

Sub (55)



Walshestown,
Lusk,
Co. Dublin.

13 November 2006.

Re: Proposed Tooman/Nevitt Landfill Development.

Dear Sir/Madam,

With respect to the aforementioned development, what investigations, if any, have been undertaken to determine the potential hazard to commercial aircraft operating in this high traffic density area by birds, especially Gulls?

Let me introduce myself. My name is Thomas Anthony Larkin. I am a Commercial Airline Pilot with in excess of 26 years flying experience on medium and heavy civil aircraft.

I flew with Aer Lingus, based in Dublin, for over 15 years and am very familiar with the flight pattern to and from Dublin airport. The northern arrivals to the easterly runway and the northern departures from the westerly runway, the arrivals to the southerly runway and departures from the northerly runway, all transit the immediate area of the proposed development. Approaches to certain runways will have aircraft maneuvering as low as 1500 feet above sea level, which translates to less than 1300 feet above ground level in the area of the proposed development. This is well within the envelope of operation of the Gull.

Consider a worst case scenario. Aer Lingus E1 105 departs the northerly runway in Dublin airport, fully laden with fuel and passengers, bound for New York. An engine fails during the take-off run. The aircraft staggers into the air. The rate of climb is drastically reduced as a result of this engine failure. The crew carries out emergency procedures while maneuvering back to Dublin airport to carry out a single engine landing. In the course of this maneuvering, the aircraft transits the landfill area much lower than normal. One live engine and lots of live seagulls. The ingestion of just one of these live seagulls can result in the catastrophic failure of this one remaining live engine. The consequences do not bear thinking about. Suffice to say that the subsequent Board of Enquiry will ask a lot of searching questions regarding the siting of such a large waste management facility in close proximity to the premier airport in the country.

Birds are a serious hazard to commercial aircraft and conditions that encourage the formation of large flocks of birds should not be allowed close to an airport or beneath the flight path to and from an airport. Although most strikes are encountered close to the ground, there is still a very real and present danger at medium altitudes if birds flock or circle above a local feeding area.

There are three basic approaches to reduce the effect of bird strikes. The aircraft can be designed to be more bird resistant, the birds can be moved out of the way of the aircraft, or the aircraft can be moved out of the way of the birds. As you can see, choices are limited.

The point of impact is usually any forward-facing edge of the aircraft, although with jet engine aircraft the bird is frequently sucked into the engine causing damage to the fans or the housing, or airflow ducts. The force of the impact depends on the weight of the bird, the speed difference and direction at the impact. The weight of the aircraft can usually be ignored since it is much larger than the weight of the bird. The energy of the impact increases with the square of the speed difference. Hence, the energy of the impact is small at low speeds, and an impact of a small bird on, for example, the windshield of an automobile results in usually only minor or no damage to the car, although it will result in major injuries or death to the bird. High speeds, however, as for example with modern jet engine aircraft, will produce considerable energy and may cause considerable damage or even a total catastrophic failure to the aircraft. A 5 kg (12 pound) bird at 240 km/h (150 mph) equals almost 1/2 ton (1000 pound) dropped from 3 meter (10 feet) height.

Depending on the force of the impact, the bird strike may damage or even destroy components of the aircraft, or injure people in the aircraft. Flocks of birds are especially dangerous, and can lead to multiple strikes and damage within a very brief period. Depending on the damage, aircraft at low altitudes (or during take off/landing) often cannot recover in time and may crash.

Please peruse the following data. While far from comprehensive, it is frighteningly interesting.

Yours Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas A Larkin", written over a horizontal line.

Captain Thomas A Larkin.

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The U.S. Department of Agriculture, through an interagency agreement with the Federal Aviation Administration, compiles a database of all reported bird strikes to U.S. civil aircraft and to foreign carriers experiencing strikes in the USA. Over 38,000 strike reports from 1,300 airports have been compiled, 1990-2001 (about 5,900 strikes in 2000). The FAA estimates that this represents only about 20% of the strikes that have occurred. The following examples from the database are presented to show the serious impact that strikes by birds can have on aircraft. These examples demonstrate the widespread and diverse nature of the problem. Many of the strike examples reported here occurred off airport property during descent, approach or climb

Date: 31 March 1996

Aircraft: B-737

Airport: Kansas City Intl. (MO)

Phase of Flight: Take off

Effect on Flight: Precautionary landing

Damage: Engine

Wildlife Species: Medium to large bird

Comments from Report: Airport operations found a piece of inlet cooling duct on runway from a B-737 that had just taken off. Aircraft returned and landed safely.

