AIRPROX REPORT No 2011001

Date/Time: 4 Jan 2011 1549Z

Position: 5128N 00028W (O/H Heathrow - elev 83ft)

Airspace: ATZ (*Class: A*)

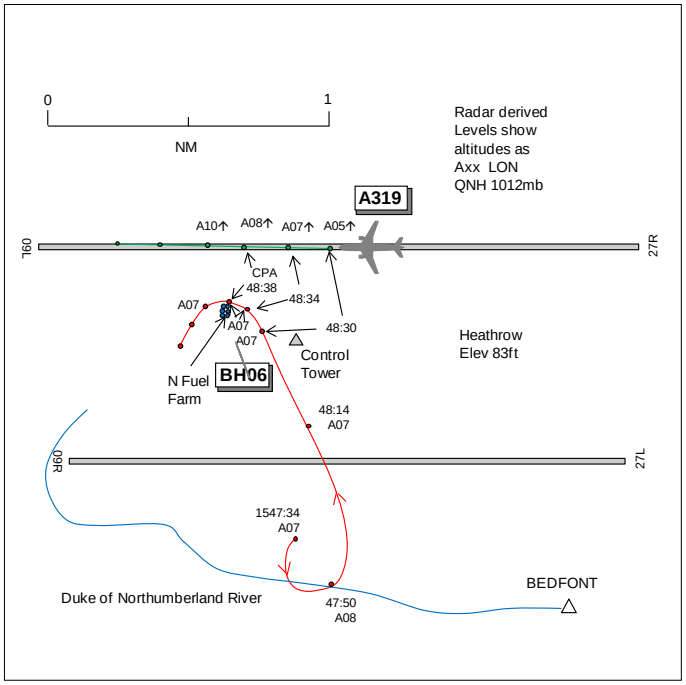
	Reporting Ac	*Reported Ac*
Type:	A319	BH06 JetRanger
Operator:	CAT	Civ Comm
Alt/FL:	300ft↑ (QNH 1012mb)	800ft (QNH)
Weather:	VMC NR	VMC CLOC
Visibility:	NR	>10km

Reported Separation:

300ft V/<300m H NR

Recorded Separation:

100ft V/0·2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE A319 PILOT reports outbound from Heathrow RW27R, IFR and in communication with Heathrow Tower, squawking with Modes S and C. Just after rotation, heading 271° at 140kt, Tower advised of a helicopter operating to the S of the aerodrome. As they climbed through 300ft the Capt visually acquired a black helicopter approx 300m to the forward/L of their ac at about 600ft moving towards the extended C/L of RW27R. Both pilots were ready to take avoiding action if required. The helicopter made a very sharp L turn by which time they were approximately 300ft higher than it. Neither a TCAS TA nor RA warning was received at any time and he assessed the risk as medium.

THE BH06 JETRANGER PILOT reports flying a pipeline survey with an observer and in communication with Heathrow Tower, squawking an assigned code with Mode C. The ac was coloured black with nav, tip strobes, pulsing landing lights and HISLs all switched on. He entered the CTR at Oxshott E having requested a H9 routeing to Heathrow with standard operating altitudes. On entering he was asked to report Heathrow in sight, which he did over the QE2 reservoir and he was then told to change to Heathrow Tower. On contact with Tower he was told to proceed and hold at Bedfont. On reaching Bedfont he took up the hold for a few minutes, RW27L was in use for inbound traffic and RW27R for outbound traffic. The controller then asked if he was familiar with the BA cargo hangar and he responded affirmative. ATC instructed him to proceed to the cargo hangar and hold, which he did and after 1 orbit he was told to cross RW27L immediately and proceed to the Fuel Store and hold S of RW27R. On approaching the Fuel Store from the S at 800ft and 80kt he informed ATC that, when convenient, he was ready to re-cross RW27L to follow the pipeline SW from the aerodrome. ATC told him to continue and re-cross RW27L without having to hold. The manoeuvre was flown in one single arc from the cargo hangar to the fuel store and re-crossing RW27L E of the 09 numbers. Whilst approaching the Fuel Store he was visual with a departing ac, the A319, in his 2-3 o'clock on RW27R, which was already well on the climb-out and which he had seen before he crossed RW27L. ATC informed inbound flights that he was crossing RW27L and would be remaining S of RW27R and he was instructed to contact Heathrow Radar whilst continuing on the pipeline inspection. He assessed the risk as none.

