R. v. Supreme Steel Ltd. 2004 NWTTC 01 T-1-CR-2002001700

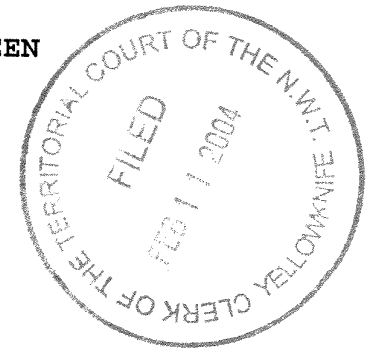
IN THE TERRITORIAL COURT OF THE NORTHWEST TERRITORIES

IN THE MATTER OF:

HER MAJESTY THE QUEEN

- and -

SUPREME STEEL LTD.



Transcript of the Reasons for Judgment delivered by The Honourable Judge B.A. Bruser, sitting in Yellowknife, in the Northwest Territories, on the 23rd day of January, A.D. 2004.

APPEARANCES:

Mr. N. Sinclair: Counsel for the Crown

Mr. J. Joosse: Counsel for the Accused

(Charge under s. 39 of the ***Mine Health and Safety Act***)

THE COURT: Good afternoon.

MR. SINCLAIR: Good afternoon, sir.

THE COURT: Counsel are ready to receive the judgment?

MR. JOOSSE: We are, Your Honour.

THE COURT: Crown is ready?

MR. SINCLAIR: Yes, sir.

THE COURT: This has been a lengthy and complex trial. It has lasted several weeks, spread over close to one year.

Counsel have prepared and presented their respective cases in exemplary ways. They have been thorough, fair, and reasonable. Their courteous conduct toward each other, toward witnesses, and toward the court staff and toward the Court has been a model of professional behaviour. I also extend my appreciation to every one of the many witnesses for the prosecution and for the defence, who, without exception, have presented the testimony to the best of their ability and with integrity. Ability and integrity do not automatically make a witness's evidence reliable. The written and oral submissions also serve as a model of what the Court expects. These have helped me to maintain a focus on the important evidence, the applicable issues, and the relevant law.

The single charge is that Supreme Steel Ltd., on

or about the 17th day of July, 2001, at or near the Diavik Mine Site, located at or near 64 degrees 31' N, 110 degrees 20' W, near the City of Yellowknife, in the Northwest Territories, did fail to take every reasonable measure and precaution to protect the health and safety of its employees, namely Gregory Wheeler and Gerhard Bender, by having Gregory Wheeler and Gerhard Bender work on unsafe equipment which resulted in the death of Gregory Wheeler and Gerhard Bender, contrary to Section 15 of the *Mine Health and Safety Act*, and did thereby commit an offence under Section 39 of the *Mine Health and Safety Act*.

The applicable charging section of the statute reads:

> Where a contractor performs work at a mine, the contractor, the employee or officer of the contractor in charge of the work of the contractor at the mine, and the owner and manager of the mine shall, in respect of the work of the contractor at the mine, (a) take every reasonable measure and precaution to protect the health and safety of employees of the contractor, employees of the mine and other persons at the mine; and (b) comply with, and ensure that other persons comply with this Act and the regulations and any applicable orders or directives issued under this Act or the regulations.

From this, it is apparent that Section 15 does not impose guarantees of safety. To require the certainty of a guarantee would clearly be unreasonable because the mining workplace is inherently dangerous.

It is not a muffin shop. Everyone who works at a mine site recognizes the dangerous nature of the work.

Section 15 addresses the safety issue with the use of the word "every" as a modifier. The section does not permit mere reasonable measures and precautions to be taken, nor does it unrealistically impose a burden of taking every possible measure and precaution. Instead, the word "every" shows that the legislature intended to impose a heavy yet reasonable burden.

If the prosecution meets the onus upon it, an onus of a different sort shifts to the Defendant. The onus on a Defendant is set out in Section 43 of the Act. Section 43 is brief but not insignificant. It reads:

> No person is guilty of an offence under this Act or the regulations if the person establishes that he or she took all reasonable measures to prevent its commission.

As with Section 15, Section 43 uses a modifier. Assuming proof beyond a reasonable doubt of a prohibited act, a Defendant does not succeed in establishing a successful defence if the defendant merely establishes that it took reasonable measures to prevent the commission of the offence. Section 43 requires that "all" reasonable measures be taken. The word "all" must have meaning, or it would not have been included in the section. I interpret the word

"all" to have its ordinary dictionary definition. I incorporate the definition of the word "all" from sources such as the Canadian Oxford Dictionary which interprets the word to mean "greatest possible" or to like effect.

In the context of Section 43, the meaning is to take the greatest possible measures. These measures must be subjectively and objectively reasonable in the circumstances. For example, different considerations would be applied to a worker using a carpenter's hammer supplied by Supreme Steel than to the operator of one of its manlifts.

The issues of fact have been very difficult to assess and to weigh. The evidence itself, while complex, is readily understandable. But there has been complex, technical engineering evidence, and to complicate it, there have been conflicts arising from the opinions of experts.

I have considered the expert evidence and all the other admissible evidence over many months both as the evidence unfolded and upon careful reflection. Despite the complexity of the evidence, the main issues are clear, and these are:

1. Has the prosecution proven beyond a reasonable doubt that Supreme Steel committed a prohibited act?
2. Has the prosecution proven beyond a reasonable

doubt that the prohibited act was a failure to take every reasonable measure and precaution to protect the health and safety of the deceased workers?

3. Has the prosecution proven beyond a reasonable doubt that Supreme Steel had the deceased workers working on unsafe equipment?

4. Did working on unsafe equipment cause the fatalities?

5. If the prosecution has proven all the foregoing beyond a reasonable doubt, has the defence satisfied the burden on it, on a balance of probabilities, that it has met the Section 43 defence?

The prosecution shoulders a heavy burden in this strict liability offence. The Defendant may or may not shoulder a burden.

From what I have said, it is apparent that I do not accept the proposition advanced by the prosecution at paragraph 9 of its brief that the "principal issues" before the Court are simply (a) whether the Crown has proven that the Defendant committed a prohibited act, and (b) whether the Defendant took all reasonable measures to prevent the commission of the prohibited act, although stating the issues in this way succinctly summarizes them. That I have set out in more detail.

I accept the second proposition as a principal issue in the event of a finding in favour of the Crown on the first four issues that I mentioned earlier. These four issues must be proven. I arrive at this conclusion based on how the charge has been framed. The charge as framed is the only one that the Defendant has been called upon to meet. I base these conclusions upon the following considerations:

1. The charge refers to on or about the 17th day of July, 2001, rather than a broad period of time. This supports the position of the defence that it was the specific event of July 17th, despite the use of the words "on or about", that is the foundation of the charge.

2. The specific date is the one on which the manlift overturned.

3. The defence says that it would have answered the charge differently had it understood the charge as worded was intended to encompass a variety of different prohibited acts over a period of time, and, consequently, the defence properly argues that it would suffer prejudice should the Court decide the case on the basis of any prohibited act other than the one framed in this charge.

4. The defence correctly argues that if the charge as framed is interpreted by the Court to intend something different, then the Court would, in effect, be permitting the Crown to broaden the charge as the trial has unfolded and this would be unfair and contrary to basic principles of fundamental justice.

5. It seems to me that what has happened here is that the Crown, for reasons best known to it, waited until the last day before the expiration of the limitation period to have the charge sworn, realized too late that it could have difficulty proving the charge as particularized, and is now asking the Court to treat key components of the charge as mere surplusage; this I am not able to do; otherwise, there would be an unfair trial.

I find support for these conclusions from case law. I will briefly refer to some leading law. I begin with the distinction between particulars and disclosure from paragraph 9:8070 from Ewaschuk, *Criminal Pleadings & Practice in Canada*:

> Particulars relate to material facts which constitute part of a charge that has to be proved at trial. Disclosure relates generally to the evidence the Crown will lead at trial to prove the

charge alleged.

The reason I am referring to this brief passage from Ewaschuk is that it leads into the case law.

The Supreme Court of Canada, in the case of *R. v. Rooke and De Vries*, (1990) 56 C.C.C. (3d) 220, held that:

> It is a fundamental principle of criminal law that the offence, as particularized in the Indictment, must be proved ... To permit the Crown to prove some other offence characterized by different particulars, would be to undermine the purpose of providing particulars which is to permit the accused to be reasonably informed of the transaction alleged against him, thus giving him the possibility of a full defence and a fair trial.

In *Rooke and De Vries*, the Court also said that the Crown chose to particularize the actual drug involved and failed to prove a conspiracy that had been particularized. The Court held it would not be proper to amend the charge to delete the particularization. The trial proceeded on the basis that for the Crown to succeed, it would have to prove a conspiracy relating to heroin, and on this basis, one of the accused took the stand. The Court held, and this is a fundamental principle from the judgment, that it would be unfair and prejudicial to the accused after that course of events to permit an amendment that would fundamentally and retroactively change the nature of what the Crown had to prove.

