

WATER POLLUTION-CHICAGO INTERNATIONAL AIRPORT

by

Paula F. Cowan, M.D.

Clinical Asst. Professor of Family Medicine

University of Illinois at Chicago

Medical Director, Alliance
of Residents Concerning O'Hare

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Summary of Chicago's O'Hare International Airport Water Pollution

Interest in O'Hare Airport's groundwater, surface water and soil pollution on the part of the Alliance of Residents Concerning O'Hare (Alliance) began after the following events: 1) Another environmental/aviation sister organization, CASE, filed a Clean Water Act lawsuit against the Seattle-Tacoma International Airport alleging 123 violations of their National Pollutant Discharge Elimination System (NPDES) permit and the Clean Water Act, as a result of aviation operations; 2) the release of the Natural Resources Defense Council's report *Flying Off Course: Environmental Impacts of America's Airports* (October 1996); 3) another aviation/environmental sister organization, Airport Coordinating Team, in the Baltimore-Washington Airport area discovered a serious water pollution violation of the local waterways, which the airport and the Maryland Department of the Environment had known about, but failed to correct. The Maryland Department of Natural Resources and the Allwood Community Association ultimately put out photographs, data, and a written summary, which stated that airport and aircraft deicing and anti-icings were:

- * posing threats to animal and human health
- * killing wildlife
- * producing foamy, neon-colored creek water which existed near homes, wells and a wildlife refuge
- * threatening plants on land and water downstream

Because of the above-mentioned events, and following threats, intimidation tactics, and a shooting, NBC Network News Radio began investigating other major airports (selected by high flight volume and climate). The Alliance worked with NBC, several sister aviation/environmental organizations, and public health workers around the country to identify the hazards, proven and theoretical, associated with airline deicing and anti-icing operations.

Shortly after the NBC News investigation, we learned that even the nation's newest airport, Denver International, which boasted of its state-of-the-art glycol recovery system, was also caught and recently cited for dumping the deicing/anti-icing pollution directly into Three Mile Creek.

Alliance representatives first inspected the waterways and the communities surrounding O'Hare Airport on March 22, 1997. At that time, we observed a continuous

multi-colored film on the surface of Willow-Higgins Creek on the north end of the airport. The same situation was observed on March 23, by the NBC News correspondent and the same Alliance representatives from the day before. We observed Crystal Creek (run-off for Lake O'Hare, an airport industrial waste pond) which flows through a densely inhabited community, Schiller Park. The creek had a strong chemical odor, was generally colored an unnatural deep green, but because of other spot colors, it seemed apparent that other chemicals were present. We spoke with residents along the creek who reported that the creek turns different, unnatural colors at times and it has chemical odors. Residents stated that they, their families and pets have become sick (vomiting) after being exposed to the fumes. They also reported dead birds and large fish kills. The residents stated concerns about recent creek flooding that it might have left dangerous chemicals in their homes and gardens. Shortly after the issue of deicing/anti-icing operations polluting Crystal Creek became public, construction to seemingly clean up and widen capacity of the stream, just east of the airport, began. Crystal and Willow-Higgins Creek are major waterways that run through heavily populated residential areas and empty into the Des Plaines River. Both Chicago Department of Aviation and Illinois EPA (IEPA) officials deny that any deicing/anti-icing fluid is getting off airport property; but, their own records, observation and interviews with residents prove otherwise.

A summary follows:

Commissioner Mary Rose Loney, Chicago Department of Aviation, claims that O'Hare used only 750,000 gallons (approx.) of fluids last year¹. According to IEPA records, O'Hare discharged at least 3.1 million gallons of deicing/anti-icing fluids in the last year for which the IEPA could give us data (1995 report; 1993 and 1994 data). Both estimates appear to be too low and the amount of deicing/anti-icing fluids used on O'Hare property is in question based on amounts used at other airports² and other information. It takes about 300-400 gallons of deicing/anti-icing fluids per aircraft. According to numbers released by the Federal Aviation Administration (FAA), there were approximately 2,600³ operations per day at O'Hare. Bob Keyes, Chicago Air Traffic Controller, claims that the new figure is 2,700 operation per day⁴. The number of deicing days was estimated for us by the IEPA (unofficially and off the record) as "about 60 days". Thus, the minimum amount of deicing/anti-icing fluids used could be 27,825,000 gallons (350 gal. x 1,325 ops. per day x 60 days). We estimate the fluids are used on the aircraft at O'Hare at least 209 days/year. This is based on over 200⁵ deicing days at both Baltimore-Washington (BWI) and Seattle-Tacoma (SEATAC) airports, our cooler local climate, climate at 36,000+ feet and, that certain types of aircraft because of safety, have to be anti-iced well into late spring, out of O'Hare.

¹ "Safe Skies, Safe Water." NBC News Extra. April/May 1997.

