Grozelle, Andy 5.17

From: Joe Minor
Sent: March-26-13 9:57 PM
To: Grozelle, Andy
Subject: Fwd: Big toxic mess of PFCs (PFOS/PFOA/PFECHS) at the Hamilton International Airport

Andy:

Below is a copy of the correspondence (that you requested).

If you wish, you may include it (and this) on the Council agenda. Whether or not it gets included on the Council agenda, I would like to receive some answers to the questions that I asked (again) on March 2nd. As noted in the March 2, 2013 correspondence, several of the questions were originally asked in correspondence I sent to Council more than a year earlier (December 2011). I am therefore still waiting to receive answers to questions that I asked more than 15 months ago.

I continue to have serious concerns about the secrecy regarding what is being done about the big toxic mess of PFCs/PFOS/PFOA at the Hamilton International Airport.

I do not think that it increases public confidence when there is a secret "risk assessment" performed (real risk assessments include a public consultation so that the affected community can clearly communicate how they interact with the contaminated environment).

Why is the MOE complicit in keeping the results of the "risk assessment" secret? (And what does the City know? Why no description of the City's "in camera" sessions regarding the big toxic mess of PFCs/PFOS/PFOA at the Hamilton International Airport?) Apparently the MOE has had the results of the secret risk assessment since September 2012. Why should a completed risk assessment be a "TOP SECRET" government document? For over 6 months?

Meanwhile, in the modern world, PFOS cleanups are not only underway they have been largely completed. In Minnesota (link below), is was decided (in 2009) that all soil contaminated in excess of 13 mg/kg must be dug up and removed to a waste site specifically designed to contain PFCs/PFOS.

This specially designed landfill has not just one, or two, or even three, but FOUR liners. And it is capped to keep precipitation off of it. Even that is not enough. The leachate is pumped out of the special landfill and is treated by filtration (GAC) to remove PFCs/PFOS.

All of this when levels of contamination exceed 13 mg/kg. Based on all of the publicly released data, as far as we know all of the surficial soil inside to 2005 berm at the fire fighting practice pad at the Hamilton International Airport is contaminated in excess of 16 mg/kg. This means that it is all in excess of the Minnesota standard that requires that it be excavated and moved to a specially designed PFC/PFOS containment landfill.

This standard was set in 2009. Why are we still trying to reinvent the wheel in Hamilton/Ontario (four years later)? Why are all of these discussions secret?

Joe Minor

March 2nd, 2013: (COPY, AS REQUESTED)

To: All Members of Hamilton City Council c/o the Clerk, the private sector operator of Hamilton International Airport (Tradeport), Ontario Ministry of the Environment (MOE), NPCA, others

Health Canada and Environment Canada are seeking input with respect to how much PFOS pollution should be legalized for the future:

http://www.ec.gc.ca/toxiques-toxics/Default.asp?lang=En&n=96A225B1-1

It turns out that even though the federal government long ago pledged to "virtually eliminate" PFOS, it is "exempting" several types of PFOS pollution from regulation.

My thoughts about this ongoing federal blessing of PFOS pollution are reproduced below.

Since these are the thoughts of an amateur (prepared on a voluntary basis), it should be possible for the professionals involved with the big toxic mess of PFOS at the Hamilton International Airport to do much better. Since the comments are due March 5th, perhaps some of you have already sent in comments. If so, could you please share those comments with me? I am curious about the professional opinion about the legalization of even more PFOS pollution.

It has been a very long time since I have heard anything new with respect to the big toxic mess of PFCs (PFOS/PFOA/PFECHS) at the Hamilton International Airport.

Since I have been out of the country taking care of sick family, is it possible I have missed something?

It is my understanding that there was a public meeting last summer, but people who attended that meeting tell me that there was no new information available at that meeting. That means the last public release of data regarding the big toxic mess of PFOS came a few days after the previous public meeting (at GIC of Hamilton City Council) in December of 2011. The data in that release was from June 2011. Therefore it has

been more than 20 months since we have seen any new data regarding the big toxic mess of big toxic mess of PFCs (PFOS/PFOA/PFECHS) at the Hamilton International Airport.

