A14/SEM/10-002/01/ASUB
DISTRIBUTION: General
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Ian Shugart, Deputy Minister
Environment Canada
Gatineau, Quebec
K1A 0H3

January 26, 2009

Dear Mr. Shugart:

This letter seeks action from your Department regarding the enforcement of s.36(3) of the *Fisheries Act* with regard to widespread toxic leakage from tar sands tailings ponds.

Please find attached a copy of our recent report "11 Million Litres a Day: The Tar Sands Leaking Legacy." The report uses data from tar sands companies to estimate for the first time the overall leakage of contaminated tailings water into the groundwater of the Athabasca watershed.

We have also enclosed the calculations, and as you will see, we believe that the figures we used in the report are in fact overly conservative. Moreover, in the next several years the overall leakage rate is set to increase five-fold with new projects.

As your Department itself notes, assuming that contaminants will stay in the groundwater is "wishful thinking." S.36(3) clearly anticipates indirect deposition of substances into waters that connect with fish bearing waters, and it is solidly established that leaking tailings water contains substances harmful to fish.

Leakage of contaminated tailings water is acknowledged by the tar sands companies in their applications for new projects, yet there are no permits given to waive enforcement of s.36(3), nor are there regulations under the *Fisheries Act* that would exempt the need for companies to acquire such permits.

The existence of a Canada-Alberta agreement on coordinating activities on deleterious substances does not relieve responsibility to enforce the relevant provisions of the *Fisheries Act*. Indeed, in this situation there are several factors that warrant an increased federal role, including:

- Expressions by federal officials of concern over weakness of information, modeling, standards, and monitoring with regards to water quality issues in the tar sands;

- The trans-boundary nature of this problem given the proximity of the downstream jurisdictions of Saskatchewan and the Northwest Territories;

- The double standard of having specific federal regulation of metals mining and tailings ponds, but not for tar sands mining and tailings ponds; and

- The fiduciary duty the federal government has to First Nations who have heightened concerns regarding water quality and health issues in the tar sands

We therefore ask that you exercise your authority to effectively enforce s.36(3) of the *Fisheries Act* in order to bring an end to the practice of the massive leakage of contaminated water from the tailings ponds.

Yours sincerely,

Matt Price
Project Manager

cc Marcelle Marion, SEM Legal Advisor, Commission for Environmental Cooperation
Sean Nixon, Staff Lawyer, Ecojustice

Environment Canada / Environnement Canada
Deputy Minister / Sous-ministre

Mr. Matt Price
Project Manager
Environmental Defence
317 Adelaide Street West, Suite 705
Toronto ON M5V 1P9

Dear Mr. Price:

Thank you for your correspondence of January 26 and copy of your report, *11 Million Litres a Day: The Tar Sands' Leaking Legacy*, regarding the Alberta oil sands tailings ponds.

The general prohibition in the federal *Fisheries Act*, which you cite in your letter, is triggered by the release of a deleterious substance in waters frequented by fish. In order to take enforcement action, the Crown must be able to demonstrate that a particular person caused such a release, in this case in the Athabasca watershed.

To determine whether evidence exists that groundwater contamination from oil sands tailings ponds is leaking into the Athabasca watershed, and whether contamination from direct leaking of tailings ponds into the Athabasca watershed is occurring, Environment Canada reviewed information from a variety of sources, including: your report; the *Regional Aquatics Monitoring Program (RAMP) Technical Report 2006*; the final report on the Athabasca Chipewyan First Nation Fresh Water Mussel Contaminant Project 2001; a report on the Near Fields Aquatics Effects Monitoring Study, Athabasca River, Fall 2001; a report on the Aquatic Effects Monitoring Study in the Athabasca River, Fall 2004; a report on the 10-Year Technical Review of Aquatic Effects Monitoring Studies on the Athabasca River March 2006; and the 2007 annual groundwater monitoring reports from Syncrude Canada Ltd., Albian Sands Energy Inc. and Suncor Energy Inc. To date, we have no evidence of any particular point where such leaking into the Athabasca watershed is occurring.

In May and June 2009, departmental officials will visit four oil sands companies in Alberta, to review their operations and monitor any discharges from those operations directly into fish-bearing water. If required, the officials will evaluate the potential indirect impacts of any such discharges. As Alberta Environment regulates the control of the construction of tailings ponds, the deposit of waters into the existing tailings ponds, and the monitoring of these activities, we will advise the Province ahead of time of our site visits and invite them to join us.

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Canada

If any person has evidence of a contravention of subsection 36(3) of the *Fisheries Act*, the evidence can be brought to the attention of a *Fisheries Act* inspector via a 24-hour complaint line (1-800-222-6514) supported by the Department. Such evidence can also be brought in person or mailed to Environment Canada, Environmental Enforcement Division, Room 200, 4999 – 98 Avenue, Edmonton AB T6B 2X3.

With respect to your comment regarding the metal mining industry, the *Metal Mining Effluent Regulations* deal with an industry in cases where there is a surface discharge directly into fish-bearing waters. Environment Canada is not aware of any such issue with respect to the oil sands industry, and there is no surface discharge from the tailings ponds. Should this change, we will revisit the issue.

I appreciate your organization's continuing interest in protecting the environment.

