

Dear Mr. Dean, Manager of Airspace Policy Group,

Please find attached our request for a full review of the safety designations (NH) for six turbines proposed offshore of Cleveland, commonly known as "Icebreaker." We fully believe this proposed project will indeed jeopardize air safety, and that the turbines should be classified not as "obstructions," falling conveniently under the prescriptive FAA "safety" height, but inherently as radar and turbulence "hazards." These are not static structures, like telephone poles, but highly charged electrical generating, dynamic variable tuning forks, high in the sky. Each one acts, as many now know, as an attractant to lightening strikes. Each turbine creates turbulence, as does the aircraft, and in multiples, this has added stress. These factors would, along with other reasons, escalate the observations and reasonable predictions with respect to impacts, collisions, near collisions, and other obvious air safety components, necessitating a full review, and a "stop action" until such review is completed. Further, it is our view that the FAA notices of NH's indication that "no substantial" impact would be had on Visual Flight Rules, VFRs, with these proposed turbines, that the term "significant" or "substantial" is broadly interpretive, and when pilots may be confronted by weather or turbulence, or radar interference, that the word "any" or even "moderate", would possibly be contributory to tragic events. You would not need to have "substantial" impacts on VFR at all. Within the twinkling of an eye, weather or fog or turbulence events to even seasoned pilots can be extremely dangerous, life threatening. The general context of a situation may be NOT initially be "substantially" impactful, but suddenly, even an experienced pilot may experience visual confusion, and even be forced to make dangerous decisions in altitude, approach, avoidance, or descent.

Request: Given the lack of ability to open various needed documents on line because of the government shut down, and some additional time needed due to Christmas festivities, we appreciate you granting us another week for completion of the attending corroborating documents to additionally substantiate our request for review. Thank you in advance.

Sincerely,

Suzanne, Al, Sherri, and Tom.

Great Lakes Wind Truth WWW.greatlakeswindtruth.org

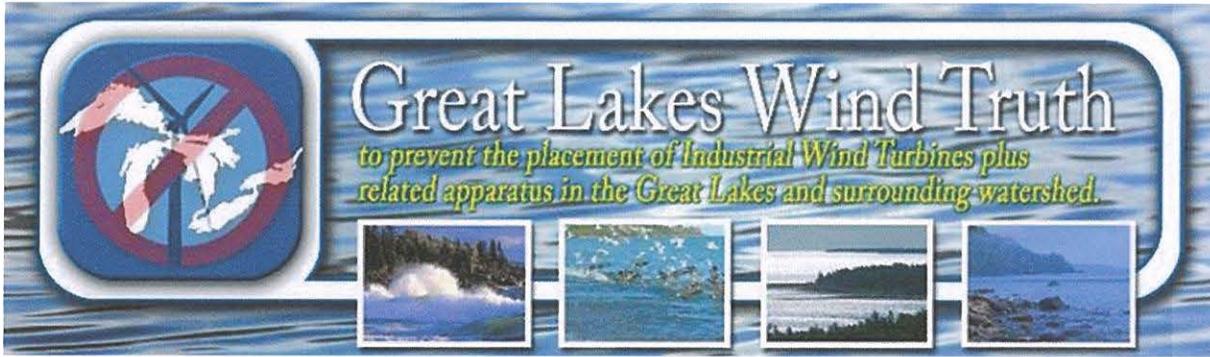


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DELIVERED BY EMAIL AND FAX

December 28, 2018

Dear Mr. Dean

As your offices appear to be closed due to the Government partial shutdown, with notes to that effect on every FAA web page we have used today, and with consideration of the Christmas period, we respectfully ask for a one week extension to file our more complete request for a review of the FAA determinations of No Hazard for six turbines offshore at Cleveland, FAA.

The Federal Aviation Administration (FAA) Obstruction Evaluation Group (OEG) is currently closed. Unfortunately, due to this closure we will not be able to accept new or process previously submitted applications for off-airport filings under 14 CFR Part 77. Upon our return, the OEG staff will immediately begin accepting e-filings via this website and process applications as quickly as possible in the order of the date they were/are filed. Thank you for your patience and understanding. Pending a formal determination, all submittals should be considered a hazard to air navigation until advised otherwise. If you already have a valid FAA issued determination, and you are calling to have a NOTAM issued, please call: (404) 305-6462.

Federal Aviation Administration = OE/AAA

Instruction Evaluation: Version 2018-2.0

Home

OE/AAA Offices

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FAA OE/AAA Offices

Questions or Issues?
 Click here to contact the appropriate representative.
 To determine your appropriate point of contact please click on the state where your structure is/will be located.

Form 7460-1 and 7460-2 Mailing Addresses

Off Airport Construction:
 Please make every attempt to E-file your proposal. If unable to E-file:
 • Send forms 7460-1 and 7460-2 to the address listed to the right.
 • Please do NOT send other types of documents to this address.

Mail Processing Center
 Federal Aviation Administration
 Southwest Regional Office
 Obstruction Evaluation Group
 10101 Hillwood Parkway
 Fort Worth, TX 76177
 Fax: (817) 222-5920

On Airport Construction:
 • Please use the link to the right to locate the FAA Airports Region / District Offices (ADO) having jurisdiction over the airport on which the construction is located.
 • Form 7460-1, Notice of Proposed Construction or Alteration, must be filed with the FAA 45 days prior to the beginning of construction.

FAA Airports Region / District Offices (ADO)

FAA Manager for Obstruction Evaluation/Airport Airspace Analysis (OE/AAA)
 Mike Helvey
 Manager, Obstruction Evaluation Group

faa.gov Tools Print this page

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: **Wind Turbine Turbine 7** Location: Cleveland, OH

Signature Control No: 299560653-322889481 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group

Structure: **Wind Turbine Turbine 6** Location: Cleveland, OH

Signature Control No: 299560652-322889483 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group

Structure: **Wind Turbine Turbine 5** Location: Cleveland, OH Latitude: 41-37-21.00N NAD 83 Longitude: 81-49-21.00W Heights: 569 feet site elevation (SE) 479 feet above ground level (AGL) 1048 feet above mean sea level (AMSL)

Signature Control No: 299560651-322889485 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group

Structure: **Wind Turbine Turbine 4** Location: Cleveland, OH Latitude: 41-37-01.00N NAD 83 Longitude: 81-49-01.10W Heights: 569 feet site elevation (SE) 479 feet above ground level (AGL) 1048 feet above mean sea level (AMSL)

Signature Control No: 299560650-322889484 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group

Structure: **Wind Turbine Turbine 3** Location: Cleveland, OH

Signature Control No: 299560648-322889486 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group

Structure: **Wind Turbine Turbine 2** Location: Cleveland, OH Latitude: 41-36-22.40N NAD 83 Longitude: 81-48-21.60W

Signature Control No: 299560647-322889482 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group

Structure: **Wind Turbine Turbine 1** Location: Cleveland, OH Latitude: 41-36-02.80N NAD 83 Longitude: 81-48-02.20W Heights: 569 feet site elevation (SE) 479 feet above ground level (AGL) 1048 feet above mean sea level (AMSL)

Signature Control No: 299560645-322889480 (DNH-WT) Mike Helvey Manager, Obstruction Evaluation Group (We believe that one turbine was dropped, as there are now six.)

Aeronautical Study No. 2016-WTE-5053-OE Prior Study No. 2014-WTE-689-OE

Aeronautical Study No. 2016-WTE-5052-OE Prior Study No. 2014-WTE-688-OE

Aeronautical Study No. 2016-WTE-5051-OE Prior Study No. 2014-WTE-687-OE

Aeronautical Study No. 2016-WTE-5050-OE Prior Study No. 2014-WTE-686-OE

Aeronautical Study No. 2016-WTE-5049-OE Prior Study No. 2014-WTE-685-OE

Aeronautical Study No. 2016-WTE-5048-OE Prior Study No. 2014-WTE-684-OE

Aeronautical Study No. 2016-WTE-5054-OE Prior Study No. 2014-WTE-683-OE

ALSO Issued Date: 11/29/2018 *In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure (Paul Holmquist, Specialist)*

From FAA No Hazard approvals:

The proposed project consisting of seven, 479 AGL (1048 AMSL) wind turbines would be located between 7.3 and 9.7 NM northwest of Burke Lakefront Airport, Cleveland, OH. For the sake of efficiency this narrative contains all turbines within this project that have similar impacts. Separate determinations will be issued for each turbine which will be available on the FAA's website at <http://oeaaa.faa.gov>.

The turbine(s) exceed(s) Part 77 standards as described below.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

The turbines studied under the ASNs listed below would increase the Sector A Minimum Vectoring Altitude (MVA) from 1800 feet AMSL to 2000 feet AMSL for the Cleveland Ohio Terminal Radar Approach Control (CLE ATCT/TRACON)

2016-WTE-5048-OE 2016-WTE-5049-OE 2016-WTE-5050-OE 2016-WTE-5051-OE 2016-WTE-5052-OE 2016-WTE-5053-OE 2016-WTE-5054-OE

There would be no impact to this standard if the turbines do not exceed 849 feet AMSL (280 AGL).

The study was not circularized for public comment as the impact to Cleveland TRACON's MVA identified above only requires FAA comment. Cleveland Air Traffic Control has responded to this study with no objection to the increase in MVA height.

Aeronautical study disclosed that the proposed structure would have no effect on any existing or proposed arrival, departure, or en route instrument flight rule (IFR) operations or procedures other than the MVA impact identified above.

Study for possible visual flight rules (VFR) effect disclosed that the proposed structure would have no effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airport. At 479 feet above ground level the proposed structure would not have a substantial adverse effect on VFR en route flight operations.

The proposed structure would be appropriately obstruction marked and/or lighted to make it more conspicuous to airmen should circumnavigation be necessary.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth within this determination are met.

Our request for review is based on the following items:

ITEM ONE: We respectfully ask

- To see and review the studies indicating no impairment of VFR for nearby airstrips, including Cuyahoga, Burke Lakefront, and Cleveland Airports. We would wish to have this cross referenced with the experience of regular flyers, including sea planes, helicopter services, regular recreational air traffic, and military show personnel who perform regularly annually at Burke Lakefront.
- To see the Aeronautical study disclosed that the proposed structure would have no effect on any existing or proposed arrival, departure, or en route instrument flight rule (IFR) operations or procedures other than the MVA impact identified above.
- To see studies relating to the air controllers' decisions on approved safety.

- To see the communications between **operations managers of various airstrips and the developer and/or FAA**, including Burke Lakefront, indicating knowledge and understanding of the project **prior to the FAA approvals**, and their reasons for indicating compliance with the FAA decisions, or any expressed concerns to the FAA.
- To have access to the FAA's understanding of hazards from turbulence, from aircraft and turbines, and multiple turbines and access to Burke Lakefront in particular. These are now considered greatly enhanced, due to more understanding of actual and anticipated impacts, realized and near.
- To have an understanding of **additional studies** that may have taken place due to Burke Lakefront's special uses such as SAR, Helicopter services for nearby hospitals, and emergency plans for the region.
- To view the lighting requirements in detail for the proposed development and indicating to the developer that lighting would be continually required, on all turbines, not just randomly on some.
- Studies that might have, hopefully, been conducted, with respect to radar interference, weather and ice conditions, and safety notifications that would be required to all air personnel with respect to the new hazards of the turbines.
- To have an understanding that FAA has considered the recent document, and its call for additional caution and study, with respect to air safety, radar, turbulence, and especially small craft often operating with visual cues. – Proposed radar mitigation is inadequate – Interference with VFR/IFR traffic and impacts on capacity. Often the FAA concludes that turbines are not “obstructions” and therefore not hazards. But there is increasing evidence that Radar Interference is a Hazard unto itself. Please confirm that the FAA has acknowledged this inadequacy and that it will require the Developer to conduct in depth radar studies.
- To help us understand why Lorry Wagner is listed as project owner/developer on the FAA approvals of No Hazard, when the project has purportedly changed hands to ownership of Fred Olsen Renewables of Norway. *Does this not require a new application under the correct owner's name?*

ITEM TWO:

1. Did the FAA take into consideration the documents that were provided regarding statements from Pilots Kevin Elwood, and others (unable to attach, so excerpt(s) is/are included below).
2. What is the Military Operating Area (MOA) for Burke Lakefront and other Cleveland aerodromes and airports? Some military fields have 12 miles.
3. Has a complete "use" historic and present of Burke Lakefront been conducted, including helicopter Search and Rescue, or Helicopter medical transfer services, etc.? Also, the traditional use by the Blue Angles and the Thunderbirds on Labor Day weekend. Have those flying military branches been advised and asked permission for turbines offshore? Or been asked to reflect on possible impacts to their maneuvers and public displays of expertise?
4. Has the DoD been involved in the permissions of No Hazard? If not, why not? It is our view that FAA should have escalated to DoD inclusion of study of hazards and concerns.
5. Please show that there is in depth understanding of the accidents that do take place, have taken place, near misses, etc., at Burke Lakefront Airport. Smaller planes are more often than not, not

using instrumentation, are still relying on Visual Flight Operations (VFR) (Visual Flight Rules). In the US, most accidents and air fatalities are by private and small plane operation. This appears to be improving, but still the figures are staggering....figures from the National Transportation Safety Board indicate that a staggering 97 percent of aviation fatalities occur in general aviation, not in commercial flights. According to ABC News, there is an average of five small plane crashes each day, resulting in approximately 500 deaths annually. Please explain how six massive turbines offshore will NOT add to the burden of safety requirements, the need for increased pilot education, and likely more required instrument flying, and who will provide that mandated training.

6. Has the FAA consulted the 2011 Airport Cooperative Research Program: *Investigating Safety Impacts of Energy Technologies on Airports and Aviation*. By: Consultants Stephen Barrett, who works for the wind industry at times, and Phillip DeVita with others, from Burlington, Mass. The conclusions are asking to:

- *develop a comprehensive inventory of energy facilities, to establish a baseline for implementing planning and conducting cumulative impact assessments*
- *conduct a survey of pilots to collect more experiential information about their understanding of potential energy impact issues and document their experiences*
- *conduct a detailed review of aircraft accidents to quantify energy technology components*
- *prepare siting and planning guidance for each energy technology*
- *conduct a risk assessment for each energy technology and opportunities for aviation adaptation*
- *assess cumulative impacts for each technology*
- *develop predictive glare assessment tools that more actively and consistently quantify glare impacts experienced at existing facilities*

- *collect field data on thermal plume turbulence to support an impact assessment threshold*
7. Under the consideration of asking pilots for input on experiential information, please note the attached (we cannot access ability to attach at this time, so an excerpt is below at the conclusion of the request), document provided to Suzanne Albright of Great Lakes Wind Truth by Retired Pilot Major David Amberley. Please also note the information from Pilot Kevin Elwood of Ontario, Canada, whose testimony defeated a turbine project of 9, sandwiched between an aerodrome and a Municipal airstrip. His testimony shows that it is not a matter of if, but when, for accidents with or caused by proximity to these proposed turbines, and that for the Icebreaker proposed project, a distance of 15 Miles is required between the hazards and the airport, not the 7.3 and 9.7 as proposed by the developer, and approved by the FAA.

We would like to submit additional resources, but under the compressed time allotted, Christmas season, and US partial shutdowns, where we could not access certain web materials, we hereby submit these documents and hope you will allow us an additional week for more materials of importance.

We further believe that the comments, questions, and perspectives in this letter, contain enough material to re open the consideration and move it to: **under review, Deemed as Hazard.**

The comments of Pilot Kevin Elwood are seriously important, and these were forwarded to your offices by Mr. Tom Wasilewski:

When traveling by air, the most dangerous portion of a flight is when the aircraft is closest to, or at, an airport. According to Transport Canada, in Canada, 87% of aircraft accidents happen at or near airports.

Needless to say, introducing 500 ft high obstacles within the airspace of any airport poses significant safety risks. Statistically, it is within 15 miles of an airport that aircraft are in the "riskiest" phases of flight and may encounter problems that jeopardize air safety.

Transport Canada data indicates that in the decade between 2002 and 2011, there were an average of 357 aircraft accidents per year in Canada and almost half of them occurred during attempted landings.

