[redacted]

Necton Parish Council

Parish Office, Necton Community Centre
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PINS RECEIVED
10 JAN 2019

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9 Jan 2019

Dear Ms Williams

Vanguard: response to PINS questions ref 17.16

Please find enclosed documentation re: 1996 plane crash, regarding the above.

Yours sincerely

[redacted]

James Howard
Clerk to Necton Parish Council

REPORT

5 PAGES

Introduction

RDAF F-16(B) crashed near Necton on 11th December 1996, impacting between Ivy Todd Road and Necton Wood, the debris **covering 3 fields**. It is directly on the area Vattenfall plan to build 2 x 18.5 acre substations and dig a deep cable corridor. **Vattenfall failed to mention the crash and contamination on its Environmental Report** despite being told about it on 5th June 2018 by Norfolk County Council and before that by local people.

Co-ordinates of impact: 52°39'29''N 00°47'83''E Approximately 16 km east of RAF Marham on a W to E trajectory. (doc M).

Contaminants mentioned in documents as listed throughout this report.
Radioactive substance (Doc G) warned of by IPC (an ex MOD department within the RAF according to the Environmental Agency – see doc P) – has been used in F-16s and their ammunition. Two missiles (of a possible 6) and 200 shells (of a possible larger number) were recovered. Depleted Uranium is also commonly used as counter-weights in aircraft both military and commercial.
Hydrazine (doc A)
Oil (doc A)
Aviation Fuel (doc A)
Composites, such as Carbon Fibre (doc A)

There is one document still being withheld by the RDAF. **As radioactive substance clearing is not reported in the redacted clean-up documents so far given, we have to ask if this is why the RDAF report is being withheld**.

F-16 crash site was recovered in 1996/1997 with a view to restoring it for **arable use only**, and only within the constraints of the knowledge available at the time. The clearance was not adequate either for **large scale development** or to comply with current standards and knowledge.

The **worst case scenario must be adopted** – which is that **contaminants may remain in the soil at a deep level,** and any disturbance could create an **environmental disaster**, especially with regard to water supplies. Vattenfall's onshore infrastructure will also entail the use of pile-driving. The vibration from this invasive procedure could disturb contaminated ground at depth, and from there contaminate water supplies.

With the complexity and spasmodic nature of the task, carried out in extreme weather, with documented anomalies to the prescribed procedures, lack of data (at that time) on the long term breakdown of hazards in plane crash sites of this type, which necessitated further monitoring for just arable use, the lack of wreckage recovered, the sensitivity of information still being withheld, and the importance of public credibility of the whole operation, it would be prudent not to disturb the crash site. We therefore urge the Planning Inspectorate to refuse Planning Consent on the site proposed, as it is **not a suitable site**. It is **disingenuous of Vattenfall to have ignored the plane crash** and contamination in their Environmental Impact Report.

The full report compiled by the RDAF **which is still withheld** was apparently supplied to the MOD with an expectation of confidentiality. It was subjected to a

Public Interest Test, and was adjudged 'The PIT found that the public interest in maintaining the confidence of the Royal Danish Air Force (RDAF) outweighed the interest in releasing documentation, held by the Ministry of Defence, which originated with the RDAF' (See doc L)

Details of clearance and demonstrations of it being inadequate to accommodate large scale development of the site

- Impact Crater, referred to in documents variously as being both 9m x 19m x **2m deep** and spread over 3 fields, (doc A) **and 30 feet deep** (doc L)
- The aircraft carried 6000lbs of fuel (doc A)
- The aircraft broke under such intense force that only a few pieces of wreckage were longer than 50cms. (doc A). Surely an impact of that force would create a crater more than 2m deep.
- Debris said to cover 1 square mile (doc B)
- Parts of aircraft recovered are mentioned as being a wing, the engine and jet pipe, the hydrazine tank, which had split open leaving several deposits, 2 acquisition missiles and 200 rounds of 20mm ball ammunition. (doc D)
- The ARO said he, 'was of the opinion that the body of the aircraft was buried in the bottom of the crater.' (doc E) but no mention is made of finding the body of the aircraft. The ARO also advised digging 50cm deep trenches outside the 5m contaminated area around the crater before wreckage recovery commenced. This would limit deep excavations for recovery of the plane to the area enclosed by these trenches. If one takes even the smallest reported crater size version of 19mx9mx2m deep, this equates to 547 tons of soil being moved in a fraction of a second, so the amount of energy released by such an impact could reasonably be expected to push wreckage beyond the 5m trench-imposed limit. If the 30 feet deep crater mentioned in the original reports is correct, the tons of soil moved and the possible spread of wreckage would be very much greater. **This would explain why such a small amount of the aircraft was reported as being found, as excavations outside the trenches would not have been deep enough to locate it.**
- Contaminated soil was **mistakenly added to the clean soil pile** by members of the clean-up crew. (doc E)
- In addition to this, a blizzard obliterated the site on 31st December 1996, which kept the clean-up crew away from the site. (doc D). When the clean-up crew returned to the site on 7th January, they found that **the contaminated soil had been transferred to a hard standing by persons unknown**. (doc E). This moving around of the soil (at least 4/6 times) may have enabled carbon fibres to have been spread all around the area. In time it would have become untraceable (as it bonds to soil) and is likely to still exist under and in the soil all around the area.
- This is confirmed by the monitoring strategy which was advised for the whole site, for any further environmental impact, including the possibility of carbon fibres entering the food chain. It was admitted that at the time **no data was available on the long term breakdown of carbon composite fibres from aircraft crashes**. And that an area of approximately 1200m2 was contaminated carbon fibres to **varying depths.** (doc E) There are no available reports on any on-going assessments and it is unknown if they were carried out.

- Further, the PHMDiv were asked to continue monitoring for '**re-emergence**' of **carbon fibre**. (doc E) There is no information on whether this monitoring for environmental damage ever took place. The word 're-emergence' implies that **contamination was indeed suspected at levels lower than what was examined.**
- Consultations with the Environment Agency and a subsequent ground water vulnerability survey, confirmed that the aircraft crashed in the vicinity of a major chalk aquifer used for the abstraction of private and public water supplies. The aquifer is covered with a 20m layer of boulder clay and flint. The soil structure has a moderate ability to attenuate diffuse source pollutants, but liquid discharges could penetrate this soil layer. The local Environment Agency officer expressed the opinion that there was little risk to either the aquifer or the nearby stream. (doc E). **However this did not take into account what might happen if a future deep excavation disturbed the soil again.**
- Tile drains over all 3 fields were wrongly identified by the clean-up crew as being mole drains. This showed an unfortunate lack of expertise in arable matters. (doc E)
- **The danger to health from burnt carbon fibre was underestimated by modern standards,** limited only to mentions of the possibility of needlestick injury. (doc E) Carbon Fibre is harmless in normal use but if exposed to high impact and high heat at the same time, this causes the polymer to melt away and the fibres (which can be inhaled and also penetrate skin) to float free, also bonding to soil.
- **Modern thinking on carbon fibres** https://www.ed.ac.uk/inflammation-research/news-events/2017/carbon-nanotubes-may-pose-cancer-risk
- The landowner was told that he could not grow any crops on the main field for a **minimum of 1 year**. (Necton Parish Council Meeting March 1997 – doc N). It was also been stated by a Parish Councillor, Ms Jean Bass (doc J) 'They said the land was contaminated **for 5/7 years. Any residential growth would need special clearance**.' Whilst Vattenfall's project does not involve residential growth, it would have been unimaginable in 1996/1997 that a massive industrial project like this would ever be allowed to be built on arable land, and this could be why it was not specified in the instructions. The Air Control Report that is still withheld by the RDAF/RAF/MOD might clarify the above.
- The F16 is said by the RDAF to have impacted at the crash site on a W to E trajectory. However the main orientation of the area of search appears to lay in a N to S direction from the impact point. Burning debris fell to the ground at Ivy Todd Farm, (doc I) which does not lay within the area of search, but is some distance further to the East, and was not visited by clean-up crew, which would suggest that some **contamination remained undiscovered**. It would therefore appear that the splatter cone may have been wrongly placed. This is borne out by the fact that the only parts mentioned as having been recovered are as previously listed, so **large parts of the F16 may remain undiscovered**.
- One document speaks of 'defensive press lines, which have been redacted. We would like to know what they were defending. (doc F).

CONCLUSION:

1. The cost of remediating contaminated ground over such a wide area could be so significant that it **should not be ignored in the estimated project costs, which is currently the case**, as it has not been mentioned in any way by Vattenfall in their DCO Application.

2. The population of Necton and Ivy Todd feel strongly that this site should not be disturbed as **no-one can guarantee that no harm will result from it.** There are very few sites in Norfolk that have had a modern jet crash into them with the possible environmental hazards of this one, and yet Vattenfall have indeed chosen one out of the many other options offered. It shows a lack of competence in their environmental investigations, and they **should be made to seek a different site that doesn't hold such potential damage to the area**.
3. CPO requirements appear to state that it must be proven that there was not another, better site other than the one chosen, which might have been purchased voluntarily. There are many viable sites that do not have the remains of an F16 air crash on them and would therefore be immeasurably better. **Vattenfall were for instance offered Top Farm in Necton, which stands on lower ground, would be easier to mitigate, and has 186 clean acres of land. This is the farm across which VF are currently planning to build their access road to their chosen site. Top Farm is on the current cable route from the coast and also has direct access to the A47.**
4. We would also ask what information **the RDAF are concealing** in the Air Crash Report we are not allowed to see.
5. It is clear that there were many problems in the clearing of this site, which in modern times would make the clearance inadequate. The clearance may have been acceptable at the time for restoration of the site to arable use, but certainly it would **not be considered sufficient either then or today for a major development.**
6. The complications and lack of knowledge of the time, and imprecise boundaries means that it would be extremely difficult to go back and make a 100% guaranteed clearance check

If there are any doubts at all, development should not be permitted on this site.

