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CANADIAN CENTRE  
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# **Invitation to an inquest: Death and dissatisfaction in Flin Flon**

**by Doug Smith**

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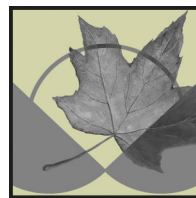
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## Author and Acknowledgements

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Doug Smith is a Winnipeg writer and editor. He is the author of a number of books on workplace health and safety in Manitoba and worked as an editorial consultant for the unions that had standing in the Steven Ewing Inquest.

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# Invitation to an inquest: Death and dissatisfaction in Flin Flon

by **Doug Smith**

CANADIAN CENTRE FOR POLICY ALTERNATIVES- MANITOBA

## Introduction

At 1:30 in the morning of August 8, 2000, Steve Ewing and Roland Pruden were standing on a catwalk suspended over the ceiling of the furnace in the huge smelter at the Hudson Bay Mining and Smelting (HBM&S) operation in Flin Flon, Manitoba. Each man was using a hose to wash dust and dirt off the beams and floor plates of the smelter. The water and dirt was flowing down onto the furnace ceiling and leaking into the furnace itself. The work they were doing was not a part of their regular jobs at HBM&S. Rather it was part of the smelter shutdown and rebuild process, which took place approximately every three years.

They had just been instructed to start washing down the middle of the furnace ceiling from the catwalk when they heard a loud pop. A second explosion tore off Pruden's safety goggles and helmet. With slag, matte, and broken brick flying through the air, both men—close friends—sprinted down the catwalk into an atmosphere of total darkness. They lost contact with each other. Pruden ran down a flight of stairs to the main floor of the smelter. A fellow worker found him and led him out of the building. He was given first aid and taken to the Flin Flon hospital. Ewing was also helped out of the smelter and taken to hospital.

In total 13 men were taken to the Flin Flon Hospital that night. Ewing and Pruden, the most seriously injured, were flown to Winnipeg for treatment. Steve Ewing received burns to over 95 per cent of his body. Despite numerous skin grafts, treatment for burns and emergency surgery on his windpipe, he died on August 16, 2000.

Roland Pruden was severely burnt over 46 percent of his body. He needed reconstructive surgery and was in hospital for two and a half months in Winnipeg. Years later he still had skin irritation and will bear the scars of his ordeal forever. His lungs were scalded by the steam, requiring him to undergo lung function tests every six months. He was in need of laser surgery

to relieve skin irritation that is an ongoing legacy of the explosion.

Forty-three of the men on duty that night filed workers compensation claims: some have never returned to work. In the days that followed, many of the workers who were on shift that night refused to work with the men who had been supervising them, staging what amounted to a spontaneous strike over a health and safety matter. For the workers there was an overriding sense that Manitoba's *Workplace Safety and Health Act* had failed to protect them. They wanted to find out what went wrong and what could be done to prevent similar tragedies in the future. They believed that the tragedy was not an isolated incident but underscored serious problems with the existing health and safety laws.

There is considerable merit to this argument. Hudson Bay Mining and Smelting is a well-established multinational corporation that has been operating in northern Manitoba for over three quarters of a century. It is no secret that mining and smelting metal are very dangerous occupations: workers have died on the job at HBM&S in every decade of its operation in Manitoba. Manitoba has had health and safety laws for over a century. These laws underwent a major reform in 1976. A catastrophic explosion at a workplace that should be a leader in workplace safety and health is not an indication of a rogue employer cutting corners; it is a sign that there was something wrong with the underlying health and safety regime in Manitoba.

To this end the workers participated in the post-explosion investigation carried out by the HBM&S Joint Workplace Safety and Health Committee. Unfortunately, at the end of that process, the workers and the management were not able to agree on joint recommendations.

The workers turned to the courts for an explanation of what went wrong. On November 29, 2001, the company pleaded guilty to a single contravention of Section 4(2)(a) of *The Workplace*

*Safety and Health Act*, which creates an obligation to provide and maintain a workplace, necessary equipment, systems and tools. However, during the course of the court hearing, the company lawyer angered many HBM&S workers and their family members by stating that his law firm had advised the company that it would be successful if had sought to have the charge dismissed. The implication was that HBM&S was only pleading guilty because "there would be no healing until someone took responsibility for this tragic incident" (Her Majesty the Queen and Hudson Bay Mining and Smelting Company 2001; 69).

The truncated court process had failed to provide workers with the answers they were seeking. The workers had also requested that the provincial government hold a public inquiry, similar to the one held after the Westray, Nova Scotia mining disaster of 1992. However, the provincial government chose not to hold an inquiry. Instead a provincial court judge was appointed to conduct an inquest. Under Manitoba law, an inquest is mandated to determine the circumstances that led to the death and make recommendations aimed at preventing similar deaths. Depending on how a judge chooses to define similar deaths, this is a potentially limited mandate, although in the past judges have headed inquests that examined a wide range of systemic issues.

Quite properly, the inquest could not begin until the legal charges against the company were settled. As a result, it was not until early 2004 that the inquest commenced. Unfortunately, it quickly ground to a halt when HBM&S lawyers launched a legal challenge to gain access to transcripts of interviews between workers who had been on duty on the night of the explosion and the crown attorney for the inquest. The inquest adjourned in February 2004 for these legal challenges to be heard and did not resume until April 2008. The inquest continued into May, and the judge, Robert Cummings, released his report at the end of October 2008.

Thanks to the miracles of wide margins, triple spacing and extensive quotation, it is a lengthy report that could be mistaken for a thorough examination of the issues. It is, in reality, a marvel of illogic and credulity.

Cummings concluded that the shutdown was well managed and well planned, that the explosion could not have been prevented, and that there is no need to increase worker input into health-and-safety decision-making. In short, he did everything but pronounce the operation a success, save for the unfortunate death of the patient.

Then, on practically the very last page of his report, the judge made a very important and positive recommendation that should be incorporated into provincial law. This recommendation, which is discussed in a later section of this report, does not redeem the preceding muddle, but if the government acts on it, an inquest that had degenerated into a farce may have served some useful purpose.

## **A failed inquest**

This paper has two purposes. The first is to dispute Judge Cummings's conclusion that the explosion was not evidence of a systemic failure and could not have been prevented by the application of appropriate management strategies. There are several reasons why this inquest consumed so much time and energy, inflicted so much pain and suffering on the victims of the explosion, and yet, to produced so little of value. These include the adversarial nature and limitations of the inquest process. This paper, however, focuses on the problems that arose from the failure of the judge to develop an understanding of health and safety law or the philosophy on which that law is based.

Secondary to this broad failure was a decision not to call any independent witnesses, engage any expert research, or to engage with the considerable volume of documentary evidence that was presented at the inquest. The judge also refused to

accept the transcript of the criminal prosecution of HBM&S entered as evidence in the trial. His conclusions are based on the evidence of people who were employed by HBM&S at the time of the explosion.

The second, more modest, purpose is to make the case for the positive changes that Cummings proposes.

The paper has six sections: 1) an overview of the events of August 2000 (and the period leading up to the explosion), 2) a summary of the expert reports submitted to the inquest, 3) a review of the planning process, 4) a review of the limitation in the evidence presented to the inquest, 5) a discussion of measures that can be taken to prevent future deaths, and 6) conclusions.

The first three sections serve as background to the final three.