More specifically, in the case of *R. v. Bonus Resource Services Corp.*, (2002) B.C.J. No. 372, Fort St. John Provincial Court, there were charges stemming from the death of an employee at an oil well. The charge was failing to operate an industrial process in accordance with the manufacturer's recommendations and instructions, causing the safeguard to be removed, and related failures. The Court acquitted the defendant corporation on the basis that the Crown had failed to establish the prohibited act as particularized in the Information.

Also in British Columbia, in the case of *R. v. Crosby*, (1997) B.C.J. No. 562 (B.C.S.C.), the Court held that once the Crown particularized an alleged offence in an Information, it had to prove that particular beyond a reasonable doubt. That was a case of driving while disqualified.

In the Nova Scotia Court of Appeal, in the case of *Whynot*, (2000) N.S.J. No. 22, the charge was one of possession of stolen property as it is commonly called. The Court held that the Crown did not have to prove elements which were incidental to the offence.

It follows, as I interpret the case law, that if the prosecution has failed to meet its burden to prove the charge as particularized, there is no shifting of a burden on to the defence, in which case the charge must be dismissed. It also follows that if the

prosecution has met its burden and if the defence fails to meet the burden upon it, then it must be found guilty.

There is a body of agreed facts, much of which is in Exhibit 1: See Appendix "A" to these Reasons.

The agreed facts show that this trial is about a piece of heavy equipment called a manlift. It toppled over on July 17th, 2001, at the Diavik mine site at the time the mine site was being constructed. The deceased workers had been working in what is called a man basket. The man basket is a small, partially enclosed working platform on the manlift. At the time the manlift overturned, the man basket had been extended high into the air at the site of a building which then was under construction. The workers were killed instantly when the man basket hit the rocky ground as a consequence of the manlift toppling over. They had been properly tethered into it and were wearing all the appropriate safety equipment. Their horrific last moments were spent plunging to certain death onto the rocks below. There was no possibility of escaping their fate.

The prosecution leads into its written submissions in the following way. I begin with page 1, paragraph 4 and paragraph 5:

> The crown contends that the defendant did not properly maintain the mechanical condition of the Manlift prior to the

overturning event. As a result of the defendant's neglect of thorough inspection and service procedures the Manlift became, in the days leading up to the event, a deadly mantrap waiting to be sprung.

Paragraph 5:

By requiring Mr. Bender and Mr. Wheeler to use this unsafe equipment the defendant failed to take every reasonable measure and precaution to protect the health and safety of its employees, and in so doing, the defendant committed an offence under the *Mine Health and Safety Act*.

The defence leads into its written submissions in the following way. Paragraph 3:

The position of the Defendant, Supreme Steel Ltd., is that though it abhors the tragedy of the event of July 17, 2001, it must resist allegations of wrongdoing on its part.

In particular, the defence says at paragraph 4(a):

In order for Supreme Steel Ltd. to have to answer the Crown's case, the Crown must establish proof of causation of the event beyond a reasonable doubt. The Crown has failed to fulfill its onus of proof to the required standard. The case of the Crown must therefore fail.

Paragraph 4(b):

Alternatively, even if the Crown has established causation beyond a reasonable doubt, the Defendant ... has established that all due care had been taken by it to prevent an event such as the subject event and, therefore must be acquitted.

At paragraph 10, the defence says:

> Though the defence takes issue with the theory enunciated by the Crown in regards to causation, the following can be gleaned from the charge and particularization provided by the Crown. In order for the Crown to make an answerable case it must prove the following:
>
> (a) That the machine was owned or operated by the Defendant;

(This is not in any way in dispute); and,

> (b) That the pre-event condition of the machine was unsafe; and
>
> (c) The unsafe condition resulted in a malfunction which caused the overturning event; and
>
> (d) The overturning event resulted in the deaths of the employees.

At paragraph 11, the defence submits that the actus reus of the offence is the placing of the men in a perilous position by having them work on an unsafe machine. Therefore, the defence says, the seminal issue is whether the machine was unsafe or not. If the Crown is able to prove the unsafe condition, it must go on to prove that the unsafe condition caused the overturning (this latter part of paragraph 11 must be emphasized), which, in turn, caused the deaths.

I am in agreement with the submission found at paragraph 7 of the defence brief in which is written:

> ... the overturning event itself, is not in and of itself conclusive of anything constituting the offence. The overturning event is not the 'act'. Rather, it is respectfully submitted, the Crown must prove that the overturning event resulted from an 'act' of the

> Defendant. That is, the Defendant must have 'caused' the overturning event, which resulted in the tragic consequences.

In other words, what I take from this paragraph is that it would be illogical and unsafe to reason backwards from the overturning event to a conclusion that because the manlift overturned, there must have been a prohibited act of some sort. A tunnel-vision hunt for a prohibited act because of the overturning event would be to ignore a search for other explanations.

It is not a requirement that I determine what caused the manlift to overturn. Rather, it is my duty to deal with the issues that have been raised in the context of the applicable law and the admissible evidence. To detour from this process into an inquiry of a different sort would be to fall into error. In particular, it is most important to keep in mind that this is neither a coroner's inquest nor is it a civil case in which civil liability is in issue.

I refer to paragraphs 12 and 13 of the defence brief. Paragraph 12:

> It is understood ... that the case falls into the category of 'strict liability' offences ... That is, the case remains a *mens rea*, but *mens rea* is presumed once the *actus reus* ... has been proved. The presumption of *mens rea* is a rebuttable presumption upon the Defence proving that it took reasonable care.

In paragraph 12, I would, however, substitute the words "all reasonable measures" for the words "reasonable care" so that the words actually conform to the wording of Section 43. In this respect, I do not agree entirely with paragraph 12, but the thrust of the submission otherwise is a sound one.

Paragraph 13:

> ... the onus of proof of causation rests entirely with the Crown. The Defence is not called on to prove causation. If there is a doubt about causation, such doubt must be resolved in favour of the Defence.

The *Petro Canada* case is cited after paragraph 13. I follow the law in *Petro Canada*, which is an Ontario case that stands for this principle.

The manlift, manufactured by a company called Grove, is a Model AMZ131XT. It is a complicated but reliable piece of equipment. If it is structurally sound, mechanically sound, and operated properly by properly trained workers, it is a safe machine to operate.

It was described in evidence by Harold LaFave, of Klondike Crane Inspections, as a Cadillac of manlifts. Mr. LaFave did a structural inspection of the manlift in Edmonton, Alberta, shortly before the manlift went into operation at the Diavik site.

The prosecution discusses the particulars of the various prohibited acts in paragraph 6 of its

submissions. Paragraph 6 will be marked as Appendix "B" to these reasons.

In paragraphs 376 to 429, inclusive, the prosecution sets out the facts that it says prove causation, that is, the cause of the incident. These paragraphs will be marked as Appendix "C".

The prosecution forcefully argues that had Supreme Steel addressed all the particulars of the various prohibited acts mentioned in Appendix "B" and had it done so properly, the defects in the manlift safety interlock system would have been detected and corrected long before Mr. Bender and Mr. Wheeler went up into the air in the man basket, thereby lifting themselves to disaster.

The safety interlock system is a safety system cleverly designed to keep the manlift working inside a safety envelope. If the manlift is working outside the safety envelope, it can topple over; although it cannot be predicted with certainty at what angle it will necessarily topple when outside the safety envelope.

The prosecution argues that the evidence is overwhelming that the angle of the riser, which is a lifting and extension arm of the manlift, was between 48.5 degrees and 53.1 degrees at the material time. In other words, the riser arm was not fully elevated to an angle of approximately 70 degrees as it ought to

have been for safe working conditions given the extensions of other components at the relevant time. The Crown combines this with what it says at paragraph 13 is "uncontroversial evidence" concerning the design characteristics of the manlift. The Crown says in its submissions that by combining this fact with the evidence of pervasive limit switch defects on the manlift, "one is drawn inevitably to the conclusions that the manlift was not in working order and that the riser limit switch defects were the substantial cause of the overturning event."

I shall now read paragraphs 374 and 375 of the Crown's brief:

> 374. The Crown's theory of causation is simple: the two riser angle limit switches were defective; these defects allowed the Manlift to be positioned in a potentially unstable configuration; the operator introduced a lateral load on the Manlift by attempting to reposition the work platform; the Manlift became unstable and it fell over.
>
> 375. It is submitted that this theory of causation is consistent with the evidence as well as with what has been called 'the natural logic of everyday affairs'.

The quote by the Crown comes from *Evidence and Advocacy*, Butterworths, 1998.

Although Mr. LaFave described this model of manlift by comparing it to a Cadillac, I consider it odd that there are no gauges, no warning bells, nor other instrumentation in the man basket to alert the

operator when the riser arm angle is outside, or is approaching the outside, of the safety envelope. A safety device of this sort could act as a backup safety device in the unlikely event of the limit switches malfunctioning. The purpose in mentioning this is that if the theory of the Crown is correct, the deceased workers would probably not know that they were placing themselves in peril until it was too late. Any lateral load introduced by them would have been done without the operators having a proper perspective of their perilous predicament.