Sincerely,

Ian Shugart

ENVIRONMENTAL | DEFENCE
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May 8, 2009

Ian Shugart, Deputy Minister
Environment Canada
10 Wellington Street
Gatineau, Quebec K1A 0H3

Dear Mr. Shugart:

Thank you for your reply of April 8 regarding s. 36(3) of the *Fisheries Act* and tailings ponds leakage in the tar sands.

As you recommend in your letter, please find enclosed a copy of a letter to the Environmental Enforcement Division in Edmonton regarding documented instances of deposition of deleterious substances from tailings ponds into fish bearing surface waters in the Athabasca watershed. We are concerned that your Ministry would not have routine access to such information and believe this lack of information in itself reflects a significant gap in the enforcement of the *Fisheries Act* in the largest industrial enterprise in the country.

We are also concerned with the narrow focus of your response on documented instances of deposition of deleterious substances when it is clear, as the attached letter outlines, that sub-section 36(3) of the *Fisheries Act* clearly refers to indirect deposition, of which the contaminated water entering the groundwater systems of the Athabasca is already one of the biggest in Canada, and set to explode in size.

We have requested a reply in the attached letter that may involve issues that fall beyond the scope of your Enforcement Division, so would also request your reply to any such issues so that the current position of Environment Canada on this matter is fully understood.

Sincerely,

Matt Price
Project Manager

cc: Doris Millan, Submissions on Enforcement Matters Unit, Commission for Environmental Cooperation
Barry Robinson, Counsel, Ecojustice

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May 8, 2009

Environment Canada
Environmental Enforcement Division
Room 200, 4999 – 98 Avenue
Edmonton, AB T6B 2X3

Dear Sir/Madam:

**Re: Request for Investigation**
**Subsection 36(3) of the *Fisheries Act***

Environmental Defence is a non-profit environmental organization that works to protect the environment and human health. Over the past year, Environmental Defence has conducted research into the leakage of process waters from oil sands tailings ponds in the Athabasca region of Alberta.

The purpose of this letter is to provide you with evidence of alleged contraventions of subsection 36(3) of the *Fisheries Act*. Groundwater and surface water monitoring reports prepared by Syncrude Canada Limited ("Syncrude") indicate that oil sands process waters are leaking from tailings ponds into Bridge Creek and Beaver Creek in the Athabasca region. Further, process waters are leaking from tailings ponds into groundwater aquifers connected to surface waters frequented by fish. These deposits into waters frequented by fish and into locations that may enter such waters are not authorized by any regulation or approval under the *Fisheries Act*.

By this letter, we are requesting that the Enforcement Division of Environment Canada investigate these alleged offences and take appropriate enforcement action.

## A. The Law

Subsection 36(3) of the *Fisheries Act* provides that:

> 36(3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

Our understanding of subsection 36(3) of the *Fisheries Act* includes the following:

**1. A "deleterious substance" is any substance that, if added to any water, would degrade the quality of that water so that it is rendered deleterious to fish. It is not necessary that the deleterious substance render the receiving watercourse deleterious to fish.**

"Deleterious substance" is defined in subsection 34(1) of the *Fisheries Act*:

> 34. (1) "deleterious substance" means
>
> (*a*) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or
>
> (*b*) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water,
>
> and without limiting the generality of the foregoing includes
>
> (*c*) any substance or class of substances prescribed pursuant to paragraph (2)(*a*),
>
> (*d*) any water that contains any substance or class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to paragraph (2)(*b*), and
>
> (*e*) any water that has been subjected to a treatment, process or change prescribed pursuant to paragraph (2)(*c*).

In *R. v. Kingston (Corporation of the City)*, (2004) 70 O.R. (3d) 577, (2005) D.L.R.(4th) 734 (Ont. C.A.) ("*Kingston*"), the Court stated:

> [63] On an ordinary and plain reading of paragraph [34(1)](a) [defining "deleterious substance"], a substance is deleterious if, when added to *any water*, it would alter the quality of the water such that it is likely to render the water deleterious to fish, fish habitat or to the use by man of fish that frequent the water. There is no stipulation in paragraph (a) that the substance must be proven to be deleterious to the receiving water. There is no reference to the receiving water in paragraph (a). On the contrary, the language makes it clear that the substance is deleterious if, when added to any water, it degrades or alters the quality of the water to which it has been added. The "any water" referred to in paragraph (a) is not the receiving water. Rather, it is any water to which the impugned substance is

> added, after which it can be determined whether the quality of that water is rendered deleterious to fish, fish habitat or the use by man of fish that frequent that water.
>
> [64] I agree with the interpretation of s. 36(3) given by Seaton J.A. in *MacMillan Bloedel* [*R. v. MacMillan Bloedel (Alberni) Ltd.* (1979) 47 C.C.C. (2d) 118 (B.C.C.A.)]. As he noted at pp. 121-22: "What is being defined is the substance that is added to the water, rather than the water after the addition of the substance."
>
> [65] The focus of s. 36(3) is on the substance being added to water frequented by fish. It prohibits the deposit of a deleterious substance in such water. It does not prohibit the deposit of a substance that causes the receiving water to become deleterious. It is the substance that is added to water frequented by fish that is defined, not the water after the addition of the substance. A deleterious substance does not have to render the water into which it is introduced poisonous or harmful to fish; it need only be likely to render the water deleterious to fish. The *actus reus* is the deposit of a deleterious substance into water frequented by fish. There is no requirement in s. 36(3) or paragraph (a) of the definition of the term "deleterious substance" in s. 34(1), of proof that the receiving waters are deleterious to fish.