² Minneapolis/St. Paul used 3 million gallons last season. Other smaller, less used airports report similar use. O'Hare is the world's busiest airport. -Ibid.

³ The actual grand total amount of operations (movements) is unknown. According to the FAA, totals are not certifiable for 99 years.

⁴ Fox News, Channel 32, 5/16/97 AM.

⁵ Janet Thompson-Lea/Lisa Zinener memo, SEATAC Draft EIS. 8/5/95.

It is estimated that at least 80% of the fluids do not remain on the aircraft directly after deicing/anti-icing operations, but spill on to the ground and spray into the atmosphere. The composition of the specific fluids is too long to list here (some are also proprietary and thus, unknown), but about 98% of it consist of ethylene glycol (for deicing) or propylene glycol (for anti-icing), plus dioxane, formamides, acetaldehyde, and many other additives.

At O'Hare, some of the fluid runs off the aircraft on the ground, flies off into the air below 3,000 feet on takeoff, and sprays into the air during application, ending up in Lake O'Hare (an on-site industrial waste pond). This is a clay-bottom, uncapped, expanded, natural lake. This fact is crucial, because it means that millions of gallons of deicing/anti-icing fluids, plus rainwater, leach into the soil beneath the lake, and almost certainly accumulate. Residents living on the south and southeast sides of the airport who have well-water, and people who use the nearby forest preserves' wells are almost certainly drinking deicing/anti-icing fluids. Most residents around the airport generally have city water, rather than wells, but the risk of contamination of their groundwater still exists. Glycols are medically proven dangerous (see below); we just do not know how much of it is down there below the airport and the industrial waste pond.

No one knows the exact amount of the millions of gallons of deicing/anti-icing fluids used, that enters the industrial waste pond known as Lake O'Hare. From the pond, the fluid is supposed to be pumped through the O'Hare waste water system to the Chicago Metropolitan Water Reclamation System. There is far too much of deicing/anti-icing fluids to allow treatment of this supposedly "completely biodegradable" fluid in the nearest water treatment centers, so the fluid is pumped all the way to Stickney. There is no specific chemical treatment to neutralize ethylene and propylene glycol; instead, they biodegrade IF large amounts of sunlight, oxygen, and free water flow exist⁶⁻⁷⁻⁸. Making this problem worse is that deicers that are over-sprayed and run-offs from the planes are absorbed into the ground. ...But, under Lake O'Hare, the soil is clay, which has no sunlight, little oxygen, and little water flow. The glycols are almost certainly accumulating in the soil, just like next to a toxic waste dump.

In addition, evaporating glycols have OSHA standards for their concentration in the air; as an air pollutant, they certainly could poison airport workers as has been reported at other airports in other countries. (NOTE: At O'Hare and other airports, the NBC correspondent found workers involved in deicing/anti-icing operations not to be adequately protected against exposure to inhalation and skin.)

⁶ "At temperatures typical of deicing, the glycol does not rapidly biodegrade and may collect in soil and standing water surrounding airports and may be discharged into water tables." Humane Society.

⁷ A Water Reclamation problem that is created with the release of huge amounts of glycols, is that the enormous demand for oxygen destroys bacteria that biodegrades the sludge; thus, releasing raw sewerage.

⁸ "The additives in fluids may have an effect in the overall biodegradability." Design of Aircraft Deicing Facilities. FAA. AC: 150/5300-14 - 8/23/93. p.19 - #24a.

The IEPA reported to the Alliance in a recent meeting that they had to pressure the airport operator, Chicago, to fix this pollution problem. Enclosed is documentation that airport officials knew of this problem since 1990⁹. Given that they have used deicing chemicals since the 1960's and know treatment was in use, we believe they should have been aware of this massive pollution problem since the 1960's. Proposed IEPA solutions are: 1) Pump out Lake O'Hare faster to prevent overflow of the 114 million gallons of water/deicers/other pollutants which O'Hare claims last occurred in 1993 (IEPA furnished data) after a single heavy rain in February. The overflow runs directly into Crystal Creek, Bensenville Ditch, and the Des Plaines River. 2) Build a twin "lake" at the north end of O'Hare because only a portion of the fluids used on the southern part of the airport runs into Lake O'Hare. Currently the northern runways' water/deicers/other pollutants run into Willow-Higgins Creek not into Lake O'Hare. 3) Stricter monitoring of compliance by the IEPA.

SO: Why do we care so much about this stuff? How do we know it's dangerous? Two ounces of pure ethylene glycol, if swallowed, can blind or kill a small adult. One ounce can kill a pet. In lower amounts, ethylene and propylene glycol can cause kidney damage, dangerously low number of red cells (sometimes fatal), cancers, and serious gastrointestinal diseases if swallowed. If breathed it causes dizziness, alters brain circulation, and causes lung and heart damage.