This does not take into consideration incidents that didn't result in an accident but could have. When an aircraft gets into trouble, it needs to land as soon as possible at the nearest suitable airport. Between 2002 and 2011, according to Transport Canada, there were 5,860 incidents that required pilots to make emergency landings at a Canadian airport. Clearly, the imposition of 500 ft structures with 300 ft diameter whirling blades in the vicinity of an airport would significantly increase the risk of serious accidents.

The comments below by Major David Amberley, Retired, as referenced above, are also deeply relevant, and we request your most serious consideration of these. Major Amberley performed Search and Rescue in Afghanistan, and trained Canadian military personnel in many areas.

This comes from personal experience of Major David Amberley, Retired, Canadian Air Force as a former RCAF Search & Rescue Pilot (retired) and Air Accident Investigator (Retired) on December 10, 2018.

He states that this does not reflect the views of the RCAF or Canadian Government:

I was working this morning and took the opportunity to speak with one my flight engineers who also is a private pilot and small aircraft owner. I asked him: a.) If those pilots he normally associates with (outside of the military) would be aware of the various wind farms in the local area (Coburg to Brockville)? b.) Would they be able to identify them on an VFR Navigation Chart without difficulty? c.) Would they be aware of any hazards associated with flying to close to them?

The responses were to say the least not encouraging, he felt that in his opinion that most would only be aware the large wind farm on Wolfe Island due to its proximity to Kingston Airport. Most he feels could not easily identify them on a map without significant effort and most would not be aware of the associated hazards.

In good VMC (Visual Metrological Conditions) (blue sky & sunshine) they stand out like sore thumbs. During conditions of reduced visibility IE: haze, smoke, low ceilings, snow, mist and fog the are not very easy to discern even when they are properly lighted, and all lights are working. The same applies at night when it is clear and good visibility, they are easy to see. Not so at night when there is weather present for the same reasons as during the day. The vast majority of private pilots only hold a basic VFR licence, which in very basic terms means if it is not blue sky and sunshine, then you should not be flying. We all know that mother nature is always predictable and the forecasts are spot on. (Irony)

I am not personally aware of any research done by the Air Force on the subj, however in the SAR community we were always aware of and looking for them when flying/searching and would adjust accordingly our flight path. I know that to the North and East of the Sault Ste Marie Airport there is very large wind farm which is always interesting to navigate around in low visibility conditions.

I will check with our Flight Safety folks and see if they have any data on the subj. I know that when we prepare our tactical training routes IE: less than 200' above ground, we pre-fly them at various altitudes (high to low) to ensure all obstacles along the route are noted and accounted for. You would be amazed how many towers with and without lighting pop up where there wasn't one there the week before.

Given our serious comments, questions, and reservations, we respectfully ask that you include our serious objections and reflect on and ACT on these objections. In the meantime, **we ask that you DENY a designation of No Hazard** for the seven turbines proposed near Cleveland in Lake Erie. It is our studied opinion, that these seven turbines WILL provide unreasonable hazard, due to increased turbulence, radar disruptions, and unsafe proximity to various airfields, notably

Burke Lakefront. The [increased vigilance of military airfields to proximate wind turbine installations](#) world wide, should cause us to take notice of radar interference, and make requirements for safety, even national safety, more stringent.

Thank you. We look forward to the opportunity to provide additional materials as per the above and thank you for the anticipated extra time. (We will, when provided more time, give a brief history of air accidents at Burke Lakefront and other similar flying situations. For a sample of these you only need reference: Tag Airlines, 1970; Cleveland Air Show accident 1970; a tragic accident (2014) during a snow storm 2 miles off of Burke Lakefront killing six persons: pilot spatial disorientation was cited as the cause. Sadly, there are more.)

Sincerely,

Suzanne Albright

Al Isselhard

Sherri Lange

Tom Wasilewski

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ATTACHMENTS TO LETTER ASKING FAA to deny extension of NO HAZARD TO ICEBREAKER, letter dated December 28th, Fax December 29th, 2018

1. Letter from Kevin Elwood Southern Ontario Director, COPA (Canadian Owners and Pilots' Association)
2. Snapshot of Burke Lakefront and area airports
3. Letter and opinion re 9 turbines at Stayner area, Charles Cormier, Aeronautical Information Consultant, Mont-Tremblant, QC: air space would be seriously compromised and dangerous, and he would recommend if the turbines are built, that the Aerodrome be closed. The legal opinion confirmed, and turbine construction was denied.
4. Wind Turbines May Close Busy Airport: Pilots launch political campaign
5. New Wind Farms Cause Friction in the Sky Over Military Flight Routes, 2017 Oklahoma
6. EIGHT accidents at Burke Lakefront and nearby; plus short piece on radar interference; and FAA denies Pioneer Green Energy Extension for Wind Turbine Construction
7. Christine Metcalfe UK, questions air safety. Important questions for everyone.
8. <https://www.thelocal.de/20170202/propeller-plane-crashes-into-wind-turbine-killing-pilot> Germany
9. <https://www.masterresource.org/windpower-safety-issues/wind-aviation-safety-v/>

The appalling tragedy (German incident) was reported as a rare occurrence, but few realize that in the U.S. alone at least ten people have lost their lives in fatal aviation accidents involving collisions with U.S. sited wind turbines and meteorological (MET) towers.

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RE: Case Number 16-1871 EL BGN Icebreaker

Please consider the following submission as it relates to the Icebreaker Wind Turbine project as proposed in close proximity to the Burke Lakefront Airport, Cleveland Ohio.

When traveling by air, the most dangerous portion of a flight is when the aircraft is closest to, or at, an airport. According to Transport Canada, in Canada, 87% of aircraft accidents happen at or near airports.

Needless to say, introducing 500 ft high obstacles within the airspace of any airport poses significant safety risks. Statistically, it is within 15 miles of an airport that aircraft are in the “riskiest” phases of flight and may encounter problems that jeopardize air safety.

Transport Canada data indicates that in the decade between 2002 and 2011, there were an average of 357 aircraft accidents per year in Canada and almost half of them occurred during attempted landings.

This does not take into consideration incidents that didn’t result in an accident but could have. When an aircraft gets into trouble, it needs to land as soon as possible at the nearest suitable airport. Between 2002 and 2011, according to Transport Canada, there were 5,860 incidents that required pilots to make emergency landings at a Canadian airport. Clearly, the imposition of 500 ft structures with 300 ft diameter whirling blades in the vicinity of an airport would significantly increase the risk of serious accidents.

There is growing hard evidence supporting fears that industrial scale wind turbines are a real aviation hazard, and at least some local airport authorities and local jurisdictions are taking action.

In the neighboring Province of Ontario, which shares the airspace overhead of this proposed off-shore project, a recent ruling in a 2016 ERT hearing (Wiggins vs Ontario Case No 16-036) stated that locating obstacles in the proximity of an aerodrome, or that airspace unutilized by aircraft in flight, will cause irreversible harm to human health.

The Tribunal’s ruling relied on Transport Canada directive TP1274E to understand the aviation risks associated with siting wind turbines. Its introduction, TP1274E reads:

‘Municipal planners and developers must understand that how land is used around an aerodrome will have an impact on the aerodrome’s operations. The land use around aerodromes can have significant impacts on safety at the aerodrome and can negatively impact the operational viability of the aerodrome to the detriment of the local community that depends upon it.

Note: It is of the utmost importance to be aware that the proximity of obstacles, for example wind turbines, telecommunications towers, antennae, smoke stakes, etc., may potentially have an impact on the current and future usability of an aerodrome.

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Therefore, it is critical that planning and coordination of the siting of obstacles should be conducted in conjunction with an aerodrome operator at the earliest possible opportunity.'

Expert witnesses provided testimony, supported by statistical studies, as to the effect of wind turbine turbulence. This is an area of expertise that is undergoing much study with the introduction of wind energy in North America. All experts agree that wind turbulence is created in the turbines' wake but the effects are unknown, however, when compared to aircraft or helicopter wake turbulence, turbine turbulence will be catastrophic if encountered by an aircraft in flight.

A study, entitled *Wind Farms Turbulence Impacts on General Aviation*, released January 18, 2014, by University of Kansas researcher, Prof. Tom Mulinazzi, finds that wind turbines could be hazardous for small aircraft. The study was done for the Kansas Department of Transportation.

According to Mulinazzi, wind turbines can set up a circular vortex that can roll a plane if it gets caught in it. A second problem, Mulinazzi says, is that wind turbines can increase crosswind speeds above what's expected, which can be a real danger to small aircraft, which don't typically take off and land with crosswinds stronger than about 20 km per hour.

The study was commissioned after the Kansas Transportation Department's aviation division started receiving a large number of reports from pilots complaining that they were experiencing unusual turbulence as they flew near wind farms. Mulinazzi and his team found that the higher the wind speed, the farther the turbulence reached – stretching almost 5 km from a single turbine – before dissipating.

Even before release of the Mulinazzi study, a coalition of pilots using the airport in Pratt, Kansas, had petitioned against plans for a wind farm to be built within 5 km of the airport runway. Part of their objection was the possibility the turbines would create winds causing dangerous turbulence.

Mulinazzi's team looked at the pilots' concerns at Pratt and another airport 8 km south of Stockton, Kansas. Researchers concluded that at both airports, pilots could potentially encounter a crosswind or "roll upset" generated from a wind turbine. Subsequently, according to Reid Bell, manager at the Pratt Airport, the Pratt wind farm project was relocated farther away from the airport. In addition, city officials approved an ordinance protecting airspace around the airport from any future wind farm hazard.

Meteorological Conditions will also elevate a flights risk assessment when in operating from an aerodrome in close proximity to obstacles. The Cleveland Burke Lakefront Airport is inherently susceptible to low visibility flight conditions due to its geographical location on the shores of Lake Erie within the chain of Great Lakes. These reduced flight visibility conditions can lead to pilots finding themselves in situations where they must decent to very low altitudes above the

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surface of the lake to maintain visual contact with the ground enabling them to safely land at Burke field. Wind turbines masked by the back drop of cloud and water will most certainly be cause for a pilot to be unable to avoid the obstacle in time once it becomes visible.

Human factors are one of the most common, leading causes in aviation accidents. Pilot Error is to be human. Humans still operate aircraft in an environment of 'see and avoid' or 'navigate and avoid'. It is proven that when a pilot operates in close proximity to obstacles the flight risk of controlled flight into terrain goes up exponentially. Burke lakefront airport is virtually free of this added obstacle flight risk. Again, I reference TP 1274E.

The land use around aerodromes can have significant impacts on safety at the aerodrome and can negatively impact the operational viability of the aerodrome to the detriment of the local community that depends upon it.

The aviation community recognizes that it is prone to deviations from published procedures on occasion. This is why the U.S.A. Department of Transport factors in deviation errors when designing flight procedures. An aircraft in flight cannot be brought to a stop or reversed so as to adjust its flight trajectory. The introduction of obstacles only goes to narrow the deviation protection of error to the point that the risk of collision is imminent, should the smallest of deviation occur due to factors beyond a flight crews' control or awareness.

Cleveland and the surrounding area depends on the Burke Lakefront Airport. Likewise, this community relies on the State of Ohio to adopt appropriate protocol in protecting public safety, and proven safe operating transportation infrastructure, when engaging in renewable energy projects. I urge you to act in the public interest in protecting your community, preserving aviation safety and preventing harm to human health by not approving wind turbines within a 15 NM radius of the Burke Lakefront Airport.

Thank you.

Kevin Elwood
Southern Ontario Director - Canadian Owners and Pilots Association
Airline Transport Pilot
Owner Operator - Clearview Aerodrome
Councillor Ward 2 - Clearview Township
President - Aeroshelter

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Rating -

Cleveland Hopkins International Airport
3.8 ★★★★★ (540) Airport
Opened in 1925, this airport features suspended sculptures that look like paper airplanes.
Cleveland, OH, USA
+1 216-265-6000

WEBSITE DIRECTIONS

Burke Lakefront Airport
3.9 ★★★★★ (37) Airport
Cleveland, OH, USA
+1 216-761-6411

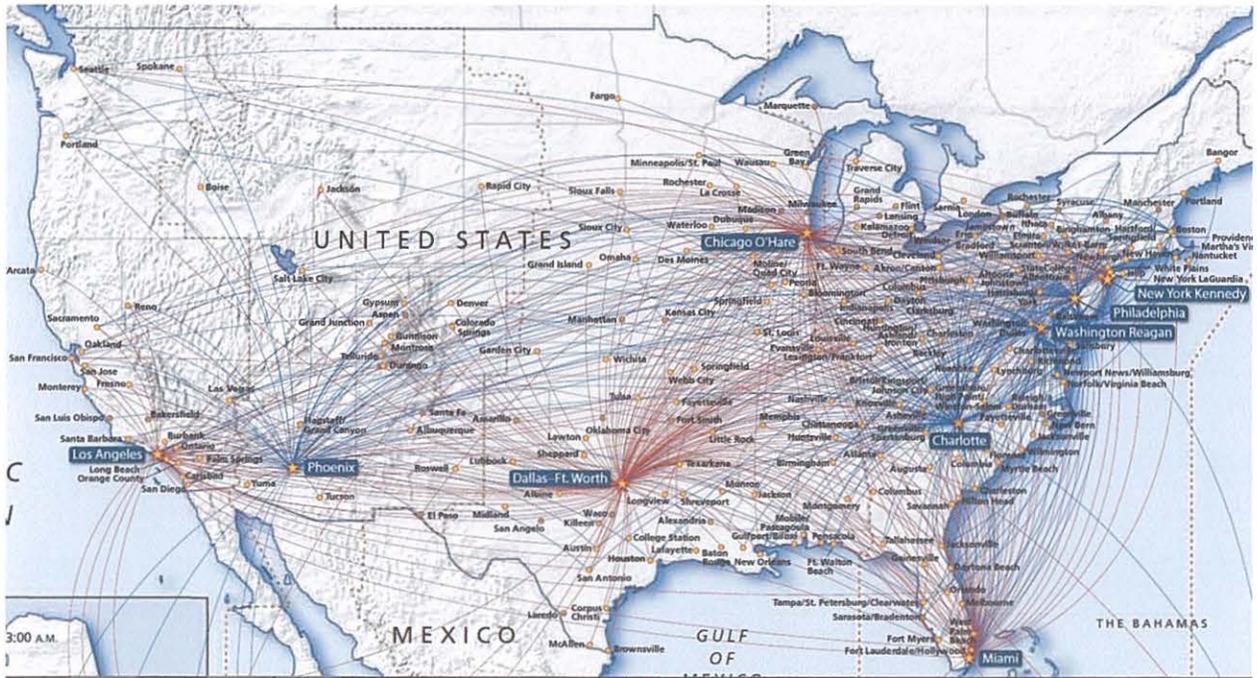
WEBSITE DIRECTIONS

Akron-Canton Airport
4.3 ★★★★★ (230) Airport
North Canton, OH, USA
+1 330-896-2385

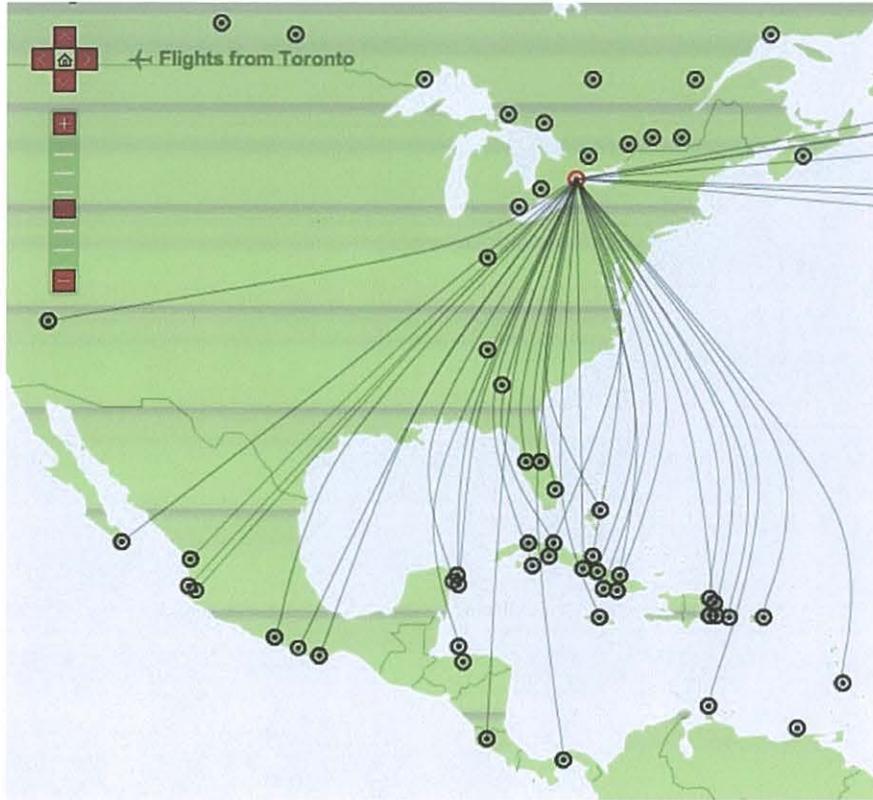
WEBSITE DIRECTIONS

Columbia Airport
4.3 ★★★★★ (3) Airport
Columbus, OH, USA

WEBSITE DIRECTIONS



Please see the flight paths from Toronto to US and Cleveland. RIGHT OVER LAKE ERIE



This is older, but we can imagine how much air traffic has actually increased since.

