Release Date: July 14, 2016

Manitoba

THE PROVINCIAL COURT OF MANITOBA

IN THE MATTER OF: *The Fatality Inquiries Act* C.C.S.M. c. F52

AND IN THE MATTER OF: Michael Brian Langan, Deceased

Report on Inquest of Judge Timothy Killeen
Issued this 11th day of July, 2016

APPEARANCES:

R. Gosman, Inquest counsel
K. Carswell, Counsel for Winnipeg Police Service
M. Brave, Counsel for Taser International, Inc.
J. Prober, Counsel for the mother, Sharon Shymko
N. Boucher, for the father, Brian Minchin

Manitoba

THE FATALITY INQUIRIES ACT
REPORTED BY PROVINCIAL JUDGE ON INQUEST

RESPECTING THE DEATH OF MICHAEL BRIAN LANGAN

Having held an Inquest respecting the said death on the 22nd day of July, 2008, at the City of Winnipeg in Manitoba, I report as follows:

The name of the deceased is: Michael Brian Langan.

The deceased came to his death on the 22nd day of July, 2008, at the City of Winnipeg, in the Province of Manitoba.

The deceased came to his death by the following means: cardiac arrest as a result of exertion and stress following a pursuit, combined with a hamartoma, a type of heart tumour.

I hereby make no recommendations for the reasons set out in the attached report.

Attached hereto and forming part of my report is a list of exhibits required to be filed by me.

Dated at the City of Winnipeg, in Manitoba, this 11th day of July, 2016.

"Original signed by:"

Timothy Killeen, Judge
Provincial Court of Manitoba

Copies to:

1. Dr. John Younes, A/Chief Medical Examiner (2 copies)
2. Chief Judge Margaret Wiebe, Provincial Court of Manitoba
3. The Honourable Heather Stefanson, Minister Responsible for *The Fatality Inquiries Act.*
4. Ms. Julie Frederickson, Deputy Minister of Justice & Deputy Attorney General
5. Mr. Michael Mahon, Assistant Deputy Attorney General
6. Mr. Robert Gosman, Counsel to the Inquest
7. Ms. Kimberly Carswell, counsel for Winnipeg Police Service
8. Mr. Michael Brave, Counsel for Taser International, Inc.
9. Mr. Jay Prober, Counsel for the mother, Sharon Shymko
10. Mr. Nolan Boucher, Counsel for the father, Brian Minchin
11. Exhibit Coordinator, Provincial Court
12. Ms. Aimee Fortier, Executive Assistant and Media Relations, Provincial Court

Manitoba

THE FATALITY INQUIRIES ACT
REPORTED BY PROVINCIAL JUDGE ON INQUEST

RESPECTING THE DEATH OF: MICHAEL BRIAN LANGAN

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I. MANDATE OF THIS INQUEST

[1] By letter dated September 2, 2010, the Chief Medical Examiner for the Province of Manitoba, Dr. T. Balachandra, MBBS, FRCPC, FCAP, directed that a Provincial Judge conduct an Inquest into the death of Michael Brian Langan for the following reasons:

1. To fulfill the requirement for an Inquest as defined in section 19(3)(b) of *The Fatality Inquiries Act*;

Inquest Mandatory

19(3) Where, as a result of an investigation, there are reasonable grounds to believe:

> (a) that a person while a resident in a correctional institution, jail or prison or while an involuntary resident in a psychiatric facility as defined in *The Mental Health Act*, or while a resident in a developmental centre as defined in *The Vulnerable Persons Living with a Mental Disability Act*, died as a result of a violent act, undue means or negligence or in an unexpected or unexplained manner or suddenly of unknown cause; or
> (b) that a person died as a result of an act or omission of a peace officer in the course of duty;

the chief medical examiner shall direct a provincial judge to hold an inquest with respect to the death.

2. To determine the circumstances relating to Mr. Langan's death; and

3. To determine what, if anything, can be done to prevent similar deaths from occurring in the future.

[2] *The Fatality Inquiries Act* requires that a written report of the Inquest be provided to the Minister responsible for administration of the *Act*, (the Minister of Justice), setting forth when, where, and by what means Mr. Langan died, as well as the cause and material circumstances of his death. The Inquest Judge has the

discretion to make recommendations respecting programs, policies or practices of the government and the relevant public agencies and/or institutions, or the laws of the Province if, in the Judge's opinion, it would help to reduce the likelihood of deaths occurring in similar circumstances.

[3] The Inquest commenced with a notice to the public that a Standing Hearing would be held on February 19, 2013. Standing in this Inquest was granted to the Winnipeg Police Service, Sharon Shymko (Mr. Langan's mother), Brian Minchin (Mr. Langan's father), and Taser International, Inc. The Inquest heard evidence or submissions on April 7, 8, May 28, June 16 and August 20, 2014; April 27, October 26, 27, 28, 2015; and January 11, 12, 13, 2016.

II. INTRODUCTION

[4] Mr. Langan died on July 22, 2008. He was 17 years of age, with no obvious health problems. His death followed an interaction with two officers from the Winnipeg Police Service, one of whom used a Taser Electronic Control Device X26 (Taser ECD) to subdue him. The Taser ECD is a device that delivers a series of electric pulses of high voltage, but low current designed to cause a temporary incapacitation through involuntary muscle disruption or pain compliance. Pursuant to *The Fatality Inquiries Act*, an Inquest is mandatory in these circumstances.

[5] The facts of this Inquest are unusual and I do not conclude that Mr. Langan died as a result of an act or omission of a peace officer acting in the course of duty. However, this Inquest was able to fully investigate, in a transparent fashion, the actions which lead to the use of the Taser ECD.

[6] There are two topics covered. The first is the evidence concerning what happened on July 22, 2008, including an analysis of why the Taser ECD was used and whether the use was appropriate. The second deals with the death of Mr. Langan just shortly after the use of the Taser ECD and evidence about whether that weapon contributed to or caused his death.

III. THE EVENTS LEADING TO THE USE OF THE TASER ECD

[7] Mr. Langan was a slight man of 17 years of age. He had a history of drug use. He also had a history of criminal activity. At the time of his death, he had a blood alcohol level of 178 milligrams of alcohol in 100 millilitres of blood which is consistent with intoxication. He had metabolites of marijuana in his system. Those comments are not to disparage him, but to set the context for what happened just before his death.

[8] On July 22, 2008, Hartley Klapman was in his office at MWG on Notre Dame Avenue in Winnipeg when he was told by a co-worker, Henry Connon, that someone was breaking into his car. He went outside and saw that a young man had stolen from his car a case containing a set of binoculars. There were others in the parking lot, but the man did not flee. Instead, as Mr. Klapman approached him, the man, Michael Brian Langan, motioned and said, "Do you want me or do you want the purse?" referring to the binocular case. The tone was not angry, but it seemed a clear indication to Mr. Klapman that he could either take back the case or fight him.

[9] Mr. Langan appeared to Mr. Klapman to be under the influence of something, probably not alcohol. His shirt was open and he was moving aggressively. He was shifting his weight around, much like a boxer. He was agitated, erratic and confrontational. Mr. Klapman took the binoculars back and Mr. Langan left, walking out of the parking lot to the north. That also seemed strange to Mr. Klapman, who expected that Mr. Langan would have run away. Mr. Klapman did not see any weapon or any device to break into cars.

[10] When Mr. Langan left, Mr. Klapman looked for his co-worker, Mr. Connon. He was unable to see him and was concerned that perhaps he was following Mr. Langan. He went to his car and found that the passenger window was shattered with broken glass inside the vehicle. He retrieved something upon which to sit and drove out to find Mr. Connon.