# The shutdown and explosion

Hudson Bay Mining and Smelting operates mines and smelters in Flin Flon and Snow Lake, Manitoba, employing approximately 1,500 workers. It has been in operation in Manitoba since the late 1920s, always under foreign ownership. It has mined and smelted copper from the outset. Since 1930 the copper has been smelted in a brick-lined reverberatory furnace (often referred to as the reverb). The furnace itself is housed in a three-storey building.

The furnace is used to melt calcine, a product that is approximately 25 per cent copper. As the calcine melts, it separates out into three layers: a top layer of slag (a generic term for the byproduct created in the smelting process), a middle layer of matte (45 per cent copper), and a bottom layer of magnetite, an iron oxide that settles out of the furnace if it is low in silica. The top two layers can be drained off through different openings in the furnace bath (the term for the bottom bowl of the furnace that holds the molten metal).

A special train brings calcine to the third floor of the smelter from the roasters that turn copper concentrate into calcine. The calcine is delivered into the furnace bath by hoppers that connect the third floor to the second floor, which is known

as the feed floor. From there it is fed into the furnace.

The furnace heat is, not surprisingly, intense. So intense that it regularly burns away the bricks that line the furnace walls. As a result, the furnace must be periodically torn down and rebuilt, although the building in which it is contained remains standing. Up until the 1970s, this was an annual procedure. However, since then it has been done approximately every three years. Prior to the explosion, the most recent shutdowns took place in 1990, 1994 and 1997.

The shutdown is a multi-step process that cannot begin until the furnace bath has been drained to as low a level as possible. When the bath reaches the desired level, the burners are shutoff, ash is removed, and the upper structure of the building is washed down. When the furnace has cooled, the walls are demolished. The bricks and any magnetite that has become attached to the floor or sides of the bath must then be removed from the furnace, usually by jackhammer. Because this is a time-consuming process, steps are taken during furnace operations and particularly prior to shutdown, to control the magnetite build up.

The 1997 shutdown (the shutdown previous to 2000, the year of the explosion) had gone over budget due to delays in removing the magnetite and clearing away the rubble created by the tear down. As a result, in 2000, contractors had been hired to use remote-controlled demolition machines (referred by their trade name as Brokks) to knock in the walls. For the first time, a bulldozer was to be used to remove the brick and debris once the demolition had taken place.

Because the bulldozer and its rollover protection were too tall to clear the entrance way to the furnace, the company, prior to the shutdown, sought and received permission from provincial government to remove the bulldozer's rollover protection. To create more room for the bulldozer to get into and manoeuvre within the furnace, the company planned to drain the bath to as low a level



as possible. At the inquest, several management witnesses acknowledged that prior to the burners being turned off, the furnace had been drained to the lowest level they had seen. In the period prior to the shutdown, the company had added an unknown amount of reductant (usually pig iron) to the bath. The purpose of this reductant is to cause the magnetite to separate from the floor and sides of the bath and drain away. There was no ongoing professional monitoring of the addition of reductant to the furnace.

The point to bear in mind from this discussion is that the company was departing from past practice in bringing in a bulldozer. To do this, it had to drain the furnace to a lower depth that had ever been achieved before. The changes led to changes in the composition of the metal in the bath and may well have contributed to the explosion.

### **The purpose of the washdown**

The washdown was undertaken in advance of the demolition of the furnace. It involves having several workers use hoses to wash down the floor and beams on the third floor of the furnace (many of the floor panels on the third floor are removed during the washdown). The goal is to remove the calcine, dust, and dirt that had accumulated on the beams since the previous shutdown. During the rebuilding of the furnace, these dust and dirt particles can come loose and fall down on the workers who are rebuilding the furnace, creating the risk of eye injuries. The washdown also cooled off the furnace, thereby speeding the shutdown process.

### **August 7-8, 2000**

The schedule for the 2000 shutdown indicated that the furnace burners were supposed to be off by 7:00 p.m. on August 7, and the washdown would begin immediately after. Since there was a shift change at 7:00 p.m., this meant that there would likely be a delay between the time

the furnace was shutdown and the washdown commenced. However, the shutdown was behind schedule. The furnace had not been sufficiently drained by 7:00 that evening to allow for the burners to be turned off. The burners would not be turned off until 11:00 p.m. and the washdown would start shortly thereafter. Since there was no shift change at 11:00 p.m., there was no built-in delay between the shutting down of the furnace and the start of the washdown.

### **The shutdown supervisors**

There were five supervisors on duty at the smelter that evening who had varying degrees of responsibility for overseeing the washdown: William Morrell, Reg Hillier, Jim Harrower, John Laidlaw and Calvin Woods. Laidlaw, who had been assigned to supervise the washdown, had never seen a washdown before and had never supervised one. The company took no pro-active steps to provide him with any training as to how the washdown should be done.

Morrell, the reverb furnace foreman on August 7 and the most senior supervisor in terms of authority that evening, had never worked on or supervised a washdown. Hillier testified that he thought he had worked on the washdown in either 1976 or 1977 but had not participated in one since then. Harrower had never monitored a washdown or worked on one. The judge in his report states that Harrower had supervised a shutdown. However, in his October 12, 2000, statement to the Joint Workplace Safety and Health Committee team investigating the explosion, Harrower was asked if he had monitored the washdown on previous shutdowns. His answer was: "Specifically no. That is a tricky question. I was on the Reverb staff at the time and I checked on guys at the time but that was not my specific task" (Section E. Explosion interview notes, Jim Harrower, October 12, 2000 interview, page 8). Woods took part in the 1994 washdown as an hourly employee.

In short, of the five supervisors on duty that night only two had ever worked a washdown (both of them only once, in one case, six years previous, in the other case, 23 or 24 years earlier). While the supervisors on duty that evening had, individually and collectively, worked for HBM&S for many years, none had ever supervised a washdown.

While Laidlaw had been scheduled to supervise that washdown, he was reassigned at the start of the shift, and Woods became the washdown supervisor. Woods was given, according to his testimony, no guidance as to how to supervise the washdown. All of the supervisors testified that they were not aware that there was a risk of water from the washdown coming into contact with molten metal in the furnace.

When water encounters hot molten metal, it can explode into steam, blasting hot metal throughout the workplace. These explosions can have tremendous and often fatal force. In the past, the procedure had been to ensure that the top level of the bath had solidified, preventing the water and molten metal from coming into contact.

### **The washdown crew**

While a crew of workers had been pre-assigned to do the washdown, tasks were reassigned on the evening of August 7, 2000, because the shutdown was behind schedule. Steve Ewing, Roland Pruden, Fred Ledoux, Tom Wolokoff, Steve Pickering, and Ron Radics, were eventually assigned to the washdown. Only three of these men had been originally assigned to the task. Of the five men who survived participation in the washdown process, only one, Ron Radics, had previous experience with the washdown.

While there was a safety meeting at the start of the shift, there was no mention made of any potential risk that might arise from water from the washdown coming into contact with molten metal in the furnace. The focus of the safety meeting was on worker behaviour—urging them to wear their

protective equipment and drink fluids—not on the underlying risks of the tasks being assigned.

### **The shutdown**

When the burners for the furnace were shutdown late in the evening of August 7, 2000, the furnace operator did not record the temperature of either the slag or the matte in the furnace bath. In testimony, it was suggested that the temperatures may have exceeded the range of the infrared sensors that are used to measure temperatures in the furnace. The question of the temperature of the bath is significant in that it was expected that the surface of the bath would quickly solidify, forming a solid barrier that would prevent water from reaching the molten metal lying beneath its surface and triggering an explosion. Without knowledge of the temperature of the bath, it would be difficult to determine when it would solidify. The supervisors on the night of the shutdown testified that they did not know the temperatures at which slag and matte solidified nor did they know the rate at which the surface would thicken. In his report the judge found nothing untoward about the fact that the company did not monitor the temperature of the bath during the shutdown and, in fact, lacked the equipment that would allow it to monitor the temperature.