I know that there has been work done at the airport since then: just last summer soybeans were grown in the toxic contaminated ditch. What I would like to know is what progress, if any, has been made with respect to cleaning up the big toxic mess of PFCs (PFOS/PFOA/PFECHS) at the Hamilton International Airport? If anyone has any information (particularly data) that they would be willing to share it would be much appreciated.

In 2011 (December), the consultants indicated that their clean up research program would take less than 12 months to complete. I expressed doubts about this:

http://www.hamilton.ca/NR/rdonlyres/0D169D19-7B53-4C2E-B224-A8FA6B1FAAB4/0/Jan11Item510.pdf

These doubts were based on:

1) the snail's pace of activity regarding the big toxic mess of big toxic mess of PFCs (PFOS/PFOA/PFECHS) at the Hamilton International Airport, and

2) obvious flaws in the plan as outlined in the report.

It has been over a year, and I have not received any response with respect to the problems with the clean up research plan. Since that plan promised results in less than 12 months, and it has already been more than 14 months, it would appear that the plan is already behind schedule. I think it would be appropriate to provide the public with at least some detail about what went wrong, why it went wrong, and what is being done to fix it. If there is anyone out there with any current (post 2011) information regarding the big toxic mess of PFCs (PFOS/PFOA/PFECHS) at the Hamilton International Airport, please let me know.

Sincerely,

Joe Minor

Comments on: Perfluorooctane Sulfonate, its Salts and Certain Other Compounds Regulations – Examination of On-going Exemptions

There is a lot of ground to cover concerning the federal government's (mis)management of PFCs (including PFOS, PFOA, and PFECHS). Several volumes could be written with respect to what went wrong, why it went wrong, and what needs to be done to fix the problems. I do not have time to cover all of that ground now. What follows is not a complete listing of the known problems, but rather is just a few topics that I have time to get on paper before "the deadline".

The overall point is that I am opposed to continuing any of the exemptions for PFOS use. We now know that PFOS is a much nastier chemical than we ever even suspected before. It is more persistent, more bioaccumulative, and more toxic. It is proving to be extremely expensive to even attempt a clean up, and millions of dollars have been spent on cleanups that were only partially effective. So, when we are trying to judge what is "technically and economically feasible" with respect the PFOS regulations, the economic analysis needs to be complete. A complete economic analysis must also consider the high clean up costs if PFOS "exemptions" continue, as well as a more modern reevaluation of potential environmental and health problems if PFOS pollution is allowed to continue.

The biggest and most complicated topic I can't discuss in detail now concerns what levels of PFOS and other PFCs are "safe". The request for comments says: "The human health assessment concluded that current levels of PFOS exposure are below levels which might affect human health". However, this assessment was made in 2006 (or before), and a lot has been learned since then. One post-2006 result is that there are fish in Hamilton (now) that are so badly contaminated with PFOS that the official government advice is that they not be eaten (in any amount). This would seem to fall in the "might affect human health" category.

Over the past few decades, the government has consistently underestimated how harmful these chemicals are. For obvious reasons, the 2006 assessment does not take into account the post-2006 scientific literature. I would urge the government to find some fresh eyes to conduct an unbiased evaluation of the modern scientific literature. Fresh eyes are needed because much of the early work was done with a large degree of support and influence from the chemical industries that made and sold these PFC mixtures (including PFOS/PFOA/PFECHS). Now that we know many of the early judgments were wrong, it would be best to get a modern evaluation by new people who do not feel the need to defend their earlier judgments. This revaluation needs to rely less on "conventional toxicology" (which has serious limitations), and more on epidemiology. This is exactly what happened with the C8 Science Panel (which focused on PFOA), and there is a great opportunity to increase the knowledge base of the bureaucracy with respect to the new science regarding PFOS (and other PFCs). Post-2006 epidemiological studies indicate that even very small increases in PFOS are positively associated with many health problems (including chronic kidney disease, immune system alterations, low birth weight). Post-2006 direct causal experiments indicate that even tiny amounts of PFOS can cause problems with the immune system. As little as 2.1 millionths of a gram of PFOS can kill a mouse (if it has the flu). (For reference, a penny weighs about 2g: the mass of a penny represents about a million lethal doses of PFOS.) Lethality is the most serious toxicological endpoint and it should not be ignored. Tiny concentrations of PFOS (0.1 micromole/L, the lowest concentration tested) effect human immune cells in vitro.