Engine had several damaged guide vanes. Aircraft was out of service about 24 hours.

Date: 2 June 1996

Aircraft: B-737

Airport: Chicago Midway (IL)

Phase of Flight: Climb (100' AGL)

Effect on Flight: Precautionary landing

Damage: Engine

Wildlife Species: Gull

Comments from Report: Ingested a gull during climb out. Tower observed flames from #2 engine and advised pilot who declared an emergency and returned to land without incident. Emergency equipment was on the runway. Aircraft landed using single engine landing procedures. Core and all fan blades were damaged. Engine was rebuilt.

Date: 27 January 1997

Aircraft: DC-10

Airport: Los Angeles Intl. (CA)

Phase of Flight: Climb

Effect on Flight: Engine shut down

Damage: Engine

Wildlife Species: Gull

Comments from Report: Crew thinks they hit a gull shortly after take off. #3 engine had a vibration with oil quantity fluctuation. When oil quantity dropped to zero, 3/4 of the way to Japan, the engine was shut down. Crew had planned to divert to Anchorage but decided against it due to poor weather. Feathers found in engine after landing. Cost \$1.5 million.

Date: 22 February 1999

Aircraft: B-757-200

Airport: Cincinnati/Northern Kentucky Intl. (KY)

Phase of Flight: Take off (rotation)

Effect on Flight: Emergency landing

Damage: Both engines and wing

Wildlife Species: European starlings

Comments from Report: Number 2 engine was destroyed. Extensive damage to right wing. Massive clean-up of 400 birds. Cost of repairs at least \$500,000. NTSB investigating.

Date: 14 July 2000

Aircraft: Fk-100

Airport: Chicago O'Hare Intl. (IL)

Phase of Flight: Takeoff

Effect on Flight: Precautionary landing

Damage: Engine

Wildlife Species: Crow

Comments from Report: Pilot heard a thump and felt the aircraft yaw slightly to the right. A foul odour filled the cabin. Engine caution light came on. Pilot pulled back power on engine and returned to land. Emergency equipment was standing by. Engine was destroyed.

Date: 27 August 2000

Aircraft: B-747

Airport: Los Angeles Intl. (CA)

Phase of Flight: Climb (500' AGL)

Effect on Flight: Emergency landing

Damage: Engine

Wildlife Species: Gull

Comments from Report: At least one gull was ingested just after take off. Bystanders on a beach heard a giant backfire and saw the jet spewing flames. Three pieces of the engine fell to the ground, one 5-ft piece landed on a beach where people were having a cookout. No one was injured. The pilot dumped 83 tons of fuel over the ocean and then made an emergency landing. The flight had 449 people who were not able to get another flight until the next day. The costs reported do not include room and board. Time out of service was 72 hours and cost of repairs was \$400,000.

Date: 21 January 2001

Aircraft: MD-11

Airport: Portland Intl. (OR)

Phase of Flight: Take off

Effect on Flight: Aborted take-off, engine shut down

Damage: Engine

Wildlife Species: Herring gull

Comments from Report: The #3 engine ingested a Herring gull. The engine stall blew off the nose cowl that was sucked back into the engine and shredded. The engine had an uncontained failure. The pilot aborted take-off and blew two tires. 217 passengers were safely deplaned and rerouted to other flights.

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Date: 02 April 2001

Aircraft: B-767-300

Airport: Charles de Gaulle

Phase of Flight: Climb (14,000' AGL)

Effect on Flight: Precautionary landing

Damage: Nose, radome, wing, fuselage, tail

Wildlife Species: Northern shoveler

Comments from Report: A flock of shovelers was struck causing dents and 11 punctures to the aircraft. One bird entered the cockpit causing depressurization. The pilot had to use an oxygen mask. The aircraft returned safely to the airport. Cost of repairs estimated at over \$1 million.