### **Starting the washdown**

There was general agreement that the washdown started at 11:30 p.m., a half hour after the furnace burners were turned off. The evidence presented at the inquest provided no clarity as to who ordered the commencement of the washdown. Morrell, the senior supervisor on duty said he did not know who gave the order to start the washdown. Woods, the washdown supervisor, testified that Morrell told him that the washdown should start as soon as the boiler ash was removed from the furnace. When asked what the procedure for doing the washdown was, Woods testified, “There

was no procedure” (Inquest transcript, May 20, 2008, page 47, line 28). When asked if he had provided any special instructions to the men carrying out the washdown, he responded, “Well, they knew that they had to start on the west side of the furnace and work their way east” (Inquest transcript, May 20, 2008, page 48, lines 6-7).

Woods said that he told the men that they should determine how long they should work before they took a break. He also said that he did not provide constant supervision, but simply checked on the men on occasion.

According to Radics, the one worker who had worked a washdown before, previous washdowns had been accomplished using smaller hoses and less water pressure. Furthermore, previous supervisors had taken a much more hands-on approach. Radics testified that they “were right there telling us when to start and when to take a break, and it was a break for a longer period, like a half hour break, and they’d tell us, okay, it was half hour, hour, then they would tell us to go back in and, you know, mist it down a little more” (Inquest transcript, February 17, 2004, page 75, lines 12-25; page 76, lines 2-6, page 80-81, lines 33-28).

The six men who did the washdown were told to divide themselves into two groups and spell each other off when they became too hot. The workers testified that while they were originally told that they should take a break before starting the washdown, this order was quickly countermanded. Radics stated that he was surprised by the decision not to delay the start of the washdown.

During the washdown, the men wore gloves, respirators, earplugs, helmets and protective overalls and used the fire hoses that had been strung up earlier by other workers. Throughout the evening various supervisors appeared and reassigned the men. At one point Pruden was told to hose down near the large furnace uptake vents, but he decided not to since he could see pipefitters

working directly below him and did not want to spray water onto them.

Because of Radics’s concerns with the decision to start the job so early, he stopped hosing down the furnace and assisted with the clean up around an area referred to as the slag launder (a launder is a type of chute used through which slag would be drained). He later worked removing bricks from the furnace.

Brad Russell and Kelvin Primrose were assigned to clean up the slag launder area that evening. Both testified that they felt that they were being pressured by their supervisors to hurry and complete their tasks that evening. One of the crew of pipefitters who was working on the shutdown crew that evening, Barry Fox, also testified that he was being hurried that evening.

### **Water in the furnace**

During the course of the washdown, numerous supervisors and workers were all able to look through holes into the furnace. According to their testimony the bath was at times glowing, giving off steam, cracked along its surface, and was covered with pooling water. All of the witnesses indicated that they had not been given training that would have led them to view these developments with alarm.

### **The explosion and the washdown workers**

As described at the outset of this paper, the explosion took place at 1:30 in the morning of August 8, 2000. Steve Ewing and Roland Pruden were trapped on the catwalk at the time of the explosion and took its full force, which stripped them of their protective equipment. They fled for their lives but needed assistance to even leave the building. Tom Wolokoff, the third worker doing washdown at that time also ran for his life, noting that he could feel the floor lifting while he was trying to get out of the building.

Russell and Primrose, the two workers cleaning the slag launder were knocked off their feet by the

blast. They made their way to a main floor exit, but were unable to leave the building because it was locked.

With their masks knocked off them by the force of the explosion, the pipefitters sought shelter at a shed in the smelter. From there they made their way to the lunchroom.

Richard Moore, Darren Stular and William Morrell were on the south side of the furnace at the time of the explosion. The explosion ripped off Moore's protective equipment, while Stular was tethered to a remote-controlled jackhammer. While Moore's attempt to flee the building was frustrated by a locked exit door, he eventually found a way out via an elevator shaft. He later helped other workers leave the building through the shaft.

In addition to these workers, there were others who received first aid on site. Aside from the physical injuries, many of the workers on duty that night were severely traumatized. In some cases they have not been able to return to work in the smelter, and in other cases they have simply not been able to return to work at Hudson Bay Mining and Smelting.

While all of the supervisors and all but one of the workers who testified at the inquest stated that they were not aware of the hazard being created when water was introduced to the furnace so shortly after shutdown, all of them were aware of the hazard of mixing water with molten metal. Many of the workers had either been burnt by small-scale explosions in the smelter when small amounts of water had come into contact with molten metal or had witnessed such explosions. As was demonstrated in evidence, workers were required to wear certain protective equipment to protect themselves from burns, and safety representatives carried gel to treat explosion related burns. While these are important protective measures, they also normalize the hazard (Inquest transcript, April 22, 2008, page 129, lines 14-30). Furthermore, only four years

before the 2000 explosion, smelter worker Richard Beasley was killed when snow and molten metal were inadvertently mixed in the smelter.

To summarize the evidence dealing with the events of the night of the explosion:

- 1) the supervisors testified that they were not aware of the hazard that was being created by the washdown;
- 2) all but one of the workers testified that they were not aware of the hazard being created by the washdown;
- 3) the workers carried out their tasks as instructed (although that instruction was minimal);
- 4) the work was not closely supervised;
- 5) managers were confused as to how the work was to be done; and
- 6) supervisors had little personal experience of the washdown.

# Expert reports on the immediate cause of the explosion

Neither the judge nor the crown attorney—nor any other party—called any expert witnesses, despite the fact that, following the explosion, a number of expert reports had been prepared by outside technical experts for both the Manitoba government and for Hudson Bay Mining and Smelting. Instead, the parties with standing in the inquest (the Manitoba government, the company, and the unions representing workers at the plant) reviewed the expert reports and agreed upon edited versions that would be submitted to the inquest. Since an inquest is not intended to attribute legal culpability, any material assigning culpability (or relieving a party from culpability) was to be deleted from the reports. This decision, as will be noted later, had unfortunate consequences, since the judge chose to make comments on issues that were covered by portions of the report that were not submitted to him. The judge did not have to agree to this process: he could instead have had the authors of the reports called as witnesses and had their full reports entered as evidence.

The unions also attempted to have the transcript of the 2001 court hearing, at which the company pleaded guilty to maintaining an unsafe workplace, submitted as evidence. Judge Cummings ruled that the transcript was not acceptable as evidence in the inquest. Again, this is unfortunate, since the crown's statement in that hearing was based on the full expert reports and presented a different picture explosion than the one found in Judge Cummings's report.

While the reports offered slightly differing interpretations of the events, they all agreed on a few key points; the prime one being that the explosion was the result of water coming into contact with molten or very hot metal. One of the reports stated that "Extra weight on the bath from dumping brick and roof tiles onto the inside of the furnace may have forced molten material up to the surface to contact water" (Jennings 2000; 9).