Therefore, it is clear that, to find an offence under subsection 36(3), it is not necessary that the deleterious substance render the receiving water deleterious to fish. It is sufficient that the deleterious substance, when added to any water, would render the water deleterious to fish.

In the case of tailings ponds leakage, it is therefore sufficient to establish that oil sands process waters are deleterious to fish and are entering or may enter water frequented by fish. It is not necessary that the leakage of tailings process water render the receiving waters deleterious to fish.

**2. "Deposit" includes leakage or seepage.**

"Deposit" is defined in subsection 34(1) of the *Fisheries Act*:

> "deposit" means any discharging, spraying, releasing, spilling, **leaking, seeping**, pouring, emitting, emptying, throwing, dumping or placing.
>
> (Emphasis added.)

Contravention of subsection 36(3) of the *Fisheries Act* does not require the direct deposit of the deleterious substance into water frequented by fish. Indirect leakage or seepage of the deleterious material into the waters is sufficient.

The courts have confirmed that the leakage or seepage of the deleterious substance is sufficient to find a contravention of subsection 36(3) in a number of situations: seepage of leachates from landfill sites (*Kingston*; *Gemtec v. R.*, 2007 NBQB 1999); leakage from an underground pipe through soil (*R. v. MacMillan Bloedel Ltd.*, 2002 BCCA 510); and, leakage through or across land (*R. v. Rivtow Straits Limited*, 1993 CanLII 1769).

Therefore, any leakage or seepage of process waters from oil sands tailings ponds that enters or may enter water frequented by fish would constitute a deposit.

**3. It is not necessary that the deleterious substance enter water frequented by fish to find an offence under subsection 36(3) of the *Fisheries Act*. It is sufficient that the deleterious substance is deposited in a location that may enter water frequented by fish.**

Subsection 36(3) of the *Fisheries Act* provides that:

> 36(3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or **in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.**
>
> (Emphasis added.)

This latter phrase of subsection 36(3) confirms that enforcement should take place proactively, requiring any proponent of groundwater contamination to offer definitive evidence that the contamination will not reach water frequented by fish.

There has been no such evidence presented by oil sands companies that the deleterious substances they are leaking into the groundwater will not enter waters frequented by fish, and indeed documented below are instances where this has taken place. Given the planned expansion of leakage of contaminated waters into groundwater by oil sands companies over the next decade, the risks and occasions of surface water contamination through this pathway will only grow, in direct contravention of the second part of subsection 36(3).

## B. The Evidence

### 1. Deleterious Substance

In a recent scientific article, Erik W. Allen, "Process water treatment in Canada's oil sands industry: I. Target pollutants and treatment objectives", (J. Environ. Eng. Sci. 7:123-138), the author compiles the results of several studies of the inorganic chemistry, organic chemistry and toxicity of oil sands process waters, including process waters from Syncrude's Mildred Lake Settling Basin ("MLSB") and Suncor Energy's tailings ponds. The article indicates that oil sands process waters exceed the Canadian Council of

Ministers of the Environment ("CCME") *Canadian Environmental Quality Guidelines: Surface Water Quality Guidelines for the Protection of Aquatic Life* (CCME, 2005) for several substances including ammonia, benzene, cyanide, oil and grease, phenols, toluene, polycyclic aromatic hydrocarbons, arsenic, copper and iron. The author concludes that:

> Chemicals of environmental concern in oils sands process water include NA's [naphthenic acids], bitumen, ammonia, sulphate, chloride, aromatic hydrocarbons, and trace metals. While NA's are the main contributors of acute toxicity to aquatic biota, various compounds have exceeded CCME water quality guidelines at some point during oil sands operations and could contribute to chronic toxicity in reclaimed aquatic environments.

While Mr. Allen's focus was on the impact of contaminated process waters on the reclamation of tailings ponds, the article provides clear evidence that oil sands process water may be acutely toxic and chronically harmful to fish.

We request that Environment Canada conduct additional sampling of oil sands tailings ponds to confirm that oil sands process waters are deleterious to fish.

**2. Syncrude's Mildred Lake Settling Basin**

Syncrude is the operator of the Mildred Lake oil sands mine. The mine site includes three tailings areas: the Mildred Lake Settling Basin ("MLSB"), the Southwest Sand Storage Site (SWSS) and an in-pit tailings area.