Additional Information.
http://webarchive.nationalarchives.gov.uk/20081013111454/http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/HealthandSafetyPublications/Uranium/
https://www.gov.uk/guidance/depleted-uranium-du-general-information-and-toxicology#what-is-depleted-uranium-du

List of documents
A – Factual Information Regarding the Crash of a Danish F-16
B – Enclosure 2- Danish Air Force F16 Accident on Departure from RAF Marham
C – Enclosure 5- Update on Danish Air Force F16 Accident
D – Enclosure 12- Report on the Recovery of an RDAF F-16 Trainer
E – RAF Institute of Health and Medical Training Report IHMT/5/97
F – Loose Minute – RDAF-F16-ACCIDENT-11DEC86
G – Land contamination crash 2
H – Land contamination air crash
I - statement by Mr Colin King, [redacted]
J – Jean Bass email
K – F01201806031 covering letter
L – F01201811881 covering letter
M – RAF Map enlarged site of crash
N – Extract from Necton Parish Council Meeting March 1997
P – Email from Environment Agency regarding the identity of the IPC

Authors of this report: Alice Spain, Colin King, Tony Smedley, Jenny Smedley

A

1 PAGE

Annex to Defence Command
Denmark File no: 2018/028377
Doc no: 1886742

DEFENCE COMMAND DENMARK AIR STAFF

Factual information regarding the crash of a Danish F-16 in December 1996 at Marham, Norfolk, UK.

The following facts are derived from the 1996 provisional report by the Danish MoD Commission on Accidents in Flight.

Coordinates of the crash site:

52°39'29"N 00°47'83"E Approximately 16 kilometers east of RAF Marham.

The impact created a crater approximately 9 x 19 meters and about 2 meters deep. The wreckage was spread over an area which consisted of a harvested field of mangolds, a field that had been ploughed in the autumn and a field sown with winter corn.

The accident spread carbon fiber, hydrazine, oil products and some 6,000 lbs of fuel. The concentration of hydrazine was neutralized using chlorine products.

The aircraft crashed into a field in an agricultural area. The aircraft's direction of movement at the moment of impact was 089 degrees. On impact with the ground the aircraft broke up and pieces of wreckage were spread over a fan-shaped area within an angle of +/- 80 degrees relative to the direction of movement and up to a distance of approximately 700 meters from the main impact point. The aircraft broke up into pieces with such force that only a few pieces of wreckage were longer than 50 centimeters.

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3 PAGES

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STC/4511/1/8/FS

12 Dec 96

TO: STC DO

SUBJECT: DANISH AIR FORCE F16 ACCIDENT ON DEPARTURE FROM RAF MARHAM - 11 DEC 96

1. A Royal Danish Air Force (RDAF) F16B crashed near the village of Necton, some 9 nm east of RAF Marham, at 0954Z today, 6 minutes after take-off from RAF Marham en-route to Vaerlose. The crew of 2 both ejected successfully and the aircraft came down in open farmland with no civilian casualties or collateral damage to property.

2. The F16, based at Skydstrup, arrived at Marham on 6 Dec 96 planning for an over-night stay which was extended due to weather. The F16 was serviced by Danish groundcrew who were required once the aircrew turn-round became invalid, after 24 hrs. Signs of fire were reported,by ATC, to be coming from the aircraft on take-off and as the pilot de-selected reheat he had a fire caption illuminate at which point the crew ejected. Engine blades have been recovered from the RW.

3. Following ejection, the crew landed in trees remote from the ac final crash site. The crew were taken to Kings Lynn hospital, by SAR helicopters from RAF Wattisham. [redacted]

4. RAF Marham assumed PCM responsibility and, in addition to the immediate crash services, despatched an Incident Officer (OC Eng & Supply), who made a heli-borne inspection of the crash site, and personnel to secure the site. The ac crash site is compact and the ejection seats and cockpit canopy have been recovered, at some distance from the main area of impact. Crash site hazards are hydrazine, MMMF and 200 rounds of 20mm ball ammunition.

5. An ARO [redacted] was despatched from RAF St Athan, ETA 1700 hrs, and the AR&TF are alerted for wreckage recovery. RAF Coltishall, who have PCM responsibility for Norfolk, will assume PCM responsibilities at 1200 hrs on 12 Dec 96. ARO and AR&TF are on site. The main wreckage is in a deep crater in boggy ground, with debris over about one square mile. The provisional estimate is that the site will need to be guarded for about 14 days. Due to overseas detachments, Coltishall cannot maintain its guarding commitment, 60 personnel, past Sunday 15 Dec. CMLO is attempting to arrange support from Marham, Neatishead and Honington in order to minimise disruption to personnel in the xmas period.

6. OC RAF Marham [redacted] advised the base commander at Skydstrup of the accident and an F16 exchange pilot from RAF

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Lakenheath is en-route to Marham to assume initial liaison. IFS advised the Danish Defence Attache and contacted the Danish FS authorities, who will form a national Safety Investigation Committee, IAW the appropriate STANAG 3531.

7. The 11 man team, under the chairmanship of a [redacted] arrived at Marham by Hercules transport about 1800 hrs 11 Dec 96. The team has similar disciplines to an RAF board and includes a 5 man specialist wreckage site clearance team. The team are based at Marham and OC Ops Wg [redacted] ports them to be capable and enthusiastic, having established good working relationships. An air reconnaissance by Wessex of the crash site was conducted 12 Dec 96. Testing for hydrazine has been completed and carbon fibre contamination has been found to be present on the site.

8. The nation where the accident occurred may, with the concurrence of both nations, attach an officer to the operating nation's investigation committee as an official assistant or observer and OC STANEVAL RAF Marham [redacted] has, with the concurrence of AOC 1 Gp, assumed this role. An IFS BOI advisor [redacted] is available should he be required.

9. CPRO has actioned the PR aspects of the accident.

[redacted]

ext 7638

of [redacted] The team is expected to arrive at Marham by Hercules [redacted] about 1800 hrs today.

7. The nation where the accident occurred may, with the concurrence of both nations, attach an officer to the operating nation's investigation committee as an official assistant or observer. IFS [redacted] has recommended the appointment of [redacted] currently OC Sam at RAF Coltishall but until recently an IFS BOI adviser. HQ 1 Gp have been advised of this requirement. and OC Marham OC Strike has been appointed

8. As an interim measure, [redacted] an IFS BOI Adviser, is available to assist OC Ops RAF Marham [redacted] with preparation for the Investigation, and [redacted] assistance, but IFS would not wish him to become the observer to the Investigation.

9. CHCO has actioned the PR aspects of the accident.

10. RAF Marham [redacted]

[redacted]

[redacted]

C

1 PAGE

5

STC/4511/1/8/FS

PSO to AOCinC
PSO to COS
SO to SASO
SO to AO Eng & Supply
PSO to AOC 1 Gp
Air Cdre Ops
Gp Capt Supt & Trg
Gp Capt Air Ops

20 Dec 96

UPDATE ON DANISH AIR FORCE F16 ACCIDENT - 11 DEC 96

1. The Danish Board of Inquiry has now completed its preliminary report of the factual events of the accident. However, it is in Danish and a translation will not be available for several days.

2. The Danish and RAF wreckage recovery teams are still working to clear the site, they have already removed most of the wreckage from the area surrounding the primary impact point, but now have a painstaking task to clear the remaining debris from what is a large crater. Work is expected to continue till the end of the first week in the new year. The wreckage will be recovered to Denmark for thorough investigation.

3. By Saturday, 21 Dec, the RAF guard force will be reduced to a total of 16 personnel of all ranks due to the reduced spread of the wreckage. RAF Coltishall continue with the lead on Post Crash Management, but are being supported by RAF Marham, RAF Honington, RAF Cottesmore, RAF Coningsby and RAF Wittering who will all provide personnel over the Christmas period.

[redacted]

FS Eng
Ext 6360

D

6 PAGES

[redacted]

ROYAL AIR FORCE

St Athan Barry Vale of Glamorgan CF62 4WA

A Unit of the RAF Maintenance Group Defence Agency

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12

[redacted]

See Distribution

Please reply to The Officer Command

Your reference

Our reference
SA/7932/Eng

[redacted]

24 January 1997

File ref: 140/7

REPORT ON THE RECOVERY OF AN RDAF F-16 TRAINER ET 205 FROM MONA FARM, NECTON, SWAFFHAM, NORFOLK.

1 Enclosed is the report appertaining to the recovery of ET205 which crashed at Mona Farm, Necton, Norfolk on 11 Dec 96

2 Recommendations are made for considerations of AMM2 and EIFS(RAF).

[redacted]

Enclosure

1 Report on the Recovery of F16 Falcon Trainer ET205.

Distribution

External:

Action:

HQLC Brampton (AMM2)
EIFS(RAF) - Rm 16 RAF Bently Priory

Information:

RAF Marham

Internal:

Action:

Information:

OC AESW
OC ASTS (on file)

SA/7932/Eng

REPORT ON THE RECOVERY OF AN RDAF F-16 TRAINER ET- 205 FROM MONA FARM, NECTON, SWAFFHAM, NORFOLK.

INTRODUCTION

1. On the morning of the 11 Dec the crew of a Royal Danish Air Force (RDAF) F-16 , ET 205, a student pilot and instructor, briefed for a return sortie from RAF Marham to their base in Denmark. After a routine start-up under the guidance of their own groundcrew, ET 205 took off at 0948 hrs. ATC reported to the crew that sparks were visible from the reheat flame as the aircraft rolled along the runway. After getting airborne the crew looked to the rear of their aircraft and saw flames reaching forward of the tailplane. The instructor pilot in the rear seat initiated command ejection, and the crew ejected successfully and came down safely in woods, just south of Narborough, some 2nm NE of RAF Marham. The aircraft continued on a random trajectory, climbing to 1200 ft, before descending and crashing on open farm land near the village of Necton, 10 nm E of RAF Marham.

RESPONSE

2. The Duty Aircraft Officer (ARO) was alerted by EIFS(RAF) at 1100 hrs and tasked to proceed to the crash scene and assist the RDAF investigators. The ARO and Site Co-ordinator left at 1200 hrs and on route made contact with both the Defence Land Agent (DLA) and the RAF Institute of Health and Medical Training (IHMT). Arriving during darkness at 1730 hrs, the ARO met and was fully briefed by the appointed Incident Commander (IC), OC Eng of RAF Marham. From this brief, it was quickly established that apart from the [redacted] t should be a relatively straight forward recovery operation. The ARO then visited RAF Marham were he was introduced and briefed by OC Ops Wing, OC Eng HQ Flt, OC AEF and the RDAF Aircraft Investigators (AI). Having ascertained what had been said at both briefs, the ARO then informed AR&TF Control to the F16 recovery manpower and equipment requirements.