<http://fox8.com/2017/05/17/final-moments-of-pilot-in-lake-erie-plane-crash-revealed-i-team/>

<https://aviation-safety.net/database/record.php?id=20161229-0>



DRAFT

Charles (Chas) Cormier
Aeronautical Information Consultant
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January 10, 2016

Kevin Elwood
Clearview Nursery Ltd
8257 County Road 91, R.R. #4
Stayner, ON L0M 1S0

FAIRVIEW WIND PROJECT – STAYNER (CLEARVIEW FIELD) AERODROME

The purpose of this letter is to briefly summarize the assessments I have conducted since 2011, regarding the impact of the Fairview Wind Project proposed by wpd Canada on your aerodrome at Stayner (Clearview Field).

I have conducted three prior assessments as to the impact of the Fairview Wind Project proposed by wpd Canada on your aerodrome at Stayner (Clearview Field) as follows:

1. Report titled "Review Of Fairview Wind Project - Stayner (Clearview) Aerodrome" dated October 10, 2011
2. Report titled "Negative Effects to Stayner (Clearview Field) Aerodrome – Fairview Wind Project" dated 23 Jan 2014
3. Letter dated Nov 4, 2015, with comments on Transport Canada letter RDIMS #10115796 dated Nov 17, 2014.

Significantly, wpd has never shared an assessment of impact of the Fairview Wind Project on the safety of take-off and landing at Clearview Field or provided a response to any of my prior reports. I have also never received a response from the Ontario Ministry of the Environmental and Climate Change (MOECC) to these reports. However, on November 17, 2014 Transport Canada wrote to the MOECC advising of the dangers presented by the Fairview Wind Project to both Clearview Field and Collingwood Airport.

In this letter, I will summarise my prior reports, provide some additional background information relevant to understanding the hazards presented by the Fairview Wind Project, and will give my overall conclusions. The prior reports are attached.

EXPERTISE

I have some 40 years' experience in aviation as a pilot in the Royal Canadian Air Force, with Transport Canada, NAV CANADA, and private industry. I retired from the military in 1991 after active duty as a Sea King pilot in the Gulf War, attaining Lieutenant-Colonel rank. Since 2002, I have been an instrument flight procedure designer and consultant in aeronautical information services, which includes advising on aviation safety related to take-off and landing.

A significant part of my work involves the design of instrument flight procedures to permit effective and safe arrivals and departures to small airports across Canada, and internationally. As Chief Technical Director with IDS North America based in Montreal 2008-2011, I supervised 18 staff to redesign some 1000 instrument procedures per year with advanced computer design tools, under contract with NAV CANADA. I personally have designed or conducted full quality review of over 1500 instrument flight procedures published in Canada, Myanmar, Ecuador and elsewhere. I have performed numerous flight checks, and can advise on aerodrome standards and automated weather observation systems (AWOS) requirements. I am a recognized expert in the application of the Transport Canada manual TP308 "Criteria for the Development of Instrument Procedures."

In recent years I have provided advice to numerous airports and to wind turbine developers, with concerns for wind turbines proposed in the vicinity of aviation facilities. The purpose of these retainers was to preserve safe and full access to the airport, including assessment of future expansion, while permitting wind turbines to be erected as close as prudent. Some highlights of my recent work related to turbines are:

- Chatham-Kent Airport: I was retained by turbine developers to evaluate 5 different turbine projects, while maintaining safe take-off and landing. To achieve this, I proposed that instrument flight procedures be modified, and recommended that 20 turbines be moved or cancelled. I proposed additional navigational aids, weather reporting systems, and major runway improvements to offset safety issues, which were funded by the turbine developers and accepted by the municipality.
- Kincardine Aerodrome: 41 of 99 turbines of a proposed project near the airport were objected to by NAV CANADA. I assessed that there was enough room to modify the four published approaches so as to permit 39 of the objectionable turbines, and the last two turbines were lowered in height so to eliminate their penetrations. All modifications including an additional navigational aid were financed by the wind project developer.
- Madeleine Islands and Kangiqsualujjuaq airports: I provided advice to Hydro-Quebec on the positioning of wind turbines near the airports so as to avoid detrimental effects to current and future flight operations.

A copy of my CV is attached to this letter.

BACKGROUND ON CLEARVIEW FIELD

The Clearview farm was purchased in 1996, by Kevin and Gail Elwood as it was suitable for development as an aerodrome, and was developed as a tree nursery in 1997. The first section of Clearview Field Aerodrome runway was built in spring 1997, and a Cessna 185 and Piper PA11 were based on field. The runway was extended to present length in the spring of 2010, when the construction of large aircraft hangar was commenced, completed in spring 2012 to accommodate new client aircraft. A Cessna 206 was purchased in the fall of 2013, to operate from the Clearview Field during float season, as a business.

Stayner (Clearview Field) Aerodrome (CLV2) is located 2.5 nautical miles (NM) south of the Collingwood Airport (CNY3). It is a Transport Canada registered 1,950 x 50 foot turf runway 16/34 orientated north-west by south-east. The threshold 16 is displaced 400 feet to avoid the Country Road 91 power-lines. The Aerodrome Elevation is 870 feet above sea level (ASL). For navigational aids, the Midland enroute VOR/DME is some 18 NM north-east, which supports a conventional instrument approach to CLV2 designed by me and published on June 27, 2013. Additionally, I also designed a RNAV(GNSS) LNAV approach to Runway 16 and assessed instrument departures. Your approach and departure procedures were fully reviewed by NAV CANADA and are published by it in the Restricted Canada Air Pilot.

Throughout the 20-year life of your aerodrome, you have personally achieved advanced pilot qualifications on jets and multi-engine commercial aircraft, and both your sons have learned to fly, using your facilities. Your aviation businesses have experienced steady and measured growth based on a solid business plan. The proposed Fairview Wind Project will likely significantly interfere with your current flight operations, which obviously will harm your business and will cause real concerns for safety. Both my analysis and that of Transport Canada have indicated that the proposed Fairview Wind Project, if approved by the province of Ontario, would significantly interfere with your current flight operations from Clearview Field and Collingwood, which will create negative environmental and economic effects and cause safety hazards. The likely result will be potential closure of your aerodrome operations, and irreparable harm to your businesses.

The **Instrument Approaches** and **Departures** for Clearview Field are described as:

- The **RNAV(GNSS) RWY 16** approach from the northwest is a standard “T” straight-in to a missed approach waypoint at the runway threshold. The missed approach is left-turning, to return north to the Initial Approach Waypoint Left, to hold over Georgian Bay. Only Category A & B approach speeds of 90 and 120 knots respectively are considered, appropriate to this type of runway. The straight-in **minimums are 1380 feet ASL or 513 feet above touchdown, which are the lowest allowed by TP308**. The associated circling minima are respectable? does this add clarification? 1480 feet ASL and 1500 feet ASL, or 603 and 623 feet above aerodrome elevation, for CAT A & B, due to rising terrain to the west.
- The **VOR/DME A** approach from the Midland YEE tracks from the northeast on the 245 degree radial aligned to the centre of the runway. A 4.5-mile final segment commences at 13 DME and ending at 17.5 DME one-mile short of the runway. The missed approach is a climbing right-turn back to the VOR. Because the alignment is abeam the runway and does not meet rules for straight-in, only circling minima are published. The **circling minima are a respectable[does this add clarification? 1480 feet ASL and 1500 feet ASL, or 603 and 623 feet above aerodrome elevation**, for CAT A & B, the same as the RNAV(GNSS) approach.
- **Departure Instructions** from Clearview are specified on the Aerodrome Chart, and can be conducted with low cloud ceiling and only 1/2 mile visibility. Departure to the south from runway 16 requires a modest climb gradient of 280 feet/NM until an altitude of 1600 feet is achieved. Or, the pilot can climb visually

over the aerodrome at a normal 200 feet/NM until 1900 feet, then proceed on course. Departures north from runway 34 are unrestricted except no left turn is permitted until 1600 feet, to avoid a communications tower to the west.

BACKGROUND ON CRITERIA

I will review the source information of the following aspects that were assessed in all my reports and that of Transport Canada :

- **Obstacle Limitation Surfaces (OLS)** that protect the runway, which are specified in Transport Canada manual TP312, "Aerodrome Standards & Recommended Practices"; and
- **Instrument Approach Procedures and Departures** that will serve the aerodrome in future, that meet the criteria published in Transport Canada manual TP308 "Criteria for the Development of Instrument Procedures".

Obstacle Limitation Surfaces

Definition: The Obstacle Limitation Surfaces (OLS) are established by Transport Canada to define the airspace around runways to be maintained free of obstacles, in order to minimize dangers to a manoeuvring aircraft, either during an entirely visual approach or during the visual segment of an instrument approach.

Assessment: The OLS's at CNV2 were assessed in accordance with the criteria in TP312, Table 4-1, for a Non-Instrument Runway Code 1, which is the least stringent and is the minimum applied to private aerodromes.

- The **Take-off/Approach Surface** commences from a line of 60m width at 30m from the runway end, extends a minimum of 2500m, has a rising slope of 5%, and splays at 10%.
- The **Transitional Surfaces** rise at a 1:5 slope laterally from 30m abeam the runway centreline, and from the sides of the Take-off/Approach Surfaces.
- The **Outer Surface** is a flat surface at 45m above the aerodrome elevation and extends to a 4000 metre or 2.16 NM radius from the centre point of the runway. It protects for "Circling" manoeuvring but does not normally apply to a Non-Instrument Runway.

Instrument Approach Procedures and Departures

Instrument Procedures are used by pilots to fly with reference to their instruments and navigational systems, with minimal visual reference outside the cockpit. This is particularly useful in times of inclement weather or when operating to or from a busy airport. In Canada, the design of instrument flight procedures is regulated by Transport Canada primarily through a published manual, entitled TP308 "Criteria for the Development of Instrument Procedures". This comprehensive document details all aspects of the design of various procedures to be used by aircraft operating under

instrument flight rules (IFR), which is particularly useful during inclement weather conditions. While the purpose of instrument flight is to efficiently navigate between take-off and landing, one of the primary purposes of criteria in TP308 is to ensure that aircraft are provided safe clearance from obstacles. There is considerable emphasis on the Instrument Approach Procedure (IAP), which guides an IFR aircraft from enroute flight to safe descent and alignment with a runway or airport. Protection of aircraft during departure from a runway is also prescribed.

There are several options of IAP's, dependant on the type of navigational aids serving a runway and available in the cockpit. The use of Global Navigation Satellite System (GNSS) technology, commonly called **GPS**, is growing throughout the aviation world and most other industries. It is accurate, reliable, commonly available, and very cost effective because the satellite signals are free. Conventional land-based radio navigational aids such as **VOR** (VHF Omnidirectional Range) and **NDB** (Non-Directional Beacons) in operation in Canada, provide airway guidance and approach alternatives at many airports. In Canada, there are over 3000 IAP's published by NAV CANADA in a document called the Canada Air Pilot.

A critical characteristic published on an approach procedure is the **Minimum Descent Altitude** (MDA) or Decision Altitude (DA), often called "**Minimums**" or "**limits**". This is the lowest altitude that an aircraft can descend to during final approach, from which a pilot must sight the runway in order to execute a normal landing. The lower the MDA, the greater chance the pilot has to detect the runway environment. The MDA is normally calculated by applying the specified Required Obstacle Clearance (ROC) above the highest obstacle beneath the final segment. In the case of the RNAV(GNSS) and VOR/DME approaches designed at Stayner aerodrome, the ROC is specified by TP 308 as 250 feet above the highest obstacle.

Nearly all IAP's also have published limits for "**Circling**" which is an option for the pilot to manoeuvre his aircraft with visual reference to the runway, to land at the end opposite or another runway, other than to the runway which he is approaching. Usually, he may manoeuvre left or right of the runway at his discretion, unless a restriction is published preventing "Circling" on either side. Often, this restriction is applied to avoid a significant obstacle, while keeping the limits reasonably low. The areas assessed for circling are measured as a radius from the runway ends.

A commonly-used measurement of the effectiveness and accessibility of an airport is the number of approaches it has published, and the quality of these approaches is judged by the "minimums" specified, the lower the better. When new obstacles are introduced in the vicinity of an aerodrome, that cause the "minimums" to be published higher than before, that is referred to in the industry as a "**penalty**". This is because when an aircraft is forced to fly higher in the final segment, the pilot may have greater difficulty to see the runway in inclement weather, and may not be able to execute his landing. If he cannot see to land, he must divert to his planned alternate aerodrome, which is viewed as penalizing the effectiveness of the approach.

Finally, it must be clearly stated that to fly on instruments and conduct instrument approaches and departures, a pilot must carry an instrument rating on his licence. This rating is renewed annually by Transport Canada after a pilot passes a written examination and flight test. There are many licensed pilots, but the majority can only fly

in visual weather conditions, and a relative few have instrument ratings and can fly in inclement weather. You achieved this qualification in May 2001 and have maintained it since.

SUMMARY OF PRIOR REPORTS

Report of October 11, 2011

In 2011, my assessment identified several potential effects on the Clearview Aerodrome that could be caused by the proposed Fairview Wind Project.

Concerning **Obstacle Limitation Surfaces** protecting the runway:

- The **Take-off/Approach Surface** to the south from Runway 16 contains Turbine #7: **causing a significant and dangerous penetration of 214 feet.**
- The **Transitional Surface** just east of the Take-off/Approach Surface to the north from Runway 34 is **penetrated about 68 feet** by Turbine #4.

Concerning the draft **Instrument Procedures** being contemplated at the time???:

- The **RNAV(GNSS) RWY 16** approach could have limits at 1380 feet ASL or 510 feet above touchdown. However, **4 turbines will be contained in the final segment, and would cause the limits to be raised to 1540 feet ASL or 673 above touchdown, a significant penalty of 160 feet.**
- The **VOR/DME A** approach could have limits at 1400 feet ASL or 530 feet above touchdown. However, all but one turbine would be captured in the final segment, and the last #7 would be immediately in the missed approach, causing the approach limits to rise to 1720 feet ASL **This 320-foot increase to 850 feet above touchdown is a significant penalty.**
- The **Circling** option to any approach would be affected by the turbines, **raising the minimum descent altitude from 1380 feet ASL to 1720 feet ASL a significant penalty of 340 feet.**
- Normal **Departures** from both runway ends would be unrestricted except for a reasonable turn restriction to the north and a modest climb gradient briefly to the south. **However, 2 turbines would penetrate the critical zone 1 and would require a visual climb to 1700 feet ASL, is this not hazardous???** before proceeding on course as the only option, which would necessitate moderately good weather conditions. Departures in marginal weather, otherwise allowed, would not be permitted.