The Mildred Lake East Toe Berm ("MLETB") was constructed on the east side of the MLSB. According to the *2007 Groundwater Monitoring Report, Syncrude Canada Ltd., Mildred Lake Site* ("*2007 Mildred Lake Report*"), submitted by Syncrude to Alberta Environment on March 15, 2008, at subsection 5.2.2.1.2:

> The MLETB was constructed with hydraulically placed sand, and so when initially placed, the deposit was fully saturated. Characteristics unique to the MLETB have allowed it to drain and flush significantly faster than Syncrude's other tailings deposits. In particular, the volume of pond water within the MLETB is minimal and has likely been diluted by surface runoff and precipitation over the years. There is therefore no constant or fresh source of process affected water over the entire deposit. The MLETB is also constructed on a foundation having relatively high hydraulic conductivity, and contains a number of finger drains within the foundation of its perimeter.
>
> The evidence indicating that the MLETB has been drained and flushed of contaminants is as follows:
>
> - The total flow from the finger drains has decreased to zero, indicating that the perimeter of the MLETB has drained, in those locations where the

finger drains exist. Currently, all ten finger drains along the north side and the seventeen finger drains along the east side of the MLETB are dry. The only flow from the MLETB is from the toe at ETB-GD (granular drain) section. Flow rates are usually monitored at the finger drains, whereas the ETB drains are only monitored for water level and chemistry. However, the trend of finger drain flow rate from last two years till now has not reported any flow, which is substantiated by the record of no-flow condition from the finger drains this year (Figure 5.6). Syncrude is considering stopping monitoring the finger drains for flow since (the drains are dry) monitoring at the toe is now basically the natural groundwater elevation in the area.

- The general trend of the standpipes water elevations was slightly lower than previous year and constant in a few locations while the surrounding ditches are virtually dry. Figure 5.7 shows the locations of the standpipes and finger drains, the current elevation of the water table and the original ground elevation in the MLSB relative to the standpipes, finger drains and ditches.

- The concentration of the major ions sampled from the MLETB appears steady over a five-year period with a slight drop at the later years. This follows a steady state concentration in the MLETB and a subsequent natural attenuation of the contaminant as observed in the declining trend.

With the little or no-flow of process water within the MLETB structure, the flux of water moving beyond the perimeter ditch is expected to decrease, and invariably the potential for influence on the surrounding environment. **Provided that the current ditch system is maintained, the flux of contaminated MLETB seepage water reaching the ditch, moving past the ditch and entering Beaver Creek are all expected to decline.**

(Emphasis added.)

This passage clearly indicates that the contaminated process waters, originally found in the hydraulic slurry used to construct the MLETB, were allowed to flow into the groundwater aquifer and into the nearby Beaver Creek. While the contaminated process waters have now migrated out of the MLETB and beyond the perimeter ditch, flow through the groundwater aquifer into Beaver Creek continues. It is not clear from the *2007 Mildred Lake Report* how much longer the process water will continue to enter Beaver Creek.

The results of surface water monitoring, found in the *2007 Mildred Lake Report* at subsections 5.2.2.3.2 and 5.2.2.3.3, further confirm that oil sands process waters are reaching both Bridge Creek and Beaver Creek:

*5.2.2.3.2 Bridge Creek*
The concentrations of major ions reduced at OW99-27 except for chloride while the surface water quality sample at the west interceptor ditch (WID) indicated a reduced concentrations [sic] of major ions, selected metals and naphthenic acid. This reflected a down-stream effect of the low flow from the MLSB (source).

*5.2.2.3.3 Beaver Creek*
Beaver Creek is routinely sampled at two locations, downstream of the Lower Seepage Dam (TBC-1B) and at Highway 63 (TBC-3). Both locations continue to show a consistent flat and steady trend except for sodium and chloride at TBC-1B. This observation is as a result the [sic] reduced actual volume of seepage into Beaver Creek, following the (no-flow) trend from the finger drains, adjacent sampling locations (SG0122-01) and reported low flow in the dyke.

Bridge Creek and Beaver Creek are both tributaries to the Athabasca River.

Further, the *2007 Mildred Lake Report* indicates, at subsection 5.2.2.2.2, that a plume of contaminated groundwater continues to expand east of the MLSB and southeast of the MLETB:

> Another seven wells (OW99-15, OW99-16, OW99-17, OW98-08, OW98-20, OW01-03 and OW98-27) show influence of process-affected water, which is due to their proximity to the MLSB. However, the trend of the concentrations of major ions and selected metals at these wells are flat and stable. Moreover, the chloride concentration is also retarding and shrinking within these areas. **Results from another four wells (OW99-12, OW99-18, OW98-21 and OW98-26B) show a steady flat trend in major ions and selected metals while a slight increase of major ions was noticed at two wells due to their proximity to the MLSB, OW98- 22 and OW98-28 consequently the chloride concentration trend within these areas indicated a forward migration.** Moreover, groundwater well OW03-03 is also impacted with increased concentration, which is indicative of some variability in the trending. This area shall be closely monitored in the 2008 in order to stabilize the plume.
>
> (Emphasis added.)

In a letter dated June 9, 2008 from Kem Singh, Alberta Environment to Nathalie Berube, Syncrude in response to the submission of the *2007 Mildred Lake Report*, Alberta Environment stated that:

> 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.

Therefore, it is our belief that there is evidence of oil sands process water reaching both Bridge Creek and Beaver Creek, and that there is an expanding plume of contaminated groundwater east of the MLSB that may reach Bridge Creek, Beaver Creek and/or the Athabasca River. As discussed in Part A, Section 1 of this letter above, it is not necessary that the deleterious substance render the receiving waters deleterious to fish in order to take enforcement action. It is sufficient that the deleterious substance is entering or may enter the receiving waters.

We therefore request that Environment Canada consider this evidence and carry out the investigations necessary to confirm whether Syncrude has deposited a deleterious substance, namely oil sands process water, at its Mildred Lake mine site in locations where that deleterious substance is entering or may enter water frequented by fish.