SITUATION/TOPOGRAPHY

3. Aircraft. The aircraft crashed on agricultural land owned by [redacted] of Mona Farm. On impact, it produced a 3m deep crater and spread aircraft wreckage and aviation fuel over a wide area of what can only be described as a deeply harrowed and recently harvested sugar beet field. The crash site was also contaminated with hydrazine from the Emergency Power Unit (EPU) and burnt carbon composite fibres. The aircraft's ejection seats and canopy were located some 8 miles away in another recently ploughed field, with the parachutes being found close by, but stuck high up in 40ft trees.

CRASH SITE

4. The main wreckage area itself was gently sloping ground of some 100 acres and contained within its boundaries was a bush type copse, two small ponds and a field drainage river. A dirt track ran along three sides of the site and the Necton to Ivy Todd public road on the other [redacted]

RECOVERY TEAM DEPLOYMENT

5. A recovery team of 9 including a qualified LSS wreckage plotter left St Athan, as directed through AR&TF Control by the ARO, at 1100 hrs on 12 Dec 96. They reported to the site at 0730 hrs on 13 Dec 96 and were tasked to set up the AR&TF control, support and accommodation facilities. By 1200 hrs on 13 Dec 96 the team were in position to respond to requests by the RDAF AI.

COMMAND AND CONTROL

6. In support of the F16 crash, RDAF had deployed a small party of personnel, which included a Board of Inquiry (BOI) president, aircraft investigators, hydrazine safety experts and a armament specialist. It was obvious by their limited number that this recovery would need AR&TF support in full. Therefore, after consultation with both EIFS and Danish BOI president, it was amicably agreed that the recovery of the F16 would be carried out under RDAF primacy, but iaw RAF Post Crash Management (PCM) procedures as contained in the AP100V-10.

7. The IC and the guard force were generated from RAF Marham; the nearest Unit to the crash site. They took control of the site from the onset and fully implemented the procedures and directives as laid down in the AP100V-10. This guarding commitment was later taken over by RAF Coltishall who maintained the excellent site control set by RAF Marham.

SURVEY AND RECOVERY

8. On the evening of 11 dec 96, [redacted] OC AEF, RAF Marham, ARO and the RDAF armament specialist visited the site were the deployed ejection seats and canopy came to rest. Under a [redacted] request the outline of the seats and canopy was painted on ground in order that their positions might be plotted in daylight on the next day. The seats were then disarmed and along with canopy were transported for safe keeping to RAF Marham. The parachutes and associated survival packs were retrieved from their lofty heights, again during daylight some 36 hrs later.

9. The initial survey of the main crash site was carried out on 12 Dec 96 by [redacted] (BOI president), [redacted] and the two RDAF hydrazine safety experts. [redacted] This area was deemed the inner cordon and only RDAF p[redacted] whilst the hydrazine threat was being alleviated by their specialist team. This lasted 3 days. During this time the RAF IHMT was advising the ARO on all health and safety measures to be employed, consulting with the local environmental agencies and carrying out an environmental assessment of the site. At the RDAF request a wreckage plot was commenced on the afternoon of 13 Dec 96. And, at the same time areas on the periphery of the outer cordon were being searched to ensure no parts had fallen from the aircraft prior to impact. The Defence Land Agent (DLA) arrived and began to contact the respective landowners. The Danish AI team, led by [redacted] started to identify and remove vital parts of the wreckage from the inner cordon. At the request BOI president, AR&TF personnel found, plotted and removed the aircraft s engine and jet pipe which had landed in many different locations outside of the inner cordon. There were very few executive visits, if any, made to the main crash site or to the respective landowner during this early period of the recovery.

10. On the 14 Dec 96, a non flying window of opportunity allowed AR&TF and RAF Marham personnel to conduct a FOD sweep on either side of RAF Marham's main runway. This was mainly due to an eye witness report stating that pieces of red hot metal were seen coming from the F16's exhaust during its final take off. A sweep of the actual runway had been carried out shortly after the F16's last flight. Although these searches offered up some articles of interest, none were found to be F16 related.

RECOVERY OF MAIN SITE

11. The site was declared safe from the hydrazine on 15 Dec 96. On the same day, [redacted] left for Denmark. They were very polite and extremely generous in their praise of the AR&TF involvement. They left behind a liaison SNCO and a two man safety team for the duration of the recovery. The vital aircraft evidence that had been collected so far had been sent to RAF Marham for an onward and speedy dispatch to Denmark. The IHMT were on site accessing the carbon fibre hazard and advising the ARO on the dress category required. The recovery team, supplemented by spare personnel of the guard force were completing the sweep of the fields surrounding the crash site.

12. Recovery operations of the main site commenced in earnest on 16 Dec 96 and continued until 13 Jan 97. The progress was steady at first with the AR&TF team still being supplemented by six of the guard force. This was soon to change with overall guard force being slowly reduced and the threat of adverse weather. However, morale remained high and the non stop work continued up until the 24 Dec 96. The team was then stood down for 2 days. On the 28 Dec, the recovery team was split into two; one half continued to collect top surface wreckage whilst the other commenced excavation of the crater. A tracked excavator/digger and dumper truck were hired in support of the latter. Both operations were curtailed on 31 Dec 96 due to snow blizzards. The new year saw the complete site covered in snow, a situation where only excavation work was feasible. Except for two acquisition missiles, little wreckage was found in the crater. The RAF EOD team concurred this fact by checking the crater with their specialist detector equipment. On the 7 Jan 97 excavation of the crater was completed and the full team return to the field. The recovery operation continued till the 13 Jan 97. During this time both small ponds within the site were dredged for wreckage, none found. The main wreckage removed, stored in ISO containers and sent, via RAF Marham, to Denmark. The crater reclaimed, apart from the top soil level. And, finally in association with the DLA and IHMT, the ARO had all contaminated soil removed to licenced tips. The site was then handed over on 14 Jan 97 to the DLA for the completion of land recovery and compensation.

13. Environmental Health/Health and Safety at Work Aspects. [redacted] However, the RDAF specialist team, dressed in chemical protective suits and full breathing apparatus, dealt with the initial contamination and there after, monitored the site through out the complete recovery. Both soil and water samples were taken by the IHMT team who were a necessary back up to the ARO. They briefed the DLA and the Landowner on their findings and full details can be found in their Report No:IHMT/5/97. Protective equipment was used, as directed by the ARO, by the AR&TF team and the support personnel of RAF Marham and Coltishall.

14. Team. An AR&TF recovery team of 10 carried out this task.

SUPPORT

15. RAF Marham gave every possible logistic and administrative support to the F16 recovery. [redacted] OC Eng Wg HQ Flt of RAF Marham, was instrumental in this which set a fine example of inter unit co-operation.

[redacted]

16. This accident highlighted the dangers of hydrazine and the resultant need for specialist training, protective clothing and equipment, points that were made very clear by RDAF Hydrazine Safety Team during the recovery. This is an area that must be explored, sooner rather than latter, as we might not have the support of a specialist team the next time.

SUMMARY

17. This recovery operation was a splendid example of close cooperation between Units, different NATO Forces, Civilian Contractors and the Landowner(s). It gave a good insight into how the RDAF BOI and AI went about their work and how their safety team dealt with the hazards of Hydrazine. It was also very pleasing to receive the many compliments, from both RDAF and [redacted] the Landowner on the disciplined and professional attitude shown by the young men of AR&TF. Finally, as the ARO I could not have asked for better support from all the different agencies involved.

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13 PAGES

ROYAL AIR FORCE INSTITUTE OF HEALTH AND MEDICAL TRAINING

PUBLIC HEALTH MEDICINE DIVISION

A REPORT ON AN ENVIRONMENTAL ASSESSMENT OF THE CRASH SITE OF A ROYAL DANISH AIR FORCE F16 FIGHTING FALCON DUAL SEAT TRAINER NEAR NECTON, SWAFFHAM, WEST NORFOLK

Report No: IHMT/5/97

February 1997

ROYAL AIR FORCE INSTITUTE OF HEALTH AND MEDICAL TRAINING

A REPORT ON AN ENVIRONMENTAL ASSESSMENT OF THE CRASH SITE OF A ROYAL DANISH AIR FORCE F16 FIGHTING FALCON DUAL SEAT TRAINER NEAR NECTON, SWAFFHAM, WEST NORFOLK

REPORT NO: IHMT/5/97

SUMMARY

1. On 11 December 1996, a Royal Danish Air Force F16 Fighting Falcon Dual Seat Trainer crashed in an arable field near Necton, Swaffham, West Norfolk. A team from the Public Health Medicine Division attended the site to assess the environmental impact of the crash and to advise on the necessary steps to minimise or eliminate any effect on the environment.

2. A considerable quantity of fuel and carbon composite fibre was spread over an area of approximately 1200m^2. In addition, hydrazine contamination had occurred as a result of damage to the aircraft's Emergency Power Unit.

3. Recommendations were made for the restoration of the crash site.

[redacted]
Flight Lieutenant
Officer Commanding
Environmental Protection
and Public Health

[redacted]
Wing Commander
Officer Commanding
Public Health Medicine Division

[redacted]
Wing Commander
Officer Commanding
Royal Air Force
Institute of Health
and Medical Training

12 February 1997

CONTENTS

ROYAL AIR FORCE INSTITUTE OF HEALTH AND MEDICAL TRAINING

A REPORT ON AN ENVIRONMENTAL ASSESSMENT OF THE CRASH SITE OF A ROYAL DANISH AIR FORCE F16 FIGHTING FALCON DUAL SEAT TRAINER NEAR NECTON, SWAFFHAM, WEST NORFOLK

INTRODUCTION

1. On 11 December 1996, a Royal Danish Air Force (RDAF) F16 Fighting Falcon Dual Seat Trainer carrying approximately 6,000lb (3,375 litres) of fuel crashed into a ploughed field between Lodge Farm and Mona Farm near Necton in West Norfolk after taking off from RAF Marham. The aircraft produced a 3m deep crater and spread aircraft wreckage and aviation fuel over a wide area of the field. The crash site was also contaminated with hydrazine from the aircraft's Emergency Power Unit (EPU) and burnt carbon composite fibres.