[11] Mr. Connon was indeed following Mr. Langan. Both were now walking eastbound on Winnipeg Avenue, west of McPhillips Street. As Mr. Langan walked

by a van he smashed his forearm into one of the windows. Mr. Connon was some distance back, having already observed Mr. Langan's actions in the parking lot. He appeared to Mr. Connon to be a little bit erratic. Mr. Connon thought that he had heard him yelling, "Do you want a piece of me?" Mr. Connon called 911 at 15:45:37 (all times were recorded and will be reported on a twenty four hour clock) and reported the event to the police. As they walked, Mr. Connon described to the 911 operator what was transpiring. Not surprisingly, he was told by the operator not to get too close. His earlier observation of Mr. Langan, as the theft was occurring, was that he was acting irrationally and in an erratic manner.

[12] Mr. Connon watched Mr. Langan walk into the Concord Hotel, located at the northwest corner of Winnipeg Avenue and McPhillips Street and then walk out from another door. At that point, Mr. Klapman caught up to Mr. Connon and Mr. Connon got into the back seat of Mr. Klapman's vehicle. The front passenger seat had broken glass on it.

[13] At that time, Mr. Langan crossed to the east side of McPhillips Street. He must have seen that Mr. Klapman was following him because he made a sign to Mr. Klapman and Mr. Connon. It consisted of putting both hands forward with his middle fingers extended and his thumbs out, but his other fingers curled. He then headed north.

[14] Mr. Klapman continued the pursuit and caught up with Mr. Langan somewhere near Bannatyne Avenue. He drove aggressively towards him, hoping to contain him until the police arrived. Mr. Langan now had a knife in his hand and shouted at Mr. Klapman. At least twice he said, "Are you trying to kill me?" He moved from the area and walked in the direction of a bus stop on William Avenue. Mr. Klapman saw that a woman was at the bus stop and decided to stop the pursuit to avoid putting her into danger. Instead, he and Mr. Connon watched from a distance while Mr. Connon continued to speak to the 911 operator. Mr. Klapman's observation of Mr. Langan was that he appeared to be "spaced out". He did not appear intoxicated by alcohol, but his behaviour seemed bizarre.

[15] Mr. Klapman and Mr. Connon were not discussing the event as it occurred. That is not surprising as both were focussed on watching Mr. Langan and either

driving or relating information to 911. As it turned out, Mr. Connon had not seen a knife. He did not know that Mr. Langan had one, while Mr. Klapman was not aware that Mr. Connon had not seen it. That lack of information contributed to the tragedy that unfolded, but was understandable and the fault of no one. Each assumed that the other had seen the same thing.

[16] A short while later, Mr. Langan crossed over to the east side of Arlington Street, and then ran north through a yard on the north side of William Avenue. A police cruiser was westbound on William Avenue and was flagged over by Mr. Connon and Mr. Klapman. Mr. Connon got out and told the officers that they were following a man who had broken into a car. A description was given and the direction of travel of the man described. Mr. Connon did not tell the officers that the man had a knife. He did not know it. Mr. Klapman did not speak to the officers. He was the driver and did not get out of the car.

[17] Mr. Langan ran through a yard and came to the National Microbiology Laboratory, which witnesses referred to as the virology lab, located to the north of William Avenue. The building had an open area for visitor parking located closer to Arlington Street, separated from the laneway by some trees. Mr. Langan walked in that area, heading east. In that direction was a six foot high fence which encircled at least that side of the property and extended to the next intersection.

[18] Jennifer Leblanc was just leaving work at that time, which was now close to four o'clock in the afternoon. She drove her car up to a gate and waited for it to rise. She had her radio on and her air conditioning was on full. She could not hear anything else, but did see Mr. Langan as he left the area of the trees and headed south across the lane. A police car drove up from the west and stopped near Mr. Langan. The police officer who was the driver got out and went quickly to the back of the cruiser car. The passenger did not get out. It appeared that the passenger door of the police car opened, as she could see the top of the door.

[19] Mr. Langan appeared to be close to the vehicle and seemed to make a quick forward motion. From her vantage point it did not appear to be a stumble but rather an intentional movement, like a lunge or a more threatening movement. His arms appeared to be about chest high, although she could not see his hands. He did not

have his arms in the air and did not have them raised to shoulder height. He was close to the police vehicle. The officer at the back had his arm up.

[20] The time frame for the events was short. In fact, a video from the surveillance system at the lab confirmed that the whole event as witnessed by Ms. Leblanc could not have taken more than twenty three seconds. Ms. Leblanc was not certain of the order of events, but saw three things: the driver's door of the police car opened, the man (Mr. Langan) lunged and the officer at the back of the car raised his arm. Her observation was that the man was not boxed in, but had a bit of space. She was not able to see the passenger side of the police cruiser. After the gate opened, she drove off. She had a commitment and did not wait. Later, she learned that something more had occurred.

[21] At the same time that Ms. Leblanc was driving out, Mr. Connon and Mr. Klapman were continuing the effort to find Mr. Langan. They reached the same area of the back lane and were passed by the cruiser car headed eastbound. The car appeared to Mr. Connon to corner Mr. Langan. The police officer who was the driver, Constable Michael Temple, got out and went to the front of the vehicle. The officer told them to stay back. Mr. Connon did not see anything in the officer's hands.

[22] The passenger door of the police car opened and the passenger, Constable Ryan Naismith, got out. It appeared to Mr. Connon that the passenger crouched on his knees and put his arms on the open part of the door. He saw the Taser and thought that the officer put his hands through the open window of the door. Mr. Connon could not see most of Mr. Langan as his view was partially blocked by a garage. He did not see any knife. He heard an officer loudly say, "Drop your knife," or, "Drop your fucking knife." It was possible that it was said more than once. He thought that it may have been said at the same time that the driver was telling him to back up. He heard no response. Within a short period of time from the command, a second or seconds, he heard a "poof". He did not see Mr. Langan fall, but later saw the wires from his body. He thought that Mr. Langan was four or five feet from the police officer who was on the passenger side. The car door was between the two of them.

[23] The event was also seen by Jordan Wolfman, who was employed doing maintenance on the grounds of the virology lab. He had seen Mr. Langan running in the treed area and then heard the screech of tires. Mr. Langan seemed to be tripping or flailing around when running, despite the surface being flat and dry. He may have been nervous and looking for a way out of the area. Mr. Langan appeared to be wearing a blue shirt. Mr. Wolfman was about 75 to 100 feet away and could see fairly clearly through the fence, although it did obscure some of his view. Mr. Langan was within 15 feet of the cruiser car, on someone's driveway. Mr. Wolfman thought the driver of the police car got out and went to the front of the car. The police officer who was the passenger stood up and was fully out of the car. Mr. Wolfman could clearly see him once he stood up. He was not far from the passenger side of the car and a few feet from Mr. Langan. When Mr. Wolfman looked back at Mr. Langan, he had removed the shirt. Mr. Wolfman did not see where it was.

[24] It appeared that the passenger had his arms extended, holding what Mr. Wolfman assumed to be the Taser ECD. The passenger was within arm's length of the door and moved out from behind the door after the Taser ECD had been fired. Mr. Wolfman did not hear any words said until after Mr. Langan was down. At that point, he heard the officer say, "Drop the knife." He thought the whole event took five to seven seconds between the stop and the Taser ECD being used. He acknowledged that he may not have remembered correctly.

[25] He did not see Mr. Langan with a knife, although he may have balled his hands together. He did not see Mr. Langan make aggressive moves or move towards the police car.

[26] There were different and contradictory things said by the four civilian witnesses. In other respects, things that they said were contradicted by the police officers who later testified. The differences are attributable to the fact that all were testifying about an event which was unexpected, quick and had happened years earlier. I found all of the witnesses to be trying to tell the truth as well as they could recall it. In some cases, they had their memories refreshed by things which they had said after the event. In other cases, they did not remember those

comments. I did not find any attempt by any witness to be evasive or difficult. Instead, it appeared that each was trying to recall a long ago event.