The defence meets the causation issues by arguing equally forcefully that for every sound point made by the Crown, there is sound evidence to the contrary that ought to raise a reasonable doubt on the issue of the prohibited act.

It is my assessment of the Crown's theory regarding the limit switches that Mr. Thicke's opinion correctly identifies the probable cause of the overturning event. Mr. Thicke was qualified to offer opinion evidence in the field of mechanical engineering. He was also permitted to give opinion evidence in the field of mobile equipment stability systems and mobile equipment safety systems. His report is Exhibit 28. I accept as a probability that Mr. Thicke's carefully considered and persuasively presented opinion is likely accurate. He writes:

> The manlift was inadvertently placed in a potentially unstable configuration by the operator as a result of the failure of the riser arm safety interlock limit switches.

The facts upon which he arrives at this opinion are present in the evidence. The totality of the circumstances satisfies me that he is probably correct even if the failure of the limit switches was an intermittent problem, thereby making it less apparent than if it were a continuous malfunction.

Mr. Thicke puts it in the following way as well in Exhibit 28, at paragraph 2.7:

> One of the two riser full-up safety interlock limit switches closed at a riser arm angle of 47 degrees from the base.

Paragraph 2.9:

> Deductive reasoning suggests that the second riser full-up safety interlock switch must have been stuck in the closed position while the basket was being raised toward the work site, thereby allowing the 47-degree limit switch to control the telescoping sections of the riser arm and to allow those sections to extend even though the riser arm was some 22 degrees under the required riser arm angle.

The defence suggests that Mr. Thicke's reasoning is circular because (a) the redundant character of the limit switches as they were found post-accident would have prevented the unsafe configuration; (b) Mr. Thicke merely eliminates the problem by making the unsupported conclusion that the second riser full-up

limit switch must have been stuck; (c) Mr. Thicke offers the opinion that the redundant switch was stuck in order to have the facts fit the theory of the Crown. The defence says there is no evidence that the left riser-up limit switch ever failed either pre- or post-event operational checks of that particular switch and that the evidence actually is to the contrary. From this, the defence argues Mr. Thicke would have the Court conclude that the second riser-up limit switch must have been stuck in the closed position. Hence a circular attempt to prove the theory of the Crown.

Dr. Ball offered opinion evidence for the defence in the areas of the failure analysis of lift equipment, failure prevention of lift equipment, mechanical principles of machinery, design and construction of lift equipment, accident reconstruction, inspection and repair procedures on lift equipment, and the inspection and construction of structural steel. There is sufficient merit in the summary of Dr. Ball's opinions, found at paragraph 82 of the defence submissions, upon which to base a reasonable doubt unless I reject his opinions. Paragraph 82 will be marked as Appendix "D".

I do not reject Dr. Ball's opinion that this case is missing a convincing accident reconstruction. In the place of convincing evidence, I am offered

theories that I find to be probabilities.

As attractive as the Crown's theory regarding the limit switches may be, I am unable to conclude beyond a balance of probabilities that this caused the manlift to topple over. This becomes a fatal flaw for the Crown on this argument. The theory may meet the civil standard, but not the standard that I am called upon to apply. To accept this theory as proof beyond a reasonable doubt would be an unsafe stretch given the compelling and persuasive evidence to the contrary, which I find to be reliable.

The Court is not allowed to stack probability upon probability as a substitute for proof beyond a reasonable doubt. The problem as I see it is that it is not possible to conclude what went wrong beyond a reasonable doubt, and I am not permitted to engage in speculation or other forms of guesswork to fill the void. The Crown's theory is highly persuasive and extremely tempting, but in the context of a different standard of proof.

Based upon my assessment and weighing of the totality of the admissible evidence, I reject the Crown's theory that the Defendant required Mr. Bender and Mr. Wheeler to operate unsafe equipment in which there was a critical safety system defect involving the safety limit switches. I am unable to conclude beyond a reasonable doubt what the status of the key

limit switches was at the time the operators worked their fatal shift and the shifts leading up to it. In arriving at these conclusions, I have not overlooked that it is not incumbent upon the prosecution to prove its case to an absolute certainty regarding the actus reus.

This does not end the matter because the prosecution has advanced other particulars of prohibited acts.

I agree with the prosecution that the Defendant did not adequately train the operators in the safe operation of the manlift. There was much more that Supreme Steel ought to have done given the complexity of this model of manlift and its potential for causing catastrophic damage, and given the enormous financial resources available to Supreme Steel. The training, the pre-operational check lists, and the pre-operational checks themselves as distinct from the check lists, were generic at best. There ought to have been more specific training focusing on this particular manlift, and there ought to have been a machine-specific pre-operational check list. The failure to have these things in place was a failure to take every reasonable measure and precaution. Instead, Supreme Steel took more reasonable measures and precautions, which is not enough. It is insufficient compliance. Unfortunately for the Crown,

I do not see how I am able to conclude beyond a reasonable doubt that these failures amounted to having the deceased workers work on "unsafe equipment" as particularized in the charge, which, in turn, resulted in the deaths.

Defects in check lists may make the operation of the equipment unsafe, but it does not make the equipment itself unsafe. There is a critical difference between unsafe operation and unsafe equipment.

The Crown also argues that Supreme Steel failed to request from Grove Worldwide any up-to-date design change records, a safety bulletin, or updated pre-operational check lists. This may be so. But I do not see the connection between this type of failure and the charge as particularized. The failure to do these things does not amount to proof beyond a reasonable doubt that Mr. Wheeler and Mr. Bender were working on unsafe equipment that resulted in their deaths. There may have been safety failures, but the evidence of the failures does not establish that the manlift was in fact, at the material time, unsafe.

A strong point of the Crown is that Supreme Steel failed to ensure that the mechanical, as opposed to structural, integrity of the manlift was inspected and certified by the manufacturer, by a professional engineer, or by another qualified person before the

manlift was put into use at the Diavik site. I find it astonishing that a company as large, capable, and resourceful as Supreme Steel would put the manlift into service when it had no reasonable basis, viewed both subjectively and objectively, to conclude that the critical mechanical components were working within the strict meaning of Section 15 of the Act. Supreme Steel took a gamble with the lives of the operators, but to shift the onus to the Defendant would require me to conclude beyond a reasonable doubt that the failure to have had a proper mechanical inspection was connected to the event. It is possible for any piece of equipment to lack a proper inspection yet fail due to other causes or not fail at all.

This analysis also applies to the Crown's argument that Supreme Steel failed to ensure proper servicing while the manlift was at the site; although, in this latter situation, there was servicing of some sort, albeit I find inadequate, by a heavy equipment mechanic at the site.

With respect to the argument that the Defendant failed to maintain an adequate service log to the manlift, I agree that deficiencies exist, but not in a causal context.

The final point made by the Crown with respect to critical safety system defects is that Supreme Steel failed to respond appropriately to a report from one

of the deceased that there was a functional problem with the elevation rate of the manlift. This evidence may be suggestive of a failure to respond in more reasonable ways, but I do not find the required connection between this and the particularized event.

When I depart from a piece-by-piece analysis of these allegations and combine them in varying combinations and all together, I am unable to conclude that had Supreme Steel done things correctly, the outcome would have been any different. There is an unsolvable mystery here. I have a reasonable doubt that Supreme Steel had Mr. Wheeler and Mr. Bender work on unsafe equipment. Supreme Steel did, however, have Mr. Wheeler and Mr. Bender work under unsafe conditions. Of that, there can be no doubt. But of this, they are not charged.

In summary, Supreme Steel failed to take every reasonable measure and precaution to protect the health and safety of its employees, Gregory Wheeler and Gerhard Bender, by having them work under unsafe conditions; but although I find many prohibited acts that collectively, and in some cases individually, placed the operators in jeopardy, I do not conclude that Supreme Steel in the course of these prohibited acts caused the deceased workers to work on unsafe equipment, that these acts caused the manlift to overturn, and that the prohibited acts resulted in the

deaths. The Crown has not proven all the necessary elements of the offence that it has framed against Supreme Steel.

For these reasons, I do not consider the Section 43 due diligence defence. I had thought about ruling on it in the event that I am mistaken on the prohibited act issue. I have, however, decided against doing so; this is because Supreme Steel defended itself on the basis of the particularized charge and not on the basis of other prohibited acts that I have found to exist. It would be unfair in these circumstance for me to decide the Section 43 issue because of the way the Defendant chose to defend itself.

The charge is dismissed because the particularized prohibited act has not been proven beyond a reasonable doubt.

Again, I thank counsel and everybody else involved in this case.

Madam Clerk, is that it for the day?

THE COURT CLERK: Yes, sir, it is.

THE COURT: We can close court.

