

A Public Health Unit's involvement in the review of Environmental Impact Assessments and ongoing monitoring:

Uranium Mining Developments in Northern Saskatchewan

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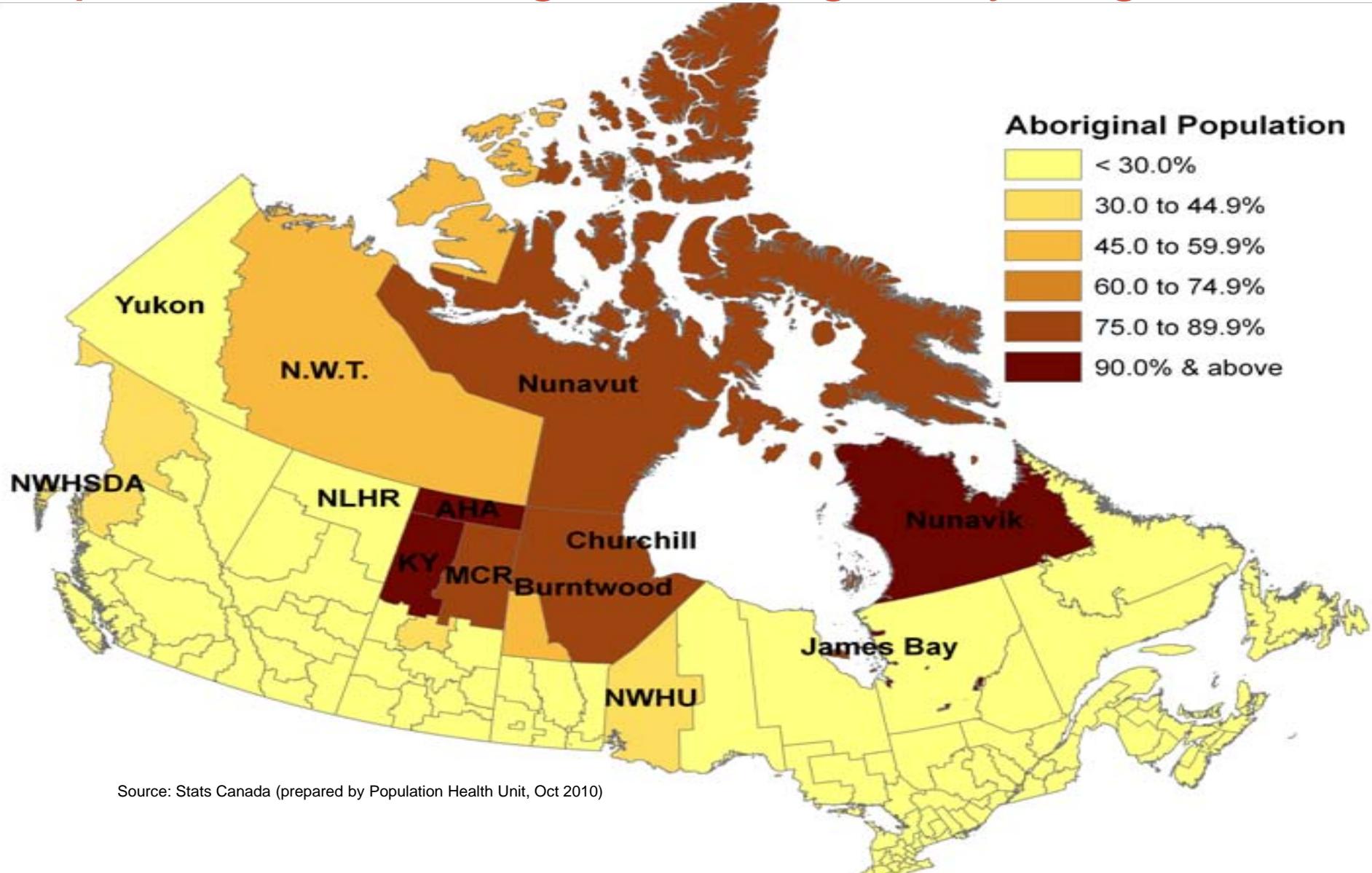


**2011 Northern
Sask Population:**

39,000

~ 70 communities

Population Percentage as Aboriginal by Region



Source: Stats Canada (prepared by Population Health Unit, Oct 2010)