THE HEATHROW AIR (N) DEPARTURES CONTROLLER reports the pipeline inspection BH06 was warned in by the Tower Supervisor. He tracked the BH06 on the ATM and then subsequently visually as it operated S of RW27L. The BH06 was operating on the Arrivals frequency 118·5MHz

throughout and coordination took place with the Arrivals controller that the helicopter would cross RW27L and remain S of RW27R. The BH06 crossed RW27L at speed around the midpoint so with the A319 flight already cleared for take-off he gave the crew TI, informing them that the BH06 would be remaining S of RW27R. The BH06 was obscured from view above the VCR roof for a brief moment and when visual once again its position appeared to be very adjacent to RW27R and the departing A319 as it performed a high energy turn to the S. Its relative position to the A319 appeared very close and he asked the A319 crew if they were happy with the position of the helicopter. The A319 crew replied "it was a bit too close for comfort" and that they would be filing a report.

THE HEATHROW AIR (S) ARRIVALS CONTROLLER reports mentoring a trainee when the incident occurred. On handover they had been advised by the off-going controller that a 6nm gap had been arranged in order for a pipeline helicopter to proceed from Bedfont routeing W of the Tower as far as the Fuel Farm then to retrace its route back to Bedfont. They crossed the helicopter as soon as the inbound ac landed and it proceeded N towards the Fuel Farm before they instructed the pilot to remain S of RW27R, which was read back correctly. The trainee had coordinated with the Departures controller who was aware of the helicopter and was passing TI, so departures from RW27R continued. As the helicopter approached the Fuel Farm an A319 rotated off RW27R. As seen from the VCR the helicopter routed N of the Fuel Farm and then did a sharp R turn, she thought, over the taxiways at which point it looked very adjacent to the A319 next to it in the air. The Departures controller was unhappy with the proximity of the helicopter and questioned the A319 crew as to their opinion. The A319 crew replied that "it was a bit close for comfort". The pipeline helicopter retraced its steps and crossed RW27L and was transferred to SVFR.

ATSI reports that the Airprox occurred at 1548:38 within the Heathrow Airport ATZ, Class A airspace, between an Airbus A319 and a Bell 206 JetRanger, BH06, pipeline survey helicopter.

The A319 was departing from Runway 27R, on a flight from London Heathrow to Paris Charles de Gaulle.

The BH06 helicopter was operating a CAT Z, Non Standard Flight (NSF), pipeline survey. A NSF in CAS is considered to be an aerial task that does not follow published routes or notified procedures. The BH06 route required an approach and entry into the Heathrow ATZ from the S in order to overfly the Northern Fuel Farm, situated between Heathrow's RWs 27L and 27R. The route to be flown by the BH06 was shown on a coloured diagram provided by the Helicopter Operator.

The application procedure for a NSF is contained in the UK AIP and the responsibility for the issue of a NSF approval, within the London Control Zone, lies with London Control (LTC) Swanwick Operations. The Heathrow Manual of Air Traffic Services (MATS), Part 2, Section 1-103, Paragraph 17.13, Non Standard Flights, states:

> 'The procedure to be followed by operators who wish to carry out Non Standard Flights (NSFs) is contained in the UK AIP Page ENR 1-1-4-1.
>
> The responsibility for the issue of Non Standard Flight Approval for flights within the London CTR and London City CTR lies with TC Ops.
>
> The responsibility for the issue of exemptions from the Air Navigation Order 2000 or Rule 5 of the Rules of the Air Regulations lies with Civil Aviation Authority.'

