To: All City Councillors and the Mayor c/o the Clerk, the Airport Operator, the Welland River Keepers, the Niagara Peninsula Conservation Authority, Environment Hamilton, Ontario Ministry of the Environment, Environment Canada, Transport Canada

Please include this correspondence in the official (publicly accessible) correspondence for the next meeting of Council.

I am writing to thank City Council for taking decisive action with respect to the PFOS contamination at the Hamilton International Airport. I do not think it is a coincidence that within a few days after your action the airport operator and the Ministry of the Environment agreed to a short term clean up plan.

The only information that I have available to me regarding the cleanup plans is the information reported in the Hamilton Spectator on Saturday June 18th. If anyone on the distribution list for this communication has the ability to send me the details of the deal between the airport operator and the MOE regarding the cleanup plans, I would really like to see them.

Absent this information, it is difficult to know whether the measures that have been agreed to will address the underlying problems. I visited the site of the contamination on the evening of June 21st, but I was unable to see what was being done by peering through the fence.

The first priority (with respect to cleanup) needs to be plugging any excavations in the area of the airport practice pad. Any of these excavations could be conduits to groundwater contamination.

The next priority needs to be preventing more water (mainly precipitation) from falling on the practice pad and washing more PFOS out of the pad. I remain hopeful that, as I said on May 11th:

"The most promising thing I saw was the fact that there were standing puddles of water both in the central depression and in the outside depression ring (immediately inside the berm). If we are very lucky, this could mean that there is an undisturbed clay layer under the gravel pad that substantially decreases the amount of toxic (PFOS, perfluorooctane sulfonate) runoff that percolates through to groundwater. If that is the case then the majority of PFOS leaving City airport property would be via the southern creek which leads to the sampling site (N 43.16274° W 79.94191°) that had concentrations of PFOS in sediment of 170 ppb."

While I remain hopeful this is true (that groundwater is not very contaminated), it is based on extremely limited observations from the surface and needs confirmation by checking either under the pad or in wells near the pad (much nearer than those in the City’s monitoring program). Any information any of the professionals in
My problem with what I understand of the current clean up plans (from the Spectator newspaper article) is that there are currently no plans to deal with precipitation washing more PFOS (and what else?) out of the pad. Assuming (hoping...) limited groundwater infiltration, most of any large precipitation event that falls on the pad will leave the pad as PFOS contaminated runoff. (While there would be some evaporation that would reduce the runoff from small rainfalls, the near saturated nature of the pad means that most of any large rain event will leave the pad as runoff (if we are lucky and little is soaking through to groundwater).

The area of the pad is about 17,680 m². This means that an inch of rain on the pad will produce about 449,000 liters of PFOS contaminated runoff. If this runoff is not collected and properly stored and disposed of, it will continue to contaminate the environment. This is why, in the long term, the areas most contaminated with PFOS need to be either removed (preferably) or capped (if it can be demonstrated that the clay layer is not allowing access to groundwater).

While the failure to detect, report, and deal with this PFOS contamination of the Welland River was a monumental governmental FAIL, it is worth noting the two things that government did do right that put this mess on the road to remediation:

First, federal government funding of independent environmental research at CCIW (Environment Canada) that “discovered” the PFOS contamination. This success stands in stark contrast to the work done by private consultants hired to work at the airport itself who somehow failed to report the problems.

Second, the provincial government funding of the Sport Fish Contaminant Monitoring Program and the “Guide to Eating Ontario Sport Fish” book. The information provided to the public in this book was the first information about the PFOS contamination that was made available to the public. The success here is not just that the information was gathered, but more importantly that it is government policy that this information is released to the public in a timely fashion. This stands in stark contrast to all of the other data, all of which is extremely difficult to know about, and most of which remains unavailable to the public to this day.

Speaking of hidden data, there are three sets of data that I have previously (and repeatedly) requested access to that I have not been allowed to see. It turns out that all of this data is available, because Mr.Paparella referred to it in his presentation to Council.

1) Data from the airport operator’s consultant regarding contamination levels at the practice pad. According to Mr.Paparella: "What happened was when they hired these consultants, they wrote a report to Tradeport which basically indicated similar results to what MOE has here." (As a scientist, I am curious about what is meant by “similar”.)