To make matters worse, the dioxane/formamides/acetaldehyde additives cause cancer, major birth defects, and a host of other serious or fatal diseases. These additives are NOT biodegradable. There are no OSHA standards to limit workers' exposure to them. There is NO chemical process at Stickney or elsewhere which removes them from your drinking water. That's why we are so concerned about millions of gallons of these fluids being used without regard to health; the fluids are going into local water and groundwater.

Isn't the new filed plan¹⁰ to contain the fluids enough? NO, because:

1. Schiller Park residents report that they see the overflow of Lake O'Hare into the creek still occurs about one hour after a substantial rain, despite Chicago and IEPA claims that overflow is no longer occurring.
2. The IEPA has known of the discharge of large amounts of deicing fluids into local waterways at least since 1990. But almost certainly, for at least the time the airfield had been in existence and planes were flown in the winter, deicing/anti-icing polluting has been happening. The lack of responsiveness by the airport is inexcusable.
3. Nobody has studied the effects of long-term ingestion or the breathing of glycols; does 40+ years of drinking contaminated water with chemicals known to accumulate in human bodies (the additives

⁹ O'Hare Master Plan Strategy p 4.

¹⁰ NPDES permit. Nov. 19, 1996. p. 6, Special Condition 6.

especially) cause harm to health? Obviously, yes; we just don't know how much harm. We need public health studies to identify the harm done to the people drinking this water, compared to the health of similar people NOT drinking this water.

4. Nobody has sampled the bottom of Lake O'Hare, or other waterways, or the soil UNDER the airport to see how much of what has accumulated in this toxic waste storage facility which has no cap, no lining, and no toxic waste storage permit. Whatever contamination is found needs to be removed.
5. Nobody, to date, has built ANYTHING to contain these fluids for the north end of O'Hare; these residents have totally unprotected water flowing through their towns and finally into the Des Plaines River. The timetable proposed by Chicago under IEPA pressure will not bring any relief for the north end residents for at least two years.
6. Safer fluids are available for deicing. Infra-red deicing, an even safer method, was coincidentally just approved by the FAA. If used with an environmentally friendly fuel source, it creates NO pollution from deicing, except that power source for the infrared machines. Who is insisting on the industry using them? Nobody, except the citizens and the few legislators tuned in to public health and the environment.
7. Nobody has notified local residents, especially those with wells, until the NBC report. Because the NBC Network News Special was not broadcast in Chicago, ***most people still do not know***. The Alliance of Residents Concerning O'Hare made massive attempts to supply the media with the above information, but the major Chicago media with airline financial connections, did not run it. Only a few small stations had the courage to run their own versions.
8. Confirmed by O'Hare and recent United Airline's claims that the Chicago metropolitan area does not need a new airport and that they can handle future increases at O'Hare through technology, there is a massive increase of flights predicted. This will clearly make this now intolerable problem, more than unbearable.
9. The synergistic effects of the chemicals in the cocktail of O'Hare's discharge to Water Reclamation and ground and surface water are unknown.

We NEED:

1. An investigation needs to be conducted to determine why these problems were allowed to exist without solutions for so many years.
2. Since there were past abuses, we need methods to see if the airport is adhering to the Clean Water Act. We need independent scientists and experts to monitor periodically to see if problems are being solved.
3. We also need waterways and water tables tested on a regular basis, looking for specific chemicals when deicing/anti-icing operations are in progress.

4. A reduction in the number of flights is the only sure way to achieve an immediate reduction in this serious pollution problem. This could be achieved without economic harm by insisting that the airlines increase the occupancy in the aircraft.
5. Airports and airlines' emissions need to be added to Toxic Release Inventory reports¹¹. Community residents need to know all compounds produced as a result of O'Hare Airport operations, so that they can adequately protect themselves and their families.

Chicago Department of Aviation officials for a number of years have been knowingly violating the Clean Water Act -- yet they continued dumping in waterways, and did not notify or protect the public. They have been killing the waterways with known carcinogens and toxins. Some of these waterways travel through people's property, 20 feet from their homes. Kids play in and near this water. All risk bodily harm. As one senator in Massachusetts expressed, "It is totally unacceptable to poison people!"

It is time to make the airport operators (Chicago in the case of O'Hare and Midway) and airlines spend the money to protect the health of not only their passengers but their employees and neighbors.

Because of the seriousness of the problem and because of inaccurate, confusing, and conflicting data provided by the Chicago Department of Aviation, Illinois Environmental Protection Agency and the Federal Aviation Administration, we need federal assistance in getting to the bottom of the matter and getting it resolved.

Paula Cowan, M.D.
Medical director, Alliance of Residents Concerning O'Hare
Assistant professor of medicine

¹¹ Jennifer Stenzel, Natural Resources Defense Council. Petition to Carol Browner, US-EPA, to add standard industrial classification Code 45, transportation by air, to the list of facilities required to report releases of toxic chemicals. April 16, 1997.