2. In association with the Environmental Health Department (EHD) Duty Crash Response Officer (DCRO), a team from the Public Health Medicine Division (PHMDiv) of the RAF Institute of Health and Medical Training (IHMT) attended the crash site on 11-16 December 1996 to assess the environmental impact of the crash and to advise the Aircraft Recovery Officer (ARO) on the steps necessary to minimise or eliminate any adverse pollution effects. Further monitoring was carried out on 27-30 December 1997 during the excavation of the crash crater, and on 7 January 1997 for completion of the consignment notice prior to removal of soil contaminated with fuel.

THE ASSESSMENTS

FIRST ASSESSMENT - 11-16 DECEMBER 1996

3. Consultations with the Environment Agency and the local authority Environmental Health Officer, together with a subsequent ground water vulnerability survey, confirmed that the stricken aircraft had crashed in the vicinity of a major chalk aquifer used for the abstraction of private and public water supplies. The soil above this aquifer consists of a 20m layer of boulder clay and flint. The soil structure has a moderate ability to attenuate diffuse source pollutants, but liquid discharges could penetrate this soil layer. However, the local Environment Agency officer expressed the opinion that there was little risk to either the aquifer or the nearby stream. Annex A shows the groundwater layout of the area surrounding the crash site.

4. The main threat to personnel on the site and to the environment was from hydrazine liquid, a highly toxic rocket fuel used in the aircraft's EPU. The canister containing the hydrazine had split, resulting in several deposits within a 60 metre area down-slope from the crater. In order to alleviate this threat, the RDAF flew in a specialist hydrazine team. During the first 3 days of the crash recovery operations the RDAF team neutralised the hydrazine deposits using a 17% solution of calcium hyperchlorite. The soil in the immediate area of each deposit was then turned over so the clay soil beneath could deactivate the substance. All such deposits were marked with appropriate warning signs for the benefit of the aircraft recovery team.

5. During the period required by the RDAF to neutralise the hydrazine deposits, the team from the PHMDiv carried out visual and olfactory monitoring along the course of the adjoining stream. No specific evidence of pollution from the aviation fuel was found. However, there was a potential for contamination due to the sub-soil land drainage system (mole drainage) installed in the field. This system consists of a drain made in the soil by pulling a bullet-shaped device through the soil and adding clay pipes so that the compacted sides of the tunnel maintain that form for several years. These drains were located at a depth of approximately 1.5m, irrigating to the adjacent stream. Given the adverse weather conditions, any subsequent rainfall could have resulted in residual aviation fuel being flushed into the stream via the drainage system. To prevent such an occurrence a temporary boom was placed in the far corner of the field, downstream from the site.

6. Once the hydrazine team had completed their task, on-site analysis of the immediate area surrounding the crash site was carried out using a photo-ionising detector attached to a soil probe to monitor for hydrocarbon gases and vapours. Measurements were taken at one metre intervals to a depth of one metre, where possible, using a 30mm diameter Gouge Auger. Where high concentrations of fuel were detected, additional measurements were taken to establish both the extent of the contamination and the maximum depth. Additional measurements were also taken at the periphery of the crater to a distance of 5 metres. All the areas of fuel contamination were plotted and are graphically displayed at Annex B. These areas included the engine impact section and the location of one of the aircraft wings.

FINDINGS

7. The ARO was of the opinion that the body of the aircraft was buried in the bottom of the crater, which was 3 metres in depth. This was the area of heaviest contamination by aviation fuel. The area where the engine wreckage had landed was also heavily contaminated and the survey carried out by the team from PHMDiv showed that the soil immediately below this site was contaminated to a depth of 15cm. One of the wings had landed down-slope of the a pond near the crater, scattering fuel over a 720m^2 area to a varying depth of 2-5cm. In addition there was a light scattering of fuel in the area between the engine wreckage site and the main crater and another light scattering of fuel extended for approximately 30m north of the crater.

8. Deposits of burnt carbon fibre were found throughout the crash site area. The problem of carbon composite fibres was limited as superfine fibres would be dispersed from the area and, given the wet weather prevailing at the time, most of the remaining carbon composite fibre would be dampened down. However, larger pieces of carbon fibre could cause needlestick injury if not removed from the crash site.

RECOMMENDATIONS

9. The following recommendations were made following the first assessment of the crash site:

a. Crops contaminated with carbon fibre composite are to be dampened down and removed, along with any contaminated soil, and incinerated, or disposed of as contaminated waste, to prevent them entering the food chain.

b. Prior to their removal, it is recommended that all visible pieces of carbon fibre composite are dampened down to reduce the build up of composite dust particles.

c. All fuel/oil collected in the bottom of the crater during the removal of the wreckage should be removed and disposed of by a competent contractor under the direction of the Defence Land Agency.

d. All the areas of light fuel contamination between the engine wreckage site, the wing wreckage site and the main crater should be ploughed to turn the soil and then harrowed to increase the surface area of the soil, thereby allowing more oxygen into the soil and facilitating the evaporation of hydrocarbon vapours.

SECOND ASSESSMENT - 27-30 DECEMBER 1996

10. The aircraft carcass was due to be moved on 27 December, however, adverse weather conditions meant that no recovery work could be carried out that day. Nevertheless, the pollution monitoring team re-surveyed the crash site and the nearby stream for any possible extension of the fuel contamination.

11. The crash recovery team began removing the wreckage from within the contaminated area 5m around the crash crater on 29 Dec. On the advice of the DCRO, trenches were dug outside this 5m wide contaminated area to accommodate contaminated soil removed from the crater and the surrounding area during the wreckage recovery operations. The trenches were excavated to a depth of approximately 50cm. The soil in the trenches was beaten down to compact it and provide an impermeable layer. In addition the trenches were lined with plastic sheeting to prevent any contaminants leeching into the ground. The soil was sifted to locate any wreckage and any contaminated soil was then placed in the trenches. Soil which was deemed "clean" was placed in separate piles and labelled accordingly. Initially, there was some confusion regarding the crash recovery team's definition of "clean soil". The crash recovery team defined clean soil as that which was free of all

pieces of aircraft wreckage. Therefore, inadvertently, soil contaminated with hydrocarbons from the periphery of the crater was mixed with uncontaminated topsoil. When this became apparent all the soil heaps were re-sampled by the pollution monitoring team and the "clean" (uncontaminated) soil was identified and appropriately labelled.

FINDINGS

12. The contaminated soil which had been excavated from the crater and placed in the lined trenches was measured using a photo-ionising detector. Measurements recorded showed there was in excess of 200ppm of hydrocarbons from aviation fuel in the soil.

13. The soil removed from the periphery of the crater was found to be slightly contaminated, as first thought, but all signs of hydrocarbon contamination from aviation fuel were removed following exposure of the compact soil in the ground to the air.

RECOMMENDATIONS

14. The following recommendations were made following the second assessment of the crash site:

a. The contaminated soil placed in the trenches should be raked at the end of each working day to facilitate the introduction of oxygen into the soil and accelerate the evaporation of hydrocarbon vapours. Once all the wreckage and contaminated soil from the crater has been removed from the site, then this aerated soil could be returned to the periphery of the crater.

b. After the wreckage and soil have been removed from the crater the pollution monitoring team should quantify the amount of contamination and its constituents. This must be carried out prior to the removal of any contaminated soil from the site in order to comply with the Special Waste Regulations 1996. Contaminated soil must not be removed from a site **under any circumstances** until the consignment note has been completed with information of the levels of contaminant in the soil.

FINAL ASSESSMENT - 7 JANUARY 1997

15. The pollution monitoring team returned to the site on 7 January 1997 to quantify the amount of contamination in the soil that was to be removed for the consignment notice. It was observed that the contaminated soil which had originally been placed in the trenches had been transferred to a hard standing at the top-end of the field, where the farmer had stored straw. This soil was analysed using a "PetroFLAG" hydrocarbon test kit in order to quantify the level of contamination present from aviation fuel.

FINDINGS

16. After indicating the presence of fuel contamination using the photo-ionising detector, additional sampling using the "PetroFLAG" showed levels of contamination ranging from 99-265ppm, dependant on where the sample was taken from in the contaminated soil heap destined for removal(see Annex C).

RECOMMENDATIONS

17. The following recommendations were made following the final assessment of the crash site:

a. The contaminated soil should be contained within the crash site area and should only be be removed from the site by a competent waste contractor and disposed of in accordance with the statutory requirements of the Special Waste Regulations 1996.

b. Arrangements should be made for the DCRO to return the crash site to take part in the handover of the field to the farmer and his agent once it has been cleared of all contamination.

c. A monitoring strategy should be set up by a competent person, in consultation with the Defence Land Agency, to continue to assess the whole area for any further environmental impact, including the possibility of carbon fibres (if any) entering the food chain and the biodegradation of the aviation fuel on agricultural land. This recommendation is made because at present no data is available on the long term breakdown of carbon composite fibres from aircraft crashes in a natural environment.

CONCLUSIONS

18. The pollution problems associated with the F16 aircraft crash site were considerably widespread throughout the ploughed field. The potential problems associated with hydrazine contamination were dealt with by the team from the RDAF. With the exception of the aircraft crater and the engine wreckage site where there was heavy contamination, an area of approximately 1200m^2 was lightly contaminated by fuel and carbon composite fibres to varying depths.