Two of the reports said the washdown was commenced too soon after shutdown, and, as a result, the furnace bath was not given sufficient time to cool down. One report noted that the furnace was empty of matte at the time of the explosion, containing only magnetite and slag. Since magnetite has a much higher melting point than matte, the material under the slag would have been 500 degrees hotter than the operator might have expected. This report suggested that the water caused the solidified slag and the magnetite to crack. Once this happened, water poured through the crack, reached the molten magnetite and triggered an explosion. This report stated that there should have been monitoring of the temperature of the bath and a delay of sufficient time to allow the bath to form a thick solid surface. Another report suggested the decision not to allow the bath to cool down was an indication that the workers and supervisors were not sufficiently aware of the risks that they were facing that night (Jennings 2000; Tennessee 2000).

Even in their edited form, the expert testimony identified management failures that contributed to the development of a hazardous situation that resulted in a tragic explosion.



# Planning the 2000 shutdown

The evidence indicates that only one of the workers on duty on August 7, 2000—and none of the supervisors—was alarmed by the decision to commence the washdown of the furnace so shortly after the furnace burners were turned off. There was no evidence presented to suggest that the workers had received any training as to the risks associated with introducing water to the furnace shortly after the furnace had been shutdown. The workers and the supervisors, according to the evidence, were following their understanding of the plans for that night's operation. While they may have seen water pooling on the surface of the bath, they had not been given any training to suggest that this was a sign that there was a risk of an explosion. In short, while the explosion arose out of the decision to start the washdown so soon after shutdown, it had its roots in the training and planning process. Smelter superintendent Alan Hair testified that:

the fundamental issue was the failure to recognize the, the hazard of using water to wash down the furnace, and the fact that it was treated—or certainly perceived to be a, a routine job, and as such, just hadn't been

flagged on anybody's radar screen that, that, that—the huge potential hazard that was there and could have resulted in what happened (Inquest testimony, May 27, 2008, page 80, lines 28-34).

The fundamental question, which should have been before Judge Cummings, flows from Hair's comments: "Why did the company fail to recognize the hazard that it would be creating?" It is a question that his report fails to answer in an adequate fashion.

This section of this paper looks at the planning of the shutdown, placing its discussion in the context of the appropriate procedures to identify and control hazards.

## The hazard identification and the hierarchy of control

In terms of health and safety, the most important decisions are those that are made before the workers report for duty. The key decisions include the materials that are going to be used, the way those materials are to be used, and the training that is going to be provided. Planners have to be aware of the hazards associated with each of their decisions. They then have a number of options they can use in controlling those hazards.

The Canadian Centre for Occupational Health and Safety (CCOHS) provides a useful starting point in understanding the steps to be undertaken in identifying and controlling hazards. The Centre is a federal departmental corporation reporting to Parliament through the federal Minister of Labour and is governed by a Council representing three key stakeholder groups: government (federal, provincial and territorial), employers, and workers. The Centre identifies the following measures to be used in identifying workplace hazards:

- look at all aspects of the work,
- include non-routine activities such as maintenance, repair, or cleaning,
- look at accident / incident / near-miss

- records,
- include people who work 'off site' either at home, on other job sites, drivers, teleworkers, with clients, etc.,
- look at the way the work is organised or 'done' (include experience and age of people doing the work, systems being used, etc),
- look at foreseeable unusual conditions (for example: possible impact on hazard control procedures that may be unavailable in an emergency situation, power outage, etc.),
- examine risks to visitors or the public,
- include an assessment of groups that may have a different level of risk such as young or inexperienced workers, persons with disabilities, or new or expectant mothers. (Canadian Centre for Occupational Health and Safety. Risk Assessment, [http://www.ccohs.ca/oshanswers/hsprograms/risk\\_assessment.html#\\_1\\_1](http://www.ccohs.ca/oshanswers/hsprograms/risk_assessment.html#_1_1))

In controlling hazards, the Centre identifies four general options that range from eliminating the hazard (for example, not using water at all during the shutdown process) to engineering controls (for example, punching cooling holes in the furnace to allow the surface of the furnace bath to cool more rapidly), to administrative controls (having a delay prior to the start of the washdown), to personal protective equipment (having workers wear hard hats, masks, safety boots and so forth).

These four methods have been listed in order of their effectiveness, and for this reason, the list is often referred to as the hierarchy of control. Measures that focus on elimination and engineering can be described as hazard elimination and control approaches, while those that focus on administrative controls and personal protective equipment are more often focused on changing employee behaviour and are often referred to as behaviour-based approaches.

## The HBM&S shutdown plan

HBM&S began planning the shutdown in September 1999 when the company established a number of different planning teams. Managers were appointed to the teams and hourly workers were invited to participate in the teams. Three teams were key to events examined by the inquest: the Core Team, the Reverb Team and the Safety Team. The Core Team coordinated the entire project, the Reverb Team focused on issues related to the teardown and rebuild (including compiling the shutdown manual), and the Safety Team was responsible for safety.

The decision to expand the planning process and establish teams was taken in response to the fact that between 1997 (the year of the previous shutdown) and 2000, the smelter had lost a number of senior employees; one estimate put it at nine. Both smelter superintendent Alan Hair and assistant superintendent Pat Merrin were new to their jobs and had not gone through a shutdown before. Ray Gauthier, an experienced smelter employee, was given the job of shutdown coordinator. While Gauthier had done this job in the past, it usually involved a focus on the procurement of supplies in advance of the shutdown, not on planning the shutdown..

## A shutdown manual

Gauthier concluded that in light of the loss of experienced supervisors it was necessary to put together a shutdown manual. However, he concluded that there was not sufficient time to prepare the manual prior to the 2000 shutdown. Instead, a draft manual would be prepared, reviewed during the 2000 shutdown, and adopted for all subsequent shutdowns. Since the manual would not be ready in time to guide the 2000 shutdown, he recommended that the company bring back a number of retired supervisors to assist with the supervision of the 2000 shutdown. This recommendation was turned down. Judge Cummings did not fault the company for failing

to act on Gauthier's request to ensure that there was adequate experienced supervision on the night of the shutdown.

During the spring of 2000 a 27-page draft shutdown manual was prepared by people involved in planning the shutdown. It was not intended to be used to guide the 2000 shutdown. Instead, during the shutdown, supervisors were expected to review the draft and revise the manual based on their actual experience. Following the shutdown, the supervisors intended to complete the manual, which would be used to guide future shutdowns.

In preparing the draft manual in the spring of 2000, the degree of detail that went into the description of any task in the draft shutdown manual was based on an assessment of the risk of that task. This assessment focused on whether workers had been injured performing that task in the past. This was not a satisfactory basis of assessment, since tasks that had significant underlying hazards but had been successfully controlled by management practices in the past might not be adequately assessed. This appears to have been the case in 2000. The 2000 hazard identification process did not address many of the issues that the CCOHS identifies as being essential to hazard identification. Particularly relevant to the events of 2000 was the failure to identify foreseeable unusual conditions and to assess groups that may have a different level of risk such as inexperienced workers.

Judge Cummings concluded that the decision to view the washdown as a low-risk job based on its previous accident rate was appropriate. He reached that conclusion without hearing from a single independent witness who was expert in hazard identification.

### **Was the company's safety program followed in preparing the shutdown manual**

Hudson Bay Mining and Smelting had a corporate safety programs that had been developed

by the International Loss Control Institute. By 2000, the company had reached level six of the program's ten levels. The program has a three-page section that addresses the issue of Critical Task Analysis and Procedures. It states that critical task analysis "is essential to thoroughly describe the activities within the Job/Tasks within the department" (Hudson Bay Mining and Smelting, n.d.; 22).

