



PROMETHEUS
FORENSIC SERVICES

Method critical statement for the fire test of Dr. Kurt Zollinger

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PROM026/14

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2nd December 2016

Bachelor of Science in Biological Sciences and a Master of Science in Forensic Science. Practising forensic scientist since April 1998, specialising in the investigation of fires and related incidents since January 2000.

Received training in the area of Fire Investigation and undergone competency assessment against defined standards for reporting in this area. Formerly a Senior Scientist in the Fire Investigation Unit at the London Laboratory of the Forensic Science Service. Currently a Fire Investigator and Director at Prometheus Forensic Services. Investigated over 500 fire scenes and carried out laboratory examinations on items from many more fire-related cases. Holds Sweet and Maxwell Checked Expert Witness Status 2012, part of the National Crime Agency (NCA) Expert Advisor Database and was an assessor for the Council for the Registration of Forensic Practitioners (CRFP) until its demise in 2009. A Member of the Chartered Society of Forensic Sciences.

Prometheus Forensic Services holds Home Office subcontractor approval for Fire Scene Investigation.

Signature

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DECLARATION

- I. I understand that my overriding duty is to the court rather than to the parties that instruct me, and I have complied with that duty. I have set out in my report what I understand from those instructing me to be the questions in respect of which my opinion as an expert is required.
- II. All of the matters on which I have expressed an opinion lie within my field of expertise.
- III. The interpretation and conclusions are dependent upon the information provided; if this should change, it may be necessary for me to revise my interpretation and conclusions. Any such considerations are best carried out prior to the trial date.
- IV. To assist the Court, conclusions may be drawn which are a consequence of the writer's experience, knowledge, consideration and observations. Such conclusions are those of the writer. It is for the court to weigh the value of such evidence.
- V. I have no connection with any parties, witnesses or advisors, which could lead to a conflict of interest with regard to the matters under consideration on this case.
- VI. I confirm that I have not entered into any arrangement whereby the amount or payment of my fees is in any way dependent upon the outcome of the case under investigation.

STATEMENT OF TRUTH

I confirm that in so far as the facts stated in my report are within my own knowledge, I have made clear which they are and believe them to be true; and that the opinions expressed represent my true and complete professional opinion.

INTRODUCTION

1. We were requested by The Initiative to examine the evidence collected to date with reference to the fire investigation surrounding the death in police custody of Mr Oury Jalloh. On the 15th June 2015 we produced a report outlining those findings which were presented at a press conference in Berlin, Germany on the 27th October 2015.
2. We understand that a new fire investigation has begun involving an external investigator from Switzerland. We have been told that this will focus on tests relating to the combustibility of pieces of mattress of the type used at the time of Mr Jalloh's death.
3. On the 9th August 2016 we produced a letter outlining our recommendations for the planned small and full scale burning tests.
4. We have been asked to review and comment on the validity of the full scale burning test that was carried out on the 18th August 2016. We have been provided with a number of images in relation to the full scale test and a recollection of the test provided by Mr Tomassi who was in attendance. We have not received any information regarding the small scale fire tests that we were told preceded the full scale test or, to date, any official information regarding the full scale test such as an official unedited video of the test, details of how the fire was ignited and a complete breakdown of the materials used.

BACKGROUND

Burning damage and length of burn information

5. On the 7th of January 2005 Mr Oury Jalloh had been brought to Dessau Police Station after allegedly resisting arrest and causing criminal damage. He was placed in detention cell 5 and restrained as officers were apparently concerned about Mr Jalloh being under the influence of drugs and alcohol. It has been alleged that Mr Jalloh refused to give a blood sample and hit his head against a table.
6. At approximately 12:05pm on the 7th January 2005 there was a fire in detention cell Number 5 at Dessau Police Station, Wolfgangstrasse 25, Dessau.
7. In the video taken after the fire there was smoke staining evident on the corridor walls leading down onto the level where the detention cells were located. Smoke staining on the door at the end of the corridor off which spurred cell 5 (where Mr Jalloh was held) indicated that it had been open during the fire. The door to cell 5 had smoke staining across the upper parts of the interior surface of the door and on the hinge side of the door surround. This smoke staining indicated, in my opinion, that the door for cell 5 had been open for the majority of the fire's duration. In addition the smoke staining on the cell door was a similar level to that in the corridor outside. The smoke staining inside cell 5 was only at floor level in the vicinity of the mattress, suggesting that the door had been opened at an early stage of smoke deposition in the room.
8. The lowest level of burning within the cell was located on and around the mattress on the left side of the room. Therefore the patterns of burning indicated that the fire had started and been mainly confined to the mattress, Mr Jalloh's clothing and body. All the combustible items in the area had been burnt to some degree including the plastic shackle guards. The mattress was burnt across its entire surface. These were the only endemic combustible materials in cell 5.
9. Mr Jalloh was 170 cm tall and had a body mass of 55 kilograms (kg). His body was 100% covered with mostly fourth degree burns and a very isolated (back) area of third degree burns. The burn damage on the right side of Mr Jalloh's body was more developed than on the left (Bratzke 2nd post mortem) which could indicate that the fire started on the right side. Dr Portz appeared to agree and indicated in his report that