The problem with asking for comments just on PFOS (and its salts and precursors) is that PFOS is one of many, many different types of PFCs (perfluorocarbons). PFOS is a C8 PFC, meaning it has 8 carbon atoms in the molecule. Other C8 PFCs include PFOA and PFECHS. The commercial preparations containing PFOS

also contain varying amounts of these and many other PFCs. As a result environmental contamination (and the contamination of the bloodstreams of almost everyone on the planet) also contains mixtures of PFCs.

The complexity of these mixtures complicates getting a firm handle on just how harmful the various individual PFCs are. The ability of science to sort this mess out is further complicated by government policies that keep much of the information hidden. Governments had to balance the public's right to know about what was being spewed into the environment (and into people's bloodstreams) against the economic "rights" of the corporations manufacturing and selling these mixtures of PFCs (that included PFOS). This balance was shifted way too far in favor of the corporations, and against the public's right to know. As a result, companies do not have to disclose which particular PFCs are in the mixtures they sell and what their concentrations are. These formulations are hyper-protected "trade secrets". Even if a laboratory tested and determined what the PFCs in a particular formulation were, it would be illegal for them to publish the information.

There are many ways that this "legally" mandated secrecy is inhibiting progress with dealing with the giant environmental mess caused by PFCs. Two examples:

First example. Please see the government funded study "Final Report Toxicological Literature Review For Perfluoroalkyl Carboxylates (PFCAs)" (1). This study was a literature review trying to see if there was enough scientific literature in order to determine safety limits for some types of PFCs. The fact that this study comes many decades after governments allowed the use of the PFCs raises serious concerns. In fact, government REQUIRED the use of many of these PFC mixtures without conducting thorough safety studies. The government also MANDATED the use of the PFC mixtures without even knowing what was in them. In this review (1), a particular commercially prepared mixture of PFCs was determined to have toxicity problems. The consultant preparing the review wanted to know what the mixture of PFCs was in order to derive safety limits for them. The corporation manufacturing the mixture refused to disclose what was in the mixture. As a result, no action was taken. So, even when toxicity testing is done and shows problems, nothing is done with the information because the corporations do not have to disclose what is in their products.

Second example. Please see the federal government study "Highly elevated levels of perfluorooctane sulfonate and other perfluorinated acids found in biota and surface water downstream of an international airport, Hamilton, Ontario, Canada" (2). Federal scientists accidentally discovered a major plume of PFC contamination (including PFOS, PFOA, and PFECHS) in the Welland River downstream of the Hamilton International Airport. It appears that there are at least two sources of PFC contamination coming from the airport: 1) AFFF fire fighting foam, and 2) aircraft hydraulic fluid. It has been impossible to sort out the relative contributions of these two sources, mainly because the PFC profiles of the commercial chemical products remain protected trade secrets. The PFECHS is believed to come only from aircraft hydraulic fluid, because aircraft hydraulic fluids are the only known registered source of PFECHS. Currently there is an exemption for the use, sale, and import of aviation hydraulic fluid containing PFOS (see Request for Input 4.1). (By the way, I am opposed to continuing this exemption.) This exemption was granted because the aircraft industry argued that aircraft hydraulic fluids should be contained in the aircraft, and so they were unlikely to become environmental contaminants. (As a regular aircraft passenger, I, too, want to believe that aircraft maintenance crews don't loose track of where the hydraulic fluid is going.) Unfortunately, the presence of PFECHS downstream of the airport suggests that significant amounts of aircraft hydraulic fluid are leaking out of aircraft, washing off of the airport and into the Welland River. There are many PFCs (including PFOS and PFECHS) flowing off of the Hamilton International Airport and into the Welland River, and trying to sort out the relative pollution "contribution" from AFFF or aircraft hydraulic fluid is being hindered because the formulations of these products are still being protected as "trade secrets". Not even the government is being told what these formulations are. This means that the federal government continues to require the use of a very nasty mix of persistent bioaccumulative toxic materials without even knowing what those materials are.