**3. Syncrude's Aurora Tailings Pond**

Syncrude operates the Aurora North mine site. The site includes an external tailings pond known as the Aurora North Settling Basin ("ANSB"). The Muskeg River lies within 1 kilometre to the east of the ANSB.

The *2007 Groundwater Monitoring Report, Syncrude Canada Limited, Aurora* ("*2007 Aurora Report*"), submitted by Syncrude to Alberta Environment on March 28, 2008, indicates at section 3.5 that there are four areas where contamination from process water has been identified beyond the perimeter containment ditch of the ANSB:

**(i) South Seepage Sump Area:** The South Seepage Sump Area ("SSSA") lies to the southeast of the ANSB, between the ANSB and the Muskeg River. The *2007 Aurora Report* states:

> The water chemistry of monitoring well OWS0134-11 near the south seepage sump has shown similarity with the type of water influenced by process water. A significant increase in the chloride concentration occurred from 2006 (92 mg/l) to 2007 (178 mg/l). The sodium concentration also increased from previous years samples. The chloride concentrations in monitoring well OWS0434-16 continued to increase in 2007 to 148 mg/l from a value of 62 mg/l in 2006. These concentrations are becoming closer to typical process water concentrations.

In a letter dated June 9, 2008 from Kem Singh, Alberta Environment to Nathalie Berube, Syncrude in response to the submission of the *2007 Aurora Report* (the "*Aurora Response Letter*"), Alberta Environment stated:

> Continued increasing concentrations (chloride) in monitor wells OWS0134-11 and OWS0434-16 are observed. Additionally, monitor well OWS0134-12 and recently installed (2007) monitor well OWS0734407 show signs of impact, based on chloride concentrations. It is our understanding that Syncrude believes that operating the south seepage sump with a maximum water level elevation of 280masml will curtail the movement of process affected waters. If required, in

> addition to the south seepage sump, what other mitigative means may Syncrude implement to prevent process water from reaching the Muskeg River?

**(ii) East Side:** On the east side of the ANSB, process water was migrating beyond the perimeter ditch in 2001. Syncrude constructed a sump in 2002 and a bentonite cut-off wall in 2005 in an attempt to reduce the migration of the plume towards the Muskeg River. In 2007, the sump was not operated for most of the year due to equipment failures. The *2007 Aurora Report* indicates that, "[t]his changed the direction of the gradient from into the perimeter ditch out towards the Muskeg River." The *2007 Aurora Report* also notes that seepage continues beyond the cut-off wall.

**(iii) Northeast Pit:** A proposed mining area, the Northeast Pit, lies to the northeast of the ANSB. Stanley Creek drains the Northeast Pit area and flows into the Muskeg River. The Northeast Pit is proposed to be mined beginning in 2035. The *2007 Aurora Report* indicates that seepage is occurring outside of the containment system on the northeast side of the ANSB:

> Syncrude's experience and previous chemistry results indicated that the current plume will remain outside of the cut-off wall, and will slowly be diluted by advection, dispersion and potentially degradation of the organic components. The future migration of this plume is expected to be in an overall east or south-easterly direction [towards the Muskeg River]. There was no increase in the ion concentrations of the surrounding monitoring wells to suggest any migration of the contaminant plume occurred in 2007. There was evidence that the plume is being influenced by additional process water though. The chemistry results from 2007 suggest that process affected water from the tailings pond or perimeter ditch is recharging the plume. Syncrude will be looking into the issue and continue tracking the movement of process affected waters in the area.
>
> At this time, Syncrude does not see the need to immediately recover the plume that remains outside the cut-off wall. The current mining sequence for the Aurora site identifies that the mining of the area north of the tailings pond (Northeast Pit) begins in 2035. The area would have to be dewatered in preparation for mining; therefore recovery of the plume could take place at this time, if it is deemed necessary. In the interim Syncrude will continue to monitor the movement of this plume. Syncrude Research is conducting research on process water constituents including the degradation process within environmental waters.

In the *Aurora Response Letter*, Alberta Environment questioned Syncrude's plan to leave the dewatering of this plume until 2035, stating:

> A significant delay in dewatering may provide an opportunity for the plume to reach surface water receptors.

**(iv) East Pit Passage Area:** The East Pit Passage Area ("EPP"), to the northwest of the ANSB, is being dewatered in advance of mining. Water is pumped from the EPP into a

polishing pond and subsequently into the Stanley Creek drainage. The *2007 Aurora Report* indicates that the quality of the discharged water was similar to background water chemistry.

The *2007 Aurora Report* indicates that monitoring of the Muskeg River has not yet identified any impact from leakage from the ANSB. However, as discussed above, there is evidence of contaminated groundwater plumes migrating beyond the containment systems and towards the Muskeg River at the SSSA, at the east side of the ANSB and at the Northeast Pit. As discussed in Part A, Section 3 of this letter above, it is not necessary that deleterious substances reach water frequented by fish before Environment Canada may take enforcement action. Environment Canada may take proactive enforcement action to prevent contaminated groundwater from reaching surface waters frequented by fish. The *2007 Aurora Report* provides evidence of contamination plumes migrating towards Stanley Creek and the Muskeg River. Given the hydrology of this area, it is likely that these plumes will continue to migrate for decades after the source of contamination has been eliminated.