I identified that the impact of the proposed Fairview Wind Project on aviation safety and operational effectiveness at the Stayner (Clearview Field) aerodrome was a great concern. The overall conclusion was that the proposed turbines would be dangerous obstacles to the operational aspects of the Stayner (Clearview Field) aerodrome, due to

close proximity and significant height, and were negligent of common aviation safety principles.

Report of January 23, 2014

In 2014, I confirmed my earlier assessment of the potential effects, but against the actual Instrument Approach and Departure procedures that had been published by NAV CANADA since the previous report.

Fresh measurements of the **Obstacle Limitation Surfaces** protecting the runway were done, indicating that:

- The **Take-off/Approach Surface** to the south from **Runway 16 will still contain Turbine #7, causing a significant and dangerous increased penetration of 214 feet**
- The **Transitional Surface** to the east of the Take-off/Approach Surface to the north from Runway 34 **will be further penetrated by Turbine #3 by about 138 feet.** (vs my previous estimate of 68 feet)

Regarding the published **Instrument Procedures: [what words would best describe the penalties below- significant? Negative? severe? Precise wording is critical.**

- The **RNAV(GNSS) RWY 16** approach has excellent minimums at 513 feet above touchdown. **However, 4 turbines will be contained in the final segment, and would cause the limits to be raised to 693 feet above touchdown, a significant penalty of 180 feet.**
- The **VOR/DME A** approach has 7 of 8 turbines captured in the final segment, and the last would be immediately in the missed approach, causing the approach limits to rise to 843 feet above aerodrome elevation. **This will be significant increase of 240 and 220 feet to CAT A & B minima, quite a negative penalty.**
- The **Circling** option to any approach would be affected by the turbines, **raising the CAT A & B minima by 240 and 220 feet**
- **Departures** from both runway ends would still be penetrated by 2 turbines in the critical zone 1, and would require **a visual climb to 1700 feet ASL [feet? Compare penalty to all others above? before proceeding as the only option.** This would necessitate moderately good weather conditions, and departures in marginal weather would not be permitted, thus removing the option to depart with low cloud cover and as little as 1/2 mile visibility.

The impact by wind turbines on aviation safety and operational effectiveness at the Stayner (Clearview Field) aerodrome continued to be of great concern, due to their close proximity and significant height. As well, close proximity to Georgian Bay and its rapidly changing weather, strong lake effect snowfalls, low ceilings and poor visibility, combined with the high elevations of the Niagara Escarpment would only amplify the danger of the 8 turbines proposed to be located within your approved approaches?

Report of Nov 4, 2015 and Transport Canada's November, 2014 Correspondence

In this letter, I elaborated on the numerous comments made by Transport Canada the previous year. Transport Canada endorsed my earlier analyses of the adverse effects that the Fairview Wind Project will pose to Collingwood Regional Airport and your Stayner (Clearview Field) aerodrome.

Transport Canada was particularly concerned with the penetrations of the Obstacle Limitation Surfaces (OLS), especially the Take-off/Approach Surfaces to both runway ends. OLS define the airspace around runways to be maintained free of obstacles, in order to minimize dangers to a manoeuvring aircraft, either during an entirely visual approach or during the visual segment of an instrument approach. These surfaces are the most critical and I fully concur with Transport's assessment that "the turbine is a significant obstacle and could potentially pose a hazard to aircraft on final approach to this runway."

The OLS for aerodromes in Canada are published by Transport Canada in a manual titled TP312, "Aerodrome Standards & Recommended Practices". TP312 compliance is mandatory for certified airports, but not for a non-certified aerodrome. Nevertheless, TP312 is highly relevant to assessing aerodrome safety, as they are in effect Transport Canada's expert opinion as to the obstacle clearance around a runway required to safeguard take-off and landing. Thus in its letter of November 17, 2014, Transport Canada confirms that although an aerodrome is not legally required to comply with OLS, the operational integrity of the aerodrome is enhanced if the use of land adjacent to the facility is done in line with technical portions of the standards.

The final paragraph of Transport Canada's comprehensive letter is very clear: "In conclusion, based on the information reviewed, it appears there would likely be an operational impact on both the Collingwood and Stayner aerodromes. There are aerodromes in Canada where obstacles are located in proximity to runways, and depending on their location, have continued operation with the establishment of specific procedures, and the marking, lighting and publication of these obstacles. However, it should be noted that such mitigation can result in a **decrease in the usability of the Collingwood and Stayner aerodromes.**" Transport Canada's statements are consistent with the adverse effects that I have identified in my previous analyses.

The final point by Transport Canada recommends that the siting of the turbines "be conducted in conjunction with an aerodrome operator at the earliest possible opportunity." **wpd (sic) has never communicated with me as your aviation consultant regarding any planning or coordination of siting of any turbines.**

EXPLANATION OF EFFECTS AND FINAL CONCLUSIONS

The previous sections of this correspondence are highly technical in nature and may be quite confusing for a lay person without aviation experience, so allow me to explain in plain language what will be the effects that the turbines will have on your operation.

Quite obviously the turbines will pose the greatest danger when an aircraft is taking-off or landing at your aerodrome, so I will describe how each is done, during both visual weather conditions and inclement weather when instrument flight is required.

Take-off

Take-off is a very demanding and critical phase of flight. After pre-take-off checks are conducted including verification of engine performance, and after the aircraft is positioned at one runway end, full power is applied to the engine and the aircraft accelerates. On a turf strip like yours, the aircraft will likely bounce around as it gains speed. The pilot will have to apply foot pressure to the rudder pedals to compensate for wind conditions which may be blowing from left or right, and to keep aligned on the runway surface. It is also critical to cross check engine instruments to confirm the performance is acceptable for flight, since a problem with power or aircraft control would require the pilot to abort the take-off and stop on runway remaining. When take-off speed is attained the aircraft will lift off, and the pilot must immediately stabilize and adjust his heading. Shortly thereafter he will raise his landing gear if retractable, raise the flaps, and adjust the power to climb or cruise settings. All the while the pilot should also be cross-checking visually for ground obstacles and other aircraft. Needless to say, this short period of 10 to 20 seconds is very busy, stressful, and could be dangerous should there occur an emergency or environmental condition. Avoiding a significant obstacle within the Take-Off Surfaces will compound the task and increase the margin for error.

When the weather is inclement requiring instrument flight rule operations, in the unrestricted condition that already exists at Stayner filed all that is required is 1/2 mile visibility. The take-off run is the same except is that immediately after take-off, the pilot will primarily refer to his instruments with little visual reference outside the cockpit. He cannot turn until 400 feet above runway elevation.

In both cases, the take-off is protected by the Obstacle Limitation Surface called the Take-off/Approach Surface, which is reflective of international standards and is clearly defined by Transport Canada in TP312. It is expected that the aircraft at least initially on departure will be within that area. It is obvious that an obstacle within this surface is dangerous in that the pilot has little room or time to avoid the obstacle during take-off, an activity that is very intense. Any distraction or airborne emergency could result in collision with the obstacle. At a common airspeed of 100 knots soon after liftoff, when taking off to the south, the aircraft will arrive adjacent turbine #7 in 41 seconds. When taking off north, the aircraft would arrive at turbines #3 and #4 in 22 seconds. While the pilot would be aware of the turbines since information would be published on charts, and he may see them, any distraction, emergency, or an unexpected wind change could result in collision. The danger is real and unacceptable to an aerodrome operator.

Landing

Landing in visual weather conditions or during inclement weather instrument conditions are similar. In visual conditions, the pilot must overfly the runway to confirm it is clear of

obstacles, and then he will visually join a racetrack pattern called "the circuit", normally at 1000 feet above the aerodrome elevation. After passing abeam the intended landing end, he slows the aircraft, extends the landing gear if it is retractable, probably lowers some flaps, and will initiate a descending left turn so to intercept the runway centreline extended. The interception of the centreline is usually about a mile from the runway end at 400-500 feet above touchdown and will be within the Take-off/Approach Surface area previously described. The pilot must manoeuvre to be in-line with the runway, control his airspeed which has been slowed, and judge his aiming point for landing. If there is an obstacle in the Take-Off/Approach Surface, it will be very close, and avoiding it to succeed in the landing will take great skill. Offsetting the alignment will simply make the final approach difficult and the potential to land abnormally is significant.

Landing from an instrument approach, the pilot transitions from referring to his flight instruments, to visually searching for the runway at the lowest safe altitude as published and approved by NAV CANADA. The introduction of the proposed turbines inside the designated approach surfaces will increase the minimum descent altitude thereby reducing the pilot's chances of seeing the visual runway references required in order to continue the approach to a safe landing. If flown properly to minimum altitudes, the approach will guide the aircraft to the lowest published altitude well below the height of the proposed 500 ft wind turbines. If the pilot makes visual reference to the landing surface and elects to land, it is done visually as previously described, except that the pilot must adjust his aircraft configuration quickly, initiate a descent, and ensure he is clear of all obstacles, all the while in marginal weather conditions in close proximity to the proposed wind turbines and below the height of the wind turbine blades. The approach transition phase from instrument reference to visual landing occurs in less than 60 seconds. The pilot would be required to avoid several large wind turbines coloured white, the same as the possible clouds and obscuring weather that may be present within the Take-off/Approach Surface at this low altitude during an intense pilot workload and any unexpected emergency distraction could result in a collision event.

Summary

The foregoing discussions addressed the aviation hazards that would be created by the eight 500 ft tall wind turbines that wpd proposes to erect in airspace published by Nav Canada for take-off and approach zones approved for use at Clearview Aerodrome. Take off and approach activities are the most hazardous phases of an entire flight because the pilot is changing the aircraft configuration, flying slowly, operating close to the ground, adjusting for changing weather conditions, communicating intentions with ATC and other aircraft, all within a very short time period, a few seconds, while maintaining minimum altitudes and situational awareness. The Pilot's workload and responsibility for avoidance of dangers and the safe landing of aircraft and passengers in response to atmosphere and obstacles is high stakes. Decisions are required within a few seconds on many factors simultaneously to ensure achievement of a safe flight.

The pilot must operate within the Take-Off/Approach Surface when close to the runway end. If, in addition, a huge obstacle like a wind turbine is present in that surface, such that non-standard responses are required by the Pilot, the risk of an accident increases to an unacceptable degree. That is why the designated takeoff and approach surfaces for Clearview Aerodrome are designated and should be respected and protected. The proposed eight wind turbines **would constitute high risk of danger to the operations**

of aircraft approaching your aerodrome in compliance with international standards as defined by Transport Canada in TP312.

Final Conclusion

Reviewing the safety impact of the proposed Fairview Wind Project on the Stayner (Clearview Field) aerodrome, I conclude that that should the turbines be erected as proposed they would negatively impact the safety of both visual take-offs and landings, and of your instrument flight procedures, such that it is my professional opinion that your runway cannot be operated safely, and I recommend that it then be closed.

Yours truly,

A handwritten signature in black ink, appearing to read 'Chas Cormier', with a stylized flourish extending from the bottom left.

Charles (Chas) Cormier
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Cell: 514-979-0961

WIND TURBINES MAY CLOSE BUSY AIRPORT: PILOTS LAUNCH POLITICAL CAMPAIGN

This is an excerpt from the August edition of COPA Flight, provided by a member of the Canadian Owners and Pilots Association.

So ridiculous, pilots can't believe anyone would put turbines at an airport

WINDMILLS MAY CLOSE AIRPORT

PLEASE NOTE THAT THE ERT (Environmental Review Tribunal) DID RULE IN FAVOR OF THE PILOTS, AND THAT TURBINES WOULD COMPROMISE HUMAN HEALTH, SAFETY, IN ALL PROBABILITY.

THE PILOTS WON, AND SO DID ONTARIO! So where is common sense re the Cleveland Burke Lakefront Airstrip, with its proposed six massive turbines, 8-10 miles offshore?



By Russ Niles

The owner of an Ontario airport that will be in the shadow of a proposed wind turbine project fears Transport Canada [TC] will close his strip if the windmills are built.

Kevin Elwood says he's been told by a senior TC official that the department will not intervene to prevent construction of the windmills but it will act to ensure public safety after the fact by restricting or even stopping operations at the affected airport.

"He said that if [the province of Ontario] chooses to put green energy before airports, that's their choice," he said. "We will respond by restricting airport operations and we will go so far as to close airports," he {Elwood} quoted the official as saying.

That would seem to fit with the scenario now playing out over the so-called Fairview Project, a group of eight, 152-metre turbines planned for farmland adjacent to Elwood's Clearview Aerodrome (also known as Stayner Airport). The huge windmills will be directly in the flightpath of aircraft in the circuit for his airport and the nearby Collingwood Airport.

TC has declined to oppose the project and that means the only hope Elwood and other opponents of the windmills have is the rarely used power on the Minister of Transport to unilaterally stop the project on safety grounds.

Minister Marc Garneau has so far been silent on the issue and COPA is calling on its 17,000 members (and voters) to apply their significant political influence to nudge him out of that complacency.

COPA has launched a full-scale [letter writing campaign](#) to draw attention to the issue that Elwood is convinced is an immediate threat to both airports and will set a precedent that could affect airports across the country.

The turbines would be in blatant violation of Transport Canada's airport obstacle guidelines and Garneau, a long-time pilot and COPA member, has the power to stop their construction. In fact, because of the protection afforded such projects by Ontario's Green Energy Act, Garneau is probably one of the few who can stop them. He won't even talk about the issue, however.

"We really have a good working relationship with Transport Canada, very open and collaborative," [says COPA President Bernard Gervais]. "As part of our regular discussions I presented the situation and possible course of action," Gervais said. "Section 6.41 of the Aeronautics Act authorizes the minister to make an interim order to deal with such threats to aviation. If the minister is of the opinion that the windmills are hazardous to aviation safety, he (or his deputy) has the authority to stop such construction. ... the lack of feedback from TC and knowing this is a very sensitive political issue, drives me to think that our only course of action at this point is to go on the political front."

ERT members unfamiliar with aviation safety

COPA appeared at the original [ERT] hearings in the approval* process along with many other opponents, and all of the arguments were essentially ignored. ... Complicating that process is the fact that the two members hearing the health arguments have no aviation background at all and have had to be schooled on airport operations and aviation terminology.

... [Elwood] says that if it plays out as he thinks it might, TC will either close his airport or make it so difficult and inconvenient to use that it might as well be closed. The aerodrome is home base to Elwood's business, an aircraft management and business charter operation. Over the years he's invested heavily in hangars and other infrastructure and if the windmills go ahead, a lifetime of work might go down the drain.

[The wind turbines] will prevent pilots from using the recently re-invigorated [Collingwood Airport]. Ironically, the federal government has spent millions on improvements to the field, including a new terminal and lots of new pavement.

"Even people who don't fly, [says Collingwood based pilot Austin Boake], they realize it's just common sense ...It's just so ridiculous I can't even believe it."

*The author means the "appeal process."

For more information on the COPA appeal go to: <http://www.copanational.org/FeedFeds.cfm>

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<https://www.npr.org/2017/09/11/549549825/new-wind-farms-cause-friction-in-the-sky-over-military-flight-routes>

New Wind Farms Cause Friction In The Sky Over Military Flight Routes

3:54Queue



Senior Airman Yazmine Nanasca with a control tower crew at Altus Air Force Base guide a C-17 cargo plane a KC-135 tanker as it taxis to the runway for a day-long training mission in southwestern Oklahoma.

Joe Wertz/StateImpact Oklahoma

The hulking C-17 is the pack mule of the United States military, designed to lift and transport troops, tanks and even helicopters. Every American C-17 pilot is trained at the Altus Air Force Base in southwestern Oklahoma, where flight instructor Adam Bergoo says a key lesson is how to fly close to the ground.

"That's one of our military missions, is to fly low-level, because that basically reduces the risk of detection, and getting shot at by the bad guys," he says.

The western part of Oklahoma has been ideal for this because the skies are wide open. But Bergoo says one of his training routes is now partially blocked by a wind farm.

"Say that route corridor is about five miles wide," he says, "and now we have two miles of that blocked by wind turbines."

Airspace As An Asset

New wind farms threaten other flight training routes, too. Top brass at Altus and Vance Air Force Base near Enid, where pilots are trained to fly smaller planes, are sounding the alarm with local officials and state lawmakers. [Business leaders](#) are also complaining. They want to keep the airspace open to attract aerospace companies and entrepreneurs who need a place to test drones.

