SHERIFFDOM OF SOUTH STRATHCLYDE, DUMFRIES & GALLOWAY AT AYR

[2022] FAI 24

AYR-B105-21

DETERMINATION

BY

SHERIFF MHARI S MACTAGGART

UNDER THE INQUIRIES INTO FATAL ACCIDENTS AND SUDDEN DEATHS ETC (SCOTLAND) ACT 2016

into the death of

JAMES STEVENSON

Ayr 17 June 2022

The Sheriff, having considered the evidence led and information provided at the Inquiry, determines, in terms of Section 26 of the Inquiries into Fatal Accidents and Sudden Deaths etc (Scotland) Act 2016 ("the Act"), that:

1. In terms of Section 26(2)(a) of the Act, James Stevenson, born 27 January 1940, who resided in Dalrymple, died on 30 December 2019 at the Queen Elizabeth University Hospital, Glasgow.

2. In terms of Section 26(2)(b) of the Act, the accident which resulted in the death of James Stevenson occurred at the premises of JJL Groundworks (Ayr) Limited at MacManniston Cottages, Dalrymple, Ayr, KA6 6BT on 18 December 2019 at approximately 07.00 hours.

3. In terms of Section 26(2)(c) of the Act, the cause of death was multiple injuries sustained as a consequence of a blast/explosion.

4. In terms of Section 26(2)(d) of the Act, the accident was an explosion and fire within a steel shipping container at JJL Groundworks (Ayr) Limited, McManniston Cottages, Dalrymple, Ayr. The cause of the fire cannot be determined.

5. In terms of Section 26(2)(e) of the Act there were no precautions which could reasonably have been taken, and had they been taken, might realistically have resulted in the accident being avoided.

6. In terms of Section 26(2)(f) of the Act there were no defects in any system of working which contributed to the death or the accident causing the death.

7. In terms of Section 26(2)(g) there are no other facts relevant to the circumstances of the death.

8. The Sheriff makes no recommendations in terms of Section 26(1)(b) of the Act.

NOTE

Introduction

[1] This Inquiry was held under Section 1 of the Act. It was a mandatory Inquiry in terms of Section 2(3) of the Act as Mr Stevenson was, at the time of the accident which

resulted in his death, engaged in his employment. A hearing with parole evidence took place on 14 June 2022 and submissions heard on 16 June 2022.

[2] Ms Guy, Procurator Fiscal Depute, appeared for the Crown. Ms Toner, Advocate, appeared on behalf of the firm of JLL Groundworks (Ayr) Limited, the employers. There was no other appearance.

[3] A joint minute was entered into by the parties and, at their invitation, I interponed authority thereto. Parole evidence was led from Christine Marie Worsley, retired Watch Commander, Scottish Fire and Rescue Service and Neil Jackson, retired Watch Manager, Fire Safety Department, Scottish Fire and Rescue Service.

FINDINGS

Background

[4] JJL Groundworks (Ayr) Limited ("the company") is involved in general ground repairs and building work. They are located at MacManniston Cottages, Dalrymple, Ayr, KA6 6BT. The company employs around eighty employees, Mr James Stevenson ("Mr Stevenson") was one of them.

[5] The company is based at a remote site near Dalrymple, Ayrshire. There are multiple areas to the premises, one of which is a small yard, approximately 500 metres from the main office. At the time of the accident the small yard contained a number of items of machinery and material associated with groundwork and included two shipping containers and a workshop. The shipping container nearest to the workshop

was used by Mr Stevenson to shelter from the elements and to have his lunch. It was known as his "howff".

[6] On 6 October 2017 Mr Stevenson signed a statement of employment terms and conditions. Clause 19 of same prohibited smoking in the company workplace, any sites or company vehicles. The company handbook declared the sites, offices, premises, vehicles, customer sites and all work areas to be non-smoking and allowed smoking only in designated areas. Further, the company had a policy on smoking, namely that it is prohibited throughout the entire workplace with no exceptions. The gates to the yard of the company premises has signage declaring it a no smoking area. The company provided a designated smoking shelter at the bottom of the yard opposite the office. Mr Stevenson was known to be a heavy smoker. The company accepted that he was likely to have been smoking on site.

