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Global Forest Watch Canada Makes Available Tar Sands Database for Researchers – "Environmental Impacts of the Tar Sands Industry in Northeastern Alberta: A Database"

(30-July-2010). Greenpeace, Sierra Club Prairie, Keepers of the Athabasca and Global Forest Watch Canada today released databases compiled by prominent scientist Dr. Kevin Timoney, one with more than 6,500 incidents, regarding tar sands operations that raise serious concerns about how companies are allowed to operate in this province by the Alberta government.

Peter Lee, Executive Director of Global Forest Watch Canada states, "Previous scientific publications have stated that 'The extent to which pollution from tar sands industrial activities in northeastern Alberta, Canada affects ecosystem and human health is a matter of growing international concern.' In spite of that concern, there are to date no comprehensive, peer-reviewed assessments of the cumulative impacts of tar sands development."

The release today of "Environmental Impacts of the Tar Sands Industry in Northeastern Alberta: A Database", compiled by Dr. Kevin Timoney and researcher Geoff Kershaw is an important contribution to the public availability of a searchable database of thousands of pollution-related "incidents" in the tar sands.

"There is a paucity of relevant data available to the public. Scientifically-independent data are difficult to obtain because tar sands leases, while public lands, are administered as private property, patrolled by security; public ground access is prohibited," concludes Peter Lee.

The purpose of this library research project is to create a collection of tar sands-related information that can provide useful primary data to scientists and the concerned public.

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Points of Interest from: *Timoney Kevin P, and Peter Lee. 2009. Does the Alberta Tar Sands Industry Pollute? The Scientific Evidence. The Open Conservation Biology Journal, 2009, 3, 65-81. Available at: www.globalforestwatch.ca OR www.bentham.org/open/toconsbj/openaccess2.htm*

This research paper reports on the analysis of a diverse set of environmental data on water and sediment chemistry, contaminants in wildlife, air emissions, pollution incidents, traditional ecological observations, human health, and landscape changes from the Athabasca Tar Sands region, Canada.

The study documents how government agencies and energy companies have failed to provide timely, accurate and comprehensive environmental studies. The industry-led Regional Aquatics Monitoring Program was found unable to measure and assess development-related change locally or in a cumulative way.
This research paper answers this question: "To what degree are tar sands industrial activities detectable in the ecosystems of northeastern Alberta?" in four ways.

1. Do present levels of contaminants, regardless of origin, present an ecosystem or human health concern? Yes. Data indicate that contaminants of concern include PAHs, mercury, and arsenic in the lower Athabasca River system and air pollutants.
2. Is there evidence of increased levels of contaminants when sites downstream of industry are compared to sites upstream of industry? Yes. Increased levels of PAHs in the Muskeg River and of porewater metals in the Athabasca River are examples.
3. Is there evidence of increased levels of contaminants over time? Yes. Data indicate increased levels of PAHs in sediment, of mercury in fishes, of arsenic in water and sediment, and of criteria air contaminants such as PM2.5, VOCs, and sulphur dioxide. Increased rates of fish abnormalities have been observed by local fishermen.
4. Are there documented incidents of industrial pollution or degradation? Yes. Examples include spills in 1967-68, 1970, 1982, and 2007 into the Athabasca River. Pollution from the Alsands Ditch led to elevated levels of sulphate, cations,

and various metals in the Muskeg River. Large numbers of birds die each year due to exposure to tailings ponds. Native biota have been obliterated from 65,040 ha of boreal landscape.

Other key points:

- Pollution from tar sands activities derives from eleven sources:
  1. Permitted (licensed) discharges to air and land;
  2. Seepage from tailings ponds;
  3. Evaporation from tailings ponds;
  4. Leaks from pipelines;
  5. Major spills of bitumen, oil, and wastewater;
  6. Stack emissions;
  7. Windblown coke dust,
  8. Windblown dry tailings, and
  9. Windblown tar sands dust;
  10. Outgassing from mine faces; and
  11. Ancillary activities such as transportation, construction of mines, ponds, roads, pipelines, and facilities, and landscape dewatering
- The evidence reveals ecological and environmental health impacts from tar sands exploitation. Industry and government have thus far neglected to provide such information to the public.
- Present levels of some contaminants from tar sands development pose a human health risk. Elevated levels of mercury and arsenic in the local fishes pose a dilemma due to the nutritional value of fish and the traditional-cultural and economic importance of fish to Ft. Chipewyan residents.
- The study found that air particulates pose health concerns, as they contain not only organic contaminants such as PAHs but also a suite of metals such as vanadium and arsenic.
- For years, the people of Ft. Chipewyan have believed that they are suffering increased rates of cancer, diabetes, and heart problems. Recent studies have found that incidences of several forms of cancer, type II diabetes, lupus, renal failure, and hypertension are elevated in Fort Chipewyan.
- Between 1992 and 2008, the extent of tailings ponds grew by 422% while the extent of mine pits, facilities, and infrastructure grew by 383%. These ecosystem conversions have resulted in the loss of many tens of thousands, and perhaps hundreds of thousands of birds, in addition to losses of other wildlife species.
- Given the 40-year history of licensed and unlicensed discharges into air, soil, and water, the 'baseline' predevelopment condition of the Athabasca River may have been lost long ago. Presently, we cannot quantitatively apportion contaminant levels into natural and industrial sources.
- The attention of the world's scientific community is urgently needed. The extent to which tar sands pollutants are affecting ecosystem and public health deserves immediate and systematic study. Short of this, the projected tripling of tar sands activities over the next decade may result in unacceptably large and unforeseen impacts.

Examples from the Tar Sands Database:

Releases of Process-affected and Industrial Wastewaters

The claim that the tar sands operations releases no process-affected and industrial wastewaters into the environment requires scrutiny. The retention of all process-affected waters on the tar sands operations sites is a physical impossibility. The relevant questions are: how much seepage/loss of process-affected water takes place, where does it take place, and what are its effects?

- Seepage from the Syncrude lease is implied in the concentration of naphthenic acids found in Beaver Creek at site TBC-1B of 15 mg/L (see 26-groundwater reports-2005-2.pdf, Table 5.2).
- Similarly, data indicate high and increasing levels of naphthenic acids downstream of the "lower seepage dam" on Beaver Creek, a maximum of 28 mg/L at site BC-3 in 2005 (see 26-groundwater reports-2005-1.pdf, Table 20).
- In 2006, laboratory deformities in *Xenopus* frog embryos occurred at a frequency of 3.9% in water from site BC-3 in Beaver Creek (26-groundwater reports-2006-1.pdf, Table 3.4).

Correspondence from Alberta Environment to Syncrude shows that Alberta Environment suspects seepage off the Syncrude site (26-groundwater monitoring report-2007-3.pdf). Note that chloride concentration is a good marker for tailings seepage. Excerpts follow:

- "Explain the increasing chloride concentration (76 mg/L) at sample location BRC in 2007." [page 1]
- "Wells with Background Chemistry – page 30 – Monitoring wells OW80-14 and OW03-03 continue to clearly show increasing chloride concentrations not reflective of background chemistry. In addition, monitoring well OW99-14 is showing an increase. This is all indicative of an advancing plume..
- "Wells with Elevated Chloride (>100 mg/L) Concentrations – page 30 –Monitoring wells OW79-19, OW98-19B, OW98-22, OW98-24, OW98-28, OW99-12, OW01-02, OW02-01, OW02-04, and OW03-15 indicate increasing chloride concentrations." [page 2]
- "Explain the increasing naphthenic acid concentration (60 mg/L) in monitor well OW98-09 located down-gradient of the pumping system and east of Hwy #63." [page 2]

Information on land reclamation is not presented in a manner that allows for a scientific assessment of validity. Without adequate documentation, it is impossible to evaluate the success or failure of Syncrude's reclamation activities. See, for example, 26-land reclamation-2005-2.pdf and 26-land reclamation-2007-1.pdf . Requests to Syncrude to provide the details of its recent 104 ha reclamation certificate were refused by the company.

Thousands of "alleged contraventions

There have been thousands of 'alleged contraventions', notifications, and releases with little or no evidence of enforcement. Example of one:

- Enforcement Order to Suncor, 21 September 2007 (Alberta Environment 2007). "It contravened its approval by emitting effluent streams to the atmosphere from sources such as tanks, containing produced water, the production sales tank, the skim tanks, and the skimmed oil tanks. It has continuously vented produced gas containing hydrogen sulphide to the atmosphere from various tanks contained produced water with no vapour recovery unit pollution control equipment ever installed. There have been a number of instances where the measured values of H2S in the ambient air at a stationary air monitoring station exceeded the Alberta Ambient Air Quality Objectives."