Date: 06 December 2001

Aircraft: B-737

Airport: Detroit Metropolitan (MI)

Phase of Flight: Climb

Effect on Flight: Precautionary landing

Damage: Engine

Wildlife Species: Gulls

Comments from Report: Aircraft struck a flock of gulls, ingesting one after take off. Engine rolled back, and then started compressor stalls. Pilot pulled throttle back to idle and returned to airport. Emergency landing made due to engine flame out. The

Date: 08 May 2002

Aircraft: Beechjet 400

Airport: Burke Lakefront (OH)

Phase of Flight: Take off

Effect on Flight: Aborted take off

Damage: Engines

Wildlife Species: Gulls (ring-billed and herring)

Comments from Report: Pilot revved engines to move gulls from runway. The gulls lifted off, but as the aircraft was taking off, the gulls returned to the runway and were struck. Both engines ingested gulls and were damaged. One had an uncontained failure. The aircraft was towed back to the hanger. 14 carcasses were recovered. Estimated cost was \$600,000.

Glossary.

Catastrophic failure:

Total destruction of engine.

Uncontained failure:

Total destruction of engine resulting in debris egress.





American Airlines Boeing 767-323 at Paris-CDG 2 April 2001 / © anon.



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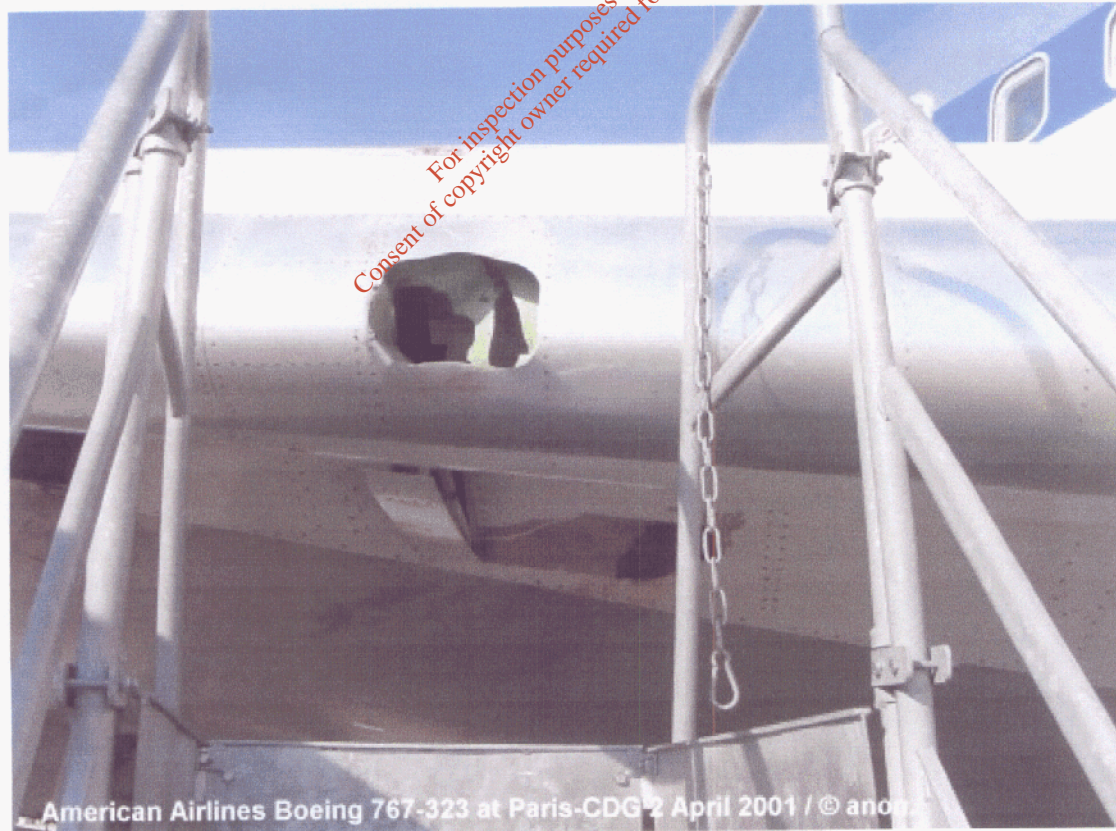


American Airlines Boeing 767-323 at Paris-CDG 2 April 2001 / © anon.

Bird entered cockpit!!!



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