Smelter management was expected to ensure that a task analysis was carried out on each job and that job practices and instructions were written for each job. Hazard and risk analysis were expected to form a part of the critical task inventory. The process was to involve at least one worker who was competent at the task and one supervisor who had supervised the procedure. In short, the company had a policy structure that could be employed when planning the shutdown tasks.

This process was not used to develop the shutdown manual. One management witness gave the following explanation for this decision.

Well, we didn't take the time to do that, like how do I word this? We didn't have the resources to do it all. Critical task analysis or risk analysis is a long process in itself—and we thought whatever we could get done would be better. And a lot of people weren't trained in the way we did job procedures once we started doing risk analysis, the way we stepped them out and everything (Inquest transcript, April 24, 2008, page 73, lines 16-31).

Judge Cummings made no comment on the decision not to follow the company's own safety policy in planning the shutdown.

During the course of the inquest the evidence did not establish who was responsible for developing the washdown procedures for the shutdown manual. Witnesses suggested that either Reg Hillier or Jim Harrower had developed the procedure. Harrower had never worked a



washdown or supervised one. Hiller had worked on a washdown in either 1976 or 1977. He further testified that he was on holiday when the washdown procedure was written. In short, there was no evidence presented to the inquest that the washdown procedure was developed by anyone who had actually worked or supervised a washdown.

Smelter superintendent Hair testified that he had not seen the shutdown manual as a whole prior to the shutdown (Inquest transcript, May 21, 2008, page 11, lines 7-9) nor could he recall any discussion of the wash down itself in any detail (Inquest transcript, May 21, 2008, page 12, lines 7-11). Neither the Safety Team created for shutdown planning nor the standing Joint Workplace Safety and Health Committee at HBM&S reviewed the draft manual. Despite this, Judge Cummings was able to conclude that the shutdown planners drew on a wealth of experience in preparing the manual (Cummings 2008, 172).

While the manual was not intended for use during the 2000 shutdown, the supervisors on duty on August 7 made a decision to add more hoses to the washdown process based on their interpretation of the manual. The explosion took place before this decision could be implemented: but if more hoses had been used, they would have simply increased the risk of explosion that evening. Adding additional hoses would also have led to a situation in which workers were spraying water on each other. The manual, in short, was incomplete and open to misinterpretation.

There were, however, other priorities.

### **Changes to the shutdown process**

Traditionally, the shutdown was carried out in the spring or fall—while Flin Flon is a northern community, summer days can be very hot and it was preferable to carry out the shutdown in more temperate months. However, the decision to shutdown was timed to coincide with the

introduction of a new gas-handling system that would reduce fugitive emissions from the smelter. Delaying the teardown and rebuild until there was a planning manual might have been safer, but it would have meant that either the gas handling project would have to be delayed, or there would have to be two shutdowns. Each shutdown represents a loss in productivity.

In 2000, the company also intended to introduce a number of changes in the shutdown process. These changes arose out of the 1997 shutdown, which had gone 10 per cent over budget. Most of this cost had arisen in the rebuild. To allow for more time for the rebuild, the company intended to ensure a quicker and more thorough teardown.

One of these measures was the use of a bulldozer to clear out the furnace, instead of the slower technology that had been used in the past. This would allow for a faster and more thorough clean up of the debris.

However, it would not, as noted above, be easy to get a bulldozer into the furnace area. The arches through which it passed were low and if the bath itself were not nearly completely drained the bulldozer would not have sufficient clearance. It was for this reason that the company sought and received permission to remove the bulldozer's safety rollbar.

### **The Planning Teams**

While the Core Team, which oversaw the planning of the shutdown, discussed safety issues at all of its meetings, it did not undertake or coordinate an assessment of the underlying health and safety risks associated with the shutdown. According to the Team minutes, its meetings were poorly attended. There was a similar problem with the Reverb Team where it was reported “the work is being done by only a few people” (Exhibit 24 J.11). The Reverb Team did start each meeting with a brief discussion of safety issues. However, these issues related to immediate

issues, not longterm planning. For example, at the December 3, 2000, meeting, one of the safety issues is a reminder to drive safely because of the icy roads (Exhibit 24, J.75). It was the Reverb Team that determined that new equipment would be used to clean out the furnace rubble following shutdown. This change would lead to the need to drain the furnace as completely as possible. Its records do not mention the need to review the safety implications of these changes. The Safety Team, which did not form until February 2000, focused on worker behaviour, not on identifying, eliminating, or controlling hazards. It did not, for example, review the draft shutdown manual, which was written during the spring of 2000. Its leader did not testify at the inquest.

Judge Cummings did not identify or comment on these issues.

### **The 2006 planning process compared to the 2000 process**

The 2000 explosion led the company to completely reconsider its shutdown operations. As a result, it was concluded that it was not necessary to wash the beams and floors down with water to control dust and dirt. In 2006, the year of the next shutdown, the company made use of fans, blowers, and vacuums to control the hazard. Unlike in 2000, the company assigned sufficient resources to the planning process to allow a thorough examination of work procedures prior to the shutdown. In his testimony, Ray Gauthier, who helped coordinate both shutdowns, stated that in 2006:

...we would develop the procedures. Then we'd bring people in, and get them to review them. At the same time, before we even completed the procedure, we did a risk analysis on it. There should be documentation of that, the risk analysis. Then the procedure, and then the sign-off from the employees of the procedure...Well, it was

the complete process, because we had the time, the resources to do it the right way. (Inquest transcript, April 23, 2008, page 50, lines 16-26).

While hourly workers were invited to participate in the Teams in 2000 (and would have been paid for their time) the meetings were held at times that were inconvenient for many workers.

Judge Cummings indicated that the 2000 shutdown was the best planned in the company's history to that point. This is best read as a comment on the level of planning that went into previous shutdowns than on the quality of the planning in 2000.

To summarize:

- 1) The company managers turned down the shutdown coordinator's recommendation to bring back skilled supervisors from retirement.
- 2) The company did not delay the shutdown until the shutdown manual, which was intended to compensate for the lack of skilled supervisors, was complete.
- 3) The company's shutdown risk assessment process employed a limited and insufficient range of criteria.
- 4) The company's risk assessment did not comply with the company's own safety plan.
- 5) The washdown was not planned by anyone who had supervised a washdown in the past or had performed a washdown on more than one occasion.

A proper planning process for the shutdown would have required a hazard identification procedure that examined the underlying safety of the processes and decisions involved in the shutdown. Key processes that would have to be examined would be the decision to use water to wash down the furnace, the timing of the washdown in relation to the shutoff of the furnace, the implications of the decision to punch holes in the furnace walls, and the decision to reduce the

level of the bath through the use of large amounts of reductant. As management witness Gauthier's testimony indicates: in 2000 the company was not prepared to commit adequate resources to protecting worker health and safety.

## Limitations in evidence presented to the inquest

This section of this report addresses two related issues regarding the inquest procedure: 1) who was heard from and 2) who was not heard from.

Over a four-year period, 23 individuals testified before the inquest. Eleven of these witnesses were workers who were on duty on the night of the explosion. As noted above, the evidence indicates that none of these men had received any training prior to the 2000 shutdown regarding the dangers of introducing water to the furnace immediately after turning off the burners. Only one of these workers had ever washed down the furnace prior to 2000.

The inquest also heard from 11 management and supervisory witnesses. Ten of these witnesses all indicated that they had not been aware of the risks involved in the washdown (the other management witness simply provided a technical overview of the smelter operations and was not asked about the 2000 shutdown). Of the management witnesses only two had ever worked a washdown shift and neither of them had ever supervised a washdown.