[7] Mr Stevenson was normally the first employee to arrive at the yard each morning, getting there at around 06.30 hours. His normal practice was to unlock the gates to allow the drivers access to the yard. He was also responsible for closing over the gates at night and locking them, usually around 17.00 hours. Due to his age, he no longer left the yard during the day and was often left alone until the close of business. The managing director's father, Mr Norman Lymburn, brought Mr Stevenson his lunch each day. Prior to leaving the yard each evening, Mr Stevenson closed over the steel doors to his container ('his howff'), inserted a padlock through the keyhole latch, but never locked it. This is assumed to be the practice he followed on leaving the yard at approximately 17.00 hours on 17 December 2019.

The events of 18 December 2019

[8] At approximately 07.00 hours on 18 December 2019, the managing director of the company, Mr James Lymburn arrived at the offices of the company. He received a telephone call from his wife to ask if he had heard a loud bang, as their son had heard one. He had not. His father, Norman Lymburn, left the office to take Mr Stevenson his lunch, as normal.

[9] At approximately 07.20 hours an employee of the company, Mr Alex Knox, arrived at the yard. The gate was unlocked. He could see Mr Stevenson's van parked near to the shed and containers. He then saw a bright blinding light and observed Mr Stevenson's "howff" to be on fire. The fire had spread to the adjacent shed.

[10] Mr Knox attempted to extinguish the fire by throwing sand into the container. Emergency services were called. Mr Stevenson was lying on top of a pile of scrap metal around fifteen to twenty feet from the entrance to his "howff". He was on his back, his high visibility vest was melted down the front of his chest, his face appeared burned and covered in soot. Mr Stevenson appeared to be in great pain and was mumbling but was unable to speak.

[11] The first call to Scottish Fire and Rescue Service was received at 07.43 hours. A pre-determined attendance consisting of one Aerial Rescue Pump (R01D1) and one Rescue Pump (R01A1) was mobilised to the incident, with the first of these (R01A1) arriving at 07.57 hours. They were met with a well-developed fire within the container

and Mr Stevenson lying approximately five metres from the fire. He was receiving treatment from paramedics.

[12] Fire Crew Commander Frazer Davidson assumed the role of incident commander. He observed that the right hand door to the container was open, the sliding door to the large workshop was open and a diesel generator was running adjacent to the container with extension cables running to the container on fire and the workshop.

[13] Firefighters initially used hose reel jet through the open right hand door. Multiple seats of fire could be observed inside the container together with what appeared to be partially burned rubble or debris on the floor. The second appliance (R01D1) arrived and Crew Commander Davidson assumed the role of incident commander. He, along with an employee of the company attempted to switch off the generator. The key switch was not working and the generator was left running.

[14] The fire was extinguished by 09.08 hours.

[15] The first call to Scottish Ambulance Service was received at 07.47 hours and paramedics attended arriving shortly before the Scottish Fire and Rescue Service. They found Mr Stevenson lying on top of a pile of metal. He was conscious, breathing, responsive and able to talk. He was noted to have burns to his face and a wound on his forehead. His clothing was significantly burnt and parts of it still smoking. He had an obvious deformity to his leg which was assessed as a significant fracture. Emergency treatment was administered at the scene and the Helimed Air Ambulance summoned. It arrived at the scene at around 08.40 hours. An emergency anaesthetic was administered

to Mr Stevenson at the scene, together with oxygen therapy, transfused blood, intravenous fluids and pain relief. Mr Stevenson was then taken by Helimed Air Ambulance to Glasgow Airport and from there by road ambulance to the Accident and Emergency Department at Queen Elizabeth University Hospital.