MR. JOOSSE: Thank you very much, Your Honour.

MR. SINCLAIR: Thank you, Your Honour. And I would also like to extend my thanks to the court staff during a very lengthy and at times tedious, I suppose, trial.

MR. JOOSSE: And me also.

THE COURT: A challenging trial.

MR. JOOSSE: Yes, it was. Thank you very much, sir, for your time and consideration.

THE COURT: Thank you.

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Certified to be a true and accurate transcript, pursuant to Rules 723 and 724 of the Supreme Court Rules of Court

Jane Romanowich,
Court Reporter

T-1-CR 2002 1700

IN THE TERRITORIAL COURT OF THE NORTHWEST TERRITORIES

BETWEEN:

HER MAJESTY THE QUEEN

- and -

SUPREME STEEL LTD.

AGREED STATEMENT OF FACTS

The following facts are admitted by the Defendant without the necessity of calling evidence, pursuant to section 655 of the *Criminal Code*:

1. On July 17th, 2001, at 22:05, a Grove AMZ 131 XT manlift bearing equipment ID number 8996 and serial number 33000 (the "Manlift") tipped over at the construction site of the Diavik Diamond Mines Inc. Process Plant building.

2. Gerhard Bender and Greg Clifford Wheeler, the two steel workers riding in the Manlift platform when it tipped over, were killed immediately as a result of the fall by massive blunt force trauma to their heads (the "Event").

3. The Manlift was leased and operated by the Defendant, Supreme Steel Ltd.

4. Supreme Steel Ltd. is a body corporate incorporated under the laws of Alberta. Supreme Steel Ltd. is registered and in good standing to conduct business in the Northwest Territories as an extra-territorial corporation pursuant to the *Business Corporations Act*, S.N.W.T. 1996, c.19.

5. Supreme Steel Ltd. was performing work at the Diavik mine site as a contractor of the owner of the mine, Diavik Diamond Mines Inc.

6. The manager of construction services for Supreme Steel Ltd. who was in charge of the work at the mine on behalf of Supreme Steel Ltd., was Peter Leder.

7. The Supreme Steel Ltd. supervisor on duty at the time of the event was Gordon Leder.

8. Mr. Bender and Mr. Wheeler were both members of Ironworkers Local 720, and at that time were employees of Supreme Steel Ltd. They were operating the Manlift on behalf of Supreme Steel Ltd. at the time of the Event.

9. Mr. Bender was born January 23rd, 1968. He was 33 years old at the time of his death. Mr. Bender was single. Mr. Bender is survived by his mother and his six elder siblings.

10. Mr. Wheeler was born August 23rd, 1973. He was 27 years old at the time of his death. Mr. Wheeler and his common-law partner of six years, Jackie Doyle, were engaged to be married. Mr. Wheeler is survived by his mother and father, Geraldine and Fred Wheeler, and his younger brother.

Manlift Specifications[1]

11. The Manlift specifications are as set out in Exhibit "ASF 21"

12. On March 14th, 2001, the Manlift engine hour meter had a reading of 2,897.2 hours of use.

13. On February 21st, 2003, the Manlift engine hour meter had a reading of 3,056.2 hours of use.

14. The Manlift has two Riser Angle limit switches. These switches are positioned at the base end of the main Riser section near the joint where the Riser arm connects with the turntable and counterweight section of the Manlift.

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[1] *Grove Manlift Service Manual*, Grove Manlift, Chambersburg, Pennsylvania, March 1995, pg. 1-1-5

15. These two Riser angle limit switches are designed to be redundant such that under normal operating conditions both switches must be in the permissive state (*i.e.* with the Riser raised to an angle of 70°) before the two Riser telescoping sections are able to be extended.

16. The Manlift has two Riser telescoping limit switches. These switches are positioned inside the main Riser section near the Riser angle limit switches.

17. These switches are designed to prevent the lowering of the Riser until the telescoping sections of the Riser are fully retracted.

18. These two switches are designed to be redundant such that under normal operating conditions both switches must be in the permissive state (*i.e.* with the Riser fully retracted) before the Riser angle can be lowered from its fully elevated position.

19. The Boom retracted rate limit switch is located at the base of the Boom. This switch is designed to initiate low speed operation of the work platform whenever the Boom is extended from a fully retracted position.

Location and Environmental Conditions of Accident Site

20. The Diavik Diamond Mine Inc. Process Plant building construction site is located at or near the geographical co-ordinates 64° 31' north latitude, 110° 20' west longitude, approximately 300 km north-east of the City of Yellowknife, in the Northwest Territories.

21. The weather conditions at the construction site on the night of the Event, Tuesday, July 17th, 2001, were dry, overcast, with light winds (0-5 km/hr). The temperature was 12° C.

22. Natural light at the time of the Event was bright enough that electrical lighting for safety purposes was not required.

23. The ground where the base of the Manlift was positioned at the accident site was composed of compacted crushed rock, which was noted to be firm, dry, and relatively level at the time of the accident.

24. The accident scene, including the fallen Manlift, the bodies of the deceased workers, and the construction site area surrounding the Manlift and the Process Plant work site, was secured and cordoned off immediately following the Event by mine management and mine security personnel.

Forensic Medical Analysis of Deceased Workers

25. The bodies of Mr. Bender and Mr. Wheeler were examined immediately following the tip over of the Manlift by Supreme Steel Ltd. supervisor Gordon Leder, and shortly later by the senior on-site first aid attendant, Mr. Perry Verigin. Both Mr. Leder and Mr. Verigin determined that the two workers were deceased.

26. The remains of Mr. Bender and Mr. Wheeler were examined by the Chief Coroner of the Northwest Territories, Mr. Percy Kinney, on July 18th, 2001. Mr. Kinney completed a Registration of Death form in relation to each of the deceased workers. Attached as Exhibit "ASF 1" is a certified copy of the Registration of Death form pertaining to Mr. Bender. Attached as Exhibit "ASF 2" is a certified copy of the Registration of Death form pertaining to Mr. Wheeler.

27. Further to the direction of the Chief Coroner of the Northwest Territories, blood and urine samples from each of the deceased workers were sent for forensic analysis.

28. The blood and urine samples were analysed by Dr. David Kinniburgh, a qualified toxicologist, at the Dynacare Kasper Medical Laboratories in Edmonton, Alberta.

29. The blood and urine samples from the remains of Mr. Bender included evidence of cocaine metabolites and cannabinoids. An insufficient quantity of blood was provided to perform drug levels analysis.

30. Attached as Exhibit "ASF 3" is a true copy of the toxicology report completed by Dr. Kinniburgh dated July 30th, 2001, relating to Mr. Bender.

31. The blood and urine samples from the remains of Mr. Wheeler included evidence of cocaine metabolites. An insufficient quantity of blood was provided to perform cocaine levels analysis.

32. Attached as Exhibit "ASF 4" is a true copy of the toxicology report completed by Dr. Kinniburgh dated July 30th, 2001, relating to Mr. Wheeler.

33. Cocaine metabolites are chemical substances derived from the metabolization of cocaine by the human body. These chemical substances can be detected in the blood serum and in the urine of individuals who have ingested cocaine.

34. Cannabinoids are chemical substances derived from the metabolization of *cannabis* marijuana by the human body. These chemical substances can be scientifically detected in the blood serum and in the urine of individuals who have ingested *cannabis* marijuana.

Worker Orientation, Training & Experience

35. On Thursday, July 12, 2001, Mr. Bender and Mr. Wheeler arrived at the Diavik mine construction site to commence their employment with Supreme Steel Ltd. Attached as Exhibit "ASF 5" are true copies of the Supreme Steel Ltd. *Hire-On* forms completed by Mr. Bender and Mr. Wheeler.

36. Upon their arrival at the Diavik site Mr. Bender and Mr. Wheeler both attended the Supreme Steel Ltd. employee orientation meeting. Gordon Leder discussed various company policies, procedures, and regulations with the two men. Both workers also received and acknowledged having read the Supreme Steel Ltd. *Employee Health and Safety Handbook* and the Diavik Diamond Mines Inc. *Construction Health and Safety Handbook.*

37. Attached as Exhibit "ASF 6" is a true copy of the Supreme Steel Ltd. *Employee Health and Safety Handbook.*

38. Attached as Exhibit "ASF 7" is a true copy of the Diavik Diamond Mines Inc. *Construction Health & Safety Handbook.*

39. Attached as Exhibit "ASF 8" are true copies of the Supreme Steel Ltd. *Employee Orientation Checklist* completed by Gordon Leder and signed by Mr. Bender and by Mr. Wheeler.

40. Attached as Exhibit "ASF 9" are true copies of the Supreme Steel Ltd. *Acknowledgement* of receipt of the *Employee Health & Safety Handbook* signed by Mr. Bender and by Mr. Wheeler.