IV. THE USE OF THE TASER ECD

[27] The evidence of the four civilian witnesses sets the context for what next occurred. Constable Michael Temple was driving a cruiser west on William Avenue with Constable Ryan Naismith as the passenger or 'jumper'. They were flagged down by a man, now known to be Mr. Connon. He described chasing a man who had been breaking into cars. He started to flag over this cruiser at 15:57. The pursuit of Mr. Langan by Mr. Connon and Mr. Klapman had been ongoing for about twelve minutes.

[28] Mr. Connon gave the two officers, Constable Temple and Constable Naismith, a brief description of the man and told them why they were pursuing him. No questions were asked of Mr. Connon. Instead, both officers focussed on the description of a man with a blue jacket but no shirt. Either officer could have asked for more details about the man or the events which caused the chase, but it would not have made sense for them to do that. This was a hot pursuit. There was no reason to think Mr. Connon was lying, although it was not clear that the 911 information had been passed on to the officers. In the circumstances, getting a brief description and taking up chase made sense. The man being pursued was only metres away. There was no realistic chance that they would pick up the wrong person. They could sort out the facts once they had stopped the man being pursued. Mr. Connon showed them where the man had just run.

[29] At 15:59:03, the dispatch operator was told that this cruiser was the one involved. The operator tried to speak to the officers at 16:00:05, without a response. This is likely because the officers had caught and were dealing with Mr. Langan.

[30] In the brief conversation on William Avenue with the officers, Mr. Connon made no mention to the officers of the knife seen by Mr. Klapman. As mentioned, the reason for that was that Mr. Connon had not seen it. Mr. Klapman, who had

seen it, did not speak then to the police. The officers knew they were pursuing a man who had broken into a car, but nothing else.

[31] Constable Temple drove to Arlington Street which was the intersection directly west of where they were and turned north. As he drove past the lane, they saw a man who fit the description walking near the trees near a public parking area by the virology lab. The man, Mr. Langan, saw them. His path north was blocked by the building. To the east was the fence. The officers were to the west. He walked across the lane and moved to the south. Constable Temple reversed enough to turn east and accelerated down the lane.

[32] The man had been described as wearing a jacket, but no shirt. It was a hot day; 30 degrees or so. When Mr. Langan saw the police, he took off the jacket aggressively, or "ripped" it off.

[33] Constable Temple assumed that the man might try to flee and he wanted to get as close as possible to where he was. Had Mr. Langan fled south, he would have travelled between two houses in a space too confined to be traversed by a vehicle. In a foot chase, Constable Temple felt that an officer carrying all of their equipment would be at a disadvantage. He assumed that a foot chase was about to begin. Getting close to Mr. Langan made sense. Constable Temple drove in the lane to where Mr. Langan was and pulled into a parking spot behind a house where Mr. Langan was standing. He drove in on an angle, with the front end of the cruiser car right up to the fence. Mr. Langan had nowhere to go but south, through the yard. Although only Mr. Langan could see it, his way was blocked by a high fence and a closed gate.

[34] Constable Temple got out of the car and ran to the back of the car. He could now see that Mr. Langan was holding a knife. He drew his sidearm. He yelled twice to Mr. Langan to drop the knife. Mr. Langan was close to the passenger door of the car where Constable Naismith was still seated. Constable Temple could see that Constable Naismith had pointed the taser at Mr. Langan and he yelled at Constable Naismith to "taze" him. Mr. Langan was only a short distance from the cruiser and from Constable Naismith. Constable Temple likely shouted "taze him" more than once.

[35] The knife was still in Mr. Langan's right hand when Constable Naismith deployed the Taser ECD. Mr. Langan fell to the ground when struck by the probes. He remained on the ground when Constable Naismith got out of the car and kicked the knife away. Constable Temple then handcuffed Mr. Langan. He saw blood on the concrete surface and assumed that Mr. Langan was knocked out. The officers communicated with their dispatch operator at 15:58:47 with the words, "Got a male down. He's been tazed. Bleeding from the head. Challenged us with a knife and has been tazed."

[36] He called for an ambulance. The call was made at 16:00:32 hours and included the words "male tasered, ambulance required".

[37] Constable Temple did not know why Mr. Langan did not flee. It appeared as they drove up to him that he had an escape route. Whether Mr. Langan saw it or assumed it was blocked will never be known. The fact that he remained and did not drop the knife was consistent with Mr. Langan trying to use the knife to intimidate them, or worse. It also made the officer think that removing the jacket was to make it easier to fight, not to run away.

[38] Constable Temple had contemplated shooting Mr. Langan with his handgun. He saw an angry, crazed look on his face and it looked like Mr. Langan was staring right through him. He also said that he had yelled at Constable Naismith to taser him because he was not yet set up to use his firearm. He feared for Constable Naismith's life. Constable Naismith was still in the car. He could not get into the back of the car because of the protective screen separating the front seats from the back seat. He could not move over to the driver's side because of the computer in the middle on the console. He could not get out without being right beside Mr. Langan. Mr. Langan could have attacked him with almost no movement forward.

[39] Constable Temple did not have some of the information which Mr. Klapman or Mr. Connon had seen. He did not know about the knife, the aggressive behaviour or the bizarre behaviour. Had he known of the knife, he said they likely would have stopped so that both officers could get out of the car. Instead, he had

parked to cut off the possibility of flight. In so doing, Constable Naismith was only a little more than arm's length away from Mr. Langan.

[40] As they drove in the lane, Constable Naismith was getting ready for whatever was about to happen. He expected that the man might flee. He expected that there might be a need for a chase. He removed the Taser ECD from the holder for two reasons: it is hard to run with it in its holder as it moves around and he thought that it might provide the coercion needed to stop the man from running or fighting. His experience was that pointing a Taser ECD at someone normally de-escalated the situation very quickly. He was also unaware of the knife.

[41] As the cruiser pulled up to him, Mr. Langan spun around to face the car. The police car was only about five feet away from him. Constable Naismith could now see a knife in Mr. Langan's hand.

[42] He took hold of the Taser ECD with his right hand and reached over with his left hand to open the passenger door of the cruiser car. As he opened the door, the man was about five feet away. He saw the man's arms out at shoulder height and the knife straight out in the man's right hand.

[43] At that point his options were limited. Closing the car door was pointless as he would have been trapped in the passenger seat with the window open. He could not move to another place inside of the car because the computer terminal prevented him from moving to the driver's side and the shield separated him from the back seat. He did not recall if the car was running, but in any event, closing the window was not a realistic option. It would have taken seconds to close it and the man could easily have attacked him before he could have closed it.

[44] Turning to get away was not an option. He could not go anywhere except back and would then be backing up towards Constable Temple, effectively blocking his partner from getting involved. He also knew that from the distance of five or so feet, he could not move fast enough to respond if Mr. Langan came at him to use the knife. As it turned out, Constable Naismith did not know that Constable Temple had moved to a spot behind the vehicle to cover him and was yelling at Constable Naismith to use the Taser.

[45] Constable Naismith yelled to Mr. Langan to drop the knife. It was said at least a couple of times in short order, and perhaps as many as four or five times. Mr. Langan made no response. He did not drop the knife. Instead, he stood there with a smile on his face which appeared to Constable Naismith to be a "diabolical smile". Constable Naismith did not consider that Mr. Langan may have been on drugs. The time frame was too short. What struck Constable Naismith was the fact that Mr. Langan had stopped for them and appeared to have a route to run, if he had chosen to do so. Stopping and holding on to the knife was inexplicable behaviour, unless Mr. Langan was about to attack.

[46] He fired the Taser ECD and struck Mr. Langan with the two probes. The probes are designed to spread when fired. One appeared to hit him in the upper chest and the other hit in the stomach area. Mr. Langan's body seized and he fell to the ground.

V. AFTER THE TASER ECD WAS USED

[47] It was obvious that Mr. Langan had struck his head on the ground, as there was a small amount of bleeding from his scalp. Mr. Langan had not protected himself as he fell.