Injuries sustained and treatment

[16] Mr Stevenson arrived at Queen Elizabeth University Hospital Emergency Department at 10.31 hours. He was found to have suffered burns to his face, hands and legs, multiple bone fractures including cervical spine and distal femur. He also had a pneumothorax. He underwent resuscitation and stabilisation of his bony injuries and burns by the orthopaedic and plastic surgical teams respectively. He had injuries around his eye and was seen by ophthalmology. His lower limb was stabilised with an external fixator and his burns were addressed by the plastic surgical team. He remained critically unwell and over the following ten days in the Intensive Care Unit made slow progress. He had a persistent air leak from his chest drain and remained unconscious after the removal of sedation. It was felt that given the severity of his injuries, the ongoing need for more surgical intervention and his comorbidity that he was unlikely to regain a functional status that he would wish to be returned to.

[17] On 30 December 2019, after discussion with Mr Stevenson's next-of-kin, treatment was moved to end of life care at 20.03 hours. A Do Not Attempt Cardio Pulmonary Resuscitation Form was completed, his medications were reviewed and inappropriate medications stopped, IV fluids were stopped, his feeding was stopped

and he was extubated. Mr Stevenson's life was pronounced extinct at 21.23 hours on 30 December 2019 by Dr C Robertson.

Cause of death

[18] A post mortem examination was carried out on 9 January 2020 by Dr Jon Coldeway, consultant pathologist and Dr Alison Gilchrist, Speciality Doctor in Autopsy Pathology. The cause of death was certified as: 1a: Multiple Injuries;
1b: Blast/Explosion.

Investigations – cause of fire

[19] Detective Constable Hugh Dempster of the Police Service of Scotland attended at the company's premises as Crime Scene Manager along with Police Scotland Forensic Support Services forensic scientist Jonathan Morris and Scene of Crime Examiner Kate White on 18 December 2019. Scottish Fire and Rescue watch managers Christine Worsley and Steven McLuskey attended in their capacity as Fire Investigators. Health and Safety inspector Lorna McIntyre also attended. A joint investigation was carried out by Police Scotland, Scottish Police Authority, Scottish Fire and Rescue Service and Her Majesty's Inspector of Health and Safety.

[20] The yard was photographed prior to any further disturbance of the scene. The container was visually examined by the fire investigators and the forensic scientist prior to clearing the destroyed property within the container. Approximately three feet from

the front door of the container, the wooden flooring was destroyed. It measured approximately 3ft by 3ft.

[21] Jonathan Morris produced a Forensic Services Report dated 22 January 2020 and which formed Crown Production number 6. In this report Mr Morris stated that during the excavation of the container a number of small, damaged aerosol-sized gas canisters were recovered, along with a number of electric heaters and a microwave, all of which had been damaged in the fire. The canisters, within the fire debris layer, had the appearance of having been damaged in the fire, and could be excluded as the source of the fire. In the absence of any power to the container (having been informed that the generator was not switched on) the electrical items in the container could also be excluded as the source of the fire. His conclusions in this report were that on the evening of 17 December 2019 Mr Stevenson had closed up the container. Prior to that a viable ignition source was left in the container, most likely as a result of the careless use or disposal of smoking materials. As a result of this a fire broke out which continued to burn overnight in a smouldering state, leading to a build-up of combustible gases. When the door to the container was opened by Mr Stevenson on the morning of 18 December 2019 there was significant increase in oxygen levels within the container causing ignition and subsequent explosion of combustible gases.

[22] Mr Morris produced a supplementary report dated 30 May 2022, being crown production number 39. The production of this report followed the author being given a copy statement of watch commander Davidson within which he had stated that the generator was still running. This contradicted the information Mr Morris had been

given when he initially attended at the scene. His opinion as to the fire development and subsequent explosion did not change as a result of this new information however, it caused him to reassess his conclusion with regards to the potential cause of the fire. Given this new information that the generator was on, he could not exclude the possibility that the initial fire, from which the smouldering fire ensued, was caused by an electrical fault, either in the cabling or in any energised electrical item in the container.

[23] Watch Commander Christine Worsley of Scottish Fire and Rescue Service produced a report dated 22 January 2020 and which formed Crown Production 7. Ms Worsley gave evidence to the Inquiry and spoke to, and expanded on, that report.