41. Following the employee orientation meeting Mr. Bender and Mr. Wheeler both attended and completed the Supreme Steel Ltd. *Aerial Platform Operator's Safety Training Course.*

42. The instructor for the *Aerial Platform Operator's Safety Training Course* was Supreme Steel Ltd. supervisor Gordon Leder. The training course involved the workers watching a forty-five minute video tape, reading aerial platform operator's safety materials, a discussion of the materials with the instructor, and a written examination.

43. Mr. Bender scored 82% and Mr. Wheeler scored 86% on the written examination. Attached as Exhibit "ASF 10" are true copies of the written examinations completed by Mr. Bender and Mr. Wheeler. Attached as Exhibit "ASF 11" are true copies of the Supreme Steel Ltd. *Certificate of Completion of Aerial Platform Operator's Safety Training Course* for Mr. Bender and for Mr. Wheeler, both dated July 12th, 2001.

44. Mr. Bender and Mr. Wheeler both worked ten hour shifts on the Friday, Saturday, Sunday, and Monday leading up to the Event on the evening of Tuesday, July 17th, 2001.

Photographs of the Accident Scene

45. Hugh McKercher, the Workers' Compensation Board Inspector of Mines, was at the mine site conducting a routine inspection at the time of the Event. After the site had been secured Mr. McKercher took a digital photographs of the Manlift and the surrounding accident site. Attached as Exhibit "ASF 12" are true copies of the digital photographs taken by Mr. McKercher. These photographs fairly and accurately show the subject matter of the photographs as the subject matter appeared on July 17th, 2001.

46. William Kramer, of the Municipality of Shannonville, Ontario, was present at the mine site at the time of the Event. Mr. Kramer was at that time employed as the Construction Safety Manager for general contractor, Nishi-Khon SNC-Lavalin Ltd. After assisting in

securing the accident site Mr. Kramer took a series of digital photographs of the Manlift and the surrounding area. Attached as Exhibit "ASF 13" are true copies of the digital photographs taken by Mr. Kramer. These photographs fairly and accurately show the subject matter of the photographs as the subject matter appeared on July 17th, 2001.

47. Crown Prosecutor Noel Sinclair visited the Diavik mine site on January 15th, 2003. Mr. Sinclair took a series of photographs including the following subjects:

a) Three photographs of the memorial cross and plaque erected at the mine site in July 2002;

b) Various interior photographs depicting the attachment of exterior metal siding to steel cross-beams and the attachment of steel cross-beams to the vertical steel frame components on the south wall of the Process Plant; and,

c) Various photographs depicting the interior south wall area of the Process Plant at the height of the crane rail.

Attached as Exhibit "ASF 14" are true copies of the photographs taken by Mr. Sinclair. These photographs fairly and accurately show the subject matter of the photographs as the subject matter appeared on January 15th, 2003.

Documents Stored on the Manlift

48. During the Workers' Compensation Board investigation at the Event site, Mr. McKercher seized from the Manlift storage compartment a plastic case containing the following documents:

a) *Grove Manlift Operator's Safety & Maintenance Handbook for the Grove Model AMZ 131 XT*, Grove Manlift, Chambersburg, Pennsylvania, Revised November 1996.

Attached as Exhibit "ASF 15"

b) A duo-tang binder, labelled *1995 Grove AMZ 131 XT Manlift, S/N 33000, Unit #9668*, containing a series of *Supreme Steel Ltd. Daily Pre-Operation Check List for Man-Lifts* forms.

The checklist forms are attached as Exhibit "ASF 16", and are admitted in to evidence as business records.

c) A *Manual of Responsibilities for Dealers, Owners, Users, Operators, Lessors and Lessees of ANSI / SIA A92.5-1992 Boom-Supported Elevating Work Platforms*, Scaffold Industry Association Inc., Van Nuys, California, 1993.

Attached as Exhibit "ASF 17"

d) A *Manual of Responsibilities for Dealers, Owners, Users, Operators, Lessors and Lessees of ANSI / SIA A92.6-1990 Self-Propelled Elevating Work Platforms*, Scaffold Industry Association Inc., Van Nuys, California, 1992.

Attached as Exhibit "ASF 18"

e) *Aerial Platform Safety Manual for Operators and Mechanics*, Equipment Manufacturers Institute (EMI), Chicago, Illinois, Revised June 1995.

Attached as Exhibit "ASF 23"

Paul Wharmoth

49. Mr. Paul Wharmoth of North Vancouver, British Columbia, was present at the mine site at the time of the Event. Mr. Wharmoth was at that time employed by Lac De Gras Concrete Ltd. as a Supervisor.

50. Mr. Wharmoth did not see the Event.

51. Prior to the Event, at approximately 21:30, Mr. Wharmoth and a co-worker, Richard Evans, were walking in the area of the south side of the Process Plant building to examine a rock face on which they were scheduled to do some work.

52. Mr. Wharmoth saw the Manlift being transported in to position in the area of the south side of the Process Plant building. The Riser and Boom components of the Manlift were retracted for transport. The Manlift was being driven by Mr. Gerhard Bender (who was

unknown to Mr. Wharmoth) from the operator's platform which was at the rear of the Manlift as it moved towards Mr. Wharmoth.

53. Mr. Wharmoth saw that at the front of the Manlift it was pushing a flat-bottomed triangular wooden form constructed from 4" x 4" lumber beams. The triangular form was approximately 3 feet in length on each side, and 3 feet in height. Resting in the middle of the triangular form was a single wooden sawhorse.

54. The triangular form was in a position at the front of the Manlift where it was not visible to the driver of the Manlift standing on the platform.

55. Mr. Wharmoth signalled the driver to stop. The driver stopped and Mr. Wharmoth and Mr. Evans went to the front end of the Manlift and removed the triangular form from where it was positioned between the two front tires. Mr. Wharmoth and Mr. Evans moved the triangular form away to the side of the travelled area of the roadway.

56. After removing the triangular form from in front of the Manlift, Mr. Wharmoth commented to the driver that he should have walked around his machine before moving it.

57. There was no further discussion between Mr. Wharmoth and the Manlift operator.

58. Mr. Wharmoth did not notice anything unusual about the condition of the Manlift operator.

59. Mr. Wharmoth later followed the triangular form skid marks from the south side of the Process Plant building where he left it back around the Process Plant building to where the Manlift had been parked inside the north wall of the Process Plant building.

Ken Luff

60. Mr. Ken Luff of Bishop Falls, Newfoundland, was present at the mine site at the time of the Event. Mr. Luff was at that time employed by Lac De Gras Concrete Ltd. as a carpenter.

61. At the time of the Event Mr. Luff was working in the Boiler House on the ground floor near the doorway on the west end of the building. He had a view of the Event site through the doorway.

62. Prior to the Event Mr. Luff had observed the Manlift moving in to position in the south wall area of the Process Plant building. Some time later Mr. Luff observed the Manlift positioning its platform near the top of the Process Plant building. The Manlift looked like it was straight up against the Process Plant building. Mr. Luff did not notice how high the workers were in comparison to the steel structure.

63. It appeared to Mr. Luff that the Manlift workers were getting ready to work on the steel.

64. Mr. Luff did not see the Manlift fall over. He heard a noise, turned around and saw the man basket on the ground.

65. Mr. Luff did not notice anything unusual, nor did anything draw his attention to the Manlift until until he heard the crash. He did not hear the workers call out during the fall.

Manlift Positional Observations

KEN MAGEE (CANSPEC GROUP INC.)

66. Immediately following the Event, Diavik Diamond Mines Inc. retained the services of Mr. Ken Magee, a metallurgical engineer with Canspec Group Inc., to inspect the Manlift.

67. Mr. Magee inspected the Manlift on July 18th and 19th, 2001. At that time he recorded the following direct observations of the Manlift:

a) There was no evidence of failure of any structural component other than the mechanical damage and fractures which occurred as a result of the Manlift hitting the ground.

b) There was no evidence of any cracking of any structural element.

c) The mechanical damage and fractures which occurred as a result of the Manlift hitting the ground were recorded as follows:

   i) A deformation of the riser fly section (the third riser section) at the point of impact with an I-beam which was located on the ground under the riser fly section;

   ii) A buckling/fracture of the boom section at the position of a structural reinforcing plate between the mast and the boom; and,

   iii) The fracture and mechanical damage of various structural components in the man basket (a.k.a. the platform); and,

   iv) Minor mechanical damage (paint damage/scuffing/smearing of the underlying metal) on the bottom and sides of the man basket.

d) All hydraulic hoses appeared to be intact and no evidence was found suggesting that any hydraulic hoses had failed prior to the overturn of the lift, nor had they ruptured as a result of the fall of the Manlift.

e) No evidence was found suggesting that the seals within the lift cylinders had failed.

f) The four Manlift tires were found to be relatively new, intact, in good shape, fully inflated and filled with foam.

g) Measurement of the tire spacing on each axle revealed that the tires were twelve feet apart, consistent with full axle extension.

h) No evidence was found to indicate that the ground had given way and no obstructions were noted which would have caused the Manlift to tip.