[48] Constable Naismith went to him immediately and knocked the knife from his hand. He saw that Mr. Langan was bleeding from his head. He was unresponsive when he was told to roll over. A bystander came to Constable Naismith and said that they had been following Mr. Langan and had called police. Constable Naismith quickly received a business card from the bystander, Mr. Klapman, but did not otherwise speak to him. He then turned his attention back to Mr. Langan.

[49] It did not appear to Constable Naismith that Mr. Langan was breathing. Constable Naismith told Constable Temple to rush the ambulance. Constable Temple was wearing leather gloves, but took them off and put on gloves from the medical kit in the car. Constable Temple checked for a pulse as Mr. Langan lay on the ground. Constable Temple initially checked Mr. Langan's neck and could not

find a pulse, but then found one when he checked his wrist. He described the breathing as "like gasping breaths, like someone got the wind knocked out of them".

[50] Constable Naismith could hear gasps coming loudly and intermittently from Mr. Langan. Constable Temple believed that Mr. Langan was breathing, as did Constable Naismith. For that reason, neither attempted CPR.

[51] Constable Temple rolled him into the recovery position on his right side. He wanted to avoid the possibility of choking if Mr. Langan were to vomit. There was a point where Constable Temple did not know if Mr. Langan was breathing. He checked and Mr. Langan seemed to take a big gasping breath followed by sporadic, laboured breaths. Constable Temple was not certain if Mr. Langan was not breathing at some point or whether he was not able to see that he was breathing. He then saw the laboured breathing and requested that the ambulance be rushed. His explanation for not performing CPR was that Mr. Langan had a pulse and was breathing and accordingly, it was not called for. The time frame from the Taser ECD being deployed to the call for the ambulance was very short.

[52] All of this happened very quickly. From the time the car stopped until the Taser ECD had been fired was no more than a few seconds. The whole event for the officers, including speaking to Mr. Connon, pursuing and locating Mr. Langan, seeing the knife and using the Taser ECD was no more than two minutes. The distance which Mr. Langan had run was 1.7 kilometres.

[53] At 16:04:56, another cruiser arrived with two more officers, Constable Holloway and Constable Pohorecky. Acting Patrol Sergeant Zwarich also arrived at about that time. When Acting Patrol Sergeant Zwarich arrived, Mr. Langan was lying on the ground and did not appear to Acting Patrol Sergeant Zwarich to be breathing. The original cruiser car had to be moved out of the way as an ambulance arrived seconds later at about 16:06.

[54] Stephan Carignan was the paramedic from the Winnipeg Fire and Paramedic Service who first attended to Mr. Langan. He learned that Mr. Langan had been "tasered" and "gone down hard" and called for a supervisor to attend. He checked

and saw that Mr. Langan was unresponsive. His pupils were three millimetres and not responsive to light. He had about four agonal respirations per minute. He used a bag valve mask to ventilate him. An endotracheal tube was inserted to allow proper ventilation.

[55] No pulse was detected. CPR was started and a heart monitor established that Mr. Langan's heart was in ventricular fibrillation at 16:07:19. Accordingly, the paramedics defibrillated Mr. Langan's heart with a Zoll E Series defibrillator at 200 joules at 16:07:39. This had no effect. A second defibrillation, also of 200 joules, was done at 16:10:53. Neither caused any change in the heart rhythm. An intravenous line was inserted and the paramedics began to infuse a normal saline solution.

[56] Prior to leaving the scene, at 16:12:33, Mr. Langan was found to be "asystole"; that is, without any heart activity. He was given three milligrams of epinephrine and two milligrams of atropine, but neither caused any heart rhythm. CPR was resumed, without success. He was taken to the Health Sciences Centre and death was pronounced there at 16:34. Later, an object commonly used to break into cars was found in his clothing.

[57] An investigation into his death was commenced. All appropriate steps were taken to identify and interview witnesses, to record the scene and investigate the events. The investigation was reviewed by the Edmonton Police Service. The procedure for investigation of such an event has now changed, but in this case, the evidence presented a clear picture of what had occurred.

VI. THE USE OF FORCE

[58] Constable Marvin Redmann was called to explain the Use of Force policy of the Winnipeg Police Service and the policy for use of Electronic Control Device (Tasers). Both policies were filed as exhibits. The actions of Constable Naismith were consistent with the policy. He was presented with a threat by the presentation of the weapon. The threat escalated as Mr. Langan refused to drop the knife after being told to do so. Mr. Langan did not respond when the Taser ECD was pointed at him. He was close enough to Constable Naismith to attack him with the knife

before Constable Naismith could have moved away or otherwise acted. I do not intend to review the Use of Force policy in any more detail as I am satisfied that Constable Naismith's actions were lawful, reasonable and appropriate.

[59] Clearly, things might have happened differently if the officers had known about the knife. They testified that they would have drawn their firearms. They also would have approached Mr. Langan differently, with Constable Naismith being able to get out of the vehicle safely. I do not fault anyone for the lack of information. It would not have made sense to make further inquiries of Mr. Connon when he flagged them over when they could see where Mr. Langan had gone. Pausing for seconds may well have caused them to lose him.

[60] It was reasonable to assume that Mr. Langan was about to use the knife. It was consistent with his action in throwing off the jacket. It was consistent with the way he had behaved earlier, although neither officer knew it at the time. There is no explanation for why Mr. Langan did not drop the knife or flee. Perhaps it was impairment, perhaps it was fear, perhaps it was confusion and perhaps it was bravado. None of us will ever know what he was thinking. But, he would have been able to reach Constable Naismith before Constable Naismith could have reacted effectively. Constable Naismith's actions were consistent with the Winnipeg Police Service Use of Force policy and with his training.

[61] It is easy to analyze these situations from the perspective of what might have happened differently had someone acted differently than they did. That is not helpful. In a period of a few seconds Constable Naismith found himself threatened, tried to control the situation and then reacted in an appropriate way. His use of the Taser ECD was proportionate to the threat.

VII. AUTOPSY

[62] A forensic pathologist conducted the autopsy. His qualifications as a forensic pathologist were appropriately admitted. The pathologist has performed over 7,000 autopsies, although this was the only one in which an electronic weapon had been used. The pathologist pointed out that there is a vast amount of literature on electronic weapons, so much so that it would not be possible for a generalist to

be aware of all of the material available. He readily acknowledged that he was not an expert in the field of electronic weapons, or the current or charge delivered to the human body by such a device.

[63] The autopsy was performed on the morning of July 23, 2008, the day following Mr. Langan's death. Since the death had occurred during interaction with police, many others were present for the autopsy, including police officers from the Winnipeg Police Service and the Royal Canadian Mounted Police. There were also assistants and a visiting pathologist.

[64] The body was examined. Mr. Langan was 159 centimetres tall and weighed 60 kilograms. The Taser probes were still in place and their placement was carefully recorded. One struck Mr. Langan in the left supraclavicular area and penetrated the skin to the full depth of the probe, which was 1.3 centimetres. The dart was 9.5 centimetres to the left of the midline of the chest, 10 centimetres from the left shoulder and 136.5 centimetres above the heel. The other probe penetrated the skin to a depth of 1 centimetre. The point of entry was 6 centimetres to the left of the midline, 114 centimetres above the heel and 24 centimetres from the other probe. Photographs were taken and filed as exhibits.

[65] There were blunt force injuries to the scalp, trunk and extremities. The majority were fresh, although a couple appeared older. The scalp injury at least, was consistent with his fall to the pavement after the event. These injuries did not contribute to the death. Alcohol and toxicology analyses were conducted. The results later showed a blood alcohol level of 178 milligrams of alcohol in 100 millilitres of blood. That level is consistent with intoxication. The toxicological examination revealed the presence of cannabis in his system, although the timing of consumption or exposure was not known.

[66] Death was determined to have resulted from cardiac arrhythmia. The electrocardiogram tracings taken by paramedics at the scene had shown ventricular fibrillation, meaning that the heart had not been pumping blood as it normally would. The heart was examined. There was no abnormality in the cardiac arteries. A slight thickening was observed on the interior surface of the heart, close to the mitral valve. That raised the possibility of cardiomyopathy, an abnormality of the

heart muscle. It was decided to send the heart to a cardiac pathologist, Dr. Veinot, from Ottawa. His report was appended to the autopsy report.