We therefore request that Environment Canada consider this evidence and carry out the investigations necessary to confirm whether Syncrude has deposited a deleterious substance, namely oil sands process water, at its Aurora North mine site in locations where that deleterious substance may enter water frequented by fish.

## C. Conclusion

Environment Canada's *Compliance and Enforcement Policy for the Habitat Protection and Pollution Prevention Provisions of the Fisheries Act (November 2001)* ("*Enforcement Policy*") states that compliance with the pollution prevention provisions of the *Fisheries Act* is mandatory. Further, the *Enforcement Policy* indicates that Environment Canada will administer the provisions of the *Fisheries Act* with an emphasis on preventing harm. The predicted life of oil sands tailings ponds is in some cases up to sixty years after mining operations have ceased, and the life of contaminants like napthenic acids also extend well beyond that point. Therefore, it is essential that Environment Canada act now to address tailings pond leakage and to prevent long term degradation of the fish bearing watercourses in the Athabasca region.

Based on the evidence provided above, Environmental Defence requests that Environment Canada conduct the investigations necessary to determine if contraventions of subsection 36(3) of the *Fisheries Act* have occurred or are occurring as a result of tailings pond leakage. Further, Environmental Defence requests that Environment Canada take enforcement action where contraventions of subsection 36(3) are found.

We respectfully request a response to this letter outlining your plan of action at your earliest convenience. Thank you for your assistance.

Sincerely,

Matt Price
Project Manager

cc: Ian Shugart, Deputy Minister, Environment Canada
Doris Millan, Submissions on Enforcement Matters Unit, Commission for Environmental Cooperation
Barry Robinson, Counsel, Ecojustice

ENVIRONMENTAL | DEFENCE
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May 29, 2009

Ian Shugart, Deputy Minister
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10 Wellington Street
Gatineau, Quebec K1A 0H3

Michel Labossiere, Manager
Environment Canada
Environmental Enforcement Division
Room 200, 4999 – 98 Avenue
Edmonton, AB T6B 2X3

*Via e-mail*

Dear Mr. Shugart and Mr. Labossiere

**Re: Request for Investigation**
**Subsection 36(3) of the *Fisheries Act***

By letter dated May 8, 2009, we requested an investigation of alleged contraventions of Subsection 36(3) of the *Fisheries Act* resulting from leakage from Syncrude's Mildred Lake Settling Basin and Aurora North Tailings Pond. We are attaching additional information that would suggest that your investigation of tailings pond leakage should be expanded to include other oil sands operations.

We have attached the Albian Sands Energy Inc. *2008 Groundwater Monitoring Program: Muskeg River Mine* report prepared by Worley Parsons (the "*Albian Sands Report*"). This report indicates increasing total dissolved solids, chloride, sulphate, sodium, calcium, magnesium and bicarbonate concentrations in some groundwater monitoring wells downgradient of the Albian Sands Muskeg River tailings pond. The increasing concentrations are observed primarily in wells in shallow Quaternary deposits located between the tailings pond and the Muskeg River. This would indicate the possibility of the contaminants reaching the Muskeg River.

The *Albian Sands Report* claims that the observed effects do not appear to be associated with the seepage of process waters from the tailings pond but may be from the use of road salts or ground disturbance in the vicinity of the wells. Regardless of the source, the observed effects indicate an impact on the shallow aquifer close to the Muskeg River. The *Albian Sands Report* recommends further investigation to confirm the source of these increases.

We request that Environment Canada include the Albian Sands Muskeg River tailings pond in its investigations and conduct further investigations to confirm the source of the groundwater changes.

We have also attached a copy of a report titled *The Sustainable Management of Groundwater in Canada* (2009) prepared by the Expert Panel on Groundwater of the Council of Canadian Academies. This peer-reviewed report was prepared by fifteen Canadian and American experts on groundwater. While the report does not address any specific oil sands operation, it concludes at lines 3962-3969:

> Roughly two tons of oil sands are excavated to produce one barrel of oil, and the sand and associated process water is discharged to large tailings ponds. The tailings-pond dams may be constructed out of some of this processed sand. There is a concern that this has resulted in more-permeable zones in the dams that may leak and act as migration pathways for the contaminants in the tailings water. Of particular concern is the proximity of the tailings ponds to the Athabasca River, with a potential to detrimentally affect both human and aquatic ecosystem health downstream.

We believe that this conclusion supports our contention that oil sands operators cannot demonstrate compliance with the prohibition on the indirect deposition of deleterious substances in the second part of s.36(3) of the *Fisheries Act*.

We look forward to the results of your investigations and request that we be advised of the results of any investigation. Thank you for your assistance.

Sincerely,

Matt Price
Project Manager
Environmental Defence

cc: Doris Millan, Submissions on Enforcement Matters Unit, Commission for Environmental Cooperation
Barry Robinson, Counsel, Ecojustice

Environment Canada / Environnement Canada
Deputy Minister / Sous-ministre

JUL 0 6 2009

Mr. Matt Price
Project Manager
Environmental Defence
317 Adelaide Street West, Suite 705
Toronto ON M5V 1P9

Dear Mr. Price:

Thank you for your correspondence of May 8 and 29 regarding alleged contraventions of subsection 36(3) of the *Fisheries Act* by Alberta oil sands operations in the Fort McMurray area.