Yet another concern is safety. While no accidents involving military pilots and wind turbines have been reported here, the Oklahoma Aeronautics Commission is worried about the potential hazard as wind farms expand.

"Several members of the military have echoed concerns of what would happen if an aircraft lost an engine, or had a bird strike, and they had to eject over or near a wind farm," says Grayson Ardies, who manages the commission's Airport Development Division.

Oklahoma lawmakers are considering a bill that would require new wind farms to get approval from the aeronautics commission, which is [pushing](#) for more oversight. Another proposal would require the state's military commission to sign off before new wind farms break ground.



A landowner drives by a turbine on his ranch in western Oklahoma.

Joe Wertz/StateImpact Oklahoma

The wind industry opposes both ideas.

"Creating a new state bureaucracy is not the way to go," says Jeff Clark with The Wind Coalition, which represents wind developers in Oklahoma. One recently announced project in the state's panhandle would be the country's largest wind farm.

New Restrictions

Wind farms have run into trouble with military installations in other states. The Department of Defense has [blocked projects](#) in North Carolina over concerns the wind towers would [interfere](#) with a bombing range and military radar. The Tar Heel State recently barred wind farm permits for 18 months. This year, Texas Gov. Greg Abbott [signed a bill](#) to prevent wind industry tax exemptions for any project within 25 miles of an air base.

New technology is making turbines and blades more efficient, which means wind farms are going up in locations companies would have skipped just a decade ago, Clark says.

But the wind industry suspects there's another reason the conflict is gaining momentum.

"Anti-wind groups have figured out that this is an issue that they can use to drive a wedge between communities, and to raise concern even if those concerns aren't warranted," Clark says.

Lawmakers who support restrictions dispute this, and say they simply want to safeguard military sites.

Federal Oversight

All wind farms must be approved by the Federal Aviation Administration, which encourages companies to consult with military bases before locking in new sites. Military officials can also work through the Defense Department to block wind farms if they believe they threaten national security,

"This is a role for the federal government," Clark says.

"The Pentagon, frankly, and the FAA are very skilled and knowledgeable, and they have the expertise to manage these things."

Altus Branch Chief Heath Sirmons, however, says the national security bar is too high.

"Training at Altus Air Force Base doesn't generally rise to that threshold," he says. "Very few things rise to that threshold."

At Altus, the rookie C-17 pilots lifting off will fly for hours, rehearsing approaches. Once trained, they'll deploy to carry critical cargo on missions around the world. Flight instructor Bergoo says the entire country depends on Oklahoma's open airspace.

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FIRST INCIDENT 2016 (Order reporting is not chronological)

.....a private jet plane with six people on it apparently crashed in Lake Erie about two miles north of the Cleveland downtown Burke Lakefront airport on the evening of **December 30** during inclement weather. The Cleveland Plain reported Lake Erie had 12 foot waves at the time and that rescue efforts were called off that evening because of severe snow/rain/fog conditions. As of Saturday no bodies had been recovered.

Building six giant wind turbines about 8 miles north of this downtown airport seems like a disaster waiting to happen. The main commercial airport is just southwest of Cleveland and is called Hopkins airport. Burke Lakefront airport is the home of the late summer Air Show, which has corporate planes, plus it may have some military significance during the year.

The plane ran into a snowstorm on 12/30/16 over Lake Erie two miles north of Burke Lakefront airport-story was in the Cleveland Plain Dealer.

AIR ACCIDENT OFF OF CLEVELAND DEC 30 2016 FROM TOM W

<https://www.wkyc.com/article/news/local/cleveland/ntsb-cites-pilot-spatial-disorientation-as-cause-of-lake-erie-plane-crash-that-killed-6/95-576705850>

<https://fox8.com/2018/07/23/ntsb-issues-final-cause-in-lake-erie-plane-crash-that-killed-six-people/>

CLEVELAND, Ohio -- The National Transportation Safety Board has determined that "**pilot spatial disorientation**" was the cause of the Lake Erie plane crash that killed six people in 2016.

The Cessna Citation 525 crashed into Lake Erie shortly after takeoff from Burke Lakefront Airport on Dec. 29, 2016.

The NTSB's final report on the crash was issued Monday.

According to their findings, the NTSB specifically determined the probable cause of the accident to be "pilot spatial disorientation." **The**

report lists pilot fatigue, monitoring equipment/instruments and total experience with equipment as factors in the crash.

"As a result, the pilot was likely fatigued, which hindered his ability to manage the high workload environment, maintain an effective instrument scan, provide prompt and accurate control inputs and to respond to multiple bank angle and descent rate warnings."

On the night of the crash, the pilot, John Thomas Fleming, was cleared for takeoff at 10:55 p.m to the Ohio State University Airport. He was given a heading and altitude.

Less than a minute after the plane became airborne, an automated voice said "altitude," which was repeated 14 seconds later. The NTSB said a sound similar to a decrease in engine power was recorded then the enhanced ground proximity warning system gave an excessive bank angle warning. The tower controller told Fleming to contact departure control. He replied "to departure six one four sierra bravo," but the tower controller did not receive the message.

The controller tried to contact Fleming again. The pilot received a sink rate warning and he responded "six one four sierra bravo," this it was not received either.



RELATED STORY**I TEAM: Exclusive pictures from investigation into Lake Erie plane crash**

The warning system provided seven "pull up" messages. A sound similar to the overspeed warning could be heard over the cockpit voice recorder. The recording ends about 3 minutes after Fleming was cleared to take off.

During the weeks after the crash, the U.S. Coast Guard, Cleveland police and other authorities recovered [hundreds of pieces of debris](#). They also discovered [remains belonging to three](#) of the victims: Fleming, 45; his son John Robert Fleming, 15; and neighbor Brian Sean Casey, 50.

In June 2017, more remains washed ashore in Willowick that were [identified as John Fleming](#). Three months later, additional remains from a crash victim were found near Lake City, Pennsylvania.

The bodies of Sue Fleming, Andrew Fleming and Megan Casey were never found.

SECOND incident

1970 accident air show

<http://www.clevelandairshow.com/about-us/air-show-history/>

<https://www.youtube.com/watch?v=Cj2uhrdvM0A>

<http://libraryonline.erau.edu/online-full-text/ntsb/aircraft-accident-reports/AAR71-05.pdf>

TAG AIRLINES , INC . De Havilland dove (DH-104), N2300H, in Lake Erie, January 28, 1970 *, SYNOPSIS ' A TAG Airlines, Inc., De Havilland Dove, N23300H, operating as Flight 730 of January 28, 1970, departed from Cleveland's Burke Lakefront Airport at 0738 e.s.t., for the Detroit City Airport with two crewmembers disappeared from the Cleveland Air Route Traffic Control Center's radar and seven passengers on board. The aircraft's radar beacon target at 0749. At 0922, it was determined that the aircraft had crashed through the ice into Lake Erie, 26 miles north-northeast of the Cleveland VORTAC. The bodies of five passengers and two crewmembers were recovered and identified. Two passengers are missing and are presumed dead. The aircraft was destroyed and portions of it sank in 80 feet of water./

1. INVESTIGATION 1.1 History of the Flight TAG Airlines Flight 730 of January 28, 1970, was a regularly scheduled passenger flight originating at the Burke Lakefront Airport (BKL) in Cleveland, Ohio, and destined for Detroit City Airport in Detroit, Michigan. The aircraft was a De Havilland Dove, N2300H. Flight 730 was cleared for takeoff from Burke Lakefront Airport at 0737:16 1/ and operated routinely to the vicinity of Crib Intersection 2/ over Lake Erie. - At 0745:23, when TAG 730 was 3 to 4 miles north of Crib Intersection, ATC control was transferred to the Cleveland Center and the flight was instructed to contact the Center. This contact was made without delay and the flight reported at 4,000 feet (the flight planned and clearance altitude.) Detroit area altimeter setting of 29.83. This information was acknowledged by the copilot of TAG 730 at 0746:28. This was the last recorded radio transmission from the flight. After establishing radar contact, the controller provided the current radar target of TAG 730 had disappeared at a point 5 to 6 miles northwest of Crib Intersection over Lake Erie on the centerline of Airway Victor radio but was unsuccessful. 42 East. At 0749:53, he initiated attempts to contact the flight by Between 0749:25 and 0749:30, the Center controller noted that the beacon About 0922, a hole through the ice in the lake, with debris in and around the hole, was located 26 miles on the 021" radial. of the Cleveland VORTAC. The debris was confirmed subsequently to be a portion of the wreckage of TAG 730. The accident occurred during daylight hours. The water at the accident site was 80 feet deep and, at the time, the area was covered by ice 12 to 14 inches thick and extending 3 to 5 miles in all directions.

Wreckage a. Recovery The aircraft crashed into the ice floe covering Lake Erie at latitude 41'42'36"N. and longitude 82401'12"iJ. A major portion of the aircraft, including the two engines, broke through the 12 to 14 inch thick ice in two places and sank in 80 feet of water. The two penetrations of the ice were approximately 120 feet and 40 feet in diameter, respectively, and were separated by approximately 60 feet. Concentric, circular cracks radiated outward from the larger hole for approximately 100 feet. This was a nonsurvivable accident.

Probable Cause the in-flight failure of the lower, right, main wing-to-fuselage root joint attach fitting resulting from undetected fatigue cracks in the wing portion of the fitting. The Board also finds that the Federal Aviation Administration's requirement for the timely replacement of chromium-plated root joint fittings was inadequate.

THIRD STORY OF AIR CRASH BURKE LAKEFRONT, AIR FORCE THUNDERBIRDS 1981

<https://www.upi.com/Archives/1981/09/08/The-commander-of-the-Air-Force-Thunderbirds-precision-flying/4254368769600/>

The commander of the Air Force Thunderbirds precision flying...

Read more: <https://www.upi.com/Archives/1981/09/08/The-commander-of-the-Air-Force-Thunderbirds-precision-flying/4254368769600/#ixzz5ZDxR3peE>

CLEVELAND -- The commander of the Air Force Thunderbirds precision flying team died Tuesday in the crash of his T-38 jet, which apparently lost power when its engines sucked up several sea gulls, slammed onto the runway in a ball of fire and skidded into Lake Erie.

Authorities said the twin-engine, red-white-and-blue Talon jet burst into flames after it apparently flew into a flock of seagulls about 50 feet off the ground while taking off from Burke Lakefront Airport.

Both the pilot, Thunderbirds commander Lt. Col. David L. Smith, and his crew chief, Staff Sgt. Dwight Roberts, ejected from the flaming jet before it went down in a light drizzle.

However, Smith, 40, of Rossville, Ga., commander of the jet aerobatics team for three years, apparently was fatally injured when he landed on a rocky area after his parachute failed to open, authorities said.

Paramedics at the scene tried vainly to revive him, but Smith was pronounced dead on arrival at St. Vincent Charity Hospital.

Roberts, 31, of Lexington, N.C., suffered minor arm and knee injuries. He was treated at St. Vincent Charity.

The cause of the crash will be investigated by an official board of officers inquiry, but Gen. W.L. Creach, head of the Tactical Air Command at Langley Air Force Base in Virginia, said the birds could have been to blame.

'The airplane seems to have flown into a flock of birds, some of which could have been ingested (by the jet's engines), which could have caused the engines to lose power or flame out,' a spokesman for Creach said.

City airports director George Doughty said a number of birds were reported near the Burke runways early Tuesday, although no pilots who took off before the Air Force jets reported any problems.

Sea gulls are particularly prevalent at Burke, Doughty said, especially 'when you get low ceilings and rain' -- the type of weather at the time of the crash.

Smith 'was advised by the tower that there were birds in the area before he took off,' Doughty said.

The Thunderbirds, formed in 1953 as the Air Force's stunt flying squadron, performed at Burke Monday as part of the Cleveland National Air Show.

Tuesday's crash was the second fatality involving the team in four months.

On May 9, a pilot died when his T-38 crashed during a performance at Hill Air Force Base near Ogden, Utah.

Smith's twin-engine T-38, the Air Force's principal supersonic jet trainer, was taking off in formation with another Thunderbird en route to the group's next performance when the crash occurred.

'The plane got about 30 to 40 feet off the ground and then came back down,' said Mike Barth, deputy commissioner at Burke, who witnessed the crash. 'It skidded about 1,500 feet along the runway.'

'It was a ball of fire all the way down the runway. There's pieces of wreckage all over,' he said.

'It appeared he hit a flock of sea gulls,' said Capt. Jim Jannette, director of public relations for the Thunderbirds. 'They both ejected. They had cleared the runway and were airborne.'

The plane came to rest in shallow water 50 feet off the western end of the runway, near the 9th District Coast Guard station. Smith came down on the airport ground and Roberts landed on the runway, Jannette said.

The six-plane Thunderbirds team was to have made a refueling stop at Scott Air Force Base near St. Louis, then headed to a performance at Sheppard AFB in Wichita Falls, Texas.

Read more: <https://www.upi.com/Archives/1981/09/08/The-commander-of-the-Air-Force-Thunderbirds-precision-flying/4254368769600/#ixzz5ZDxnaHV8>

Read more: <https://www.upi.com/Archives/1981/09/08/The-commander-of-the-Air-Force-Thunderbirds-precision-flying/4254368769600/#ixzz5ZDxXrfux>

FOURTH CRASH LAKE ERIE BURKE LAKEFRONT 2008

Presumed operator heart attack

<https://nbc24.com/news/local/plane-crash-near-cleveland>

Thu, 17 Jan 2008 02:30:07 GMT — A twin-engine plane that took off from a small airport near downtown Wednesday night crashed into Lake Erie with one person onboard, authorities said.

It wasn't immediately known if the pilot survived, said Pat Smith, a spokeswoman for **Burke Lakefront Airport**. The pilot's identity wasn't released.

William Mitchell, a spokesman for the U.S. Coast Guard, said a search was under way.

The Beechcraft Baron took off about 7:25 p.m. and crashed into the lake just north of a breakwall, a stone and rock structure that helps keep the water from washing away the shoreline, Smith said.

Temperatures were in the low 30s Wednesday night, but the sky was clear with no rain or snow.

The plane belonged to Aitheras Aviation Group, an aircraft charter company based in Cleveland, said Burke Lakefront Airport commissioner Khalid Bahhur. He wasn't sure of the plane's destination or if the pilot worked for the company.

"The unfortunate thing is that in this weather, in this water, hypothermia sets in quick," he said.

A person answering the phone at Aitheras Aviation Group declined comment.

The small airport, just east of the Rock and Roll Hall of Fame, is a resource mostly for private and corporate aircraft.

https://www.nts.gov/about/employment/ layouts/nts.aviation/brief2.aspx?ev_id=20080122X00085&ntsbno=CHI08FA066&akey=1

NTSB Identification: CHI08FA066

"THIS CASE WAS MODIFIED FEBRUARY 12, 2009."

HISTORY OF FLIGHT

On January 16, 2008, about 1922 eastern standard time, N3217L, a Hawker Beechcraft Corp. 58 airplane, owned by Everair LLC, sustained substantial damage on impact with Lake Erie during its climb after takeoff from the Burke Lakefront Airport (BKL),

Cleveland, Ohio. The 14 CFR Part 91 positioning flight was operating in night visual meteorological conditions. No flight plan was on file. The airline transport rated pilot received fatal injuries. The flight originated from BKL and was destined for the Niagara Falls International Airport (IAG), near Niagara Falls, New York.

About 1850, a pilot representing N3217L requested a standard visual flight rules weather briefing from BKL to IAG.

A witness, who was a lineman, observed the pilot preflight the accident airplane. The witness saw the airplane's engines rev up at its parking spot on the ramp and saw the airplane jump the chocks. The airplane then taxied out for departure.

According to an air traffic controller, the pilot of N3217L was given a clearance to taxi to runway 24L and the pilot asked for flight following to IAG. The pilot reported that he was ready for departure and was given a takeoff clearance by the controller that included an approved right turn on course. The controller reported that he observed the airplane in the right turn, saw the airplane descend in the right turn, and saw the airplane impact the lake. The controller reported that he called the airport fire and rescue facility and Coast Guard contacts and informed them of the accident.