History

Mining since the 1950s

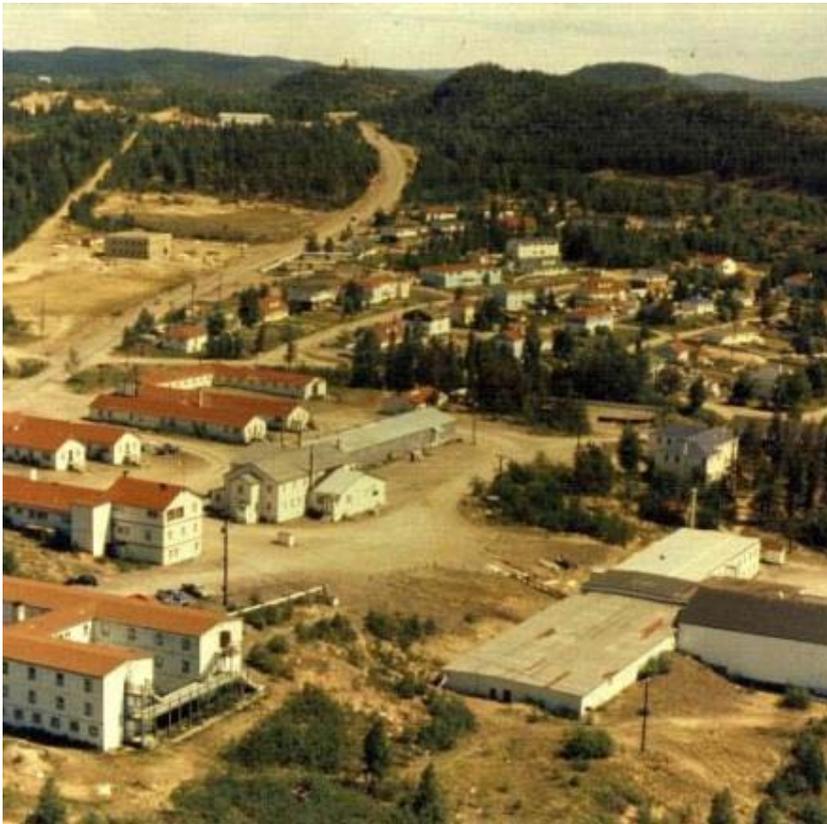


Legacy Sites:
abandoned/orphaned sites



Mine employees

Historical: Mining Towns



Now: Fly in / Fly out



Underground and Open-Pit Mines Mills



Present day mines



Remote Technologies





- June 2011, 3690 work at northern Saskatchewan uranium mines: 47% (1735) are “northerners”.
- 48% are of Aboriginal ancestry