On May 26, 27 and 28 Environment Canada conducted preliminary on-site inspections of five oil sands operations in the Fort McMurray area, to address the concerns identified in your letter and determine what evidence existed that would indicate potential violations under the *Fisheries Act*. Inspections were conducted at Suncor Energy Inc., Syncrude Canada Ltd. (Aurora and Mildred Lake operations), Albian Sands Energy Inc., and Canadian Natural Resources Ltd. (Horizon Oil Sands Project). To date, the findings are inconclusive, and further initiatives are being planned.

Environment Canada has decided to obtain independent verification of whether oil sands components are leaking from tailings ponds into surface water in the Athabasca Region in concentrations that are deleterious to fish. To accomplish this, the Department is collaborating with Alberta Environment to conduct independent monitoring of selected groundwater monitoring wells in the area. We are also examining research options to assist in distinguishing the high background levels in the groundwater from those that could be coming from the tailings ponds. In addition, we will be looking at research to determine the impacts on the native aquatic biota from natural versus oil sands–derived contaminants.

The information collected through this research will be used to determine if the elements of an offence are present. If it is concluded that such elements are present, the Department will assess if the companies are being duly diligent in preventing the deposits.

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Environment Canada has made inspections of the oil sands area a priority. Accordingly, we take your concerns seriously, and are working diligently to assess the information and take the appropriate actions. Should you require additional information, please contact Mr. Hal Sommerstad, Regional Director, Environmental Enforcement Directorate, Prairie and Northern Region, at 780-951-8861 or *hal.sommerstad@ec.gc.ca*.

I trust that the information provided is of assistance, and extend my best regards.

Sincerely,

Ian Shugart

From: "Ladouceur,Sylvie [NCR]" <Sylvie.Ladouceur@ec.gc.ca>
Subject: Tailings ponds leakage
Date: Mon, September 28, 2009 5:43 pm
To: mjprice@environmentaldefence.ca

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Hello,

Unfortunately, Ian Shugart will not be able to meet with Rick Smith on October 2. Currently there is an inspection program underway related to the tailing ponds. As such, it would be inappropriate for the Deputy Minister to comment or provide any specific information related to these inspections or any enforcements activities related to this issue.

Sylvie Ladouceur
Executive Assistant to the DM
Adjointe exécutive au sous-ministre
819-994-5020

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**Attachments:**

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ENVIRONMENTAL | DEFENCE
317 Adelaide Street West Suite 705 • Toronto Ontario Canada • M5V 1P9 • tel: 416.323.9521 fax: 416.323.9301 • www.environmentaldefence.ca

January 13, 2010

Ian Shugart, Deputy Minister
Environment Canada
10 Wellington Street
Gatineau, Quebec K1A 0H3

Dear Mr. Shugart:

I am writing to follow up on your letter of July 6, 2009 in which you indicated that Environment Canada had conducted preliminary investigations with respect to tailings pond leakage in the Alberta oil sands on May 26, 27 and 28, 2009, and that Environment Canada intended to conduct further verification of tailings pond leakage in collaboration with Alberta Environment.

I am writing to request an update on the findings of those studies. Please provide me with the results of any studies conducted by or on behalf of Environment Canada to date with respect to tailings pond leakage. Also, please advise me as to Environment Canada's current intentions with respect to enforcement under section 36(3) of the *Fisheries Act* with respect to tailings pond leakage.

You may be aware of recent research findings by researchers at the University of Alberta with respect to polycyclic aromatic compounds ("PAC's) found in the Athabasca River and its tributaries.[1] These researchers concluded, amongst other findings, that:

- PAC concentrations were increased below oil sands mining developments, upgrading facilities and tailings ponds;
- Where oil sands development was insignificant, the flow of water through the oil sands-bearing McMurray Formation did not significantly affect PAC concentrations, indicating that natural sources did not contribute significantly to increased PAC levels; and
- PAC levels below oil sands mining developments, upgrading facilities and tailings ponds were at levels that are toxic to fish embryos.

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[1] Erin N. Kelly et al., "Oil sands development contributes polycyclic aromatic compounds to the Athabasca River and its tributaries", Proc. Ntl. Acad. Sci., Dec. 2009, on-line at www.pnas.org/cgl/dol/10.1073/pnas.0912050106.

We are also in receipt of a document obtained under the *Access to Information Act* that states that while Alberta Environment inspectors are not designated as Fishery Inspectors under the *Fisheries Act*, at that time (March, 2009) it was the practice of Environment Canada to wait for referrals from Alberta Environment before initiating action.[2]

We believe that the evidence we have provided you of leakage of deleterious substances into fish bearing waters (eg. Tar Island Dyke and Syncrude into Beaver Creek), as well as evidence of widespread leakage into groundwater that "may" enter fish bearing waters, as per the second half of section 36(3), warrants a change in enforcement practices by Environment Canada in spite of the silence of Alberta Environment, which is likely to continue indefinitely.

I look forward to your timely response.