Another witness at the airport, in part, stated:

At about 7:20 PM on Jan. 16, 2008 I was on the Business Aircraft ramp at Burke Lakefront Airport, I had just checked the maintenance release on a[n] Embraer 120 that was to launch at 7:30 PM. While talking with the lineman, and facing north, lights of an aircraft caught my attention, for two reasons, the lights were not in a normal Nav [navigation] light configuration for a fixed wing aircraft and second was the angle and rate of descent. The angle was about 45 degrees. The direction of travel was west to east.

Since there are a large number of helicopters in the area, my next thought was that it was a helicopter coming in. A fuel truck blocked my line of sight for a split second and after it passed I expected to

see a helicopter leveling off, but instead the aircraft continued [its] descent into the lake. Instantly there was a line of fire about 20 to 30 yards long and burned for about 4 or 5 minutes. ... I couldn't hear if there was an explosion, I could only see the fire.

PERSONNEL INFORMATION

The pilot was employed as a pilot by the accident airplane's operator, Aitheras Aviation Group, LLC.

The 68 year old pilot held an airline transport pilot certificate with an airplane multiengine land rating and held rotorcraft helicopter and airplane single engine land and sea commercial privileges. He also held a helicopter instrument rating. He held a certified flight instructors certificate with single engine, multiengine, and instrument airplane ratings and rotorcraft helicopter, and instrument helicopter ratings. The operator reported that the pilot had accumulated about 18,600 hours of total flight experience, which included 350 hours in the same make and model airplane as the accident airplane. The operator reported that the pilot's last flight review was completed on April 13, 2007, and the pilot's most recent Federal Aviation Administration (FAA) second class medical certificate was issued on October 4, 2006.

AIRCRAFT INFORMATION

N3217L, a 1999 Hawker Beechcraft Corp. 58, was a six place, retractable tri-cycle landing gear, twin-engine monoplane of predominately aluminum construction. The airplane's serial number was TH-1927. The airplane was powered by two 300-horsepower Teledyne Continental Motors model IO-550-C (31) engines. The left engine serial number was 690172 and the right engine serial number was 684330. Each engine drove its own three-bladed Hartzell propeller.

According to the aircraft maintenance records, the most recent annual inspection was performed on September 20, 2007, and the airplane Hobbs meter read 2,022.3 hours on that date.

The operator reported that the airplane was flown 6.4 hours on January 15, 2008, and indicated that the airplane flew "perfectly" and had no squawks.

Records show that the airplane was equipped with an Insight Instrument Corp. (Insight) Gemini 1200 engine monitor, serial number 02118. According to Insight, the monitor automatically records parameters during every flight. The monitor watches engine temperatures and stores each flight data as an individual log file in non-volatile memory. The monitor can store up to 50 hours of data.

METEOROLOGICAL INFORMATION

At 1853, the recorded weather at BKL was: Wind 120 degrees at 6 knots; visibility 10 statute miles; sky condition broken 25,000 feet; temperature 0 degrees C; dew point -7 degrees C; altimeter 30.25 inches of mercury.

According to the United States Naval Observatory, at 1920 the position of the moon was 183.4 degrees east of north, 68.3 degrees above the horizon, and was in its waxing gibbous phase with about 60 percent of the its visible disk illuminated.

AIRPORT INFORMATION

BKL was located on the lakeshore of Lake Erie north of downtown Cleveland, Ohio, and was owned and operated by the city of Cleveland, Ohio. BKL was a certificated airport under 14 CFR Part 139. BKL's field elevation was 583 feet above mean sea level. BKL had 2 runways: Runway 6L/24R -6,198 feet by 150 feet, asphalt/grooved; runway 6R/24L - 5,197 feet by 100 feet, asphalt/grooved. The airport met airport rescue and firefighting index A.

WRECKAGE AND IMPACT INFORMATION

According to the underwater salvage company, the pilot and wreckage were found and recovered about a mile off the shore by BKL near 41 degrees 31.8 minutes north latitude and 81 degrees 42.7 minutes west longitude from about 30 feet of water. Sections of the right outboard wing and left engine propeller were not recovered. The recovered wreckage was relocated to a hangar at BKL for examination.

MEDICAL AND PATHOLOGICAL INFORMATION

On the application for that medical certificate, the pilot indicated "Yes" for "Do you currently use any medication" and he noted only atorvastatin. The application showed "No" for all items under "Medical History," including specifically "High or low blood pressure" and "Other illness, disability, or surgery." The pilot's height was noted as 72 inches, weight as 220 lbs, and blood pressure as 120/80. His total flight time was reported as 16,100 hours "To Date" with 150 hours in the "Past 6 months."

The pilot's personal medical records were reviewed by the NTSB medical officer. On May 24, 2005, the records indicated that the pilot had injured his back and was prescribed cyclobenzaprine 10mg three times a day as needed for muscle spasm. The pilot's physician noted that the cyclobenzaprine "will cause drowsiness so careful if flying a plane." On October 5, 2006, the pilot was noted as being treated, in part, for back pain, high blood pressure, gastroesophageal reflux disease, and elevated triglycerides and cholesterol. On January 11, 2008, the pilot was noted to also have diet controlled diabetes and to be regularly taking cyclobenzaprine, losartan, metoprolol, and naproxen, among other medications. His blood pressure was noted at that time to be 146/86, his height as 72 inches, and his weight as 234.7 pounds.

An autopsy was performed on the pilot for the Cuyahoga County Coroner. The autopsy report indicated "hypertensive and atherosclerotic cardiovascular disease," noting cardiomegaly (690 grams), left ventricular hypertrophy (1.8 cm), myocyte hypertrophy, myocardial ischemia, coronary atherosclerosis (50%), and aortic atherosclerosis.

The FAA Civil Aerospace Medical Institute prepared a Final Forensic Toxicology Accident Report. The report listed:

0.023 (ug/mL, ug/g) CYCLOBENZAPRINE detected in Blood
CYCLOBENZAPRINE present in Urine
METOPROLOL detected in Blood
METOPROLOL present in Urine
NAPROXEN detected in Urine

FIRE

Witnesses observed a fire after the airplane impacted the lake. Post accident examination of the recovered wreckage revealed no evidence of melted or charred markings consistent with an in flight fire.

TESTS AND RESEARCH

The wreckage was examined at a hangar at BKL. The flight control cables were traced and all cable breaks were in overload. The measurement of the flaps and landing gear actuators indicated that they were retracted. Both engines' fuel manifold valves contained a liquid consistent with the color and smell of aviation gasoline. Both engines produced a thumb compression at all cylinders when their crankshafts were rotated. Disassembly of both engines' vacuum pumps revealed no anomalies. Both engines' fuel pumps pumped a liquid when they were rotated. No engine or airframe pre-impact anomalies were detected.

The Insight engine monitor was sent to the Transportation Safety Board of Canada (TSB) for examination and download of the monitor's data by its manufacturer. The monitor's main circuit board passed the manufacturer's function test and its data was downloaded and entered into a spreadsheet format. The last flight's data log spreadsheet showed data for a recorded duration of 0.23 hours. The last portion of the flight's data log showed the

engines were producing indications of engines consistent with a high power setting until the data stopped.

BURKE LAKEFRONT AIR ACCIDENT 2008 same as above

One man killed in Lake Erie crash

One man died when a Hawker Beechcraft Corp. 58 crashed during takeoff Jan. 16, 2008 from Burke Lakefront Airport. The Hawker Beechcraft Corp. 58 had been on a positioning flight at the time of the crash.

The pilot had a history of health problems and experienced spatial disorientation during the initial climb, causing him to lose control of the plane, the National Transportation Safety Board said in [its report on the crash](#).

https://www.cleveland.com/metro/index.ssf/2017/02/northeast_ohio_aircraft_crashes.html

Above link is of many accidents, which include some of the below

The National Transportation Safety Board determines the probable cause(s) of this accident as follows: Accident below:

- *The pilot's failure to maintain control of the airplane while operating in instrument meteorological conditions due to **spatial disorientation**. Contributing to the accident was the pilot's inattention to basic aircraft control while attempting to program the autopilot system.*
-

FIFTH ACCIDENT APRIL 2009

Attorneys headed to Buffalo killed in plane crash

Two attorneys headed to Buffalo died April 28, 2009 when their small plane crashed shortly after take-off from **Cuyahoga County Airport** in Richmond Heights. The plane crashed in woods just east of SOM Center Road in Mayfield Village.

Bad weather and pilot error were factors in the crash, the National Transportation Safety Board said in [its report on the crash](#). **The pilot's inattention to basic aircraft control while trying to program the autopilot system also led to the plane crashing five minutes into the flight, the NTSB said.**



Analysis

The airplane impacted terrain during a cross country personal flight. During taxi from the departure airport, the airplane was involved in a pilot deviation when it taxied without authorization onto a runway. The airplane impacted a grass field leaving a series of propeller slash marks of increasing separation before becoming airborne again, impacting a wire fence near the field that contained the slash marks. Damage to the propeller blades was consistent with engine power. The airplane then became airborne for approximately 0.3 miles before it impacted a corn field. The airplane flaps and landing gear were retracted. Examination of the airplane revealed no anomalies that would have precluded normal operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The altitude/ clearance not maintained by the pilot during cruise flight.

SIXTH ACCIDENT 2006

One killed when flight ends in crash in Wayne County

One man died Sept. 5, 2006, when a Mooney M20J crashed near Smithville in Wayne County. The man had been traveling from Burlington International Airport in Vermont to Mansfield Lahm Regional Airport in Ohio. The pilot's brother-in-law told investigators that the pilot planned to travel to Los Angeles.

The National Transportation Safety Board [said in its report](#) that the pilot failed to maintain altitude and crashed into terrain.

Analysis

During cruise flight, a single engine helicopter was substantially damaged when it impacted the terrain after colliding with a static power line wire that was about 52 feet above the ground. The helicopter was observed over-flying a parade route prior to the impact with the power line. Witnesses reported that the helicopter was flying westbound over the middle of highway. It was observed flying straight and level at a low altitude. One witness reported that the helicopter was flying at treetop level for about 1,000 feet 1/2 mile before the accident. **The landing skid caught the top neutral wire and the helicopter rotated upside down and impacted the middle of the road. The inspection of the helicopter revealed no pre-impact airframe and engine anomalies.**

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot flew at a low altitude and failed to maintain clearance from the wire. A factor was the wire.



Wayne County OH

SEVENTH ACCIDENT 2006

MID AIR PORTAGE COUNTY

WAYNE COUNTY, NEAR CLEVELAND

2002 EIGHTH ACCIDENT

https://www.cleveland.com/metro/index.ssf/2017/02/northeast_ohio_aircraft_crashes.html

Four killed in Apple Creek plane crash

Four people died and a fifth was injured when a Piper PA-32-300 crashed Sept. 2, 2000 in Wayne County. The plane was headed to Burke Lakefront Airport in Cleveland from Stoltzfus Airport in Kidron.

The National Transportation Safety Board determined the pilot's premature lift-off and failure to attain a proper climb rate were factors in the crash. The plane hit power lines and a flagpole before crashing in a wooded area.

Analysis

The airplane was in a left traffic pattern for landing. During the turn from base leg to final, it stalled, and began a spin to the left. Prior to ground impact, the airplane's rotation was stopped; however, the nose came up, and the airplane remained stalled as it hit the ground. There was no evidence of a preexisting mechanical malfunction. The pilot had about 2,030 hours of total flight time, and 111 hours in the accident airplane. At the time of the accident, the airplane's center of gravity was aft of the rearward limit by 3.13 inches, and its weight was 21.5 pounds over maximum gross weight.

Probable Cause and Findings

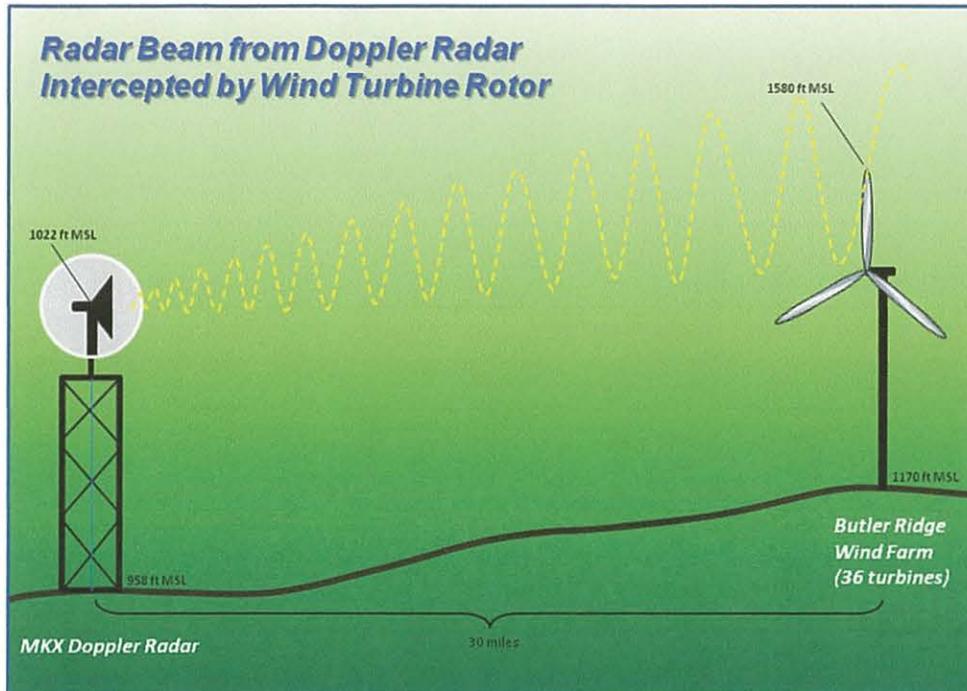
The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of control of the airplane while turning from base onto final, which resulted in an inadvertent stall/spin. A factor was the pilot's improper loading of the airplane, outside the weight and balance limitations.

A National Transportation Safety Board report describes the crash that killed two people July 29, 2000 in Wooster.

National Transportation Safety Board

MILITARY CONCERNS

This is a huge issue, and could take 100s of pages to discuss.



A small part of the electromagnetic energy radar beam sent from the radar is reflected back by the rotating turbines. The radar processes this "returned energy" as an area of precipitation and plots it accordingly on the map. This contamination of the base reflectivity image as illustrated in the below image, has an effect on the radar algorithms used to estimate rainfall and to detect certain storm characteristics.

The KMKX doppler radar has a sophisticated clutter/interference removal scheme, however the scheme was designed to filter out spurious returned (reflected) energy that has **little or no motion**. This is effective for removing the returned signals from terrain, buildings, and other non-moving structures. Unfortunately, the radar sees the rotating wind turbine blades as targets having reflectivity and motion, hence processes these returns as weather.

Wind turbine clutter or interference that shows up on the base reflectivity and velocity images produced by the doppler radar can have several impacts including:

- Thunderstorm or winter storm characteristics could be masked or misinterpreted, reducing warning effectiveness in the vicinity of, and downrange of the wind farm.
- False signatures contaminating Doppler velocity data in the vicinity and downrange of the wind energy facility could reduce forecaster's situational awareness, particularly during hazardous/severe weather events.
- Data masking or contamination if thunderstorms develop over the wind farm may negatively impact warning effectiveness.
- False precipitation estimates could negatively impact flash-flood warning effectiveness.

<https://www.zdnet.com/article/do-wind-farms-lower-military-readiness/>

Members of a House Armed Services sub-committee this week listened to [complaints](#) from both the FAA and the DOD about the spinning blades of wind turbines and how they interfere with radar signals that detect flying aircraft -- a problem if these aircraft are flying by a wind farm, and an even bigger problem if the wind farm is located near a military base.

The radar may detect spinning wind turbine blades as a 747, and the signals from smaller planes are drowned out.

The FAA also [complained](#) that wind turbines confuse next-generation weather radar, which interprets the spinning blades as storms and makes it harder for air traffic controllers to tell pilots what to expect if they're flying near a wind farm.

Emotions on wind farms and radar ran especially high in March, [according to](#) Dr. Dorothy Robyn of the DOD, when the FAA [halted construction](#) on the Shepherd's Flat wind farm in Oregon -- projected to be the largest land-based wind farm in the world -- even though the project was already more than five years old and new wind turbines were about to go up.