Going about assessing health impacts in proposed projects

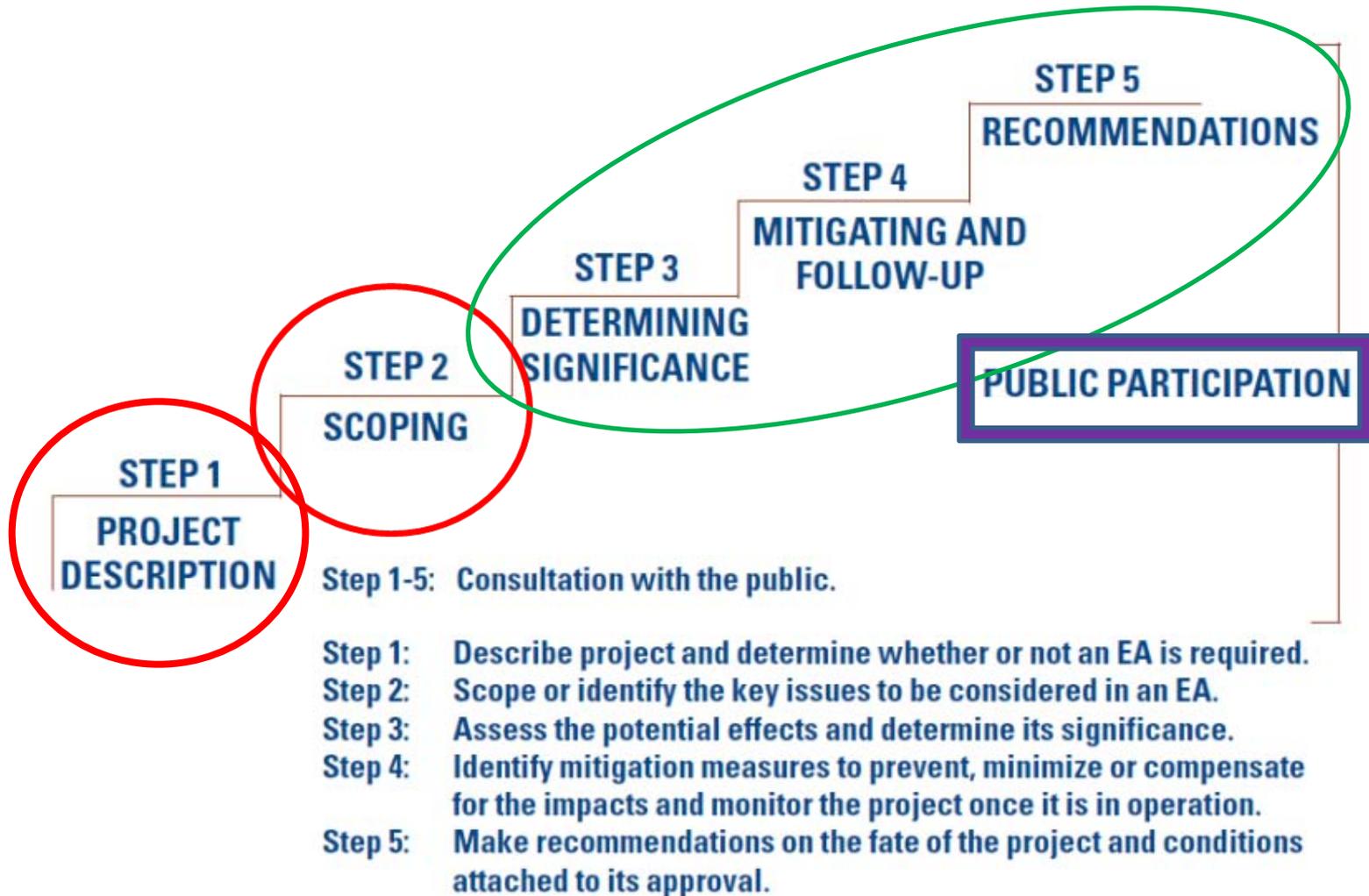


Environmental Assessment of Uranium mines

- Cluff Lake Inquiry - 1976
- Key Lake Inquiry - 1979
- Joint Federal – Provincial Panel on Uranium Mining Development – 1990s
 - Cluff Lake mine (extension)
 - McClean Lake mine and mill
 - Midwest mine
 - McArthur River mine
 - Cigar Lake mine
- EIA's for alterations, additions, expansions
- New mine developments



Generic Steps Taken in an EA



Project Description vs. Environmental Impact Statement



The Team



SEARP

Saskatchewan Environmental Assessment Review Panel

- Agriculture
- Education
- Energy and Resources
- Enterprise and Innovation
- Environment
- Finance
- First Nations and Metis Relations
- Health
- Highways and Infrastructure
- Labour Relations and Workplace Safety
- Municipal Affairs
- Saskatchewan Water Corporation
- Saskatchewan Watershed Authority
- Social Services

Health Units

- MHO
- PHI / EHO
- Others
 - Epidemiologist
 - Public Health Manager
 - Primary Care Manager
 - Acute & Emergency Services
 - Emergency Measures Coordinator