[24] She described the container as being constructed around a welded steel frame, the walls and roof fabricated from sheet steel pressed into a U shape for increased strength. Double doors were secured with locking bars and padlock. Small, high level vents in each corner allowed a limited amount of air to circulate within the container. The floor covering was timber beams fixed to steel crossbeams. The small vents meant the container was not well ventilated and would have allowed a smouldering fire within the container to continue over some time.

[25] In relation to the damage to the container as a result of the fire she reported that the side walls, roof and doors were distorted and bowed out. Fire damage was evident on the interior and exterior of the container. The entire contents of the container had been involved in the fire with items displaying various degrees of fire damage relative to their composition. There was also evidence of fire spread to the adjacent workshop.

[26] In terms of the development of the fire she explained that a fire requires three elements - a source of fuel, oxygen and the development of heat. If you remove any one of those elements then the fire will die down and eventually extinguish. However, if there is insufficient oxygen then the fire may die back but continue to smoulder and produce heat. If oxygen is then reintroduced, the fire will grow and develop rapidly.

[27] In this particular case, in her view, the fire originated within the container. Following ignition of the first fuel, combustible materials including the contents and structure of the container would have been involved due to fire spread. During the initial stages there would have been enough air/oxygen and fuel present to support a developing fire, however, due to the design and construction of the container, the amount of air and therefore oxygen available would be limited. Over time, the oxygen concentration would decrease, eventually reaching a level where there would be insufficient oxygen to support further fire growth. With a fall in oxygen levels the flames would die back but the presence of very hot materials, i.e. the contents and structure of the container would enable the fire to smoulder undetected until the arrival in the morning of the first person on site. It is likely that the action of opening the doors would have allowed a sudden influx of air to the container which would initiate a rapid, explosive reaction with the production of flame, intense heat and a pressure wave with enough energy to cause severe injury to anyone stood directly in front of the container.

[28] Fire damage was evident throughout the container. The entire contents had been involved in fire. On excavation, a microwave, fluorescent light, grill pan, electric panel heater, aerosol canisters, small butane type gas cylinders, a welder and assorted small

tools were identified within the debris. The aerosols and cylinders were fully fire damaged. They had been involved in the fire but were not the cause of it.

[29] A diesel generator was located alongside an adjacent container. Fire crews confirmed the generator was operating when they arrived on the scene, most likely providing power to the damaged container. She considered a number of potential causes of ignition of fire. The first was deliberate ignition. On arrival of Scottish Fire and Rescue personnel, the doors to the container were fully open. An unlocked padlock lay on the ground in front of the container. Site employees informed the police that the container door would be closed and bolted at the end of the working day. The padlock would be inserted into the hasp but not locked, leaving the container insecure. There was no evidence from police of site owners to suggest criminality and therefore deliberate ignition was discounted.

[30] She considered accidental ignition due to electrical fault. Power to the container was supplied by a diesel generator sited alongside an adjacent container. Crew Commander Davidson noted it as operating when he arrived on the scene. He had attempted to turn off the generator but the key switch was not functioning and the generator could not be isolated. It was not known when the generator was started although it was likely that Mr Stevenson started it when he first opened the site in the morning. During excavation, a microwave, fluorescent strip lamp and electric panel heater were recovered from the debris suggesting that electrical items have been in use within the container. The items recovered sustained extensive fire damage that prevented further inspection. She was of the view that something electrical within the

container may have been burning all night. Prior to the generator being switched off on the evening of the 17 December 2019 there would have been power going to the electrical items in the container and at that point one of them could have caught fire. The fire may therefore have started the previous evening when the generator was on and then developed as a smouldering fire overnight. She concluded that an electrical fault could not be discounted as the cause of ignition.

[31] The final cause of ignition considered was that of careless use of smokers' materials. Mr Stevenson was known to be a smoker. The container was used by him as a shelter and an area to eat his lunch. Carelessly discarded cigarettes do not easily lead to ignition. Factors such as the range of temperatures at the burning tip, amount of hear released, cigarette brand and tendency to self-extinguish when left unsmoked mean they do not readily cause fires, however under certain conditions, such as exposure to air currents and contact with cotton type materials, burning discarded cigarettes can have the potential to initiate a smouldering fire. Therefore, an accidental ignition due to carelessly discarded cigarettes was considered and could not be discounted.