NORAD and the U.S. Northern Command feared that the turbines would interfere with their long-range surveillance radar, Robyn said -- and hence, the defense of the U.S. homeland. Shepherd's Flat's backers -- General Electric and Caithness Energy -- which had already spent hundreds of millions of dollars on the project, were not pleased.

<https://www.npr.org/2017/09/11/549549825/new-wind-farms-cause-friction-in-the-sky-over-military-flight-routes>

<https://dailycaller.com/2017/07/07/navy-study-says-wind-turbines-could-disrupt-military-operations/>

"The general conclusion of the study confirmed that primary radar detection may be significantly degraded in airspace immediately above wind farms and in some cases beyond the windfarm," Balocki wrote. "When flying in such areas of degraded primary radar coverage, there is

increased risk to Navy pilots from civilian aircraft operating without active transponders.”

Wind turbine’s interference with radar can actually be dangerous to military aviators, according to the letter.

Kelly and much of the military’s objections to the wind farm may have been ignored as part of former President Barack Obama’s general push to “green” the armed forces. Former president Barack Obama pushed the military into several [other green schemes](#), which compromised readiness.

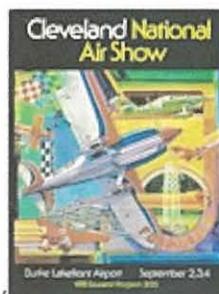
The Amazon wind farm is near one of two Relocatable Over-the-Horizon Radar, or Rothr sites, which the military uses to track aircraft and ships across the Atlantic Ocean. Studies by the Navy and the Massachusetts Institute of Technology [have found](#) the nearby wind farm will likely interfere Rothr functions.

CLEVELAND AIR SHOW HISTORY

<http://www.clevelandairshow.com/about-us/air-show-history/>

Blue Angels perform in A-4s. Formula One Championships were held at

1964



CNAS. Bill Falck, long-time Formula One Champion, perished when his plane, Rivets, crashed into the lake.

1981

Thunderbirds perform in T-38s. (An incident, unrelated to the event, in which a bird is sucked into the aircraft's engine occurs during Tuesday morning's departure causing the crash of the #1 T-bird aircraft. D.L. Smith perishes in the accident.) It is the last year they stage from Burke Lakefront Airport, future aircraft requirements will force them to stage from Hopkins Int'l Airport. There is a B-52 flyby and the Goodyear Blimp on display at CNAS.

1992

Thunderbirds, US Army Golden Knights, F-117 Stealth Fighter fly-by, F-14 Tomcat demonstration, Patty Wagstaff, Les Shockley and Jim Franklin define the "THRILL ZONE" of the 1992 event. Delmar Benjamin performs in his Gee-Bee R2 replica. President George H. Bush opens Saturday's show as Air Force One (the actual 747) flies by with the President onboard. During one performance the F-14 Tomcat was forced to land early when one afterburner was stuck in the "on" position (the engine was shut down and the aircraft landed safely). The Cleveland National Air Show is named "Air Show of the Year" by leading trade publication World Airshow News.

[Read more](#)

1999

The Thunder...The Roar...The Challenge offers something for everyone. The "thunder" of the Blue Angels headlined a full list of flying events including the "roar" of a P-51/F-16 "Heritage Flight" and Cleveland's own Walt Linscott in his YAK-55. The "challenge" was intended for the aerobatics competition but it was better applied to the unusual amount of bird activity during the weekend. The F-16 suffered a bird strike at the start of its performance on Sunday and Blue Angel #2 digested a bird upon departure Monday evening. In both incidences, the aircraft landed safely. As to the intended "challenge" Sean D. Tucker held off a fierce aerobatics battle against Rocky Hill, Matt Chapman, Mike Goulian, Ian Groom, and Gene Soucy in Labatt Blue Cup — the finale event of the CASPA's 1999 Challenge Series.

https://www.news-herald.com/news/bye-bye-birdies/article_3d0812d1-d18d-54ae-a230-e09ae022dfab.html

Cleveland Burke Lakefront Airport, which sits on the Lake Erie shoreline, handles about 85,000 annual flights as the major reliever for Cleveland Hopkins International Airport. In 1981 at Burke, gulls collided with the jet flown by the leader of

the Air Force Thunderbirds the day after the annual air show ended and he was to fly home. The plane started crashing and he leaped out, but his parachute failed and he died. In May 2002, the NBSC said, a flock of gulls hit a Beechjet 400 and made it land safely at Burke but with \$600,000 in damage. Searchers found 14 gull carcasses in the two engines. **By 2006, Burke had a "long history" of up to a dozen annual bird strikes, the NBSC said. In that year, NBSC volunteers chased away an estimated 29,537 birds, 70 percent of them gulls, from Burke.** Volunteers scared away most waterfowl by using 810 pyrotechnics and by waving "dead-gull effigies hung by legs from 6-foot poles." Volunteers used 12-gauge shotguns, .22-caliber rifles and .22-caliber air rifles to kill 571 gulls. The FAA especially watches gulls and nonmigratory geese on airports' grounds. **'Feathered bullets'** According to an FAA report, "Birds were involved in 97.5 percent of the reported strikes and terrestrial mammals (mainly deer) in 2.1 percent" of national collisions "with the plane's nose, windshield, engine, wing, rotor and fuselage 60 percent of the time 100 feet above ground level." "Gulls were responsible for the greatest number of bird strikes," causing a total estimated \$103 million in damage in a 16-year period through 2006, the FAA said. But geese are increasing at a "mean rate" of 7.3 percent a year and are in the top 10 Ohio danger list for taking down heavier planes, especially jets. The Canada goose is also among waterfowl on the protective list of the International Migratory Bird Act. If a 12-pound goose strikes an aircraft going 150 miles per hour at lift-off speed, the force would be that of a 1,000-pound weight dropped from a height of 10 feet, the FAA says. Between 1990 and 2007, geese strikes rose nationally from 2,090 to 9,891. **Strikes dropped to 5,622 by Aug. 31, 2008, a year in which Ohio saw 77 such collisions but no crash landings. That included one geese/plane collision each at Lost Nation and Cuyahoga airports (which has grounds in Richmond Heights in Cuyahoga and Willoughby Hills in Lake County).** The report includes one gull each at Lost Nation and Cuyahoga. But it was not only geese and gulls in bird strikes. In 2007, the FAA also counted bird strikes by starlings, sparrows and 1,277 "unknown birds," 487 of them "small." The Bird Strike Committee calls starlings "feathered bullets," which reached a late-summer population of 150 million-plus as the second-most abundant bird in North America. In the 2008 Great Backyard Bird Count, Lake County's Mentor ZIP code area accounted for checklists of 460 bird species, the highest in Ohio. Cincinnati was No. 2 with checklists of 282

species. The top 10 such lists in Ohio included Cleveland as No. 4, Painesville No. 5, the Mayfield area No. 7 and Chardon No. 10. For example, of 37,827 Canada goose sightings in Ohio, Mentor accounted for 2,940. Bird strikes aren't a big problem at small landing sites like Concord Airport, run by Concord Township Trustee Connie Luhta, who is a decades-long international show-winning pilot. "We're using our third black Labrador. Labs are bird dogs. So the birds are scared," she said. Luhta said she has a bigger scare than a bird crash. "I flew out once from Fort Lauderdale in Florida to the Bahamas and back in the last leg of (a race), and it wasn't all the birds that bothered me. The biggest fear of all is fear of the unknown, and for me the greatest fear was pilot error," she said. Meanwhile, Lake County commissioners are in discussions with Willoughby about maybe taking over Lost Nation from the city. Cuyahoga County commissioners also have asked their Lake County counterparts to partner with them at the Richmond Heights airport. Asked about the possible bird strike cost and damage issues at either, Lake County Commissioner Raymond E. Sines chuckled: "Now we've got one more question about costs: How many flights and how many times are there bird strikes?"

NEAR CRASHES AND MISSES AT BURKE LAKEFRONT AND NEAR AIRSTRIPS....look up helicopter and sea plane accidents or near misses

THIS IS JUST PLAIN INTERESTING BELOW.

Mr. Justice STEWART delivered the opinion of the Court.

On July 28, 1968, a jet aircraft, owned and operated by the petitioners, struck a flock of seagulls as it was taking off from Burke Lakefront Airport in Cleveland, Ohio, adjacent to Lake Erie. As a result, the plane lost its power, crashed, and ultimately sank in the navigable waters of Lake Erie, a short distance from the airport. The question before us is whether the petitioner's suit for property damage to the aircraft, allegedly caused by the respondents' negligence, lies within federal admiralty jurisdiction.

When the crash occurred, the plane was manned by a pilot, a co-pilot, and a stewardess, and was departing Cleveland on a charter flight to Portland, Maine, where it was to pick up passengers and then continue to White Plains, New York. After being cleared for takeoff by the respondent Dicken,

who was the federal air traffic controller at the airport, the plane took off, becoming airborne at about half the distance down the runway. The takeoff flushed the seagulls on the runway, and they rose into the airspace directly ahead of the ascending plane. Ingestion of the birds into the plane's jet engines caused an almost total loss of power. Descending back toward the runway in a semi-stalled condition, the plane veered slightly to the left, struck a portion of the airport perimeter fence and the top of a nearby pickup truck, and then settled in Lake Erie just off the end of the runway and less than one-fifth of a statute mile offshore. There were no injuries to the crew, but the aircraft soon sank and became a total loss.

<https://www.baaa-acro.com/zone/ohio?page=10> 1959

Crash of a Douglas R4D-1 in Cleveland

Date & Time: Nov 5, 1959

Type of aircraft: [Douglas C-47 Skytrain \(DC-3\)](#) (29600)">
[Douglas C-47 Skytrain \(DC-3\)](#)

Operator: [National Aero Sales Company](#) (33192)">
[National Aero Sales Company](#)

Registration:
N38G

Flight Phase:
[Takeoff \(climb\)](#)

Flight Type:
[Demonstration](#)

Survivors:
Yes

Site:
[Airport \(less than 10 km from airport\)](#)

Schedule:

Cleveland – Dayton

MSN:

4759

YOM:

1942

Location: [Cleveland-Burke Lakefront \(18744\)">](#)

[Cleveland-Burke Lakefront](#)

[Ohio \(15556\)">](#)

[Ohio](#)

Country: [United States of America \(13436\)">](#)

[United States of America](#)

Region:

[North America](#)

Crew on board:

1

Crew fatalities:**Pax on board:**

4

Pax fatalities:**Other fatalities:****Total fatalities:**

0

Circumstances:

The aircraft was involved in a demo flight from Cleveland to Dayton for a potential client, Columbus Aviation. Takeoff was completed in strong winds and just after liftoff, the pilot realized it was not possible to continue in such conditions. To avoid to crash into Erie Lake, he attempted an emergency landing in a wasteland. The right wing struck the ground and the airplane crashed. All five occupants escaped uninjured while the aircraft was damaged beyond repair.

https://www.wikizero.com/en/Burke_Lakefront_Airport#Incidents

Incidents Burke Lakefront

- September 8, 1981, the commander of the Thunderbirds, Lt. Col. David Smith, was taking off from Burke Lakefront Airport in his T-38 Talon when it **ingested several seagulls**, stalling the engines. Smith and his crew chief ejected but Smith was killed when his chute failed to open.^[19]
 - September 27, 1986, a runway was closed after debris from a [mass balloon release](#) by the charity [United Way Services of Cleveland](#) fell on the airport.^[20]
 - In early 2008, a small twin-engined aircraft crashed into Lake Erie shortly after takeoff. The 68-year-old pilot was rumored to have had a **heart attack** as he made a turn to Niagara Falls.^[21]
 - In September 2009, a [TS-11 Iskra](#) practicing for the air show made a gear up landing. The pilot was unharmed and the aircraft received only light damage to the cowling and left wing. The plane remains on the ground as of July 2014.^[22]
 - On December 29, 2016, a [Cessna 525C CJ4](#), registered N614SB, **disappeared shortly after take off from Burke Lakefront Airport** and is believed to have crashed into Lake Erie. A Coast Guard search ensued after air traffic control tower lost contact with the aircraft around 23:00 EST (04:00 UTC) that evening. The jet had six occupants on board at the time of the incident. Days after its disappearance, investigators reported debris washing ashore and luggage found in the lake was confirmed to have been from the missing plane. The aircraft has yet to be recovered.^[23]
 - On February 5, 2018, a Beechcraft Beechjet [BE-40](#), registered N570TM, slid off the end of the runway into the [Engineered materials arrestor system](#) **likely due to icy conditions**. Investigation by the NTSB is pending. Four passengers were on board, there were no injuries reported.^[24]
-

- The link below includes the write-up by Paul Crowe (editor of the Erie County Report) in which he explains why **the FAA did not extend the time period** of the Letters of No Hazard originally given to the developer Pioneer Green Energy. **That decision was instrumental in killing the project.** The industrial wind turbine project appears to have been 15 miles east of one of the radar towers Paul mentions in his article and perhaps 20 miles from the Erie International Airport.
- <https://northeastwindmills.com/faa-denies-pioneer-green-energy-extension-for-wind-turbine-construction/>

FAA Denies Pioneer Green Energy Extension for Wind Turbine Construction

OCTOBER 15, 2014 BY PAUL CROWE

Pioneer Green Energy was just handed a pretty serious setback in their attempts to keep their proposed Erie County, PA wind turbine project alive. Any structure over 200 feet tall must receive approval from the FAA before construction can begin. Originally, approvals for the 67 turbine locations were issued on September 9th, 2012 and were scheduled to expire on May 27th, 2014. Since no turbines have been built and no construction has started, Pioneer applied for an extension of the project. Just last week, October 9th, 2014, the FAA denied the extension requests due to objections from air traffic control at Erie.

Due to age of this study and/or ongoing changes to airspace usage, we have determined that an extension to the determination would not be in the best interests of aviation. Therefore, the determination issued under the above cited aeronautical study number will expire on 05/27/2014.

After further evaluation, Air Traffic Control at Erie Tower/TRACON has objected to the wind turbine project extension due to significant radar impacts.

The analysis done by FAA Technical Operations indicates that all of the wind turbines would be in the radar line of sight (RLOS) for the Erie ASR-11 radar and would create unwanted primary returns (clutter) and dropped primary targets in the vicinity of the wind turbines. Beacon would be unaffected.

The wind turbine project will create many unwanted false targets. There is a method to reduce this impact; however it diminishes the capability of air traffic control to provide a safe environment for the aviation community. Therefore, all potential mitigations have been rejected by air traffic control since they would cause additional unwanted radar coverage loss impacts.

Approximately 61 aircraft per day would be impacted.

There is not a No Effect Height (NEH) for the wind turbines to eliminate the radar effects.

The FAA has been able to study the actual radar interference caused by wind turbines in the vicinity of local air traffic at many locations. There are installations around the country where these effects can be observed and, though wind developers try to dismiss these problems, they are serious and easily verified.

It would seem at this point that Pioneer has a pretty significant hurdle to clear should they try to move forward with this project any time in the future.

This is great news for the residents of Erie County and especially for the residents of North East Township.

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All,

I have literally just received this. Due to its importance, I should be most grateful for your comments when you too have digested the contents!

To remind you of the letter sent, to which we have waited so long for this response, I have attached that too as the last pdf 'Response to CAA'. Thank you all for your continued interest and assistance.

Kind regards,

Christine Metcalfe.

From: [Stevens Mark](#)

Sent: Monday, April 25, 2016 1:57 PM

To: Christine Metcalfe

Cc: [Walker James](#)

Subject: RE: Re. Air Traffic Safety & FoI request F0002371.

Dear Mrs Metcalfe,

Further to our previous correspondence, we can now provide a response to the questions raised in your e-mail originally submitted under the Freedom of Information Act 2000 (FOIA) in 2015 concerning wind turbine/ATC radar technology. Firstly, I apologise for the significant delay in responding to your concerns. This has been brought about by the need to involve several departments and subject matter experts across the CAA and research the history of the Whitelee development which dates back to 2005. In addition, there have

been a number of regulatory activities that have, unavoidably, had to take precedence over your enquiry. Nevertheless, we regret the delay and appreciate your patience in this matter.