The twenty-third witness was the union's health-and-safety representative. He, too, had never worked a washdown or supervised one.

On the basis of the evidence provided by these witnesses, Cummings concluded that the supervision on the night of the explosion was acceptable, that the planning process was acceptable, and that the explosion could not have been prevented (except by using a process that did not involve the use of water). He went so far as to state "I do not believe that the failure to identify this hazard was a failure of the system or a failure of the legislation" (Cummings 270).

When one further sifts the evidence, it is apparent that the judge could not have reached his conclusion based on the worker testimony: not one worker testified that the explosion could not have been prevented. The only worker who had worked previous washdowns stated that in the past, the supervisors had taken steps to limit a build up of water in the furnace. The workers were not questioned about the relationship between legislation and the explosion.

The judge's conclusions that the shutdown was well managed and the explosion could not have been prevented were, then, based solely on the testimony of the managers and supervisors who failed to prevent the explosion. It has to be stressed that this inquest heard from no witness who had successfully supervised a washdown or who had a long experience with working washdowns. On the basis of testimony of managers who were not able to prevent an explosion, the judge concluded that the explosion was inevitable.

The judge and the crown attorney did not call as witnesses either former supervisors, or workers who had worked on previous shutdowns. This is a crucial gap in the testimony given the fact that on those previous shutdowns water was added to the furnace without causing an explosion. This should not be viewed as luck, but a reflection of the knowledge and skill of the supervisors and employees. Cummings takes the exact opposite

position, commenting that "There was much evidence gathered respecting the monitoring of water flow, the timing of the washdown in relation to the shutting off of the furnace and other like matters, all of which have been identified by me in this report. None of these administrative controls, if they would have been put into effect, would have eliminated the hazard or made the workplace safer in any manner" (Cummings 2008; 272).

It is quite true that they would not have eliminated the hazard, but they might well have controlled it—and in so doing, made the workplace safer. In fact these measures must have controlled the hazard in the past, since there had been no similar large-scale explosions in previous washdowns. Alternately, one worker spoke of there being a smaller explosion in a previous year. Given this experience, there was even more reason for the company to have brought back experienced supervisors, as the shutdown coordinator had proposed. The testimony of previous washdown workers and supervisors could have shed considerable light on what was so different about 2000.

Some of the testimony of Ray Gauthier (the shutdown coordinator) hinted at what such testimony might have revealed. After the 2000 explosion Gauthier approached a retired supervisor and asked why it had been traditional practice to punch cooling holes in the furnace during demolition (Gauthier had testified that while the holes had been punched in 2000, he did not know their purpose). He was told that in the past the holes had allowed supervisors to monitor the amount of water going into the furnace. If water was building up, he was told that the washdown would be stopped until the water evaporated (Inquest transcript April 29, 2008, page 55, lines 9-15).

Just as surprising as the decision not to call experienced supervisors and workers, was the decision not to call experts. The judge suggests that since the expert witnesses were in general

agreement on the role of water in the explosion and were not in accord as to the type of explosion that occurred, there was little need of technical evidence.

A reading of the full expert reports leads to a very different conclusion. The Jennings Report, prepared for the provincial government states that the “source of this latest problem lies more in procedures and policies than specific equipment” (Jennings 2000; 2). The author writes that in planning for a shutdown “A breakdown of the overall task into smaller components is required, with an analysis of their hazards” (Jennings 2000; 8). In his opinion injecting water without adequate cooling was a calculated risk. He also suggested that the loss of knowledgeable staff may have led to the failure to adequately control the hazard.

A report prepared by Testlabs International for the Manitoba government concluded that “Hudson Bay Mining and Smelting made a series of disastrous departures from previous practice which contributed to the steam explosion on August 8, 2000” (Tennessee 2000; 3). The Testlabs report found the shutdown manual’s description of the washdown process insufficient in that it did not identify the inherent danger of the process, the lack of control on the amount of water to be used, and the lack of detail regarding the way the water was to be used (for example, whether or not there should be rest periods).

The Testlabs report also stated that the fact that the supervisors on August 7 were all in agreement that the washdown should start immediately after the burners were turned off “speaks strongly to their lack of training and education regarding the danger of water and molten/near molten metal” (Tennessee 2000; 14).

The report focused on the decision to drain the bath to as low a level as possible to “save hours of jack hammering and to allow equipment access” (Tennessee 2000; 14-15). The report indicates that draining the furnace thoroughly left only a

very thin layer of slag separating the water from the molten metal below. Also since most, if not all of the matte had been drained, the only metal below the slag was magnetite. Since magnetite has a much higher melting point than matte, this metal would have been hotter than the molten metal in previous shutdowns.

The Testlabs report quotes a former furnace operator and a former furnace supervisor who both stated that in the past the washdown would not have started until several hours after the burners were shutdown. Furthermore, there would be breaks in the process during which no water would be used, particularly if it was accumulating on the surface of the bath.

The report identified the lack of a proper cooling time, the application of too much water, the thinness of the slag layer, and the presence of magnetite rather than matte as being the conditions that led to the explosion. These were seen as “disastrous departures from previous practice” (Tennessee 2000; 32). The report also stated that the risks associated with water and molten metal interactions are well known within the metal industry.

These were strong words, but they never reached the judge’s ears. He and the crown attorney chose not to commission any research or bring any expert witnesses to testify. The judge did read copies of the expert reports, but those copies had been edited by the parties with standing to eliminate much of the information given above. The edits were made on the basis that the inquest was not intended to assign culpability. Unfortunately, the judge went ahead and commented on many of these points in his decision—for example, stating that there had been no significant changes in the company process and that there was nothing wrong with the planning or supervision of the shutdown.

The parties to the inquest had a variety of reasons to agree to the submission of edited reports, including the fact that eight years had passed since

the explosion, the ongoing cost of the inquest, and the prospect that Judge Cummings was likely to be elevated to the Court of Queen's Bench (if this had occurred before the completion of the inquest, the whole process to that point might have been rendered null and void). The judge and the crown attorney were not under the same pressures. It was their responsibility to have all of the evidence presented to the public. Rather than having their reports being rushed into evidence in a heavily edited form, the experts should have been among the first witnesses to be heard. By failing to put these witnesses on the stand, the public has been left with the absurd situation of there being two expert reports commissioned by government that reach conclusions that are completely different from the inquest report. This would be acceptable if the judge had heard the experts and was able to present his reasons for disregarding their conclusions. But Cummings, by not insisting that the experts be brought before him, did not have to deal with the messy problem of evidence that conflicted with his conclusions.

As note above, at the 2001 court hearing at which HBM&S pleaded guilty to maintaining an unsafe workplace, the crown presentation was in large part based on the full expert reports. Citing those reports, the crown noted that the protective layer of slag was thinner in the 2000 shutdown than in the past (Her Majesty the Queen and Hudson Bay Mining and Smelting Company 2001; 38). Furthermore, there was no copper matte in the bath, only magnetite, which had a much higher melting point than copper. This meant the bath would have been hotter than the operators anticipated. The crown attorney at the trial also stated, based on the expert reports, that there was not appropriate monitoring of the heat of the bath. The crown noted that the experts had concluded that "the company did not have system in place that included the provision of appropriate procedures providing for or outlining the adequate time needed before hosing begins

after the burners were shut off" (Her Majesty the Queen and Hudson Bay Mining and Smelting Company 2001; 42). The Crown stated:

One of the experts pointed out that there is no external manual of procedures for something like a reverberatory furnace shutdown. Consequently, standards and procedures must be established locally for every individual shutdown based on accumulate experience, the combined knowledge and commitment of a team of managers, engineers, supervisors, maintenance, safety departments and workers. A breakdown of the overall task into smaller components is required with an analysis of their hazards. And that didn't occur in this instance (Her Majesty the Queen and Hudson Bay Mining and Smelting Company 2001; 43).