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the fire started in the middle of the mattress near the cracked tile in the area where the wall and platform meet on the body's right side. There was burn induced amputation of the ends and middle segments of the fingers on the left hand. The post mortem images indicated that there were also circular marks on the left wrist of Mr Jalloh possibly where the shackle had been tightly fastened. Dr. Bohnert's report dated 1st December 2011 indicated that the burn damage on the corpse could be explained with a fire duration of an estimated half an hour.

10. The post mortem photograph 1 (*Abb 2: Hochgradige Brandzehrung an der Korperruckseite*) showed a view of Mr Jalloh's back. There appeared to be a protected area of skin which extended from his right shoulder towards the middle of the back and down to his waist. His right buttock also appeared to have been partially protected. These areas of protection indicated, in my view, that Mr Jalloh had been lying on his back from the early stages of the fire.
11. The detention cell comprised tiled walls and a tiled floor. A report by Dr. Portz indicated that the dimensions of the room were approximately 450 centimetres (cm) (length) by 240 cm (width) by 255 cm (height). An entrance door gave access to the cell; its dimensions were 209 cm (height) by 94 cm (width). There was a window in the cell which remained closed during the incident; its dimensions were 108 cm (height) by 90 cm (width) by 30 cm (depth). The platform was positioned against the left wall approximately 154 cm from the front wall. The platform dimensions were approximately 203 cm (length) by 90 cm (width) by 8 cm (height). The mattress on the platform had the dimensions 200 cm (length) by 100 cm (width) by 9.4 cm (height); so the mattress would have been overhanging the side of the platform. There were no electrical sockets in the detention cell.
12. The timing information available indicates that the fire was not initiated by a smouldering ignition source such as a lit cigarette. The burning time between when the smoke detector activated (12:05pm according to Officer Hopfner) and when Herr Schubert entered cell 5 appears to be short – a matter of minutes. It takes at least 20 minutes for a smouldering fire to undergo a transition between a smouldering fire and a flaming fire and normally there has to be a change in the conditions in the room such as increased ventilation. The opening of the cell door provided the fire with more oxygen and as such increased the speed of the fire. According to Dr. Portz the

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last time Mr Jalloh was seen alive was at 11:45am. I understand that the fire service extinguished the fire at 12:35. According to Officer Hopfner the smoke detector activated at 12:05 and tests have shown that the smoke detector would activate after 56 seconds of a fire starting. Therefore the maximum time the fire was burning for was around 30 minutes. If the fire had smouldered for the entirety of its duration then I would expect to see a localised area of burning not the widespread damage seen across the mattress. Flames were seen during the early stages of the fire by Officer Mobes.

BURNING TESTS 18TH AUGUST 2016

13. The information regarding the burning test on the 18th of August 2016 is from members of The Initiative as at the time of writing this report Prometheus Forensic Services or our clients have not been furnished with any 'official' documentation or recordings of the tests. In addition we understand that a number of small scale burning tests were carried out prior to the large scale test and again we do not have any information regarding the outcomes of those which we assume informed the setup of the large scale test.
14. Prometheus Forensic Services were not involved with the planning or implementation of the small or large scale burning tests in relation to this case. However we were asked by The Initiative to produce a letter outlining our recommendations for the burning tests, recommendations for further testing were also outlined in the original report we produced.
15. As we do not have any information regarding the small scale tests they will not be discussed in this document.
16. When undertaking burning tests in order to try test a hypothesis then the number of variables concerning the cause of a fire must be kept to a minimum in order to accurately replicate the conditions at the time of the incident. The more variables that exist in the 'test burn' then the less reliable the results obtained will be.
17. We understand that the replica cell deviated from the original cell parameters in that it was of lightweight construction rather than masonry, there were no tiles on the walls, ceiling or podium and the whole room was preheated to 37°C rather than being

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at ambient temperature. At this stage I do not know the exact dimensions of the replica cell however it would be proper that they exactly matched those of the original cell 5.