It is important to note that the FOIA provides a right of access to recorded information held by a public authority, rather than a requirement to respond to questions asked. As a result the majority of your enquiry does not fall under FOIA. We have, however, attempted to answer all of the questions that you have posed where possible. I have reproduced your queries in bold italic, with our response added beneath.

Further to the release of a Sunday Express article, which I'm sure you have seen concerning RAF reports (as attached) of a steep rise in near misses over wind farms

The CAA is aware of this issue; it has been discussed internally within the CAA and the issue it raises continues to be monitored. The CAA asks developers to provide information to the Defence Geographic Centre (which provides data to military crews for their planning purposes) of all windfarms above 70 feet to go into the Digital Vertical Obstruction File (DVOF) - the database that contains the consolidated source of obstacle data in the UK. From a civil aviation perspective, the majority of flights are subject to the UK Rules of the Air/Standardised European Rules of the Air (SERA) that essentially prohibits aircraft from flying within 500 feet of any person, building, vessel or other structure. Obstacles above 300 feet Above Ground Level (AGL) are notified to pilots and operators through the UK Aeronautical Information Publication and shown on pilot maps (e.g. Visual Flight Rules charts). In terms of Met mast Conspicuity, the CAA / General Aviation Awareness Council (GAAC) and Renewables UK have been working closely together to improve the visibility of anemometer masts – this work has resulted in changes to the text provided to planning authorities by the CAA concerning Met masts and revised text in CAP 764 Issue 6 which was published in February 2016.

In terms of onshore wind turbines, there is no mandated lighting for obstacles under 150m AGL. That said, the military employ a dedicated safeguarding team who assess wind farm applications and make requests for lighting for obstacles under 150m if they consider them to be significant from an aviation point of

view. We consider this to be a Ministry of Defence (MoD) matter; the CAA, as the UK's civil aviation regulator, would not normally offer comment unless our opinion has been specifically requested by the MoD.

It becomes apparent that the Fol questions previously lodged are entirely justified. Obviously the subject has been coincidentally raised elsewhere and underlines that there are indeed real problems arising related to wind turbines for our pilots both overseas and in the UK. This includes the associated problems caused by the proliferation of anemometer masts linked to wind power developments.

See comments above. This is indeed a known issue. The CAA has worked closely with the renewables industry (Renewables UK) and the GAAC to provide revised guidance to planning authorities, aviation and developers concerning Met Mast conspicuity.

It is why bringing these issues into the public domain whilst continuing our discussions will be an important part of the kind of transparency the public both deserve and expect. I have every confidence that the CAA will agree, as the current willingness to engage over these matters is entirely to their credit. This has apparently not been the case with air safety authorities out with the U.K.

Having been alerted to a submission to the Australian Senate Inquiry involving the same issues as we are discussing, contact has been made with the pilot concerned. He has kindly shared with me all his documents and submissions including private communications where relevant. They make highly disturbing reading. Just one example being that of the important issue of turbulence. Although the subjects of cumulative effects & turbulence are covered in Chapter 2 pages 6 –8 of the CAA's CAP 764 Policy & Guidelines on Wind Turbines, it is becoming clear that in the light of emerging evidence and events, this guidance is seriously out of date.

The fully updated CAP 764 Issue 6 (www.caa.co.uk/CAP764) was published in February 2016 following an intensive consultation with industry and aviation stakeholders.

A list of questions follow:

1. Does the CAA share CASA concerns about the turbulence coming from the Wind Turbines and effects on air traffic?

We cannot comment on CASA but the CAA has been actively researching the turbulence effect of wind turbines and has published the results of the study conducted with Liverpool University as Information Notice [IN 2015/038](#).

2. Does the CAA agree that such turbulence, which can travel up to 30-40 Kilometres, should be taken into consideration in respect of turbines erected nearer to airports than these distances?

At all times, responsibility for the provision of safe services lies with the Air Traffic Service provider or Air Navigation Service Provider (ANSP) and the pilot (and potentially operator) is responsible for the safe conduct of the flight, taking into account a variety of factors. The current CAA recommendations in CAP 764 quote a figure of 16 Rotor Diameters for wind turbines over 30m. Given the largest UK onshore turbines typically have a rotor diameter of 126m (example taken is a Vestas V126 3.45MW Turbine) that would equate to 16 rotor diameters being in the region of just over 2km. Furthermore, the Liverpool University research (for a smaller turbine) indicated 5 rotor diameters or 0.63km. The next steps for the CAA Wind Turbine Turbulence research is to carry out trials on larger turbines in order to ascertain if the model used for the smaller turbines in the Liverpool University Study could be extrapolated to larger turbines. If so, the 16 rotor diameter advice could be revisited. Revised advice on turbulence is contained within the new version of CAP 764.

3. It is assumed that the CAA agrees that a British court would find that where an Authority advises that there should be notification of turbines being built within 30-40 kilometres of airports in the UK, it establishes that there is an implication of a safety issues. Should this not be the case, please will the CAA provide reasons for disagreement.

Safeguarding procedures apply in accordance with the [ODPM circular 2003/1](#). It is the responsibility of individual airports to take measures to safeguard their own operations and agree procedures with their local planning authorities to be notified of developments and to make representation accordingly. At all times, responsibility for the provision of safe services lies with the ATS provider or Air Navigation Service Provider (ANSP). It should be noted that the CAA does not

have regulatory powers to approve or reject planning applications. Further information is available within CAP 764.

4. Will the CAA confirm that the turbulence has been demonstrated to be severe to light aircraft and light twin engine aircraft up to a considerable distance?

The most recent guidance on turbulence published by the CAA is in [IN 2015/038](#).

5. In Chapter 2 page 7. 8.4 of CAP 764 is this somewhat amazing admission/statement (my emphasis). 'There are currently no Mandatory Occurrence Reports (MOR) or aircraft accident reports related to wind turbines in the UK.

The version of CAP 764 referred to was published in 2012; the statement still held true in August 2015.

However, the CAA has received anecdotal reports of aircraft encounters with wind turbine wakes representing a wide variety of views as to the significance of the turbulence. Although research on wind turbine wakes has been carried out, the effects of these wakes on aircraft are not yet known. Furthermore, the CAA is not aware of any formal flight trials to investigate wake effects behind operating wind turbines. In the UK wind turbines are being proposed and built close to aerodromes (licensed and unlicensed), including some developments on aerodrome sites, indicating an urgent need to assess the potential impact of turbulence on aircraft and in particular, to light aircraft and helicopters.' As this document is dated Jan.2012 – will the CAA explain why this 'urgent need' has not yet been addressed?

The need is being addressed – please see the Information Notice above. CAP 764 has been updated to that effect. The issue of turbulence is also a work-strand of the DECC Chaired Aviation Management Board, the minutes for which should be published by DECC.

6. Will the CAA please confirm that the advice relating to both cumulative effects and turbulence issues was given to the Scottish Government either before or during discussions leading to the granting of planning permission for the Whitelee wind farm development? May I also have dates of any meetings held with Ministers or Government departments & minutes provided of the discussions undertaken? It is important to know whether the Directorate of

Airspace Policy (DAP) or NATS were involved in these meetings if held, as it is stated that the DAP hold ‘responsibility for the planning and regulation of all UK airspace, including the communications, navigation and surveillance (CNS) infrastructure, to support safe and efficient operations by the appropriate aviation stakeholders and also has the lead responsibility within the CAA for all wind turbine related issues.’ NATS’ say that their first priority is the safety of aircraft in the airspace they are licensed to operate. They are also ‘legally obliged to provide safeguarding services’ for the airports they are contracted to, as part of the wind farm planning process. There is an admission that the radar manufacturer’s (Terma) SCANTER system is not yet available. Even if proved to be as successful as hoped, this will take time to integrate and install and will not help in the event of emergency landing episodes.

The CAA does not hold any information that indicates that the CAA provided advice to the Scottish Government on the subjects of turbulence and cumulative effects. Our records indicate that CAA officials met with the Secretary of State for Transport on 23 March 2005 to discuss the Whitelee development and its impact on aviation activity at Glasgow Airport. The CAA does not hold any minutes or notes of that meeting. We have, however, attached copies of correspondence that we hold between the Scottish Government and the CAA concerning the Whitelee project and the subsequent application to expand the windfarm. We have redacted some personal data from this correspondence.

The following is a list of current operational wind farm mitigation technologies:

- [Aveillant](#) – Recently approved for operational use at East Midlands Airport
- [Raytheon](#) – Approved for use at Great Dun Fell radar station last September, soon to be introduced at Lowther Hill.
- [Terma SCANTER 4002](#) radar is now in use at Chester Hawarden and Liverpool John Lennon airports to mitigate [Frodsham](#) wind farm and at Edinburgh airport to mitigate [Tormywheel](#) Wind Farm.
- [PagerPower](#) – Has a comprehensive list of available wind farm mitigation technologies.

7. At the Senate Inquiry, CASA stated they did not carry out a study into the effects of turbulence due to the absence of funds, despite a recent funding

boost. Due to its importance for public safety, can the CAA confirm that such a question of funding will not enter into the equation should further work be needed into any existing study, or commencement of the required work?

We cannot confirm whether we will attain funding for the next stage of this project as that is beyond our control. However, we can confirm that we are doing all in our power to attain the relevant funds to initiate the next step in the wind turbine turbulence research project.

8. An Australian flying operations inspector has been reported to have said that this study was both needed and required - but that it had been denied due to political interference. Can the CAA confirm that in the absence of a UK study such interference will not be permitted should this work commence?

The turbulence study is a work-strand that sits under the Aviation Management Board (AMB) which is chaired by DECC. As such, DECC, DfT and the MoD are fully updated on the progress at the AMB. We are unaware of any such interference. See [IN 2015/038](#).

9. Are plans in hand to conduct this study as a matter of urgency if it does not yet exist?

See above.

10. It would be of interest to know please, in respect of Glasgow & Prestwick airports, exactly which protective and other services are also run from them. Those I have in mind would be Aerial Fire Fighting services and crop spraying activities, Search & Rescue helicopter services and areas covered. If these services are run from elsewhere to cover the area adjacent to and within the Whitelee wind farm catchment area, where are they based? Likewise Air Ambulance and Police cover services and areas covered. Also to what extent are either airports used for Air Training activities e.g. by Air Training schools?

This would be a matter for the airport. The Scottish Police Aviation Unit operates from Glasgow City Heliport and the Scottish Air Ambulance operates one helicopter from Glasgow. Our understanding is that Prestwick will be a new Maritime and Coastguard Agency SAR base in 2016.

As has been observed, as far as Aerial Fire fighting and crop spraying are concerned, to be remembered is the insistence that some companies have that these important areas of activity will be unaffected. This is clearly untrue. There is also a tendency to downplay the impact of the power lines which are needed to transfer the electricity to the Grid. Where farmers requiring crop spraying are concerned, turning off turbines is offered as a solution. They remain a formidable obstacle. Furthermore, this only eliminates the potential for pilot vertigo and reduces the turbulence caused by turning blades – but there remains the misconception that turning off turbines pertains only to those in the field being treated. It is reported that companies balk when realisation dawns that ALL turbines for a mile around each field need to be shut down. The IAAA resolution regarding this is on record to be found at www.agaviation.com/ It is interesting in that although there is not a refusal to work within a wind farm, support will be given to any pilot who does. It is notable that in Australia, agricultural companies working in and around wind farms charge extra for doing so. They recognise the obviously raised danger levels and some companies, understandably, refuse to undertake this work. The level of dereliction of a duty of care for those involved is shown by those wind power companies who apparently have gone as far as offering to pay these raised charges - if they are given planning permission. Where aerial fire fighting is concerned, time will not always be available when needed for contacting those responsible for turning turbines off. The RFS's conclusion that there is in fact an Aviation Hazard due to the Turbines located around the Crookwell Aerodrome is important. This is because it was based upon International experience from Aviation Fire Fighting incidents, and Agricultural Pilots, with regards to operating Aircraft near Wind Turbines.

While aerial spraying is not commonplace in the UK, some does exist, notably for moorland/heather management. We have not received any correspondence from anyone involved in this industry concerning wind turbine effects.

So once again, this information establishes justification for question 10 in addition to the original Fol enquiries.

In a bid to acquire accurate up to date information, the Department of Energy & Climate Change, of which the CAA is a member, has been asked the following questions and a response is awaited:

The CAA is not a member of DECC. It is represented on the DECC Chaired Aviation Management Board along with numerous other aviation stakeholders, the MoD, DfT, and the Renewables Industry.

1. How many studies have been funded or co-funded by DECC (or previously by the DTI) into the effects of wind turbines on radar?

2. May I please have copies of any such studies?

3. Have they produced any solutions?

4. How much have they cost?

This is a matter for DECC to respond to. The AMB minutes should contain most of this information.

5. How many of the solutions are now incorporated into radar at airports thereby allowing the safe operation with wind turbines nearby?

See above.

In conclusion, it becomes clear that the 'elephant in the room' is current Energy Policy in respect of renewable energy involving wind power. The Scottish Government's obsession with this technology has resulted in a complete absence of the precautionary principle needed when allowing the construction of ranks of wind turbines on hills overlooking/in close proximity to a Major International Airport.

At all times, responsibility for the provision of safe services lies with the ATS provider or Air Navigation Service Provider (ANSP). Glasgow and Prestwick are responsible for safeguarding their own operations and making representation accordingly.

In this sense both Glasgow and Prestwick Airports are implicated. Should any disaster feared by pilots having to run the current gauntlet ever actually happen, (an event fervently prayed for not to occur) this fact will not be lost on lawyers representing families involved. Should it be revealed that those in

Government made the decision in favour of granting planning approval in the full knowledge of existing dangers for air traffic, they and their advisors, may well find that they are indeed culpable.

See above.

When facts are examined again, they appear to fall as below.

a. There is no failsafe method of radar system in existence which covers all known problems for air traffic – neither was there when permission for Whitelee wind farm to be built was granted.

b. RAF pilots are reporting near misses involving wind turbines.

c. Proliferation of low visibility met masts on hills in all areas, which can also cause a danger to low flying aircraft, turbine wake turbulence and radar clutter are all established as being unresolved and of real concern.

d. Proof that emergency landings into Glasgow and Prestwick Airports would not be impeded by the Whitelee wind farm does not exist.

Radar solutions are being developed. Met Mast proliferation is considered an issue and has been addressed through collaboration with RUK and the GAAC. Impacts of windfarms on the safe operation of airports are a matter for the airports concerned who can make representation accordingly to the planning authorities.

As advisors to the Government on such matters, it is sincerely hoped and trusted that in respect of the removal of turbines which pilots would now judge to be needed on the grounds of public safety, such advice will be given as a matter of urgency. Especially those nearest to the airport judged to capable of causing dangerous turbulence effects - which are in addition to the known radar inadequacies. Instances of such turbine removals having been ordered in other countries are now being reported. The problem of anemometer masts on high ground must also be addressed to avoid similar risks to public safety.

At all times, responsibility for the provision of safe services lies with the ATS provider or Air Navigation Service Provider (ANSP). It should again be noted that the CAA does not have regulatory powers to approve or reject planning

applications. Permissions for siting of turbines are ultimately matters for the planning authorities. The CAA has no powers in this regard.

I trust that this response answers your questions.

Yours sincerely

Mark Stevens

External Response Manager

Corporate Communications Department

Civil Aviation Authority

Tel: 01293 57 3873

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Please consider the environment. Think before printing this email.

From: Stevens Mark

Sent: 19 April 2016 09:16

To: 'Christine Metcalfe'

Cc: Walker James

Subject: RE: Re. Air Traffic Safety & Fol request F0002371.

Dear Mrs Metcalfe

I can only apologise again for the delay in our reply. While not an excuse, there have been some major pieces of safety related work which have had to take priority in the last few months.

However, we have made recently considerable progress in collating answers to your questions and we should be able to provide you with a comprehensive response shortly.

Yours sincerely

Mark Stevens

External Response Manager

Corporate Communications Department
Civil Aviation Authority

Tel: 01293 57 3873

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