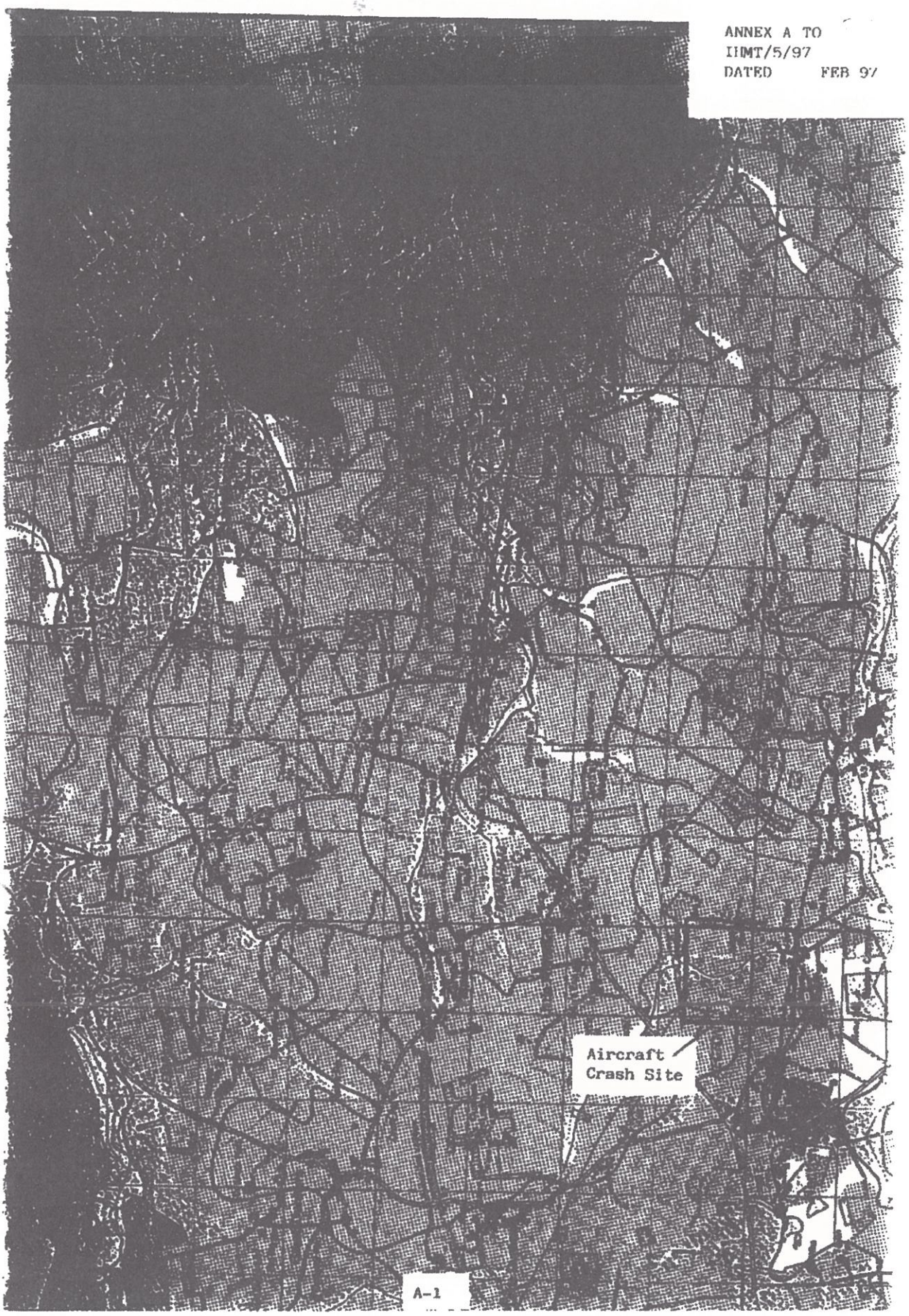
DEBRIEF

19. The DCRO briefed the ARO on-site on the team's findings and the recommendations contained in this report. The ARO then briefed [redacted] of the Defence Land Agency. Ongoing briefings and updates took place between the DCRO, [redacted] of the Environment Agency, and [redacted] the local authority Environmental Health Officer.

ADDENDUM

20. Following the meeting between the DCRO, the Defence Land Agent, the farmer and the farmer's agent during the handover of the field, the pollution monitoring team from PHMDiv have been tasked to carry out further monitoring of the site of the F16 aircraft crash in the arable field for any adverse environmental effects and the re-emergence, if any, of carbon composite fibres.

ANNEX A TO
IIMT/5/97
DATED FEB 97

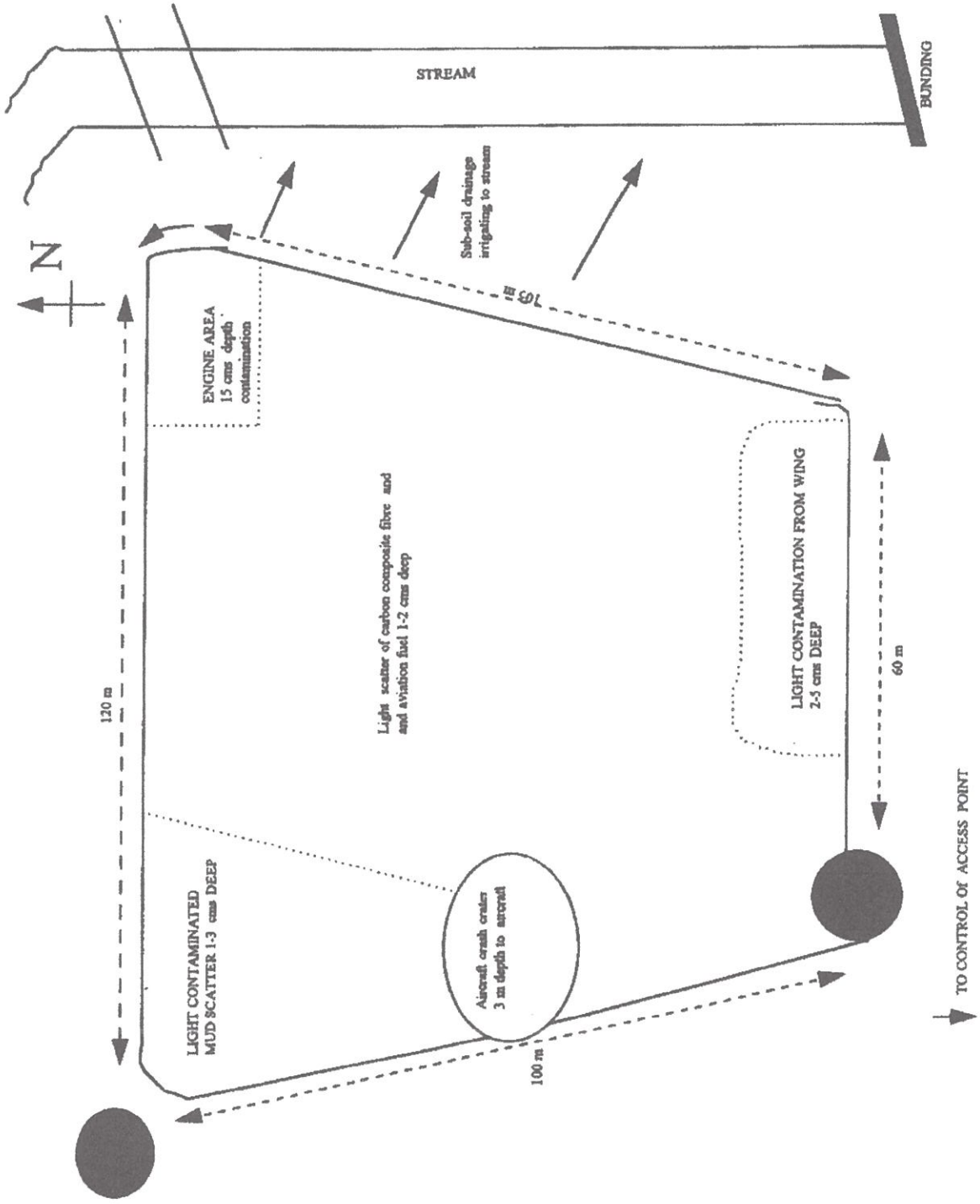


VULNERABILITY CLASSES

Geological Classes		Soil Classes
Major Aquifer (Highly Permeable)	[redacted]	High (H) 1, 2, 3, U*
	[redacted]	Intermediate (I) 1, 2
		Low
Minor Aquifer (Variably Permeable)	[redacted]	High (H) 1, 2, 3, U*
		Intermediate (I) 1, 2
		Low
Non-Aquifer (Negligibly Permeable)		

Low permeability, non-water bearing drift deposits occurring at the surface and overlying Major and Minor Aquifers are head (clayey), shell marl, Nar Valley clay, Terrington Beds, Barroway Drove Beds, glacial silts and clays and till (excluding Cromer Till).

ANNEX B TO
IHMT/5/97
DATED FEB 97



HYDROCARBON TEST KIT - FIELD DATA SHEET

Date: 7 Jan 97

Calibration Time/Date: 13:20/7.1.97

Operator: [redacted]

Calibration Temperature: 19° C

Location: F16 Crash Site Necton Nr Swaffham - Contaminated Soil Removal (Pile on hardstanding)

No	Sample ID	Weight	Time	Reading (ppm)	DF [1]	RF [2]	Actual (ppm)	Comments
1	CS	10g	13:30	99	1	2	99	TOP
2	CS1	10g	13:32	149	1	2	149	TOP
3	CS2	10g	13:34	104	1	2	104	TOP
4	CS3	10g	13:36	114	1	2	114	EDGE
5	CS4	10g	13:38	136	1	2	136	EDGE
6	CS5	10g	13:40	141	1	2	141	EDGE
7	CS6	10g	13:42	101	1	2	101	EDGE
8	CS7	10g	13:44	106	1	2	106	EDGE
9	CS8	10g	13:46	265	1	2	265	CENTRE
10	CS9	10g	13:48	166	1	2	166	SUMMIT
11	Blank	-	13:28	00	1	2	00	-
12	Standard	-	13:29	1000	1	2	1000	-
13								
14								
15								
16								
17								
18								
19								
20								

Notes:

1. DF = Dilution Factor, eg for a 5 gram soil sample the DF = 10g/5g = 2, and actual concentration equals reading x DF (reading (ppm) x DF = actual concentration).

2. RF = Response Factor, selected for the hydrocarbon contamination at the site.

F

4 PAGES

117

LOOSE MINUTE

D/Sec(AS)/58/1/36

11 December 1996

PS/USofS* * by CHOTS

copy to:
APS/Secretary of State*
APS/Minister(AF)*
APS/Minister(DP)*
PS/CAS* [redacted]
PSO/ACAS [redacted]
AUS(H&O) [redacted]
Press Secretary*
Sec(AS)2*
HCDC Liaison Officer*
STC - CS(P&P)1
Chief Claims Officer*
Air Attache, Copenghagen

ROYAL DANISH AIR FORCE F-16 ACCIDENT - 11 DEC 96

1. I am writing to confirm the details of this morning's accident involving a two-seat F-16B aircraft of the Royal Danish Air Force (RDAF).