[32] With insufficient evidence to discount an accidental ignition within the container due to an electrical fault or an accidental ignition due to the careless use of smokers' materials, Ms Worsley concluded that the cause of the fire was undetermined.

Investigations - Fire Safety Enforcement

[33] A Fire Safety Enforcement investigation of the company was undertaken by Scottish Fire and Rescue Service. Watch Commander Neil Jackson has responsibility for

the investigation. He visited the premises on 13 January 2020 with Watch Commander Andrew Armstrong and on 6 February with Watch Commander Keith Davidson. Neil Jackson prepared a Fire Safety Enforcement Report dated 3 March 2022 and this formed Crown Production 15. Mr Jackson gave evidence to the Inquiry speaking to the terms of, and expanding upon, this report.

[34] Mr Jackson noted that, upon his first visit on 13 January 2020, the container was situated around 14 metres away from its original positon and was informed that this was to allow for cleaning work to be done. The shipping container was blackened and appeared slightly "swollen" as if an explosion had occurred within it. The doors were open. There were signs of severe heat damage and part of the floor was burned through. There were no contents in it other than burned material and ash. He was informed by a representative of the company (Mr Robert Rae) that the container was used as an area for Mr Stevenson to take breaks and it may have had a microwave or similar appliance for heating food. He noted the remains of a cable (only the inner metal filament), about 30cm in length and hanging in a small hole in the container wall. It was on the right hand wall of the container, closer to the front than the rear. Mr Rae did not know its purpose and was unfamiliar with this area of the site.

[35] Mr Jackson made enquiry as to the smoking policy for the site and was told that smoking was not allowed on the site. He was also told that Mr Stevenson was known to be a heavy smoker who was likely to have been smoking on the site.

[36] He further enquired of Mr Rae if there were any generators providing electrical power to the container and was told that he (Mr Rae) was not sure of this. Mr Jackson

noted in his report that this fire was in a steel shipping container which would not require the normally recognised fire safety features/services which a place of work such as office or garage would require, eg signage, fire warning system or emergency lighting.

[37] During inspection Mr Jackson asked Mr James Lymburn for any documentation for testing and maintenance of fire safety equipment or test records for mains electrical supply and any documentation/records to provide evidence of fire safety training for staff such as fire safety awareness, fire procedures or evacuation drills. He was told that no such documents were available. However, following this request, a fire risk assessment was produced but this pertained only to the office block. Mr Jackson was told that there were no fire risk assessments for any other buildings on the site such as workshops. There was no fire risk assessment for the container.

[38] At the second visit on 6 February 2020 he was again advised that there was no fire risk assessment for the container and no safety training for employees. His view however was that the lack of such a risk assessment for the container, given that the cause of the fire was undermined, was of little relevance. What occurred in terms of a "backdraft" was a rare event and opening the container and being faced with that would have caught out even someone trained. If the backdraft had not occurred this would simply have been a fire. He was further of the view that a lack of any safety training would be of very little importance in an event such as this. Nothing would have prepared someone for a backdraft occurring. General safety training given to staff would not have covered that and not have equipped them to deal with it.

Inspections – health and safety

[39] An inspection of the site following investigation of the incident was undertaken by Health and Safety Inspectors Lorna MacIntyre and Alex Brown on 16 January 2020. A report was produced and Crown Production number 11 is a copy of same. On 4 February 2020, the Health and Safety Executive wrote to the company to advise that no material breaches of health and safety law had been identified as a result of the inspection and investigation.

Fire safety audit

[40] A fire safety audit was carried out on the company on 13 January 2020 by officers of the Scottish Fire and Rescue Service. An action plan was created as a result of the audit and all matters identified have been addressed.