And the PFC (PFECHS/PFOS) ongoing environmental contamination problem is not just downstream of the Hamilton International Airport. Lake Ontario is the primary source of drinking water for millions of people. For many years the most abundant PFC contaminating Lake Ontario was PFOS. The sole North American manufacturer of PFOS phased out production of PFOS in 2002, and the levels of PFOS have been dropping in Lake Ontario since then. Now the most abundant PFC in Lake Ontario is PFECHS. The source of this contamination remains unknown, mainly because so much of what is known about the manufacturers and users of PFECHS (and other PFCs and PFOS) is still a "trade secret". But one thing is clear: the "aircraft hydraulic fluid" exemption (4.1) granted for PFCs (PFOS/PFECHS) was given for reasons that we now know to be false. Despite the assurances given by the aircraft industry, it appears that aircraft hydraulic fluids are a source of PFC (PFOS/PFECHS) contamination to the environment.

Because aircraft hydraulic fluids are a known environmental contaminant, I am opposed to continuing the "aircraft hydraulic fluid" exemption (4.1). Again, I am opposed to any exemptions for any commercial/industrial uses of PFOS. The uses of PFOS were so large scale that the entire planet, and virtually everyone's bloodstream, was contaminated. Because PFOS is virtually indestructible (particularly under all naturally occurring environmental conditions), any continuing exempted use is likely to result in continued long term pollution of the environment (and people). It would be very expensive to attempt even a partial cleanup from any continued exempted use, and so there would be added costs from whatever remained in the environment. If there are some industries that "need" a continued exemption, then those industries should be responsible for the costs of the cleanup/pollution. If there are to be continued exempted uses, then there should be a tax imposed in order to cover the inevitable costs. I believe that if that tax truly captured the total costs, the tax would be high enough to discourage use of this very persistent, very bioaccumulative, very toxic chemical.

PFOS clean up costs

Most of the information for this part of the discussion came from responses to questions I asked in a petition (#332) to the Federal Auditor General. See:

http://www.oag-bvg.gc.ca/internet/English/pet_332_e_37100.html

The petition has been posted as well as some (but not all) of the federal department responses. From this (and a little research), it can be seen that:

The total amount that has been spent on PFOS clean up is difficult to know, because there is a general lack of transparency associated with the "Federal Contaminated Sites" program. The "Federal Contaminated Sites" program has spent a few BILLION dollars in cleaning up contaminated sites. Much of what has been done is effectively secret. The FCS program has no notification program to notify the public around the contaminated sites about either 1) what contaminants are present, or 2) what is being done to clean them up. The FCS clean up consultants hold meetings to discuss clean ups, but those meetings are effectively closed to the public. (The price to attend the last meeting was more than $1000.00, and no recording devices were allowed into the meetings.) At these meetings, clean up consultants keep the locations of their work secret. There is a FCS website that lists site locations and how much money was spent at each site, but the website

does not list what particular contaminants are on a particular site (or even what the money was spent on). As a result, it is difficult to know how many sites are contaminated with PFCs/PFOS, and how much has been spent on cleaning up these particular compounds. In the petition response, it can be seen that there are (at least) 33 sites badly contaminated with PFCs/PFOS in Canada. 15 of these sites are DND (posted on the web), and 18 are TC (not yet posted – I can tell you where they are if you need to know).