i) Skid marks on the ground located at the tire positions indicated that the Manlift had slid a short distance.

j) Examination of the Manlift controls in the man basket revealed the following settings at the time of the inspection:

i) Steer toggle switch: Front Wheels;

ii) Three position Riser / Boom / Jib control knob: Boom setting;

iii) Two position Riser / Boom telescope control knob: Boom setting;

iv) Throttle speed toggle switch: high setting; and,

v) Function speed toggle switch: high setting.

k) Attached as Exhibit "ASF 19" is a diagram depicting the Manlift platform control console. The diagram includes highlighter marks indicating the above noted toggle switch and control knob settings.

l) Dimensional measurements were performed on the Manlift by Mr. Magee to determine the position of the riser and boom at the time of the Event. Those approximate positional measurements are as follows:

i)	Riser Angle:	52°;
ii)	Riser Extension:	48 feet, 2 inches;
iii)	Boom Extension:	51 feet
iv)	Riser – Mast Angle:	36°
v)	Mast – Boom Angle:	15°
vi)	Mast length:	~5 feet
vii)	Boom – Riser Angle:	129°
viii)	Boom – Jib Angle:	~8°
ix)	Jib length:	~ 6 feet, 8 inches

m) Attached as Exhibit "ASF 20" is a diagram depicting the positional configuration of the Manlift components based upon the above noted measurements.

n) One set of wheels, the set at the west end of the Manlift, were turned at an angle to the building. The other set of wheels, at the east end of the Manlift, were parallel to the centerline of the Manlift.

o) The Manlift turntable was turned towards the Process Plant building at an angle of approximately 46° from the centerline of the Manlift.

Manlift Electrical / Mechanical Observations

LLOYD ERMANTROUT (SKYREACH EQUIPMENT LTD.)

68. Immediately following the Event, Diavik Diamond Mines Inc. retained the services of Skyreach Equipment Ltd. to inspect and photograph certain mechanical and electrical components of the Manlift. Mr. Ermantrout is a Heavy Duty Mechanic with Skyreach Equipment Ltd. He was dispatched to the mine site to perform the inspection.

69. Mr. Ermantrout inspected and photographed the Manlift at the Event site on July 18th, 2001. At that time he recorded the following direct observations of the Manlift:

a) No obvious hydraulic failures or leaks.

b) No obvious damage to electrical systems other than damage presumed to have been caused by the Event.

c) Controls in the Manlift man basket were in good condition other than damage presumed to have been caused by the Event.

d) Drive speed and function speed switches were observed to be set in the "High" position.

e) Two limit switches for axle deployment were observed to function properly.

Two Riser Angle Limit Switches

f) One of the two Riser angle limit switches was observed to be out of adjustment.

Riser Telescoping Limit Switches

g) The left Riser telescoping limit switch (located on the left side while looking from the pivot of the riser in the direction of the mast) was reported to be seized until it was disturbed by Mr. Ermantrout's inspection.

Boom Angle Limit Switch

h) The Boom angle limit switch located in the Mast is designed to initiate low speed lifting of the boom once the Boom reaches an angle of 55°.

i) The Boom angle limit switch located in the Mast was visually inspected and reported to be seized, with clearance between the roller and the cam.

Boom Retract Limit Switch

70. The Boom retracted rate limit switch was found to be seized.

TOM KAUFMANN (ALLAN R. NELSON ENGINEERING (1997) INC.)

71. Following the Event, Supreme Steel Ltd. retained the services of Mr. Tom Kaufmann, a Mechanical Engineer with Allan R. Nelson Engineering (1997) Inc., to inspect the Manlift.

72. Mr. Kaufmann inspected the Manlift at the Event site on July 24th and 25th, 2001. Also attending with Mr. Kaufmann during that inspection was Mr. Miguel Bonilla, a representative of Grove Worldwide L.L.C.

Dated this Monday, February 24, 2003.

Noel Sinclair
Crown Counsel

James W. Joosse
Defence Counsel

T-1-CR 2002 1700

IN THE TERRITORIAL COURT OF THE NORTHWEST TERRITORIES

BETWEEN:

HER MAJESTY THE QUEEN

- and -

SUPREME STEEL LTD.

AGREED STATEMENT OF FACTS

Department of Justice (Canada)
Northwest Territories Regional Office
3rd Floor, Joe Tobie Building
P.O. Box 8, 5020 – 48th Street
Yellowknife, NT X1A 2N1

Noel Sinclair, Crown Counsel
File No.: 104658

PARAGRAPH 6 OF CROWN BRIEF - APPENDIX "B"

6) The following items, individually and severally, constitute the particulars of the prohibited act alleged by the Crown:

a) The defendant required Mr. Bender and Mr. Wheeler to operate an inherently hazardous manlift on which there existed numerous critical safety system defects;

b) The defendant failed to train its employees adequately in the safe operation of the Manlift, and in so doing the defendant failed to ensure that its employees conducted a comprehensive pre-operational check of the Manlift prior to each use;

c) The defendant failed to provide a sufficiently detailed and equipment-specific pre-operation checklist for employees using the Manlift;

d) The defendant failed to request from Grove Worldwide any up to date design *Change Records*, safety bulletins, or a pre-operational checklist specific to the AMZ 131 XT;

e) The defendant failed to ensure that the mechanical integrity of the Manlift was inspected and certified by Grove Worldwide, a Professional Engineer, or another qualified person before the Manlift was put into use at the construction site;

f) The defendant failed to ensure that the Manlift was properly serviced by a qualified person before the Manlift was put to use at the construction site;

g) The defendant failed to ensure that the Manlift received proper servicing by a qualified person while the Manlift was in use at the construction site;

h) The defendant failed to maintain an adequate service log for the Manlift; and,

i) The defendant failed to respond appropriately to a report from one of the deceased employees that there was a functional problem with the elevation rate of the Manlift.

Facts Proving Causation

376) The Crown contends that the following succession of facts have been proven beyond a reasonable doubt:

a) The safe elevation of the Manlift work platform is controlled, in part, by limit switches which normally prevent the operator from positioning the components of the Manlift in a potentially unstable configuration;

b) There are two riser angle limit switches which operate redundantly to require the riser to be raised to a 70° angle before the riser fly and mid sections can be extended;

c) On the day following the event the riser elevation angle was 52°, or at least between 48.5° and 53.1°, and the riser fly and mid sections were extended to 91% of their fully extended length;

d) The force of the impact between the riser and the I-beam during the event would tend to enlarge the riser angle, not compress that angle;

e) The riser hydraulic cylinder holding valve assembly was damaged by impact forces during the event;

f) The flow of hydraulic fluid through the riser hydraulic cylinder holding valve assembly was completely restricted as a result of the impact damage;

g) If any hydraulic fluid did flow from the piston side of the riser hydraulic cylinder to the rod side of the hydraulic cylinder, that movement would require a corresponding movement of the mast slave cylinder;

h) The riser hydraulic cylinder did not compress over time following the event because:

i) Damage to holding valve assembly restricted the movement of hydraulic fluid;

ii) The friction between the ground and the tires was more than sufficient to prevent the movement of the overturned carbody across the ground towards the riser even

if there was any minute leakage of hydraulic fluid out of the riser lift cylinder; and,

iii) Witnesses studying the post-event position of the riser angle and the mast angle over a period of several days did not detect any movement whatsoever.

377) Therefore, *at the time of the event* the riser angle was 52°, or at least between 48.5° and 53.1°.

378) The only reasonable deduction from the finding that the riser fly and mid sections were extended before the riser had reached a 70° angle is that both of the riser angle limit switches failed. There is substantial evidence to corroborate this deduction.

Defective Safety Limit Switch Systems

379) It is impossible to achieve the as-found configuration of riser angle and riser extension under normal operating conditions. The Manlift is designed so that safety limit switches in the riser will override any operator input which would otherwise tend to move the Manlift into this kind of unsafe configuration.

380) Mr. Kaufmann determined that the left riser angle limit switch was effectively out of commission because it would close (*i.e.* permit telescoping) when the riser arm reached an angle of 47° or more (*i.e.* at 27° less than the manufacturer's required setting). That defective adjustment created an environment where control of the riser angle/riser telescope interaction was safeguarded only by the right riser angle limit switch.

381) Regardless of Dr. Ball's other theories concerning event induced "trauma" to the various limit switches, there is no tip-over mechanism which would account for the 47° setting on the left riser angle limit switch. As well, the boom angle limit switch was, by all accounts, seized in the open position by rust or paint long prior to the event and was not forced out of position by the event.

382) As noted by Mr. Thicke, there is ample evidence indicating the failure of the critical right riser angle limit switch. To wit:

a) the observed "dead band" defect in the right riser angle limit switch;

b) the paint over spray on the right riser angle limit switch;

c) the defective adjustment of the left riser angle limit switch; and,

d) the existence of the other three heavily contaminated and seized safety switches (the left riser telescope limit switch, the boom angle limit switch, and the boom telescoping limit switch).