A NSF approval for the pipeline survey was granted, in principle only, on 17 Nov 2010, serial number W008/2011, valid from 01 Jan 11 to 31 Dec 11. Special Instructions associated with the approval required that areas close to Heathrow had to be flown before 0530, or with reduced separation provided by the Air controller (visually) from Heathrow Tower. The helicopter operator was required to obtain tactical approval at least 30min prior to take-off from the TC Senior Watch Assistant (SWA) and the SWA was to contact Heathrow Tower when the NSF was activated. The LTC, MATS, Part 2, Section GEN-124, Paragraph 17.11.1.1, Handling NSF Flights, states:

'A Non-Standard Flight Operator will telephone the SWA [Senior Watch Assistant] to activate a Non-Standard Flight. The SWA is to locate the relevant NSF documentation from the NSF folders or drawers as necessary. The SWA shall confirm all pertinent information with the operator, such as time, callsign, area of operation and requested level.

The SWA shall take the NSF documentation together with the confirmed details to the relevant GS (Group Supervisor) who shall be apprised of the request. The GS should not approve the request without taking into account the likely impact of the flight on Swanwick operations, sector workload and only following consultation with other units as appropriate. Restrictions should be applied as required.

The SWA shall inform the operator of the status of the approval and inform them of any restrictions that may have been applied by the GS.
If the flight intends to operate within 4NM of Heathrow, Gatwick, Stansted, Luton or London City (excluding helicopter pleasure flights using the H4) the SWA shall inform the relevant Tower SUP of the NSF number. If the Tower SUP is unable to locate the NSF documentation, the SWA shall fax the NSF when requested.

Once this process has been completed, flight progress strips are to be prepared by the SWA and passed to the relevant sectors. If applicable, the SWA shall enter a code-callsign conversion into the CDDS. [Code Callsign Distribution System].

On completion of the NSF task, the NSF documentation shall be returned to the SWA who will re-file it.'

The Heathrow Manual of Air Traffic Services (MATS), Part 2, Section 1-105, Paragraph 17.13.1, Non Standard Flight Notification Forms, States:

'A non Standard Flight Notification proforma is used to give basic information on Aerial work, Parachute Displays, Calibration, etc and will normally have attached to it a sketch diagram and, if received by TC Operations from the operator, copies of appropriate CAA Exemptions/Permissions. Electronic copies of NSFs that affect Heathrow ADC will be held in a folder on the VCR Supervisor's PC.

Non Standard Notification forms include a Serial Number for ease of reference.

The proforma includes dates, times, altitudes and aircraft details.

The NSF proforma is typed and will not be hand amended. A NSF is not to be approved by the operational watch without the proforma produced by TC operations.'

The BH06 Helicopter Operator complied with the notification procedures and obtained tactical approval for the flight. The helicopter entered CAS at Oxshott East and was routed via Helicopter route H9 to hold to the S of Bedfont, which is designated as a helicopter reporting and holding point to the S of Heathrow Airport.

Heathrow were operating on RW27L for arrivals (AIR S arrivals) and RW27R for departures (AIR N departures). Just prior to the reported Airprox there was a handover of the AIR S controller and the VCR Supervisor positions. The AIR N controller remained in position.

CAA ATSI had access to RT and Radar recordings together with pilot and controller and unit written reports. The VCR Controllers were operating in adjacent positions and therefore coordination was not recorded.

METAR EGLL 041520Z 22007KT 9999 FEW017 BKN033 04/01 Q1012 NOSIG=

At 1524:03, the VCR Supervisor received a telephone call from London TC (SVFR) who advised, *"….I've got a pipeline coming your way."* The VCR Supervisor was not aware of the exact requirements and requested the serial number of the flight. At 1527:15, SVFR called the Supervisor with the serial number W008/2011. SVFR agreed to fax the Supervisor a copy of the NSF notification. This comprised two pages, the approval notification and attached map. The Supervisor received a faxed copy of the NSF map, but this was not regarded as a very good copy. The ATSU written report indicated that the Supervisor was familiar with the pipeline to be inspected and judged visibility was good. The Supervisor indicated to TC SVFR that he was happy for the NSF flight to go ahead.

The ATSU report indicated that the Supervisor notified the AIR S controller about the NSF helicopter. An appropriate gap in the arrival traffic was agreed and it was understood that the BH06 helicopter would route to the upwind end of RW27L then over the fuel farm.

