quality. Any public health advisories are posted on Alberta Health Services website: http://www.albertahealthservices.ca/8648.asp .

Due to the flooding in Southern Alberta, it is still strongly recommended that Albertans not use the rivers for recreation because:

- Flows remain high and banks are highly unstable at this time.
- Low clarity of the water makes identification of hazards difficult.
- High levels of bacteria detected in untreated river water suggest a high potential for users to come into contact with water-borne pathogens.

Sampling of untreated river, stream and reservoir water found levels for monitored parameters that have been observed in the past under similar high flow conditions. All Protection of Aquatic Life guideline exceedances observed are long-term exposure guidelines, the observed levels will not cause, for example, acute fish mortality.

Untreated water from rivers, streams, lakes and reservoirs should never be used for drinking water.

Environment and Sustainable Resource Development is sharing all collected data results with Alberta Agriculture and Rural Development, Alberta Health, Alberta Health Services and Health Canada,

Details of the Enhanced Ambient Water Quality Monitoring Program

Post-flood water quality monitoring conducted the week of July 2 to 5, 2013 focused on the following water bodies:

- Bow River (4 sites);
- Highwood River (3 sites);
- Little Bow River (2 sites);
- Mosquito Creek (2 sites);
- Sheep River (3 sites);
- South Saskatchewan River (1 site); and
- Twin Valley Reservoir.

Preliminary Results from Untreated River, Stream and Reservoir Water Quality Monitoring

All nutrients (nitrogen and phosphorus), and the various ions (e.g., calcium, chloride, sodium, sulphate, Total Dissolved Solids) were within Alberta Surface Water Quality and Canadian Council Ministers of Environment guidelines (for aquatic life, contact recreation, livestock watering and irrigation). .Levels of turbidity (and Total Suspended Solids) were high, particularly at the Bow and South Saskatchewan river sites, reflecting that the continued high flows are still contributing to on-going bank erosion, suspension of bottom sediments and still contains sediment loading from overland runoff.

The three Bow River sites below Calgary, both Mosquito Creek sites and the South Saskatchewan River site had levels of fecal coliform bacteria and E. coli that exceeded Canadian Council Ministers of Environment guidelines for Protection of Agricultural Water Uses for irrigation and Recreational Water Quality guidelines for contact recreation which suggests that the water has come into contact with feces and it may have pathogens of concern for humans or fresh food safey. Fecal bacteria indicator levels were highest on the Bow River below Carseland and decline in a downstream direction to the South Saskatchewan River site at Medicine Hat. General bacteroides source tracking results show contributions of human sewage to the fecal bacteria load in the three Bow River sites downstream of Calgary and at the South Saskatchewan River sites. Highwood, Little Bow and Sheep river sites had fecal bacteria levels that meet all use guidelines.

Based on a scan of 69 pesticides, the Bow, Highwood, Sheep, South Saskatchewan rivers and Mosquito Creek sites, had from zero to two detections, none above published guidelines. The Little Bow River and Twin Valley Reservoir had a higher number of detections, from six to ten detections at each site with the herbicide MCPA being above the irrigation guideline value at two Little Bow River sites. For those sites where we have historical pesticide data, the results are within the normal range. Based on historical data, tributaries generally have higher levels of detection than the larger rivers.

For metals, there are exceedances of Protection of Aquatic Life chronic guideline values, notably Aluminum and Iron at most sites, with some new maximum values recorded. These are parameters known to be high during high runoff periods associated with high Total Suspended Solids, as presently occurring.

There were detections of hydrocarbons and Polycyclic Aromatic Hydrocarbons at all sites, though only one exceedance of the Protection of Aquatic Life guideline. The highest number of compounds detected occurred for the three sites below Calgary on the Bow, South Saskatchewan, and Sheep river sites.

For Further Details

A spreadsheet with the river, stream and reservoir data collected is available here: http://environment.alberta.ca/04221.html. A more detailed summary report of the monitoring results will be posted by July 19, 2013.

Additional monitoring is occurring and updated results will be posted before the end of July along with results from treated water sampling. Water quality in the irrigation districts is being monitored by Alberta Agriculture and Rural Development.

Health related Information for homeowners impacted by the flood is available here: http://www.albertahealthservices.ca/8644.asp .