

Finance and Corporate Services
Information Management

14 October 2011
FOIA reference: F0001227

Dear XXXX

I am writing in respect of your recent application of 27 September 2011, for the release of information held by the Civil Aviation Authority (CAA).

Your request:

“The British public is becoming increasingly aware of the spraying of chemicals and metals through burning of aviation fuel by hundreds of flights over the UK. The CAA should reveal the breakdown of all aviation fuel components and come clean with why they are allowing this geo engineering to be allowed

Would the CAA let me have the details of all complaints received on this matter so when all the major UK airports are shut down the British public who ask why will be given the truth as to the spraying”.

Our response:

In assessing your request in line with the provisions of the Freedom of Information Act 2000, we are pleased to be able to provide the information below.

Firstly, we must point out that the Civil Aviation Authority (CAA) has no knowledge of, or involvement in, any operation to spray chemicals over the UK. Based on the content of your request, we would suggest that you are actually referring to the formation of persistent condensation trails (contrails) by aircraft transiting along the Upper ATS Routes that are established over the UK.

Condensation trails, or contrails, are formed when water vapour, which is emitted from aircraft engines as part of the combustion process, comes into contact with cold air. Depending on the ambient atmospheric conditions, such as temperature, pressure and humidity, the water vapour may form cirrus clouds. These conditions vary greatly, even at the same altitude and a result of this would be that the contrails appear in an intermittent manner. Depending on such factors as temperature and wind speed, the cirrus clouds may develop further or subside.

The water ejected through the exhaust tends to raise the relative humidity of the air in the wake of the engines. On the other hand, the heat generated by the engines tends to lower the relative humidity by raising the temperature of the wake. In certain conditions the net result is to increase the humidity to saturation so that a cloud is formed which trails behind the aircraft. This type of trail can ordinarily occur only if the air temperature is below a critical value, which varies almost linearly from about -24 deg Celsius at sea level to about -45 degrees Celsius at 50,000 feet. The critical temperatures, which are only slightly affected by the type of aircraft, apply to aircraft flying at cruising speed in an atmosphere

Civil Aviation Authority

Aviation House GW Gatwick Airport South Crawley West Sussex England RH6 0YR www.caa.co.uk

Telephone 01293 768512 rick.chatfield@caa.co.uk

just saturated with respect to ice; the corresponding temperatures for saturation with respect to water are lower by about 2 or 3 degrees. Contrails can occur exceptionally at temperatures above the critical values when the free air is supersaturated with respect to ice (i.e. the air contains more water which, if all frozen, the air could not 'hold'), or when fuel consumption is greater than it is under normal cruising conditions e.g. with the throttle fully open.

Once a trail is formed, it broadens by diffusion. If the surrounding air is at or near saturation, the trail evaporates slowly or not at all and is then long and persistent. If the relative humidity is low, the trail only appears as a short plume behind the aircraft. It is not uncommon for the air to be supersaturated with respect to ice. Since the exhaust gases contain sublimation nuclei from combustion, any trail formed in these conditions is persistent and may thicken until the ice particles fall out as snow. However, the attainment of saturation of the atmosphere is not sufficient for the trail to become visible; condensed water or ice particles must be in sufficient concentration to be seen, and this further depends on illumination, background contrast, distance and other viewing conditions.

This phenomenon has been widely observed and reported over many years and there is much ongoing research into the impact of aviation on climate change including the effects of contrails and cirrus clouds. Further information on contrails is reported in the Intergovernmental Panel on Climate Change report on Aviation and the Global Atmosphere, Cambridge University Press, 1999 (<http://www.grida.no/climate/ipcc/aviation/>). A simpler explanation is provided in the Royal Commission on Environmental Pollution report on the Environmental Effects of Civil Aircraft in Flight published in 2002 (http://eeac.hscglab.nl/files/UK-RCEP_CivilAviation_Nov02.pdf - see page 13 in particular).

As alluded to above, there are numerous upper Air Traffic Service (ATS) routes established over the UK; these routes are published in the UK Aeronautical Information Publication (AIP) and can be accessed through the Aeronautical Information Service (AIS) website (www.ais.org.uk). To view the chart on the website, you will need to select UK AIP, then Enroute Information – ENR Index and scroll down to locate the “Upper Airspace Control Area and Upper ATS Routes (South Sheet)” chart in section ENR 6.3.0.

As the CAA has no evidence to suggest that the “spraying of chemicals” is occurring, any enquiry/complaint received alleging such an activity is logged under the description of “Contrails”. The following table details the number of “Contrail” enquiries/complaints which the CAA has received since the 1st January 2010:

Call ID	Description	Total Number of Calls	% of total calls
29	Contrails	106	3.70

The call description “Contrails” does not just cover the enquiries where “spraying of chemicals” is discussed; it will also be used to log any enquiries concerning an individual’s curiosity about the “white trails in the sky”. Therefore, it is important to note that the “spraying of chemicals” would not necessarily have been discussed in every single one of those enquiries/complaints received. We should also point out that we do (occasionally) receive multiple contacts from the same individual(s) regarding this matter and as we are required to log each telephone call/piece of correspondence received it is inevitable that a proportion of the total will be from the same individual(s).

Additionally the CAA only introduced the call description “Contrails” to our database at the beginning of last year, therefore, the figures in the table above detail the number of calls received since that point.

We have for completeness, manually searched our records further by carrying out a word search of the database (and of the paper records we hold) using the terms “spraying”, “contrail” and “chemtrail” as this is the text that we would always use on the database when recording such enquiries.

Therefore, in addition to the above, we have received a total of 99 related calls since the database was first established in April 2002. This collates to a total of 203 enquiries which we have broken down into years in the following table:

Year	Total Number of Calls
2002	0
2003	5
2004	12
2005	10
2006	13
2007	13
2008	18
2009	26
2010	44
2011	62

If you are not satisfied with how we have dealt with your request in the first instance you should approach the CAA in writing at:-

Mark Stevens
 External Response Manager
 Civil Aviation Authority
 Aviation House
 Gatwick Airport South
 West Sussex
 RH6 0YR

mark.stevens@caa.co.uk

The CAA has a formal internal review process for dealing with appeals or complaints in connection with Freedom of Information requests. The key steps in this process are set in the attachment.

Should you remain dissatisfied with the outcome you have a right under Section 50 of the Freedom of Information Act to appeal against the decision by contacting the Information Commissioner at:-

Information Commissioner’s Office
 FOI/EIR Complaints Resolution
 Wycliffe House
 Water Lane
 Wilmslow

Cheshire
SK9 5AF
www.ico.gov.uk/complaints.aspx

Should you wish to make further Freedom of Information requests, please use the e-form at <http://www.caa.co.uk/foi>.

Yours sincerely

Rick Chatfield
FoIA & EIR Case Manager

CAA INTERNAL REVIEW & COMPLAINTS PROCEDURE

- The original case to which the appeal or complaint relates is identified and the case file is made available;
- The appeal or complaint is allocated to an Appeal Manager, the appeal is acknowledged and the details of the Appeal Manager are provided to the applicant;
- The Appeal Manager reviews the case to understand the nature of the appeal or complaint, reviews the actions and decisions taken in connection with the original case and takes account of any new information that may have been received. This will typically require contact with those persons involved in the original case and consultation with the CAA Legal Department;
- The Appeal Manager concludes the review and, after consultation with those involved with the case, and with the CAA Legal Department, agrees on the course of action to be taken;
- The Appeal Manager prepares the necessary response and collates any information to be provided to the applicant;
- The response and any necessary information is sent to the applicant, together with information about further rights of appeal to the Information Commissioners Office, including full contact details.