At 1534:29, the VCR Supervisor called the Group Supervisor (GS) Airports and agreed a 6nm gap in the arrival sequence to accommodate the crossing of the BH06 across the upwind end of RW27L. The Supervisor was unable to find the electronic copy of the NSF notification file and again requested confirmation of the NSF serial number. The GS Airports confirmed the number as W008/2011 and the Supervisor then confirmed receipt of the second faxed sheet of the NSF notification.

At 1538:59, SVFR contacted AIR S to pass the inbound details on the BH06, which was S of Heathrow, squawking 7031 and routeing to hold S of Bedfont. AIR S confirmed the requirement for a 6nm gap in the arrival sequence.

At 1540:03 the BH06 pilot called Heathrow Tower (AIR S) and reported passing the Queen Elizabeth Reservoir following helicopter route H9. AIR S instructed the BH06 flight to hold S of Bedfont.

At 1542:24 the BH06 pilot reported approaching Bedfont with landing traffic in sight. AIR S advised the BH06 flight to hold S of Bedfont until there was a reasonable gap and then asked the BH06 pilot to confirm that when completing the intended loop to the fuel farm, it would be a quick there and back. The pilot confirmed this was the case, *"affirm all we need to do is we're literally we would come in and immediately turn south and come straight back across the er two seven left."* Air S replied, *"….If you hold south of Bedfont, I'll give you a call back very shortly."*

The ATSU unit report indicated that:

> 'a) the off-going AIR S controller could not remember discussing the plan with the AIR N controller.
>
> b) the AIR N controller recalls the off-going Supervisor informing AIR S Arrivals of the impending pipeline flight and that a Black and White copy of the Map was briefly shown to AIR N. The AIR N controller stated that he was informed that the helicopter would be remaining S of RW27R but wasn't told where it would be going. The Air N controller considered that there was no need to suspend departures and considered that any other relevant information that would potentially make this unsafe would have been passed to him.'

As the BH06 approached Bedfont a hand over of the Supervisor position took place. The ATSU written report indicated that the oncoming Supervisor considered that there was no requirement to talk to the AIR controllers as the arrivals gap had, 'already been sorted out.'

At 1545, whilst the BH06 was holding at Bedfont, AIR S handed over to the oncoming controller and trainee. The unit report indicated that as part of the handover brief the oncoming controller was shown the map, which detailed the route and advised that the helicopter would follow the Duke of Northumberland River just like an E'ly crossing. However the oncoming controller understood the intention was to allow the BH06 to "route from Bedfont straight up to the fuel farm and straight back

again". The oncoming controller also commented that the black and white copy of the map was poor.

The oncoming AIR S controller planned to cross the BH06 across the mid-point of RW27L and in preparation decided to move the helicopter W of Bedfont ready for the crossing. At 1546:36, AIR S instructed the BH06 flight, *"…remain south of two seven left and hold over the cargo hangar."* This was acknowledged, *"Will hold over the cargo hangar (BH06)c/s".*

At 1545:39, AIR N gave the A319 flight a clearance to line up RW27R.

At 1547:31 the A319 flight was given take off clearance, *"(A319)c/s two seven right clear for take off wind two two zero degrees seven knots."* The A319 pilot replied, *"Clear take off (A319)c/s."*

At 1547:34 the BH06 flight was instructed, *"and (BH06)c/s you can cross two seven left now and hold at the fuel farm remain south of two seven right."* The BH06 pilot replied: "*crossing now and will remain south of two seven right (BH06)c/s thank you."* The ATSU written report indicated that the AIR S controller called to the AIR N controller "heli's crossing now" and AIR N responded with a thumbs up. At this point a new QNH 1011 was broadcast.

The ATSU written report indicated that AIR N observed the helicopter leaving the BA Cargo shed and was surprised at the speed the helicopter carried out the crossing. At 1548:03, because the A319 had already commenced the take off roll, AIR N elected to make a general broadcast, *"all stations helicopter approaching er f-from the south will remain south of two seven left."* (This was a slip and should have been transmitted as 27R.)