Sincerely,

Matt Price
Project Manager

cc: Doris Millan, Submissions on Enforcement Matters Unit, Commission for Environmental Cooperation
Barry Robinson, Counsel, Ecojustice

[2] "Follow up on Committee Hearings," by Pierre Boucher, Environment Canada, March 20, 2009

Environment Canada
Deputy Minister

Environnement Canada
Sous-ministre

FEB 2 2 2010

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Mr. Matt Price
Project Manager
Environmental Defence
317 Adelaide Street West, Suite 705
Toronto ON M5V 1P9

Dear Mr. Price:

Thank you for your follow-up letter of January 13 in which you request additional information concerning the inspections being conducted on oil sands operations in the Fort McMurray area.

Following the May 2009 preliminary on-site inspections of five oil sands operations in the Fort McMurray area, Environment Canada obtained samples from two active tailings ponds in September 2009, in an effort to verify compliance with the *Fisheries Act*. Comprehensive analytical testing is being done on these samples and their potential toxicity to fish and fish habitat, and the results are expected by spring 2010.

In addition, Environment Canada obtained samples from selected groundwater wells within the oil sands area in November 2009. Extensive testing is being done on these samples to determine the concentration of any contaminants that may be present. Results to date show less than detectable levels for polycyclic aromatic hydrocarbon compounds for one of the groundwater wells sampled, and further analysis is under way. Additional sampling of surface water and groundwater wells in the oil sands area is expected this year, and should include Beaver Creek and wells around Tar Island Dyke.

As noted above and in my July 6, 2009 reply to you, the information collected through these inspections will be used to assess compliance with the *Fisheries Act*. In the event that the samples reveal a potential violation of the Act, an investigation will be initiated. Please be assured that the oil sands operations continue to be a priority for Environment Canada.

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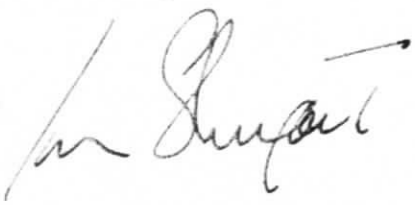
I trust that the information provided is of assistance, and extend my best wishes.

Sincerely,



Ian Shugart

ENVIRONMENTAL | DEFENCE
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March 25, 2010

Ian Shugart, Deputy Minister
Environment Canada
10 Wellington Street
Gatineau, Quebec K1A 0H3

Dear Mr. Shugart:

Thank you for your letter of February 22. We are writing again because we believe that our correspondence to date has not taken us further towards the goal of effective enforcement of Section 36(3) of the *Fisheries Act* with regards to tailings pond leakage, and we believe we should spell out what this would look like.

The sampling by Environment Canada now underway as described in your February 22 letter would seem to be investigating possible violations some years after surface water impacts have taken place. The height of the Syncrude Beaver Creek incident, for example, would appear to be around 2004, and with regards to Tar Island Dyke, Suncor has been moving to close this pond over the past years.

For us, this is an indication of the systemic nature of the failure to enforce Section 36(3), because Environment Canada is not keeping current with what tailings leakage data does exist via industry self-reporting due to a failure to exercise a regulatory interest in doing so.

The federal government has known about the leakage problem and its relationship to surface water contamination for several years, yet has still not stepped in to regulate. As far back as 2004 the National Energy Board stated:

> …the principal environmental threat from tailings ponds are the migration of pollutants through the groundwater system and the risk of leaks to the surrounding soil and surface water…the scale of the problem is daunting...[i]

Also, successive Canadian Environmental Assessment Act hearings for oil sands mines and associated tailings ponds have seen the companies themselves project surface water contamination and impacts on water quality, yet Environment Canada officials present at those hearings have not taken regulatory action to enforce pollution prevention provisions of the *Fisheries Act*. As you are aware, Canadian case law has established that the receiving waters need not be rendered harmful to fish on these occasions – it is the

deleterious substance itself that is subject to the test. Arguments made regarding dilution at these hearings therefore do not excuse the need to regulate or prosecute.

With the weight of evidence dating back several years, we therefore believe that there already exist ample grounds for Environment Canada to enforce the law. While further sampling is meritorious, it should not serve to delay action.

It is our opinion that effective enforcement of Section 36(3) would involve:

1. The creation of regulations specific to oil sands tailings ponds as enabled by Sections 36(4) and 36(5). This would an acknowledgement that tailings ponds are today routinely leaking deleterious substances "in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter" waters frequented by fish, as per Section 36(3). Such regulation would ensure that Environment Canada be the routine recipient of groundwater monitoring reports as part of compliance. Environment Canada should also be notified immediately should they gain knowledge of surface water deposition.

2. Active prosecution of all incidents of tailings materials entering surface waters, as per Canadian case law – ie. dilution cannot serve as a legal defence to Section 36(3). Prosecution should take place soon following the violation, as enabled by 1, above.

3. Withdrawal of Environment Canada from the discredited Regional Aquatic Management Program (RAMP) in favour of a government-run (arms length from industry) surface and groundwater monitoring program for the region that is scientifically defensible and transparent to the public.

We therefore seek your commitment to these three steps at the earliest convenience, since several years have now passed without Section 36(3) being enforced.

Yours sincerely,

Matt Price
Policy Director

cc: Doris Millan, Submissions on Enforcement Matters Unit, Commission for Environmental Cooperation
Barry Robinson, Counsel, Ecojustice

[1] "Canada's Oil Sands: Opportunities and Challenges to 2015," National Energy Board, 2004.