Federal Process

- Health Canada
- CNSC
- Others

Approaches to Proposals and Environmental Impact Statements

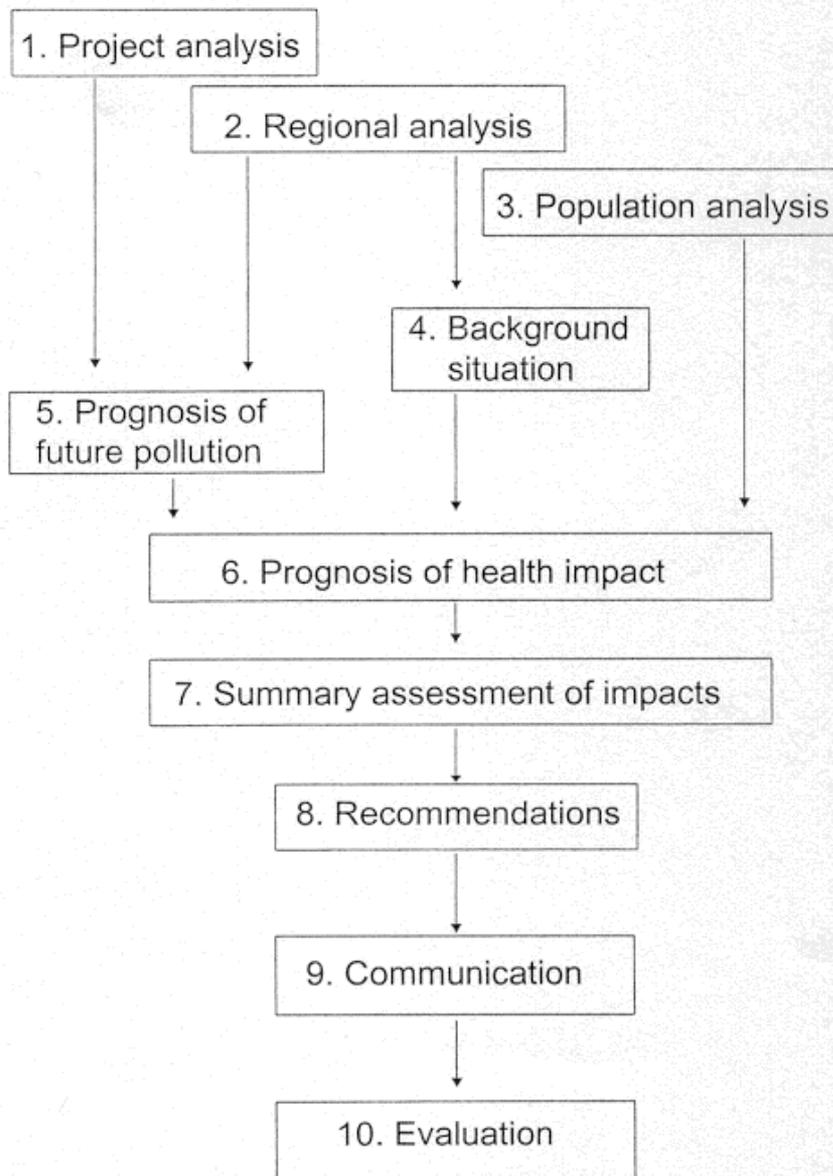


Regulatory Approach

Physical health from environmental change

Integrated / Social / Environmental Health Impact Assessment

EHIA – 10 Step Approach





Physical Environment

- Air
- Water
- Soil
- Food
- Traffic
- Built



Socio-economic

- Income / Social Status
- Employment
- Education
- Business / economic development
- Social environments
- Health services



Land / Resource Use

- Land us for traditional purposes
- Hunting, Trapping, fishing
- Tourism
- Heritage resources



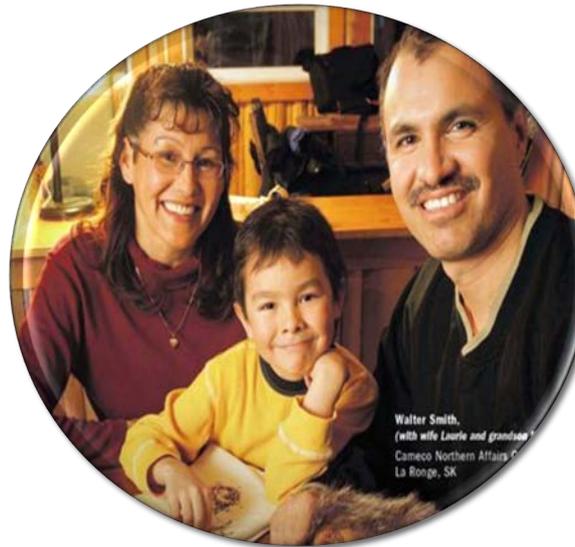
Construction Phase

Operation Phase

Decomission and Post



MONITORING: Potential Pathways To Human Health Impacts



Walter Smith,
(with wife Earle and grandson)
Cameco Northern Affairs
La Ronge, SK