The ATSU written report indicated that both AIR S and N considered that the helicopter appeared to be fast as it disappeared O/H the Tower. There was no prior coordination between AIR S and AIR N regarding the management of departures, the passing of TI, the responsibility for applying visual separation or the wake turbulence requirements. The BH06 was next observed in a sharp L turn adjacent to the departing A319.

At 1548:22 the BH06 pilot reported, *"and (BH06)c/s when you're ready we er we're ready to cross back two seven left."* The Tower controller replied: *"and (BH06)c/s that's approved cross two seven left now.*"

At 1548:38 radar recording showed the BH06 at the most N'ly point of the loop in a L turn passing through a W'ly heading, indicating altitude 700ft. The A319 was indicating altitude 800ft and was positioned 0·2nm (370m) N of the helicopter.

At 1549 the BH06 pilot reported clear of the landing RW (27L) and at the same time the Departure controller asked the A319 pilot, *"er did you think that er helicopter was a bit adjacent there,"* and the A319 pilot responded, *"He was a bit close for comfort yeah."* Both the Departures controller and the A319 pilot considered that they might both file a report.

The ATSU written report indicated that after the incident, when asked what could have been done differently, the Supervisor, AIR S and N controllers made the following comments:

Supervisor
Suggested that in future, pipeline or other similar details should call the VCR Supervisor before departing in order for the Supervisor to fully understand what they want to do, so the Supervisor can brief the helicopter pilot on current operations/conditions and subsequently there would be ample time then for the Supervisor to appropriately brief all controllers who would be involved. He stated that this would also allow them to plan their flight better instead of being turned away due to the met conditions not being appropriate.

AIR S

In hindsight departures should have been stopped. The location of fuel farm was now very close to 27R. The controller had seen many pipeline surveys around the airfield but none that came between the runways.

AIR N
Next time departures would be stopped. Had an adequate briefing been given this would have been the obvious course of action but the controller was not aware of all the facts. The controller hadn't seen that particular non-standard pipeline helicopter detail before in which it operated between the runways. The controller also stated that he felt a more in-depth briefing should be required before allowing the activity to take place, as it isn't a routine occurrence.

As a result of the unit incident investigation, Heathrow ATSU made the following recommendations, which have been accepted for implementation by the end of June 2011.

It is recommended that NATS procedures are amended to ensure that the Heathrow Tower Supervisor is involved in the approval process for the flight before the flight gets airborne when the detail involves activity within 4nm of Heathrow.
Benefit: This will ensure that the Supervisor has an opportunity to discuss the impact on the operation before the flight is approved.
Closure Criteria: Terminal Control Operations are made aware of the request to amend procedures to require that the Heathrow Tower Supervisor is to be involved in the approval process for the flight before the flight gets airborne when the detail involves activity within 4nm of Heathrow.

It is recommended that Heathrow Operations work with Terminal Control Operations to revise the assessment process for NSF approvals, including the assessment of the impact on the Heathrow Tower operation.
Benefit: To ensure that a proper assessment of the likely impact on the Heathrow Operation of a Non-Standard Flight is conducted.
Closure Criteria: A robust process for assessing the impact on Heathrow Operations is put in place.

It is recommended that the Heathrow Safety Department raise awareness on the unit of incidents that have occurred at, or close to, the time of handing over of positions.
Benefit: To highlight to controllers that if they are dealing with a complex situation that they should consider whether it is an appropriate time to handover or whether to delay the process.
Closure Criteria: Safety Department will raise awareness on the unit via suitable means.

The Helicopter Operator has, since the incident, advised that there is no longer a future requirement to conduct pipeline survey between the dual runways at Heathrow Airport.

The BH06 pilot complied with the ATC clearances and followed the looped route correctly crossing RW27L and then turning L at the Northern fuel farm situated 370m S of RW27R. Had the A319 departure been delayed or the crew been made more situationally aware of the helicopter operation, with appropriate and timely TI, it is likely that the Airprox would not have occurred.