2. The aircraft arrived at RAF Marham on 5 December on a routine liaison visit but bad weather delayed the originally planned departure until this morning. Shortly after becoming airborne and with the aircraft in a steep climb, the crew encountered difficulties and ejected. The trajectory of the aircraft was such that it crashed in open farmland some seven miles away, just outside the village of Necton. The crew was picked up by a SAR helicopter and taken to King's Lynn Hospital having sustained only minor injuries. Early suggestions are that the accident may have been caused an engine failure.

3. Post-crash management personnel at the site are alert to the presence of a highly toxic, flammable chemical compound known as Hydrazine (H_4N_2) which the F-16 uses during the engine start-up sequence. Although only a small amount of the substance is carried, it can cause systemic poisoning and permanent kidney damage if improperly handled. RAF firecrews and personnel at the Aircraft Recovery & Transportation Flight are trained accordingly. In addition, RAF personnel detached to the scene immediately after the accident occurred took additional advice from United States Air Force personnel at RAF Lakenheath, who are more familiar with F-16 post crash management procedures.

4. NATO arrangements for investigating military aircraft accidents permit the authority owning the aircraft to investigate the crash if no other aircraft is involved. Accordingly, the RDAF will be investigating this accident and is setting up its own Board of Inquiry; a RAF observer will be in attendance.

5. I attach a draft letter for USofS to send to Gillian Shepherd, the MP in whose constituency the accident occurred. I do not believe that there is a requirement for the Department to advise the HCDC of this accident as although accidents to foreign aircraft were not specifically excluded from the reporting arrangements agreed earlier this year, the Committee's interest was focused on UK military aircraft losses and our inquiry procedures neither of which are, of course, relevant here. I also attach some defensive press lines.

[redacted]

DRAFT LETTER TO GILLIAN SHEPHERD MP

I am writing to confirm the details of the aircraft accident which occurred in your constituency this morning.

A two-seat F-16B aircraft of the Royal Danish Air Force had just taken off from RAF Marham, bound for Denmark, when the crew encountered difficulties and ejected. The aircraft crashed some four miles east of Swaffham. The crew were subsequently picked up by a RAF helicopter having sustained only minor injuries.

The investigation into this accident is being carried out by the Royal Danish Air Force under the terms of a NATO Standardization Agreement.

THE EARL HOWE

Rt Hon Gillian P Shepherd MP

PRESS LINES ON AIRCRAFT ACCIDENT INVOLVING A RDAF F-16B - SWAFFHAM - 11 DEC 96

- **Confirm that a two-seat F-16B of the Royal Danish Air Force has crashed seven miles east of RAF Marham.**

- **The aircraft had just departed Marham and was intending to return to Denmark when the crew encountered difficulties and ejected. They were subsequently picked up by SAR helicopter having sustained only minor injuries.**

- **The Royal Danish Air Force has convened a Board of Inquiry at which the RAF will have an observer.**

If pressed:

- The aircraft was in a steep climb when the crew ejected and the trajectory of the aircraft was such that it continued to travel some distance before crashing into open farmland. It is entirely normal practice for F-16s to enter into a steep climb upon departure.

- It will be a matter for the Danish authorities whether they wish to make the findings of their Inquiry public.

- Confirm that F-16 aircraft carry a small amount of Hydrazine, which is used during the aircraft's start-up sequence. As with any chemical compound, Hydrazine is entirely safe provided it is handled only by trained and properly equipped professionals.

- We are not aware of any claims arising from this accident but any that we receive will be considered fairly and objectively.

G

2 PAGES

National Rivers Authority
Anglian Region

NRA

STATUS REPORT
STAT FAX

FROM [redacted]
POST ACQO
LOCATION KINGS LYNN

TO REGIONAL COMMUNICATIONS CENTRE
FAX No. 01733 231944

FLOOD	POLL	FIRST REPORT AND LAST	UPDATE	10:00 UPDATE	16:00	2 HRLY	AREA CONTROL ROOM			
	✓						OPEN	CLOSED	TIME	DATE

HEADING AEROPLANE CRASH

LOCATION & TYPE OF INCIDENT IVY TODD SWAFFHAM NORFOLK TIME & DATE 1730 11/12/96

F16 CRASHED AT NGR TF 894100. REPORT RECEIVED FROM NORFOLK FIRE & RESCUE AT 1030 HRS.

INVESTIGATION REPORT

PLANE TOOK OFF FROM MARHAM (RAF) IN FLAMES. CREW EJECTED IMMEDIATELY. PLANE FLEW ON FOR APPROX 16 Km BEFORE CRASHING INTO SUGAR BEET FIELD. WRECKAGE SPREAD OVER WIDE AREA (600m²). BIGGEST PART OF WRECKAGE BURRIED INTO GROUND MAKING LARGE HOLE. SIGNIFICANT STREAM 500m DOWNGRADIENT NOT AFFECTED. ie U/S OF POTABLE INTAKE AT STOKE FERRY (RIVER WISSEY). PLANE CARRYING HYDRAZINE. ANTICIPATE THAT ALL FUEL/CHEMICAL BURNT UP DURING FLIGHT & ON IMPACT. IPC HAVE INFORMED MAFF OF RADIOACTIVE SUBSTANCE RISK. NEAREST KNOWN POTABLE WELL/BOREHOLE 2 Km. ENVIRONMENTAL HEALTH INVESTIGATING OTHER LOCAL SUPPLIES. NO FURTHER ACTION FROM WATER QUALITY REQUIRED

DISTRIBUTION

R.C.C.	MAFF	AREA STAFF (name)			DISTRICT OFFICE (name)			OTHERS (name)			
✓	✓	[redacted]			[redacted] ELY						1 OF ....1.... SHEETS

TICK AS REQUIRED

OFFICER IN CHARGE [redacted]

OTHER ORGANISATIONS INVOLVED MAFF

SECRETARY 12-12-96

[redacted] 1020 MAFF

FAX MESSAGE

FAX DESTINATION NUMBER

COMPANY NAME

FOR THE ATTENTION OF [redacted]

SUBJECT MATTER F16 Crash, [redacted]

FROM [redacted]

NUMBER OF SHEETS TO FOLLOW 0

IF PART OF THIS MESSAGE IS MISSING OR ILLEGIBLE, PLEASE TELEPHONE

ENVIRONMENT AGENCY
Anglian Region

Central Area Office
Bromholme Lane
Brampton
Huntingdon
Cambs PE18 8NE
Tel: (01480) 414581
Fax: (01480) 413381

David,

I have contacted Ff, Lt [redacted] at Marham to tell him that there is approximately 0.4m soil over 20m of boulder clay before the Chalk aquifer is reached. The aquifer is therefore reasonably protected. However, some shallow boreholes (7m - 15m) do have water in them at a level approx 5m below ground level, probably originating in higher permeability bands within the boulder clay. The nearest of these private abstractions is 800m to south but they shouldn't be affected if the fuel is removed quickly.

[redacted]

H

2 PAGES

Ministry of Defence

Air Historical Branch (RAF)
Bldg 824
RAF Northolt
West End Road
Ruislip
HA4 6NG
United Kingdom

Telephone [MOD]: +44 (0)20 8833 8175
Facsimile [MOD]: +44 (0)20 8833 8170
E-mail: Business ahb.raf@btconnect.com

Ref: FOI2018/06031

Ms J Smedley

author@globalnet.co.uk

29 May 2018

Dear Ms Smedley,

Thank you for your email of 2nd May 2018 requesting the following:

"I am trying to find out some information about contamination that was left behind after a Danish RAF jet crashed in a field close to my house in Necton, Norfolk PE37 8HY on 11th December 1996. Can you help me with this please or point me in the right direction?

Local knowledge says that this is carbon fibre and/or depleted uranium from armaments."

I am treating your correspondence as a request for information under the Freedom of Information Act 2000 (FOIA).

A search for the information has now been completed within the Ministry of Defence, and we can confirm that some information in scope of your request is held.

The AHB (RAF) hold a copy of Loose Minute reference *D/Sec(AS)/58/1/36* dated 11 December 1996, which is attached. Some of the information falls entirely within the scope of the absolute exemption provided for at *Section 40* (2) of the FOIA and has been redacted.

Section 40(2) has been applied in order to protect personal information as governed by the Data Protection Act 1998. As *Section 40* (2) is an absolute exemption, there is therefore no requirement to consider the public interest in making a decision to withhold the information. The names and contact details of officials in the Senior Civil Service (SCS) and their military equivalents (Commodore, Brigadier, Air Commodore and above) are considered to be available in the public domain and have not been redacted.

AHB (RAF) also hold the RAF Marham RAF Form 540 (Operation Record Book) for the period which contains an entry in December 1996 as follows:

11 Dec *AIR TRAFFIC CONTROL*

Danish F-16 A Danish F-16 fighter aircraft crashed shortly after take-off from RAF Marham. The 2 man crew ejected shortly after take-off and the aircraft eventually crashed near the village of Necton, some 15km after the crew ejected. The aircraft fortunately came down in a field and there was no loss of life or damage to civil property apart from a large hole approximately 30 feet deep.

Under *Section 16* of the Act (Advice and Assistance) you may find it helpful to note that the contact details for the Royal Danish Air Force are below:

Website:
https://www2.forsvaret.dk/eng/Organisation/AirForce/Pages/RoyalDanishAirForce.aspx

E-mail:
vfk@mil.dk

Address:
Defence Command Denmark,
Air Staff
Herningvej 30
DK-7470 Karup J.

If you are not satisfied with this response or you wish to complain about any aspect of the handling of your request, then you should contact me in the first instance. If informal resolution is not possible and you are still dissatisfied then you may apply for 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 must be made within 40 working days of the date on which the attempt to reach informal resolution has come to an end.

