



Ministry
of Defence

Air Command Secretariat
Spitfire Block
Headquarters Air Command
Royal Air Force
High Wycombe
Buckinghamshire
HP14 4UE

Ref. 2019/02712

[REDACTED]

29 March 2019

Dear [REDACTED],

Thank you for your e-mail of 1 March 2019 about the coloured vapour used by Red Arrows. Specifically, you requested:

"Cost of chemicals used in total for a year to make the red/white and blue trails. What is the chemical used and amount used? Is it a danger spraying onto people below. "

I am treating your correspondence as a request for information under the Freedom of Information Act 2000. A search for the information has now been completed within the Ministry of Defence and I can confirm that some information within the scope of your request is held.

The red and blue vapour trails produced by the Red Arrows are created by injecting a mixture of 75% diesel and 25% dye into the hot exhaust from the jet engine of the Hawk aircraft, whilst the white vapour is produced by injecting diesel only. Each of the aircraft travels forward at an average distance of 30 metres per second, and the vapour disperses over a wide area surrounding the flight path. Only microscopic particles of residue reach the ground and we are not aware of any discernible hazard to health. During financial year 2017/2018 the Red Arrows used some 643,000 litres of diesel and 36,000 litres of dye. The cost of the diesel used to produce the vapour is not held in the format requested since it is not recorded separately from normal road use diesel and therefore cannot be provided.

The cost of the dye is withheld under Section 43 (Commercial Interests) of the Act. Section 43 provides that information is exempt if its disclosure under the Act would, or be likely to, prejudice commercial interests. The Act requires that we have to carry out a public interest test (PIT) in this respect to show that the reasons for withholding the information outweigh the reasons for releasing the information.

Although there is a public interest in ensuring that the public are informed of how and where public money is spent and that it is spent wisely, there is also a public interest in preserving


the ability of defence contractors to compete fairly in open competitions. Disclosure of the total cost of the dye used in combination with the amount used would allow competitors to extrapolate prices charged by the existing contractor which would harm the company's ability to compete in open and fair competition. Releasing the costs would also breach confidentiality obligations with the supplier and damage the MOD's relationship with them. The balance of public interest therefore falls in favour of protecting the company's commercial interests. Therefore, the requested information about the cost of dye should be withheld in full under Section 43(2) (commercial interests) of the FOI Act.

If you have any queries regarding the content of this letter, please contact this office in the first instance.

If you wish to complain about the handling of your request, or the content of this response, you can request an independent internal review by contacting the Information Rights Compliance team, Ground Floor, MOD Main Building, Whitehall, SW1A 2HB (e-mail CIO-FOI-IR@mod.uk). Please note that any request for an internal review should be made within 40 working days of the date of this response.

If you remain dissatisfied following an internal review, you may raise your complaint directly to the Information Commissioner under the provisions of Section 50 of the Freedom of Information Act. Please note that the Information Commissioner will not normally investigate your case until the MOD internal review process has been completed. The Information Commissioner can be contacted at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF. Further details of the role and powers of the Information Commissioner can be found on the Commissioner's website at <https://ico.org.uk/>.

Yours sincerely


Secretariat 3a1
Air Command