CAA ATSI considered that the primary causal factor was a breakdown in the NSF approvals process, which did not allow sufficient tactical consultation or planning for the unusual nature of the helicopter survey route and the significant impact this would have on Heathrow operations. It may have been more appropriate for the pilot to have received a personal brief from the Heathrow VCR Supervisor. The NSF application requires 21 days notice. However, prior clearance on the day to activate the NSF is normally requested 1hr before departure. The NSF notification notice did not include any description about the specific requirements or impact that the flight would have on Heathrow operations. The notification provided by SVFR to the Heathrow VCR supervisor, 24min before the Airprox occurred was not considered sufficient to allow the Supervisor to properly assimilate the requirements, formulate an appropriate plan and then brief operational controllers.

The following errors and misunderstanding were considered to be contributory factors:

The missing electronic copy of the Tower NSF notice caused a delay in the operational assessment and appropriate plan and briefing. The faxed black and white copy was considered to be poor.

The handover of the Supervisor and AIR S positions just prior to the incident was unfortunate. With more timely notice and awareness the handover should have been delayed.

There was a lack of awareness amongst the VCR controllers regarding the precise requirement of the BH06 and the impact on Heathrow operations. Neither of the AIR controllers on duty at the time of the Airprox had previously seen a pipeline helicopter operating between the dual RWs at Heathrow; and therefore a lack of familiarisation and awareness of the operation caused a misunderstanding.

There was a lack of awareness regarding the distance of the Northern Fuel Farm from RW27R. There was no discussion about stopping departures from RW27R, the visual separation and wake turbulence requirements, or the passing of TI to departures.

There was some confusion regarding the helicopters routeing. The offgoing AIR S controller considered that the helicopter would route to the upwind end of the RW following the E'ly helicopter route. The oncoming AIR S controller considered that the BH06 would route direct from Bedfont across the RW.

AIR N had not been properly briefed and believed that the BH06 was to remain S of Runway 27R and further considered that there was no requirement to stop departures.

Because the A319 flight had commenced take-off, AIR N considered that the passing of TI would be distracting and therefore elected to pass a general broadcast. However the controller made a slip and stated the helicopter would remain S of RW27L instead of 27R. This may have resulted in the crew of the A319 being unaware of the helicopters intentions and being suprised when the helicopter was observed just S of RW27R.

The routeing and height of the BH06 resulted in the helicopter dissappearing from the view of both controllers for a short period. This together with the speed of the helicopter and sharp L turn over the Northern fuel farm gave the controllers an impression that the helicopter was adjacent to the A319. Radar recording showed that at the closest point, the helicopter was 370m S of the A319.

CAA ATSI are content with the recommendations made by the Heathrow ATSU.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Irrespective of the supervisory issues leading up to this incident, it was clear both Air S and Air N had been unsure as to the specific task to hand. Air N had decided, from the information available, that departures from RW27R need not be suspended during the BH06's operation in the Heathrow central area. Air S had cleared the BH06 to cross RW27L and told its pilot to remain S of RW27R, which was acknowledged. At the same time Air N cleared the A319 for take-off. Air S then told Air N of the BH06's crossing which Air N acknowledged but as the A319 had already commenced its take-off roll, Air N elected to make a broadcast instead of specific TI to the A319 flight. However, it was unfortunate that Air N inaccurately stated that the helicopter would be remaining S of RW27L, not RW27R as intended. This had undoubtedly led to the A319 crew's surprise when, shortly after their take off, the BH06 appeared in their forward LH quarter with its intentions unknown. Members agreed that had the A319 crew been made aware of the BH06's intentions, it would have allayed

their concerns during a critical phase of their flight. The BH06 pilot had complied fully with the clearances issued and had sighted the A319 both prior to, and during, its departure. Although the BH06 was perceived by the A319 crew to be in confliction, the helicopter was always going to remain S of RW27R during its Fuel Farm inspection. Ironically it was the expeditious clearance issued by Air S that allowed the BH06 pilot to perform this manoeuvre in one continuous L turn and contributed much to the concern of the Air N and S controllers. The Board concluded that following the inaccurate broadcast by Air N, the A319 crew was concerned by the BH06's proximity but that the sightings by both crews and action taken by the BH06 pilot ensured that any risk of collision had been removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Following an inaccurate broadcast from Air N, the A319 crew was concerned by the proximity of the BH06.

Degree of Risk: C.