Source Water Protection

Integrating with Existing Watershed and Water Management Frameworks

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There are multiple, competing land and water planning and research initiatives in Alberta’s watersheds – including Source Water Protection Planning.

Integration within these frameworks is the most effective way to ensure source water objectives are achieved.

EPCOR Water integrates through its adaptive Watershed Protection Program.
Watershed Management in Alberta

Regulations and Standards

- Source Water Protection Plans
  - Focus on drinking water
- Drinking Water Safety Plans
- Approvals and Environmental Performance Plans

Water for Life

- Safe, secure drinking water
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy

- Alberta Water Council
  - Water policy advice
- Watershed Planning and Advisory Councils
  - Water quality and watershed outcomes
- Sub-basin plans
  - Lake management plans
  - Sub-watershed plans

Cumulative Effects Management

- Land Use Framework
  - Enabled by Alberta Land Stewardship Act
- Regional Plans
  - Legislatively binding
- Water Quality Management Frameworks
  - Water quality outcomes
Multi-barrier Approach to Clean, Safe, Reliable Drinking Water

- Legislative and Policy Frameworks
- Monitoring
- Source Water Protection
- Drinking Water Treatment
- Drinking Water Distribution System
- Public Awareness and Involvement
- Guidelines, standards, and objectives
- Research, Science and Technology
- Management
- Clean, safe, reliable drinking water

PROVIDING MORE
Source Water Protection

- Watershed Delineation
- Inventory of Land-use Contaminants
- Vulnerability Assessment and Ranking
- Monitoring
- Partnerships
- Guidelines
- Public
EPCOR’s Approach

Watershed Management
Working in partnership to set objectives and targets for the watershed, water quality, and quantity and develop water policies that influence management.

Implementation
Supporting programs and organizations that implement programs to reduce contaminants entering source waters and ensure healthy aquatic environments and watersheds.

Research and Monitoring
Gathering scientific data on water quality and quantity, fostering collaborative long-term monitoring programs, evaluating source waters and effluent impacts, and participating in research partnerships.

Education and Awareness
Educating and informing industry, stakeholders, and the public of the importance of watershed protection and best management practices through strategic partnerships.
Watershed Management

- EPCOR’s Source Water Protection Plan
- North Saskatchewan Watershed Alliance
- Industrial Heartland Water Management Framework
- Alberta Water Council
- Regional Plan for the North Saskatchewan River
- Edmonton’s ‘Way We Green’ Plan
Implementation

- Clear Water Landcare - Rocky Riparian Group
- Alberta Low Impact Development Partnership
- Strawberry Creek Pilot Project
Research and Monitoring

- Land use and cover mapping
- Upstream monitoring program
- Water quality characterization
- Water quantity: climate change effects
- Water use: now and in the future
Research and Monitoring: Land Use

Land Cover Based on Satellite Imagery
Research and Monitoring: Land Use

Manure Production from Livestock

Manure Production (2005)
(tonnes per hectare)
- 0.0 - 0.5
- 0.6 - 1.6
- 1.7 - 2.6
- 2.7 - 3.9
- 4.0 - 7.8

Scale 1 cm = 19 km
Kilometers

Jasper
White Goat
Banff
Siffleur
Research and Monitoring: Land Use

Municipal Wastewater Treatment Systems
Research and Monitoring: Water Quantity

Water supply to the Capital Region: ~90% comes from 4 upper sub-basins

Trend↓ -1.4%/decade over 97 years

~2% of annual flow from glaciers

50% of annual flow to Sask - PPWB (1969)

7.2 Billion m³/yr
Research and Monitoring: Climate Change

- Reconstructed streamflow
- 15 year running average
- Wet years
- Dry years

Pre-settlement
Post-settlement

Streamflow (m$^3$/s)
(Water year Oct-Sept)

1100 1200 1300 1400 1500 1600 1700 1800 1900 2000

Years
Education and Awareness

Yours to Protect

What is a Watershed?
A watershed is the area of land that drains into a body of water. The quality of our drinking water which comes from the North Saskatchewan River is directly related to the activities conducted in the watershed by municipalities, industry, agriculture and recreation.

The North Saskatchewan River flows south from its headwaters in the Canadian Rockies through the Prairies and into Hudson’s Bay.

Keep our river clean
- Reduce the use of fertilizers, pesticides and herbicides.
- Do not dump materials into the gutters because they flow directly into the river.
- Clean up after your pets.
- Do not litter.

ENVIRONMENTAL HOTLINE
1-800-222-6514 TO REPORT A SPILL

RiverWatch

AWQA

Alberta Water Quality Awareness Day

North Saskatchewan Watershed Alliance
Atlas of the North Saskatchewan River Watershed in Alberta

PROVIDING MORE
Integrated Source Water Protection

- Way We Green
- Integrated Watershed Management Plan
- Source Water Protection Plan
- IH Water Management Plan
- Regional Plan

- NSWA
- Alberta Env
- Ag Canada
- Industry
- ENGOs
Thank You For Your Time

Any Questions?