2) MOE data from sediment cores. According to Mr.Paparella: "And the information that MOE – how they concluded that it was during the 83 to 93 time frame was through the siltation tests. You know, the sediment settles in layers and they were able to put a time frame on when that happened." It is my understanding that at least some of this data is from Binbrook Reservoir sediment cores that were collected in 2010. If there is also sediment core data from the airport pond, I would like to see that as well.

3) The 1996 Transport Canada environmental study that specifically looked at the site of contamination. According to Mr.Paparella: “But again, there was an environmental audit done when Transport Canada transferred the airport to the city. It included a lot of elements, but PFOS wasn’t one of them, because it wasn’t something that was, I guess, dealt with in those environmental reports.” If Mr.Paraparella would please provide a copy of the report he must have very carefully read prior to making this statement as a planning professional, it would be appreciated.

I do not think it is appropriate for Mr.Paparella to be cherry picking from three reports when it suits his purposes, when the underlying reports are not being made available to the public. I am asking (again) to see these three reports that Mr.Paparella cited in his presentation to Council.

6/22/2011
I want to thank Council for releasing the information it has from its well monitoring program, as well as the report from the MOE ("PFOS in the Welland River and Lake Niapenco").

While the report from the City’s well monitoring program is good news, it alone can not be considered proof that groundwater has not been contaminated. As I tried to explain to the City official who contacted me in April 27th, the locations the City sampled are too far from the site of contamination to address the issue of whether groundwater has been contaminated. Nobody knows how fast or in what direction PFOS in groundwater would move under the airport’s particular conditions. It remains possible that groundwater has been contaminated, but that it has not (yet) migrated to one of the wells that the City tested. As I said on April 27th, the scientific approach to this problem is to start at the site of contamination and see if the groundwater is contaminated there. While I remain hopeful that groundwater has not been contaminated (based on my May 11th observation above), the information that has been released to the public to date does not adequately address the issue of groundwater contamination.

With respect to the MOE’s report ("PFOS in the Welland River and Lake Niapenco"), a few observations: On a technical note the report contains errors with respect to the description of data handling and the labeling of graphs. The report states: “PFOS concentrations were converted to the logarithmic values to account for the wide range in scale.” This statement is incorrect, as are the vertical axis labels on Figures 1 and 2. It would be more accurate to delete the “Log” in front of PFOS on the axes labels and add “(logarithmic scale)” at the end. Council needs to pay particular attention to the fact that these are semi-log plots, which obscure the magnitude of the differences between the values. Current levels of PFOS contamination at the airport are more than 4 orders of magnitude (actually 6712 times, or 671,200%) higher than background levels. To illustrate: picture a toddler holding a lollipop at the base of the CN Tower. The height of the lollipop represents background levels of PFOS contamination (7.3 ppt), the height of the toddler represents the levels of PFOS contamination in Lake Niapenco (53 ppt about 14 km downstream of the airport), while the height of the CN Tower represents the levels of PFOS contamination present at the airport today (49,000 ppt).

There are a few implications in the MOE report that I think are unwarranted when considered against all of what is known. As long as these implications are not used as an excuse for not cleaning up the site, I do not see the need to examine them in detail.

There are other measurements made both by Environment Canada and the MOE that are referred to in the MOE report. The Environment Canada data was apparently completed some time ago, because a few of the EC numbers are reported in the MOE report. I would like to see all, as opposed to a selected subset, of the Environment Canada data. Part of the missing MOE data is also apparently completed and available, as numbers from it were available to Mr.Paparella (see Paparella #2, above). If anyone involved in this process could find a way to share this publicly funded data it would be appreciated.

I think that someone, and I don’t care who (City, NPCA, MOE?), needs to post signs along the Chippewa/Welland/Niapenco system warning about the contaminated fish. Many of these fish will be unsafe to eat for many years (perhaps many decades if the airport is not properly cleaned up). While the Guide to Eating Ontario Sport Fish helps with this communication, this contamination event is so singularly bad that the addition of signs is warranted. (Please look at the Guide, 2011, page 20: see that wedge labeled PFCs? All of those advisories are due to PFOS contamination that ran/is running off of the Hamilton International Airport. The carp are the most heavily PFOS contaminated carp in the world.

The foregoing information is all correct, to the best of my knowledge. If there are any errors, please notify me so that I can correct them. There is apparently a wealth of publicly funded information that is known about this subject, but is not available to either me or the public. I would really appreciate seeing any of this data, so if anyone seeing this communication would please send the data it would allow for my comments to be more focused (which in the long run is best for everybody).

6/22/2011