Worker's health & safety

Animals, fish, plant foods



Family's socio-economic conditions



Air, water, soil

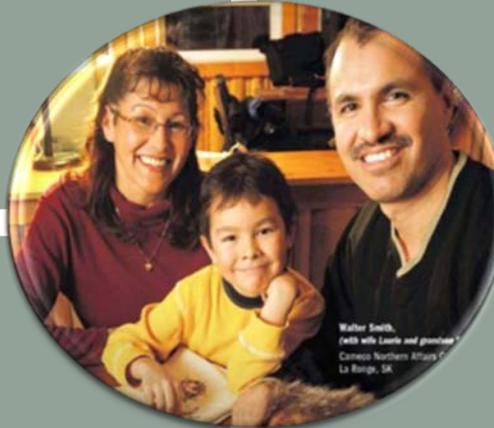


Community's socio-cultural-economic factors

Many other factors affecting our communities

- Background environment
- Housing, water & sewage
- Smoking

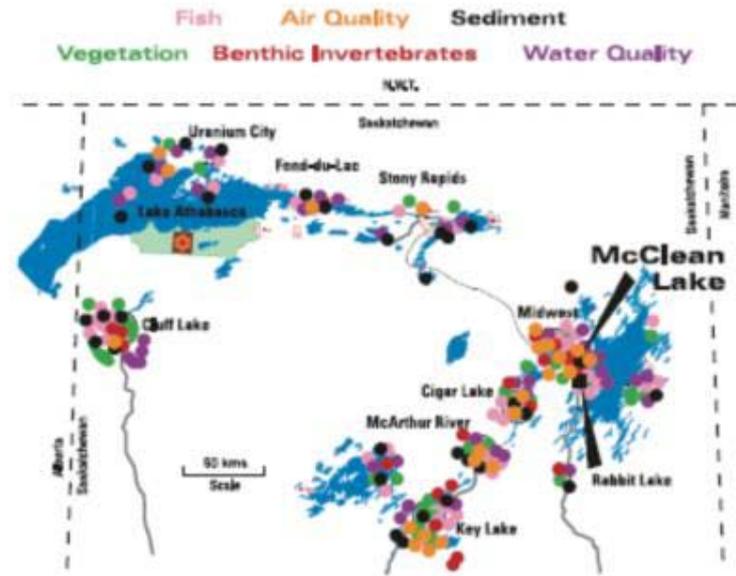
- Social changes
- Incomes
- Education



- Communications
- Television
- Internet

- Transportation
- Road / air access

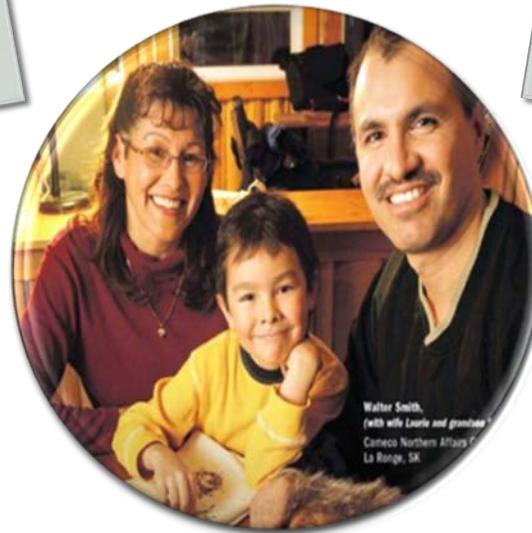
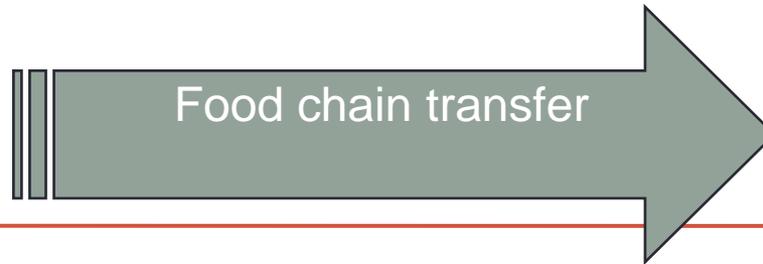
Environmental monitoring: air, water, & sediment around mines and near communities



Environmental monitoring locations.