The crown attorney also pointed to evidence of at least one previous explosion during the 1997 shutdown and the fact that in the past the water had been applied in an intermittent fashion and that small accumulations of water had been allowed to evaporate before more water was added to the furnace (Her Majesty the Queen and Hudson Bay Mining and Smelting Company 2001; 51). Based on the expert evidence, the Crown concluded "evidence of past practices support the contention that more caution was shown in the use of water and allowing sufficient time for the solidification of a thicker crust on the bath before the water was used. As such, in my respectful submission, it may be concluded that Hudson Bay Mining and Smelting made a series of departures from past practice that proved to be disastrous" (Her Majesty the Queen and Hudson Bay Mining and Smelting Company 2001; 52). Cummings refused to accept the proceedings of the 2001 trial as evidence—and therefore managed to successfully shield himself from this information.



There was also no evidence presented to the inquest by any independent expert on the hazard identification. As a result, the judge was able to conclude that it is appropriate to use the previous injury rate as the sole criterion in determining how hazardous a job was. This approach leads, as it did in Flin Flon, to the underestimating of high-impact, low-frequency hazards. It would be surprising if any expert in hazard identification would have accepted the Hudson Bay approach of hazard planning in 2000—but no expert was heard from.

Were it not for the fact that one of the parties with standing at the inquest was the provincial Workplace Safety and Health Division anyone reading the inquest transcripts might assume that, when it came to health and safety, Hudson Bay Mining and Smelting was a self-regulating body that was not governed by law. A judge who possessed a scintilla of curiosity might have wanted to know 1) what sorts of laws and regulations exist to prevent such explosions and 2) how are these laws enforced. Such knowledge might have allowed him to make recommendations that the laws, the enforcement, or the sanctions be improved.

On the first days of the inquest, a senior company employee provided a detailed explanation as to how the smelter operated. It was, quite properly, thought that the inquest could not go forward unless the judge understood the technical context in which the explosion occurred. No one was called from the Department of Labour to provide a similar understanding of the legal provisions that were supposed to make sure that workers were not killed as the result of the operation of the smelter. The chief task of the provincial Workplace Safety and Health Division is to prevent workplace deaths, and the chief task of the inquest was to determine if there were measures that could be taken to ensure that similar workplace deaths do not occur in the future. Yet, the judge and crown called no one from the Workplace Safety and

Health Division, sailing on, apparently oblivious to the regulatory context in which workplace health and safety is governed. All Canadian workplace health and safety law is based on what is termed the internal responsibility system (IRS). According to the Canadian Centre for Occupational Health and Safety, the IRS holds that:

everyone in the workplace - both employees and employers - is responsible for his or her own safety and for the safety of co-workers. Acts and regulations do not always impose or prescribe the specific steps to take for compliance. Instead, it holds employers responsible for determining such steps to ensure health and safety of all employees.

... These general provisions give employers the 'freedom' to carry out measures and control procedures that are appropriate for their individual workplaces. On the other hand, the challenge for the employers is to know when they have fulfilled all appropriate regulatory requirements. (Canadian Centre for Occupational Health and Safety. <http://www.ccohs.ca/oshanswers/legisl/irs.html>)

The labour movement has a number of longstanding concerns with the IRS. One is that it de-emphasizes the role of government regulation and enforcement to the point where employers essentially become self-regulating. There was virtually nothing, for example, in the evidence presented at the inquest about the role of government regulations or inspections in determining whether the 2000 shutdown was being planned or carried out in a safe manner. According to the evidence, the government's role only began once the explosion took place.

A second concern is that management is able to evade responsibility for decisions that lead to workplace injuries and fatalities. It was

the responsibility of management to ensure that sufficient resources, time, and skilled supervisors were available to plan and carry out the 2000 shutdown. The evidence shows that management was prepared to have the shutdown proceed without a complete plan, without skilled supervisors, and without sufficient resources for planning or supervision of the shutdown. As a key management witness stated: in 2006, unlike in 2000, the company was prepared to commit the necessary level of resources.

Throughout the inquest, the representative of the Manitoba Federation of Labour asked each management witness to define the internal responsibility system. None were able to give a coherent explanation of how it was meant to operate. On April 30, 2008, four years into the inquest, with only a week of hearings left to be held, Judge Cummings commented that up until that day he did not have a clue as to what the term meant (Inquest transcript, April 30, 2008, pages 55-56, lines 33-1). Sadly, he still did not know what it meant since he was commenting positively on the answer of a HBM&S vice president who had described the IRS as “a management system where individuals’ accountabilities and responsibilities are well understood not only by themselves, but by, by others and that they understand others’ key accountabilities as well” (Inquest transcript, April 30, 2008, page 55, lines 28-32). A careful reader might note that the answer makes no mention of health and safety.

In short, the judge was able to conclude that the tragedy was not the result of “a failure of the system or a failure of the legislation” without hearing any witness who could provide him with an expert, analytic understanding of the systems or legislation that were involved.

This lack of understanding was made abundantly apparent by his comment on the unions’ recommendation that it would be appropriate to have a full-time safety representative assigned exclusively to the smelter. This person would

be employed by HBM&S but selected by and responsible to the unions. This is not a new concept. There currently is a full-time health and safety representative at HBM&S. He has been in this position, which was created through collective bargaining, since 1994. It is his responsibility to represent workers’ health and safety concerns, to participate in the development of safety and health procedures, and to work with workers, management, and inspectors to promote health and safety at the company. His responsibilities extend to all HBM&S workplaces in Manitoba, including two mines in the Flin Flon area, a mine and mill at Snow Lake, the zinc plant, the mill, the smelter, the warehouse, the central services groups, the cleaning staff and the research lab. He also sits as a member of the plant-wide Joint Workplace Safety and Health Committee.

Joint workplace safety and health committees exist in all Manitoba workplaces with more than 20 workers. Made up of an equal number of worker and management representatives, the committees meet regularly to discuss and recommend on workplace safety and health issues. They are vehicles for worker participation in the discussion and deliberation of workplace safety and health issues. They can bring workplace safety and health issues into the open, and focus attention on them until they are resolved.

The unions had recommended that there be a health and safety representative specifically for the smelter because of the large number of health and safety issues, including a number of deaths, that were associated with smelter work. The judge recommended against the establishment of this position stating that joint committees were meant to have an equal number of worker and employer representatives on them. “This balance,” he wrote “would be disturbed if there was a full-time safety representative, either on the committee or with concurrent jurisdiction to it” (Cummings 237). It is mysterious as to how the hiring of a full-time safety representative would



disturb the balance. First of all, there already is one such representative at HBM&S who participates on numerous committees and no one suggests that the health and safety balance has tilted in favour of the unions. If a smelter representative were appointed, the representative would sit on the smelter health and safety committee as one of the employee members, not as an additional member who would give the workers a majority on the committee. Secondly, it is common for management's full-time health and safety personnel to sit on health and safety committees—no one suggests that this undermines the balance on the committees. Similarly, no one suggests that the fact that management has full-time health and safety people, and could conceivably have full-time health and safety staff that does not sit on joint health and safety committees, undermines the balance on the committees.