[67] Dr. Veinot conducted an examination. Among other findings, he commented:

> "At the junction of the inferior left ventricle and the inferior interventricular septum there is an uncircumscribed area of significant myocyte disarray, small intramyocardial arteriolar thickening, fibrosis and mycocyte (sic) nuclear hypertrophy. This is an (sic) focal finding and the remainder of the ventricles and atria show no evidence of cardiomyopathy and the heart is not hypertrophied. Such changes resemble localized hypertrophic cardiomyopathy but there are no associated cardiomyopathy changes.
>
> This cardiac finding has been termed "hamartoma of mature cardiac myocytes". This is a rare lesion, usually found in the young, but it has been described in older adults as well.
>
> The clinicopathological spectrum is still being described. It may be an incidental finding but individuals have been noted to have abnormal electrocardiograms, a cardiac mass by imaging and even with sudden death." (As per the consultation of Dr. Veinot.)

[68] Mr. Langan would not have known he had a hamartoma. It would not have affected his day-to-day activity. It is not a clinical finding that is common.

[69] The pathologist noted the temporal relationship between the deployment of the Taser ECD and the collapse, and questioned whether there was more than the temporal connection. He noted that severe stress or emotional reaction from a difficult event or exertion is sometimes associated with death.

[70] After all the investigations, the pathologist concluded that death was from cardiac arrhythmia ventricular fibrillation due to the deployment of the taser, the hamartoma and the excited state of a foot chase at the time of deployment. The fact that ventricular fibrillation of Mr. Langan's heart had been shown by the tracings taken by the first responders and the absence of any response to the defibrillator were explained by the fact that this was not a normal heart to begin with. He

acknowledged that the possibility existed that the use of the Taser ECD was only coincidental and not a cause of the death, but did not have a basis to conclude that possibility with anything like reasonable medical certainty.

[71] The pathologist acknowledged that he could not easily answer whether stress could cause ventricular fibrillation. Normal everyday stress would not cause it. However, stressful events and exertion which caused an increased amount of catecholamine or adrenaline could cause it. Events such as an altercation or physical restraint have been documented as causing sudden cardiac death.

[72] The pathologist noted that he was giving an opinion as a forensic pathologist, not an electrocardiologist or an electrophysiologist. He was unable to comment on the technical aspects of the Taser ECD as it is outside of his field of expertise. He noted that with the temporal relationship between the use of the Taser ECD and the ventricular fibrillation it becomes difficult to exonerate the effects of the shock.

[73] He was not familiar with the studies dealing with the maximum distance between the heart and the probe in cases where ventricular fibrillation had occurred. I find the pathologist's conclusion that the Taser ECD must have played a part in the death to be understandable, but outside of his acknowledged area of expertise. The contemporaneous events, combined with the absence of any other clear mechanism of death would naturally lead to that assumption, but it was no more than an assumption on his part.

[74] A physician trained as both a cardiologist and electrophysiologist also testified. He had not been involved in the autopsy, but agreed to provide information. He was well qualified as a cardiologist and electrophysiologist, but had no experience with the specifics of the Taser ECD used here. His opinion was based on a review of the literature, but did not involve any research other than that. His report was also prepared quite some time before he testified. A significant amount of literature or studies on the use and effects of conducted energy weapons became available after his research had ended. The cardiologist was familiar with cardiac issues and with medical devices and procedures to deal with cardiac health. He did not know the technical details related to the Taser ECD, or to other

technical aspects of the testing or modelling which had been done to determine the effects of the Taser ECD.

[75] He also assumed that the Taser ECD must have played a part in the death. I do not accept that assumption. His understanding of the effect of electricity upon the heart was comprehensive when dealing with equipment used for medical purposes, but not with the use of a Taser ECD. He was not aware of issues involving the impedance of tissue, or the issues involved in the charge delivered. He had relied significantly upon a limited number of reports produced by one expert witness who had been called in several civil actions in the United States. His assumption was not based on scientific evidence concerning how a Taser ECD actually operates.

[76] A number of studies or reports on the use of conducted energy weapons have come into existence since the death of Mr. Langan and since the Inquiry into his death commenced. There is no purpose in duplicating the information already in the public domain. There have been deaths in Canada which have occurred during or following arrests in which a Taser ECD was used. Those other deaths have been studied by inquiries in those locations. This report is concerned with what happened with the death of Mr. Langan.

[77] One of the recent studies is "The Health Effects of Conducted Energy Weapons" authored by the Council of Canadian Academies and the Canadian Academy of Health Sciences. This comprehensive report was filed as an exhibit.
The panel noted that superficial injuries are common when a conducted energy weapon is deployed. Fatal complications are biologically plausible, but they would be extremely rare. There was also reference to the Braidwood Inquiry, conducted in British Columbia.

VIII. EVIDENCE CALLED BY TASER INTERNATIONAL, INC.

[78] Dr. Michael Graham is a forensic pathologist at St. Louis University School of Medicine, a Diplomate of the American Board of Pathology in Anatomic and Clinical Pathology and Forensic Pathology and also a member of the Taser International, Inc. Scientific and Medical Advisory Board. He was paid a fee by

Taser International, Inc. for his report and attendance at the Inquest. His evidence was credible and compelling.

[79] His opinion was that:

> "Mr. Langan died as the result of a sudden cardiac rhythm disturbance (VF) that was precipitated by the effect of the incident's stress (physical and emotional) on his structurally abnormal heart (HMCM and, possibly, left ventricular hypertrophy). Acute ethanol intoxication was a contributory factor to his death." (At page 3 of Dr. Graham's report of December 7, 2015.)

[80] He noted that it is generally accepted that physical or emotional stress can cause or contribute to sudden death, through the generation of a lethal cardiac rhythm disturbance, usually in the setting of an abnormal heart. The hamartoma (HMCM) is a rare cardiac tumour with a localized proliferation of disorganized and hypertrophic mature cardiac myocytes. The medical literature describes cardiac rhythm disturbances in those with a hamartoma and sudden death associated with exertion has been reported.

[81] There is also support in the medical literature for an association between heavy drinking and sudden death.

> "Although sudden death among chronic alcoholics is well-recognized, recognition of the effects of acute ethanol intoxication, especially in a chronic alcohol abuser, is less appreciated. Large epidemiologic studies support a true association between heavy drinking and sudden death. A variety of mechanisms for ethanol-induced sudden death have been proposed, including inducing several electrocardiographic changes that might be associated with an increased risk of cardiac rhythm disturbances." (At page 4 of Dr. Graham's report of December 7, 2015.)

[82] In contrast,

> "An increased incidence of sudden unexpected death in humans caused by conducted electrical weapons has not been demonstrated by epidemiological studies. Nevertheless, some individuals have opined that the discharge of an

> electrical control device is capable of causing sudden unexpected death in humans.
>
> Conceptually, if an electrical control device would directly cause or contribute to sudden unexpected death, it would do so in one of two ways – I. Causing or significantly contributing to physiologic derangement induced by the neuromuscular effects of the electrical discharge. II. Direct electrical stimulation of the heart resulting in the initiation of a lethal cardiac rhythm disturbance.
>
> Multiple studies have failed to demonstrate that the use of an electrical control device causes or significantly contributes to physiological perturbations that result from the application of an electrical control device, even when the device is applied to physically fatigued or ethanol intoxicated human adults. However, the emotional response to sustaining a TASER discharge, notably the response to pain, is highly individualized and in some individuals could conceivably add to whatever emotional stress was already present." (At pages 4 and 5 of Dr. Graham's report of December 7, 2015.)