If you remain dissatisfied following an internal review, you may take your complaint to the Information Commissioner under the provisions of Section 50 of the Freedom of Information Act. Please note that the Information Commissioner will not investigate your case until the MOD internal review process has been completed. Further details of the role and powers of the Information Commissioner can be found on the Commissioner's website, http://www.ico.org.uk.

Yours sincerely,

Air Historical Branch (RAF)

I

1 PAGE

Statement by Mr Colin King, owner of Ivy Todd farm

On 11th December 1996 I was travelling to our outdoor pigs at the time of the plane crash, and heard the explosion, (sounded like two in quick succession) and saw the smoke, and blue flashing lights once I got out of the truck. When I got back to the farm, father explained how he heard bits landing on the pig building roof, (which he was in) with a phutting noise. He looked out, and saw what was like little burning candles coming down, and burning on the yard.

J

1 PAGE

From: Jean Bass [redacted]
Sent: 31 May 2018 15:33
To: NectonSubstationAction Messenger
Cc: [redacted]
Subject: Re: Contamination

Hi
I was on the Parish Council at the time and we had access to the air control report. They said the land was contaminated for 5 years for grass and 7 years for growth. Any residential growth would need special clearance. Livestock grazing were banned for 7 years.

So an airplane crash, as can happen, would cause very severe environmental issues for years.
Jean

K

6 PAGES

Ministry of Defence

Air Historical Branch (RAF)
Bldg 824
RAF Northolt
West End Road
Ruislip
HA4 6NG
United Kingdom

Telephone [MOD]: +44 (0)20 8833 8175
Facsimile [MOD]: +44 (0)20 8833 8170
E-mail: Business ahb.raf@btconnect.com

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vfk@mil.dk

Address:
Defence Command Denmark,
Air Staff
Herningvej 30
DK-7470 Karup J.

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Yours sincerely,

Air Historical Branch (RAF)

117

LOOSE MINUTE

D/Sec(AS)/58/1/36

11 December 1996

PS/USofS*

* by CHOTS

copy to:
APS/Secretary of State*
APS/Minister(AF)*
APS/Minister(DP)*
PS/CAS*
PSO/ACAS
AUS(H&O)
[redacted]
Press Secretary*
Sec(AS)2*
HCDC Liaison Officer*
STC - CS(P&P)1
Chief Claims Officer*
Air Attache, Copenghagen

ROYAL DANISH AIR FORCE F-16 ACCIDENT - 11 DEC 96

1. I am writing to confirm the details of this morning's accident involving a two-seat F-16B aircraft of the Royal Danish Air Force (RDAF).

2. The aircraft arrived at RAF Marham on 5 December on a routine liaison visit but bad weather delayed the originally planned departure until this morning. Shortly after becoming airborne and with the aircraft in a steep climb, the crew encountered difficulties and ejected. The trajectory of the aircraft was such that it crashed in open farmland some seven miles away, just outside the village of Necton. The crew was picked up by a SAR helicopter and taken to King's Lynn Hospital having sustained only minor injuries. Early suggestions are that the accident may have been caused an engine failure.

3. Post-crash management personnel at the site are alert to the presence of a highly toxic, flammable chemical compound known as Hydrazine (H_4N_2) which the F-16 uses during the engine start-up sequence. Although only a small amount of the substance is carried, it can cause systemic poisoning and permanent kidney damage if improperly handled. RAF firecrews and personnel at the Aircraft Recovery & Transportation Flight are trained accordingly. In addition, RAF personnel detached to the scene immediately after the accident occurred took additional advice from United States Air Force personnel at RAF Lakenheath, who are more familiar with F-16 post crash management procedures.

4. NATO arrangements for investigating military aircraft accidents permit the authority owning the aircraft to investigate the crash if no other aircraft is involved. Accordingly, the RDAF will be investigating this accident and is setting up its own Board of Inquiry; a RAF observer will be in attendance.

5. I attach a draft letter for USofS to send to Gillian Shepherd, the MP in whose constituency the accident occurred. I do not believe that there is a requirement for the Department to advise the HCDC of this accident as although accidents to foreign aircraft were not specifically excluded from the reporting arrangements agreed earlier this year, the Committee's interest was focused on UK military aircraft losses and our inquiry procedures neither of which are, of course, relevant here. I also attach some defensive press lines.

[redacted]

DRAFT LETTER TO GILLIAN SHEPHERD MP

I am writing to confirm the details of the aircraft accident which occurred in your constituency this morning.

A two-seat F-16B aircraft of the Royal Danish Air Force had just taken off from RAF Marham, bound for Denmark, when the crew encountered difficulties and ejected. The aircraft crashed some four miles east of Swaffham. The crew were subsequently picked up by a RAF helicopter having sustained only minor injuries.

The investigation into this accident is being carried out by the Royal Danish Air Force under the terms of a NATO Standardization Agreement.

THE EARL HOWE

Rt Hon Gillian P Shepherd MP

PRESS LINES ON AIRCRAFT ACCIDENT INVOLVING A RDAF F-16B - SWAFFHAM - 11 DEC 96

- Confirm that a two-seat F-16B of the Royal Danish Air Force has crashed seven miles east of RAF Marham.

- The aircraft had just departed Marham and was intending to return to Denmark when the crew encountered difficulties and ejected. They were subsequently picked up by SAR helicopter having sustained only minor injuries.

- The Royal Danish Air Force has convened a Board of Inquiry at which the RAF will have an observer.

If pressed:

- The aircraft was in a steep climb when the crew ejected and the trajectory of the aircraft was such that it continued to travel some distance before crashing into open farmland. It is entirely normal practice for F-16s to enter into a steep climb upon departure.

- It will be a matter for the Danish authorities whether they wish to make the findings of their Inquiry public.

- Confirm that F-16 aircraft carry a small amount of Hydrazine, which is used during the aircraft's start-up sequence. As with any chemical compound, Hydrazine is entirely safe provided it is handled only by trained and properly equipped professionals.

- We are not aware of any claims arising from this accident but any that we receive will be considered fairly and objectively.

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2 PAGES

Ministry of Defence

Air Historical Branch (RAF)
Bldg 824
RAF Northolt
West End Road
Ruislip
HA4 6NG
United Kingdom

Telephone [MOD]: +44 (0)20 8833 8175
Facsimile [MOD]: +44 (0)20 8833 8170
E-mail: Business ahb.raf@btconnect.com

Ref: FOI2018/11881

Ms J Smedley

author@globalnet.co.uk

21 September 2018

Dear Ms Smedley,

Thank you for your email of 18th September 2018 requesting the following:

"Does the MOD have any information as to how long the farmer was advised to keep off the land, and the item recalled by our Parish Council, which stated that a major development on the land needed special permission."

I am treating your correspondence as a request for information under the Freedom of Information Act 2000 (FOIA).

A search for the information has now been completed within the Ministry of Defence, and we can confirm that some information in scope of your request is held. Attachment E- RAF Institute of Health and Medical Training Report IHMT/5/97 is a report on the environmental assessment of the crash site.

Since responding to your initial FOIA request, reference FOI2018/06031 responded to on 29th May 2018, a further file of information relating to the loss of the Royal Danish Air Force (RDAF) F16 over Necton, Norfolk on 11the December 1996 has been located. It is with apologies that this material was not made available to you at the time of your earlier request; this was due to cataloguing errors at the Ministry of Defence storage facility.

As these documents have been considered for release under a subsequent FOIA request, they are attached for your information. The full list of attachments are as follows:

Attachment A: Factual Information Regarding the Crash of a Danish F-16
Attachment B: Enclosure 2- Danish Air Force F16 Accident on Departure from RAF Marham
Attachment C: Enclosure 5- Update on Danish Air Force F16 Accident
Attachment D: Enclosure 12- Report on the Recovery of an RDAF F-16 Trainer
Attachment E: RAF Institute of Health and Medical Training Report IHMT/5/97

Section 40(2) has been applied across the attachments in order to protect personal information as governed by the General Data Protection Regulation 2018. As *Section 40* (2)

is an absolute exemption, there is therefore no requirement to consider the public interest in making a decision to withhold the information. The names and contact details of officials in the Senior Civil Service (SCS) and their military equivalents (Commodore, Brigadier, Air Commodore and above) are considered to be available in the public domain and have not been redacted.

Section 44 (1) a, applied in Attachment B, relates to the release of information by the public authority holding the information if disclosure is prohibited by or under any enactment. Once more, *Section 44 (1) a* is an absolute exemption, in this instance the exemption is applied to personal medical information.

Attachment A is a synopsis of information provided by the RDAF in September 2018. The exemption accounted for at *Section 27 (3) (International Relations- information obtained from a state where the circumstances in which it was obtained make it reasonable to expect that it will be held in confidence).)* of the FOIA was upheld. *Section 27 (3)* is a qualified exemption and therefore subject to a Public Interest Test (PIT). The PIT found that the public interest in maintaining the confidence of the Royal Danish Air Force (RDAF) outweighed the interest in releasing documentation, held by the Ministry of Defence, which originated with the RDAF.