18. Cell 5 had a window however this was closed throughout the duration of the fire. We understand that the area outside the test cell had a window which was open throughout the burning test. If this was the case then this would have increased the oxygen into the room and when the door was opened after 6 minutes created a flow of oxygen into the test area. It appears from some of the video footage that we received that the test area was in a high rise building. If the test area was at a height then this would create a wind effect that would not be analogous to a cell in a basement. An increased air flow would have caused the fire to burn more rapidly and as such renders the test invalid.
19. The mattress that was used in the test burn did not cover or overhang the podium. The mattress also appeared to be away from the wall. There were cuts in the test mattress next to the dummy however according to the cell cleaner, Ms Sigrid Zeise, the mattress was undamaged prior to the incident. There is no evidence to suggest that the mattress had or had not been damaged by Mr Jalloh prior to the fire, therefore it is an assumption based on no physical or witness evidence by Fire Inspector Steinbach that the interior foam of the mattress had been exposed. Although there is no basis for such an assumption it has been replicated in the test burn. A large piece of mattress cover was cut out near the wall (approximately 20cm x 20cm). In addition the cover was cut in two places in the upper sections of the mattress. This would mean that if the fire reached the upper section of the mattress it would spread more easily in this area. The assumption that as the mattress was not damaged when cleaned but was at the time of the fire is that Mr Jalloh created the damage. How do the testers purport that Mr Jalloh created this damage to the extent and position in the test given his level of restraint?
20. We do not know if the mattress used in the test burn was manufactured from the same materials as the original mattress in cell 5. If different materials were used to construct the mattress then this could have an effect on its burning characteristics.
21. There is no information regarding the ignition of the test burn as we understand the operatives setting the fire stood in front of the camera. This is another critical aspect

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to the burn which, depending on how and where the fire was started, could affect the outcome of the burn.

22. The overall test burning time was 36 minutes and there was no intervention to extinguish the fire. This is another variation from the fire in cell 5 as the fire was extinguished after approximately 30 minutes.
23. We understand that the dummy was raised from the mattress after approximately 1 minute into a sitting position for 3 minutes. This allowed the fire to spread beyond the right arm before the dummy was laid down again. There is no information pertaining to the movements of Mr Jalloh at the time of the fire and as such this movement is a further assumption. We have limited information with respect to the construction of the dummy. However we do not know how much it weighed, it should have been a similar weight to Mr Jalloh so that the protected areas under the buttocks and left arm could be replicated. The dummy had silver foil over some of its exposed surfaces such as the head, feet and arms. This would reflect heat from the fire rather than absorb it as a human body would in the initial stages of the burn. In addition the skin used was from a pig which has far tougher skin than a human and as such does not burn in the same way. The exposed subcutaneous fat from the pig skin would render forming a fuel which would wick into the clothing on the dummy at a greater rate than an undamaged human under the same fire conditions. Trotters, which were used for hands and feet, are completely different anatomically.

RESULTS OF THE TEST BURN

24. The results of the test burn did not replicate the damage seen in cell 5. This is in part most likely to be due to the large amount of variables discussed earlier in this report. The smoke staining in the test cell did not get down to the podium level as it did in cell 5 but was uniformly approximately 30 centimetres from the floor. In cell 5 the smoke staining around the room was between 2.5 and 3 tile heights from floor level apart from at the podium where it reached the floor.
25. The upper sections of the mattress and mattress cover remained above the dummy head area and beside the arm/head on the right of the dummy. The majority of the mattress in cell 5 was damaged.
26. The right trotter is not burnt.

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27. Clothing remains on the upper part of the trunk of the dummy, around the neck and under the arms. There was also fabric remaining around the groin area.
28. Taking the damage present in the test burn and comparing it with the damage in cell 5 it is clear that the fire test did not replicate the damage seen in cell 5 and therefore other hypotheses and tests must be explored and undertaken.
29. The majority of the recommendations made by Prometheus Forensic Services were not carried out in the tests and as such in our view the fire test was not a valid reconstruction of cell 5.
30. It may be worth considering a computer model to carry out a series of virtual tests where the variables can be modified and reset for many possibilities without the setup of a live test each time. Once a potentially valid hypothesis is identified from the computer model then a live test could be carried out to confirm.

SUMMARY

31. In an incident involving the death of a human being the wishes of the deceased family and friends ought to be given the highest respect and consideration by the state. In essence the state ought to work for the deceased family and therefore an open and honest examination of the known facts of the case and all hypotheses of how the fire started ought to be carried out and fully explored so that the family and friends can, as far as possible reasonably understand how the deceased died. In the case of Mr Jalloh's death in police custody, it is our view that the examination of the evidence from the outset has been flawed. The withholding of information regarding the small scale burns, the scientific method, the materials used and the technical and analytical data further enhances this opinion. Perhaps if a more open and honest approach was taken to the examination of the evidence in the death of Mr Jalloh then a more reasoned explanation could be found. At present no meaningful conclusions can be drawn from the results of the test burn as the conditions inside cell 5 at the time of the fire in January 2005 were not replicated. It is our view given the large numbers of variables that the results are invalid.
32. Even though the variables have been changed in what appears to be an effort to provide the maximum fire damage in the test cell, such as having a flow of air in the

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room and cutting various parts of the mattress, the resultant fire damage did not replicate the damage in cell 5. Therefore assuming this fire was started by the application of a flame to some exposed mattress foam then it does not provide the full answer as to how the fire was started in cell 5. Given this result the introduction of an ignitable liquid onto the mattress must now be considered.