383) In total there were defects in five of the seven safety limit switches in the riser/mast/boom assembly.

384) While Mr. Thicke acknowledges that the Manlift would have been statically stable in the 52° riser angle configuration, it was only marginally stable and would require the influence of only relatively slight dynamic forces, such as those encountered in rotating the platform, to overcome this static stability and cause the Manlift to topple over.

385) There is no compelling eyewitness evidence to support the defendant's theory that the ironworkers inadvertently contacted the process plant building, or alternatively, that they deliberately attached the platform to the process plant building and then attempted to move the platform thereby loading the Manlift with forces sufficient to cause the overturning event.

386) None of the eyewitnesses heard or saw anything indicating that the platform had come into contact with the building. None of the eyewitnesses saw anything attaching the platform to the building. None of the eyewitnesses saw anything falling from the building or platform during the event.

387) Expert evidence from Mr. Thicke also establishes that the platform could not have reached the process plant building in the post-event configuration because the Manlift chassis was positioned too far from the wall of the building. This positioning difficulty would certainly account for the "jockeying" observed by Mr. Gowanlock.

388) The "dog leash" lanyards found near the fallen platform are standard issue ironworker safety equipment. Mr. McKercher explained how a lanyard is used by ironworkers to secure themselves to structural steel when they are required to stand on a structure which

is over six feet off the ground. Accordingly, there is nothing unusual about the fact that the ironworkers had lanyards with them on the platform at the time of the event.

389) There is certainly no evidence of a broken or significantly deformed lanyard being found at the event site as has been suggested by Dr. Ball.

390) The tire scuff marks depicted in the Agreed Statement of Facts at Tab 12 photographs #18, #34, #58, and particularly #72, lie at the end of the tire tracks. This evidence is not consistent with Dr. Ball's suggestion that the Manlift had to have been driving south-east away from the process plant building to trigger the tip over.

391) The metallurgical expert evidence from Mr. Magee concerning "scuffing of the paint, deep gouges/groves and one very deep impression" on Sample #3 does not support the theory that the event occurred as a result of contact between the platform and the process plant building. While the marks on Sample #3 are consistent with significant contact forces between the platform and a galvanised object, the shape and orientation of those marks indicate that the marks were the result of the platform pushing into steel, not pulling or tearing away from it.

392) There are no marks or bending of the process plant building structural steel girts to match the marks on the platform. The rust, grease and yellow paint marks observed and photographed by Mr. McKercher (*See*: Agreed Statement of Facts Tab 12, photographs #30 and #66) are not consistent with formation during the event since: a) there is no observable part of the platform coated with grease; b) the rust could not have originated from the aluminium platform; and c) the rust could not have formed in this area so rapidly following the event.

393) The toxicology evidence identifying illicit substances in the blood of the deceased ironworkers is troubling. However, none of the various workers who interacted with Mr. Bender and Mr. Wheeler during the time leading up to the event noticed anything unusual about the condition of either of the two men. Those witnesses included Mr. Wharmoth, Keith Gowanlock, Derrick Singer, and the ironworkers' Shift Supervisor, Gordon Leder.

394) The ironworkers' clear and focused attention to their employment responsibilities is also demonstrated by the fact that both of them were wearing or using all of the required personal protective equipment at the time of the event. Their personal protective equipment kit included protective footwear, hard hats, safety glasses, fall-arrest harnesses and lanyards which were correctly attached between each worker and the platform. In addition, the ironworkers' high scores on the generic *Aerial Platform Operator's Safety Training Course* exam denote their general familiarity and understanding of safe operating procedures for manlifts.

395) It is also significant that a search of the deceased workers' accommodations and personal effects for illicit substances and paraphernalia by members of the RCMP did not turn up anything out of the ordinary.

396) The Crown contends that the ironworkers were operating the Manlift as they were trained to do, and that they had no reasonable opportunity prior to the event to determine that the Manlift was in an unsafe configuration.

397) With regard to disagreements between the defendant's primary expert witness, Dr. Ball, and the Crown's expert witnesses, Mr. Kaufmann and Mr. Thicke, it is submitted that where those opinions contradict each other the opinions of Mr. Kaufmann and Mr. Thicke ought to be preferred over the opinions of Dr. Ball.

398) Both Mr. Kaufmann and Mr. Thicke are well qualified to assist the Court with expert opinions in their respective areas of expertise. Both offered their evidence in a forthright and candid manner. Both made reasonable admissions to defence counsel when asked to do so, and neither Mr. Kaufmann nor Mr. Thicke was substantially undermined or discredited in cross-examination on the occasions when they opposed defence counsel's conjectures.

399) Mr. Kaufmann had the benefit of examining the Manlift in the company of Mr. Bonilla from Grove Worldwide.

400) Mr. Thicke was present for the duration of the trial. The conclusions in his report and the testimony he offered in court both correlate strongly with the evidence of the eyewitnesses at the scene of the event.

401) Dr. Ball's opinion evidence, on the other hand, deserves less weight for several reasons.

402) Dr. Ball is substantially less qualified to offer opinions in the areas of mechanical engineering, limit switch design and function, hydraulic lift systems, and the mechanics of vehicle roll-overs.

403) Dr. Ball performed his inspection of the limit switches more than one year following the event, after these switches had been subjected to considerable poking and prodding as well as exposure to the elements at the DDMI construction site and at the Supreme Steel Ltd. yard in Edmonton.

404) Dr. Ball's opinion concerning the possibility of contact between the platform and the process plant building, his theory of the mechanics of the overturning event, and his theory that the riser lift cylinder and mast slave cylinder changed position substantially following the event, are all inconsistent with the evidence of the eyewitness to the event.

405) None of the eyewitnesses saw the Manlift platform in contact with the process plant building at any time, nor did anyone hear any sounds indicating contact.

406) Furthermore, Dr. Ball admitted on cross-examination that the overturning event scenarios which he proposed had very low probabilities (*viz.* they just don't appeal to common sense).

407) The direction of force required to impress the zinc residue in to Sample #3 is inconsistent with the direction of force required to overturn the Manlift. Dr. Ball also conceded, when pressed, that it is highly unlikely that either of the ironworkers would have suddenly released the hypothetical come-along or lanyard while it was under a two thousand pound load. Nor does the suggestion that the Manlift operator attempted to manoeuvre the base of the Manlift during the overturning event merit serious consideration. With the platform

"snaking" and "dancing" around at over one hundred feet in the air, the two ironworkers would not have been able to do anything but to try to hang on for dear life.

408) As for Dr. Ball's suggestion that the riser and mast hydraulic cylinders moved following the event, Mr. McKercher and Mr. McHale both testified that they paid particular attention to this issue, and neither of these witnesses detected any cylinder movement whatsoever during the lengthy period of their observations. Somewhat less precise evidence that the riser and mast cylinders did not move can be found by comparing the riser and mast configurations shown in the various photographs in the Agreed Statement of Facts and in the videotape of the event scene taken by Cpl. Ing (Exhibit #8). No change of position is evident from any of those sources.

409) Dr. Ball suggests that Mr. Magee's 52° riser angle calculations are unreliable due to the method of "short span" triangulation applied by Mr. Magee in his calculations and the effect of "elastic deflections in the individual structural members." That opinion deserves little weight. An inspection of the riser and boom deflection characteristics was performed by Mr. Lafave during his structural inspection of the Manlift. Mr. Lafave was steadfast in his testimony that there was no measurable deflection of the riser or boom sections. He said that in spite of his attempt to shake and sway the elevated platform, the components moved very little and that it was, "like standing on a tank." Mr. Lafave also related that Grove equipment is, in his experience, remarkably sturdy and rigid. He referred to Grove equipment as "the Cadillac" of this type of machinery.

410) Dr. Ball's criticism of the Magee measurements is further undermined by the riser angle calculations conducted by Mr. Thicke using the event scene survey data. These calculations indicate a riser angle of between 48.5 and 53.1°. Once Mr. Thicke's calculations were presented to Dr. Ball, his opinions and conclusions on that point lost much of the vigour evident in his February 7th, 2003, report.

411) In addition, the particulars of Dr. Ball's theory concerning Mr. Magee's methodology and the possibility of "elastic deflection" were not put to Mr. Magee on cross-examination by defence counsel, thereby offending the rule in ***Browne v. Dunn*** (1893), 6 R. 67 (H.L.).

412) The Court must also be concerned with the numerous inaccuracies and contradictions in Dr. Ball's two reports and in his evidence. Indeed, it is difficult to reconcile the information included in the two reports with Dr. Ball's evidence in court because his opinions changed with each presentation.

413) Dr. Ball's September 12th, 2002, report suggests that hydraulic fluid flowed through the damaged holding valve allowing the riser angle to compress from 70° to 52°. When it was pointed out to him by Mr. Thicke's January 27th, 2003, report that the holding valve would have locked the position of the riser angle, Dr. Ball changed horses and suggested in his February 7th, 2003, report that indeed the holding valve wouldn't leak, but that the riser angle was measured incorrectly by Mr. Magee, who failed to consider "elastic deflection." Then Dr. Ball attempted to use the survey data to suggest a post-event riser angle of at least 60°.