Submissions

[41] Ms Guy for the Crown and Ms Toner, Advocate for the company, prepared and submitted detailed written submissions which were of assistance to the Inquiry in reaching its determination. By and large they agreed on the relevant facts and their proposed findings are much in line with those which I have made. The one area of divergence was in relation to whether, in terms of Section 26(2)(g), there were any other facts relevant to the circumstances of the death.

[42] For the Crown it was submitted that the lack of a Fire Risk Assessment of the container and lack of staff Fire Safety Training are facts relevant to the circumstances of the death, acknowledging however that JJL Groundworks have since addressed these. Again acknowledging the evidence from Mr Jackson that these issues would have made no difference to the outcome of this particular fire, she submitted that he had said in evidence that if this had been a "normal" fire, these issues would have been relevant.

[43] Responding to that issue Ms Toner submitted that no such finding should be made. Firstly, any finding under this heading must be relevant to the circumstances of the death. The cause of this fire is unknown so there can be no basis upon which to make such a finding. Secondly, any finding under this heading must be based on evidence presented to the Inquiry. The only evidence in relation to this area came from Neil Jackson who confirmed that nothing could have made any difference to the tragic circumstances of this particular case. No assessment, no signage, no training could have made any difference. Nothing could have equipped anyone, even a trained fire fighter for the backdraft and explosion. Accordingly, no finding should be made under this heading.

Conclusion

[44] I am grateful to the Crown and to Ms Toner for the lengthy joint minute in this case agreeing much of the evidence and focussing the issues. I am also grateful to the witnesses who gave evidence to the Inquiry.

[45] Mr Stevenson was a long-standing, well-regarded employee of JJL Groundworks. His tasks in his later life were to open the yard each morning and close up at night. He was the first to arrive each morning and it seems his routine consisted of opening the yard gates, turning on the generator and opening his "howff". This was his workspace where he sheltered in inclement weather and where he took his lunch. It was equipped with such items as a microwave to allow his to heat his meals. There was evidence that he was a heavy smoker and that, despite the no smoking policy of the company, a concession made that he would more than likely have smoked whilst at work.

[46] On the evening of 17 December 2019 he appears to have locked up as usual. He would not have padlocked the "howff". At some point either during the night, or indeed before the "howff" was closed, a fire started. If the source of the fire was a faulty electrical item, then this must have occurred when there was a source of power to it, namely when the generator was switched on. This would suggest the fire started before the doors of the container were closed and the generator switched off. If the source of the fire was carelessly discarded smoking materials, then the fire could have started after the doors were closed. In either scenario the fire took hold but was a smouldering fire, deprived of sufficient oxygen to produce flames. The sudden influx of oxygen into the container when the door was opened by Mr Stevenson initiated a rapid, explosive reaction resulting in flames, intense heat and a pressure wave sufficient to cause severe injury to Mr Stevenson (a backdraft).

[47] Mr Stevenson was severely injured as a result of this explosion and, tragically succumbed to those injuries on 30 December 2019.

[48] The cause of this fire cannot be determined. Deliberate ignition has been ruled out. Accidental ignition due to electrical fault or discarded smoking material cannot be ruled out. There is no evidence to prefer one scenario over the other.

[49] I have taken the view that there are no other facts which are relevant to the circumstances of the death (Section 26(2)(g)). Whilst there was evidence that the container had not been assessed for fire risk, nor was there staff training in place, none of that is relevant to the circumstances of this particular accident and to this particular death. This was not a "normal" fire. I do not accept the Crown's submissions in this regard. I prefer those advanced on behalf of the company. The Inquiry must look at facts relevant to the particular accident. Nothing could have prepared Mr Stevenson, nor indeed anyone else, for the backdraft that occurred when he opened the container door. No training nor signage could have assisted anyone in dealing with that scenario. Mr Jackson gave clear evidence that no amount of training would prepare a person who was faced with that tragic combination of circumstances. Accordingly, no finding is made under Section 26(2)(g).

[50] Finally, I join with the Crown and Ms Toner in extending our sincere condolences to the family and friends of Mr Stevenson on their sad and tragic loss.