Under *Section 16* of the Act (Advice and Assistance) you may find it helpful to note that the contact details for the Royal Danish Air Force are below:

Website:
https://www2.forsvaret.dk/eng/Organisation/AirForce/Pages/RoyalDanishAirForce.aspx

E-mail: vfk@mil.dk

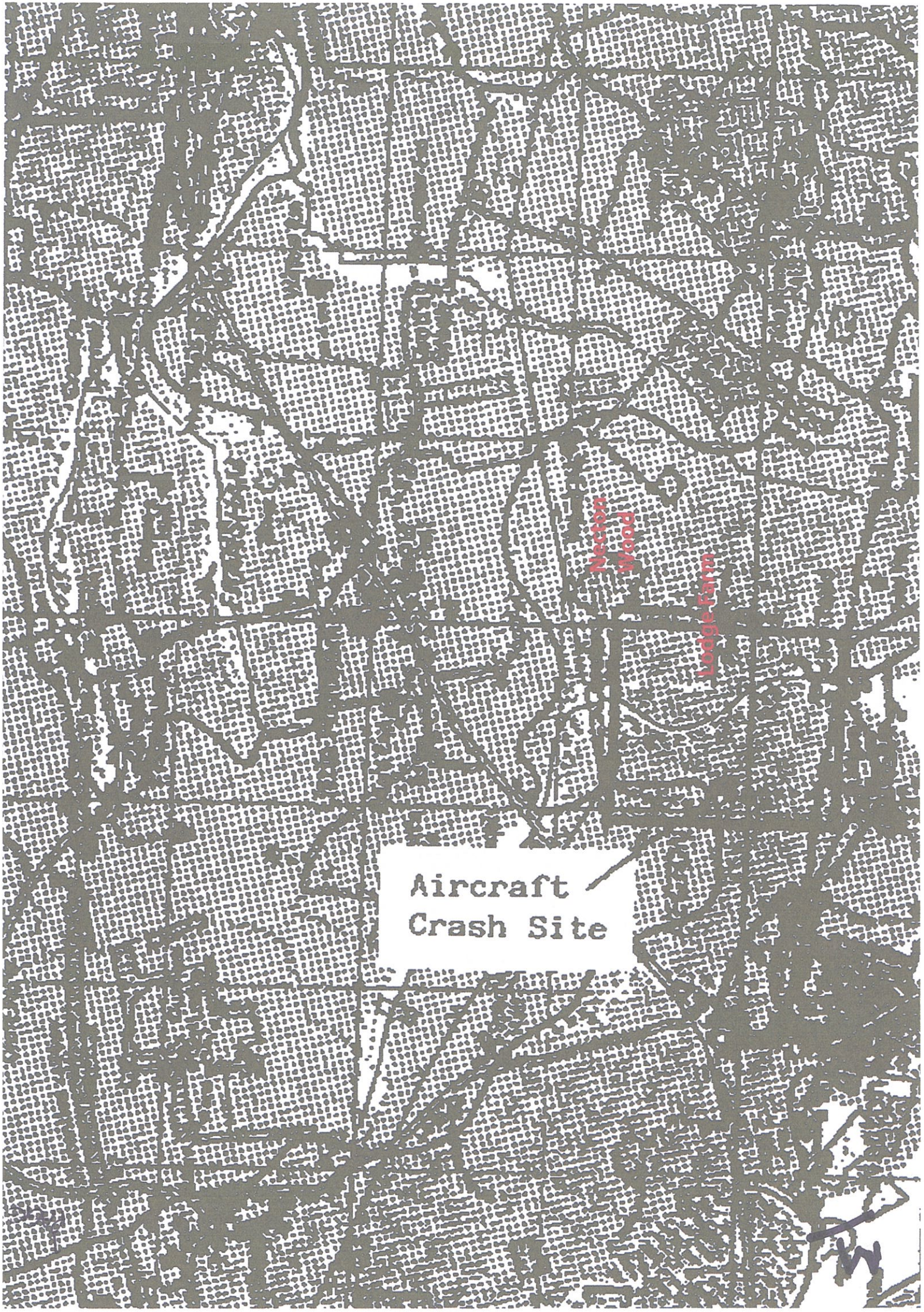
Address:
Defence Command Denmark,
Air Staff
Herningvej 30
DK-7470 Karup J.

If you are not satisfied with this response or you wish to complain about any aspect of the handling of your request, then you should contact me in the first instance. If informal resolution is not possible and you are still dissatisfied then you may apply for 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 must be made within 40 working days of the date on which the attempt to reach informal resolution has come to an end.

If you remain dissatisfied following an internal review, you may take your complaint to the Information Commissioner under the provisions of Section 50 of the Freedom of Information Act. Please note that the Information Commissioner will not investigate your case until the MOD internal review process has been completed. Further details of the role and powers of the Information Commissioner can be found on the Commissioner's website, http://www.ico.org.uk.

Yours sincerely,

Air Historical Branch (RAF)


Nechton
Wood
Lodge Farm
Aircraft
Crash Site

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24/2 Norfolk County Council sent us information regarding new contact personnel due a change in the structure of their Planning and Transportation Department.
28/2 We received a letter from Gillian White of the Ministry of Defence, regarding the aircraft crash in Necton parish. The investigation into the crash was being dealt with by the Danish authorities and therefore our M.O.D. were unable to comment, but to say that they were sorry that our parish council felt that communication had been poor. They did not agree but thanked us for our comments.
4/3 The clerk telephoned Steve O'Brien, Breckland Council's Dog Warden, and asked about dog waste bins. These, he was told, would be bought by the parish council, put in by Breckland in a position which we would decide, and Breckland would also empty the bins fortnightly. But, sadly, a councillor would have to fit the bin with a bag each time it had been emptied.
4/3 The clerk had telephoned Mike Norton Breckland Council's Grounds Maintenance Officer regarding a hedge at the bottom of Chantry Lane which needed cutting back.
4/3 A sarcastic letter had been sent to P.E.Ryder in reply to their letter asking for information regarding the wattages of the lights in the village. "We thought you were supposed to know that!"
4/3 A donation of £25 had been sent Dereham and District Citizens Advice Bureau.
4/3 A copy of the letter which we had received from A.E.Timol of the Home Office, Juvenile Offenders Unit, which conveyed their policies in the area of juvenile crime, was sent to the Inspector at Swaffham Police Station, so that we could keep him informed of the situation. We also added words of praise for P.C.Yeouens work in the village.
4/3 Chris Warren of Breckland Council Land Drainage Department was written to, to ask that a ditch in Chantry Court be cleared out.
4/3 Mr Townly at Norfolk County Council was written to, to ask that something be done about the footpath outside 8, Burnside which had sunk. Also our thanks were offered for all of his hard work, we offered him all the best in his new placement.
5/3 Altered timetables for the Watton-Swaffham Norfolk Green Bus Service had been sent to us from Norfolk County Council.

The cheques were approved by the councillors.
A list of the chairman's expenses were also approved by the councillors.

Any Other Business: Councillor Cox told the clerk about a street light outside the Middle School gate which was out, and then councillor Jenkins told him about street light No.120 in Elizabeth Drive which was on all day. The clerk promised to report these to the Electricity Board.
The vice-chairman then spoke to the meeting about his concerns regarding the fighter aircraft crash in the parish on 11th December last year and the activities which have taken place, apparently as part of the investigation into the crash. Councillor Bartholomew said that he was greatly troubled by the large amount of soil which has been cleared from the crash site in lorry load after lorry load. The farmer whose field the aircraft landed in has been told that he cannot grow any crops in that field for a minimum of one year. This, the vice-chairman said, was due to a hydrazine chemical which had been carried on board the aircraft. The general consensus of opinion amongst the council was that we should keep probing to see if we can find out any more information about the reasons for the crash and what the results of the crash could be and indeed could have been, had the aircraft have landed in a built up area.
The clerk was asked to contact Mr Ryder at Breckland Council so that an April date when he, councillors or the clerk and Mr Peter Tattersall of Necton Parochial Church Council can meet to discuss the illumination of the church, its cost and the chances of a grant being raised to help with the outlay. Griston church has recently been illuminated and this has put an instant stop to vandalism.
Councillor Bass commented that a shrub is hitting cars as they pass opposite the butchers.
Councillor Woodward asked if the Electricity Board had replied regarding the blue flashes outside 57, Jubilee Way. We had not.
The chairman then told the council that pallets are still being sold at the Hungry Horse, despite Dereham planning office's efforts to stop it. She has telephoned planning and complained, and asked any councillors whenever in Dereham to go into the planning office to have a moan about it. the chairman is to see the Breckland representative about the matter.
Next Meeting: is on Thursday 24th April at 7:30 p.m. at Necton Village Hall.
Meeting Ended: at 8:43 p.m.

1 PAGE

Jenny Smedley

From: "Area Manager Correspondence, East Anglia" <AreaManagerCorrespondence.EastAnglia@environment-agency.gov.uk>
Date: 02 July 2018 09:45
To: "Jenny Smedley" <author@globalnet.co.uk>
Subject: RE: AMC/2018/1106 FW: 180606/BA10 FW: Radioactive matter

Dear Ms Smedley,

Thank you for your email of 28 June 2018.

IPC (or ISC, (the copy is unclear)), appears to be an acronym used by the Ministry of Defence to denote a department or section within the command structure of the RAF. We have not seen it in any recent communications so unable to confirm what it meant then or now.

Kind regards

Stephanie

Stephanie Fullwood
Customers & Engagement Officer
Customers & Engagement Team
East Anglia Area
Environment Agency, Bromholme Lane, Brampton, Huntingdon, Cambs. PE28 4NE
☎External Tel: 02030 251938
areamanagercorrespondence.eastanglia@environment-agency.gov.uk

Creating a better place for people and wildlife

CUSTOMER SERVICE EXCELLENCE CSE

From: Jenny Smedley [mailto:author@globalnet.co.uk]
Sent: 28 June 2018 11:26
To: Area Manager Correspondence, East Anglia <AreaManagerCorrespondence.EastAnglia@environment-agency.gov.uk>
Subject: Re: AMC/2018/1106 FW: 180606/BA10 FW: Radioactive matter

Sorry Stephanie, the fax mentions IPC (that's what it looks like) could you tell me who they are please?

From: Area Manager Correspondence, East Anglia
Sent: Thursday, June 28, 2018 11:12 AM
To: author@globalnet.co.uk
Subject: FW: AMC/2018/1106 FW: 180606/BA10 FW: Radioactive matter

Dear Ms Smedley,

Thank you for your email of 6 June 2018 to DEFRA. They have passed your enquiry to us for reply and will receive a copy of our response.

I have checked our records and it appears that we have already provided a response to you on this matter on 31 May 2018 under reference number EAn/2018/85361 and 5 June 2018 under reference number EAn/85361-1. Please find attached our final replies for your information.

Kind regards

Stephanie

Stephanie Fullwood
Customers & Engagement Officer
Customers & Engagement Team
East Anglia Area
Environment Agency, Bromholme Lane, Brampton, Huntingdon, Cambs. PE28 4NE
☎External Tel: 02030 251938
areamanagercorrespondence.eastanglia@environment-agency.gov.uk

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CUSTOMER SERVICE EXCELLENCE CSE

From: Jenny Smedley [mailto:author@globalnet.co.uk]
Sent: 06 June 2018 07:54
To: Helpline, Defra (MCU) <defra.helpline@defra.gsi.gov.uk>
Subject: Radioactive matter