414) Once Dr. Ball had heard Mr. Lafave's evidence in May, 2003, concerning the rigidity of the Grove riser and boom, and after considering calculations performed by Mr. Thicke using the same survey data, Dr. Ball abandoned his theory concerning defects in Mr. Magee's measurements and got on yet another horse.

415) At trial Dr. Ball presented his third theory, one which was not included in either of his written reports, that the weight and movement of the carbody were responsible for the compression of the riser from a 70° configuration to a configuration between 48.5° to 53.1° configuration (*i.e.* the result of Mr. Thicke's survey data calculations). This theory required Dr. Ball to retract his concession that the holding valve could not have leaked fluid. Now, he says, the holding valve did leak, but only very slowly.

416) While the defendant may argue that this flip-flopping demonstrates Dr. Ball's open-mindedness, the Crown submits that these radical self-contradictions demonstrate a general atmosphere of carelessness and inaccuracy which pervades Dr. Ball's analysis of the event.

417) Dr. Ball's opinion that the riser could not have contacted the I-beam if the riser was at a 52° riser angle during the event deserves little, if any, weight. This conclusion arises from

Dr. Ball's analysis of the Reid Crowther survey data. That survey data is by Dr. Ball's own admission imprecise and the methodology of the computer simulation using that data was described by Dr. Ball as "hocus-pocus."

418) More importantly, the survey data has never been proven for the truth of its contents. While Dr. Ball may rely upon hearsay in formulating his opinions, where the hearsay material is central to the conclusion derived from it and the hearsay material is inherently suspect (as is the survey data), that material must be formally proven before any substantial weight can be assigned to the opinion.

419) Particularly troubling is Dr. Ball's evidence concerning damage to the boom lift cylinder. His first report (Exhibit #58 at p. 8, ¶6.0, p. 9, ¶6.4, and p. 11, first paragraph, last sentence), as well as his evidence in chief and on cross-examination, all intimate that Dr. Ball personally inspected the boom lift cylinder seals during his visit to the Alpine Chrome shop. However, when Defence Counsel returned to that area in re-direct we learn that Dr. Ball never conducted an examination of the boom lift cylinder seals and that he is relying upon the notes from a technician who lost the parts and who couldn't remember performing an examination on the cylinder seals. In presenting his opinions in this manner Dr. Ball has once again fallen into the error he was caught out on in ***Canadian Eductor Sales and Service Co. Ltd. v. Horyn Holdings Ltd.***, [1986] A.J. No. 1124 (Alta Q.B.) (**Tab #22**, at p. 13-15).

420) Dr. Ball's evidence concerning conclusions he drew about the Manlift "flipping" rather than "tipping" are similarly revealing of his bias. In direct examination he said, in effect, that the force required to buckle the boom was four times the force which would be acting on the Manlift if it simply tipped over (*i.e.* the buckling force was approximately four times the force of gravity and the simple tipping force would be only the force of gravity). Yet on cross-examination Dr. Ball grudgingly conceded that the angular momentum acting on the boom after the riser contacted the I-beam was a force which would tend to accelerate the movement of the boom and which would create a substantial force additional to the force of gravity acting on the boom. Dr. Ball estimated this additional angular momentum force to be in the range of two to three times the force of

gravity. How is it that Dr. Ball so conveniently overlooked this obvious additional force in his written report and in his direct evidence concerning the structural damage to the boom?

421) In the Crown's submission, when Dr. Ball's theories are examined carefully they are exposed as flights of the imagination detached from the evidence and from common sense. In attempting to pass off those theories as reasoned scientific analysis, Dr. Ball demonstrates his tunnel-vision and an obvious testimonial bias favouring the defendant.

Deficient Manlift Operators' Training

422) The inadequacy of the Supreme Steel Ltd. training program is evident from the fact that Gordon Leder did not receive training on an AMZ 131 XT or on any other type of Grove equipment during the Finning manlift safety trainers' course (contrary to the requirements identified in the *Grove Manlift Operators Safety & Maintenance Handbook* (at Section 2, page 2-3)), nor did Gordon Leder read the *Grove Manlift Operators Safety & Maintenance Handbook* until after the event.

423) Furthermore, neither Gordon Leder nor anyone else from Supreme Steel Ltd. had any communications with Grove concerning operators training on the AMZ 131 XT, the availability of a machine specific pre-operational checklist, or the existence of *Service Manual* design *Change Records* or manufacturer's safety bulletins.

424) Both the Supreme Steel Ltd. *Aerial Platform Operator's Safety Training Course* and the Supreme Steel Ltd. *Pre-operational Check List for Manlifts* forms were generic rather than specific to the AMZ 131 XT. This is a significant defect given the unique nature of the Grove AMZ 131 XT. At one hundred and thirty-one feet, the AMZ 131 XT has the highest reach of all but one of the various mobile manlifts described throughout the course of the trial. With the possible exception of Mr. Ermantrout and Mr. Gowanlock, none of the various witnesses who were familiar with the inspection, operation, or service of manlifts had ever previously operated or even seen one of these unusual models.

425) Gordon Leder's lack of understanding of the safe operation of the Manlift was also confirmed by his uncertainty as to the meaning or purpose of certain items in the *Pre-operational Check List for Manlifts* forms. His evidence demonstrates that some of the items on the generic *Check List* form referred to components which do not exist on the AMZ 131 XT, and that for other *Check List* items Gordon Leder did not know where those components were located on the Manlift or what purpose they served. His testimony concerning the item 21 "Platform Operational Check" was similarly alarming as the procedure he described would expose the operator to risk of serious harm.

426) The letter from Supreme Steel Ltd. to NKSL which proposes that Supreme Steel Ltd. provide a site-wide manlift operator safety training program (Exhibit #39) recognizes the importance of a practical examination of manlift operators as part of the training process; yet the Supreme Steel Ltd. *Aerial Platform Operator's Safety Training Course* which was provided to Supreme Steel Ltd. manlift operators did not include any practical training or evaluation of the trainee's practical skills prior to certification. Some post-certification observation of manlift operators at work was made on an impromptu basis.

427) Under all of those circumstances it would be impossible for Gordon Leder to have provided competent training on the safe operation of the Manlift to anyone, yet he was assigned by Supreme Steel Ltd. to provide the *Aerial Platform Operator's Safety Training Course* not only to Supreme Steel Ltd. manlift operators but also to operators of various other types of manlifts from other contractors operating at the DDMI construction site.

428) Having regard to all of these circumstances, the Crown submits that it has shown conclusively that the defendant committed the prohibited act of failing to take every reasonable measure and precaution to train its workers with a trainer properly qualified by Grove on an AMZ 131 XT.

429) The Crown further submits that it has shown conclusively that the defendant committed the prohibited act of failing to take every reasonable measure and precaution to protect the health and safety of Gregory Wheeler and Gerhard Bender by requiring those workers to operate a defective and unsafe manlift.

82. However, just as significant is Dr. BALL's assertion that one of the reasons for the difficulty in establishing causation in the case at bar, is that a proper accident reconstruction was never completed. Dr. BALL outlined seventeen factors necessary to a proper accident reconstruction which were either not investigated or not investigated thoroughly. Though the following is not an exhaustive list of those factors which he enumerated, they included the following:

(a) There was no examination of the gridline to consider special relationships between the machine and other structures;

(b) No investigation of pre-accident information about the machine;

(c) No investigation of possible play between sections;

(d) The rotary bearing was not checked which may reveal gear teeth wear which would indicate forced rotation;

(e) No proper grid analysis of the scuff pattern on the ground;

(f) No proper analysis of scuffing of the tires and gravel inclusions in the tire/rim assembly;

(g) No analysis of possible movement of the "I" beam which was contacted by the man lift during overturn to determine whether it had moved;

(h) No examinations were conducted of the hydraulic cylinders;

(i) No analysis of the so called "safe configuration scales" provided by the manufacturers data to determine the margins of safety;

(j) No testing of stability calculations;

(k) No consideration of the "soft stop" "soft start" and slow speed safety mechanisms to determine their effect on dynamic load;

(l) No analysis of the so called "safe working envelope" vis-a-vis impact loading of the man lift;

(m) There was no proper analysis of the function and operation of the limit switches;

(n) No assessment of the impact damage to determine the forces required to cause those damages and the relative damage that would occur in a tip over versus a flip over event;

(o) No consideration of the impact forces on the limit switches so as to analyze their post event configuration out of position;

(p) There was no assessment of the damage to the man basket possibly attributable to contact with the building;

(q) There was no proper assessment of the significance of the dogleash or galvanized bolts on the ground;

(r) No assessment of the rotational capacity of the turret relative to the base wheel section of the man lift.