[83] Dr. Graham concludes that Mr. Langan's death was caused by physical and emotional stress of the incident precipitating a lethal cardiac rhythm disturbance in his structurally abnormal heart. Acute ethanol intoxication was a significant factor. The application of the Taser ECD did not directly induce ventricular fibrillation. Mr. Langan had been pursued for about 1,700 metres after being caught during a theft. He was trapped, or at least probably felt that he was. It would be surprising if he did not have significant emotional stress in addition to the physical stress of running on a hot day.

[84] Professor Mark W. Kroll is an expert in Bioelectricity and a professor in Biomedical Engineering at the University of Minnesota, Minneapolis. He received his Doctorate in Electrical Engineering in 1987. He is a Fellow of the American Institute for Medical and Biological Engineering. He attached a list of U.S. patents he holds that spans 22 pages, together with a list of international patents which spans 8 pages. While many are for unrelated inventions, many are in fields relevant to the issues in this Inquest. The list of books, book chapters, papers, letters or responses which he has authored is another 39 pages. His expertise in the area of conducted energy weapons and their affect on the human body is impressive.

[85] Again, he was paid by Taser International, Inc. for the production of his report and for all expenses related to his attendance to give evidence on the Inquest. He is a founding member of Taser International, Inc. Scientific and Medical Advisory Board. His evidence was credible and compelling.

[86] Professor Kroll produced a 100 page report, complete with over 200 citations. It is comprehensive and convincing. He made several points, only some of which will be summarized. He acknowledges two ways in which a Taser ECD can cause death: a fatal head injury from an uncontrolled fall and ignition of a flammable substance on or around the subject. Neither of those mechanisms applied here. He then considered the allegation of electrocution inducing ventricular fibrillation and this causing a cardiac arrest. He ruled it out for four reasons:

1. No dart was sufficiently close to Mr. Langan's heart to induce cardiac arrest;
2. A prompt defibrillation shock failed to reverse his cardiac arrest;
3. Mr. Langan had a radial pulse after the electronic control;
4. Mr. Langan had agonal breathing about eight and a half minutes after electronic control.

The evidence for each of these is described.

1. No dart was sufficiently close to Mr. Langan's heart to induce cardiac arrest.

[87] The distance between the point of the darts and Mr. Langan's heart was about 20 times as far as it would have had to have been for the possibility of electrocution. This finding was based on an analysis based on studies from Carleton University, animal studies and human studies. There was considerable reference to studies involving swine to determine how close to the heart the dart had to be to induce ventricular fibrillation. Studies demonstrated a maximum distance of 8 millimetres in swine, which are known to be more sensitive to electrical current than humans. Based on that, a maximum distance of less than 8 millimetres would probably be required to induce ventricular fibrillation in a

human. In Mr. Langan's case, the darts were nowhere near as close as required. They were no less than 5 centimetres and probably 7 centimetres from the heart.

[88] Professor Kroll also referred to the experience with electric fences as an analogy. The international standard for an electric fence is 2.5 watts. The power output of a Taser ECD is somewhat less, at 1.8 watts. Electric fences are common in agricultural areas of North America and elsewhere. No deaths from contact with fences meeting the standard are known to have occurred.

2. A prompt defibrillation shock failed to reverse his cardiac arrest.

[89] The defibrillation was commenced reasonably soon after the discharge. The exact time of discharge was not known as the device was not accurately measuring real time when discharged. However, all of the evidence supports a very small window indicating a discharge between 15:58:00 to 15:58:47. The discharge could not have occurred later than 15:58:47 as the report by the officers to dispatch was made at that time. Professor Kroll's estimate of discharge at 15:58:23 is certainly accurate to within seconds. The paramedics began defibrillation at 16:07:39, 9 minutes and 16 seconds after the estimated discharge. After that interval, defibrillation would have been successful 93 percent of the time. While not conclusive, that is also strong evidence that the cardiac arrest was not related to the Taser ECD, but was based on other factors, including the hamartoma.

3. Mr. Langan had a radial pulse after the electronic control.

[90] Constable Temple initially failed to find a pulse when he checked for a carotid pulse, but later found one on Mr. Langan's wrist. There was some speculation by one of the doctors that Constable Temple must have been incorrect, as there could not be a radial pulse if there is not a carotid pulse. It was thought that he must have been trying so hard to find a pulse that he mistakenly felt his own pulse as he pressed on Mr. Langan's wrist.

[91] This is very unlikely. The proposition put forward by Professor Kroll is that it is more probable that a person such as Constable Temple would be unable to find a pulse in one location, but find one when trying a different location. The study

which he cites shows that when a responder is pushed to find a pulse in ten seconds or less, 30 percent will be unable to do so. Given a minute, they will find one with 97 percent accuracy. The speculation that Constable Temple found his own pulse is far less likely than the assumption that he could not quickly find one, but then did find Mr. Langan's pulse as he took more time looking for the radial pulse. If Mr. Langan had a pulse after he was subdued and on the ground, but not later when he was in ventricular fibrillation, it is consistent with factors other than the Taser ECD causing the cardiac arrest. The Taser ECD discharge was for a total of five seconds and ended before his heart had moved into ventricular fibrillation.

4. Mr. Langan had agonal breathing about eight and a half minutes after electronic control.

[92] Agonal breathing is a gasping, ineffective attempt to breathe, often noted in connection to cardiac arrest. Agonal breathing was noted by the paramedic at 16:07, or at least eight minutes after the event. Professor Kroll cites two studies showing almost no possibility of agonal breathing for more than six minutes. The evidence of agonal breathing was from both Constable Temple and Mr. Carignan. Mr. Carignan was trained as a paramedic and would have been specifically noting his observations as he was attempting to save Mr. Langan. The presence of agonal breathing strongly points to the ventricular fibrillation starting at least a couple of minutes after the Taser ECD pulses had stopped.

[93] The evidence presented in relation to these four points is compelling. Each of the points alone leads to a conclusion that the Taser ECD did not cause the ventricular fibrillation which was present when the paramedics checked the heart rhythm. When combined, the four points strongly point to exclusion of the Taser ECD as a factor in the ventricular fibrillation and death of Mr. Langan. There is no basis to conclude that the Taser ECD caused the death of Mr. Langan.

[94] Professor Kroll also points to the use of the Taser ECD as a police force option designed to reduce the frequency of arrest-related deaths. Studies have demonstrated a reduction in such deaths by about 65 percent when a Taser ECD is involved. Use of a Taser ECD can reduce the use of lethal force, since the alternative is generally the use of a firearm. Professor Kroll notes twenty deaths

associated with the use of a Taser ECD. Seventeen have involved head injury from an uncontrolled fall. Three appear to have involved fumes or flammable vapours being ignited by a spark from a Taser ECD. Neither is relevant here. Although Mr. Langan struck his head, there is no evidence that the fall contributed to his death.

[95] Professor Kroll also provided information with respect to the number of times a Taser ECD has been used either in field use or in a training exposure. As of October 2015, there had been 1,950,000 training exposures and 2,890,000 uses in the field for a total of 4,840,000 uses. He also noted that the pulse of a Taser delivers less than 110 microcoulombs of charge, far less than that required for transcutaneous pacing of the heart, making any cardiac effect highly unlikely. His report dealt extensively with studies conducted on swine which have determined that the possibility of electrocution from a Taser ECD may theoretically exist, but only in an extremely small individual, weighing no more than 21 kilograms, with an emaciated build that allowed one probe to almost touch the heart and with the other probe in an extremely limited location. It is inconceivable that a Taser ECD would be used by a police officer on such an individual, assuming that one exists.

[96] Doctor Richard Luceri is a medical doctor and has a 30 year history as a cardiac electrophysiologist. His background, education and expertise were included in his curriculum vitae. It includes 15 pages of articles which he has authored for refereed journals as well as books or book chapters authored or co-authored. As with others, he is a founding and current member of the Taser International, Inc. Scientific and Medical Advisory Board and was paid for his report and his attendance at the Inquest. His evidence was credible and compelling.