In short, the judge restricted himself to hearing only from HBM&S employees at the time of the explosion and did not call any outside experts. He had neither a grasp of the guiding philosophies of health and safety law nor an understanding of workplace health and safety committees (there are numerous union health and safety representatives who sit on such committees across Canada without disturbing the balance that the judge speaks so highly of).

# Preventing similar deaths

The chief benefit of any inquest is the generation of recommendations that can prevent similar deaths in the future. The key measure of Judge Cummings's report is then: does he make any recommendations that would prevent similar deaths in the future? And the answer to that question is a qualified "yes." While the judge interpreted his mandate in fairly narrow fashion, commenting at one point that the inquest "concerns the death of Steven Ewing and making the smelter in Flin Flon as safe a workplace as possible" (Cummings 220), in the end he made a very sweeping and important recommendation that would apply to thousands of Manitoba workplaces. Cummings recommends that *The Workplace Safety and Health Act* be amended to ensure that in addressing hazards employers apply the principles of the hierarchy of hazard control in the following order:

1. Elimination of the hazard;
2. Engineering controls which might include such matters as modifying existing equipment;
3. Administrative controls that alter the way the work is done;
4. Personal protective equipment for the

worker to reduce his chance of injury.

(Cummings 2008; 270-271)

This is an important change, one that clearly stresses the employer's responsibility to eliminate hazards. Cummings argues that cost has to be one of the considerations involved in determining whether a hazard is to be eliminated or merely controlled. However, from the point of view of worker safety, having the hierarchy of hazard control enshrined in legislation is an important step forward.

However, Cummings undercuts the value of this reform by setting the hazard identification bar at a very low level. He notes that in 2006, HBM&S eliminated the water hazard (by not using water) and used engineering techniques (a combination of blowers and fans) to control the dust hazard. However, he does not fault HBM&S for not instituting these measures until a lethal explosion drew the risk to its attention. In one bizarrely worded passage he states that in 2000: "it is clear from this evidence that procedures were in place at the smelter to identify any hazard" (Cummings 270). Any? Obviously, as he later notes, at least one hazard went unidentified in 2000.

There is good reason to believe that in the years prior to 2000, the company supervisors had identified and controlled the hazard. There is the evidence cited in the Testlabs report that the work had been done differently in the past, there is also the evidence of one of the managers that the water in the furnace had been closely monitored through the cooling holes, and the evidence of one of the workers that the washdown had been organized in a different fashion in the past. Aside from this evidence, there is the simple fact that, according to the evidence presented, the furnace had been washed down on annual basis during the 1970s and 1980s without the occurrence of a major explosion. One of the workers did testify there had been a minor explosion in 1997, but this had not been recorded in the company safety logs. For this part, the judge essentially took the

position that the 1997 explosion had not taken place—if it had, he could not have argued that the planners had no reason to believe the washdown created a hazard.

If one accepts Cummings's view previous shutdowns had been carried out without incident, one has to ask: how were explosions avoided in the past? Whether one wishes to put that down to good luck or to good management, it is certain that the judge's statement that "no changes to the washdown procedure could have helped" makes no sense (Cummings 2009; 193). In all likelihood the 2000 explosion was caused by the changes that were identified in the Testlabs report and identified by the unions in the course of the hearings.

In short, the judge had recommended meaningful hazard control, but was prepared to accept an approach to hazard control in which the employer ignored corporate policy, used a single criterion (the previous accident rate) to determine whether a task was hazardous, rejected a proposal to bring back experienced supervisory staff, proceeded with the shutdown with an incomplete shutdown manual, and decided not to involve its own health and safety committee in the planning process. Without belabouring the point, the judge ought to have given far more consideration to the labour recommendation that provincial workplace health and safety legislation hold senior management responsible for ensuring that the appropriate procedures, plans, resources, and direction are in place to allow work to be carried out in a manner that is safe and healthy.

Finally, having made a positive recommendation, the judge gave no consideration to the need to amend the existing regulations regarding molten material. Had he chose to examine the regulatory structure, he would have been aware of flaws in the current Operation of Mines Regulation (Regulation 228/94 under *The Workplace Safety and Health Act*). The regulation reads as follows: "No person shall deliberately cause or permit

molten material to come into contact with cold, damp surfaces or substances where the contact could cause an explosion." The presence of the word "deliberately" in the regulation requires that the crown prove intent in any prosecution. This is inappropriate standard of proof in the regulation of such an inherently dangerous activity. Removing the word "deliberately" from this regulation would provide an additional incentive to firms to take every possible precaution thus reducing the potential of a recurrence of incidents such as the smelter explosion of August 8, 2000.

Nor did the judge give consideration to increasing the fines that employers are obliged to pay upon conviction of violating workplace safety and health laws. Decisions regarding the allocation of resources to such budget lines as hazard assessment and reduction are generally made on the basis of rational processes. Such investment decisions are based on calculations that attempt to limit costs and increase benefits. For these reasons corporations are particularly responsive to financial sanctions, including those fines that are levied for violation of federal or provincial statutes.

Section 55(1) of *The Workplace Safety and Health Act* of Manitoba sets out the following fines:

- not more than \$150,000 for a first offence (with a provision for a further fine not exceeding \$25,000 a day for continuing offences)
- not more than \$300,000 for a second or subsequent offence (with a provision for a further fine not exceeding \$50,000 a day for continuing offences).

Persons convicted under the Act can be imprisoned for up to six months.

By comparison, section 148. (2) of the *Canada Labour Code* provides for the following sanctions for those whose violation of Part II of the Code (which deals with occupational health and safety) results in the death, serious illness, or serious injury of an employee:

- on conviction on indictment, a fine of not more than \$1,000,000 or imprisonment for a term of not more than two years, or to both; or
- on summary conviction, to a fine of not more than \$1,000,000.

Section 148. (3) provides the following sanctions for those whose willful violation of Part II is likely to cause the death, serious illness, or serious injury of an employee:

- on conviction on indictment, to a fine not more than \$1,000,000 or to imprisonment for a term of not more than two years, or to both; or
- on summary conviction, to a fine of not more than \$1,000,000.

As can be seen, the Canada Labour Code sanctions are far more onerous than that those provided under Manitoba statute. A significant increase in the economic cost associated with unsafe and unhealthy workplaces provides a significant incentive for employers to invest in hazard identification and control, thereby serving to prevent the re-occurrence of the tragic events of August 8, 2008.

# Conclusion

This paper is not an alternative inquest report. For that reason it is not going to speculate as to the sorts of recommendations would have arisen from an effective inquest. Indeed, part of the argument of this paper is that by failing to examine expert witnesses and to commission independent reports, Judge Cummings simply left far too many issues open to question. A more rigorous inquest would have examined the issue of management responsibility in Manitoba law, the specific laws that apply, and the adequacy of available sanctions.

Instead this paper has three simple conclusions:

- 1) Judge Cummings's inquest report should be handled with extreme care and many of its conclusions are certainly open to question.
- 2) Judge Cummings's recommendation on incorporating the hierarchy of control in provincial law is sound and should be implemented.
- 3) Manitoba government should examine *The Fatality Inquiries Act* with an eye to ensure that inquests have appropriate mandates, resources, and leadership to reach meaningful conclusions and recommendations in an appropriate time frame.

# Citations

All citations marked “Transcript of Inquest” are taken from the transcript of the Inquest into the death of Steven Ewing..

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