MONITORING COUNTRY FOODS



Radionuclides and Trace Metals in Northern Saskatchewan Country Foods

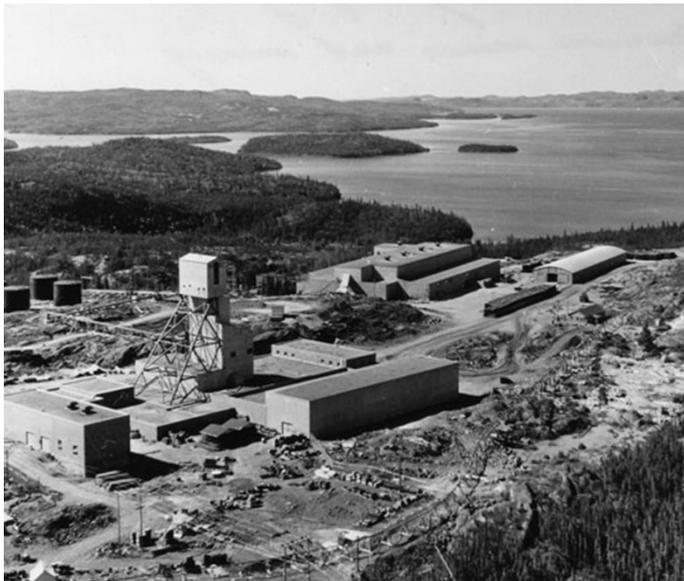


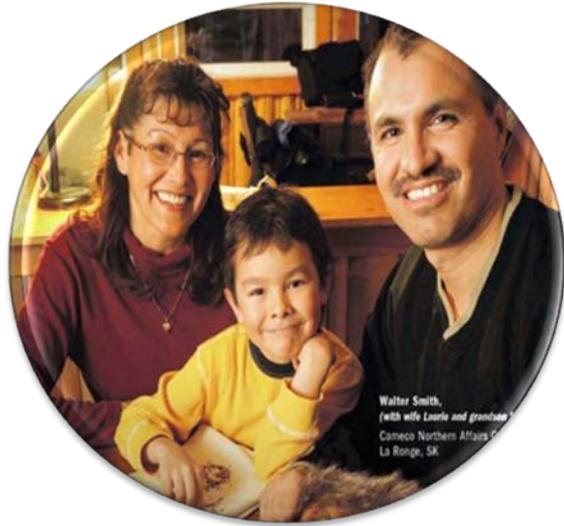
Country food consumption surveys

- Hatchet Lake First Nation
 - 1998-1999
 - Site specific dietary information
 - Comprehensive, summer and winter
 - By age, gender
 - By food, body part, cooking process
- Uranium City
 - 2010-2012

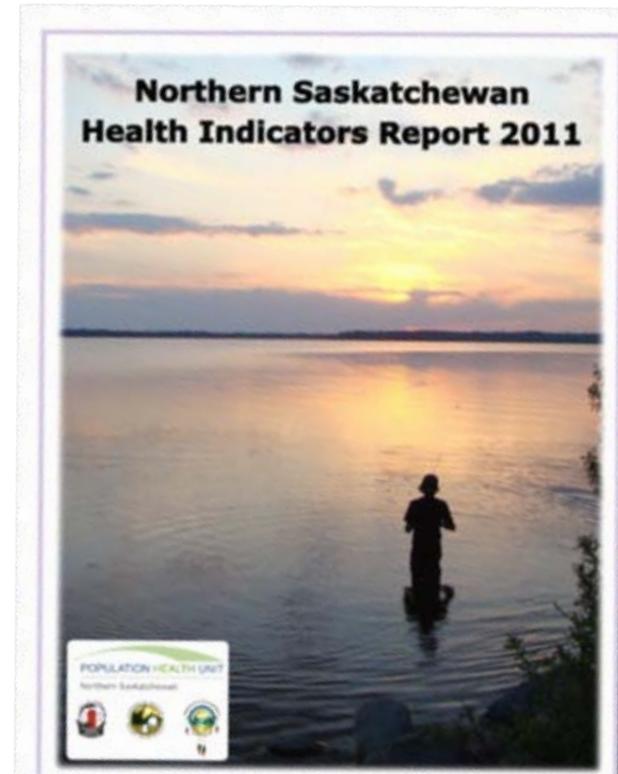
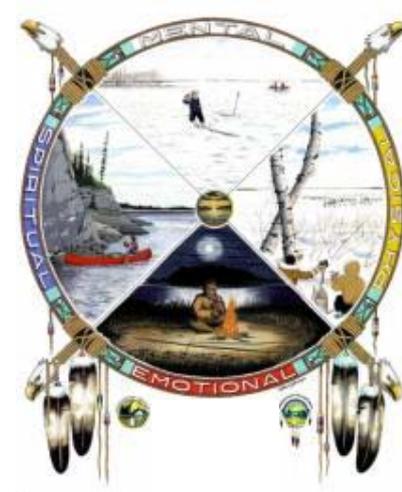
Mine Workers: Uranium Mine Workers Epidemiologic Study

- Old Mines
 - Eldorado (1932 to 1982)
- Modern mines
 - 1982 to 2030





Monitoring community health



Social Health: Community Vitality Monitoring Partnership



Projects:

- Migration Survey
- Healthy Food Costing
- Northern Youth Initiatives
- 7 in / 7 out work schedule impact on individual, family & community
- Athabasca Education
- *Career Counseling Initiatives in Schools*
- *Northern Recognition*
- *Socio-economic impact of uranium mining*

Community Involvement

- Northern Environmental Quality Committees
- Community Consultation
- Participant Funding





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