[97] His opinion was that the Taser ECD did not more than minimally, trivially or negligibly, if at all, contribute to the death of Mr. Langan by mechanism of direct electrical charge to his heart inducing a cardiac arrest.

[98] He cites five reasons for that opinion:

1. Sudden unexpected cardiac arrest in young persons who have no known clinical heart disease is not uncommon;

2. Alcohol intoxication is a well-known factor in provoking spontaneous cardiac arrest;
3. A high percentage of patients with hamartoma tumours of the heart develop spontaneous ventricular arrhythmias and die suddenly;
4. The Taser ECD did not induce ventricular fibrillation in Mr. Langan because: (a) there was insufficient electrical output of the device to reach the heart; and (b) the probes were too far from the heart to directly induce ventricular fibrillation;
5. Electrically-induced ventricular fibrillation is easily restored to baseline rhythm by defibrillator shocks. Mr. Langan's ventricular fibrillation was not restored to normal by relatively early automated external defibrillator intervention.

1. Sudden unexpected cardiac arrest in young persons who have no known clinical heart disease is not uncommon.

[99] Studies conducted over the last 25 years have determined that cardiac arrest and death in young people is not as rare an event as previously thought. Studies have shown a significant number of cardiac arrests in the young, including from exertion. Even with a properly conducted autopsy, in many cases a specific cause of death is often not determined, because the absence of cardiac abnormality prevents confirmation of the cause of death. Increasingly, new techniques such as genetic testing or molecular autopsies are allowing doctors to determine the frequency of heart death in the young.

2. Alcohol intoxication is a well-known factor in provoking spontaneous cardiac arrest.

[100] The association between heavy alcohol intake and sudden heart death in those with no known structural heart disease has been documented. Mr. Langan had a blood alcohol level of 178 milligrams of alcohol in 100 millilitres of blood, a level consistent with intoxication.

3. A high percentage of patients with hamartoma tumours of the heart develop spontaneous ventricular arrhythmias and die suddenly.

[101] Dr. Luceri describes the hamartoma as a rather rare cardiac tumour. Other witnesses had described it as rare or very rare and had not encountered one, other than with Mr. Langan. Dr. Luceri provided a table of seven reports of 15 cases of hamartoma. In those, cardiac arrhythmias had occurred in 8 patients or 53 percent of those studied. Three of those patients died, for a fatality rate of 37.5 percent. Mr. Langan had been found to have extensive myocyte disarray. Dr. Luceri concluded that there is a high probability that the hamartoma triggered fatal ventricular fibrillation due to spontaneous internal excitability and firing of already deranged cells.

4. The Taser ECD did not induce ventricular fibrillation in Mr. Langan because: (a) there was insufficient electrical output of the device to reach the heart; and (b) the probes were too far from the heart to directly induce ventricular fibrillation.

[102] He analyzed the charge delivered by the device, which requires consideration of the current, multiplied by the pulse duration. In the case of the Taser, there are 19 pulses per second. He cites a study showing a safety margin for ventricular fibrillation induction as 29 times the magnitude of the Taser pulse. He also notes that devices, such as pacemakers, specifically designed to have enough charge to reach the heart have a safety margin of about 12.6 times. That is, 12.6 times the charge would be required to induce ventricular fibrillation. Those devices are safe. A Taser has greater protection, since the distance of the probes from the heart leads to greater impedance and correspondingly less charge. He cited studies conducted on swine and on humans. The maximum dart to heart distance capable of directly inducing ventricular fibrillation is about 4 millimetres. In Mr. Langan's case, the closest dart to the heart was much farther away, over 6 centimetres. The second dart was not in a spot sensitive to external stimulation.

[103] Dr. Luceri also considered field and training experience with Taser ECDs. There has never been a single electrocardiogram or imaging documented case of a Taser ECD directly inducing ventricular fibrillation or sustained ventricular tachycardia leading to ventricular fibrillation or cardiac arrest despite more than

4,880,000 uses. That statement is qualified, but his analysis is consistent with other evidence and with other studies.

5. Electrically-induced ventricular fibrillation is easily restored to baseline rhythm by defibrillator shocks. Mr. Langan's ventricular fibrillation was not restored to normal by relatively early automated external defibrillator intervention.

[104] Dr. Luceri pointed to his own experience on point and cited studies showing electrically induced ventricular fibrillation are defibrillated without cardio-pulmonary resuscitation up to seven or eight minutes into ventricular fibrillation. With cardio-pulmonary resuscitation, the time can be extended beyond eight minutes. The success rate is much lower in the presence of coronary ischemia. He also noted the result of a study involving 1,000 hospitals and 36,902 cardiac arrests which occurred in hospital. In those circumstances, rapid assistance from highly trained staff with the best equipment is available. In those cardiac arrests, 37 percent were in ventricular fibrillation or pulseless ventricular tachycardia. Of those, only 36 percent survived to hospital discharge.

[105] Those with ventricular fibrillation which is electrically induced have a very high rate of success with defibrillation conducted within minutes of the ventricular fibrillation. Those with other issues such as heart disease or a tumour have a much lower success rate. Had Mr. Langan's ventricular fibrillation been caused by the Taser ECD, it is highly likely that the defibrillation would have been successful.

[106] Dr. Luceri's opinion was well supported and consistent with other credible evidence. His conclusion that Mr. Langan's arrest in ventricular fibrillation was a spontaneous occurrence and not caused by the Taser ECD is compelling.

[107] Dr. Panescu is an electrical engineer and expert in finite modeling and the flow of electricity into and within the human body. He has a Ph.D. in Electrical and Computer Engineering. He is a Fellow of the Institute of Electrical and Electronic Engineers, a Fellow of the American Institute of Medical and Biological Engineering, the inventor of over 150 U.S. patents, with another 100 pending and a prolific author in professional journals. As with other witnesses, his report and

attendance to give evidence were paid for by Taser International, Inc. He was a credible and compelling witness.

[108] His opinions dealt with the issue of whether the electrical current in this case could have caused the ventricular fibrillation which occurred. His opinion included a thorough analysis of the ability of the current to flow from the darts to the heart.

[109] Dr. Panescu worked through studies of body mass index, together with the information from the autopsy to determine that the probes in Mr. Langan's case were considerably farther from his heart than could have been the case to cause ventricular fibrillation. His calculation of the distance from the dart to the heart included consideration of the photographs, the orientation of the probes, the depth of penetration of the probes as well as the information about Mr. Langan. His calculation was that the distance from the probe to the heart was about 7.06 centimetres. His calculation is consistent with all of the other information and appears accurate. His estimate was that the distance from the dart to heart was more than sixteen times greater than the theoretical threshold.

[110] He considered a number of studies, including a determination of where the Taser ECD electric field vector was in relation to the heart. His opinion was that it was extremely unlikely that the Taser ECD contributed to causing ventricular fibrillation in Mr. Langan. That opinion is reasonable. He also reviewed the output of this Taser ECD, comparing it to medical devices such as external defibrillators, pacemakers and cardiac ablation generators. The peak arcing voltages are high, at about 50,000 volts, but the device works on a series of brief pulses. Each of the approximately 19 pulses per second delivered over 5 seconds lasts for a brief period, about 126 microseconds. The power delivered in a typical load is about 1.75 watts. The charge in the main phase is about 100 microcoulombs.

[111] All of the medical equipment used for comparison has a lower voltage. However, the other comparisons point to the relatively low power delivered by the Taser ECD in comparison. The pulse duration of an external defibrillator, in comparison, is 10,000 microseconds. The charge in the main phase is 100,000 microcoulombs. The energy delivered in a typical load is 0.095 joules for the Taser ECD as compared to 200 joules per pulse for the defibrillator. The other

comparisons are similar. The point made is that the electrical output of the Taser ECD is relatively low in comparison with medical devices used safely for cardiac reasons.