As for how much money has been spent cleaning up at these sites, that can be seen on the FCS website for these sites. What isn't known (again, lack of transparency....) is what portion of these funds was spent on PFCs/PFOS. Going on memory (amounts approximate): About a million has been spent at CFB Trenton and a few million has been spent at Williams Lake Regional Airport. It is clear that the cleanup of PFCs/PFOS has been a focus of the work at Williams Lake since 2006. It is also clear that despite seven years of work and the thousands to millions spent on cleaning up PFCs/PFOS at Williams Lake, the PFC/PFOS cleanup failed and the vast majority of the PFCs/PFOS remain in the ground contaminating a spreading plume of groundwater.

Although we could know a lot more if the FCS program wasn't so secretive, I think it is safe to say that in Canada millions have been spent on PFC/PFOS cleanup, with very limited success. The federal government needs to keep this in mind when it is contemplating the "economic feasibility" of continuing the PFOS exemptions.

The continued secrecy around PFC/PFOS clean up results in both lost time and lost money. Under the current Canadian clean up model, clean up is privatized (handed over to private consultants). The secrecy surrounding the clean ups serves the consultants well: the consultants are allowed to retain secret information and have to be paid again to clean up the next site (33 and counting in Canada.....). While this results in a "Jobs For Life" program for the consultants, it results in many negative consequences for the public. One is lost time: the public is slow to learn what is going on. As a result, some PFC/PFOS contamination goes unrecognized for years. This is what happened in Hamilton: despite the ongoing cleanup of PFCs/PFOS at Williams Lake that started in 2006, the Hamilton mess wasn't made public until 2011. This means that people in Hamilton were unnecessarily eating contaminated fish for years (the carp are the most PFOS contaminated carp in the world). Also, because the work continues mainly in secret, there is limited opportunity to learn from what has happened elsewhere. The seven years of largely failed PFC/PFOS cleanup in Canada appear to have ignored the much more advanced clean up programs south of the border.

There is much more public disclosure about the cleanup programs in the U.S., for example Minnesota:

http://www.pca.state.mn.us/index.php/waste/waste-and-cleanup/cleanup-programs-and-topics/topics/perfluorochemicals-pfc/perfluorochemical-pfc-waste-sites.html

In Minnesota, it was recognized early on that the PFCs/PFOS wastes should not be left in the open, but should be placed in a concrete lined landfill. It was subsequently learned that even a concrete lined landfill was not adequate for the long term storage of PFCs/PFOS, so the material was excavated out of the lined landfill a moved to an isolated and specially engineered custom built triple lined cell within a permitted environmental industrial landfill. All excavation equipment leaving the excavation site had to be decontaminated to avoid spreading contamination across the landscape.

Even after the worst of the PFC contaminated soils were removed to a safer location, significant amounts were left behind and continued to contaminate groundwater. As a result, an extensive system of groundwater extraction wells and barrier wells were built and for the indefinite future ("up to 30 years") these wells will pump out contaminated groundwater and send it for expensive treatment (including, for example, GAC filtration). For at least 30 years workers at the site will have to be warned to only drink water from a special water supply in the cafeteria that will receive further special filtration.

Is all of this expensive? Enormously. The federal government needs to consider these huge costs when it considers the "economic feasibility" of continuing the PFOS exemptions. Lets be clear here: the sole North American manufacturer of PFOS saw these enormous problems coming and abandoned their PFOS business in 2002. More than ten years later, that company is still dealing with high cleanup costs and continued litigation concerning PFOS pollution. The federal government needs to seriously consider if it is "economically feasible" to deal with the fallout if it gives its blessing to continued pollution with this very nasty persistent bioaccumulative toxic material.

References:

1) "Final Report Toxicological Literature Review For Perfluoroalkyl Carboxylates (PFCAs)". Report 508851 prepared by SNC-Lavalin for the Contaminated Sites Division of Health Canada. February 15, 2012.

2) "Highly elevated levels of perfluorooctane sulfonate and other perfluorinated acids found in biota and surface water downstream of an international airport, Hamilton, Ontario, Canada". Environment International 39 (2012) 19–26.