[112] Dr. Panescu also established that only a small portion of the current that enters the thorax reaches the heart, due to the high resistance of the skin, the subdermal fat layer and the thoracic cage. Working from studies on defibrillation, he also noted that the amount of delivered current, voltage and charge generated by the Taser ECD are well below defibrillation thresholds by a wide margin of safety. His modelling demonstrates that the current required to cause ventricular fibrillation was not delivered through his body to a distance of more than 4.3 millimetres from the dart, well below the actual distance between the dart and Mr. Langan's heart. In summary, based on consideration of all the available information on Mr. Langan and modelling based on significant studies, the Taser ECD did not contribute to Mr. Langan's death.

[113] Mr. Langan went into ventricular fibrillation after what had to have been a very stressful combination of events. He had broken into a car and stolen an item. He had been caught. He had been pursued for 1.7 kilometres, running while a car was chasing him. It was a hot day. The police had cornered him. They challenged him and yelled at him to drop the knife he was holding. For some reason, he refused to do so. He was intoxicated and had earlier used drugs. He had a rare heart tumour, a hamartoma. The failure of resuscitation efforts, started soon after his ventricular fibrillation, points to the hamartoma as a significant factor in his death. While the Taser ECD was used at about the same time that he went into ventricular fibrillation, the connection is only temporal, not causal. There is no reliable evidence to establish that the Taser ECD contributed to his death.

IX. RECOMMENDATIONS

[114] The death of such a young man was tragic, but nothing in the actions of the police or paramedics contributed to the death. The use of the Taser ECD was appropriate given the threat presented and the failure of Mr. Langan to respond to the police by dropping the knife. The officers responded to the threat in an appropriate fashion.

[115] The Taser ECD has not been shown to have caused Mr. Langan's death. The combination of stress, exertion and the hamartoma all contributed to the cardiac arrest and the hamartoma is the likely cause of the failure of the defibrillator to restore a normal rhythm. Nothing should have been done differently by the police or by the paramedics. The response was quick and the care was appropriate in the circumstances.

[116] The Taser ECD was an appropriate weapon to use in these circumstances. Pepper spray was not immediately available. A device such as a baton could not have been used in time had Mr. Langan moved forward. Constable Temple was in a position where he would have been ready to use his handgun in a moment, but the Taser ECD is not a lethal force option like a handgun. No one could be expected to know that a person with a knife might also have a rare heart tumour.

[117] The cardiologist suggested that all police vehicles should be equipped with automated external defibrillators. There is no basis to suggest that defibrillation attempts by the police would have had any more success than the unsuccessful attempts by the paramedics. This was not a situation where the ambulance response was delayed. In most cases of cardiac arrest, it is likely that a paramedic would be summoned before a police officer. There is no basis here to suggest that automated external defibrillators should be installed in police vehicles.

X. CONCLUSION

[118] Given my findings, there are no recommendations that I can make to prevent similar deaths from occurring in the future.

I respectfully conclude and submit this Report on this 11th day of July 2016, at the City of Winnipeg, in the Province of Manitoba.

"Original signed by:"

Timothy Killeen PJ

Manitoba

THE FATALITY INQUIRIES ACT
REPORT BY PROVINCIAL JUDGE ON INQUEST

RESPECTING THE DEATH OF: MICHAEL BRIAN LANGAN

APPENDIX A - EXHIBIT LIST

Exhibit No.	Description
1	Letter from the Chief Medical Examiner dated September 2, 2010, calling the Inquest
2	Not used
3	Letter to Inquest Coordinator dated March 4, 2014, together with attached medical report
4	Letter from Thor Hansel of Aikins, MacAuley and Thorvaldson, dated February, 27. 2014, together with attached medical report of Dr. R. Schindle
5	Booklet of photographs
6	Google map of area
7	Knife
8	Photographs
9	Brief filed by A. Rudakoff
10	Brief filed by the Law Society of Manitoba
11	Curriculum vitae of the cardiologist
12	Documents considered by cardiologist: a) Letter by Heegaard et al regarding article: "Sudden Cardiac Arrest and Death following application of shocks from a Taser Electronic Control Device" b) "Taser Electronic Control Devices and Cardiac Arrest: Coincidental or Causal?" Kroll, Lakkireddy, Stone, Luceri

c) Response letter to article "Sudden Cardiac Arrest and Death following application of shocks from a Taser Electronic Control Device"
d) Taser Electronic Control Devices can cause Cardiac Arrest in Humans (13 page article)
e) "Police use of Taser Devices in Mental Health Emergencies: A Review" (7 pages)
f) "Cardiac Fibrillation Risk of Taser Weapons" (8 pages)
g) "Taser Electronic Control Devices and Cardiac Arrest: Coincidental or Causal?" Kroll, Lakkireddy, Stone, Luceri (11 pages)

13 "Taser Conducted Electrical Weapons: Physiology, Pathology and Law" Book written by Kroll and Ho

14 Letter to R. Gosman, dated May 9, 2014

15 Curriculum vitae of pathologist

16 Schematic diagram of a heart

17 Report of Medical Examiner

18 Curriculum vitae of Marvin Redmann

19 Report of Mark Kroll, Ph.D.

20 Paper "Electrical Safety of Conducted Electrical Weapons Relative to Requirements of Relevant Electrical Standards" Co-authored by M. Kroll (6 pages)

21 "Ventricular fibrillation: are swine a sensitive species?" Co-authored by Mark Kroll, January 16, 2015 (7 pages)

22 Study: "The Health Effects of Conducted Energy Weapons – The Expert Panel on the Medical and Physiological Impacts of Conducted Energy Weapons" produced by The Council of Canadian Academies & The Canadian Academy of Health Sciences. 2013 (90 pages)

23 "Can Taser Electronic Control Devices Cause Cardiac Arrest?" Excerpt, Circulation AHA, Kroll, Lakkireddy, Stone, Luceri, 19 pages with supplement, January, 2014

24 Two batteries, one Taser battery pack, one Taser wire, two probes, one nitrogen capsule

25	Paper "Cardiac Electrophysiological Consequences of Neuromuscular Incapacitating Device Discharges", Journal of the American College of Cardiology, 2006 (10 pages)
26	Report of Dr. Michael Alan Graham (31 pages), December 7, 2015
27	Paper "Investigation of Deaths Temporally Associated with Law Enforcement Apprehension" Michael Graham, (23 pages)
28	Report of Dorin Panescu, Ph.D. (47 pages), December 7, 2015
29	Diagrams "Body Model Showing Height and CEW Probe Locations from Forensic Pathologist Report" (9 pages)
30	Report of Dr. Richard M. Luceri, December. 7, 2015, (49 pages)
31	Intentionally left out
32	Report of Medical Examiner
33	Final autopsy report
34	Neuropathology consultation
35	Toxicology report
36	Consultation of Dr. Veinot
37	Preliminary death report
38	Office of Chief Medical Examiner notes
39	Office of Chief Medical Examiner emails
40	Office of Chief Medical Examiner phone messages
41	Death certificate
42	Office of Chief Medical Examiner collection of media reports
43	Various articles on CEWs assembled by Office of Chief Medical Examiner
44	Winnipeg Fire and Paramedic Service report – paramedic report
45	Winnipeg Fire and Paramedic Service report- defibrillator print out
46	Report of Dr. Schindle
47	Assessment, Health Sciences Centre
48	Medical record, Health Science Centre
49	Medical notes, Health Sciences Centre
50	Download from CEW
51	Sworn witness declaration of Jordan Wolfman
52	Winnipeg Police Service CEW Policy
53	Winnipeg Police Service Use of Force Policy
54	Transcript 911/ Police radio communications

55	Transcript of interview by police of Brian Minchin
56	Transcript of interview of Jordan Wolfman
57	Winnipeg Police Service call history
58	Report of Constable Matthews, Identification Section, Description and Photographs, 16:30, July 22, 2008
59	Report of Constable Matthews, Identification section, description and seizing of Exhibits, 16:57, July 22, 2008
60	Letter from Probation Services to Winnipeg Police Service concerning discussion with Mr. Minchin